

PRODUCT CATALOG

ACI CATALOG INDEX



ACI's company motto is "Engineering a Better Sensor Solution" and we provide reliable and economical products in the following categories: **Temperature, Relative Humidity, Pressure, Current, Gas, Wireless & Interface Devices.**

INTRODUCTION

- Our Company
- ISO9001 Certification
- Warranty

TEMPERATURE

Thermistors

- **Bullet Probe**
- **Copper Averaging**
- **Duct**
- **Duct, without Box**
- **Flexible Averaging**
- **Flush Mount Buttons**
- **Immersion**
- **Outside Air**
- **Pipe Mount**
- **Probe Only**
- **Rigid Probe Averaging**
- **Room** (LCD Option)
- **Strap On**
- **Wall Plates**

Platinum RTDs

- **Bullet Probe**
- **Copper Averaging**
- **Duct**
- **Duct, without Box**
- **Flexible Averaging**
- **Flush Mount Buttons**
- **Immersion**
- **Outside Air**
- **Pipe Mount**
- **Probe Only**
- **Rigid Probe Averaging**
- **Room** (LCD Option)
- **Strap On**
- **Wall Plates**

Nickel RTDs

- **Bullet Probe**
- **Copper Averaging**
- **Duct**
- **Duct, without Box**
- **Flexible Averaging**
- **Flush Mount Buttons**
- **Immersion**
- **Outside Air**
- **Pipe Mount**
- **Probe Only**
- **Rigid Probe Averaging**
- **Room** (LCD Option)
- **Strap On**
- **Wall Plates**

Balco RTDs

- **Bullet Probe**
- **Copper Averaging**
- **Duct**
- **Duct, without Box**
- **Flexible Averaging**
- **Flush Mount Buttons**
- **Immersion**
- **Outside Air**
- **Pipe Mount**
- **Probe Only**
- **Rigid Probe Averaging**
- **Room** (LCD Option)
- **Strap On**
- **Wall Plates**

Transmitters

- **Board Only**
- **Bullet Probe**
- **Copper Averaging**
- **Duct**
- **Immersion**
- **Outside Air**
- **Rigid Probe Averaging**
- **Room** (LCD Option)
- **Strap On**
- **Wall Plates**
- **Potted Transmitter**

TEMPERATURE *(continued)*

High/Low Sensor & Transmitters

- Low Temperature Duct
- Low Temperature Immersion
- Low Temperature Outside Air
- High Temperature Duct
- High Temperature Immersion

Freezer Sensors & Transmitters

- Thermistor Freezer
- RTD Freezer
- Transmitter Freezer
- Temperature Probe Thermal Buffer
- Thermal Buffer Bottle Kit

Additional Temperature Sensors

- Hazardous Thermistor
- Hazardous RTD
- Hazardous Transmitter
- Sun Shield Thermistor & RTD
- Sun Shield Transmitter

Temperature Accessories

- Loop Powered LCD Display
- Thermowells (Welded, Two Part)
- Thermowells (Machined, One Part)
- Thermostat Locking Cover
- Wall Mounting Plates

HUMIDITY

Room

- Humidity Room
- Humidity with Thermistor
- Humidity with Platinum RTD
- Humidity with Nickel RTD
- Humidity with Balco RTD
- Humidity with Temperature Transmitter
- TUCH2 (Microprocessor Based Sensor)
- Humidity with LCD

Duct

- Humidity Duct
- Humidity with Thermistor
- Humidity with Platinum RTD

Duct *(continued)*

- Humidity with Nickel RTD
- Humidity with Balco RTD
- Humidity with Temperature Transmitter

Outside Air

- Humidity Outside Air
- Humidity with Thermistor
- Humidity with Platinum RTD
- Humidity with Nickel RTD
- Humidity with Balco RTD
- Humidity with Temperature Transmitter

Wall Plate

- Humidity Wall Plate
- Humidity with Thermistor
- Humidity with Platinum RTD
- Humidity with Nickel RTD
- Humidity with Balco RTD

Remote Probes

- Humidity Remote Probes
- Humidity with Temperature Transmitter

Sun Shield

- Humidity Sun Shield
- Humidity with Thermistor
- Humidity with Platinum RTD
- Humidity with Nickel RTD
- Humidity with Balco RTD
- Humidity with Temperature Transmitter

Enthalpy

- Enthalpy

PRESSURE

Differential Pressure Transmitters

- **DLP** (0.25% Accuracy, Pitot Tube, DIN-Rail, N.I.S.T. & LCD Option)
- **DLP** (0.50% Accuracy, Pitot Tube, DIN-Rail & LCD Option)
- **MLP2** (Miniature Low Pressure)
- **WPR2** (Wet to Wet, Remote Probes, N.I.S.T. & LCD Option)

Gage Pressure Transducer

- **GP** (Gage Pressure Transducer (Air, Gases, & Liquids))
- **GP** (Gage Pressure with NEMA 4 Enclosure)
- **P51 Series** (Gage Pressure Transducer (Air, Gases & Liquids))
- **Syphons** (Stainless Steel Pigtaills)
- **Snubber** (Pressure Surge Protection)

Differential Pressure Switches

- **DBL** (Plastic)
- **AFS** (Metal)

Pitot Tubes

- **Total Pressure** (Plastic)
- **Static Pitot Tubes**
- **Velocity Pitot Tubes** (Aluminum)

Pickup Ports

- **Room**
- **Outside Air** (Vertical & Horizontal)
- **Stainless Wall Plates**
- **Pickup Port Medical Grade Tubing**

CURRENT

Current Switches

- **Fixed Status** ("Go / No Go")
- **Miniature Fixed Status** ("Go / No Go")
- **Adjustable Current Switches**
- **Miniature Adjustable Current Switches**
- **ECM Current Switch**

Current Sensors

- **Current Output** (4-20 mA)
- **Voltage Output** (0-5 VDC & 0-10 VDC)

Power Meters

- **3 Channel Power Meter KW320 Series**
- **3 Channel Power Meter KW320B Series**
- **3 Channel Power Meter KW350 Series** (Serial)
- **18 Channel Power Meter KW1850 Series**

Power Meter CTs

- **Control Transformers** (Multitap Primary: 24 VAC Secondary)
- **ACUCT Split Core** (Standard Accuracy)
- **ACUCT Hinged Split Core** (Standard Accuracy)
- **Rogowski Coil** (Standard Accuracy)
- **S77 Solid Core** (High Accuracy)
- **ACUCT Revenue Grade** (High Accuracy)

Current Relays

- **Command Relay** (SPDT)
- **PAM Series** (Multi-Voltage Control Relays)

GAS

CO & NO2

- **CO Room**
- **CO Duct**
- **NO2 Room**
- **NO2 Duct**
- **Q5 & B5** (CO, NO2, Toxic or Combustibles)
- **Q6 & B6** (Dual Sensors, Remote Installation)

Air Quality

CO2

- **Room** (Temperature, Setpoint & Override Option)
- **Duct** (Universal Outputs)
- **ESENSE Room** (LCD Option)
- **ESENSE Duct** (LCD Option)
- **ESENSE IP54**
- **ESENSE In Duct / Wall Mount**
- **ESENSE Outdoor**
- **ASENSE Room** (Temperature, Relay & LCD Option)
- **ASENSE Duct** (Temperature, Relay & LCD Option)
- **ASENSE GH - LCD** (CO2 Greenhouses / Indoor Agriculture)
- **ASENSE IP54**
- **TSENSE** (Temperature, RH, BACnet™, Relay & LCD Option)

OTHER

- **PM** (Particulate Matter)
- **VOC** (Volatile Organic Compound)

Toxic, Combustibles & Refrigerants

- **QTS-1710** (Combustible, NEMA 4X, Class I, Div 1)
- **QIRF** (Refrigerants, NEMA 4X)
- **Q8** (Toxic / Combustible, NEMA 4X, Class I, Div 1, Div 2)

Controllers

- **Q4C II** (4 Sensor Analog / Digital)
- **M-Controller** (40 Sensor Analog / Digital)
- **Q-Controller** (256 Sensor Analog / Digital)
- **M-Switch** (Microcontroller Based Switch)

Gas Accessories

- **Strobe & Alarms** (Multifunctional LED Beacon/Sounder)
- **Lite Stak** (Multifunctional LED Beacon/Sounder)
- **Gas Cal Kit**

INTERFACE DEVICES *(continued)*

Interface Devices

- **6N1-ISO** (1-6 Analog Inputs, Mathematical Functions)
- **AAR** (Analog to 2 Relay, Adjustable Trip, Adjustable Deadband)
- **AFP** (Analog to Floating Point)
- **AIM1** (Analog Isolation Module, 1:1 Input / Output)
- **AIM2** (Analog Isolation Module, Rescaling Output)
- **AIM3** (Analog Isolation Module, Line Voltage, 1:1 Input/Output)
- **ARM** (Analog Rescaling Module)
- **ARM2** (Analog Rescaling Module, Signal Splitter, 0-20 mA)
- **ASA** (Analog Signal Amplifier)
- **ATL** (Analog to 4 Relay, Adjustable Trip, Fixed Deadband)
- **DRC** (DIN Rail Adapter Kit)
- **DRN4** (Analog / PWM / Floating Point to 0-135Ω, Motor Mount)
- **DRN3** (Analog / PWM / Floating Point to Resistance)
- **EPC** (Analog to Pneumatic Output, Field Adjustable)
- **MAO** (Manual Analog Override Switch with Alarm)
- **PXP*.3** (Analog to Pneumatic Output, Factory Calibrated)
- **PTP** (Pneumatic to 4-20 mA Output)
- **EPW** (PWM to Pneumatic Output, Field Adjustable)
- **PTA** (PWM to Analog, Voltage / Current Output)
- **PTA2** (PWM to 0-10 VDC Output)
- **AUD** (Floating Point to Analog Output)
- **EFP** (Floating Point to Pneumatic Output, Field Adjustable)
- **PTS4.1** (Floating Point to Pneumatic Output)
- **RIM5** (Mechanical Relay Isolation Interface)
- **ENC1** (20 Gauge Metal Enclosure)

BACnet™

- **BACnet™ Copper Averaging** (Temperature)
- **BACnet™ Duct** (RH & Temperature)
- **BACnet™ Flexible Averaging** (Temperature)
- **BACnet™ Outside Air** (RH & Temperature)
- **BACnet™ Immersion, Duct** (Temperature)
- **BACnet™ Rigid Probe Averaging** (Temperature)
- **BACnet™ Room** (RH & Temperature)
- **BACnet™ Strap On** (Temperature)

Other Products

- **Light Level Sensors**
- **Adjustable External Power Supply** (PS24)

Freeze Stats

- **Freeze Stats (FLS)** (Manual & Automatic with Relay(s))
- **Freeze Stats (FS)** (Manual & Automatic with Relay(s))

Smoke Detectors

- **SL-2000 Smoke Detector** (Round Ducts)
- **SM-501 Smoke Detector** (Rectangular Ducts)
- **RT-3000 Smoke Detector** (NEMA 4X)
- **MS Series** (Remote Accessories for Duct Smoke Detectors)
- **MSR-50** (Remote Accessories for Duct Smoke Detectors)

Leak Detection

- **LD310** (Single Zone Leak Detection Controller)
- **LD1000** (Single Zone Leak Detection Controller)
- **A/SLD** (Spot Leak Detector)
- **SC** (Leak Detection Sensing Cable)
- **F200** (Facility Monitoring and Single Zone Leak Detection)



AUTOMATION COMPONENTS, INC.

ACI's motto of "Engineering a Better Sensor Solution" is a company-wide theme that starts with ACI's Engineering Department and is followed all the way through our Production, Sales, and Technical Support Departments. Within each department, ACI is committed to provide structured team goals that drive individual growth and overall company success. This structure not only supports overall company success, but ACI also emphasizes philanthropic efforts within our community.

ACI has grown considerably since its inception in 1991. This growth is largely based on ACI's ability to provide the HVAC Industry with great lead times and high-quality sensor solutions. In addition, ACI continually focuses on the needs of our business partners and provides them incomparable value. ACI offers sensors for a wide range of building automation applications including; Temperature, Relative Humidity, Pressure, Current, Gas, Interface Devices, and Wireless.

Every member of our team shares a desire to make your experience with ACI the best it can be. It has been an incredible privilege to build and strengthen our relationships with our customers since our inception. Along the way, we learned so much and hope to continue to do so! Thank you for your past and future support!

To learn more, please visit our website at **www.workaci.com** or call us at **1-888-967-5224**.



A handwritten signature in blue ink that reads 'Troy A. Schwenn'.

Troy Schwenn

CEO & Chairman of the Board
Automation Components, Inc.



ACI IS ISO9001 CERTIFIED, WHAT THIS MEANS:

ISO9001 is a standard of quality management. It is a set of policies, processes and procedures required for successful planning and execution within an organization. ISO9001 is rapidly becoming the most popular quality standard in the world, with thousands of certified organizations spanning over one hundred countries.

HOW ACI BECAME CERTIFIED:

Certifications are awarded by accredited third-party organizations, through a series of audits. If the company is found to be compliant with ISO9001 requirements, a certificate will be issued. The certificate must then be renewed at regular intervals, typically every three years.

WHAT ISO9001 MEANS TO YOU:

ACI's certification ensures that our products and services will consistently exceed your expectations. ISO9001 certified companies have proven that our processes are consistent, efficient, and productive. Since 1991, our top priority has been to manufacture a high quality product for our customers; being recognized as ISO9001 certified serves as verification of this commitment.

STANDARD TERMS AND CONDITIONS

Automation Components, Inc.

1) Terms of Payment. Invoices shall be dated no earlier than date of shipment. Terms are cash in advance, credit card, or COD, unless Seller authorizes net 30-day terms to Buyer in writing. Buyer will pay invoices within terms agreed upon by Seller. Invoices not paid on a timely basis shall bear interest at the rate of 18% per annum. Buyer agrees to pay Seller's reasonable attorney's fees and all costs incurred in connection with non-payment of related invoices whether or not litigation is commenced. Prices do not include applicable taxes, which taxes shall be paid by Buyer.

2) Changes. The Seller reserves the right at any time to issue a written change order or amendment to the Purchase Order concerning any of the following: (a) specifications, drawings, and data incorporated in the Purchase Order where the items to be furnished are to be specially manufactured for the Seller; (b) quantity; (c) methods of shipment or packaging, (d) place of delivery, (e) time of delivery; or (f) any other matters affecting this Purchase Order.

3) Excusable Delay. Fires, floods, strikes, accidents, shortages, or other causes beyond the reasonable control of the parties, which prevent Seller from delivering, or Buyer from receiving, any of the goods and services covered by this Purchase Order, shall suspend deliveries until the cause is removed, subject, however, to Seller's right of termination for Seller's convenience.

4) Inspection. All goods furnished hereunder will be subject to inspection and testing by Buyer, and approval by Buyer within a reasonable time after delivery. Payment for any goods or services shall be deemed acceptance by Buyer.

5) Warranties. Automation Components, Inc. (hereafter "ACI") provides a five (5)-Year Limited Warranty to the initial purchaser of any product manufactured by ACI. The term "product manufactured by ACI" means any sensors and transmitters assembled by ACI, even if such sensors and transmitters include component parts manufactured by companies other than ACI. For any part or product sold by ACI, but manufactured entirely by a company other than ACI, whether or not relabeled with ACI product information or product number, or repackaged with ACI information, ACI provides a two (2)-Year Limited Warranty to the initial purchaser. THESE FIVE (5) YEAR OR TWO (2) YEAR LIMITED WARRANTIES SET FORTH ABOVE, PROVIDED TO THE INITIAL PURCHASERS OF ACI PRODUCTS, ARE MADE IN LIEU OF ALL OTHER EXPRESS OR IMPLIED WARRANTIES, INCLUDING THE IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE AND MERCHANTABILITY. ANY OTHER IMPLIED WARRANTIES CREATED BY COMMON LAW IN ANY JURISDICTION, ARE ALSO EXPRESSLY WAIVED AND DISCLAIMED. THIS LIMITED WARRANTY APPLIES TO THE ORIGINAL PURCHASER OF PRODUCT FROM ACI AND TO ANY SUBSEQUENT PURCHASERS OF THE SAME PRODUCT, BUT THE LIMITED WARRANTY PERIODS COMMENCE TO RUN ON THE DATE ACI'S PRODUCTS ARE DELIVERED TO THE INITIAL PURCHASER. A copy of ACI's Warranties are printed at the front of ACI's Sensors and Transmitters Catalog, and can also be found at www.workaci.com, under the section entitled "Info – Ordering - Warranty".

6) ACI's Return Policy Items purchased from ACI can be returned for a partial credit. Items must be returned within 30 days after receipt of order to receive credit. Only items in original condition can be returned for credit. ACI will only issue credit to the original purchaser of an item and/or the individual who paid ACI directly for said item. Part numbers starting with the X/ prefix are special orders and can not be returned.

7) Restock Fee Policy ACI's standard restock fee is 40% of the original purchase price. However, thermistor sensors located in the ACI Sensors and Transmitters catalog will have a restock fee of 15% of the original purchase price. Items that are special orders or that have specific shelf lives may have return limitations as they can not be resold. This includes most gas sensors, the exception being CO2 related sensors.

8) Shipping Items found defective will have the return shipping refunded. (Please contact ACI to determine the most economical method). Items returned based on the purchaser's discretion will not qualify for a return shipping refund.

9) Title; Risk of Loss. Title shall pass to Buyer upon shipment to Buyer. Once goods are loaded for shipment to Buyer, the risk of loss passes to Buyer.

STANDARD TERMS AND CONDITIONS *continued*

10) Confidentiality; Limited Use. Unless otherwise agreed by Seller in writing, Buyer shall keep confidential and not disclose to any third party, any confidential and/or proprietary materials provided by Seller to Buyer in connection with Seller's performance of this Purchase Order, or prepared by Seller specifically for Buyer, pursuant to this Purchase Order, including, but not limited to, any drawings, masters, software, specifications, raw materials, components, data, business information or plans, customer lists or other customer information ("Confidential Information").

11) Resolution of Conflicts or Inconsistencies Occurring in the Order. It is Buyer's responsibility to order appropriate goods from ACI and to clarify with Seller, any inconsistencies or conflicts in any parts of the Purchase Order or referenced documents. Should Buyer fail to contact Seller to resolve conflicts or inconsistencies, Buyer will be solely responsible for errors resulting from said conflicts or inconsistencies. Where documents are referenced, the version in effect at the time of order placement shall apply.

12) Seller's Terms and Conditions Apply. Shipment of any goods or commencement of work, pursuant to the Purchase Order, shall be deemed an acceptance of these Standard Terms and Conditions by Buyer. Unless specifically agreed to otherwise by Seller and Buyer, these terms and conditions supersede any submitted by Buyer in any Purchase Order submitted to ACI.

13) Governing Law. This Purchase Order shall be governed by the laws of the State of Wisconsin, USA. Any court action arising under this order shall be venued in Dane County, Wisconsin, in either federal or state court, as is appropriate.

14) Delivery. Delivery dates are given to the best of the knowledge of ACI, based on its knowledge of the conditions existing at the time of sale. ACI will do its best to ship within its quoted delivery estimate, but failure to make shipment as scheduled does not constitute a cause for cancellation by Buyer, does not constitute a breach of contract, and/or does not entitle the Buyer to damages of any kind.

15) Cancellation Policy. Buyer shall pay for any and all unrecoverable costs resulting from the cancellation of any order. Items manufactured that have incurred calibration, menu set up, or a process unique to the customer's request before order cancellation notification are subject to a 40% restock fee of the original purchase price.

16) Limitation of Liability. The Buyer's sole remedy and the limit of ACI's liability for any loss whatsoever shall not exceed the Buyer's price of the products.

17) Casualty to Identified Goods. In the event that the goods covered by this contract are destroyed or damaged, in whole or in part, prior to the time the risk of loss passes to Buyer, this contract shall be voided and Seller excused from all obligations hereunder. If the loss is partial, Buyer shall have the right to accept that portion of the goods which conform to the written contract.

18) Rejected Goods. In the event Buyer rejects any shipment of the goods, and elects to accept only a part thereof, it is agreed that the portion of goods rejected shall be returned to ACI within ten (10) business days, at the expense and risk of Buyer. Seller shall have the right, in its discretion, either to replace the rejected goods or to refund the purchase price applicable thereto.

19) Finished Goods Held in Stock. Upon request of Buyer that Seller hold a stock of certain finished goods for Buyer, Seller, at its discretion may acquire and maintain in stock an amount of such finished goods for Buyer as determined by Seller. In the event Buyer has not purchased any of such finished goods for a period of 6 months, Seller may charge Buyer, by invoice (terms net 30 days) at the price last charged to Buyer. If Buyer does not pick up or otherwise arrange for delivery of such finished goods, Seller after 30 days may sell or otherwise dispose of such finished goods and retain any resulting proceeds as its stocking charges and Buyer shall remain liable to Seller for the invoiced price.

20) Entire Agreement. This Purchase Order is the entire agreement between Seller and Buyer concerning this purchase transaction, and supersedes all prior understanding and representations, oral or written, concerning this purchase transaction..



BULLET PROBE

1" Bullet Probe, Thermistor

The ACI Thermistor Bullet Probe Series features a one inch stainless steel probe with two, 24 inch 22 AWG Etched Teflon colored lead wires to differentiate the different NTC sensor types. The sensors in this series are manufactured using ACI's proven double encapsulation process to eliminate the effects of moisture upon the sensors and to increase the thermal response times using our high quality, thermally conductive epoxy. The bullet style sensor is designed to monitor air temperatures and should not be fully submerged in water. This series can be ordered with different wire options and NIST certificates.

Applications: Roof Top Units, Air Handlers, Discharge Air/Supply/Return/Mixed Air Duct Temperature, Remote Temperature Sensing.

The ACI Thermistor Bullet Probe Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, workaci.com.

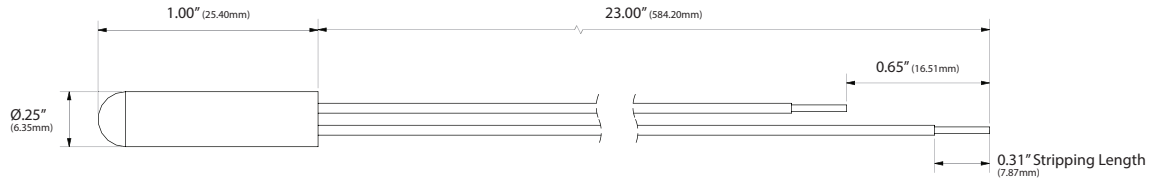
PRODUCT SPECIFICATIONS

| | | |
|---|---|--|
| Sensor Type: | Thermistor | |
| Sensor Curve: | Non-Linear, NTC (Negative Temperature Coefficient) | |
| Number Sensing Points: | One | |
| Number Wires: | Two (Non-Polarity Sensitive) | |
| Sensor Output @ 25°C (77°F) (Standard Lead Wire Colors): | A/1.8K: 1.8KΩ nominal (Red/Yellow) | A/CSI: 10KΩ nominal (Green/Yellow) |
| | A/2.25K: 2.25KΩ nominal (White/Red) | A/10KS: 10KΩ nominal (White/Blue) |
| | A/3K: 3KΩ nominal (White/Brown) | A/10K-E1: 10KΩ nominal (Orange/Gray) |
| | A/5K: 5KΩ nominal (Red/Gray) | A/20K: 20KΩ nominal (Brown/Blue) |
| | A/AN (Type III): 10KΩ nominal (White/White) | A/50K: 50KΩ nominal (Brown/Yellow) |
| | A/AN-BC: 5.238KΩ nominal (White/Yellow) | A/100KS: 100KΩ nominal (Black/Yellow) |
| | A/CP (Type II): 10KΩ nominal (White/Green) | |
| Accuracy 0-70°C (32-158°F): | +/-0.2°C (+/-0.36°F) except A/10K-E1 Series: +/- 0.3°C (+/-0.54°F) A/1.8K Series: +/- 0.5°C @ 25°C (77°F) and (+/-1.0°C) (+/-1.8°F) | |
| Stability: | Sensor Dependent; Contact ACI for more information on the sensor in question. | |
| Response Time (63% Step Change): | 10 Seconds nominal | |
| Power Dissipation Constant: | 3 mW/°C except A/1.8K Series: 1 mW/°C A/10K-E1 Series: 2 mW/°C | |
| Probe Material: | 304 Stainless Steel | |
| Storage Temperature Range: | -40 to 85°C (-40 to 185°F) | |
| Operating Humidity Range: | 10 to 95% RH, non-condensing | |
| Standard Wire | Lead Length Conductor Size: 24" (61cm) 22 AWG (0.65mm) | |
| | Lead Wire Insulation Wire Rating: Etched Teflon Colored Leads MIL-W-16878/4 (Type E) | |
| | Conductor Material: Silver Plated Copper | |
| | Operating Temperature Range: -40 to 150°C (-40 to 302°F) | |
| | Rated Applications: Suitable for Indoor and Outdoor (wet) location. Oil, Moisture, Acids, Oils and Moisture Resistant | |
| Plenum Wire | Lead Length Conductor Size: See Ordering Grid 22 AWG (0.65mm) | |
| | Lead Wire Insulation Wire Rating: FEP (Fluorinated Ethylene Propylene) TYPE CL2P - TYPE CMP 22 AWG (UL), C(UL) FEP/FEP E130356 ROHS | |
| | Conductor Material: Tinned Copper | |
| | Operating Temperature Range: -40 to 150°C (-40 to 302°F) | |
| Zip Wire | Lead Length Conductor Size: 20' (6.10m) 22 AWG (0.65mm) | |
| | Lead Wire Insulation Wire Rating: PVC (Poly Vinyl Chloride) 22 AWG UL AWM style 1007 or STYLE 1569 105c 300v vw-1---CSA 208394 TR-64 90C OR AWM I A/B 105C 300V FT-1 | |
| | Conductor Material: Tinned Copper | |
| | Operating Temperature Range: -20 to 90°C (-4 to 194°F) | |
| | Rated Applications: Suitable for Indoor use only. Not for Outdoor use or UV Light Applications | |
| Lead Color: White | | |
| Product Dimensions (Length x Diameter): | 1.00" (25.4mm) x 0.250" (6.35 mm) | |
| Product Weight: | 0.02 lbs. (9.07g) | |
| Agency Approvals: | CE, RoHS2, WEEE | |





DIMENSIONAL DRAWING



Standard View

STANDARD ORDERING

Model # Example: **A/AN-BP** -OR- **121336**

| Model # | Item # | Description |
|-------------|--------|--|
| A/1.8K-BP | 124579 | 1.8K Bullet Probe, 24" (61.0 cm) Leads, 1" Probe |
| A/2252-BP | 120713 | 2252 Bullet Probe, 24" (61.0 cm) Leads, 1" Probe |
| A/3K-BP | 121001 | 3K Bullet Probe, 24" (61.0 cm) Leads, 1" Probe |
| A/5K-BP | 121239 | 5K Bullet Probe, 24" (61.0 cm) Leads, 1" Probe |
| A/AN-BP | 121336 | AN (Type III) Bullet Probe, 24" (61.0 cm) Leads, 1" Probe |
| A/AN-BC-BP | 121349 | AN-BC Bullet Probe, 24" (61.0 cm) Leads, 1" Probe, 11K Shunt |
| A/CP-BP | 121942 | CP (Type II) Bullet Probe, 24" (61.0 cm) Leads, 1" Probe |
| A/CSI-BP | 122308 | CSI Bullet Probe, 24" (61.0 cm) Leads, 1" Probe |
| A/10KS-BP | 120198 | 10KS Bullet Probe, 24" (61.0 cm) Leads, 1" Probe |
| A/10K-E1-BP | 126744 | 10K-E1 Bullet Probe, 24" (61.0 cm) Leads, 1" Probe |
| A/20K-BP | 120588 | 20K Bullet Probe, 24" (61.0 cm) Leads, 1" Probe |
| A/100KS-BP | 120117 | 100KS Bullet Probe, 24" (61.0 cm) Leads, 1" Probe |

CUSTOM ORDERING

Model # Example: **A/ 1.8K BP 6'CL2P NIST** MODEL #

| | | |
|--|--|----|
| A. Sensor Series No Selection Required | A/ _____ → | A/ |
| B. Model Series Select One (1) | 1.8K 2252 3K 5K AN AN-BC CP CSI 10KS 10K-E1 20K 50K 100KS | |
| C. Configuration No Selection Required | BP = 1" Stainless Steel Probe _____ → | BP |
| D. Lead Wire Options Select One (1) | ---- = Standard 24" Etched PTFE Colored Leads 6'CL2P = 6 ft (1.83m), 2 Conductor Plenum Rated Cable 10'CL2P = 10 ft (3.05m), 2 Conductor Plenum Rated Cable 20'CL2P = 20 ft (6.10m), 2 Conductor Plenum Rated Cable 20'Z = 20 ft (6.10m), 2 Conductor White Zip Wire | |
| E. NIST Select One (1) | ---- = No NIST Certificate NIST = NIST Certificate (Must Specify 3 Points) | |

ACCESSORIES ORDERING

Model # Example: **A/MOUNTING U-CLIP-1/4"** -OR- **143352**

| Model # | Item # | Description | Galvanized Metal | Plastic w/Adhesive |
|------------------------|--------|---|------------------|--------------------|
| A/MOUNTING CLIP-1/4" | 143351 | Hardware, 1/4" Mounting Clip | • | |
| A/MOUNTING U-CLIP-1/4" | 143352 | Hardware, 1/4" U-Mounting Clip Adhesive | | • |





COPPER AVERAGING

Bendable Multipoint Copper, Thermistor

The ACI Thermistor Copper Averaging Series features a copper sensing element with AWG Etched Teflon colored lead wires to differentiate the different sensor types. Each sensor is manufactured with 4 or 9 sensing points determined by the length of the sensing element. The averaging sensors provide a better average temperature of the air inside the duct when compared to a single point duct sensor. Each of the elements is sealed to prevent moisture intrusion and includes a foam pad to seal the duct and dampen vibrations. The benefits of using a copper sensing element is that it has improved thermal conductivity and higher corrosion resistance than similar aluminum style averaging sensors. Additionally, copper has been proven to have an antibacterial effect to many of the airborne contaminants, mold and bacteria found in duct systems. Our standard enclosures include the galvanized “-GD” or plastic duct enclosure with hinged cover “-PB”. Each unit includes nylon wire ties and mounts with

optional copper capillary and universal plastic mounting clips, NEMA/IP Rated Weather Proof enclosures and NIST certificates as referenced on the back of the product data sheet.

Applications: Air Handlers, Roof Top Units, Mixed Air/Discharge/Supply Air Temperature Monitoring, Data Centers, Hospitals

The ACI Thermistor Copper Averaging Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|---|---|
| Sensor Type Sensor Curve: | Thermistor Non-Linear, NTC (Negative Temperature Coefficient) |
| Number Sensing Points Number Wires: | 8' and 12' Lengths: Four 24' and 50' Lengths: Nine Two (Non-Polarity Sensitive) |
| Sensor Series Output @ 25°C (77°F) | A/1.8K: 1.8KΩ nominal (Red/Yellow) A/10KS: 10KΩ nominal (White/Blue) |
| (Lead Wire Colors): | A/3K: 3KΩ nominal (White/Brown) A/10K-E1: 10KΩ nominal (Orange/Gray) |
| | A/AN (Type III): 10KΩ nominal (White/White) A/20K: 20KΩ nominal (Brown/Blue) |
| | A/AN-BC: 5.238KΩ nominal (White/Yellow) A/50K: 50KΩ nominal (Brown/Yellow) |
| | A/CP (Type II): 10KΩ nominal (White/Green) A/100KS: 100KΩ nominal (Black/Yellow) |
| | A/CSI: 10KΩ nominal (Green/Yellow) |
| Accuracy 0-70°C (32-158°F): | 8' & 12' Lengths: +/-0.20°C (+/-0.36°F); A/1.8K: +/-1.00°C (+/-1.80°F); A/10KS: +/-0.60°C (+/-1.10°F) |
| | 24' & 50' Lengths: +/-0.20°C (+/-0.36°F); A/1.8K: +/-1.00°C (+/-1.80°F); A/10KS: +/-0.60°C (+/-1.10°F) |
| Stability: | Sensor Dependent; Contact ACI for more information on specific sensor |
| Response Time (63% Step Change): | 15 Seconds nominal |
| Power Dissipation Constant: | 8' and 12' Lengths: 4 mW/°C except A/1.8K Series = 2 mW/°C A/100KS Series: 6 mW/°C |
| | 24' & 50' Lengths: 6 mW/°C except A/1.8K Series = 3 mW/°C A/100KS Series: 9 mW/°C |
| Enclosure Specifications (Temperature, Flammability, NEMA/IP Ratings): | “-GD” Enclosure: Galvanized Steel, -40 to 115°C (-40 to 239°F), NEMA 1 (IP10) |
| | “-PB” Enclosure: ABS Plastic, -30 to 90°C (-22 to 194°F), UL94-HB, Plenum Rated |
| | “-BB” Enclosure: Aluminum, -40 to 115°C (-40 to 239°F), NEMA 3R (IP 14); |
| | “-4X” Enclosure: Polystyrene Plastic, -40 to 70°C (-40 to 158°F), UL94-V2, NEMA 4X (IP 66) |
| Storage Temperature Range: | -40 to 85°C (-40 to 185°F) |
| Sensor Operation Temperature Range: | -40 to 302°F (-40 to 150°C) |
| Operating Humidity Range: | 10 to 95% RH, non-condensing |
| Sensor Material Sensor Diameter: | Copper 0.210" (5.34 mm) nominal |
| Fitting Material Flammability Rating: | Polyamide 66 (High Performance Nylon) UL94-HB |
| Foam Pad Material/Flammability Ratings: | Neoprene/EPDM/SBR Polymer UL94-HBF; FMVSS-302; MIL-R-6130C |
| Lead Length Conductor Size: | 12" (30.5 cm) 26 AWG (0.40 mm) |
| Lead Wire Insulation Wire Ratings: | Etched Teflon (PTFE) Colored Leads MIL-W-16878/4 (Type E) |
| Conductor Material: | Silver Plated Copper |
| Product Dimensions Product Weight: | See table on back of Product Data sheet |
| Agency Approvals: | RoHS2, WEEE |





DIMENSIONAL DRAWING. WEIGHTS

xx = Sensor Type | yy = Insertion Length

Plastic Box Enclosure [PB]

Averaging Available in 8', 12', 24' & 50' Lengths

Plastic Box Enclosure [PB] Weights

| ACI Model # | 8' (Probe Length) | 12' (Probe Length) |
|--------------|----------------------|----------------------|
| A/xx-A-yy-PB | 0.72 lbs. (0.327 kg) | 0.96 lbs. (0.435 kg) |

| ACI Model # | 24' (Probe Length) | 50' (Probe Length) |
|--------------|----------------------|----------------------|
| A/xx-A-yy-PB | 1.70 lbs. (0.771 kg) | 3.28 lbs. (1.488 kg) |

Galvanized Enclosure [GD]

Averaging Available in 8', 12', 24' & 50' Lengths

Galvanized Enclosure [GD] Weights

| ACI Model # | 8' (Probe Length) | 12' (Probe Length) |
|--------------|----------------------|----------------------|
| A/xx-A-yy-GD | 1.16 lbs. (0.526 kg) | 1.40 lbs. (0.635 kg) |

| ACI Model # | 24' (Probe Length) | 50' (Probe Length) |
|--------------|----------------------|----------------------|
| A/xx-A-yy-GD | 2.20 lbs. (0.998 kg) | 3.78 lbs. (1.715 kg) |

Bell Box Enclosure [BB]

Averaging Available in 8', 12', 24' & 50' Lengths

Bell Box Enclosure [BB] Weights

| ACI Model # | 8' (Probe Length) | 12' (Probe Length) |
|--------------|----------------------|----------------------|
| A/xx-A-yy-BB | 1.22 lbs. (0.553 kg) | 1.44 lbs. (0.653 kg) |

| ACI Model # | 24' (Probe Length) | 50' (Probe Length) |
|--------------|----------------------|----------------------|
| A/xx-A-yy-BB | 2.18 lbs. (0.988 kg) | 3.74 lbs. (1.696 kg) |

NEMA 4X Enclosure [4X]

Averaging Available in 8', 12', 24' & 50' Lengths

NEMA 4X Enclosure [4X] Weights

| ACI Model # | 8' (Probe Length) | 12' (Probe Length) |
|--------------|----------------------|----------------------|
| A/xx-A-yy-4X | 0.84 lbs. (0.381 kg) | 1.06 lbs. (0.481 kg) |

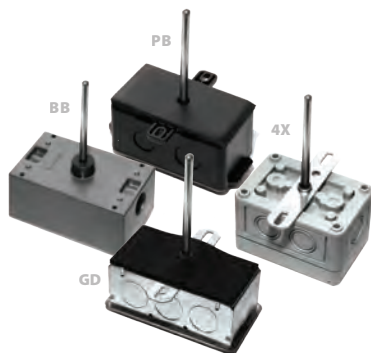
| ACI Model # | 24' (Probe Length) | 50' (Probe Length) |
|--------------|----------------------|----------------------|
| A/xx-A-yy-4X | 1.80 lbs. (0.816 kg) | 3.36 lbs. (1.696 kg) |

Standard Views
Product Weights

| CUSTOM ORDERING | | Model # Example: A/ 1.8K A 12' GD NIST | MODEL # |
|--|--|--|---------|
| | | A. B. C. D. E. F. | |
| A. Sensor Series <i>No Selection Required</i> | A/ | | A/ |
| B. Model Series <i>Select One (1)</i> | 1.8K 3K AN AN-BC CP CSI 10KS 10K-E1 20K 50K 100KS | | |
| C. Configuration <i>No Selection Required</i> | A = Bendable Copper Averaging | | A |
| D. Probe Length <i>Select One (1)</i> | 8' = 8' Sensor 12' = 12' Sensor 24' = 24' Sensor 50' = 50' Sensor | | |
| E. Enclosure <i>Select One (1)</i> | GD = Galvanized PB = Plastic BB = Aluminum, NEMA 3R 4X = NEMA 4X | | |
| F. NIST <i>Select One (1)</i> | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) | | |

| ACCESSORIES ORDERING | | Model # Example: A/CAPILLARY CLIP QTY1 -OR- 130525 |
|-------------------------|--------|--|
| Model # | Item # | Description |
| A/CAPILLARY CLIP QTY: 1 | 130525 | Capillary Mounting Clip, Copper, Quantity: 1 |
| UNIVERSAL CLIP 50 | 145430 | Capillary Mounting Clip, Plastic, Quantity: 50/Bag |
| UNIVERSAL CLIP 6 | 145421 | Universal Mounting Clip, Plastic, Quantity: 6/Bag |





DUCT

Duct Sensor, Thermistor

The ACI Thermistor Duct Series features a stainless steel probe with two, 22 AWG Etched Teflon colored lead wires to differentiate the different sensor types. The sensors in this series are manufactured using ACI's proved double encapsulation process to eliminate the effects of moisture on the sensors and increased response times from our high quality, thermally conductive epoxy. The duct sensor is designed to be used in smaller duct applications and includes an insulation pad for sealing your duct and dampening vibration. The sensor length should be determined by the width or diameter of your duct such that the tip of the probe reaches the approximate center of the duct. Our standard enclosure options are the galvanized enclosure "-GD" or plastic duct enclosure with hinged cover "-PB". On larger ducts, you may

want to refer to our Rigid or Bendable Copper Averaging sensor for increased sensing points and better temperature control. This series can be ordered with optional NEMA/IP rated weather proof enclosures and NIST certificates as referenced on the back of the product data sheet.

Applications: Roof Top Units, Air Handlers, Supply/Discharge/Return/Mixed Air Temperatures

The ACI Thermistor Duct Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|---|---|
| Sensor Type Sensor Curve: | Thermistor Non-Linear, NTC (Negative Temperature Coefficient) |
| Number Sensing Points Number Wires: | One Two (Non-Polarity Sensitive) |
| Sensor Output @ 25°C (77°F) (Lead Wire Colors): | A/1.8K: 1.8KΩ nominal (Red/Yellow) A/10KS: 10KΩ nominal (White/Blue) A/3K: 3KΩ nominal (White/Brown) A/10K-E1: 10KΩ nominal (Gray/Orange) A/AN (Type III): 10KΩ nominal (White/White) A/20K: 20KΩ nominal (Brown/Blue) A/AN-BC: 5.238KΩ nominal (White/Yellow) A/50K: 50KΩ nominal (Brown/Yellow) A/CP (Type II): 10KΩ nominal (White/Green) A/100KS: 100KΩ nominal (Black/Yellow) A/CSI: 10KΩ nominal (Green/Yellow) |
| Sensor Accuracy 0-70°C (32-158°F): | +/-0.2°C (+/-0.36°F) except A/10K-E1 Series: +/-0.3°C (+/-0.54°F) A/1.8K Series: +/- 0.5°C @ 25°C (77°F) and (+/-1.0°C) (+/-1.8°F) |
| Power Dissipation Constant: | 3 mW/°C except A/1.8K Series: 1 mW/°C A/10K-E1 Series: 2 mW/°C |
| Stability: | Sensor Dependent; Contact ACI for more information on specific sensor |
| Response Time (63% Step Change): | 10 Seconds nominal |
| Sensor Operating Temperature Range: | -40°C (-40°F) to 150°C (302°F) |
| Enclosure Specifications (Temperature, Material, Flammability, NEMA/IP Ratings): | "-GD" Enclosure: Galvanized Steel, -40 to 115°C (-40 to 239°F), NEMA 1 (IP10) "-PB" Enclosure: ABS Plastic, UL94-HB, -30 to 90°C (-22 to 194°F), Plenum Rated "-BB" Enclosure: Aluminum, -40 to 121°C (-40 to 250°F), Plenum Rated, NEMA 3R "-4X" Enclosure: Polystyrene Plastic, UL94-V2, -40 to 70°C (-40 to 158°F), NEMA 4X (IP 66) |
| Storage Temperature Range: | -40 to 85°C (-40 to 185°F) |
| Operating Humidity Range: | 10 to 95% RH, non-condensing |
| Probe Material Probe Diameter: | 304 Stainless Steel 0.250" (6.35mm) |
| Fitting Material Flammability Rating: | Polyamide 66 (High Performance Nylon) UL94-HB |
| Foam Pad Material Flammability Rating: | Neoprene/EPDM/SBR Polymer UL94-HBF; FMVSS-302; MIL-R-6130C |
| Lead Length Conductor Size: | 4", 6" and 8" Probes: 14" (35.6 cm) 12" and 18" Probes: 24" (61 cm) 22 AWG (0.65 mm) |
| Lead Wire Insulation Wire Rating: | Etched Teflon (PTFE) Colored Leads Mil Spec 16878/4 Type E) |
| Conductor Material: | Silver Plated Copper |
| Product Dimensions Product Weight: | See table on back of Product Data sheet |
| Agency Approvals: | CE, RoHS2, WEEE |





DIMENSIONAL DRAWING, WEIGHTS

Plastic Box Enclosure [PB]

Available in 4", 6", 8", 12", and 18" Probe Lengths

xx = Sensor Type | yy = Insertion Length

Plastic Box Enclosure [PB] Weights

| ACI Model # | 4" (Probe Length) | 6" (Probe Length) | 8" (Insertion Length) |
|--------------|----------------------|----------------------|-----------------------|
| A/xx-D-yy-PB | 0.24 lbs. (0.109 kg) | 0.25 lbs. (0.113 kg) | 0.26 lbs. (0.117 kg) |

| ACI Model # | 12" (Probe Length) | 18" (Probe Length) |
|--------------|----------------------|----------------------|
| A/xx-D-yy-PB | 0.28 lbs. (0.127 kg) | 0.30 lbs. (0.136 kg) |

Galvanized Enclosure [GD]

Available in 4", 6", 8", 12", and 18" Probe Lengths

Galvanized Enclosure [GD] Weights

| ACI Model # | 4" (Probe Length) | 6" (Probe Length) | 8" (Insertion Length) |
|--------------|----------------------|----------------------|-----------------------|
| A/xx-D-yy-GD | 0.66 lbs. (0.299 kg) | 0.67 lbs. (0.303 kg) | 0.68 lbs. (0.308 kg) |

| ACI Model # | 12" (Probe Length) | 18" (Probe Length) |
|--------------|----------------------|----------------------|
| A/xx-D-yy-GD | 0.70 lbs. (0.317 kg) | 0.74 lbs. (0.336 kg) |

Bell Box Enclosure [BB]

Available in 4", 6", 8", 12", and 18" Probe Lengths

Bell Box Enclosure [BB] Weights

| ACI Model # | 4" (Probe Length) | 6" (Probe Length) | 8" (Insertion Length) |
|--------------|----------------------|----------------------|-----------------------|
| A/xx-D-yy-BB | 0.70 lbs. (0.317 kg) | 0.71 lbs. (0.322 kg) | 0.72 lbs. (0.326 kg) |

| ACI Model # | 12" (Probe Length) | 18" (Probe Length) |
|--------------|----------------------|----------------------|
| A/xx-D-yy-BB | 0.74 lbs. (0.336 kg) | 0.78 lbs. (0.354 kg) |

NEMA 4X Enclosure [4X]

Available in 4", 6", 8", 12", and 18" Probe Lengths

NEMA 4X Enclosure [4X] Weights

| ACI Model # | 4" (Probe Length) | 6" (Probe Length) | 8" (Insertion Length) |
|--------------|----------------------|----------------------|-----------------------|
| A/xx-D-yy-4X | 0.34 lbs. (0.154 kg) | 0.35 lbs. (0.159 kg) | 0.36 lbs. (0.163 kg) |

| ACI Model # | 12" (Probe Length) | 18" (Probe Length) |
|--------------|----------------------|----------------------|
| A/xx-D-yy-4X | 0.38 lbs. (0.172 kg) | 0.40 lbs. (0.181 kg) |

Standard Views
Product Weights

| CUSTOM ORDERING | | Model # Example: A/ 1.8K D 8" GD NIST | MODEL # |
|---|---|---------------------------------------|---------|
| | | A/ 1.8K D 8" GD NIST | |
| | | A. B. C. D. E. F. | |
| A. Sensor Series No Selection Required | A/ <input style="width: 80%;" type="text"/> | | A/ |
| B. Model Series Select One (1) | 1.8K 3K AN AN-BC CP CSI 10KS 10K-E1 20K 50K 100KS | | |
| C. Configuration No Selection Required | D = Duct <input style="width: 80%;" type="text"/> | | D |
| D. Probe Length Select One (1) | 4" = 4" Probe 6" = 6" Probe 8" = 8" Probe 12" = 12" Probe 18" = 18" Probe | | |
| E. Enclosure Select One (1) | GD = Galvanized PB = Plastic BB = Aluminum, NEMA 3R 4X = NEMA 4X | | |
| F. NIST Select One (1) | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) | | |





DUCT WITHOUT BOX

Flange Mounted Duct Sensor, Thermistor



The ACI Thermistor Duct without Box Series features a stainless steel probe with two 22 AWG Etched Teflon colored lead wires to differentiate the different sensor types. The sensors in this series are manufactured using ACI's proven double encapsulation process to eliminate the effects of moisture upon the sensors and increased response times using our high quality, thermally conductive epoxy. The duct style sensor is designed to be used in smaller duct applications and includes an insulation pad for sealing your duct as well as to dampen vibration. For best results, the sensor length should be determined by the actual width or diameter of your duct such that the tip of the probe is in the approximate center of the duct. On larger ducts, you may want to refer to our Rigid or Bendable Copper Averaging sensor for increased sensing points and better temperature control. The Duct without Box Series can be ordered with optional plenum rated cables and NIST Certificates.

Applications: Roof Top Units, Air Handlers, Monitoring Supply/Discharge/Return/Mixed Air Temperatures

The ACI Thermistor Duct without Box Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's web site, workaci.com.

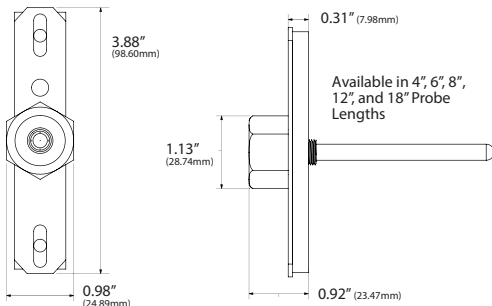
PRODUCT SPECIFICATIONS

| | | |
|--|---|---|
| Sensor Type Sensor Curve: | Thermistor Non-Linear, NTC (Negative Temperature Coefficient) | |
| Number Sensing Points Number Wires: | One Two (Non-Polarity Sensitive) | |
| Sensor Output @ 25°C (77°F) (Lead Wire Colors): | A/1.8K: 1.8KΩ nominal (Red/Yellow) A/3K: 3KΩ nominal (White/Brown) A/AN (Type III): 10KΩ nominal (White/White) A/AN-BC: 5.238KΩ nominal (White/Yellow) A/CP (Type II): 10KΩ nominal (White/Green) A/CSI: 10KΩ nominal (Green/Yellow) | A/10KS: 10KΩ nominal (White/Blue) A/10K-E1: 10KΩ nominal (Gray/Orange) A/20K: 20KΩ nominal (Brown/Blue) A/50K: 50KΩ nominal (Brown/Yellow) A/100KS: 100KΩ nominal (Black/Yellow) |
| Accuracy 0-70°C (32-158°F): | +/-0.2°C (+/-0.36°F) except A/10K-E1 Series: +/-0.3°C (+/-0.54°F) A/1.8K Series: +/-0.5°C @ 25°C (77°F) and (+/-1.0°C) (+/-1.8°F) | |
| Stability: | Sensor Dependent; Contact ACI for more information on the sensor in question | |
| Response Time (63% Step Change): | 10 Seconds nominal | |
| Power Dissipation Constant: | 3 mW/°C except A/1.8K Series: 1 mW/°C A/10K-E1 Series: 2 mW/°C | |
| Operating Storage Temperature Range: | -40 to 115°C (-40 to 239°F) -40 to 85°C (-40 to 185°F) | |
| Operating Humidity Range: | 10 to 95% RH, non-condensing | |
| Probe Material Flange Material: | 304 Stainless Steel Galvanized Steel | |
| Fitting Material Flammability Rating: | Polyamide 66 (High Performance Nylon) UL94-HB | |
| Foam Pad Material Flammability Rating: | Neoprene/EPDM/SBR Polymer UL94-HBF; FMVSS-302; MIL-R-6130C | |
| Product Dimensions Probe Diameter: | See table on back of Product Data sheet 0.250" (6.35 mm) | |
| Agency Approvals: | CE, RoHS2, WEEE | |
| Standard Wire | Lead Wire Insulation Wire Rating: | Etched Teflon (PTFE) Colored Leads MIL-W-16878/4 (Type E) |
| | Temperature Rating: | -55°C (-67°F) to 200°C (392°F) |
| | Conductor Material: | Silver Plated Copper |
| | Rated Applications: | Suitable for Indoor and Outdoor (wet) location. Oil, Moisture, Acids, Oils and Moisture Resistant |
| Plenum Wire | Lead Wire Insulation Wire Rating: | CL2P: FEP (Fluorinated Ethylene Propylene) TYPE CL2P - TYPE CMP 22 AWG (UL), C(UL) FEP/FEP E130356 ROHS CMP: Low Smoke PVC (Poly Vinyl Chloride) NEW Article 800; UL Listed C(UL)US CMP |
| | Temperature Rating: | CL2P: -80°C (-112°F) to 150°C (302°F) CMP: 0°C (32°F) to 75°C (167°F) |
| | Conductor Material: | CL2P: Tinned Copper CMP: Bare Copper |
| | Rated Applications: | CL2P: Suitable for Indoor and Outdoor (wet) location. Oil, Gas, Sunlight, Abrasion Acid Resistant CMP: Suitable for Indoor use only. Not for Outdoor use or UV Light Applications |





DIMENSIONAL DRAWING



Standard View

xx = Sensor Type | yy = Insertion Length

Duct Without Box [DO] Weights

| ACI Model # | 4" (Probe Length) | 6" (Probe Length) | 8" (Insertion Length) |
|---------------------|----------------------|----------------------|-----------------------|
| A/xx-DO-yy | 0.10 lbs. (0.045 kg) | 0.11 lbs. (0.050 kg) | 0.12 lbs. (0.054 kg) |
| A/xx-DO-yy-6'-CL2P | 0.15 lbs. (0.068 kg) | 0.16 lbs. (0.073 kg) | 0.17 lbs. (0.077 kg) |
| A/xx-DO-yy-10'-CL2P | 0.20 lbs. (0.091 kg) | 0.21 lbs. (0.095 kg) | 0.22 lbs. (0.100 kg) |
| A/xx-DO-yy-20'-CL2P | 0.27 lbs. (0.122 kg) | 0.28 lbs. (0.127 kg) | 0.29 lbs. (0.132 kg) |

| ACI Model # | 12" (Insertion Length) | 18" (Insertion Length) |
|---------------------|------------------------|------------------------|
| A/xx-DO-yy | 0.14 lbs. (0.064 kg) | 0.16 lbs. (0.073 kg) |
| A/xx-DO-yy-6'-CL2P | 0.20 lbs. (0.091 kg) | 0.22 lbs. (0.100 kg) |
| A/xx-DO-yy-10'-CL2P | 0.24 lbs. (0.108 kg) | 0.27 lbs. (0.122 kg) |
| A/xx-DO-yy-20'-CL2P | 0.31 lbs. (0.141 kg) | 0.34 lbs. (0.154 kg) |

Product Weight

CUSTOM ORDERING

Model # Example: **A/** **1.8K** **DO** **4"** **NIST**

MODEL

| | | |
|--|--|-----------|
| A. Sensor Series No Selection Required | A/ _____ → | A/ |
| B. Model Series Select One (1) | 1.8K 3K AN AN-BC CP CSI 10KS 10K-E1 20K 50K 100KS | |
| C. Configuration No Selection Required | DO = Duct without Box (Mounting Flange Only) _____ → | DO |
| D. Probe Length Select One (1) | 4" = 4" Probe 6" = 6" Probe 8" = 8" Probe 12" = 12" Probe 18" = 18" Probe | |
| E. Lead Wire Options Select One (1) | ---- = Standard 14 or 24" Etched PTFE Colored Leads 6'CL2P = 6 ft (1.83m), 2 Conductor Plenum Rated Cable 10'CL2P = 10 ft (3.05m), 2 Conductor Plenum Rated Cable 20'CL2P = 20 ft (6.10m), 2 Conductor Plenum Rated Cable 6'CMP = 6 ft (1.83m), 2 Conductor Plenum Rated Cable (Not for Outdoor use or UV Light Application) 10'CMP = 10 ft (3.05m), 2 Conductor Plenum Rated Cable (Not for Outdoor use or UV Light Application) 20'CMP = 20 ft (6.10m), 2 Conductor Plenum Rated Cable (Not for Outdoor use or UV Light Application) | |
| F. NIST Select One (1) | ---- = No NIST Certificate NIST = NIST Certificate (Must Specify 3 Points) | |





FLEXIBLE AVERAGING

Multipoint Averaging Sensor, Thermistor

The ACI Thermistor Flexible Averaging Series features an 18 AWG Plenum Rated cable sensing element with two, 12 inch 22 AWG Etched Teflon colored lead wires to differentiate the different sensor types. The sensors in this series are multi-point. Averaging sensors provide a better overall average temperature of the actual air inside larger ducts when compared to that of a single point sensor. All flexible averaging sensors are limited to being used in applications where operating temperatures are limited and high humidity, chemical resistance, and UV light sources aren't required. Each of the sensing elements is protected using a dual wall adhesive lined heat shrink tubing to provide a basic level of moisture protection. The sensor length should be determined by the size of your duct. Standard enclosure options include a

galvanized junction box "-GD" or plastic duct enclosure with hinged cover "-PB". Each unit includes nylon wire ties and mounts for mounting. Optional copper capillary or universal plastic mounting clips, NEMA/IP Weather proof enclosures and NIST Certificates are available as referenced in the ordering grid on the back of the product data sheet.

Applications: Air Handlers, Roof Top Units, Mixed Air/Discharge/Supply Air Temperature Monitoring, Data Centers, Hospitals

The ACI Thermistor Flexible Averaging Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|---|---|
| Sensor Type Sensor Curve: | Thermistor Non-Linear, NTC (Negative Temperature Coefficient) |
| Number Sensing Points Number Wires: | 8' and 12' Lengths: Four 24' and 50' Lengths: Nine Two (Non-Polarity Sensitive) |
| Sensor Output @ 25°C (77°F) | A/1.8K: 1.8KΩ nominal (Red/Yellow) A/10KS: 10KΩ nominal (White/Blue) |
| (Lead Wire Colors): | A/3K: 3KΩ nominal (White/Brown) A/10K-E1: 10KΩ nominal (Gray/Orange) |
| | A/AN (Type III): 10KΩ nominal (White/White) A/20K: 20KΩ nominal (Brown/Blue) |
| | A/AN-BC: 5.238KΩ nominal (White/Yellow) A/50K: 50KΩ nominal (Brown/Yellow) |
| | A/CP (Type II): 10KΩ nominal (White/Green) A/100KS: 100KΩ nominal (Black/Yellow) |
| | A/CSI: 10KΩ nominal (Green/Yellow) |
| Accuracy 0-70°C (32-158°F): | 8' & 12' Lengths: +/-0.20°C (+/-0.36°F); A/1.8K: +/-1.00°C (+/-1.80°F); A/10KS: +/-0.60°C (+/-1.10°F) |
| | 24' & 50' Lengths: +/-0.20°C (+/-0.36°F); A/1.8K: +/-1.00°C (+/-1.80°F); A/10KS: +/-0.60°C (+/-1.10°F) |
| Power Dissipation Constant: | 8' & 12' Lengths: 6 mW/°C except A/AN, A/CP, A/10KE1: 4 mW A/1.8K: 2 mW |
| | 24' & 50' Lengths: 9 mW/°C except A/AN, A/CP, A/10KE1: 6 mW A/1.8K: 3 mW |
| Stability: | Sensor Dependent; Contact ACI for more information on specific sensor |
| Response Time (63% Step Change): | 15 Seconds nominal |
| Operating Storage Temperature Range: | 0 to 75°C (32 to 167°F) -20 to 75°C (-4 to 167°F) |
| Operating Humidity Range: | 10 to 90% RH, non-condensing |
| Enclosure Specifications (Material Type, Flammability, NEMA/IP Ratings): | "-GD" Enclosure: Galvanized Steel, NEMA 1 (IP10); |
| | "-PB" Enclosure: ABS Plastic, UL94-HB, Plenum Rated |
| | "-BB" Enclosure: Aluminum, NEMA 3R (IP 14) |
| | "-4X" Enclosure: Polystyrene Plastic, UL94-V2, NEMA 4X (IP 66) |
| Sensor Jacket Material Cable Ratings: | Low Smoke PVC CL2P CMP Plenum Rated Cable |
| Sensor Cable Diameter: | 0.170" (4.32mm) nominal |
| Lead Length Conductor Size: | 12" (30.5cm) 22 AWG (0.65mm) |
| Lead Wire Insulation Wire Rating: | Etched Teflon (PTFE) Colored Leads MIL-W-16878/4 (Type E) |
| Lead Wire Conductor Material: | Silver Plated Copper |
| Product Dimensions Product Weight: | See table on back of Product Data sheet |
| Agency Approvals: | RoHS2, WEEE |





| DIMENSIONAL DRAWING | | |
|---------------------------------------|------------|----------|
| Plastic Box Enclosure [PB] | | |
| Galvanized Enclosure [GD] | | |
| Bell Box Enclosure [BB] | | |
| NEMA 4X Enclosure [4X] | | |
| Front View | Right View | Top View |

| CUSTOM ORDERING | | Model # Example: A/ 1.8K FA 24' GD NIST | MODEL # |
|--|---|---|---------|
| | | A. B. C. D. E. F. | |
| A. Sensor Series <i>No Selection Required</i> | A/ | → | A/ |
| B. Model Series <i>Select One (1)</i> | 1.8K 3K AN AN-BC CP CSI 10KS 10K-E1 20K 50K 100KS | | |
| C. Configuration <i>No Selection Required</i> | FA = Flexible Plenum Rated Cable Averaging Sensor | → | FA |
| D. Probe Length <i>Select One (1)</i> | 8' = 8' Sensor 12' = 12' Sensor 24' = 24' Sensor 50' = 50' Sensor | | |
| E. Enclosure <i>Select One (1)</i> | GD = Galvanized PB = Plastic BB = Aluminum, NEMA 3R 4X = NEMA 4X | | |
| F. NIST <i>Select One (1)</i> | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) | | |

| ACCESSORIES ORDERING | | Model # Example: A/CAPILLARY CLIP QTY1 -OR- 130525 |
|-------------------------|--------|--|
| Model # | Item # | Description |
| A/CAPILLARY CLIP QTY: 1 | 130525 | Capillary Mounting Clip, Copper, Quantity: 1 |
| UNIVERSAL CLIP 50 | 145430 | Capillary Mounting Clip, Plastic, Quantity: 50/Bag |
| UNIVERSAL CLIP 6 | 145421 | Universal Mounting Clip, Plastic, Quantity: 6/Bag |





FLUSH MOUNT BUTTONS

Brass, Stainless Steel & Plastic Thermistors



The ACI Thermistor Flush Mount Button Sensors Series features a stainless steel, brass or white plastic button sensor with two, 24 inch 22 AWG Etched Teflon colored lead wires to differentiate the different sensor types. The sensors in this series are manufactured using ACI's proven encapsulation process to eliminate the effects of moisture upon the sensors and to increase the response times using our high quality, thermally conductive epoxy. This sensor uses a small, low profile design, and should be used in applications where aesthetics is your primary concern. Each unit is supplied with a mounting kit such that they can be hidden underneath cabinets or shelving units, in decorative metal plates, trim, drywall or from a 1/2" piece of conduit coming down from the ceiling or roof. Note that if painting the sensors, be

sure to coat with as little paint as possible to not affect the accuracy or responsiveness of the sensor.

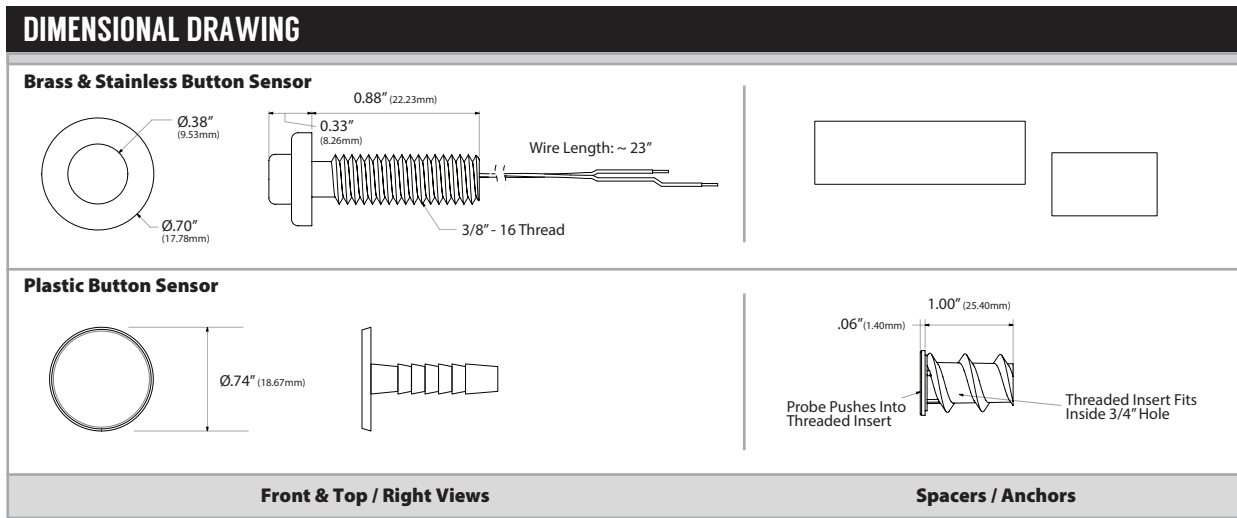
Applications: Museums, Historical Buildings, Monitoring Space Temperatures, Office Buildings, Schools, Retail, Remote Sensor

The Thermistor Flush Mount Button Sensor Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | | |
|--|---|--|
| Sensor Type Sensor Curve: | Thermistor Non-Linear, NTC (Negative Temperature Coefficient) | |
| Number Sensing Points Number Wires: | One Two (Non-Polarity Sensitive) | |
| Sensor Output @ 25°C (77°F) (Lead Wire Colors): | A/1.8K: 1.8KΩ nominal (Red/Yellow) | A/10KS: 10KΩ nominal (White/Blue) |
| | A/3K: 3KΩ nominal (White/Brown) | A/10K-E1: 10KΩ nominal (Gray/Orange) |
| | A/AN (Type III): 10KΩ nominal (White/White) | A/20K: 20KΩ nominal (Brown/Blue) |
| | A/AN-BC: 5.238KΩ nominal (White/Yellow) | A/50K: 50KΩ nominal (Brown/Yellow) |
| | A/CP (Type II): 10KΩ nominal (White/Green) | A/100KS: 100KΩ nominal (Black/Yellow) |
| | A/CSI: 10KΩ nominal (Green/Yellow) | |
| Accuracy 0-70°C (32-158°F): | +/-0.2°C (+/-0.36°F) except A/10K-E1 Series: +/-0.3°C (+/-0.54°F) | |
| | A/1.8K Series: +/-0.5°C @ 25°C (77°F) and (+/-1.0°C) (+/-1.8°F) | |
| Stability: | Sensor Dependent; Contact ACI for more information on specific sensor | |
| Response Time (63% Step Change): | 10 Seconds nominal | |
| Power Dissipation Constant: | 3 mW/°C except A/1.8K Series: 1 mW/°C A/10K-E1 Series: 2 mW/°C | |
| Button Sensor Enclosure Material: | A/XX-BBS Series: Brass A/XX-SBS Series: 304 Stainless Steel A/XX-PBS Series: ABS | |
| Plastic Button Flammability Rating: | UL94-HB | |
| Operating Storage Temperature Range: | A/XX-PBS Series: -40 to 70°C (-40 to 158°F) -40 to 85°C (-40 to 185°F) | |
| | A/XX-BBS & A/XX-SBS Series: -40 to 150°C (-40 to 302°F) -40 to 85°C (-40 to 185°F) | |
| Operating Humidity Range: | 10 to 95% RH, non-condensing | |
| Lead Length Conductor Size: | 24" (61cm) 22 AWG (0.65mm) | |
| Lead Wire Insulation Wire Rating: | Etched Teflon (PTFE) Colored Leads Mil Spec 16878/4 Type E | |
| Conductor Material: | Silver Plated Copper | |
| Product Dimensions (Length x Diameter): | A/XX-PBS Series: 1.00" (25.4mm) x 0.750" (19mm) | |
| | A/XX-BBS and A/XX-SBS Series: 1.20" (30.48mm) x 0.700" (17.78mm) | |
| Product Weight: | A/XX-PBS Series: 0.04 lbs. (18.15g) A/XX-BBS & A/XX-SBS Series: 0.10 lbs. (45.36g) | |
| Agency Approvals: | CE, RoHS2, WEEE | |



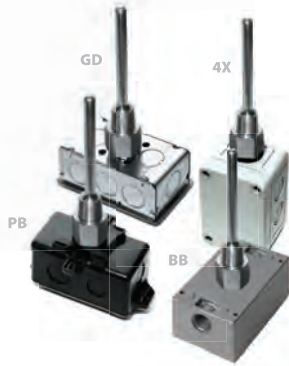


| STANDARD ORDERING | | | Model # Example: A/CP-PBS -OR- 122113 |
|---------------------|--------|--|--|
| Model # | Item # | Description | |
| A/1.8K-PBS | 132241 | 1.8K Plastic Button Sensor, 24" Leads, Anchor | |
| A/1.8K-SBS | 124140 | 1.8K Stainless Steel Button Sensor, 24" Leads, Spacers & Brass Nut | |
| A/3K-PBS | 129302 | 3K Plastic Button Sensor, 24" Leads, Anchor | |
| A/3K-SBS | 121089 | 3K Stainless Steel Button Sensor, 24" Leads, Spacers & Brass Nut | |
| A/AN-PBS | 124534 | AN Plastic Button Sensor, 24" Leads, Anchor | |
| A/AN-SBS | 121738 | AN Stainless Steel Button Sensor, 24" Leads, Spacers & Brass Nut | |
| A/AN-BC-SBS | 121334 | AN-BC Stainless Steel Button Sensor, 24" Leads, 11K Shunt, Spacers & Brass Nut | |
| A/CP-PBS | 122113 | CP Plastic Button Sensor, 24" Leads, Anchor | |
| A/CP-SBS | 122262 | CP Stainless Steel Button Sensor, 24" Leads, Spacers & Brass Nut | |
| A/CSI-PBS | 122359 | CSI Plastic Button Sensor, 24" Leads, Anchor | |
| A/CSI-SBS | 122418 | CSI Stainless Steel Button Sensor, 24" Leads, Spacers & Brass Nut | |
| A/10KS-SBS | 120232 | 10KS Stainless Steel Button Sensor, 24" Leads, Spacers & Brass Nut | |
| A/10K-E1-PBS | 130259 | 10K-E1 Plastic Button Sensor, 24" Leads, Anchor | |
| A/10K-E1-SBS | 126483 | 10K-E1 Stainless Steel Button Sensor, 24" Leads, Spacers & Brass Nut | |
| A/20K-PBS | 120664 | 20K Plastic Button Sensor, 24" Leads, Anchor | |
| A/20K-SBS | 120702 | 20K Stainless Steel Button Sensor, 24" Leads, Spacers & Brass Nut | |
| A/100KS-PBS | 135773 | 100KS Plastic Button Sensor, 24" Leads, Anchor | |
| A/100KS-SBS | 125730 | 100KS Stainless Steel Button Sensor, 24" Leads, Spacers & Brass Nut | |

| OPTIONAL SENSOR ORDERING | | Model # Example: A/ 3K SBS NIST | MODEL # |
|---|---|--|----------------|
| | | A. B. C. D. | |
| A. Sensor Series No Selection Required | A/ → | | A/ |
| B. Model Series Select One (1) | 1.8K 3K AN AN-BC* CP CSI 10KS* 10K-E1 20K 50K 100KS | | |
| C. Configuration Select One (1) | PBS = Plastic Button BBS = Brass Button SBS = Stainless Steel Button | | |
| D. NIST Select One (1) | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) | | |

Note*: AN-BC and 10KS are not available in PBS





IMMERSION

Stainless Steel Immersion, Thermistor

The ACI Thermistor Immersion Series features a 1/4" diameter stainless steel probe with two, 14 inch 22 AWG Etched Teflon colored lead wires depending on the probe length ordered to differentiate the different sensor types. The sensors in this series are manufactured using ACI's proven double encapsulation process to eliminate the effects of moisture and to increase the response times using our high quality, thermally conductive epoxy. The immersion sensors include a welded thermowell "-I" version but can be ordered without the welded thermowell "-INW" version. The "INW" version includes a standard 1/2" NPS Male process thread to be used with an optional machined thermowell or in an existing thermowell application. Optional NEMA/IP rated enclosures and NIST certificates are available the back of the product data sheet.

Applications: Chilled Water Systems, Hot Water Systems, Boilers, Pumps, Compressor, Chillers

The ACI Thermistor Immersion Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's web site, workaci.com.

Disclaimer: Specification of any thermowell and the materials of construction are the sole responsibility of the designer of the system that incorporates the thermowell. Sole responsibility for ensuring compatibility of the process fluid with the system rests with the end user.

PRODUCT SPECIFICATIONS

| | |
|---|---|
| Sensor Type Sensor Curve: | Thermistor Non-Linear, NTC (Negative Temperature Coefficient) |
| Number Sensing Points Number Wires: | One Two (Non-Polarity Sensitive) |
| Sensor Output @ 25°C (77°F) Lead Wire Colors: | A/1.8K: 1.8KΩ nominal Red/Yellow |
| | A/3K: 3KΩ nominal White/Brown |
| | A/AN (Type III): 10KΩ nominal White/White |
| | A/AN-BC: 5.238KΩ nominal White/Yellow |
| | A/CP (Type II): 10KΩ nominal White/Green |
| | A/CSI: 10KΩ nominal (Green/Yellow) |
| Accuracy 0-70°C (32-158°F): | +/-0.2°C (+/-0.36°F) except A/10K-E1 Series: +/- 0.3°C (+/-0.54°F) |
| | A/1.8K Series: +/-0.5°C @ 25°C (77°F) and (+/-1.0°C) (+/-1.8°F) |
| Stability: | Sensor Dependent; Contact ACI for more information on specific sensor |
| Response Time (63% Step Change): | 10 Seconds nominal |
| Power Dissipation Constant: | 3 mW/°C except A/1.8K Series: 1 mW/°C A/10K-E1 Series: 2 mW/°C |
| Sensor Operating Temperature Range: | -40 to 150°C (-40 to 302°F) |
| Enclosure Specifications (Temperature, Flammability, NEMA/IP Ratings): | "-GD" Enclosure: Galvanized Steel, -40°C to 121°C (-40°F to 250°F), NEMA 1 (IP10) |
| | "-PB" Enclosure: ABS Plastic, -30°C to 90°C (-22°F to 194°F), UL94-HB, Plenum Rated |
| | "-BB" Enclosure: Aluminum, -40°C to 121°C (-40°F to 250°F), Plenum Rated, NEMA 3R |
| | "-4X" Enclosure: Polystyrene Plastic, -40°C to 70°C (-40°F to 158°F), UL94-V2, NEMA 4X (IP 66) |
| Storage Temperature Range: | -40 to 85°C (-40 to 185°F) |
| Operating Humidity Range: | 10 to 95% RH, non-condensing |
| Probe Diameter Thermowell Bore Diameter: | 0.250" (6.35mm) 0.260" |
| Probe Material Thermowell Material: | 304 Stainless Steel 304 Series Stainless Steel |
| Thermowell Instrument Process Thread Size: | 1/2" NPS (National Pipe Straight) Female Thread 1/2" NPT (National Pipe Tapered) Male Thread |
| Fitting Material Flammability Rating: | Polyamide 66 (High Performance Nylon 66) UL94-HB |
| Fitting Thread Size: | 1/2" NPS (National Pipe Straight) Male Thread |
| Foam Pad Material Flammability Rating: | Neoprene/EPDM/SBR Polymer UL94-HBF; FMVSS-302; MIL-R-6130C |
| Lead Length Conductor Size: | 14" (35.6 cm) 22 AWG (0.65mm) |
| Lead Wire Insulation Wire Rating: | Etched Teflon (PTFE) Colored Leads Mil Spec 16878/4 Type E |
| Conductor Material: | Silver Plated Copper |
| Product Dimensions Product Weight: | See table on back of Product Data sheet |
| Agency Approvals: | CE, RoHS2, WEEE |





MAXIMUM VELOCITY VS THERMOWELL INSERTION LENGHT MACHINED THERMOWELL

| Straight Shank Insertion Length "U" | | | | | Stepped Shank Insertion Length "U" | | | | |
|-------------------------------------|----------------------------|-------------------------|-------------------------|-------------------------|------------------------------------|-------------------------|-----------------------|-----------------------|----------------------|
| Material: | Media Type: | 1.0" (25.4 mm) | 2.5" (63.5 mm) | 8.0" (203.2 mm) | 4.0" (101.6 mm) | 6.0" (152.4 mm) | 12.0" (304.8 mm) | 18.0" (457.2 mm) | 24" (609.6 mm) |
| 304/316 SS | Air/Gas/Steam ¹ | 349 ft/s (106.3 m/s) | 349 ft/s (106.3 m/s) | 71.9 ft/s (21.9 m/s) | 109 ft/s (33.2 m/s) | 73.6 ft/s (22.4 m/s) | 19.4 ft/s (5.9m/s) | 8.8 ft/s (2.7m/s) | 5.2 ft/s (1.6m/s) |
| 304/316 SS | Water | 360 ft/s (109.7 m/s) | 360 ft/s (109.7 m/s) | 71.9 ft/s (21.9 m/s) | 82.2 ft/s (25.1 m/s) | 26.9 ft/s (8.2 m/s) | 11.3 ft/s (3.4m/s) | 4.7 ft/s (1.43m/s) | 2.5 ft/s (0.8m/s) |

Note 1: Values are for Air/Gas/ Steam and similar density media based upon Max pressure of 2900 PSI @ 1000°F (537.8°C) | **Note 2:** Values are for Water (No Glycol or other Chemicals factored in) @ 68 °F (20°C) and max pressure of 5700 PSI. (Calculated to ASME PTC 19.3 TW-2016 Code B31.1) | **Note 3:** 6-24" Machined Thermowells meet ASME PTC 19.3 TW-2016 Code B31.1.

MAXIMUM PRESSURE VS TEMPERATURE RATINGS TWO-PART FABRICATED | WELDED THERMOWELL

| Material: | 70°F (21.1°C) | 200°F (93.3°C) | 400°F (204.4°C) | 600°F (315.6°C) | 800°F (426.7°C) | 1000°F (537.8°C) | 1200°F (648.9°C) |
|------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| 304/316 SS | 982 PSI (67.7 Bar) | 820 PSI (56.6 Bar) | 675 PSI (46.5 Bar) | 604 PSI (41.6 Bar) | 550 PSI (37.9 Bar) | 510 PSI (35.1 Bar) | 290 PSI (20.0 Bar) |

MAXIMUM FLUID VELOCITY RATINGS TWO-PART FABRICATED | WELDED THERMOWELL

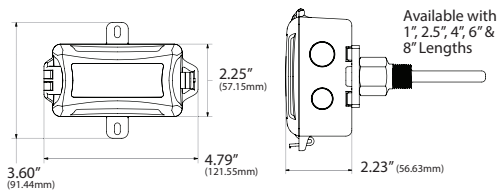
| Straight Shank Insertion Length "U" | | | | |
|-------------------------------------|----------------------------|---------------------|--------------------|--------------------|
| Material: | Media Type: | 2.5" (63.5 mm) | 4.0" (101.6 mm) | 6.0" (152.4 mm) |
| 304/316 SS | Air/Gas/Steam ² | 169 ft/s (51.5 m/s) | 61 ft/s (18.6 m/s) | 20 ft/s (6.1 m/s) |
| 304/316 SS | Water | 88 ft/s (26.8 m/s) | 20 ft/s (6.1 m/s) | 10 ft/s (3.05 m/s) |

Note 2: Values are for Air/Gas/ Steam and similar density media



DIMENSIONAL DRAWINGS, WEIGHTS

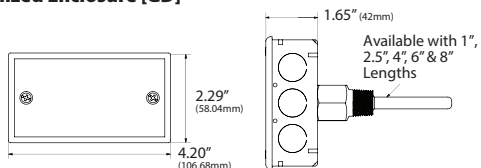
Plastic Box Enclosure [PB]



Plastic Box Enclosure [PB] Weights

| ACI Model # | 1.0" | 2.5" | 4.0" | 6.0" | 8.0" |
|----------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| A/xx-INW-yy-PB | 0.20 lbs. (0.091 kg) | 0.24 lbs. (0.109 kg) | 0.28 lbs. (0.127 kg) | 0.32 lbs. (0.145 kg) | 0.36 lbs. (0.163 kg) |
| A/xx-I-yy-PB | N/A | 0.24 lbs. (0.109 kg) | 0.60 lbs. (0.272 kg) | 0.64 lbs. (0.290 kg) | N/A |
| A/xx-IM-yy-PB | 0.40 lbs. (0.182 kg) | 0.58 lbs. (0.263 kg) | 0.74 lbs. (0.336 kg) | 0.92 lbs. (0.417 kg) | 1.15 lbs. (0.522 kg) |

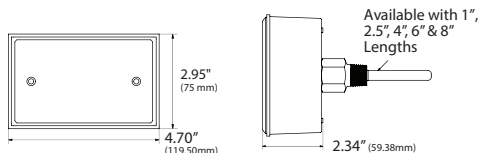
Galvanized Enclosure [GD]



Galvanized Enclosure [GD] Weights

| ACI Model # | 1.0" | 2.5" | 4.0" | 6.0" | 8.0" |
|----------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| A/xx-INW-yy-GD | 0.62 lbs. (0.281 kg) | 0.66 lbs. (0.299 kg) | 0.70 lbs. (0.318 kg) | 0.74 lbs. (0.336 kg) | 0.78 lbs. (0.354 kg) |
| A/xx-I-yy-GD | N/A | 0.88 lbs. (0.399 kg) | 1.00 lbs. (0.454 kg) | 1.04 lbs. (0.472 kg) | N/A |
| A/xx-IM-yy-GD | 0.81 lbs. (0.367 kg) | 1.00 lbs. (0.454 kg) | 1.16 lbs. (0.526 kg) | 1.32 lbs. (0.599 kg) | 1.55 lbs. (0.703 kg) |

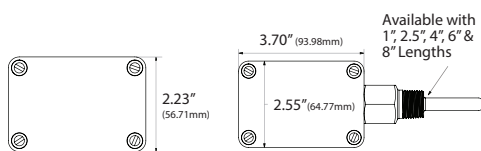
Bell Box Enclosure [BB]



Bell Box Enclosure [BB] Weights

| ACI Model # | 1.0" | 2.5" | 4.0" | 6.0" | 8.0" |
|----------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| A/xx-INW-yy-BB | 0.64 lbs. (0.290 kg) | 0.68 lbs. (0.308 kg) | 0.70 lbs. (0.318 kg) | 0.74 lbs. (0.336 kg) | 0.80 lbs. (0.363 kg) |
| A/xx-I-yy-BB | N/A | 1.02 lbs. (0.463 kg) | 1.00 lbs. (0.454 kg) | 1.04 lbs. (0.472 kg) | N/A |
| A/xx-IM-yy-BB | 0.83 lbs. (0.376 kg) | 1.02 lbs. (0.463 kg) | 1.16 lbs. (0.526 kg) | 1.32 lbs. (0.599 kg) | 1.59 lbs. (0.721 kg) |

NEMA 4X Enclosure [4X]

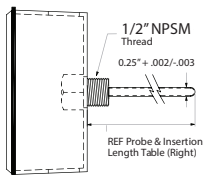


NEMA 4X Enclosure [4X] Weights

| ACI Model # | 1.0" | 2.5" | 4.0" | 6.0" | 8.0" |
|----------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| A/xx-INW-yy-4X | 0.28 lbs. (0.127 kg) | 0.32 lbs. (0.145 kg) | 0.36 lbs. (0.163 kg) | 0.40 lbs. (0.181 kg) | 0.44 lbs. (0.200 kg) |
| A/xx-I-yy-4X | N/A | 0.64 lbs. (0.290 kg) | 0.68 lbs. (0.308 kg) | 0.72 lbs. (0.327 kg) | N/A |
| A/xx-IM-yy-4X | 0.48 lbs. (0.218 kg) | 0.66 lbs. (0.299 kg) | 0.82 lbs. (0.372 kg) | 1.00 lbs. (0.454 kg) | 1.27 lbs. (0.576 kg) |

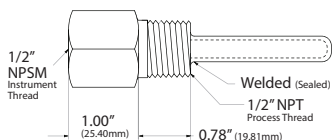
N/A = Not Available | xx = Sensor Type | yy = Insertion Length

PROBE AND INSERTION LENGTH IMMERSION NO WELL



Pictured Above: immersion no well (INW) sensor in Bell Box Enclosure (BB).

Pictured Below: welded two piece thermowell to show connection and depth reference. Thermowell not included with immersion no well (INW).



Probe & Insertion Length

| Probe Length | Insertion Length | ACI Part # | Thermowell Part # |
|--------------|------------------|---------------------|-------------------|
| 3" | 2.81" +/- 0.13" | A/xx-INW-1"-yy-zz | A/M1" |
| 4.5" | 4.31" +/- 0.13" | A/xx-INW-2.5"-yy-zz | A/2.5" or A/M2.5" |
| 6" | 5.81" +/- 0.13" | A/xx-INW-4"-yy-zz | A/4" or A/M4" |
| 8" | 7.81" +/- 0.13" | A/xx-INW-6"-yy-zz | A/6" or A/M6" |
| 10" | 9.81" +/- 0.13" | A/xx-INW-8"-yy-zz | A/M8" |
| 13" | 12.75" +/- 0.13" | A/xx-INW-12"-yy-zz | A/M12" |
| 19" | 18.75" +/- 0.13" | A/xx-INW-18"-yy-zz | A/M18" |
| 25" | 24.75" +/- 0.13" | A/xx-INW-24"-yy-zz | A/M24" |





| CUSTOM ORDERING WELDED THERMOWELL | | Model # Example: <table border="1"><tr><td>A/</td><td>1.8K</td><td>I</td><td>4"</td><td>GD</td><td>NIST</td></tr><tr><td>A.</td><td>B.</td><td>C.</td><td>D.</td><td>E.</td><td>F.</td></tr></table> | A/ | 1.8K | I | 4" | GD | NIST | A. | B. | C. | D. | E. | F. | MODEL # |
|--|---|--|----|------|------|----|----|------|----|----|----|----|----|----|---------|
| A/ | 1.8K | I | 4" | GD | NIST | | | | | | | | | | |
| A. | B. | C. | D. | E. | F. | | | | | | | | | | |
| A. Sensor Series No Selection Required | A/ | | A/ | | | | | | | | | | | | |
| B. Model Series Select One (1) | 1.8K 3K AN AN-BC CP CSI 10KS 10K-E1 20K 100KS | | | | | | | | | | | | | | |
| C. Configuration Select One (1) | I=Immersion with Welded Thermowell | | | | | | | | | | | | | | |
| D. Insertion Length Select One (1) | 2.5" = 2.5" Insertion 4" = 4" Insertion 6" = 6" Insertion | | | | | | | | | | | | | | |
| E. Enclosure Select One (1) | GD=Galvanized PB=Plastic BB=Aluminum, NEMA 3R 4X=NEMA 4X | | | | | | | | | | | | | | |
| F. NIST Select One (1) | ---- = No NIST Certificate NIST= NIST Certificate (3 Points) | | | | | | | | | | | | | | |

| CUSTOM ORDERING MACHINED THERMOWELL | | Model # Example: <table border="1"><tr><td>A/</td><td>1.8K</td><td>IM</td><td>4"</td><td>GD</td><td>NIST</td></tr><tr><td>A.</td><td>B.</td><td>C.</td><td>D.</td><td>E.</td><td>F.</td></tr></table> | A/ | 1.8K | IM | 4" | GD | NIST | A. | B. | C. | D. | E. | F. | MODEL # |
|--|---|---|----|------|------|----|----|------|----|----|----|----|----|----|---------|
| A/ | 1.8K | IM | 4" | GD | NIST | | | | | | | | | | |
| A. | B. | C. | D. | E. | F. | | | | | | | | | | |
| A. Sensor Series No Selection Required | A/ | | A/ | | | | | | | | | | | | |
| B. Model Series Select One (1) | 1.8K 3K AN AN-BC CP CSI 10KS 10K-E1 20K 100KS | | | | | | | | | | | | | | |
| C. Configuration Select One (1) | IM=Immersion with Machined Thermowell | | | | | | | | | | | | | | |
| D. Insertion Length Select One (1) | 1" = 1" Insertion 2.5" = 2.5" Insertion 4" = 4" Insertion 6" = 6" Insertion 8" = 8" Insertion | | | | | | | | | | | | | | |
| E. Enclosure Select One (1) | GD=Galvanized PB=Plastic BB=Aluminum, NEMA 3R 4X=NEMA 4X | | | | | | | | | | | | | | |
| F. NIST Select One (1) | ---- = No NIST Certificate NIST= NIST Certificate (3 Points) | | | | | | | | | | | | | | |

Note: Machined Thermowells with lengths of 12", 18" and 24" are available and must be ordered separately | See the Machined Thermowells Data Sheet (Accessories)

| CUSTOM ORDERING SENSOR ONLY NO THERMOWELL | | Model # Example: <table border="1"><tr><td>A/</td><td>1.8K</td><td>INW</td><td>1"</td><td>GD</td><td>NIST</td></tr><tr><td>A.</td><td>B.</td><td>C.</td><td>D.</td><td>E.</td><td>F.</td></tr></table> | A/ | 1.8K | INW | 1" | GD | NIST | A. | B. | C. | D. | E. | F. | MODEL # |
|---|---|--|----|------|------|----|----|------|----|----|----|----|----|----|---------|
| A/ | 1.8K | INW | 1" | GD | NIST | | | | | | | | | | |
| A. | B. | C. | D. | E. | F. | | | | | | | | | | |
| A. Sensor Series No Selection Required | A/ | | A/ | | | | | | | | | | | | |
| B. Model Series Select One (1) | 1.8K 3K AN AN-BC CP CSI 10KS 10K-E1 20K 100KS | | | | | | | | | | | | | | |
| C. Configuration Select One (1) | INW = Immersion without Thermowell | | | | | | | | | | | | | | |
| D. Insertion Length Select One (1) | 1" = 1" Insertion 2.5" = 2.5" Insertion 4" = 4" Insertion 6" = 6" Insertion 8" = 8" Insertion 12" = 12" Insertion 18" = 18" Insertion 24" = 24" Insertion | | | | | | | | | | | | | | |
| E. Enclosure Select One (1) | GD=Galvanized PB=Plastic BB=Aluminum, NEMA 3R 4X=NEMA 4X | | | | | | | | | | | | | | |
| F. NIST Select One (1) | ---- = No NIST Certificate NIST= NIST Certificate (3 Points) | | | | | | | | | | | | | | |

| ACCESSORIES ORDERING | | Model # Example: NSG HEAT TRANSFER PASTRE 2 oz | Or | 102595 |
|--------------------------------|--------|---|----|--------|
| Model # | Item # | Description | | |
| NSG Heat Transfer Paste 2 oz. | 102595 | Thermal Grease, 2 oz. Tube, Silicone Free, -40 to 320°F (-40 to 160°C) | | |
| NSG Heat Transfer Paste 16 oz. | 140574 | Thermal Grease, 16 oz. Jar, Silicon Free, -40 to 390°F (-40 to 198°C) | | |
| A/2.5" | 128349 | 2.5" (63.5 mm) Insertion, 304 Stainless, Welded, 1/2" NPT Thermowell | | |
| A/4" | 128350 | 4" (101.6 mm) Insertion, 304 Stainless, Welded, 1/2" NPT Thermowell | | |
| A/6" | 128351 | 6" (152.4 mm) Insertion, 304 Stainless, Welded, 1/2" NPT Thermowell | | |
| A/M1" | 128337 | 1" (25.4 mm) Insertion, 304 Stainless, Machined, 1/2" NPT Thermowell | | |
| A/M2.5" | 128338 | 2.5" (63.5 mm) Insertion, 304 Stainless, Machined, 1/2" NPT Thermowell | | |
| A/M4" | 128343 | 4" (101.6 mm) Insertion, 304 Stainless, Machined, 1/2" NPT Thermowell | | |
| A/M6" | 128344 | 6" (152.4 mm) Insertion, 304 Stainless, Machined, 1/2" NPT Thermowell | | |
| A/M8" | 138725 | 8" (203.2 mm) Insertion, 304 Stainless, Machined, 1/2" NPT Thermowell | | |
| A/M12" | 128339 | 12" (304.80 mm) Insertion, 304 Stainless, Machined, 1/2" NPT Thermowell | | |
| A/M18" | 128341 | 18" (457.20 mm) Insertion, 304 Stainless, Machined, 1/2" NPT Thermowell | | |
| A/M24" | 128342 | 24" (609.6 mm) Insertion, 304 Stainless, Machined, 1/2" NPT Thermowell | | |
| A/M2.5" - 316SS | 128352 | 2.5" (63.5 mm) Insertion, 316 Stainless, Machined, 1/2" NPT Thermowell | | |
| A/M4" - 316SS | 128353 | 4" (101.6 mm) Insertion, 316 Stainless, Machined, 1/2" NPT Thermowell | | |
| A/M6" - 316SS | 128354 | 6" (152.4 mm) Insertion, 316 Stainless, Machined, 1/2" NPT Thermowell | | |





OUTSIDE AIR

Weatherproof Outside Air, Thermistors

The ACI Thermistor Outside Air Series features a weather proof European Style Plastic enclosure with twist off cover and water tight cord grip fitting. The sensing element contains two, 14 inch 22 AWG Etched Teflon colored lead wires to differentiate the many different sensor types. All sensors in this series are manufactured using ACI's proven double encapsulation process to eliminate the effects of moisture upon the sensors as well as to increase the thermal response time using our high quality, thermally conductive epoxy. The outside air sensor is a single point sensor designed to be mounted under an eave or on the North side of a building in a shaded location. The sensing tube pointed must be pointed downward to prevent any water or ice from settling in the sensing tube. Optional NEMA 4X "4X" or NEMA 3R rated "BB" cast

Aluminum enclosure and NIST Certificates are available as specified in the ordering grid on the back of the product data sheet. For Applications in which the sensor must be mounted in direct sunlight, please see the Sun Shield data sheet which will allow you to order a Temperature or Temperature/Humidity Combination sensor.

Applications: Outside Air Temperature Sensing, Cold Storage Facilities, High Dew Point/Condensing Environments

The ACI Thermistor Outside Air Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | | |
|---|---|---|
| Sensor Type Sensor Curve: | Thermistor Non-Linear, NTC (Negative Temperature Coefficient) | |
| Number Sensing Points: | One | |
| Number Wires: | Two (Non-Polarity Sensitive) | |
| Sensor Output @25°C (77°F) (Lead Wire Colors): | A/1.8K: 1.8KΩ nominal (Red/Yellow) | A/10KS: 10KΩ nominal (White/Blue) |
| | A/3K: 3KΩ nominal (White/Brown) | A/10K-E1: 10KΩ nominal (Gray/Orange) |
| | A/AN (Type III): 10KΩ nominal (White/White) | A/20K: 20KΩ nominal (Brown/Blue) |
| | A/AN-BC: 5.238KΩ nominal (White/Yellow) | A/50K: 50KΩ nominal (Brown/Yellow) |
| | A/CP (Type II): 10KΩ nominal (White/Green) | A/100KS: 100KΩ (Black/Yellow) |
| | A/CSI: 10KΩ nominal (Green/Yellow) | |
| Accuracy 0-70°C (32-158°F): | +/-0.2°C (+/-0.36°F) except A/10K-E1 Series: +/-0.3°C (+/-0.54°F) | |
| | A/1.8K Series: +/-0.5°C @ 25°C (77°F) and (+/-1.0°C) (+/-1.8°F) | |
| Power Dissipation Constant: | 3 mW/°C except A/1.8K Series: 1 mW/°C A/10K-E1 Series: 2 mW/°C | |
| Stability: | Sensor Dependent; Contact ACI for more information on the sensor in question. | |
| Response Time (63% Step Change): | 25 Seconds nominal | |
| Enclosure Specifications (Temperature, Material, Flammability, NEMA/IP Ratings): | "-EH" Enclosure: PC/ASA Plastic w/ UV Protectant; -40 to 88°C (-40 to 190°F); UL94-V0 "-4X" Enclosure: Polystyrene Plastic, -40 to 70°C (-40 to 158°F), UL94-V2, NEMA 4X (IP 66) "-BB" Enclosure: Aluminum, -40 to 121°C (-40 to 250°F), NEMA 3R | |
| Operating Temperature Range: | -40 to 70°C (-22 to 158°F) | |
| Storage Temperature Range: | -40 to 70°C (-22 to 158°F) | |
| Operating Humidity Range: | 10 to 100% RH | |
| Lead Length Conductor Size: | 14" (35.6cm) 22 AWG (0.65mm) | |
| Lead Wire Insulation Wire Rating: | Etched Teflon (PTFE) Colored Leads MIL-W-16878/4 (Type E) | |
| Conductor Material: | Silver Plated Copper | |
| Product Dimensions: | See Drawings on back of Data Sheet | |
| Product Weight: | A/XX-O-EH: 0.46 lbs. (0.21kg) A/XX-O-4X: 0.38 lbs. (0.17kg) A/XX-O-BB: 0.76 lbs. (0.35kg) | |
| Agency Approvals: | CE, RoHS2, WEEE | |





DIMENSIONAL DRAWING, WEIGHTS

xx = Sensor Type

| Bell Box Enclosure [BB] | | Bell Box Enclosure [BB] Weight | | | | |
|--------------------------------|----------------------|---|-------------|--------|-----------|----------------------|
| | | <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>ACI Model #</th> <th>Weight</th> </tr> </thead> <tbody> <tr> <td>A/xx-O-BB</td> <td>0.76 lbs. (0.172 kg)</td> </tr> </tbody> </table> | ACI Model # | Weight | A/xx-O-BB | 0.76 lbs. (0.172 kg) |
| ACI Model # | Weight | | | | | |
| A/xx-O-BB | 0.76 lbs. (0.172 kg) | | | | | |
| | | <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>ACI Model #</th> <th>Weight</th> </tr> </thead> <tbody> <tr> <td>A/xx-O-EH</td> <td>0.46 lbs. (0.345 kg)</td> </tr> </tbody> </table> | ACI Model # | Weight | A/xx-O-EH | 0.46 lbs. (0.345 kg) |
| ACI Model # | Weight | | | | | |
| A/xx-O-EH | 0.46 lbs. (0.345 kg) | | | | | |
| | | <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>ACI Model #</th> <th>Weight</th> </tr> </thead> <tbody> <tr> <td>A/xx-O-4X</td> <td>0.38 lbs. (0.209 kg)</td> </tr> </tbody> </table> | ACI Model # | Weight | A/xx-O-4X | 0.38 lbs. (0.209 kg) |
| ACI Model # | Weight | | | | | |
| A/xx-O-4X | 0.38 lbs. (0.209 kg) | | | | | |
| Front & Right Views | Top View | Product Weight | | | | |

STANDARD ORDERING

Model # Example: **A/CP-O-EH -OR- 125283**

| Model # | Item # | Description |
|----------------------|--------|---|
| A/1.8K-O-EH | 125163 | 1.8K Outside Air Sensor, 14" Leads, Euro Housing |
| A/1.8K-O-BB | 137419 | 1.8K Outside Air Sensor, 14" Leads, Aluminum Bell Box |
| A/3K-O-EH | 125241 | 3K Outside Air Sensor, 14" Leads, Euro Housing |
| A/3K-O-BB | 121056 | 3K Outside Air Sensor, 14" Leads, Aluminum Bell Box |
| A/AN-O-EH | 125268 | AN Outside Air Sensor, 14" Leads, Euro Housing |
| A/AN-O-BB | 121524 | AN Outside Air Sensor, 14" Leads, Aluminum Bell Box |
| A/AN-BC-O-EH | 125262 | AN-BC Outside Air Sensor, 14" Leads, 11K Shunt, Euro Housing |
| A/AN-BC-O-BB | 135315 | AN-BC Outside Air Sensor, 14" Leads, 11K Shunt, Aluminum Bell Box |
| A/CP-O-EH | 125283 | CP Outside Air Sensor, 14" Leads, Euro Housing |
| A/CP-O-BB | 122112 | CP Outside Air Sensor, 14" Leads, Aluminum Bell Box |
| A/CSI-O-EH | 125289 | CSI Outside Air Sensor, 14" Leads, Euro Housing |
| A/CSI-O-BB | 139372 | CSI Outside Air Sensor, 14" Leads, Aluminum Bell Box |
| A/10KS-O-EH | 125197 | 10KS Outside Air Sensor, 14" Leads, Euro Housing |
| A/10KS-O-BB | 142405 | 10KS Outside Air Sensor, 14" Leads, Aluminum Bell Box |
| A/10K-E1-O-EH | 125609 | 10K-E1 Outside Air Sensor, 14" Leads, Euro Housing |
| A/10K-E1-O-BB | 142406 | 10K-E1 Outside Air Sensor, 14" Leads, Aluminum Bell Box |
| A/20K-O-EH | 125226 | 20K Outside Air Sensor, 14" Leads, Euro Housing |
| A/20K-O-BB | 120663 | 20K Outside Air Sensor, 14" Leads, Aluminum Bell Box |
| A/100KS-O-EH | 125176 | 100KS Outside Air Sensor, 14" Leads, Euro Housing |
| A/100KS-O-BB | 142407 | 100KS Outside Air Sensor, 14" Leads, Aluminum Bell Box |

CUSTOM ORDERING

Model # Example: **A/ 1.8K O-EH NIST**
A. B. C. D.

| A. Sensor Series No Selection Required | MODEL # |
|--|--|
| A/ → | A/ |
| B. Model Series Select One (1) | 1.8K 3K AN AN-BC CP CSI 10KS 10K-E1 20K 50K 100KS |
| C. Configuration Select One (1) | O-EH = Euro Housing O-BB = Aluminum Bell Box O-4X = NEMA 4X Enclosure |
| D. NIST Select One (1) | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) |





PIPE MOUNT

Small Pipe/Coil Sensor, Thermistor



The ACI Thermistor Pipe Mount Series features a 1.1" long Brass probe with a small curvature on the bottom that is designed to increase the surface area and improve the thermal conductivity between the pipe and the sensor. Each sensor has two, 24 inch 22 AWG Etched Teflon colored lead wires to differentiate the many different sensor types. All sensors in this series are manufactured using ACI's proven double encapsulation process to eliminate the effects of moisture upon the sensors and to improve the thermal response times using our high quality, thermally conductive epoxy. The Pipe Mount sensor should be used to monitor pipe or coil sizes from 1/2" to 1" in diameter. A 7.5" nylon wire tie is supplied for fastening the sensor to the top of the pipe. For best accuracy and increased thermal conduction between the pipe and

sensor, ACI recommends to clean the pipe and to apply thermal grease between the sensor and pipe before securely fastening to the pipe and insulating the sensor from any effects of the ambient air. An optional Plenum rated cable, Zip wire or NIST Certificate are available as referenced in the ordering grid on the back of the Product Data Sheet.

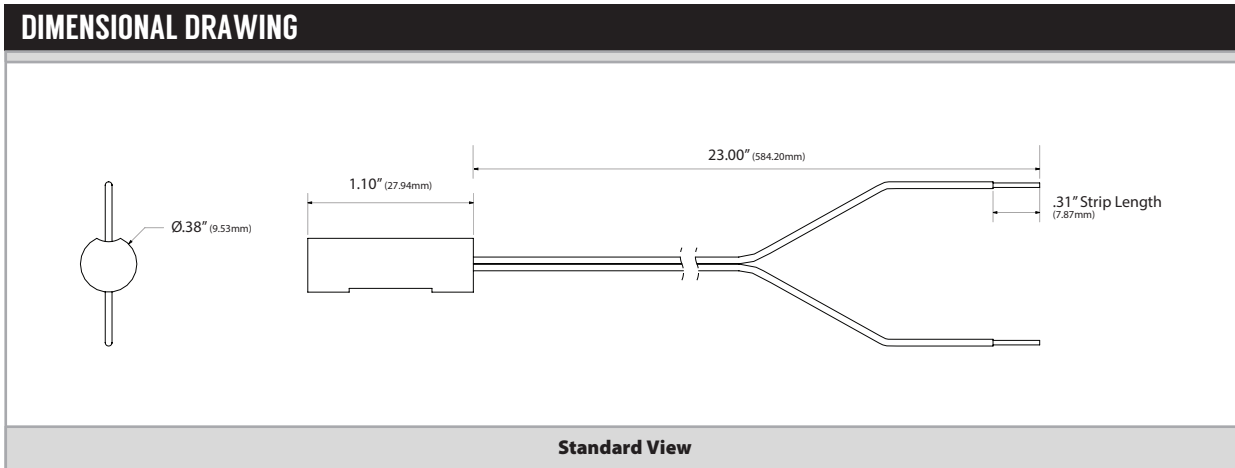
Applications: Cooling Coils, Heating Coils, Hot Water Systems, Chilled Water Systems, Hydronic Heating Systems, Chillers

The ACI Thermistor Pipe Mount Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | | |
|--|--|--|
| Sensor Type Sensor Curve: | Thermistor Non-Linear, NTC (Negative Temperature Coefficient) | |
| Number Sensing Points: | One | |
| Number Wires: | Two (Non-Polarity Sensitive) | |
| Sensor Output @ 25°C (77°F) (Lead Wire Colors): | A/1.8K: 1.8KΩ nominal (Red/Yellow) | A/10KS: 10KΩ nominal (White/Blue) |
| | A/3K: 3KΩ nominal (White/Brown) | A/10K-E1: 10KΩ nominal (Gray/Orange) |
| | A/AN (Type III): 10KΩ nominal (White/White) | A/20K: 20KΩ nominal (Brown/Blue) |
| | A/AN-BC: 5.238KΩ nominal (White/Yellow) | A/50K: 50KΩ nominal (Brown/Yellow) |
| | A/CP (Type II): 10KΩ nominal (White/Green) | A/100KS: 100KΩ nominal (Black/Yellow) |
| | A/CSI: 10KΩ nominal (Green/Yellow) | |
| Sensor Accuracy 0-70°C (32-158°F): | +/-0.2°C (+/-0.36°F) except A/10K-E1 Series: +/-0.3°C (+/-0.54°F); A/1.8K Series: +/- 0.5°C @ 25°C (77°F) and (+/-1.0°C) (+/-1.8°F) | |
| Power Dissipation Constant: | 3 mW/°C except A/1.8K Series: 1 mW/°C A/10K-E1 Series: 2 mW/°C | |
| Stability: | Sensor Dependent; Contact ACI for more information on the sensor in question. | |
| Response Time (63% Step Change): | 20 Seconds nominal | |
| Pipe Mount Sensor Enclosure Material: | Brass | |
| Pipe Sizes Acceptable: | ½" (12.7mm) to 1" (25.4mm) | |
| Operating Temperature Range: | -40 to 150°C (-40 to 302°F) | |
| Storage Temperature Range: | -40 to 85°C (-40 to 185°F) | |
| Operating Humidity Range: | 10 to 95% RH, Condensing | |
| Lead Length Conductor Size: | 24" (61cm) 22 AWG (0.65mm) | |
| Lead Wire Insulation Wire Rating: | Etched Teflon (PTFE) Colored Leads MIL-W-16878/4 (Type E) | |
| Conductor Material: | Silver Plated Copper | |
| Product Dimensions (Length x Diameter): | 1.10" (27.9mm) x 0.375" (9.53mm) | |
| Product Weight: | 0.05 lbs. (22.68g) | |
| Agency Approvals: | CE, RoHS2, WEEE | |





STANDARD ORDERING

Model # Example: **A/AN-PM** -OR- **138628**

| Model # | Item # | Description |
|--------------------|--------|--|
| A/1.8K-PM | 138644 | 1.8K Pipe Mount, 24" Leads |
| A/3K-PM | 138659 | 3K Pipe Mount, 24" Leads |
| A/AN-PM | 138628 | AN (Type III) Pipe Mount, 24" Leads |
| A/AN-BC-PM | 138996 | AN-BC Pipe Mount, 24" Leads, 11K Shunt |
| A/CP-PM | 138629 | CP (Type II) Pipe Mount, 24" Leads |
| A/CSI-PM | 138662 | CSI Pipe Mount, 24" Leads |
| A/10KS-PM | 142395 | 10KS Pipe Mount, 24" Leads |
| A/10K-E1-PM | 138655 | 10K-E1 Pipe Mount, 24" Leads |
| A/20K-PM | 138631 | 20K Pipe Mount, 24" Leads |
| A/100KS-PM | 138654 | 100KS Pipe Mount, 24" Leads |

OPTIONAL SENSOR ORDERING

Model # Example: **A/ 1.8K PM 20' Z NIST**
A. B. C. D. E. F.

| MODEL # | Description |
|-----------|--|
| A/ | A. Sensor Series No Selection Required |
| PM | B. Model Series Select One (1) 1.8K 3K AN AN-BC CP CSI 10KS 10K-E1 20K 50K 100KS |
| PM | C. Configuration No Selection Required PM = 1.1" Brass Pipe Mount Sensor |
| PM | D. Lead Length Select One (1) ---- = Standard (24" Etched Teflon) 10' = 10 Feet (3.05m) 20' = 20 Feet* (6.10m) |
| PM | E. Lead Wire Type Select One (1) CL2P = Plenum Rated Cable Z = 2 Conductor White Zip Wire |
| PM | F. NIST Select One (1) ---- = No NIST Certificate NIST = NIST Certificate (3 Points) |

Note*: The 20' Length is not CE Compliant but it is RoHS Compliant

ACCESSORIES ORDERING

Model # Example: **HARDWARE, 2" HOSE CLAMP** -OR- **100235**

| Model # | Item # | Description |
|-------------------------------------|--------|---|
| HARDWARE, 2" HOSE CLAMP | 100235 | Hardware, 2" Hose Clamp, Quick Release Worm Gear, 201/301 Stainless Steel |
| NSG HEAT TRANSFER PASTE 2OZ | 102595 | Thermal Grease, 2 oz. Tube, Silicone Free, -40 to 320°F (-40 to 160°C) |
| NSG HEAT TRANSFER PASTE 16OZ | 140574 | Thermal Grease, 16 oz. Jar, Silicone Free, -40 to 390°F (-40 to 198°C) |





PROBE ONLY

Stainless Steel Probe, Thermistor



The ACI Thermistor Probe Only Series features a 1/4" diameter stainless steel probe with two, 14" or 24 inch 22 AWG Etched Teflon colored lead wires to differentiate the different NTC sensor types. The sensors in this series are manufactured using ACI's proven double encapsulation process to eliminate the effects of moisture upon the sensors and to increase the thermal response time using our high quality, thermally conductive epoxy. The probe is designed to be used in duct and immersion applications when used with the proper length thermowell. Optional lead lengths, cable types and NIST Certificates are available as referenced in the ordering grid on the Product Data Sheet. Please contact ACI for more information regarding this sensor or to discuss your application in further detail. Other options that may be available upon request.

Applications: Roof Top Units, Air Handlers, Supply/Discharge Air/Return/Mixed/Exhaust Air Duct Temperature Sensing, Immersion Temperature Sensors, Replacement Temperature Sensors.

The ACI Thermistor Probe Only Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, workaci.com.

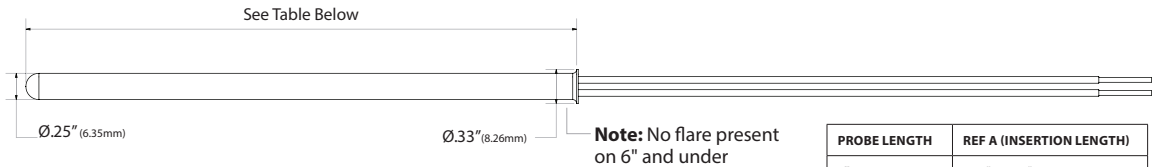
PRODUCT SPECIFICATIONS

| | | | | | | | | | | | | | |
|---|---|---|---|--|---|--|---|--|---|---|--|---|--|
| Sensor Type: | Thermistor | | | | | | | | | | | | |
| Sensor Curve: | Non-Linear NTC (Negative Temperature Coefficient) | | | | | | | | | | | | |
| Number Sensing Points: | One | | | | | | | | | | | | |
| Number Wires: | Two (Non-Polarity Sensitive) | | | | | | | | | | | | |
| Sensor Output @ 25°C (77°F) (Standard Lead Wire Colors): | <table border="0"> <tr> <td>A/1.8K: 1.8KΩ nominal (Red/Yellow)</td> <td>A/10KS: 10KΩ nominal (White/Blue)</td> </tr> <tr> <td>A/3K: 3KΩ nominal (White/Brown)</td> <td>A/10K-E1: 10KΩ nominal (Gray/Orange)</td> </tr> <tr> <td>A/AN (Type III): 10KΩ nominal (White/White)</td> <td>A/20K: 20KΩ nominal (Brown/Blue)</td> </tr> <tr> <td>A/AN-BC: 5.238KΩ nominal (White/Yellow)</td> <td>A/50K: 50KΩ nominal (Brown/Yellow)</td> </tr> <tr> <td>A/CP (Type II): 10KΩ nominal (White/Green)</td> <td>A/100KS: 100KΩ nominal (Black/Yellow)</td> </tr> <tr> <td>A/CSI: 10KΩ nominal (Green/Yellow)</td> <td></td> </tr> </table> | A/1.8K: 1.8KΩ nominal (Red/Yellow) | A/10KS: 10KΩ nominal (White/Blue) | A/3K: 3KΩ nominal (White/Brown) | A/10K-E1: 10KΩ nominal (Gray/Orange) | A/AN (Type III): 10KΩ nominal (White/White) | A/20K: 20KΩ nominal (Brown/Blue) | A/AN-BC: 5.238KΩ nominal (White/Yellow) | A/50K: 50KΩ nominal (Brown/Yellow) | A/CP (Type II): 10KΩ nominal (White/Green) | A/100KS: 100KΩ nominal (Black/Yellow) | A/CSI: 10KΩ nominal (Green/Yellow) | |
| A/1.8K: 1.8KΩ nominal (Red/Yellow) | A/10KS: 10KΩ nominal (White/Blue) | | | | | | | | | | | | |
| A/3K: 3KΩ nominal (White/Brown) | A/10K-E1: 10KΩ nominal (Gray/Orange) | | | | | | | | | | | | |
| A/AN (Type III): 10KΩ nominal (White/White) | A/20K: 20KΩ nominal (Brown/Blue) | | | | | | | | | | | | |
| A/AN-BC: 5.238KΩ nominal (White/Yellow) | A/50K: 50KΩ nominal (Brown/Yellow) | | | | | | | | | | | | |
| A/CP (Type II): 10KΩ nominal (White/Green) | A/100KS: 100KΩ nominal (Black/Yellow) | | | | | | | | | | | | |
| A/CSI: 10KΩ nominal (Green/Yellow) | | | | | | | | | | | | | |
| Accuracy 0-70°C (32-158°F): | +/-0.2°C (+/-0.36°F) except A/10K-E1 Series: +/- 0.3°C (+/-0.54°F) A/1.8K Series: +/- 0.5°C @ 25°C (77°F) and (+/-1.0°C) (+/-1.8°F) | | | | | | | | | | | | |
| Stability: | Sensor Dependent; Contact ACI for more information on the sensor in question. | | | | | | | | | | | | |
| Response Time (63% Step Change): | 10 Seconds nominal | | | | | | | | | | | | |
| Power Dissipation Constant: | 3 mW/°C except A/1.8K Series: 1 mW/°C A/10K-E1 Series: 2 mW/°C | | | | | | | | | | | | |
| Operating Temperature Range: | -40 to 150°C (-40 to 302°F) | | | | | | | | | | | | |
| Storage Temperature Range: | -40 to 85°C (-40 to 185°F) | | | | | | | | | | | | |
| Operating Humidity Range: | 10 to 95% RH, non-condensing | | | | | | | | | | | | |
| Probe Material: | 304 Stainless Steel | | | | | | | | | | | | |
| Standard Wire | <table border="0"> <tr> <td>Lead Wire Insulation Wire Rating:</td> <td>Etched Teflon (PTFE) Colored Leads MIL-W-16878/4 (Type E)</td> </tr> <tr> <td>Temperature Rating:</td> <td>-55°C (-67°F) to 200°C (392°F)</td> </tr> <tr> <td>Conductor Material:</td> <td>Silver Plated Copper</td> </tr> <tr> <td>Rated Application:</td> <td>Suitable for Indoor and Outdoor (wet) location. Oil, Moisture, Acids, Oils and Moisture Resistant</td> </tr> <tr> <td>Lead Length Conductor Size:</td> <td>4", 6" and 8" Probes: 14" (35.6 cm) 12" and 18" Probes: 24" (61cm) 22 AWG (0.65mm)</td> </tr> </table> | Lead Wire Insulation Wire Rating: | Etched Teflon (PTFE) Colored Leads MIL-W-16878/4 (Type E) | Temperature Rating: | -55°C (-67°F) to 200°C (392°F) | Conductor Material: | Silver Plated Copper | Rated Application: | Suitable for Indoor and Outdoor (wet) location. Oil, Moisture, Acids, Oils and Moisture Resistant | Lead Length Conductor Size: | 4", 6" and 8" Probes: 14" (35.6 cm) 12" and 18" Probes: 24" (61cm) 22 AWG (0.65mm) | | |
| Lead Wire Insulation Wire Rating: | Etched Teflon (PTFE) Colored Leads MIL-W-16878/4 (Type E) | | | | | | | | | | | | |
| Temperature Rating: | -55°C (-67°F) to 200°C (392°F) | | | | | | | | | | | | |
| Conductor Material: | Silver Plated Copper | | | | | | | | | | | | |
| Rated Application: | Suitable for Indoor and Outdoor (wet) location. Oil, Moisture, Acids, Oils and Moisture Resistant | | | | | | | | | | | | |
| Lead Length Conductor Size: | 4", 6" and 8" Probes: 14" (35.6 cm) 12" and 18" Probes: 24" (61cm) 22 AWG (0.65mm) | | | | | | | | | | | | |
| Plenum Wire | <table border="0"> <tr> <td>Lead Wire Insulation Wire Rating:</td> <td>CL2P: FEP (Fluorinated Ethylene Propylene) TYPE CL2P - TYPE CMP 22 AWG (UL), C(UL) FEP/FEP E1 30356 ROHS</td> </tr> <tr> <td>Temperature Rating:</td> <td>CL2P: -80°C (-112°F) to 150°C (302°F)</td> </tr> <tr> <td>Conductor Material:</td> <td>CL2P: Tinned Copper</td> </tr> <tr> <td>Rated Application:</td> <td>CL2P: Suitable for Indoor and Outdoor (wet) locations. Oil, Gas, Sunlight, Abrasion Acid Resistant</td> </tr> </table> | Lead Wire Insulation Wire Rating: | CL2P: FEP (Fluorinated Ethylene Propylene) TYPE CL2P - TYPE CMP 22 AWG (UL), C(UL) FEP/FEP E1 30356 ROHS | Temperature Rating: | CL2P: -80°C (-112°F) to 150°C (302°F) | Conductor Material: | CL2P: Tinned Copper | Rated Application: | CL2P: Suitable for Indoor and Outdoor (wet) locations. Oil, Gas, Sunlight, Abrasion Acid Resistant | | | | |
| Lead Wire Insulation Wire Rating: | CL2P: FEP (Fluorinated Ethylene Propylene) TYPE CL2P - TYPE CMP 22 AWG (UL), C(UL) FEP/FEP E1 30356 ROHS | | | | | | | | | | | | |
| Temperature Rating: | CL2P: -80°C (-112°F) to 150°C (302°F) | | | | | | | | | | | | |
| Conductor Material: | CL2P: Tinned Copper | | | | | | | | | | | | |
| Rated Application: | CL2P: Suitable for Indoor and Outdoor (wet) locations. Oil, Gas, Sunlight, Abrasion Acid Resistant | | | | | | | | | | | | |
| Product Dimensions Probe Diameter: | See table on back of product data sheet 0.250" (6.35mm) | | | | | | | | | | | | |
| Product Weight: | 4" = 0.028 lbs. (12.7g) 6" = 0.036 lbs. (16.3g) 8" = 0.044 lbs. (20g) 12" = 0.066 lbs. (29.9g) 18" = 0.09 lbs. (40.8g) | | | | | | | | | | | | |
| Agency Approvals: | CE, RoHS2, WEEE | | | | | | | | | | | | |





DIMENSIONAL DRAWING



| PROBE LENGTH | REF A (INSERTION LENGTH) |
|--------------|--------------------------|
| 2" | 2.00" ± 0.13" |
| 4" | 4.00" ± 0.13" |
| 6" | 6.00" ± 0.13" |
| 8" | 8.00" ± 0.13" |
| 12" | 12.00" ± 0.25" |
| 18" | 18.00" ± 0.25" |

Standard View

CUSTOM ORDERING

Model # Example:

A/ 1.8K PO 4" 6'CL2P NIST

MODEL #

| | | |
|---|--|----|
| A. Sensor Series¹ No Selection Required | A/ | |
| B. Model Series Select One (1) | 1.8K 3K AN AN-BC CP CSI 10KS 10K-E1 20K 50K 100KS | |
| C. Configuration Select One (1) | PO = Probe Only | PO |
| D. Probe Length Select One (1) | 2" = 2" Probe 4" = 4" Probe 6" = 6" Probe 8" = 8" Probe 12" = 12" Probe 18" = 18" Probe | |
| E. Lead Wire Options Select One (1) | ---- = Standard 14 or 24" Etched PTFE Colored Leads 6'CL2P = 6 ft (1.83m), 2 Conductor Plenum Rated Cable 10'CL2P = 10 ft (3.05m), 2 Conductor Plenum Rated Cable 20'CL2P = 20 ft (6.10m), 2 Conductor Plenum Rated Cable | |
| F. NIST Select One (1) | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) | |

ACCESSORIES ORDERING

Model # Example: NSG HEAT TRANSFER PASTE 2OZ -OR- 102595

| Model # | Item # | Description |
|------------------------------|--------|--|
| NSG HEAT TRANSFER PASTE 2OZ | 102595 | Thermal Grease, 2 oz. Tube, Silicone Free, -40 to 320°F (-40 to 160°C) |
| NSG HEAT TRANSFER PASTE 16OZ | 140574 | Thermal Grease, 16 oz. Jar, Silicone Free, -40 to 390°F (-40 to 198°C) |





RAW POTTED

Remote Sensing Plastic Cap, Thermistor



The ACI Thermistor Raw Series features a one inch long, 1/4" diameter plastic cup with two, 24 inch 22 AWG Etched Teflon colored lead wires to differentiate the different sensor types. The sensors in this series are manufactured using ACI's proven manufacturing process to eliminate the effects of moisture on the sensors and increased thermal response times using our high quality, thermally conductive epoxy. The raw sensor configuration is designed to monitor air temperatures and should not be fully submerged in liquid. This series can be ordered with optional NIST Certificate and a plenum rated cable option as shown in the ordering grid on the back of the product data sheet. All additional wire specifications can be found on our products download page on-line. Please contact ACI for more information regarding this product or to

discuss your application in further detail. Other options may be available upon request.

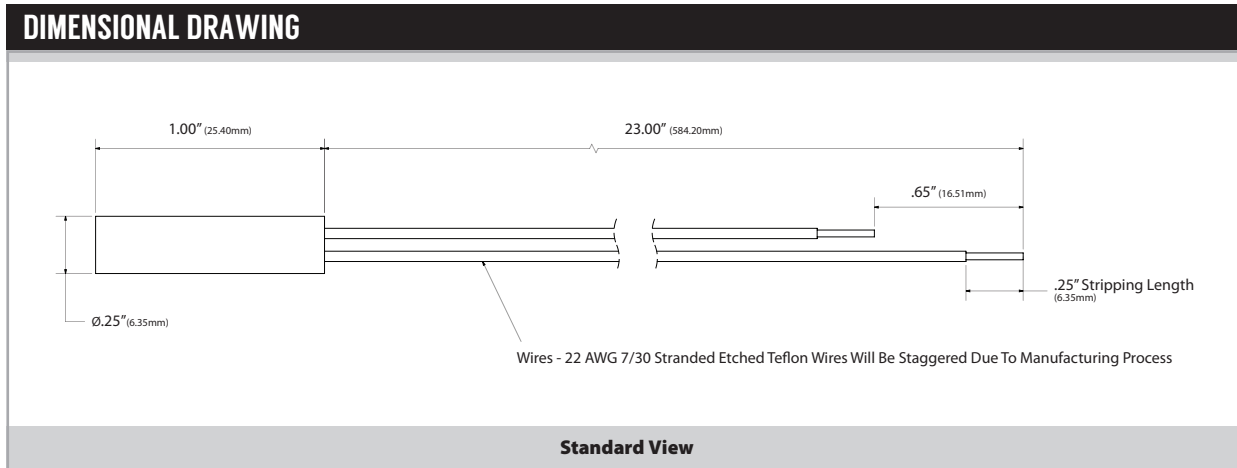
Applications: Roof Top Units, Air Handlers, Discharge Air/Supply/Return/Mixed Air Duct Temperature, Remote Temperature Sensing

The ACI Thermistor Raw Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | | |
|--|---|--|
| Sensor Type Sensor Curve: | Thermistor Non-Linear, NTC (Negative Temperature Coefficient) | |
| Number Sensing Points: | One | |
| Number Wires: | Two (Non-Polarity Sensitive) | |
| Sensor Output @ 25°C (77°F) | A/1.8K: 1.8KΩ nominal (Red/Yellow) | A/CSI: 10KΩ nominal (Green/Yellow) |
| (Lead Wire Colors): | A/3K: 3KΩ nominal (White/Brown) | A/10KS: 10KΩ nominal (White/Blue) |
| | A/AN (Type III): 10KΩ nominal (White/White) | A/10K-E1: 10KΩ nominal (Gray/Orange) |
| | A/AN-BC: 5.238KΩ nominal (White/Yellow) | A/20K: 20KΩ nominal (Brown/Blue) |
| | A/CP (Type II): 10KΩ nominal (White/Green) | A/100KS: 100KΩ nominal (Black/Yellow) |
| Sensor Accuracy 0-70°C (32-158°F): | +/- 0.2°C (+/- 0.36°F) except A/10K-E1 Series: +/- 0.3°C (+/- 0.54°F) A/1.8K Series: +/- 0.5°C @ 25°C (77°F) and (+/- 1.0°C) (+/- 1.8°F) | |
| Power Dissipation Constant: | 3 mW/°C except A/1.8K Series: 1 mW/°C A/10K-E1 Series: 2 mW/°C | |
| Stability: | Sensor Dependent; Contact ACI for more information on specific sensor | |
| Response Time (63% Step Change): | 10 Seconds nominal | |
| Cup Plastic Material Flammability Rating: | Glass Filled, Flame Retardant, Diallyl Ortho Phthalate UL94-V0 | |
| Cup MIL-M-14, ASTM D-5948-96: | Type SDG-F | |
| Operating Temperature Range: | -40 to 150°C (-40 to 302°F) | |
| Storage Temperature Range: | -40 to 85°C (-40 to 185°F) | |
| Operating Humidity Range: | 10 to 95% RH, non-condensing | |
| Lead Length Conductor Size: | 24" (0.61m) 22 AWG (0.65mm) | |
| Lead Wire Insulation Wire Rating: | Etched Teflon (PTFE) Colored Leads Mil Spec 16878/4 Type E | |
| Conductor Material: | Silver Plated Copper | |
| Product Dimensions (Length x Diameter): | 1.00" (25.4mm) x 0.250" (6.35mm) | |
| Product Weight: | 0.04 lbs. (18.15g) | |
| Agency Approvals: | CE, RoHS2, WEEE | |





STANDARD ORDERING

Model # Example: **A/3K-W -OR- 121091**

| Model # | Item # | Description |
|-------------------|--------|---|
| A/1.8K-W | 125493 | 1.8K Raw, 24" Leads, 1" Cup |
| A/3K-W | 121091 | 3K Raw, 24" Leads, 1" Cup |
| A/AN-W | 121744 | AN (Type III) Raw, 24" Leads, 1" Cup |
| A/AN-BC-W | 121745 | AN-BC Raw, 24" Leads, 1" Cup, 11K Shunt |
| A/CP-W | 122274 | CP (Type II) Raw, 24" Leads, 1" Cup |
| A/CSI-W | 122420 | CSI Raw, 24" Leads, 1" Cup |
| A/10KS-W | 120234 | 10KS Raw, 24" Leads, 1" Cup |
| A/10K-E1-W | 142390 | 10K-E1 Raw, 24" Leads, 1" Cup |
| A/20K-W | 120706 | 20K Raw, 24" Leads, 1" Cup |
| A/100KS-W | 120140 | 100KS Raw, 24" Leads, 1" Cup |

OPTIONAL SENSOR ORDERING

Model # Example: **A/ 3K W 20' CL2P NIST**
A. B. C. D. E. F.

| | | MODEL # |
|--|---|-------------|
| A. Sensor Series No Selection Required | A/ _____ → | A/ |
| B. Model Series Select One (1) | 1.8K 3K AN AN-BC CP CSI 10KS 10K-E1 20K 100KS | |
| C. Configuration No Selection Required | W = 1" Plastic Cup _____ → | W |
| D. Lead Length Select One (1) | 6' = 6 Feet (1.83m) 10' = 10 Feet (3.05m) 20' = 20 Feet (6.10m)* | |
| E. Lead Wire Type No Selection Required | CL2P = 2 Conductor FEP/FEP Plenum Rated Cable _____ → | CL2P |
| F. NIST Select One (1) | ---- = No NIST Certificate NIST = NIST Certificate (Must Specify 1, 3 or 5 Points) | |

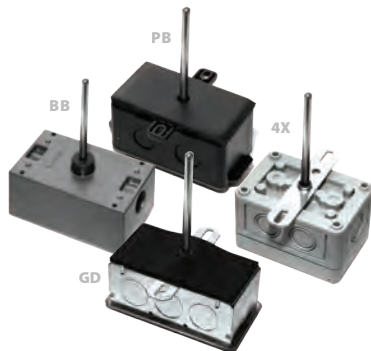
Note*: The 20' Length is not CE Compliant but it is RoHS Compliant

ACCESSORIES ORDERING

Model # Example: **¼" Mount Clip -OR- 108169**

| Model # | Item # | Description | Galvanized Metal | Plastic w/ Adhesive |
|----------------------|--------|---------------------------------------|------------------|---------------------|
| ¼" Mount Clip | 108169 | Hardware, ¼" Mounting Clip | ● | |
| ¼" U-Mount CL | 100090 | Hardware, ¼" U-Mounting Clip Adhesive | | ● |





RIGID AVERAGING

Four Point Averaging, Thermistor

The ACI Thermistor Rigid Averaging Series features a ¼" Diameter stainless steel sensing element with two, 12 inch, 22 AWG Etched Teflon colored lead wires to differentiate the different sensor types. The sensors in this series are manufactured with 4 sensing points in lengths from 12" to 48". The rigid averaging sensors will provide a better average temperature of the air inside the duct when compared to a single point sensing element. Each of the elements is hermetically sealed to prevent any moisture intrusion and includes an integrated foam pad to properly seal the duct and dampen vibrations when installed. The benefits of using the rigid averaging sensor is that it mounts like a standard single point duct sensor but includes three additional sensing points for better control. The sensor length should be determined by the size of your duct. Our standard enclosures include the galvanized junction box "GD" or plastic duct enclosure "PB" with the hinged cover depending on your preference.

This series can be ordered with optional NEMA/IP rated weather proof enclosures as referenced in the ordering grid.

Applications: Air Handlers, Roof Top Units, Mixed Air/Discharge/Supply/Return Air Temperature Monitoring, Data Centers, Hospitals

The ACI Thermistor Rigid Averaging Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | | |
|---|--|--|
| Sensor Type Sensor Curve: | Thermistor Non-Linear, NTC (Negative Temperature Coefficient) | |
| Number Sensing Points: | Four | |
| Number Wires: | Two (Non-Polarity Sensitive) | |
| Sensor Output @ 25°C (77°F) | A/1.8K: 1.8KΩ nominal (Red/Yellow) | A/10KS: 10KΩ nominal (White/Blue) |
| (Lead Wire Colors): | A/3K: 3KΩ nominal (White/Brown) | A/10K-E1: 10KΩ nominal (Gray/Orange) |
| | A/AN (Type III): 10KΩ nominal (White/White) | A/20K: 20KΩ nominal (Brown/Blue) |
| | A/AN-BC: 5.238KΩ nominal (White/Yellow) | A/50K: 50KΩ nominal (Brown/Yellow) |
| | A/CP (Type II): 10KΩ nominal (White/Green) | A/100KS: 100KΩ nominal (Black/Yellow) |
| | A/CSI: 10KΩ nominal (Green/Yellow) | |
| Accuracy 0-70°C (32-158°F): | +/-0.20°C (+/-0.36°F) | |
| Stability: | Sensor Dependent; Contact ACI for more information on the sensor in question. | |
| Response Time (63% Step Change): | 10 Seconds nominal | |
| Power Dissipation Constant: | 4 mW/°C except A/1.8K Series = 2 mW; A/100KS Series: 6 mW | |
| Enclosure Temperature Range: | "GD" Enclosure: -40 to 115°C (-40 to 239°F), Galvanized Steel, NEMA 1 (IP10) "PB" Enclosure: -30 to 90°C (-22 to 194°F), ABS Plastic, UL94-HB, Plenum Rated "BB" Enclosure: -40 to 115°C (-40 to 239°F), Aluminum, NEMA 3R (IP14) "4X" Enclosure: -40 to 70°C (-40 to 158°F), Polystyrene Plastic, NEMA 4X (IP66) | |
| Storage Temperature Range: | -40 to 85°C (-40 to 185°F) | |
| Operating Humidity Range: | 10 to 95% RH, non-condensing | |
| Probe Material: | 304 Stainless Steel | |
| Probe Diameter: | 0.250" (6.35mm) | |
| Fitting Material Flammability Rating: | Polyamide 66 (High Performance Nylon) UL94-HB | |
| Foam Pad Material Flammability Rating: | Neoprene/EPDM/SBR Polymer UL94-HBF; FMVSS-302; MIL-R-6130C | |
| Lead Length Conductor Size: | 12" (30.5cm) 22 AWG (0.65mm) | |
| Lead Wire Insulation Wire Rating: | Etched Teflon (PTFE) Colored Leads MIL-W-16878/4 (Type E) | |
| Conductor Material: | Silver Plated Copper | |
| Product Dimensions Product Weight: | See table on back of Product Data sheet | |
| Agency Approvals: | CE, RoHS2, WEEE | |





DIMENSIONAL DRAWING, WEIGHTS

xx = Sensor Type | yy = Insertion Length

Plastic Box Enclosure [PB]

3.60" (91.44mm) x 4.79" (121.55mm) x 2.25" (57.15mm)

4.79" (121.55mm) x 2.35" (59.80mm)

Available with 12", 18", 24", 36" & 48" Probe Lengths

Plastic Box Enclosure [PB] Weights

| ACI Model # | 12" (Probe Length) | 18" (Probe Length) |
|---------------|----------------------|----------------------|
| A/xx-RA-yy-PB | 0.28 lbs. (0.127 kg) | 0.30 lbs. (0.136 kg) |

| ACI Model # | 24" (Probe Length) | 36" (Probe Length) |
|---------------|----------------------|----------------------|
| A/xx-RA-yy-PB | 0.32 lbs. (0.145 kg) | 0.36 lbs. (0.163 kg) |

Galvanized Enclosure [GD]

3.88" (98.60mm) x 4.20" (106.68mm) x 1.78" (45.18mm)

Available with 12", 18", 24", 36" & 48" Probe Lengths

Galvanized Enclosure [GD] Weights

| ACI Model # | 12" (Probe Length) | 18" (Probe Length) |
|---------------|----------------------|----------------------|
| A/xx-RA-yy-GD | 0.70 lbs. (0.317 kg) | 0.74 lbs. (0.336 kg) |

| ACI Model # | 24" (Probe Length) | 36" (Probe Length) |
|---------------|----------------------|----------------------|
| A/xx-RA-yy-GD | 0.78 lbs. (0.354 kg) | 0.82 lbs. (0.372 kg) |

Bell Box Enclosure [BB]

2.95" (75mm) x 2.34" (59.38mm)

Available with 12", 18", 24", 36" & 48" Probe Lengths

Bell Box Enclosure [BB] Weights

| ACI Model # | 12" (Probe Length) | 18" (Probe Length) |
|---------------|----------------------|----------------------|
| A/xx-RA-yy-BB | 0.74 lbs. (0.336 kg) | 0.78 lbs. (0.354 kg) |

| ACI Model # | 24" (Probe Length) | 36" (Probe Length) |
|---------------|----------------------|----------------------|
| A/xx-RA-yy-BB | 0.78 lbs. (0.354 kg) | 0.84 lbs. (0.381 kg) |

NEMA 4X Enclosure [4X]

3.88" (98.60mm) x 3.70" (93.98mm) x 2.24" (56.77mm)

Available with 12", 18", 24", 36" & 48" Probe Lengths

NEMA 4X Enclosure [PB] Weights

| ACI Model # | 12" (Probe Length) | 18" (Probe Length) |
|---------------|----------------------|----------------------|
| A/xx-RA-yy-4X | 0.38 lbs. (0.172 kg) | 0.40 lbs. (0.181 kg) |

| ACI Model # | 24" (Probe Length) | 36" (Probe Length) |
|---------------|----------------------|----------------------|
| A/xx-RA-yy-4X | 0.44 lbs. (0.200 kg) | 0.50 lbs. (0.227 kg) |

Standard Views
Product Weights

| CUSTOM ORDERING | | Model # Example: A/ 1.8K RA 18" GD NIST | MODEL # |
|--|---|--|----------------|
| | | A. B. C. D. E. F. | |
| A. Sensor Series <i>No Selection Required</i> | A/ | | A/ |
| B. Model Series <i>Select One (1)</i> | 1.8K 3K AN AN-BC CP CSI 10KS 10K-E1 20K 50K 100KS | | |
| C. Configuration <i>No Selection Required</i> | RA = Rigid Averaging | | RA |
| D. Probe Length <i>Select One (1)</i> | 12" = 12" Probe 18" = 18" Probe 24" = 24" Probe 36" = 36" Probe 48" = 48" Probe | | |
| E. Enclosure <i>Select One (1)</i> | GD = Galvanized PB = Plastic BB = Aluminum, NEMA 3R 4X = NEMA 4X | | |
| F. NIST <i>Select One (1)</i> | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) | | |



ROOM

Wall Mount Enclosure, Thermistor

The ACI Thermistor Room Series combines option flexibility with attractive styling in our “-R2” or “-R” style enclosures which include four-way air flow design too minimize self-heating to the sensor. These enclosures are offered in a White “-R2” or Beige “-R” color depending on the enclosure style. These units are designed to be mounted over a single gang junction box or hole in the wall using drywall anchors. Screw terminal blocks are available for making all connections to your building management system (network). An optional 1/8” Black foam pad with pressure sensitive adhesive is available to insulate the sensor from thermal drafts within the wall or wall surface. A 1/16” Hex driver is needed to secure the cover from being easily removed. The “LCD” option uses two temperature sensors to monitor the ambient air temperature in the space and is factory calibrated at a single point.

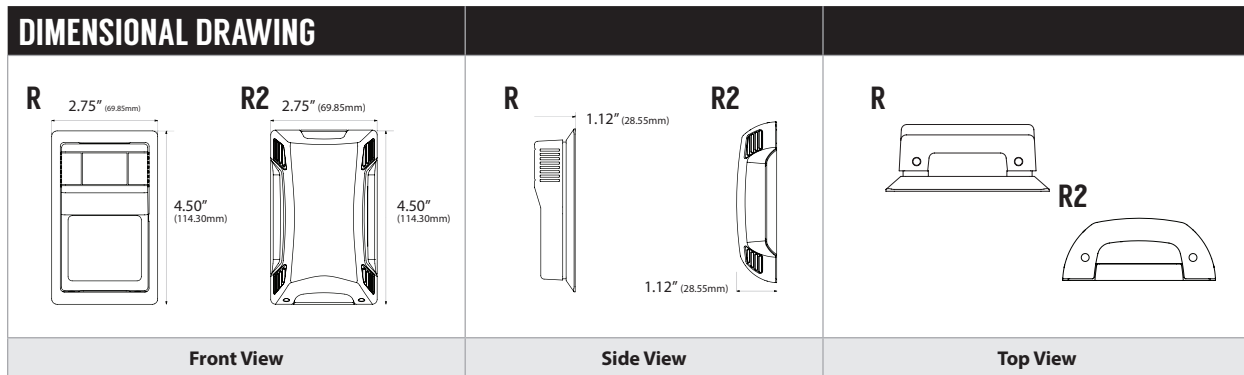
Applications: Space Temperature Sensing, Decorative Wall Sensor Applications, Office Buildings, Schools, Colleges, Commercial Buildings, OEM Opportunities

The ACI Thermistor Room is covered by ACI’s Five (5) Year Limited Warranty. The warranty can be found in the front of ACI’s Sensors & Transmitters catalog, as well as on ACI’s website, workaci.com.

| PRODUCT SPECIFICATIONS | | | | | | | | | | | | | |
|---|--|-------------------------------------|-----------------------------------|---------------------------------|------------------------------------|---|--------------------------------------|--|--|-----------------------------------|--------------------------------------|--|--|
| Sensor Type Sensor Curve: | Thermistor Non-Linear, NTC (Negative Temperature Coefficient) | | | | | | | | | | | | |
| Number Temperature Sensing Points: | One | | | | | | | | | | | | |
| Sensor Output @ 25°C (77°F): | <table border="0"> <tr> <td>A/1.8K Series: 1.8KΩ nominal</td> <td>A/CSI Series: 10KΩ nominal</td> </tr> <tr> <td>A/3K Series: 3KΩ nominal</td> <td>A/10KS Series: 10KΩ nominal</td> </tr> <tr> <td>A/AN Series (Type III): 10KΩ nominal</td> <td>A/10K-E1 Series: 10KΩ nominal</td> </tr> <tr> <td>A/AN-BC Series: 5.238KΩ nominal</td> <td>A/50K Series: 50KΩ nominal Brown/Yellow</td> </tr> <tr> <td>A/20K Series: 20KΩ nominal</td> <td>A/100KS Series: 100KΩ nominal</td> </tr> <tr> <td>A/CP Series (Type II): 10KΩ nominal</td> <td></td> </tr> </table> | A/1.8K Series: 1.8KΩ nominal | A/CSI Series: 10KΩ nominal | A/3K Series: 3KΩ nominal | A/10KS Series: 10KΩ nominal | A/AN Series (Type III): 10KΩ nominal | A/10K-E1 Series: 10KΩ nominal | A/AN-BC Series: 5.238KΩ nominal | A/50K Series: 50KΩ nominal Brown/Yellow | A/20K Series: 20KΩ nominal | A/100KS Series: 100KΩ nominal | A/CP Series (Type II): 10KΩ nominal | |
| A/1.8K Series: 1.8KΩ nominal | A/CSI Series: 10KΩ nominal | | | | | | | | | | | | |
| A/3K Series: 3KΩ nominal | A/10KS Series: 10KΩ nominal | | | | | | | | | | | | |
| A/AN Series (Type III): 10KΩ nominal | A/10K-E1 Series: 10KΩ nominal | | | | | | | | | | | | |
| A/AN-BC Series: 5.238KΩ nominal | A/50K Series: 50KΩ nominal Brown/Yellow | | | | | | | | | | | | |
| A/20K Series: 20KΩ nominal | A/100KS Series: 100KΩ nominal | | | | | | | | | | | | |
| A/CP Series (Type II): 10KΩ nominal | | | | | | | | | | | | | |
| Accuracy 0-70°C (32-158°F): | +/- 0.2°C (+/-0.36°F) except A/10K-E1 Series: +/-0.3°C (+/-0.54°F) A/1.8K Series: +/-0.5°C @ 25°C (77°F) and +/-1.0°C (+/-1.8°F) | | | | | | | | | | | | |
| Stability: | Sensor Dependent; Contact ACI for more information on specific sensor | | | | | | | | | | | | |
| Response Time (63% Step Change): | 10 Seconds nominal | | | | | | | | | | | | |
| Power Dissipation Constant: | 3 mW/°C except A/1.8K Series: 1 mW/°C A/10K-E1 Series: 2 mW/°C | | | | | | | | | | | | |
| LCD Display Supply Voltage: | +9 to 35 VDC / 24 VAC (50-60 Hz) | | | | | | | | | | | | |
| LCD Display Supply Current/VA: | < 4 mA / 0.12 VA | | | | | | | | | | | | |
| LCD Display Accuracy: | +/- 2°F or +/- 2°C @ 71°F (21.5°C) Typical | | | | | | | | | | | | |
| LCD Display Descriptor Number of Digits: | °F (Fahrenheit) or °C (Celsius) 3 1/2 Segment Display | | | | | | | | | | | | |
| LCD Display Life Expectancy: | 50,000 Hours Minimum | | | | | | | | | | | | |
| Set Point Specifications Set Point Indication: | See Ordering Grid options on back of Product Data Sheet | | | | | | | | | | | | |
| Set Point Tolerance: | +/- 10% of Range | | | | | | | | | | | | |
| Override Options: | Short Thermistor (Default); Field (Jumper) Selectable “Dry Contact” Closure (Separate Input); Short Set Point available upon request | | | | | | | | | | | | |
| Operating Storage Temperature Range: | 1.5 to 50°C (35 to 122°F) Non-LCD: -40 to 65°C (-40 to 149°F), LCD Display: -10 to 65°C (14 to 149°F) | | | | | | | | | | | | |
| Operating Humidity Range: | 10 to 95%RH, non-condensing | | | | | | | | | | | | |
| Connections Wire Size: | Screw Terminal Blocks 16 (1.31 mm ²) to 26 (0.129 mm ²) AWG | | | | | | | | | | | | |
| Terminal Block Torque Rating: | 0.5 Nm (minimum); 0.6 Nm (maximum) | | | | | | | | | | | | |
| Enclosure Material Color: | “-R2” Enclosure: ABS Plastic, White, UL94-HB “R” Enclosure: ABS Plastic, Beige UL94-HB | | | | | | | | | | | | |
| Product Dimensions: | See Drawing on back of Product Data Sheet | | | | | | | | | | | | |
| Product Weight: | A/XX-R/RS/RO Series: 0.14 lbs. (63.5g) A/XX-RSO Series: 0.18 lbs. (81.6g) A/XX-R2/R2S/R2O Series: 0.16 lbs. (72.6g) A/XX-R2SO Series: 0.20 lbs. (90.7g) All LCD Display Units: 0.18 lbs. (81.6g) | | | | | | | | | | | | |
| Agency Approvals: | CE**, RoHS2, WEEE | | | | | | | | | | | | |

Note**: All LCD Display Units are not CE Compliant, but they are RoHS2 Compliant





| STANDARD ORDERING | | |
|-------------------|--------|--|
| Model # | Item # | Description |
| A/CP-R | 144212 | 10K (Type II), "R" Version, Beige, No Options |
| A/CP-R2 | 144213 | 10K (Type II), "R2" Version, White, No Options |
| A/AN-R | 144208 | 10K (Type III), "R" Version, Beige, No Options |
| A/AN-R2 | 144209 | 10K (Type III) "R2" Version, White, No Options |
| A/20K-R | 144160 | 20K, "R" Version, Beige, No Options |
| A/20K-R2 | 144170 | 20K, "R2" Version, White, No Options |

| CUSTOM ORDERING | | MODEL # |
|--|---|---------|
| A. Sensor Series¹ No Selection Required | A/ _____ → | A/ |
| B. Model Series Select One (1) | 1.8K 3K AN AN-BC CP CSI 10KS 10K-E1 20K 50K 100KS | |
| C. Configuration Select One (1) | R = Room RO = Room with Override RS = Room with Set Point R5O = Room with Setpoint and Override R2 = Room R2O = Room with Override R2S = Room with Set Point R2SO = Room with Set Point and Override | |
| D. Communication Jack Select One (1) | ---- = No Jack RJ4 = 4 Pin 4 Conductor RJ9, RJ10 or RJ22 Style Head Set Modular Connector RJ6 = 6 Pin 6 Conductor RJ12 Modular Phone Connector 232 = 3.5mm (1/8") Stereo Jack | |
| E. LCD Display² Select One (1) | ---- = No LCD Display LCD ² = With LCD Display (Only Available with "R" Style Enclosure) | |
| F. LCD Display Descriptor Select One (1) | F = °F (Fahrenheit) C = °C (Celsius) | |
| G. NIST³ Select One (1) | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) | |
| Setpoint Configuration Options Select Options below if RS, R5O, R2S or R2SO was selected as a Configuration (C) | | |
| 1. Slidepots⁴ Select One (1) | Direct Acting (Range in Ohms) A01 = 0 to 100K A02 = 0 to 20K A03 = 0 to 10K A06 = 4.75K to 24.75K A07 = 10K to 30K A08 = 1K to 11K A09 = 0 to 2K A10 = 0 to 1K A11 = 2.05K to 3.05K A12 = 0 to 400 A16 = 0 to 5K A18 = 10K to 15K A20 = 6.19K to 26.19K A26 = 866 to 1,266 A29 = 7.87K to 27.8K Reverse Acting (Range in Ohms) A04 = 1051.1 to 51.1 A14 = 10K to 0 A24 = 9.5K to 1K | |
| 2. Setpoint Indication Select One (1) | A3 = 18-28 DEG C A4 = 20-30 DEG C B4 = 55-85 DEG F B7 = 60-90 DEG F C5 = COOL/WARM C6 = COOLER/WARMER D3 = WARM/COOL G5 = BLUE/RED (R2 Enclosure) | |

Note¹: A/ part numbers come without logo. For custom logo, replace A/ with Company abbreviation. Please contact ACI | **Note²:** LCD Display is not compatible with NIST | **Note³:** NIST is available in "R" and "R2" only configurations | **Note⁴:** Other Setpoint configurations are available. Please contact ACI | **Note⁵:** Short Sensor is factory default, but the Dry Contact option is field selectable with jumper shunts included





ACCESSORIES ORDERING

| Model # | Item # | Description |
|---------------------------|--------|---|
| A/MOUNTING PLATE BEIGE R | 106821 | Wall Mounting Back Plate, Plastic, Beige ("R") |
| A/MOUNTING PLATE WHITE R | 126386 | Wall Mounting Back Plate, Plastic, White ("R") |
| A/MOUNTING PLATE WHITE R2 | 143369 | Wall Mounting Back Plate, Plastic, White ("R2") |
| LOCKING COVER | 107370 | Clear Thermostat Guard, Locking Cover, Low Profile |
| A/ROOM-FOAM-PAD | 125690 | 1/8" Foam Insulation Pad with Adhesive (3" x 2", Black) |







STRAP ON

Non-Intrusive Pipe Mount, Thermistor

The ACI Thermistor Strap-On Series features a 1.5" square copper plate with the sensor encapsulated to the back side of the plate to improve the thermal conductivity between the pipe and the sensor when an Immersion style sensor can't be inserted into the pipe. Each sensor has two, 14 inch 22 AWG Etched Teflon colored lead wires to differentiate the different sensor types. The sensors in this series are manufactured using ACI's proven double encapsulation process to eliminate the effects of moisture upon the sensors as well as to improve the thermal response times using our high quality, thermally conductive epoxy. The Strap-On Series sensors can be used to monitor pipe sizes from 1 1/4" to 10" in diameter. For best accuracy and increased thermal conduction between the pipe and the sensor, ACI

recommends to clean the pipe before applying thermal grease as well as to insulate the sensor from the effects of the ambient air. Optional weather proof enclosure and NIST certificates are available upon request.

Applications: Cold Water Systems, Hot Water Systems, Retrofit, Hydronic Heating Systems, Chillers

The ACI Thermistor Strap-On Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | | |
|--|---|--|
| Sensor Type Sensor Curve: | Thermistor Non-Linear, NTC (Negative Temperature Coefficient) | |
| Number Sensing Points: | One | |
| Number Wires: | Two (Non-Polarity Sensitive) | |
| Sensor Series Output @ 25°C (77°F) (Lead Wire Colors): | A/1.8K: 1.8KΩ nominal (Red/Yellow) | A/10KS: 10KΩ nominal (White/Blue) |
| | A/3K: 3KΩ nominal (White/Brown) | A/10K-E1: 10KΩ nominal (Gray/Orange) |
| | A/AN (Type III): 10KΩ nominal (White/White) | A/20K: 20KΩ nominal (Brown/Blue) |
| | A/AN-BC: 5.238KΩ nominal (White/Yellow) | A/50K: 50KΩ nominal (Brown/Yellow) |
| | A/CP (Type II): 10KΩ nominal (White/Green) | A/100KS: 100KΩ nominal (Black/Yellow) |
| | A/CSI: 10KΩ nominal (Green/Yellow) | |
| Accuracy 0-70°C (32-158°F): | +/-0.2°C (+/-0.36°F) except A/10K-E1 Series: +/-0.3°C (+/-0.54°F); A/1.8K Series: +/- 0.5°C @ 25°C (77°F) and (+/-1.0°C) (+/-1.8°F) | |
| Stability: | Sensor Dependent; Contact ACI for more information on specific sensor | |
| Response Time (63% Step Change): | 30 Seconds nominal | |
| Power Dissipation Constant: | 3 mW/°C except A/1.8K Series: 1 mW/°C A/10K-E1 Series: 2 mW/°C | |
| Enclosure Specifications, Operating Temperature Range, Ratings: | A/XX-S-GD: Galvanized Steel, -40 to 93°C (-40 to 200°F), NEMA 1 (IP 10) A/XX-S-PB: ABS Plastic, -30 to 85°C (-22 to 185°F), UL94-HB, Plenum Rated A/XX-S-4X: Polystyrene Plastic, -40 to 70°C (-40 to 158°F), UL94-V2, NEMA 4X (IP 66) | |
| Storage Temperature Range: | -40 to 80°C (-40 to 176°F) | |
| Operating Humidity Range: | 10 to 95% RH, non-condensing | |
| Pipe Mount Sensor Enclosure Material: | 14" (35.6cm) 22 AWG (0.65mm) | |
| Acceptable Pipe Size: | A/X-S-XX: 1 1/4" (32mm) to 4" (100mm); A/X-S10-XX: 2" (50mm) to 10" (250mm) | |
| Foam Material Flammability Rating: | Neoprene/EPDM/SBR Polymer UL94-HF1; MIL-R-6130C; FMVSS-302 | |
| Lead Length Conductor Size: | A/XX-S-XX: 14" (35.6cm) A/XX-S10-XX: 22 AWG (0.65mm) | |
| Lead Wire Insulation Wire Rating: | Etched Teflon (PTFE) Colored Leads MIL-W-16878/4 (Type E) | |
| Conductor Material: | Silver Plated Copper | |
| Product Dimensions: | See Drawing on Back of Data Sheet | |
| Product Weight: | A/XX-S-GD: 0.80 lbs. (0.37kg) A/XX-S-PB: 0.40 lbs. (0.18kg) A/XX-S-4X: 0.55 lbs. (0.25kg) | |
| Agency Approvals: | CE, RoHS2, WEEE | |





| DIMENSIONAL DRAWING | | |
|--|-------------------|-----------------|
| <p>Plastic Box Enclosure [PB]</p> | | |
| <p>Galvanized Enclosure [GD]</p> | | |
| <p>NEMA 4X Enclosure [4X]</p> | | |
| Front View | Right View | Top View |

| CUSTOM ORDERING | | Model # Example: A/ 1.8K S PB NIST | MODEL # |
|---|---|---|---------|
| | | A. B. C. D. E. | |
| A. Sensor Series No Selection Required | A/ | | A/ |
| B. Model Series Select One (1) | 1.8K 3K AN AN-BC CP CSI 10KS 10K-E1 20K 50K 100KS | | |
| C. Configuration Select One (1) | S = Strap-On (1.25" to 4" Pipe Size) S10 = Strap-On (2" to 10" pipe size) | | |
| D. Enclosure Select One (1) | GD = Galvanized PB = Plastic 4X = NEMA 4X Weather Proof | | |
| E. NIST Select One (1) | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) | | |

| ACCESSORIES ORDERING | | | Model # Example: A/HOSE CLAMP-2-12" -OR- 142631 |
|-------------------------------------|--------|--|--|
| Model # | Item # | Description | |
| A/HOSE CLAMP-2-5" | 142630 | Hardware, 2-5" Hose Clamp, Quick Release Worm Gear, 201/301 Stainless Steel | |
| A/HOSE CLAMP-2-12" | 142631 | Hardware, 2-12" Hose Clamp, Quick Release Worm Gear, 201/301 Stainless Steel | |
| NSG HEAT TRANSFER PASTE 2OZ | 102595 | Thermal Grease, 2 oz. Tube, Silicone Free, -40 to 320°F (-40 to 160°C) | |
| NSG HEAT TRANSFER PASTE 16OZ | 140574 | Thermal Grease, 16 oz. Jar, Silicone Free, -40 to 390°F (-40 to 198°C) | |





WALL PLATES

Stainless & Aluminum Wall Plate, Thermistor

The ACI Thermistor Wall Plate Series features a decorative, single gang brushed Stainless Steel or Smooth Satin Finished Anodized Aluminum wall plate with two, 14 inch 22 AWG Etched Teflon colored lead wires to differentiate the different NTC sensor types. The sensors in this series are manufactured using ACI's proven double encapsulation process to eliminate the effects of moisture upon the sensors and to increase the thermal response times using our high quality, thermally conductive epoxy. A foam pad is included to insulate the sensor from thermal drafts within the wall, since they are designed to be mounted over a standard single gang junction box or directly over a hole in the wall with the use of drywall anchors to monitor ambient air temperatures in a space. Tamper Proof mounting screws are available upon request.

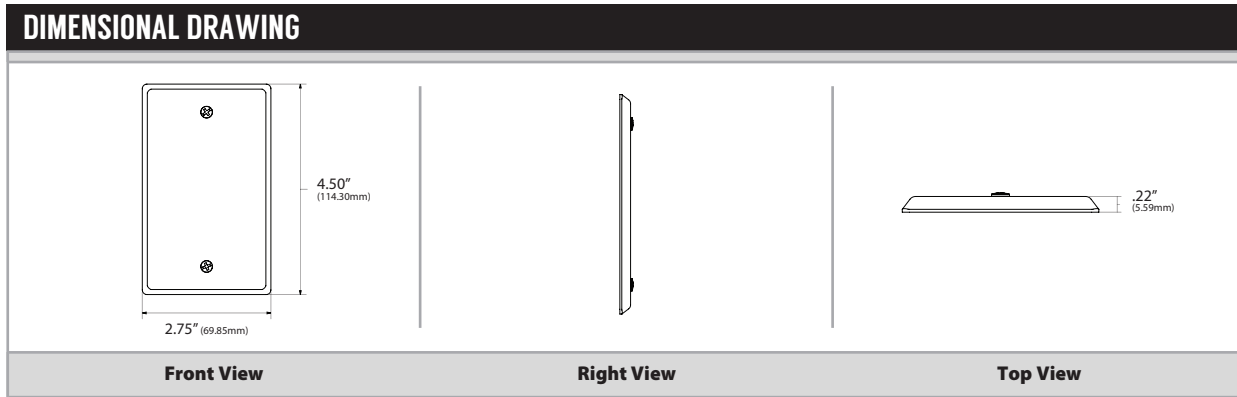
Applications: Space Temperature Sensing, Decorative Wall Plate Applications, Tamper Proof Applications, Schools, Gymnasiums

The ACI Thermistor Wall Plate Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | | |
|--|--|--|
| Sensor Type Sensor Curve: | Thermistor Non-Linear, NTC (Negative Temperature Coefficient) | |
| Number Sensing Points: | One | |
| Number Wires: | Two (Non-Polarity Sensitive) | |
| Sensor Series Outputs @ 25°C (77°F) (Lead Wire Colors): | A/1.8K: 1.8KΩ nominal (Red/Yellow) | A/10KS: 10KΩ nominal (White/Blue) |
| | A/3K: 3KΩ nominal (White/Brown) | A/10K-E1: 10KΩ nominal (Orange/Gray) |
| | A/AN (Type III): 10KΩ nominal (White/White) | A/20K: 20KΩ nominal (Brown/Blue) |
| | A/AN-BC: 5.238KΩ nominal (White/Yellow) | A/50K: 50KΩ nominal (Brown/Yellow) |
| | A/CP (Type II): 10KΩ nominal (White/Green) | A/100KS: 100KΩ nominal (Black/Yellow) |
| | A/CSI: 10KΩ nominal (Green/Yellow) | |
| Accuracy 0-70°C (32-158°F): | +/-0.2°C (+/-0.36°F) except A/10K-E1 Series: +/- 0.3°C (+/-0.54°F) | |
| | A/1.8K Series: +/- 0.5°C @ 25°C (77°F) and (+/-1.0°C) (+/-1.8°F) | |
| Stability: | Sensor Dependent; Contact ACI for more information on sensor in question | |
| Response Time (63% Step Change): | 15 Seconds nominal | |
| Power Dissipation Constant: | 3 mW/°C except A/1.8K Series: 1 mW/°C A/10K-E1 Series: 2 mW/°C | |
| Plate Material: | A/XX-SP Series: 430 Stainless Steel (Brushed Stainless Steel Finish) | |
| | A/XX-AP Series: Aluminum (Smooth Satin Finish, Clear Anodized) | |
| Foam Material Flammability Rating: | Cross-Linked Polyethylene FMVSS-302 | |
| Operating Storage Temperature Range: | -40 to 71°C (-40 to 160°F) -40 to 71°C (-40 to 160°F) | |
| Operating Humidity Range: | 10 to 95% RH, non-condensing | |
| Lead Length Conductor Size: | 14" (35.56cm) 22 AWG (0.65mm) | |
| Lead Wire Insulation Wire Rating: | Etched Teflon (PTFE) Colored Leads MIL-W-16878/4 (Type E) | |
| Conductor Material: | Silver Plated Copper | |
| Product Dimensions (L x W x D): | 4.50" (114.3mm) x 2.78" (70.6mm) x 0.187" (4.76mm) | |
| Product Weight: | A/XX-SP Series: 0.14 lbs. (63.5g) A/XX-AP Series: 0.08 lbs. (36.29g) | |
| Agency Approvals: | CE, RoHS2, WEEE | |





STANDARD ORDERING

Model # Example: **A/1.8K-SP -OR- 125491**

| Model # | Item # | Description |
|--------------------|--------|---|
| A/1.8K-SP | 125491 | 1.8K Stainless Wall Plate, 14" Leads, 1/8" Foam Pad |
| A/1.8K-AP | 124244 | 1.8K Aluminum Wall Plate, 14" Leads, 1/8" Foam Pad |
| A/3K-SP | 121084 | 3K Stainless Wall Plate, 14" Leads, 1/8" Foam Pad |
| A/3K-AP | 132346 | 3K Aluminum Wall Plate, 14" Leads, 1/8" Foam Pad |
| A/AN-SP | 121727 | AN (Type III) Stainless Wall Plate, 14" Leads, 1/8" Foam Pad |
| A/AN-AP | 121330 | AN (Type III) Aluminum Wall Plate, 14" Leads, 1/8" Foam Pad |
| A/AN-BC-SP | 121732 | AN-BC Stainless Wall Plate, 14" Leads, 1/8" Foam Pad, 11K Shunt |
| A/AN-BC-AP | 132310 | AN-BC Aluminum Wall Plate, 14" Leads, 1/8" Foam Pad, 11K Shunt |
| A/CP-SP | 122251 | CP (Type II) Stainless Wall Plate, 14" Leads, 1/8" Foam Pad |
| A/CP-AP | 121937 | CP (Type II) Aluminum Wall Plate, 14" Leads, 1/8" Foam Pad |
| A/CSI-SP | 122412 | CSI Stainless Wall Plate, 14" Leads, 1/8" Foam Pad |
| A/CSI-AP | 142419 | CSI Aluminum Wall Plate, 14" Leads, 1/8" Foam Pad |
| A/10KS-SP | 120230 | 10KS Stainless Wall Plate, 14" Leads, 1/8" Foam Pad |
| A/10KS-AP | 142416 | 10KS Aluminum Wall Plate, 14" Leads, 1/8" Foam Pad |
| A/10K-E1-SP | 142028 | 10K-E1 Stainless Wall Plate, 14" Leads, 1/8" Foam Pad |
| A/10K-E1-AP | 142418 | 10K-E1 Aluminum Wall Plate, 14" Leads, 1/8" Foam Pad |
| A/20K-SP | 120697 | 20K Stainless Wall Plate, 14" Leads, 1/8" Foam Pad |
| A/20K-AP | 125531 | 20K Aluminum Wall Plate, 14" Leads, 1/8" Foam Pad |
| A/100KS-SP | 120139 | 100KS Stainless Wall Plate, 14" Leads, 1/8" Foam Pad |
| A/100KS-AP | 142417 | 100KS Aluminum Wall Plate, 14" Leads, 1/8" Foam Pad |

CUSTOM ORDERING

Model # Example: **A/ 1.8K SP OR NIST**

| | Model # |
|---|---|
| A. Sensor Series No Selection Required | A/ |
| B. Model Series Select One (1) | 1.8K 3K AN AN-BC CP CSI 10KS 10K-E1 20K 50K 100KS |
| C. Configuration Select One (1) | SP = 1 Gang Stainless Steel Wall Plate AP = 1 Gang Aluminum Wall Plate |
| D. Override Options Select One (1) | ---- = No Override OR = Override Short Sensor |
| E. NIST Select One (1) | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) |

ACCESSORIES ORDERING

Model # Example: **A/TAMPER PROOF SCREWS -OR- 144865**

| Model # | Item # | Description |
|-------------------------------|--------|---|
| A/TAMPER PROOF SCREWS | 144865 | Two (2) Screws, Tamper Proof, #6 x 5/8", Zinc Plated, Flat Head, 1/8" |
| SCREWDRIVER INSERT BIT | 143067 | Screwdriver Bit, Tamper Proof Screw, 5/64 |





BULLET PROBE

1" Bullet Probe, Platinum RTD



The ACI Platinum Bullet Probe Series features a one inch stainless steel probe with two or three, 24 inch, 22 AWG Etched Teflon colored lead wires to differentiate the different sensor types. Note that the three-wire “-3W” option should be ordered if using with a 3-Wire temperature transmitter or sensor configuration on your building management system or PLC (Programmable Logic Controller). The purpose of the 3rd wire is to compensate for any external lead wire resistance that will affect the accuracy of your sensors output signal. For best results, ACI recommends the use of 18 AWG lead wires to reduce the external lead wire resistance when using a Platinum RTD. The sensors in this series are manufactured using ACI’s proven double encapsulation process to eliminate the effects of moisture upon the sensors and

to increase the response time using our high quality, thermally conductive epoxy. The bullet style sensor is designed to be used to monitor air temperatures and should not be fully submerged in water. This series can be ordered with different wire options and NIST Certification as referenced in the Ordering Grid on the back of the product data sheet.

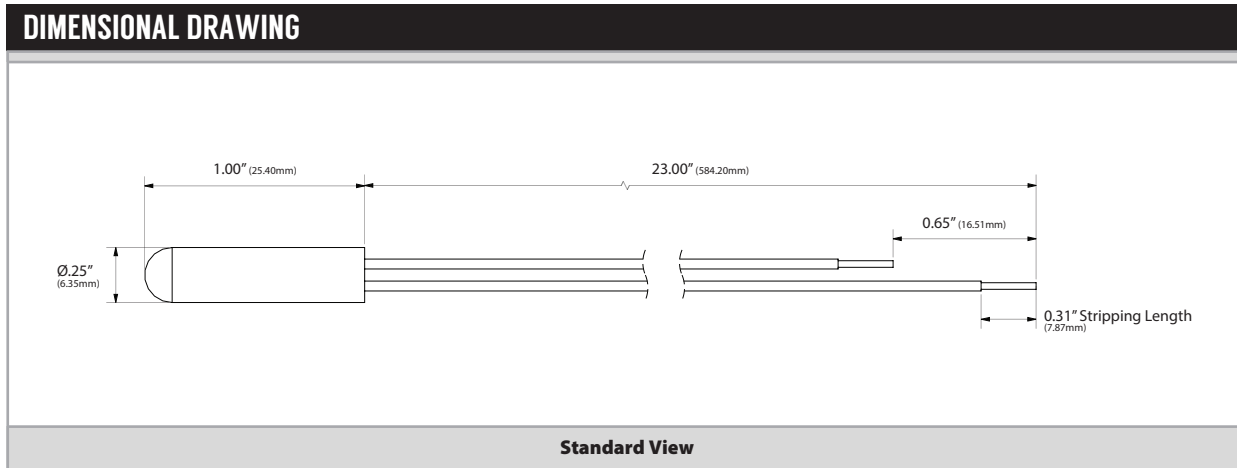
Applications: Roof Top Units, Air Handlers, Discharge Air/Supply/Return/Mixed Air Duct Temperature, Remote Temperature Sensing, Hydronic Systems

The ACI Platinum Bullet Probe Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|--|---|
| Sensor Type Sensor Curve: | Platinum RTD PTC (Positive Temperature Coefficient) |
| Number Sensing Points: | One |
| Number Wires: | A/100-2W-BP Series and A/1K-2W-BP Series: Two (Non-Polarity Sensitive) A/100-3W-BP Series and A/1K-3W-BP Series: Three (Polarity Sensitive) |
| Sensor Output @ 0°C (32°F): | A/100-xW-BP Series: 100 Ohms nominal A/1K-xW-BP Series: 1000 Ohms nominal |
| Sensor Accuracy @ 0°C (32°F): | +/- 0.06% Class A (Tolerance Formula: +/- °C = (0.15°C + (0.002 * t)) where t is the absolute value of Temperature above or below 0°C in °C) -40°C (-40°F): +/- 0.23°C (+/- 0.414°F) 0°C (32°F): +/- 0.15°C (+/- 0.27°F) 200°C (392°F): +/- 0.55°C (+/- 0.99°F) |
| Din Standard Temperature Coefficient: | DIN EN 60751 (IEC 751) 3850 ppm / °C |
| Sensor Stability: | +/- 0.03% after 1000 Hours @ 300°C (572°F) |
| Response Time (63% Step Change): | 8 Seconds nominal |
| Self-Heating Maximum Operating Current: | 100 Ohm RTD: 7 mW/°C (Still Air) 5 mA 1K Ohm RTD: 4mW/°C (Still Air) 3 mA |
| Operating Storage Temperature Range: | -40 to 200°C (-40 to 392°F) -40 to 85°C (-40 to 185°F) |
| Operating Humidity Range: | 10 to 95% RH, non-condensing |
| Lead Length Conductor Size: | 24" (61cm) 22 AWG (0.65mm) |
| Lead Wire Insulation Wire Rating: | Etched Teflon Colored Leads MIL-W-16878/4 (Type E) |
| Conductor Material: | Silver Plated Copper |
| Probe Material: | 304 Stainless Steel |
| Product Dimensions (Length x Diameter): | 1.00" (25.4mm) x 0.250" (6.35mm) |
| Product Weight: | 0.02 lbs. (9.07g) |
| Agency Approvals: | CE, RoHS2, WEEE |





STANDARD ORDERING

Model # Example: **A/100-2W-BP** -OR- **119937**

| Model # | Item # | Description |
|--------------------|--------|--|
| A/100-2W-BP | 119937 | 100 Ohm RTD, 2 Wire, Bullet Probe, 24" (61.0 cm) Leads, 1" Probe, Brown/Brown Lead Wires |
| A/100-3W-BP | 119993 | 100 Ohm RTD, 3 Wire, Bullet Probe, 24" (61.0 cm) Leads, 1" Probe, Brown/Brown/Black Lead Wires |
| A/1K-2W-BP | 120262 | 1K Ohm RTD, 2 Wire, Bullet Probe, 24" (61.0 cm) Leads, 1" Probe, Black/Black Lead Wires |
| A/1K-3W-BP | 120389 | 1K Ohm RTD, 3 Wire, Bullet Probe, 24" (61.0 cm) Leads, 1" Probe, Black/Black/White Lead Wires |

OPTIONAL SENSOR ORDERING

Model # Example: **A/** **100** **3W** **BP** **6'CL2P** **NIST**
A. B. C. D. E. F.

| MODEL # | Description |
|---------------|---|
| A/ | A. Sensor Series No Selection Required |
| 100 | B. Model Series Select One (1) 100 = 100 Ohm Platinum RTD 1K = 1000 Ohm Platinum RTD |
| 3W | C. Number of Wires Select One (1) 2W = Two Wires 3W = Three Wires |
| BP | D. Configuration No Selection Required BP = 1" Stainless Steel Probe |
| 6'CL2P | E. Lead Wire Type Select One (1) ---- = Standard 24" Etched PTFE Colored Leads 6'CL2P = 6 ft (1.83m), 2 Conductor Plenum Rated Cable 10'CL2P = 10 ft (3.05m), 2 Conductor Plenum Rated Cable 20'CL2P = 20 ft (6.10m), 2 Conductor Plenum Rated Cable |
| NIST | F. NIST Select One (1) ---- = No NIST Certificate NIST = NIST Certificate (3 Points) |

ACCESSORIES ORDERING

Model # Example: **A/MOUNTING U-CLIP-1/4"** -OR- **143352**

| Model # | Item # | Description | Galvanized Metal | Plastic w/ Adhesive |
|-------------------------------|--------|---|------------------|---------------------|
| A/MOUNTING CLIP-1/4" | 143351 | Hardware, 1/4" Mounting Clip | • | |
| A/MOUNTING U-CLIP-1/4" | 143352 | Hardware, 1/4" U-Mounting Clip Adhesive | | • |





COPPER AVERAGING

Bendable Copper/Continuous, Platinum RTD

The ACI Platinum Copper Averaging Series features a copper sensing element with Etched Teflon colored lead wires to differentiate the different sensor types. The three-wire “-3W” option should be ordered when using with a 3-Wire temperature transmitter or sensor configuration on your building management system or PLC (Programmable Logic Controller). The purpose of the 3rd wire is to compensate for external lead wire resistance that will affect your sensor output. ACI recommends the use of 18 AWG lead wires to reduce the external lead wire resistance when using a Platinum RTD style sensor. The sensing element includes a continuous sensing element, which covers the entire length of the copper tube. This produces a better average temperature over the entire cross sectional area of your duct or unit when compared to a single point duct sensor or multi-point averaging sensor. These sensors are hermetically sealed to ensure that moisture and other contaminants won't affect the reliability

of the sensing element. The copper averaging sensor includes a foam pad to seal the duct and dampen vibrations once installed. The sensor length should be determined by the total cross sectional area of your duct. Standard enclosure options include the “-GD” galvanized or “-PB” plastic enclosure with hinged cover. Optional NEMA/IP rated weather proof enclosures and NIST Certificates are available as referenced in the ordering grid. For higher accuracies, see the A/TTM1K (Matched) Averaging transmitter Product Data Sheet.

Applications: Roof Top Units, Air Handlers, Monitoring Duct Supply/Discharge/Return/Mixed Air

The ACI Platinum Bendable Copper Averaging Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|---|---|
| Sensor Type Sensor Curve: | Platinum RTD PTC (Positive Temperature Coefficient) |
| Number Sensing Points: | Continuous |
| Number Wires: | A/1K-2W-A-xx'-xx Series: Two (Non-Polarity Sensitive) A/1K-3W-A-xx'-xx Series: Three (Polarity Sensitive) |
| Sensor Output @ 0°C (32°F): | 1000 Ohms nominal |
| Sensor Accuracy: | +/- 0.1% @ 0°C (32°F) +/- 0.25% @ 21°C (70°F) +/- 1.0% @ 130°C (266°F) |
| Temperature Coefficient: | 3850 ppm / °C |
| Response Time (63% Step Change): | 15 Seconds nominal |
| Self-Heating Maximum Operating Current: | 4 mW/°C (Still Air) 3 mA |
| Sensor Operating Temperature Range: | -40 to 135°C (-40 to 275°F) |
| Enclosure Specifications (Temperature Range, Material, Flammability, NEMA/IP Ratings): | “-GD” Enclosure: -40 to 115°C (-40 to 239°F); Galvanized Steel; NEMA 1 (IP10) “-PB” Enclosure: -30 to 90°C (-22 to 194°F); ABS Plastic; UL94-HB; Plenum Rated “-BB” Enclosure: -40 to 115°C (-40 to 239°F); Aluminum; NEMA 3R (IP 14) “-4X” Enclosure: -40 to 70°C (-40 to 158°F); Polystyrene Plastic; UL94-V2; NEMA 4X (IP 66) |
| Storage Temperature Range: | -40 to 85°C (-40 to 185°F) |
| Operating Humidity Range: | 10 to 95% RH, non-condensing |
| Sensing Element Material Sensor Diameter | Copper 0.210" (5.34mm) nominal |
| Fitting Material Flammability Rating: | Polyamide 66 (High Performance Nylon) UL94-HB |
| Foam Pad Material Flammability Rating: | Neoprene/EPDM/SBR Polymer UL94-HBF; FMVSS-302; MIL-R-6130C |
| Lead Length Conductor Size: | 12" (30.5cm) 22 AWG (0.65mm) |
| Lead Wire Insulation Wire Rating: | Etched Teflon (PTFE) Colored Leads Mil Spec 16878/4 Type E) |
| Conductor Material: | Silver Plated Copper |
| Product Dimensions Product Weight: | See table on back of Product Data Sheet |
| Agency Approvals: | RoHS2, WEEE |





DIMENSIONAL DRAWING. WEIGHTS

xx = Sensor Type | yy = Insertion Length

Plastic Box Enclosure [PB]

Averaging Available in 8', 12', 24', 50', 80' & 100' Lengths

Plastic Box Enclosure [PB] Weights

| ACI Model # | 8' (Probe Length) | 12' (Probe Length) | 24' (Probe Length) |
|--------------|----------------------|----------------------|----------------------|
| A/xx-A-yy-PB | 0.72 lbs. (0.327 kg) | 0.96 lbs. (0.435 kg) | 1.70 lbs. (0.771 kg) |

| ACI Model # | 50' (Probe Length) | 80' (Probe Length) | 100' (Probe Length) |
|--------------|----------------------|----------------------|----------------------|
| A/xx-A-yy-PB | 3.28 lbs. (1.488 kg) | 4.54 lbs. (2.059 kg) | 5.62 lbs. (2.549 kg) |

Galvanized Enclosure [GD]

Averaging Available in 8', 12', 24', 50', 80' & 100' Lengths

Galvanized Enclosure [GD] Weights

| ACI Model # | 8' (Probe Length) | 12' (Probe Length) | 24' (Probe Length) |
|--------------|----------------------|----------------------|----------------------|
| A/xx-A-yy-GD | 1.16 lbs. (0.526 kg) | 1.40 lbs. (0.635 kg) | 2.20 lbs. (0.998 kg) |

| ACI Model # | 50' (Probe Length) | 80' (Probe Length) | 100' (Probe Length) |
|--------------|----------------------|----------------------|----------------------|
| A/xx-A-yy-GD | 3.78 lbs. (1.715 kg) | 5.08 lbs. (2.304 kg) | 6.16 lbs. (2.794 kg) |

Bell Box Enclosure [BB]

Averaging Available in 8', 12', 24', 50', 80' & 100' Lengths

Bell Box Enclosure [BB] Weights

| ACI Model # | 8' (Probe Length) | 12' (Probe Length) | 24' (Probe Length) |
|--------------|----------------------|----------------------|----------------------|
| A/xx-A-yy-BB | 1.22 lbs. (0.553 kg) | 1.44 lbs. (0.653 kg) | 2.18 lbs. (0.989 kg) |

| ACI Model # | 50' (Probe Length) | 80' (Probe Length) | 100' (Probe Length) |
|--------------|----------------------|----------------------|----------------------|
| A/xx-A-yy-BB | 3.74 lbs. (1.696 kg) | 5.04 lbs. (2.286 kg) | 6.12 lbs. (2.776 kg) |

NEMA 4X Enclosure [4X]

Averaging Available in 8', 12', 24', 50', 80' & 100' Lengths

NEMA 4X Enclosure [4X] Weights

| ACI Model # | 8' (Probe Length) | 12' (Probe Length) | 24' (Probe Length) |
|--------------|----------------------|----------------------|----------------------|
| A/xx-A-yy-4X | 0.84 lbs. (0.381 kg) | 1.06 lbs. (0.481 kg) | 1.80 lbs. (0.816 kg) |

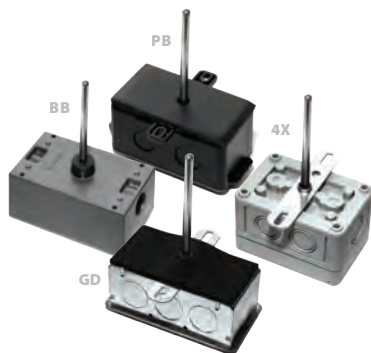
| ACI Model # | 50' (Probe Length) | 80' (Probe Length) | 100' (Probe Length) |
|--------------|----------------------|----------------------|----------------------|
| A/xx-A-yy-4X | 3.36 lbs. (1.524 kg) | 4.66 lbs. (2.114 kg) | 5.74 lbs. (2.604 kg) |

Standard Views **Product Weights**

| CUSTOM ORDERING | | Model # Example: A/ 1K 2W A 80' GD NIST | MODEL # |
|---|--|---|-----------|
| | | A. B. C. D. E. F. G. | |
| A. Sensor Series No Selection Required | A/ <input style="width: 80%;" type="text"/> | | A/ |
| B. Model Series No Selection Required | 1K = 1K Ohm Platinum RTD <input style="width: 80%;" type="text"/> | | 1K |
| C. Number of Wires Select One (1) | 2W = Two Wires 3W = Three Wires | | |
| D. Configuration No Selection Required | A = Bendable Copper Averaging Sensors <input style="width: 80%;" type="text"/> | | A |
| E. Sensor Length Select One (1) | 8' = 8' (2.44m) 12' = 12'(3.66m) 24' = 24' (7.31m) 50' = 50' (15.24m) 80' = 80' (24.39m) Length 100' = 100' (30.48m) Length | | |
| F. Enclosure Select One (1) | GD = Galvanized PB = Plastic BB = Aluminum, NEMA 3R 4X = NEMA 4X | | |
| G. NIST Select One (1) | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) | | |

| ACCESSORIES ORDERING | | | Model # Example: A/CAPILLARY CLIP QTY:1 -OR- 130525 |
|-------------------------|--------|--|---|
| Model # | Item # | Description | |
| A/CAPILLARY CLIP QTY: 1 | 130525 | Capillary Mounting Clip, Copper, Quantity: 1 | |
| UNIVERSAL CLIP 50 | 145430 | Capillary Mounting Clip, Plastic, Quantity: 50/Bag | |
| UNIVERSAL CLIP 6 | 145421 | Universal Mounting Clip, Plastic, Quantity: 6/Bag | |





DUCT

Duct Sensor, Platinum RTD

The ACI Platinum Duct Series features a stainless steel probe with Etched Teflon colored lead wires to differentiate the different sensor types. The three-wire “-3W” option should be ordered when using with a 3-Wire temperature transmitter or sensor configuration on your building management system or PLC (Programmable Logic Controller). The purpose of the 3rd wire is to compensate for external lead wire resistance that will affect the accuracy of your sensor output. ACI recommends the use of an 18 AWG lead wires to reduce the external lead wire resistance when using a Platinum RTD. The sensors are manufactured using ACI’s proven double encapsulation process to eliminate the effects of moisture on the sensors and to increase response times using our high quality, thermally conductive epoxy. The duct style sensor is a

single point sensor designed to be used in smaller duct applications and includes an insulation pad for sealing the duct and dampening vibration. The sensor length should be determined by the width or diameter of your duct, such that the tip of the probe is in the approximate center of the duct. Standard enclosure options include the “-GD” Galvanized or “-PB” plastic enclosure with hinged cover. On larger ducts, our Rigid or Bendable Copper Averaging sensor may offer better coverage based upon the size of your duct system and sensor location. Optional NEMA/IP rated weather proof enclosures and NIST Certificates are available as referenced in the ordering grid.

Applications: Roof Top Units, Air Handlers, Monitoring Supply/Discharge/Return/Mixed Air Temperatures

The ACI Platinum Duct Series is covered by ACI’s Five (5) Year Limited Warranty. The warranty can be found in the front of ACI’s Sensors & Transmitters catalog, as well as on ACI’s website, www.workaci.com.

| PRODUCT SPECIFICATIONS | |
|---|---|
| Sensor Type Sensor Curve: | Platinum RTD PTC (Positive Temperature Coefficient) |
| Number Sensing Points: | One |
| Number Wires: | A/100-2W-D Series and A/1K-2W-D Series: Two (Non-Polarity Sensitive) A/100-3W-D Series and A/1K-3W-D Series: Three (Polarity Sensitive) |
| Sensor Output @ 0°C (32°F): | A/100-xW-D Series: 100 Ohms nominal A/1K-xW-D Series: 1000 Ohms nominal +/- 0.06% Class A (Tolerance Formula: +/- °C = (0.15°C + (0.002 * t)) where t is the absolute value of Temperature above or below 0°C in °C |
| Sensor Accuracy @ 0°C (32°F): | -40°C (-40°F): +/- 0.23°C (+/- 0.414°F) 0°C (32°F): +/- 0.15°C (+/- 0.27°F) 115°C (239°F): +/- 0.38°C (+/- 0.69°F) |
| Din Standard Temperature Coefficient: | DIN EN 60751 (IEC 751) 3850 ppm / °C |
| Sensor Stability: | +/- 0.03% after 1000 Hours @ 300°C (572°F) |
| Response Time (63% Step Change): | 8 Seconds nominal |
| Self-Heating Maximum Operating Current: | 100 Ohm RTD: 7 mW/°C (Still Air) 5 mA 1K Ohm RTD: 4 mW/°C (Still Air) 3 mA |
| Enclosure Specifications (Operating Temperature Range, Material, Flammability, NEMA/IP Ratings): | “-GD” Enclosure: -40 to 115°C (-40 to 239°F); Galvanized Steel; NEMA 1 (IP10) “-PB” Enclosure: -30 to 90°C (-22 to 194°F); ABS Plastic; UL94-HB; Plenum Rated “-BB” Enclosure: Aluminum, -40 to 121°C (-40 to 250°F), Plenum Rated, NEMA 3R “-4X” Enclosure: -40 to 70°C (-40 to 158°F); Polystyrene Plastic; UL94-V2; NEMA 4X (IP 66) |
| Storage Temperature Range: | -40 to 85°C (-40 to 185°F) |
| Sensor Operating Temperature Range: | -40 to 392°F (-40 to 200°C) |
| Operating Humidity Range: | 10 to 95% RH, non-condensing |
| Probe Material: | 304 Stainless Steel |
| Fitting Material Flammability Rating: | Polyamide 66 (High Performance Nylon) UL94-HB |
| Foam Pad Material Flammability Rating: | Neoprene/EPDM/SBR Polymer UL94-HBF; FMVSS-302; MIL-R-6130C |
| Lead Length Conductor Size: | 4”, 6” & 8” Sensors: 14” (35.6cm) 12” or 18” Sensors: 24” (61cm) 22 AWG (0.65mm) |
| Lead Wire Insulation Wire Rating: | Etched Teflon (PTFE) Colored Leads Mil Spec 16878/4 Type E) |
| Conductor Material: | Silver Plated Copper |
| Product Dimensions Product Weight: | See table on back of Product Data sheet |
| Probe Diameter: | 0.250” (6.35mm) |
| Agency Approvals: | CE, RoHS2, WEEE |





DIMENSIONAL DRAWING, WEIGHTS

xx = Sensor Type | yy = Insertion Length

Plastic Box Enclosure [PB]

Available in 4", 6", 8", 12", and 18" Probe Lengths

Plastic Box Enclosure [PB] Weights

| ACI Model # | 4" (Probe Length) | 6" (Probe Length) | 8" (Insertion Length) |
|--------------|----------------------|----------------------|-----------------------|
| A/xx-D-yy-PB | 0.24 lbs. (0.109 kg) | 0.25 lbs. (0.113 kg) | 0.26 lbs. (0.117 kg) |

| ACI Model # | 12" (Probe Length) | 18" (Probe Length) |
|--------------|----------------------|----------------------|
| A/xx-D-yy-PB | 0.28 lbs. (0.127 kg) | 0.30 lbs. (0.136 kg) |

Galvanized Enclosure [GD]

Available in 4", 6", 8", 12", and 18" Probe Lengths

Galvanized Enclosure [GD] Weights

| ACI Model # | 4" (Probe Length) | 6" (Probe Length) | 8" (Insertion Length) |
|--------------|----------------------|----------------------|-----------------------|
| A/xx-D-yy-GD | 0.66 lbs. (0.299 kg) | 0.67 lbs. (0.303 kg) | 0.68 lbs. (0.308 kg) |

| ACI Model # | 12" (Probe Length) | 18" (Probe Length) |
|--------------|----------------------|----------------------|
| A/xx-D-yy-GD | 0.70 lbs. (0.317 kg) | 0.74 lbs. (0.336 kg) |

Bell Box Enclosure [BB]

Available in 4", 6", 8", 12", and 18" Probe Lengths

Bell Box Enclosure [BB] Weights

| ACI Model # | 4" (Probe Length) | 6" (Probe Length) | 8" (Insertion Length) |
|--------------|----------------------|----------------------|-----------------------|
| A/xx-D-yy-BB | 0.70 lbs. (0.317 kg) | 0.71 lbs. (0.322 kg) | 0.72 lbs. (0.326 kg) |

| ACI Model # | 12" (Probe Length) | 18" (Probe Length) |
|--------------|----------------------|----------------------|
| A/xx-D-yy-BB | 0.74 lbs. (0.336 kg) | 0.78 lbs. (0.354 kg) |

NEMA 4X Enclosure [4X]

Available in 4", 6", 8", 12", and 18" Probe Lengths

NEMA 4X Enclosure [4X] Weights

| ACI Model # | 4" (Probe Length) | 6" (Probe Length) | 8" (Insertion Length) |
|--------------|----------------------|----------------------|-----------------------|
| A/xx-D-yy-4X | 0.34 lbs. (0.154 kg) | 0.35 lbs. (0.159 kg) | 0.36 lbs. (0.163 kg) |

| ACI Model # | 12" (Probe Length) | 18" (Probe Length) |
|--------------|----------------------|----------------------|
| A/xx-D-yy-4X | 0.38 lbs. (0.172 kg) | 0.40 lbs. (0.181 kg) |

Standard Views
Product Weights

| CUSTOM ORDERING | | Model # Example: A/ 100 2W D 8" GD NIST | MODEL # |
|---|---|---|---------|
| | | A. B. C. D. E. F. G. | |
| A. Sensor Series No Selection Required | A/ _____ → | | A/ |
| B. Model Series Select One (1) | 100 = 100 Ohm 1K = 1K Ohm | | |
| C. Number of Wires Select One (1) | 2W = Two Wires 3W = Three Wires | | |
| D. Configuration No Selection Required | D = Duct _____ → | | D |
| E. Probe Length Select One (1) | 4" = 4" Probe 6" = 6" Probe 8" = 8" Probe 12" = 12" Probe 18" = 18" Probe | | |
| F. Enclosure Select One (1) | GD = Galvanized PB = Plastic BB = Aluminum, NEMA 3R 4X = NEMA 4X | | |
| G. NIST Select One (1) | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) | | |





DUCT WITHOUT BOX

Flange Mounted Duct Sensor, Platinum RTD

The ACI Platinum Duct without Box Series features a 1/4" diameter stainless steel sensing element with two, 14 or 24 inch, 22 AWG Etched Teflon colored lead wires to differentiate the different sensor types. The three-wire "-3W" option should be ordered if using with a 3-Wire temperature transmitter or sensor configuration on your building management system or PLC (Programmable Logic Controller). The purpose of the 3rd wire is to compensate for any external lead wire resistance that will affect the accuracy of your sensors output signal. ACI recommends the use of 18 AWG lead wires to reduce the external lead wire resistance when using a Platinum RTD sensor and its lower sensor resolution. The sensors in this series are manufactured using ACI's proven double encapsulation process to eliminate the effects of

moisture upon the sensors as well as increased response times using our high quality, thermally conductive epoxy. The duct style sensor is a single point sensor designed to be used in smaller duct applications and includes an insulation pad for properly sealing your duct as well as to dampen vibration. Sensor length should be determined by the actual width or diameter of your duct such that the tip of the probe is in the approximate center of the duct. On larger ducts, you may want to refer to our Rigid or Bendable Copper Averaging sensor for increased sensing points and better temperature control. The Duct without Box Series can be ordered with optional plenum rated cables, jacket materials and standard lead lengths.

Applications: Roof Top Units, Air Handlers, Monitoring Supply/Discharge/Return/Mixed Air Temperatures

The ACI Platinum Duct without Box Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

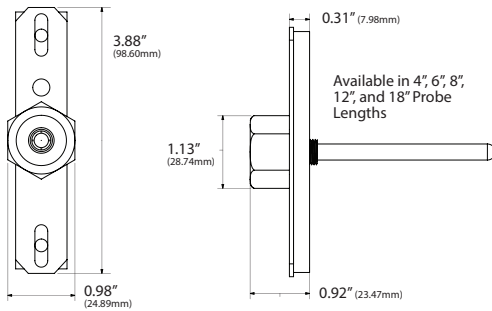
PRODUCT SPECIFICATIONS

| | |
|--|---|
| Sensor Type Sensor Curve: | Platinum RTD PTC (Positive Temperature Coefficient) |
| Number Sensing Points: | One |
| Number Wires: | A/100-2W-DO Series and A/1K-2W-DO Series: Two (Non-Polarity Sensitive) A/100-3W-DO Series and A/1K-3W-DO Series: Three (Polarity Sensitive) |
| Sensor Output @ 0°C (32°F): | A/100-xW-DO Series: 100 Ohms nominal A/1K-xW-DO Series: 1000 Ohms nominal |
| Sensor Accuracy @ 0°C (32°F): | +/- 0.06% Class A (Tolerance Formula: +/- °C = (0.15°C + (0.002 * t))) where t is the absolute value of Temperature above or below 0°C in °C -40°C (-40°F): +/- 0.23°C (+/- 0.414°F) 0°C (32°F): +/- 0.15°C (+/- 0.27°F) 115°C (239°F): +/- 0.38°C (+/- 0.69°F) |
| Din Standard Temperature Coefficient: | DIN EN 60751 (IEC 751) 3850 ppm / °C |
| Sensor Stability: | +/- 0.03% after 1000 Hours @ 300°C (572°F) |
| Response Time (63% Step Change): | 8 Seconds nominal |
| Self-Heating Maximum Operating Current: | 100 Ohm RTD: 7 mW/°C (Still Air) 5 mA 1K Ohm RTD: 4 mW/°C (Still Air) 3 mA |
| Operating Storage Temperature Range: | -40 to 115°C (-40 to 239°F) -40 to 85°C (-40 to 185°F) |
| Operating Humidity Range: | 10 to 95% RH, non-condensing |
| Probe Material Flange Material: | 304 Stainless Steel Galvanized Steel |
| Fitting Material Flammability Rating: | Polyamide 66 (High Performance Nylon) UL94-HB |
| Foam Pad Material Flammability Rating: | Neoprene/EPDM/SBR Polymer UL94-HBF; FMVSS-302; MIL-R-6130C |
| Lead Length Conductor Size: | 4", 6" and 8" Probes: 14" (35.6 cm) 12" and 18" Probes: 24" (61cm) 22 AWG (0.65mm) |
| Lead Wire Insulation Wire Rating: | Etched Teflon (PTFE) Colored Leads MIL-W-16878/4 (Type E) |
| Conductor Material: | Silver Plated Copper |
| Probe Diameter: | 0.250" (6.35mm) |
| Product Dimensions Product Weight: | See table on back of Product Data sheet |
| Agency Approvals: | CE, RoHS2, WEEE |





DIMENSIONAL DRAWING. WEIGHTS



Available in 4", 6", 8", 12", and 18" Probe Lengths

xx = Sensor Type | yy = Insertion Length

Duct Without Box [DO] Weights

| ACI Model # | 4" (Probe Length) | 6" (Probe Length) | 8" (Insertion Length) |
|---------------------|----------------------|----------------------|-----------------------|
| A/xx-DO-yy | 0.10 lbs. (0.045 kg) | 0.11 lbs. (0.050 kg) | 0.12 lbs. (0.054 kg) |
| A/xx-DO-yy-6'-CL2P | 0.15 lbs. (0.068 kg) | 0.16 lbs. (0.073 kg) | 0.17 lbs. (0.077 kg) |
| A/xx-DO-yy-10'-CL2P | 0.20 lbs. (0.091 kg) | 0.21 lbs. (0.095 kg) | 0.22 lbs. (0.100 kg) |
| A/xx-DO-yy-20'-CL2P | 0.27 lbs. (0.122 kg) | 0.28 lbs. (0.127 kg) | 0.29 lbs. (0.132 kg) |

| ACI Model # | 12" (Insertion Length) | 18" (Insertion Length) |
|---------------------|------------------------|------------------------|
| A/xx-DO-yy | 0.14 lbs. (0.064 kg) | 0.16 lbs. (0.073 kg) |
| A/xx-DO-yy-6'-CL2P | 0.20 lbs. (0.091 kg) | 0.22 lbs. (0.100 kg) |
| A/xx-DO-yy-10'-CL2P | 0.24 lbs. (0.108 kg) | 0.27 lbs. (0.122 kg) |
| A/xx-DO-yy-20'-CL2P | 0.31 lbs. (0.141 kg) | 0.34 lbs. (0.154 kg) |

Standard Views

Product Weights

STANDARD ORDERING

Model # Example: A/100-2W-DO-4" -OR- 119951

| Model # | Item # | Description |
|-----------------|--------|---|
| A/100-2W-DO-4" | 119951 | 100 Ohm RTD, 2-Wire, Duct 4" w/o Box, Flange Only, 14" Brown/Brown Leads |
| A/100-2W-DO-6" | 133370 | 100 Ohm RTD, 2-Wire, Duct 6" w/o Box, Flange Only, 14" Brown/Brown Leads |
| A/100-2W-DO-8" | 119952 | 100 Ohm RTD, 2-Wire, Duct 8" w/o Box, Flange Only, 14" Brown/Brown Leads |
| A/100-2W-DO-12" | 142486 | 100 Ohm RTD, 2-Wire, Duct 12" w/o Box, Flange Only, 24" Brown/Brown Leads |
| A/100-2W-DO-18" | 133019 | 100 Ohm RTD, 2-Wire, Duct 18" w/o Box, Flange Only, 24" Brown/Brown Leads |
| A/1K-2W-DO-4" | 120290 | 1K Ohm RTD, 2-Wire, Duct 4" w/o Box, Flange Only, 14" Black/Black Leads |
| A/1K-2W-DO-6" | 133175 | 1K Ohm RTD, 2-Wire, Duct 6" w/o Box, Flange Only, 14" Black/Black Leads |
| A/1K-2W-DO-8" | 120291 | 1K Ohm RTD, 2-Wire, Duct 8" w/o Box, Flange Only, 14" Black/Black Leads |
| A/1K-2W-DO-12" | 120289 | 1K Ohm RTD, 2-Wire, Duct 12" w/o Box, Flange Only, 24" Black/Black Leads |
| A/1K-2W-DO-18" | 142487 | 1K Ohm RTD, 2-Wire, Duct 18" w/o Box, Flange Only, 24" Black/Black Leads |

CUSTOM ORDERING

Model # Example: A/ 1K 2W DO 6" 6'CL2P NIST

MODEL

| | | |
|---|--|----|
| A. Sensor Series No Selection Required | A/ | A/ |
| B. Model Series Select One (1) | 100 = 100 Ohm Platinum RTD 1K = 1K Ohm Platinum RTD | |
| C. Number of Wires Select One (1) | 2W = Two Wires 3W = Three Wires | |
| D. Configuration No Selection Required | DO = Duct without Box (Mounting Flange Only) | DO |
| E. Probe Length Select One (1) | 4" = 4" Probe 6" = 6" Probe 8" = 8" Probe 12" = 12" Probe 18" = 18" Probe | |
| F. Lead Wire Options Select One (1) | ---- = Standard 14 or 24" Etched PTFE Colored Leads 6'CL2P = 6 ft (1.83m), 2 Conductor Plenum Rated Cable 10'CL2P = 10 ft (3.05m), 2 Conductor Plenum Rated Cable 20'CL2P = 20 ft (6.10m), 2 Conductor Plenum Rated Cable | |
| G. NIST Select One (1) | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) | |





FLEXIBLE AVERAGING

Multipoint Averaging Sensor, Platinum RTD

The ACI Platinum Flexible Averaging Series features an 18 AWG Plenum rated cable with Etched Teflon colored lead wires to differentiate the different sensor types. ACI recommends using 18 AWG lead wires to reduce external lead wire resistance when using a Platinum RTD. All sensors are manufactured with 4 or 9 sensing points determined by the length of the sensor. Averaging sensors provide a better average temperature of the air inside larger ducts when compared to that of a single point sensor. The flexible averaging sensors are limited to applications where operating temperatures are limited and where high humidity, chemical resistance and UV Light Air Treatment Systems aren't required. Each of the sensing elements is protected by a dual wall adhesive lined heat shrink tubing to provide a level of moisture

protection to the sensing elements. The sensor length should be determined by the dimensional size of your duct. Standard enclosure options include a "-GD" Galvanized or "-PB" plastic duct enclosure with hinged cover. Each unit includes nylon wire ties and mounts for mounting. Optional copper capillary or universal plastic mounting clips, NEMA/IP rated enclosures and NIST Certificates are available as referenced in the ordering grid.

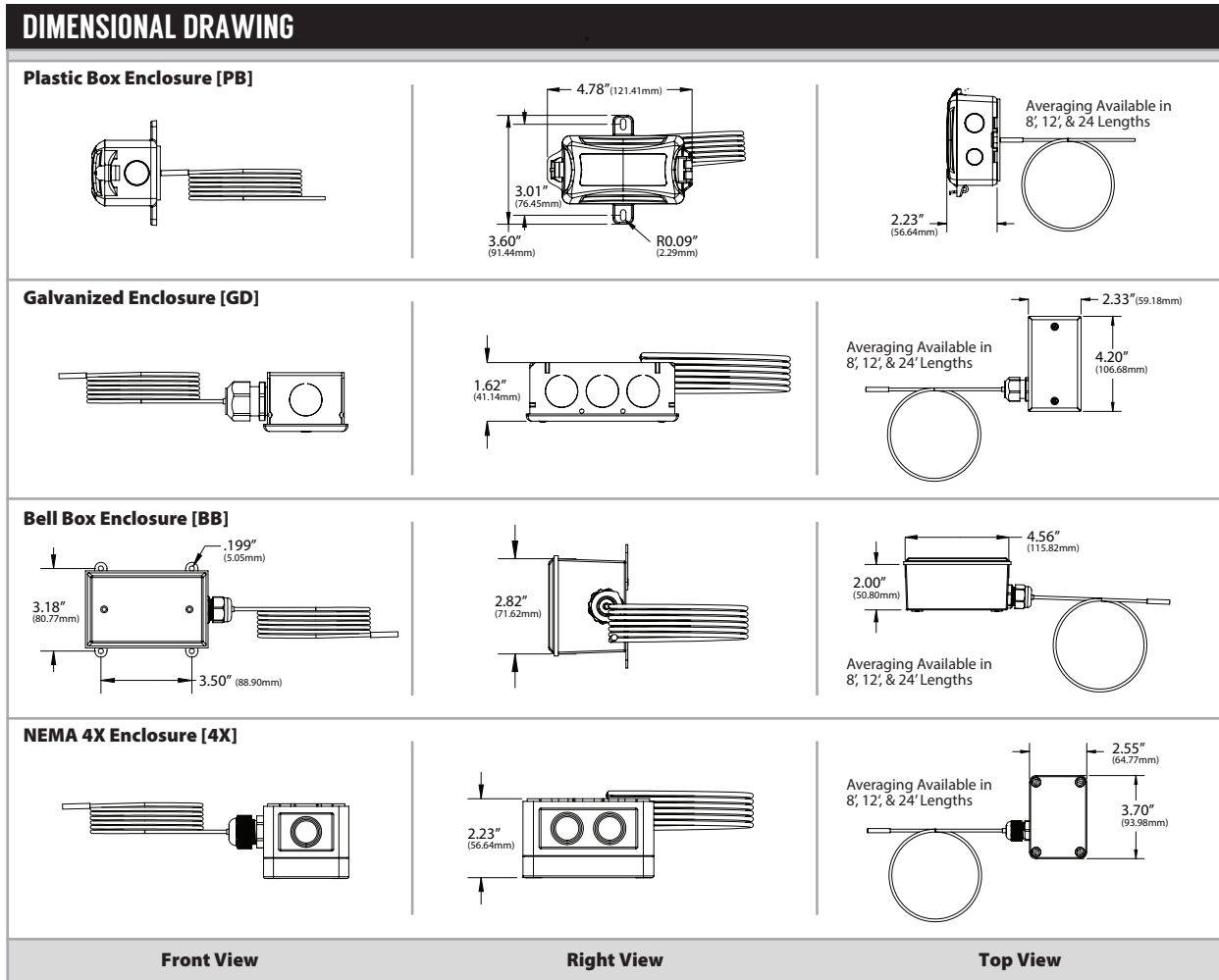
Applications: Air Handlers, Roof Top Units, Mixed/Discharge or Supply/Return Air Monitoring, Data Centers, Hospitals

The ACI Platinum Flexible Averaging Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|--|--|
| Sensor Type Sensor Curve: | Platinum RTD PTC (Positive Temperature Coefficient) |
| Number Sensing Points: | 8' and 12' Models: Four 24' & 50' Models: Nine |
| Number Wires: | A/1K-2W-FA Series: Two (Non-Polarity Sensitive) |
| Sensor Output @ 0°C (32°F): | 1000 Ohms nominal |
| Sensor Tolerance: | +/- 0.06% Class A |
| Din Standard Temperature Coefficient: | DIN EN 60751 (IEC 751) 3850 ppm / °C |
| Sensor Accuracy @ 20°C (68°F): | 8' = +/- 0.34°C (+/- 0.62°F) 12' = +/- 0.45°C (+/- 0.81°F) 24' = +/- 0.80°C (+/- 1.44°F) |
| Sensor Stability: | +/- 0.03% after 1000 Hours @ 300°C (572°F) |
| Response Time (63% Step Change): | 15 Seconds nominal |
| Self-Heating Maximum Operating Current: | 4 mW/°C (Still Air) 3 mA |
| Operating Storage Temperature Range: | 0 to 75°C (32 to 167°F) -20 to 75°C (-4 to 167°F) |
| Operating Humidity Range: | 10 to 90% RH, non-condensing |
| Enclosure Specifications (Material, Flammability, NEMA/IP Ratings): | "-GD" Enclosure: Galvanized Steel; NEMA 1 (IP10); "-PB" Enclosure: ABS Plastic, UL94-HB; Plenum Rated "-BB" Enclosure: Aluminum; NEMA 3R (IP 14) "-4X" Enclosure: Polystyrene Plastic; UL94-V2; NEMA 4X (IP 66) |
| Sensor Jacket Material Cable Ratings: | Low Smoke PVC CL2P or CMP Plenum Rated Cable |
| Sensor Cable Diameter: | 0.170" (4.32mm) nominal |
| Lead Length Conductor Size: | 12" (30.5cm) 22 AWG (0.65mm) |
| Lead Wire Insulation Wire Rating: | Etched Teflon (PTFE) Colored Leads MIL-W-16878/4 (Type E) |
| Lead Wire Conductor Material: | Silver Plated Copper |
| Product Dimensions Product Weight: | See table on back of Product Data sheet |
| Agency Approvals: | RoHS2, WEEE |





| CUSTOM ORDERING | | Model # Example: A/ 1K 2W FA 8' GD NIST | MODEL # |
|--|--|---|-----------|
| | | A. B. C. D. E. F. G. | |
| A. Sensor Series <i>No Selection Required</i> | A/ _____ → | | A/ |
| B. Model Series <i>No Selection Required</i> | 1K = 1K Ohm Platinum RTD _____ → | | 1K |
| C. Number of Wires <i>No Selection Required</i> | 2W = Two Wires _____ → | | 2W |
| D. Configuration <i>No Selection Required</i> | FA = Flexible Plenum Rated Cable Averaging Sensor _____ → | | FA |
| E. Sensor Length <i>Select One (1)</i> | 8' = 8' (2.44m) 12' = 12' (3.66m) 24' = 24' (7.31m) | | |
| F. Enclosure <i>Select One (1)</i> | GD = Galvanized PB = Plastic BB = Aluminum, NEMA 3R 4X = NEMA 4X | | |
| G. NIST <i>Select One (1)</i> | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) | | |

| ACCESSORIES ORDERING | | Model # Example: A/CAPILLARY CLIP QTY:1 -OR- 130525 |
|--------------------------------|--------|---|
| Model # | Item # | Description |
| A/CAPILLARY CLIP QTY: 1 | 130525 | Capillary Mounting Clip, Copper, Quantity: 1 |
| UNIVERSAL CLIP 50 | 145430 | Capillary Mounting Clip, Plastic, Quantity: 50/Bag |
| UNIVERSAL CLIP 6 | 145421 | Universal Mounting Clip, Plastic, Quantity: 6/Bag |





FLUSH MOUNT BUTTONS

Brass, Stainless Steel & Plastic Platinum RTDs



The ACI Platinum Flush Mount Button Series features a stainless steel, brass or white plastic button sensor with Etched Teflon colored lead wires to differentiate the different sensor types. The three-wire “-3W” option should be ordered when using a 3-Wire temperature transmitter or sensor configuration on your building management system or PLC (Programmable Logic Controller). The purpose of the 3rd wire is to compensate for external lead wire resistance that will affect your sensor output. ACI recommends the use of 18 AWG lead wires to reduce the external lead wire resistance when using a Platinum RTD. Sensors in this series are manufactured using ACI’s proven double encapsulation process to eliminate the effects of moisture on the sensor and to increase response time using our high quality, thermally

conductive epoxy. This sensor uses a small, low profile design and should be used in applications where aesthetics is one of your primary concerns. Each unit is supplied with a mounting kit to aid in the installation process so that they can be easily hidden or blended into the environment or space. Note that if painting the sensors, be sure to coat with as little paint as possible, to limit the effect on accuracy and responsiveness of the sensor. This series can be ordered with optional NIST Certificates as referenced in the product ordering grid.

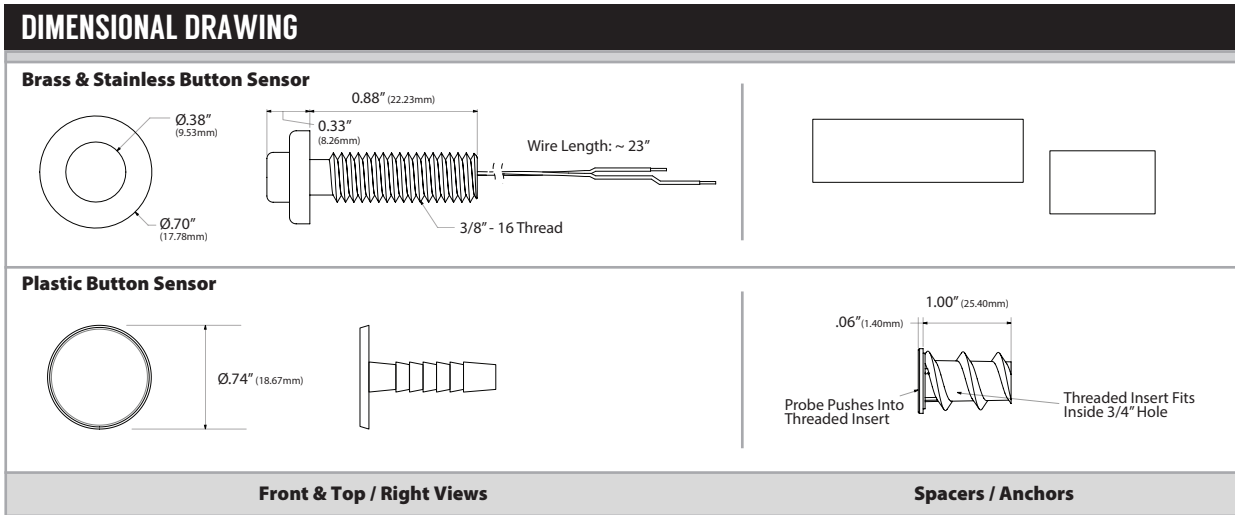
Applications: Museums, Historical Buildings, Space Temperatures, Office Buildings, Schools, Retail, Remote Sensors, Commercial Spaces

The Platinum Flush Mount Button Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|---|--|
| Sensor Type Sensor Curve: | Platinum RTD PTC (Positive Temperature Coefficient) |
| Number Sensing Points: | One |
| Number Wires: | A/100-2W-XXX and A/1K-2W-XXX: Two (Non-Polarity Sensitive) A/100-3W-XXX and A/1K-3W-XXX: Three (Polarity Sensitive) |
| Sensor Output @ 0°C (32°F): | A/100-xW-XXX: 100 Ohms nominal A/1K-xW-XXX: 1000 Ohms nominal |
| Sensor Accuracy @ 0°C (32°F): | +/- 0.06% Class A (Tolerance Formula: +/- °C = (0.15°C + (0.002 * t)) where t is the absolute value of Temperature above or below 0°C in °C) -40°C (-40°F): +/- 0.23°C (+/- 0.414°F) 0°C (32°F): +/- 0.15°C (+/- 0.27°F) 70°C (158°F): +/- 0.29°C (+/- 0.53°F) 200°C (392°F): +/- 0.55°C (+/- 0.99°F) |
| Din Standard Temperature Coefficient: | DIN EN 60751 (IEC 751) 3850 ppm / °C |
| Sensor Stability: | +/- 0.03% after 1000 Hours @ 300°C (572°F) |
| Response Time (63% Step Change): | 8 Seconds nominal |
| Self-Heating Maximum Operating Current: | 100 Ohm RTD: 7 mW/°C (Still Air) 5 mA 1K Ohm RTD: 4mW/°C (Still Air) 3 mA |
| Button Sensor Enclosure Material: | A/100/1K-BBS: Brass A/100/1K-SBS: 304 Stainless Steel A/100/1K-PBS: ABS Plastic |
| Plastic Button “-PBS” Flammability Rating: | UL94-HB |
| Operating Storage Temperature Range: | A/100/1K-PBS: -40 to 70°C (-40 to 158°F -40 to 85°C (-40 to 185°F) A/100/1K-BBS & A/100/1K-SBS: -40 to 200°C (-40 to 392°F) -40 to 85°C (-40 to 185°F) |
| Operating Humidity Range: | 10 to 95% RH, non-condensing |
| Lead Length Conductor Size: | 24” (61cm) 22 AWG (0.65mm) |
| Lead Wire Insulation Wire Rating: | Etched Teflon (PTFE) Colored Leads Mil Spec 16878/4 Type E |
| Conductor Material: | Silver Plated Copper |
| Product Dimensions (Length x Diameter): | A/100/1K-PBS: 1.00” (25.4mm) x 0.750” (19mm) A/100/1K-BBS and A/100/1K-SBS: 1.20” (30.48mm) x 0.700” (17.78mm) |
| Product Weight: | A/100/1K-PBS: 0.06 lbs. (27.72g) A/100/1K-BBS & A/100/1K-SBS: 0.12 lbs. (54.44g) |
| Agency Approvals: | CE, RoHS2, WEEE |





STANDARD ORDERING

Model # Example: **A/100-2W-PBS** -OR- **129782**

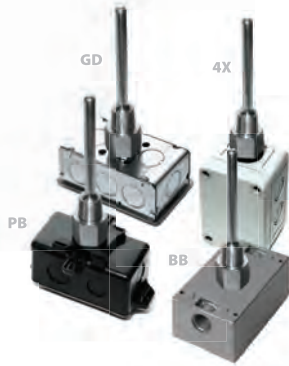
| Model # | Item # | Description |
|---------------------|--------|---|
| A/100-2W-PBS | 129782 | 100 Ohm RTD, 2-Wire, Plastic Button Sensor, 24" Leads, Brown/Brown Leads, Anchor |
| A/100-2W-BBS | 135454 | 100 Ohm RTD, 2-Wire, Brass Button Sensor, 24" Leads, Brown/Brown Leads, Spacers & Brass Nut |
| A/100-2W-SBS | 119980 | 100 Ohm RTD, 2-Wire, Stainless Button Sensor, 24" Leads, Brown/Brown Leads, Spacers & Brass Nut |
| A/100-3W-PBS | 132081 | 100 Ohm RTD, 3-Wire, Plastic Button Sensor, 24" Leads, Brown/Brown/Black Leads, Anchor |
| A/100-3W-BBS | 119984 | 100 Ohm RTD, 3-Wire, Brass Button Sensor, 24" Leads, Brown/Brown/Black Leads, Spacers & Brass Nut |
| A/100-3W-SBS | 120060 | 100 Ohm RTD, 3-Wire, Stainless Button Sensor, 24" Leads, Brown/Brown/Black Leads, Spacers & Brass Nut |
| A/1K-2W-PBS | 128969 | 1K Ohm RTD, 2-Wire, Plastic Button Sensor, 24" Leads, Black/Black Leads, Anchor |
| A/1K-2W-BBS | 120261 | 1K Ohm RTD, 2-Wire, Brass Button Sensor, 24" Leads, Black/Black Leads, Spacers & Brass Nut |
| A/1K-2W-SBS | 120372 | 1K Ohm RTD, 2-Wire, Stainless Button Sensor, 24" Leads, Black/Black Leads, Spacers & Brass Nut |
| A/1K-3W-PBS | 142473 | 1K Ohm RTD, 3-Wire, Plastic Button Sensor, 24" Leads, Black/Black/White Leads, Anchor |
| A/1K-3W-BBS | 142476 | 1K Ohm RTD, 3-Wire, Brass Button Sensor, 24" Leads, Black/Black/White Leads, Spacers & Brass Nut |
| A/1K-3W-SBS | 131951 | 1K Ohm RTD, 3-Wire, Stainless Button Sensor, 24" Leads, Black/Black/White Leads, Spacers & Brass Nut |

OPTIONAL SENSOR ORDERING

Model # Example: **A/ 100 2W PBS NIST**
A. B. C. D. E.

| | | MODEL # |
|---|--|----------------|
| A. Sensor Series No Selection Required | A/ | A/ |
| B. Model Series Select One (1) | 100 = 100 Ohm Platinum RTD 1K = 1K Ohm Platinum RTD | |
| C. Number of Wires Select One (1) | 2W = Two Wires 3W = Three Wires | |
| D. Configuration Select One (1) | PBS = Plastic Button BBS = Brass Button SBS = Stainless Steel Button | |
| E. NIST Select One (1) | ---- = No NIST Certification NIST = NIST Certificate (3 Points) | |





IMMERSION

Stainless Steel Immersion, Platinum RTD

The ACI Platinum Immersion Series features a stainless steel probe with Etched Teflon colored lead wires to differentiate the different sensor types. The three-wire “-3W” option should be ordered when using with a 3-Wire temperature transmitter or sensor configuration on your building management system or PLC (Programmable Logic Controller). The purpose of the 3rd wire is to compensate for external lead wire resistance that affects the sensor output. ACI recommends the use of 18 AWG lead wires to reduce the external lead wire resistance when using a Platinum RTD. The sensors in this series are manufactured using ACI’s proven double encapsulation process to eliminate the effects of moisture upon the sensors and to increase thermal response times using our high quality, thermally conductive epoxy. The immersion sensors “-I” include a welded thermowell but can be ordered without the thermowell “-INW” version. The “-INW” includes a standard ½” NPS process thread to be used with an optional machined thermowell or an existing

thermowell application. Optional NEMA/IP rated weather proof enclosures and NIST Certificates are available as referenced on the back of the product data sheet.

Applications: Chilled Water Systems, Hot Water Systems, Boilers, Pumps, Compressors, Chillers, Cooling Towers

The ACI Platinum Immersion Series is covered by ACI’s Five (5) Year Limited Warranty. The warranty can be found in the front of ACI’s Sensors & Transmitters catalog, as well as on ACI’s web site, workaci.com.

Disclaimer: Specification of any thermowell and the materials of construction are the sole responsibility of the designer of the system that incorporates the thermowell. Sole responsibility for ensuring compatibility of the process fluid with the system rests with the end user.

PRODUCT SPECIFICATIONS

| | |
|---|---|
| Sensor Type Sensor Curve: | Platinum RTD PTC (Positive Temperature Coefficient) |
| Number Sensing Points: | One |
| Number Wires: | A/100-2W-I Series and A/1K-2W-I Series: Two (Non-Polarity Sensitive) A/100-3W-I Series and A/1K-3W-I Series: Three (Polarity Sensitive) |
| Sensor Output @ 0°C (32°F): | A/100-xW-I Series: 100 Ohms nominal A/1K-xW-I Series: 1000 Ohms nominal +/- 0.06% Class A (Tolerance Formula: +/- °C = (0.15°C + (0.002 * t))) where t is the absolute value of Temperature above or below 0°C in °C |
| Sensor Accuracy 0°C (32°F): | -40°C (-40°F): +/- 0.23°C (+/- 0.414°F) 0°C (32°F): +/- 0.15°C (+/- 0.27°F) 200°C (392°F): +/- 0.55°C (+/- 1.00°F) |
| Din Standard Temperature Coefficient: | DIN EN 60751 (IEC 751) 3850 ppm / °C |
| Sensor Stability: | +/- 0.03% after 1000 Hours @ 300°C (572°F) |
| Response Time (63% Step Change): | 8 Seconds nominal |
| Self-Heating Maximum Operating Current: | 100 Ohm RTD: 7 mW/°C (Still Air) 5 mA 1K Ohm RTD: 4 mW/°C (Still Air) 3 mA |
| Sensor Operating Temperature Range: | -40 to 200°C (-40 to 392°F) |
| Enclosure Specifications (Temperature, Flammability, NEMA/IP Ratings): | "-GD" Enclosure: Galvanized Steel, -40°C to 121°C (-40°F to 250°F), NEMA 1 (IP10) "-PB" Enclosure: ABS Plastic, -30°C to 90°C (-22°F to 194°F), UL94-HB, Plenum Rated "-BB" Enclosure: Aluminum, -40°C to 121°C (-40°F to 250°F), Plenum Rated, NEMA 3R "-4X" Enclosure: Polystyrene Plastic, -40°C to 70°C (-40°F to 158°F), UL94-V2, NEMA 4X (IP 66) |
| Storage Temperature Range: | -40 to 85°C (-40 to 185°F) |
| Operating Humidity Range: | 10 to 95% RH, non-condensing |
| Probe Diameter Thermowell Bore Diameter: | 0.250" (6.35mm) 0.260" |
| Probe Material Thermowell Material: | 304 Stainless Steel 304 Series Stainless Steel |
| Thermowell Instrument Process Thread Size: | ½" NPS (National Pipe Straight) Female Thread ½" NPT (National Pipe Tapered) Male Thread |
| Fitting Material Flammability Rating: | Polyamide 66 (High Performance Nylon 66) UL94-HB |
| Foam Pad Material Flammability Rating: | Neoprene/EPDM/SBR Polymer UL94-HBF; FMVSS-302; MIL-R-6130C |
| Fitting Thread Size: | ½" NPS (National Pipe Straight) Male Thread |
| Lead Length Conductor Size: | 14" (35.6 cm) 22 AWG (0.65mm) |
| Lead Wire Insulation Wire Rating: | Etched Teflon (PTFE) Colored Leads Mil Spec 16878/4 Type E |
| Conductor Material: | Silver Plated Copper |
| Product Dimensions Product Weight: | See table on back of Product Data sheet |
| Agency Approvals: | CE, RoHS2, WEEE |





MAXIMUM VELOCITY VS THERMOWELL INSERTION LENGHT MACHINED THERMOWELL

| Straight Shank Insertion Length "U" | | | | | Stepped Shank Insertion Length "U" | | | | |
|-------------------------------------|----------------------------|-------------------------|-------------------------|-------------------------|------------------------------------|-------------------------|-----------------------|-----------------------|----------------------|
| Material: | Media Type: | 1.0" (25.4 mm) | 2.5" (63.5 mm) | 8.0" (203.2 mm) | 4.0" (101.6 mm) | 6.0" (152.4 mm) | 12.0" (304.8 mm) | 18.0" (457.2 mm) | 24" (609.6 mm) |
| 304/316 SS | Air/Gas/Steam ¹ | 349 ft/s (106.3 m/s) | 349 ft/s (106.3 m/s) | 71.9 ft/s (21.9 m/s) | 109 ft/s (33.2 m/s) | 73.6 ft/s (22.4 m/s) | 19.4 ft/s (5.9m/s) | 8.8 ft/s (2.7m/s) | 5.2 ft/s (1.6m/s) |
| 304/316 SS | Water | 360 ft/s (109.7 m/s) | 360 ft/s (109.7 m/s) | 71.9 ft/s (21.9 m/s) | 82.2 ft/s (25.1 m/s) | 26.9 ft/s (8.2 m/s) | 11.3 ft/s (3.4m/s) | 4.7 ft/s (1.43m/s) | 2.5 ft/s (0.8m/s) |

Note 1: Values are for Air/Gas/Steam and similar density media based upon Max pressure of 2900 PSI @ 1000°F (537.8°C) | **Note 2:** Values are for Water (No Glycol or other Chemicals factored in) @ 68 °F (20°C) and max pressure of 5700 PSI. (Calculated to ASME PTC 19.3 TW-2016 Code B31.1) | **Note 3:** 6-24" Machined Thermowells meet ASME PTC 19.3 TW-2016 Code B31.1.

MAXIMUM PRESSURE VS TEMPERATURE RATINGS TWO-PART FABRICATED | WELDED THERMOWELL

| Material: | 70°F (21.1°C) | 200°F (93.3°C) | 400°F (204.4°C) | 600°F (315.6°C) | 800°F (426.7°C) | 1000°F (537.8°C) | 1200°F (648.9°C) |
|------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| 304/316 SS | 982 PSI (67.7 Bar) | 820 PSI (56.6 Bar) | 675 PSI (46.5 Bar) | 604 PSI (41.6 Bar) | 550 PSI (37.9 Bar) | 510 PSI (35.1 Bar) | 290 PSI (20.0 Bar) |

MAXIMUM FLUID VELOCITY RATINGS TWO-PART FABRICATED | WELDED THERMOWELL

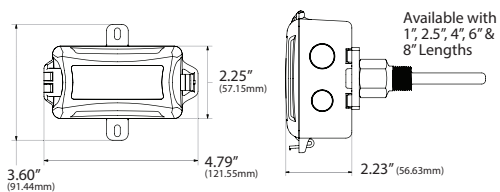
| Straight Shank Insertion Length "U" | | | | |
|-------------------------------------|----------------------------|---------------------|--------------------|--------------------|
| Material: | Media Type: | 2.5" (63.5 mm) | 4.0" (101.6 mm) | 6.0" (152.4 mm) |
| 304/316 SS | Air/Gas/Steam ² | 169 ft/s (51.5 m/s) | 61 ft/s (18.6 m/s) | 20 ft/s (6.1 m/s) |
| 304/316 SS | Water | 88 ft/s (26.8 m/s) | 20 ft/s (6.1 m/s) | 10 ft/s (3.05 m/s) |

Note 2: Values are for Air/Gas/Steam and similar density media



DIMENSIONAL DRAWINGS, WEIGHTS

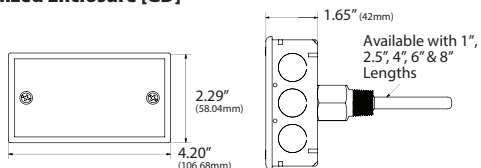
Plastic Box Enclosure [PB]



Plastic Box Enclosure [PB] Weights

| ACI Model # | 1.0" | 2.5" | 4.0" | 6.0" | 8.0" |
|----------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| A/xx-INW-yy-PB | 0.20 lbs. (0.091 kg) | 0.24 lbs. (0.109 kg) | 0.28 lbs. (0.127 kg) | 0.32 lbs. (0.145 kg) | 0.36 lbs. (0.163 kg) |
| A/xx-I-yy-PB | N/A | 0.24 lbs. (0.109 kg) | 0.60 lbs. (0.272 kg) | 0.64 lbs. (0.290 kg) | N/A |
| A/xx-IM-yy-PB | 0.40 lbs. (0.182 kg) | 0.58 lbs. (0.263 kg) | 0.74 lbs. (0.336 kg) | 0.92 lbs. (0.417 kg) | 1.15 lbs. (0.522 kg) |

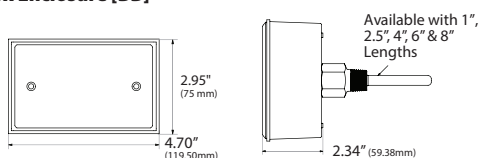
Galvanized Enclosure [GD]



Galvanized Enclosure [GD] Weights

| ACI Model # | 1.0" | 2.5" | 4.0" | 6.0" | 8.0" |
|----------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| A/xx-INW-yy-GD | 0.62 lbs. (0.281 kg) | 0.66 lbs. (0.299 kg) | 0.70 lbs. (0.318 kg) | 0.74 lbs. (0.336 kg) | 0.78 lbs. (0.354 kg) |
| A/xx-I-yy-GD | N/A | 0.88 lbs. (0.399 kg) | 1.00 lbs. (0.454 kg) | 1.04 lbs. (0.472 kg) | N/A |
| A/xx-IM-yy-GD | 0.81 lbs. (0.367 kg) | 1.00 lbs. (0.454 kg) | 1.16 lbs. (0.526 kg) | 1.32 lbs. (0.599 kg) | 1.55 lbs. (0.703 kg) |

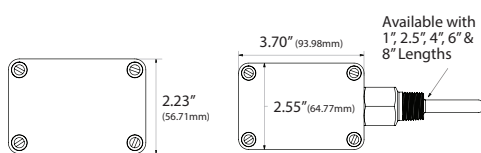
Bell Box Enclosure [BB]



Bell Box Enclosure [BB] Weights

| ACI Model # | 1.0" | 2.5" | 4.0" | 6.0" | 8.0" |
|----------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| A/xx-INW-yy-BB | 0.64 lbs. (0.290 kg) | 0.68 lbs. (0.308 kg) | 0.70 lbs. (0.318 kg) | 0.74 lbs. (0.336 kg) | 0.80 lbs. (0.363 kg) |
| A/xx-I-yy-BB | N/A | 1.02 lbs. (0.463 kg) | 1.00 lbs. (0.454 kg) | 1.04 lbs. (0.472 kg) | N/A |
| A/xx-IM-yy-BB | 0.83 lbs. (0.376 kg) | 1.02 lbs. (0.463 kg) | 1.16 lbs. (0.526 kg) | 1.32 lbs. (0.599 kg) | 1.59 lbs. (0.721 kg) |

NEMA 4X Enclosure [4X]

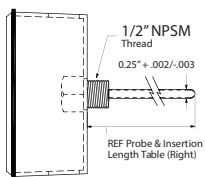


NEMA 4X Enclosure [4X] Weights

| ACI Model # | 1.0" | 2.5" | 4.0" | 6.0" | 8.0" |
|----------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| A/xx-INW-yy-4X | 0.28 lbs. (0.127 kg) | 0.32 lbs. (0.145 kg) | 0.36 lbs. (0.163 kg) | 0.40 lbs. (0.181 kg) | 0.44 lbs. (0.200 kg) |
| A/xx-I-yy-4X | N/A | 0.64 lbs. (0.290 kg) | 0.68 lbs. (0.308 kg) | 0.72 lbs. (0.327 kg) | N/A |
| A/xx-IM-yy-4X | 0.48 lbs. (0.218 kg) | 0.66 lbs. (0.299 kg) | 0.82 lbs. (0.372 kg) | 1.00 lbs. (0.454 kg) | 1.27 lbs. (0.576 kg) |

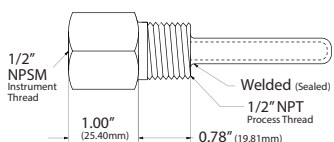
N/A = Not Available | xx = Sensor Type | yy = Insertion Length

PROBE AND INSERTION LENGTH IMMERSION NO WELL



Pictured Above: immersion no well (INW) sensor in Bell Box Enclosure (BB).

Pictured Below: welded two piece thermowell to show connection and depth reference. Thermowell not included with immersion no well (INW).



Probe & Insertion Length

| Probe Length | Insertion Length | ACI Part # | Thermowell Part # |
|--------------|------------------|---------------------|-------------------|
| 3" | 2.81" +/- 0.13" | A/xx-INW-1"-yy-zz | A/M1" |
| 4.5" | 4.31" +/- 0.13" | A/xx-INW-2.5"-yy-zz | A/2.5" or A/M2.5" |
| 6" | 5.81" +/- 0.13" | A/xx-INW-4"-yy-zz | A/4" or A/M4" |
| 8" | 7.81" +/- 0.13" | A/xx-INW-6"-yy-zz | A/6" or A/M6" |
| 10" | 9.81" +/- 0.13" | A/xx-INW-8"-yy-zz | A/M8" |
| 13" | 12.75" +/- 0.13" | A/xx-INW-12"-yy-zz | A/M12" |
| 19" | 18.75" +/- 0.13" | A/xx-INW-18"-yy-zz | A/M18" |
| 25" | 24.75" +/- 0.13" | A/xx-INW-24"-yy-zz | A/M24" |





| CUSTOM ORDERING WELDED THERMOWELL | | Model # Example: <input type="text" value="A/"/> <input type="text" value="1K"/> <input type="text" value="2W"/> <input type="text" value="I"/> <input type="text" value="1"/> <input type="text" value="GD"/> <input type="text" value="NIST"/> | MODEL # |
|--|--|--|---------|
| A. Sensor Series No Selection Required | A/ | | A/ |
| B. Model Series Select One (1) | 100 = 100 Ohm Platinum RTD 1K = 1K Ohm Platinum RTD | | |
| C. Number of Wires Select One (1) | 2W = Two Wires 3W = Three Wires | | |
| D. Configuration Select One (1) | I=Immersion with Welded Thermowell | | |
| E. Insertion Length Select One (1) | 2.5" = 2.5" Insertion 4" = 4" Insertion 6" = 6" Insertion | | |
| F. Enclosure Select One (1) | GD=Galvanized PB=Plastic BB=Aluminum, NEMA 3R 4X=NEMA 4X | | |
| G. NIST Select One (1) | ---- = No NIST Certificate NIST= NIST Certificate (3 Points) | | |

| CUSTOM ORDERING MACHINED THERMOWELL | | Model # Example: <input type="text" value="A/"/> <input type="text" value="1K"/> <input type="text" value="2W"/> <input type="text" value="IM"/> <input type="text" value="1"/> <input type="text" value="GD"/> <input type="text" value="NIST"/> | MODEL # |
|--|---|---|---------|
| A. Sensor Series No Selection Required | A/ | | A/ |
| B. Model Series Select One (1) | 100 = 100 Ohm Platinum RTD 1K = 1K Ohm Platinum RTD | | |
| C. Number of Wires Select One (1) | 2W = Two Wires 3W = Three Wires | | |
| D. Configuration Select One (1) | IM=Immersion with Machined Thermowell | | |
| E. Insertion Length Select One (1) | 1" = 1" Insertion 2.5" = 2.5" Insertion 4" = 4" Insertion 6" = 6" Insertion 8" = 8" Insertion | | |
| F. Enclosure Select One (1) | GD=Galvanized PB=Plastic BB=Aluminum, NEMA 3R 4X=NEMA 4X | | |
| G. NIST Select One (1) | ---- = No NIST Certificate NIST= NIST Certificate (3 Points) | | |

Note: Machined Thermowells with lengths of 12", 18" and 24" are available and must be ordered separately | See the Machined Thermowells Data Sheet (Accessories)

| CUSTOM ORDERING SENSOR ONLY NO THERMOWELL | | Model # Example: <input type="text" value="A/"/> <input type="text" value="1K"/> <input type="text" value="2W"/> <input type="text" value="INW"/> <input type="text" value="1"/> <input type="text" value="GD"/> <input type="text" value="NIST"/> | MODEL # |
|---|---|--|---------|
| A. Sensor Series No Selection Required | A/ | | A/ |
| B. Model Series Select One (1) | 100 = 100 Ohm Platinum RTD 1K = 1K Ohm Platinum RTD | | |
| C. Number of Wires Select One (1) | 2W = Two Wires 3W = Three Wires | | |
| D. Configuration Select One (1) | INW = Immersion without Thermowell | | |
| E. Insertion Length Select One (1) | 1" = 1" Insertion 2.5" = 2.5" Insertion 4" = 4" Insertion 6" = 6" Insertion 8" = 8" Insertion 12" = 12" Insertion 18" = 18" Insertion 24" = 24" Insertion | | |
| F. Enclosure Select One (1) | GD=Galvanized PB=Plastic BB=Aluminum, NEMA 3R 4X=NEMA 4X | | |
| G. NIST Select One (1) | ---- = No NIST Certificate NIST= NIST Certificate (3 Points) | | |

| ACCESSORIES ORDERING | | Model # Example: <input type="text" value="NSG HEAT TRANSFER PASTRE 2 oz"/> | Or <input type="text" value="102595"/> |
|--------------------------------|--------|---|--|
| Model # | Item # | Description | |
| NSG Heat Transfer Paste 2 oz. | 102595 | Thermal Grease, 2 oz. Tube, Silicone Free, -40 to 320°F (-40 to 160°C) | |
| NSG Heat Transfer Paste 16 oz. | 140574 | Thermal Grease, 16 oz. Jar, Silicon Free, -40 to 390°F (-40 to 198°C) | |
| A/2.5" | 128349 | 2.5" (63.5 mm) Insertion, 304 Stainless, Welded, 1/2" NPT Thermowell | |
| A/4" | 128350 | 4" (101.6 mm) Insertion, 304 Stainless, Welded, 1/2" NPT Thermowell | |
| A/6" | 128351 | 6" (152.4 mm) Insertion, 304 Stainless, Welded, 1/2" NPT Thermowell | |
| A/M1" | 128337 | 1" (25.4 mm) Insertion, 304 Stainless, Machined, 1/2" NPT Thermowell | |
| A/M2.5" | 128338 | 2.5" (63.5 mm) Insertion, 304 Stainless, Machined, 1/2" NPT Thermowell | |
| A/M4" | 128343 | 4" (101.6 mm) Insertion, 304 Stainless, Machined, 1/2" NPT Thermowell | |
| A/M6" | 128344 | 6" (152.4 mm) Insertion, 304 Stainless, Machined, 1/2" NPT Thermowell | |
| A/M8" | 138725 | 8" (203.2 mm) Insertion, 304 Stainless, Machined, 1/2" NPT Thermowell | |
| A/M12" | 128339 | 12" (304.80 mm) Insertion, 304 Stainless, Machined, 1/2" NPT Thermowell | |
| A/M18" | 128341 | 18" (457.20 mm) Insertion, 304 Stainless, Machined, 1/2" NPT Thermowell | |
| A/M24" | 128342 | 24" (609.6 mm) Insertion, 304 Stainless, Machined, 1/2" NPT Thermowell | |
| A/M2.5" - 316SS | 128352 | 2.5" (63.5 mm) Insertion, 316 Stainless, Machined, 1/2" NPT Thermowell | |
| A/M4" - 316SS | 128353 | 4" (101.6 mm) Insertion, 316 Stainless, Machined, 1/2" NPT Thermowell | |
| A/M6" - 316SS | 128354 | 6" (152.4 mm) Insertion, 316 Stainless, Machined, 1/2" NPT Thermowell | |





OUTSIDE AIR

Weatherproof Outside Air, Platinum RTD

The ACI Platinum Outside Air Series features a weather proof European style, plastic enclosure with twist off cover and water tight cord grip. The sensing element contains Etched Teflon colored lead wires to differentiate the different sensor types. The three-wire “-3W” option should be ordered if using with a 3-Wire temperature transmitter or sensor configuration on your building management system or PLC (Programmable Logic Controller). The purpose of the 3rd wire is to compensate for external lead wire resistance that will affect your sensors output signal. ACI recommends the use of 18 AWG lead wires to reduce external lead wire resistance when using a Platinum RTD sensor. The sensors in this series are manufactured using ACI’s proven double encapsulation process to eliminate the effects of moisture on the sensor

and to increase response time using our high quality, thermally conductive epoxy. The outdoor air sensor is a single point sensor designed to be mounted under an eave or on the North side of a building in a shaded location with the sensing tube pointed downward. Optional NEMA 4X “-4X” plastic or NEMA 3R “-BB” weatherproof Aluminum enclosures and NIST Certificates are available as referenced on the back of the product data sheet. For Applications in which the sensor must be mounted in direct sunlight, please see the Sun Shield data sheet which will allow you to order a Temperature or Temperature/Humidity Combination sensor.

Applications: Outside Air Temperature Sensing, Cold Storage Facilities, High Dew Point/Condensing Environments

The ACI Platinum Outside Air Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|---|--|
| Sensor Type Sensor Curve: | Platinum RTD PTC (Positive Temperature Coefficient) |
| Number Sensing Points: | One |
| Number Wires: | A/100-2W-xx-O Series and A/1K-2W-xx-O Series: Two (Non-Polarity Sensitive) A/100-3W-xx-O Series and A/1K-3W-xx-O Series: Three (Polarity Sensitive) |
| Sensor Output @ 0°C (32°F): | A/100-xW-xx-O Series: 100 Ohms nominal A/1K-xW-xx-O Series: 1000 Ohms nominal |
| Sensor Accuracy @ 0°C (32°F): | +/- 0.06% Class A (Tolerance Formula: +/- °C = (0.15°C + (0.002 * t)) where t is the absolute value of Temperature above or below 0°C in °C) -40°C (-40°F): +/- 0.23°C (+/- 0.414°F) 0°C (32°F): +/- 0.15°C (+/- 0.27°F) 70°C (158°F): +/- 0.29°C (+/- 0.53°F) |
| Din Standard Temperature Coefficient: | DIN EN 60751 (IEC 751) 3850 ppm / °C |
| Sensor Stability: | +/- 0.03% after 1000 Hours @ 300°C (572°F) |
| Response Time (63% Step Change): | 25 Seconds nominal |
| Self-Heating Maximum Operating Current: | 100 Ohm RTD: 7 mW/°C (Still Air) 5 mA 1K Ohm RTD: 4mW/°C (Still Air) 3 mA |
| Operating Storage Temperature Range: | -40 to 70°C (-40 to 158°F) -40 to 70°C (-40 to 158°F) |
| Operating Humidity Range: | 10 to 100% RH, Condensing |
| Enclosure Specifications (Temperature, Material, Flammability, NEMA/IP Ratings): | “-EH” Enclosure: PC/ASA Plastic w/ UV Protectant; -40 to 88°C (-40 to 190°F); UL94-V0 “-4X” Enclosure: Polystyrene Plastic, -40 to 70°C (-40 to 158°F), UL94-V2, NEMA 4X (IP 66) “-BB” Enclosure: Aluminum, -40 to 121°C (-40 to 250°F), NEMA 3R |
| Lead Length Conductor Size: | 14” (35.6cm) 22 AWG (0.65mm) |
| Lead Wire Insulation Wire Rating: | Etched (PTFE) Teflon Colored Leads MIL-W-16878/4 (Type E) |
| Conductor Material: | Silver Plated Copper |
| Product Dimensions: | See Drawings on back of Data Sheet |
| Product Weight: | A/100/1K-xx-O-EH: 0.46 lbs. (0.21kg) A/100/1K-xx-O-4X: 0.38 lbs. (0.17kg) A/100/1K-xx-O-BB: 0.76 lbs. (0.35kg) |
| Agency Approvals: | CE, RoHS2, WEEE |





DIMENSIONAL DRAWING, WEIGHTS

xx = Sensor Type

| Bell Box Enclosure [BB] | | | Bell Box Enclosure [BB] Weight | | | | | |
|--|---|---|--------------------------------|--------|-----------|----------------------|--|--|
| <p>2.95" (75mm)</p> <p>2.34" (59.38mm)</p> | <p>4.70" (119.50mm)</p> <p>4.73" (120.14mm)</p> | <table border="1"> <thead> <tr> <th>ACI Model #</th> <th>Weight</th> </tr> </thead> <tbody> <tr> <td>A/xx-O-BB</td> <td>0.76 lbs. (0.172 kg)</td> </tr> </tbody> </table> | ACI Model # | Weight | A/xx-O-BB | 0.76 lbs. (0.172 kg) | | |
| ACI Model # | Weight | | | | | | | |
| A/xx-O-BB | 0.76 lbs. (0.172 kg) | | | | | | | |
| Euro Enclosure [EH] | | | Euro Enclosure [EH] Weight | | | | | |
| <p>4.00" (101.57mm)</p> <p>4.30" (109.22mm)</p> <p>2.12" (53.72mm)</p> | <p>3.51" (89.16mm)</p> <p>4.73" (120.14mm)</p> | <table border="1"> <thead> <tr> <th>ACI Model #</th> <th>Weight</th> </tr> </thead> <tbody> <tr> <td>A/xx-O-EH</td> <td>0.46 lbs. (0.345 kg)</td> </tr> </tbody> </table> | ACI Model # | Weight | A/xx-O-EH | 0.46 lbs. (0.345 kg) | | |
| ACI Model # | Weight | | | | | | | |
| A/xx-O-EH | 0.46 lbs. (0.345 kg) | | | | | | | |
| NEMA 4X Enclosure [4X] | | | NEMA 4X Enclosure [4X] Weight | | | | | |
| <p>2.55" (64.77mm)</p> <p>2.23" (56.71mm)</p> | <p>3.70" (93.98mm)</p> <p>4.73" (120.14mm)</p> | <table border="1"> <thead> <tr> <th>ACI Model #</th> <th>Weight</th> </tr> </thead> <tbody> <tr> <td>A/xx-O-4X</td> <td>0.38 lbs. (0.209 kg)</td> </tr> </tbody> </table> | ACI Model # | Weight | A/xx-O-4X | 0.38 lbs. (0.209 kg) | | |
| ACI Model # | Weight | | | | | | | |
| A/xx-O-4X | 0.38 lbs. (0.209 kg) | | | | | | | |
| Front & Right Views | Top View | Product Weight | | | | | | |

STANDARD ORDERING

Model # Example: **A/100-2W-O-EH -OR- 125166**

| Model # | Item # | Description |
|----------------------|--------|--|
| A/100-2W-O-EH | 125166 | 100 Ohm RTD, 2-Wire, Outside Air Sensor, Euro Enclosure, 14" Brown/Brown Leads |
| A/100-2W-O-BB | 119961 | 100 Ohm RTD, 2-Wire, Outside Air Sensor, Aluminum Weather Proof Enclosure, 14" Brown/Brown Leads |
| A/100-2W-O-4X | 135278 | 100 Ohm RTD, 2-Wire, Outside Air Sensor, NEMA 4X Weather Proof Enclosure, 14" Brown/Brown Leads |
| A/100-3W-O-EH | 125178 | 100 Ohm RTD, 3-Wire, Outside Air Sensor, Euro Enclosure, 14" Brown/Brown/Black Leads |
| A/100-3W-O-BB | 120044 | 100 Ohm RTD, 3-Wire, Outside Air Sensor, Aluminum Weather Proof Enclosure, 14" Brown/Brown/Black Leads |
| A/100-3W-O-4X | 120043 | 100 Ohm RTD, 3-Wire, Outside Air Sensor, NEMA 4X Weather Proof Enclosure, 14" Brown/Brown/Black Leads |
| A/1K-2W-O-EH | 125211 | 1K Ohm RTD, 2-Wire, Outside Air Sensor, Euro Enclosure, 14" Black/Black Leads |
| A/1K-2W-O-BB | 120315 | 1K Ohm RTD, 2-Wire, Outside Air Sensor, Aluminum Weather Proof Enclosure, 14" Black/Black Leads |
| A/1K-2W-O-4X | 119398 | 1K Ohm RTD, 2-Wire, Outside Air Sensor, NEMA 4X Weather Proof Enclosure, 14" Black/Black Leads |
| A/1K-3W-O-EH | 125216 | 1K Ohm RTD, 3-Wire, Outside Air Sensor, Euro Enclosure, 14" Black/Black/White Leads |
| A/1K-3W-O-BB | 142485 | 1K Ohm RTD, 3-Wire, Outside Air Sensor, Aluminum Weather Proof Enclosure, 14" Black/Black/White Leads |
| A/1K-3W-O-4X | 131776 | 1K Ohm RTD, 3-Wire, Outside Air Sensor, NEMA 4X Weather Proof Enclosure, 14" Black/Black/White Leads |

CUSTOM ORDERING

Model # Example: **A/ 100 2W O-EH NIST**

| | | MODEL # |
|---|---|-----------|
| A. Sensor Series No Selection Required | A/ <input type="text"/> | A/ |
| B. Model Series Select One (1) | 100 = 100 Ohm Platinum RTD 1K = 1K Ohm Platinum RTD | |
| C. Number of Wires Select One (1) | 2W = Two Wires 3W = Three Wires | |
| D. Enclosure Select One (1) | O-EH = Euro Enclosure O-BB = Aluminum Enclosure O-4X = NEMA 4X Enclosure | |
| E. NIST Select One (1) | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) | |





PIPE MOUNT

Small Pipe/Coil Sensor, Platinum RTD



The ACI Platinum Pipe Mount Series features a 1.1" long Brass sensing element with a slight curvature on the bottom that is designed to increase the surface area and improve thermal conductivity between the pipe and sensor. Each sensor has two, 24 inch, 22 AWG Etched Teflon colored lead wires to differentiate the different sensor types. The three-wire "-3W" option should be ordered if using with a 3-Wire temperature transmitter or sensor configuration on your building management system or PLC (Programmable Logic Controller). The purpose of the 3rd wire is to compensate for any external lead wire resistance that will affect the sensor output. ACI recommends the use of 18 AWG lead wires to reduce the external lead wire resistance when using a Platinum RTD sensor. The sensors are manufactured using ACI's

proven double encapsulation process to eliminate the effects of moisture upon the sensors and to improve the thermal response times with our high quality, thermally conductive epoxy. The Pipe Mount sensor should be used on pipe or coil sizes from 1/2" to 1" in diameter. A 7.5" nylon wire tie is supplied for fastening the sensor to the top of the pipe. For best accuracy and increased conduction between the pipe and the sensor, we recommend that you clean the pipe before applying thermal grease between the mating surfaces and then to insulate the sensor from the external effects of the ambient air. An optional plenum rated cable and NIST Certificate can be ordered as referenced in the ordering grid.

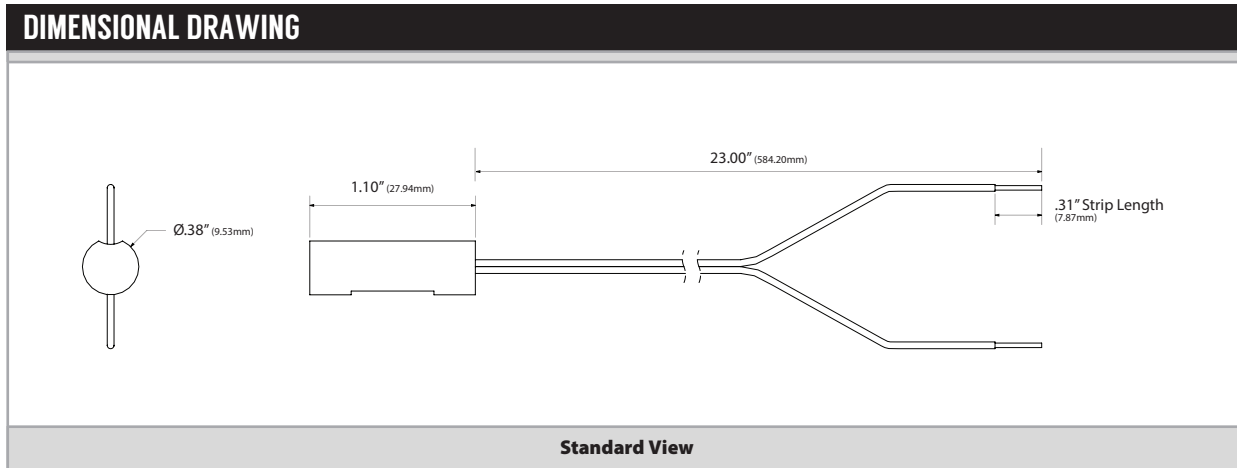
Applications: Cooling Coils, Heating Coils, Hot Water Systems, Chilled Water Systems, Hydronic Heating Systems, Chillers

The ACI Platinum Pipe Mount Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|--|---|
| Sensor Type Sensor Curve: | Platinum RTD PTC (Positive Temperature Coefficient) |
| Number Sensing Points: | One |
| Number Wires: | A/100-2W-PM Series and A/1K-2W-PM Series: Two (Non-Polarity Sensitive) A/100-3W-PM Series and A/1K-3W-PM Series: Three (Polarity Sensitive) |
| Sensor Output @ 0°C (32°F): | A/100-xW-PM Series: 100 Ohms nominal A/1K-xW-PM Series: 1000 Ohms nominal |
| Sensor Accuracy @ 0°C (32°F): | +/- 0.06% Class A (Tolerance Formula: +/- °C = (0.15°C + (0.002 * t)) where t is the absolute value of Temperature above or below 0°C in °C) -40°C (-40°F): +/- 0.23°C (+/- 0.414°F) 0°C (32°F): +/- 0.15°C (+/- 0.27°F) 200°C (392°F): +/- 0.55°C (+/- 0.99°F) |
| Din Standard Temperature Coefficient: | DIN EN 60751 (IEC 751) 3850 ppm / °C |
| Sensor Stability: | +/- 0.03% after 1000 Hours @ 300°C (572°F) |
| Response Time (63% Step Change): | 8 Seconds nominal |
| Self-Heating Maximum Operating Current: | 100 Ohm RTD: 7 mW/°C (Still Air) 5 mA 1K Ohm RTD: 4mW/°C (Still Air) 3 mA |
| Pipe Mount Sensor Enclosure Material: | Brass |
| Pipe Sizes Accepted: | 1/2" (12.7mm) to 1" (25.4mm) |
| Operating Storage Temperature Range: | -40 to 200°C (-40 to 392°F) -40 to 85°C (-40 to 185°F) |
| Operating Humidity Range: | 10 to 95% RH condensing |
| Lead Length Conductor Size: | 24" (61cm) 22 AWG (0.65mm) |
| Lead Wire Insulation Wire Rating: | Etched Teflon (PTFE) Colored Leads MIL-W-16878/4 (Type E) |
| Conductor Material: | Silver Plated Copper |
| Product Dimensions (Length x Diameter): | 1.10" (27.9mm) x 0.375" (9.53mm) |
| Product Weight: | 0.06 lbs. (27.22g) |
| Agency Approvals: | CE, RoHS2, WEEE |





STANDARD ORDERING

Model # Example: **A/100-2W-PM** -OR- **138646**

| Model # | Item # | Description |
|--------------------|--------|---|
| A/100-2W-PM | 138646 | 100 Ohm Platinum, 2-Wire, Pipe Mount, 24" Brown/Brown Leads |
| A/100-3W-PM | 142484 | 100 Ohm Platinum, 3-Wire, Pipe Mount, 24" Brown/Brown/Black Leads |
| A/1K-2W-PM | 138643 | 1K Ohm Platinum, 2-Wire, Pipe Mount, 24" Black/Black Leads |
| A/1K-3W-PM | 142483 | 1K Ohm Platinum, 3-Wire, Pipe Mount, 24" Black/Black/White Leads |

OPTIONAL SENSOR ORDERING

Model # Example: **A/** **1K** **2W** **PM** **20'** **NIST**
A. B. C. D. E. F. G.

| MODEL # | MODEL # |
|--|---|
| A. Sensor Series <i>No Selection Required</i> | A/ |
| B. Model Series <i>Select One (1)</i> | 100 = 100 Ohm Platinum RTD 1K = 1K Ohm Platinum RTD |
| C. Number of Wires <i>Select One (1)</i> | 2W = Two Wires 3W = Three Wires |
| D. Configuration <i>No Selection Required</i> | PM = 1.1" Brass Pipe Mount Sensor |
| E. Lead Length <i>Select One (1)</i> | ---- = Standard (24" Etched Teflon) 10' = 10 Feet (3.05m) 20' = 20 Feet* (6.10m) |
| F. Lead Wire Type <i>Select One (1)</i> | ---- = Standard (24" Teflon Colored Leads) CL2P = Plenum Rated Cable |
| G. NIST <i>Select One (1)</i> | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) |

Note*: The 20' Length is not CE Compliant but it is RoHS Compliant

ACCESSORIES ORDERING

Model # Example: **HARDWARE, 2" HOSE CLAMP** -OR- **100235**

| Model # | Item # | Description |
|-------------------------------------|--------|---|
| HARDWARE, 2" HOSE CLAMP | 100235 | Hardware, 2" Hose Clamp, Quick Release Worm Gear, 201/301 Stainless Steel |
| NSG HEAT TRANSFER PASTE 20Z | 102595 | Thermal Grease, 2 oz. Tube, Silicone Free, -40 to 320°F (-40 to 160°C) |
| NSG HEAT TRANSFER PASTE 160Z | 140574 | Thermal Grease, 16 oz. Jar, Silicone Free, -40 to 390°F (-40 to 198°C) |





PROBE ONLY

Stainless Steel Probe, Platinum RTD



The ACI Platinum Probe Only Series features a 1/4" diameter stainless steel probe with two or three, 14 or 24 inch, 22 AWG Etched Teflon colored lead wires to differentiate the different sensor types. The three-wire "-3W" option should be ordered if using with a 3-Wire temperature transmitter or sensor configuration on your building management system or PLC (Programmable Logic Controller). The purpose of the 3rd wire is to compensate for any external lead wire resistance that will affect your sensor output. ACI recommends the use of an 18 AWG lead wires to reduce the external lead wire resistance when using a Platinum RTD sensor. The sensors in this series are manufactured using ACI's proven double encapsulation process to eliminate the effects of moisture on the sensors and to increase the thermal response time using our high

quality, thermally conductive epoxy. The probe is designed to be used in duct and immersion applications when used with the proper length thermowell. Optional lead length, cable types and NIST Certificates are available as referenced in the ordering grid on the Product Data Sheet.

Applications: Roof Top Units, Air Handlers, Supply/Discharge Air/Return/Mixed/Exhaust Air Duct Temperature Sensing, Immersion Temperature Sensors, Replacement Temperature Sensors, Hydronic Water Systems

The ACI Platinum RTD Probe Only Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, workaci.com.

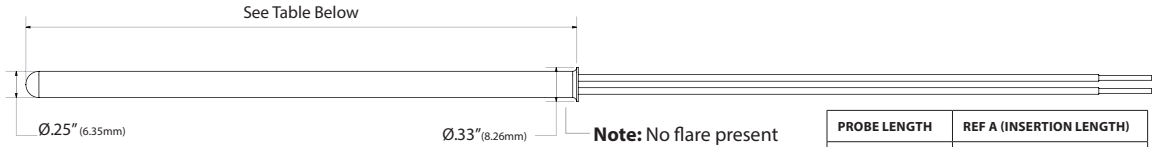
PRODUCT SPECIFICATIONS

| | | |
|--|--|--|
| Sensor Type Sensor Curve: | | Platinum RTD PTC (Positive Temperature Coefficient) |
| Number Sensing Points: | | One |
| Number Wires: | | A/100-2W-PO-XX" Series and A/1K-2W-PO-XX Series: Two (Non-Polarity Sensitive) A/1K-2W-PO-XX" Series and A/1K-3W-PO-XX Series: Three (Polarity Sensitive) |
| Sensor Output @ 0°C (32°F): | | A/100-xW-PO Series: 100 Ohms nominal A/1K-xW-PO Series: 1000 Ohms nominal +/- 0.06% Class A (Tolerance Formula: +/- °C = (0.15°C + (0.002 * t))) |
| Sensor Accuracy @ 0°C (32°F): | | where t is the absolute value of Temperature above or below 0°C in °C -40°C (-40°F): +/- 0.23°C (+/- 0.414°F) 0°C (32°F): +/- 0.15°C (+/- 0.27°F) 200°C (392°F): +/- 0.55°C (+/- 0.99°F) |
| Din Standard Temperature Coefficient: | | DIN EN 60751 (IEC 751) 3850 ppm / °C |
| Sensor Stability: | | +/- 0.03% after 1000 Hours @ 300°C (572°F) |
| Response Time (63% Step Change): | | 8 Seconds nominal |
| Self-Heating Maximum Operating Current: | | 100 Ohm RTD: 7 mW/°C (Still Air) 5 mA 1K Ohm RTD: 4mW/°C (Still Air) 3 mA |
| Operating Storage Temperature Range: | | -40 to 200°C (-40 to 392°F) -40 to 85°C (-40 to 185°F) |
| Operating Humidity Range: | | 10 to 95% RH, non-condensing |
| Probe Material: | | 304 Stainless Steel |
| Standard Wire | Lead Wire Insulation Wire Rating: | Etched Teflon (PTFE) Colored Leads MIL-W-16878/4 (Type E) |
| | Temperature Rating: | -55°C (-67°F) to 200°C (392°F) |
| | Conductor Material: | Silver Plated Copper |
| | Rated Application: | Suitable for Indoor and Outdoor (wet) location. Oil, Moisture, Acids, Oils and Moisture Resistant |
| Lead Length Conductor Size: | | 4", 6" and 8" Probes: 14" (35.6 cm) 12" and 18" Probes: 24" (61 cm) 22 AWG (0.65mm) |
| Plenum Wire | Lead Wire Insulation Wire Rating: | CL2P: FEP (Fluorinated Ethylene Propylene) TYPE CL2P - TYPE CMP 22 AWG (UL), C(UL) FEP/FEP E130356 ROHS |
| | Temperature Rating: | CL2P: -80°C (-112°F) to 150°C (302°F) |
| | Conductor Material: | CL2P: Tinned Copper |
| Rated Application: | | CL2P: Suitable for Indoor and Outdoor (wet) locations. Oil, Gas, Sunlight, Abrasion Acid Resistant |
| Product Dimensions Probe Diameter: | | See table on back of product data sheet 0.250" (6.35mm) |
| Product Weight: | | 4" = 0.028 lbs. (12.7g) 6" = 0.036 lbs. (16.3g) 8" = 0.044 lbs. (20g) 12" = 0.066 lbs. (29.9g) 18" = 0.09 lbs. (40.8g) |
| Agency Approvals: | | CE, RoHS2, WEEE |





DIMENSIONAL DRAWING



| PROBE LENGTH | REF A (INSERTION LENGTH) |
|--------------|--------------------------|
| 2" | 2.00" ± 0.13" |
| 4" | 4.00" ± 0.13" |
| 6" | 6.00" ± 0.13" |
| 8" | 8.00" ± 0.13" |
| 12" | 12.00" ± 0.25" |
| 18" | 18.00" ± 0.25" |

Note: No flare present on 6" and under

Standard View

CUSTOM ORDERING

MODEL # EXAMPLE:

A/ 1K 2W PO 4" 6'CL2P NIST

MODEL

| | | |
|---|--|----|
| A. Sensor Series¹ No Selection Required | A/ | A/ |
| B. Model Series Select One (1) | 100 = 100 Ohm Platinum RTD 1K = 1000 Ohm Platinum RTD | |
| C. Number of Wires Select One (1) | 2W = Two Wires 3W = Three Wires | |
| D. Configuration Select One (1) | PO = Probe Only | PO |
| E. Probe Length Select One (1) | 2" = 2" Probe 4" = 4" Probe 6" = 6" Probe 8" = 8" Probe 12" = 12" Probe 18" = 18" Probe | |
| F. Lead Wire Options Select One (1) | ---- = Standard 14 or 24" Etched PTFE Colored Leads 6'CL2P = 6 ft (1.83m), 2 Conductor Plenum Rated Cable 10'CL2P = 10 ft (3.05m), 2 Conductor Plenum Rated Cable 20'CL2P = 20 ft (6.10m), 2 Conductor Plenum Rated Cable | |
| G. NIST Select One (1) | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) | |

ACCESSORIES ORDERING

Model # Example: NSG HEAT TRANSFER PASTE 2OZ -OR- 102595

| Model # | Item # | Description |
|------------------------------|--------|--|
| NSG HEAT TRANSFER PASTE 2OZ | 102595 | Thermal Grease, 2 oz. Tube, Silicone Free, -40 to 320°F (-40 to 160°C) |
| NSG HEAT TRANSFER PASTE 16OZ | 140574 | Thermal Grease, 16 oz. Jar, Silicone Free, -40 to 390°F (-40 to 198°C) |





RAW POTTED

Remote Sensing Plastic Cap, Platinum RTD



The ACI Platinum Raw Series features a one inch long, 1/4" diameter plastic cup with two or three, 24 inch 22 AWG Etched Teflon colored lead wires to differentiate the different sensor types. The three-wire "-3W" option should be ordered if using with a 3-Wire temperature transmitter or sensor configuration on your building management system or PLC (Programmable Logic Controller). The purpose of the 3rd wire is to compensate for any external lead wire resistance that will affect your sensors output signal. For best results, ACI recommends the use of an 18 AWG lead wires to reduce the external lead wire resistance when using a Platinum RTD sensor. The sensors in this series are manufactured using ACI's proven manufacturing process to eliminate the effects of moisture upon the sensors and increased

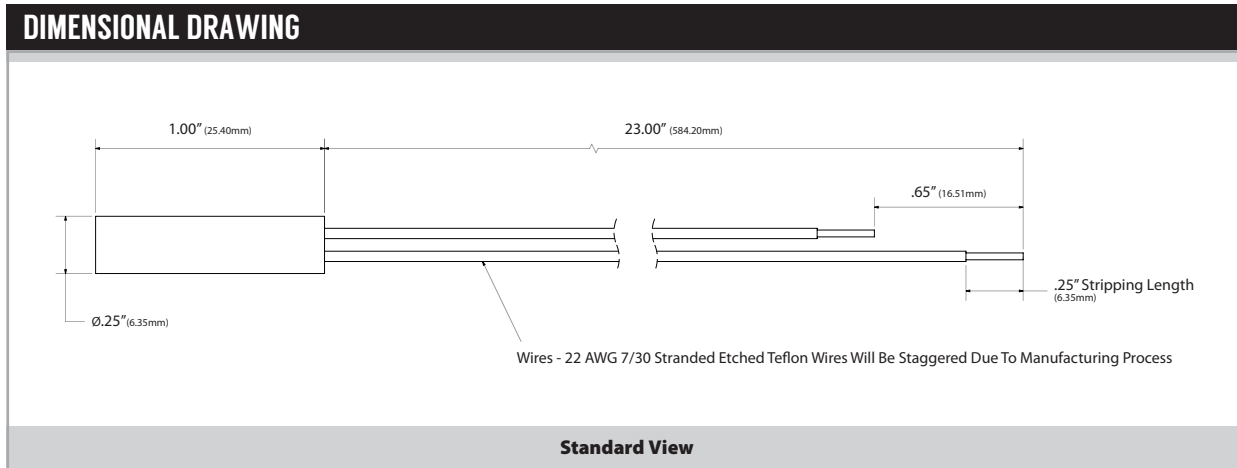
thermal response times using our high quality, thermally conductive epoxy. The raw sensor configuration is designed to monitor air temperatures and should not be fully submerged in liquid. This series can be ordered with optional NIST Certificate or plenum rated cable as shown in the ordering grid on the back of the product data sheet. All additional wire specifications can be found on our products download page on-line. Please contact ACI for more information regarding this product or to discuss your application in further detail. Other options may be available upon request.

Applications: Roof Top Units, Air Handlers, Discharge Air/Supply/Return/Mixed Air Duct Temperature, Remote Temperature Sensing

The ACI Platinum Raw Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

| PRODUCT SPECIFICATIONS | |
|---|---|
| Sensor Type Sensor Curve: | Platinum RTD PTC (Positive Temperature Coefficient) |
| Number Sensing Points: | One |
| Number Wires: | A/100-2W-W Series and A/1K-2W-W Series: Two (Non-Polarity Sensitive) A/100-3W-W Series and A/1K-3W-W Series: Three (Polarity Sensitive) |
| Sensor Output @ 0°C (32°F): | A/100-xW-W Series: 100 Ohms nominal A/1K-xW-W Series: 1000 Ohms nominal |
| Sensor Accuracy @ 0°C (32°F): | +/- 0.06% Class A (Tolerance Formula: +/- °C = (0.15°C + (0.002 * t))) where t is the absolute value of Temperature above or below 0°C in °C -40°C (-40°F): +/- 0.23°C (+/- 0.414°F) 0°C (32°F): +/- 0.15°C (+/- 0.27°F) 200°C (392°F): +/- 0.55°C (+/- 0.99°F) |
| Din Standard Temperature Coefficient: | DIN EN 60751 (IEC 751) 3850 ppm °C |
| Sensor Stability: | +/- 0.03% after 1000 Hours @ 300°C (572°F) |
| Response Time (63% Step Change): | 8 Seconds nominal |
| Self-Heating Maximum Operating Current: | 100 Ohm RTD: 7 mW/°C (Still Air) 5 mA 1K Ohm RTD: 4mW/°C (Still Air) 3 mA |
| Cup Plastic Material: | Glass Filled, Flame Retardant, Diallyl Ortho Phthalate |
| Cup Flammability Rating NASA Outgassing Tests: | UL94-V0 Passed NASA Outgassing Tests |
| Cup MIL-M-14, ASTM D-5948-96: | Type SDG-F |
| Operating Storage Temperature Range: | -40 to 200°C (-40 to 392°F) -40 to 85°C (-40 to 185°F) |
| Operating Humidity Range: | 10 to 95% RH, non-condensing |
| Lead Length Conductor Size: | 24" (0.61m) 22 AWG (0.65mm) |
| Lead Wire Insulation Wire Rating: | Etched Teflon (PTFE) Colored Leads Mil Spec 16878/4 Type E |
| Conductor Material: | Silver Plated Copper |
| Product Dimensions (Length x Diameter): | 1.00" (25.4mm) x 0.250" (6.35mm) |
| Product Weight: | 0.06 lbs. (27.22g) |
| Agency Approvals: | CE, RoHS2, WEEE |





STANDARD ORDERING

Model # Example: **A/100-2W-W -OR- 119981**

| Model # | Item # | Description |
|-------------------|--------|--|
| A/100-2W-W | 119981 | 100 Ohm RTD, 2-Wire, Raw, 24" Leads, 1" Cup, Brown/Brown Leads |
| A/100-3W-W | 120061 | 100 Ohm RTD, 3-Wire, Raw, 24" Leads, 1" Cup, Brown/Brown/Black Leads |
| A/1K-2W-W | 120373 | 1K Ohm RTD, 2-Wire, Raw, 24" Leads, 1" Cup, Black/Black Leads |
| A/1K-3W-W | ---- | 1K Ohm RTD, 3-Wire, Raw, 24" Leads, 1" Cup, Black/Black/White Leads |

OPTIONAL SENSOR ORDERING

Model # Example: **A/ 1K 2W W 20' CL2P NIST**

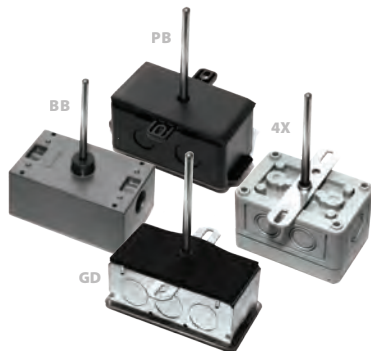
| | | MODEL # |
|---|---|-------------|
| A. Sensor Series <i>No Selection Required</i> | A/ _____ → | A/ |
| B. Model Series <i>Select One (1)</i> | 100 = 100 Ohm Platinum RTD 1K = 1K Ohm Platinum RTD | |
| C. Number of Wires <i>Select One (1)</i> | 2W = Two Wires 3W = Three Wires | |
| D. Configuration <i>No Selection Required</i> | W = 1" Plastic Cup _____ → | W |
| E. Lead Length <i>Select One (1)</i> | 6' = 6 Feet (1.83m) 10' = 10 Feet (3.05m) 20' = 20 Feet (6.10m)** | |
| F. Lead Wire Type <i>No Selection Required</i> | CL2P = 2 Conductor FEP/FEP Plenum Rated Cable _____ → | CL2P |
| G. NIST <i>Select One (1)</i> | ---- = No NIST Certificate NIST = NIST Certificate (Must Specify 1, 3 or 5 Points) | |

Note*: The 20' Length is not CE Compliant but it is RoHS Compliant

ACCESSORIES ORDERING

Model # Example: **¼" Mount Clip -OR- 108169**

| Model # | Item # | Description | Galvanized Metal | Plastic w/ Adhesive |
|----------------------|--------|---------------------------------------|------------------|---------------------|
| ¼" Mount Clip | 108169 | Hardware, ¼" Mounting Clip | ● | |
| ¼" U-Mount CL | 100090 | Hardware, ¼" U-Mounting Clip Adhesive | | ● |



RIGID AVERAGING

Continuous Averaging, Platinum RTD

The ACI Platinum Rigid Averaging features a stainless steel probe with Etched Teflon colored lead wires to differentiate the different sensor types. The three-wire “-3W” option should be ordered when using with a 3-Wire temperature transmitter or sensor configuration on your building management system or PLC (Programmable Logic Controller). The purpose of the 3rd wire is to compensate for external lead wire resistance that affects the accuracy of your sensor output. ACI recommends the use of 18 AWG lead wires to reduce external lead wire resistance when using a Platinum RTD. The rigid averaging sensors include a continuous sensing element, which covers the entire length of the probe. This allows for a better average temperature over the entire length of the sensor when compared to that of a single point duct sensor or multi-point averaging sensor. These sensors are hermetically sealed with epoxy to ensure that moisture and other contaminants can't affect the sensing element. The Rigid Averaging sensor

also includes a foam pad to seal the duct and dampen vibrations once installed. The sensor length should be determined by the width or diameter of your duct such that the sensor covers most of the internal width or height of the duct. Our standard enclosure options include the “-GD” galvanized or “-PB” plastic duct enclosure with hinged cover. On larger ducts, our Platinum bendable copper averaging sensor can be used for larger ducts and increased coverage area. This series can be ordered with optional NEMA/IP rated weather proof enclosures and NIST Certificates as referenced in the ordering grid.

Applications: Roof Top Units, Air Handlers, Monitoring Duct Supply/Discharge/Return/Mixed Air Temperatures

The ACI Platinum Rigid Averaging Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

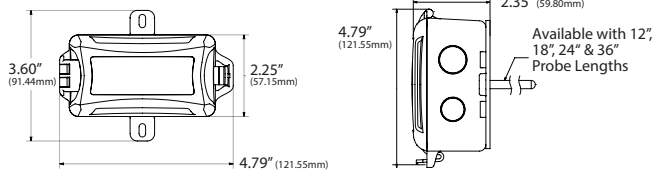
| | |
|---|--|
| Sensor Type Sensor Curve: | Platinum RTD PTC (Positive Temperature Coefficient) |
| Number Sensing Points: | Continuous |
| Number Wires: | A/1K-2W-RA-xx”: Two (Non-Polarity Sensitive) A/1K-3W-RA-xx”: Three (Polarity Sensitive) |
| Sensor Output @ 0°C (32°F): | 1000 Ohms nominal |
| Sensor Accuracy: | +/- 0.1% @ 0°C (32°F) +/- 0.25% @ 21°C (70°F) +/- 1.0% @ 130°C (266°F) |
| Temperature Coefficient: | 3850 ppm / °C |
| Response Time (63% Step Change): | 15 Seconds nominal |
| Sensor Operating Temperature Range: | -40 to 135°C (-40 to 275°F) |
| Enclosure Specifications (Temperature Range, Material, Flammability, NEMA/IP Ratings): | <p>“-GD” Enclosure: -40 to 115°C (-40 to 239°F); Galvanized Steel; NEMA 1 (IP10)</p> <p>“-PB” Enclosure: -30 to 90°C (-22 to 194°F); ABS Plastic; UL94-HB; Plenum Rated</p> <p>“-BB” Enclosure: -40 to 115°C (-40 to 239°F); Aluminum; NEMA 3R (IP 14)</p> <p>“-4X” Enclosure: -40 to 70°C (-40 to 158°F); Polystyrene Plastic; UL94-V2; NEMA 4X (IP 66)</p> |
| Storage Temperature Range: | -40 to 85°C (-40 to 185°F) |
| Operating Humidity Range: | 10 to 95% RH, non-condensing |
| Probe Material: | 304 Series Stainless Steel |
| Probe Diameter: | 0.250” (6.35mm) |
| Fitting Material Flammability Rating: | Polyamide 66 (High Performance Nylon) UL94-HB |
| Foam Pad Material Flammability Rating: | Neoprene/EPDM/SBR Polymer UL94-HBF; FMVSS-302; MIL-R-6130C |
| Lead Length Conductor Size: | 12” (30.5cm) 22 AWG (0.65mm) |
| Lead Wire Insulation Wire Rating: | Etched Teflon (PTFE) Colored Leads Mil Spec 16878/4 Type E) |
| Conductor Material: | Silver Plated Copper |
| Product Dimensions Product Weight: | See table on back of Product Data Sheet |
| Agency Approvals: | CE, RoHS2, WEEE |





DIMENSIONAL DRAWING. WEIGHTS

Plastic Box Enclosure [PB]

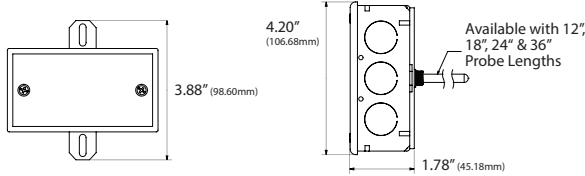


xx = Sensor Type | yy = Insertion Length

Plastic Box Enclosure [PB] Weights

| ACI Model # | 12" (Probe Length) | 18" (Probe Length) |
|---------------|----------------------|----------------------|
| A/xx-RA-yy-PB | 0.28 lbs. (0.127 kg) | 0.30 lbs. (0.136 kg) |
| ACI Model # | 24" (Probe Length) | 36" (Probe Length) |
| A/xx-RA-yy-PB | 0.32 lbs. (0.145 kg) | 0.36 lbs. (0.163 kg) |

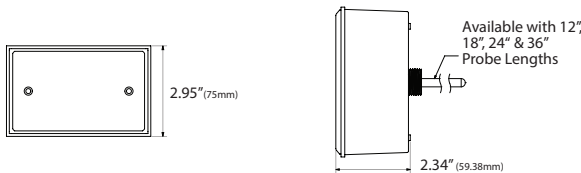
Galvanized Enclosure [GD]



Galvanized Enclosure [GD] Weights

| ACI Model # | 12" (Probe Length) | 18" (Probe Length) |
|---------------|----------------------|----------------------|
| A/xx-RA-yy-GD | 0.70 lbs. (0.317 kg) | 0.74 lbs. (0.336 kg) |
| ACI Model # | 24" (Probe Length) | 36" (Probe Length) |
| A/xx-RA-yy-GD | 0.78 lbs. (0.354 kg) | 0.82 lbs. (0.372 kg) |

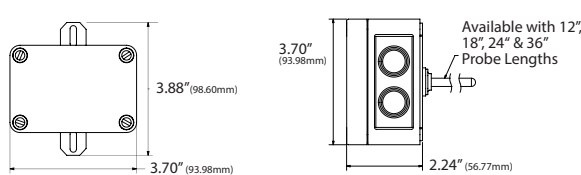
Bell Box Enclosure [BB]



Bell Box Enclosure [BB] Weights

| ACI Model # | 12" (Probe Length) | 18" (Probe Length) |
|---------------|----------------------|----------------------|
| A/xx-RA-yy-BB | 0.74 lbs. (0.336 kg) | 0.78 lbs. (0.354 kg) |
| ACI Model # | 24" (Probe Length) | 36" (Probe Length) |
| A/xx-RA-yy-BB | 0.78 lbs. (0.354 kg) | 0.84 lbs. (0.381 kg) |

NEMA 4X Enclosure [4X]



NEMA 4X Enclosure [PB] Weights

| ACI Model # | 12" (Probe Length) | 18" (Probe Length) |
|---------------|----------------------|----------------------|
| A/xx-RA-yy-4X | 0.38 lbs. (0.172 kg) | 0.40 lbs. (0.181 kg) |
| ACI Model # | 24" (Probe Length) | 36" (Probe Length) |
| A/xx-RA-yy-4X | 0.44 lbs. (0.200 kg) | 0.50 lbs. (0.227 kg) |

Standard Views

Product Weights

CUSTOM ORDERING

Model # Example: A/ 1K 2W RA 36" GD NIST

| | | |
|---|--|---|
| A. Sensor Series No Selection Required | A/ | → |
| B. Model Series No Selection Required | 1K = 1K Ohm Platinum RTD | → |
| C. Number of Wires Select One (1) | 2W = Two Wires 3W = Three Wires | |
| D. Configuration No Selection Required | RA = Rigid Averaging Sensors | → |
| E. Probe Length Select One (1) | 12" = 12" (30.5 cm) Probe 18" = 18" (45.72 cm) Probe 24" = 24" (61 cm) Probe 36" = 36" (91.45 cm) Probe | |
| F. Enclosure Select One (1) | GD = Galvanized PB = Plastic BB = Aluminum, NEMA 3R 4X = NEMA 4X | |
| G. NIST Select One (1) | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) | |

MODEL #

| |
|----|
| A/ |
| 1K |
| RA |





ROOM

Wall Mount Enclosure, Platinum RTD

The ACI Platinum Room Series combines flexibility with attractive styling in our “-R2” or “-R” style enclosures which include four-way air flow design too minimize self-heating to the sensor. These enclosures are offered in a White “-R2” or Beige “-R” color depending on enclosure style and designed to be mounted over a single gang junction box or hole in the wall using drywall anchors. An optional LCD Display is available in the Beige “-R” style enclosure. Screw terminal blocks are provided for making connections to your building management system. An optional 1/8” Black foam pad with pressure sensitive adhesive is available to insulate the sensor from thermal drafts within the wall or wall surface temperature. A 1/16” Hex driver can be used to secure the cover from being easily removed. The “LCD” option uses two temperature sensors to monitor the ambient air temperature in the space and is factory calibrated at a single point.

Applications: Space Temperature Sensing, Office Buildings, Schools, Colleges, Commercial Buildings, OEM Opportunities

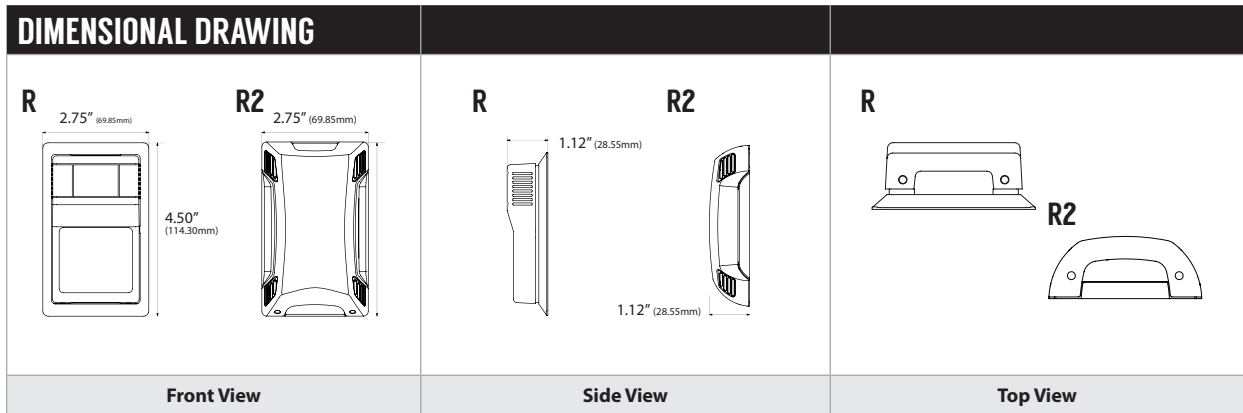
The ACI Platinum Room Series is covered by ACI’s Five (5) Year Limited Warranty. The warranty can be found in the front of ACI’s Sensors & Transmitters catalog, as well as on ACI’s web site, workaci.com.

PRODUCT SPECIFICATIONS

| | |
|--|--|
| Sensor Type Sensor Curve: | Platinum RTD PTC (Positive Temperature Coefficient) |
| Number Sensing Points: | One |
| Number Sensor Terminals: | A/100-2W Series and A/1K-2W Series: Two (Non-Polarity Sensitive) A/100-3W Series and A/1K-3W Series: Three (Polarity Sensitive) |
| Sensor Output @ 32°F (0°C): | A-100-xW Series: 100 Ohms A/1K-xW Series: 1000 Ohms Nominal +/- 0.06% Class A (Tolerance Formula: +/- °C = (0.15°C + (0.002 * t))) where t is the absolute value of Temperature above or below 0°C in °C |
| Sensor Accuracy @ 32°F (0°C): | 0°C (32°F): +/- 0.15°C (+/- 0.27°F) 50°C (122°F): +/- 0.25°C (+/- 0.45°F) |
| Din Standard Temperature Coefficient: | DIN EN 60751 (IEC 751) 3850 ppm/°C |
| Sensor Stability: | +/- 0.03% after 1000 Hours @ 300°C (572°F) |
| Response Time (63% Step Change): | 8 Seconds Nominal |
| Self-Heating Maximum Operating Current: | 100 Ohm RTD: 7 mW/°C (Still Air) 5 mA 1K Ohm RTD: 4 mW/°C (Still Air) 3 mA |
| LCD Display Supply Voltage: | +9 to 35 VDC / 24 VAC (50/60 Hz) |
| LCD Display Supply Current/VA: | <4 mA / 0.12VA |
| LCD Display Accuracy: | +/- 2°F or +/- 2°C @ 71°F (21.5°C) Typical |
| LCD Display Descriptor Number of Digits: | °F (Fahrenheit) or °C (Celsius) 3 1/2 Segment Display |
| LCD Display Life Expectancy: | 50,000 Hours Minimum |
| Set Point Specifications Set Point Indication: | See Ordering Grid Options on back of Product Data Sheet |
| Set Point Tolerance: | +/- 10% of Range |
| Override Options: | Short Thermistor (Default); Field (Jumper) Selectable “Dry Contact” Closure (Separate Input); Short Set Point available upon request |
| Operating Storage Temperature Range: | 1.5 to 50°C (35 to 122°F) Non-LCD: -40 to 65°C (-40 to 149°F) LCD Display: -10 to 65°C (14 to 149°F) |
| Operating Humidity Range: | 10 to 95% RH, non-condensing |
| Connections Wire Size: | Screw Terminal Blocks (Non-Polarity Sensitive) 16 AWG (1.31 mm ²) to 26 AWG (0.129 mm ²) |
| Terminal Block Torque Rating: | 0.5 Nm (Minimum) 0.6 Nm (Maximum) |
| Enclosure Material Flammability Rating Color: | “-R2” Enclosure: ABS Plastic, UL94-HB, White “-R” Enclosure: ABS Plastic, UL94-HB, Beige |
| Product Dimensions: | See Drawing on back of Product Data Sheet |
| Product Weight: | A/1K-2W/3W-R/RS/RO Series: 0.14 lbs. (63.5g) A/1K-2W/3W-RSO Series: 0.18 lbs. (81.6g) A/1K-2W/3W-R2/R2S/R2O Series: 0.16 lbs. (72.6g) A/1K-2W/3W-R2SO Series: 0.20 lbs. (90.7g) A/1K-2W/3W-RSO-RJ6-LCD Series: 0.18 lbs. (81.6g) All LCD Display Units: 0.18 lbs. (81.6g) |
| Agency Approvals: | CE**, RoHS2, WEEE |

Note**: All LCD Display Units are not CE Compliant, but they are RoHS2 Compliant





| STANDARD ORDERING | | |
|-------------------|--------|--|
| Model # | Item # | Description |
| A/100-2W-R | 144136 | 100 Platinum RTD (2 Wire), "R" Version, Beige, No Options |
| A/100-2W-R2 | 144138 | 100 Platinum RTD (2 Wire), "R2" Version, White, No Options |
| A/100-3W-R | 144137 | 100 Platinum RTD (3 Wire), "R" Version, Beige, No Options |
| A/100-3W-R2 | 144139 | 100 Platinum RDT (3 Wire), "R2" Version, White, No Options |
| A/1K-2W-R | 144154 | 1K Platinum RTD (2 Wire), "R" Version, Beige, No Options |
| A/1K-2W-R2 | 144156 | 1K Platinum RTD (2 Wire), "R2" Version, White, No Options |
| A/1K-3W-R | 144155 | 1K Platinum RTD (3 Wire), "R" Version, Beige, No Options |
| A/1K-3W-R2 | 144157 | 1K Platinum RTD (3 Wire), "R2" Version, White, No Options |

| CUSTOM ORDERING | | MODEL # |
|--|--|---------|
| A. Sensor Series¹ No Selection Required | A/ _____ → | A/ |
| B. Model Series Select One (1) | 100 = 100 Ohm Platinum RTD 1K = 1K Ohm Platinum RTD | |
| C. Configuration Select One (1) | R = Room RO = Room with Override RS = Room with Set Point RSO = Room with Setpoint and Override R2 = Room R2O = Room with Override R2S = Room with Set Point R2SO = Room with Set Point and Override | |
| D. Communication Jack Select One (1) | ---- = No Jack RJ4 = 4 Pin 4 Conductor RJ9, RJ10 or RJ22 Style Head Set Modular Connector RJ6 = 6 Pin 6 Conductor RJ12 Modular Phone Connector 232 = 3.5mm (1/8") Stereo Jack | |
| E. LCD Display² Select One (1) | ---- = No LCD Display LCD² = With LCD Display (Only Available with "R" Style Enclosure) | |
| F. LCD Display Descriptor Select One (1) | F = °F (Fahrenheit) C = °C (Celsius) | |
| G. NIST³ Select One (1) | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) | |
| Setpoint Configuration Options Select Options below if RS, RSO, R2S or R2SO was selected as a Configuration (C) | | |
| 1. Slidepots⁴ Select One (1) | Direct Acting (Range in Ohms) A01 = 0 to 100K A02 = 0 to 20K A03 = 0 to 10K A08 = 1K to 11K A09 = 0 to 2K A10 = 0 to 1K A12 = 0 to 400 A16 = 0 to 5K A28 = 806 to 1206 A32 = 900 to 1300 Reverse Acting (Range in Ohms) A14 = 10K to 0 | |
| 2. Setpoint Indication Select One (1) | A3 = 18-28 DEG C A4 = 20-30 DEG C B4 = 55-85 DEG F B7 = 60-90 DEG F C5 = COOL/WARM C6 = COOLER/WARMER D3 = WARM/COOL G5 = BLUE/RED (R2 Enclosure) | |

Note¹: A/ part numbers come without logo. For custom logo, replace A/ with Company abbreviation. Please contact ACI | **Note²:** LCD Display is not compatible with NIST | **Note³:** NIST is available in "R" and "R2" only configurations | **Note⁴:** Other Setpoint configurations are available. Please contact ACI | **Note⁵:** Short Sensor is factory default, but the Dry Contact option is field selectable with jumper shunts included





| ACCESSORIES ORDERING | | |
|-----------------------------|---------------|---|
| Model # | Item # | Description |
| A/MOUNTING PLATE BEIGE R | 106821 | Wall Mounting Back Plate, Plastic, Beige ("R") |
| A/MOUNTING PLATE WHITE R | 126386 | Wall Mounting Back Plate, Plastic, White ("R") |
| A/MOUNTING PLATE WHITE R2 | 143369 | Wall Mounting Back Plate, Plastic, White ("R2") |
| LOCKING COVER | 107370 | Clear Thermostat Guard, Locking Cover, Low Profile |
| A/ROOM-FOAM-PAD | 125690 | 1/8" Foam Insulation Pad with Adhesive (3" x 2", Black) |







STRAP ON

Non-Intrusive Pipe Mount, Platinum RTD

The ACI Platinum Strap-On Series features a 1.5" square copper plate with the sensor encapsulated to the back side of the copper plate to improve the thermal conductivity between the pipe and sensor. Each sensor has Etched Teflon colored lead wires to differentiate the different sensor types. The three-wire "-3W" option should be ordered when using with a 3-Wire temperature transmitter or sensor configuration on your building management system or PLC (Programmable Logic Controller). The purpose of the 3rd wire is to compensate for any external lead wire resistance that will affect your sensors output signal. ACI recommends the use of 18 AWG lead wires to reduce the external lead wire resistance when using a Platinum RTD sensor. Sensors in this series are manufactured using ACI's proven double encapsulation

process to eliminate the effects of moisture on the sensor as well as to improve thermal response times with our high quality, thermally conductive epoxy. Strap-On sensors can be used to monitor pipe sizes from 1 1/4" to 10" in diameter. ACI recommends to clean the pipe before applying thermal grease and installing the sensor before finally insulating the sensor from the effects of the ambient air. Optional Weather Proof enclosures and NIST Certificates are available as referenced on the back of the Product Data Sheet.

Applications: Cold Water Systems, Hot Water Systems, Retrofit applications, Hydronic Heating Systems, Chillers

The ACI Platinum Strap-On Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|--|---|
| Sensor Type Sensor Curve: | Platinum RTD PTC (Positive Temperature Coefficient) |
| Number Sensing Points: | One |
| Number Wires: | A/100-2W-S Series and A/1K-2W-S Series: Two (Non-Polarity Sensitive) A/100-3W-S Series and A/1K-3W-S Series: Three (Polarity Sensitive) |
| Sensor Output @ 0°C (32°F): | A/100-xW-S Series: 100 Ohms nominal A/1K-xW-S Series: 1000 Ohms nominal |
| Sensor Accuracy @ 0°C (32°F): | +/- 0.06% Class A (Tolerance Formula: +/- °C = (0.15°C + (0.002 * t)) where t is the absolute value of Temperature above or below 0°C in °C) -40°C (-40°F): +/- 0.23°C (+/- 0.41°F) 0°C (32°F): +/- 0.15°C (+/- 0.27°F) 93°C (200°F): +/- 0.34°C (+/- 0.61°F) |
| Din Standard Temperature Coefficient: | DIN EN 60751 (IEC 751) 3850 ppm / °C |
| Sensor Stability: | +/- 0.03% after 1000 Hours @ 300°C (572°F) |
| Response Time (63% Step Change): | 30 Seconds nominal |
| Self-Heating Maximum Operating Current: | 100 Ohm RTD: 7 mW/°C (Still Air) 5 mA 1K Ohm RTD: 4mW/°C (Still Air) 3 mA |
| Enclosure Specifications (Operating Temperature Range, Flammability, NEMA/IP Rating): | A/100/1K-S-GD: Galvanized Steel, -40 to 93°C (-40 to 200°F), NEMA 1 (IP 10) A/100/1K-PB: ABS Plastic, -30 to 85°C (-22 to 185°F), UL94-HB, Plenum Rated A/100/1K-S-4X: Polystyrene Plastic, -40 to 70°C (-40 to 158°F), UL94-V2, NEMA 4X (IP 66) |
| Storage Temperature Range: | -40 to 85°C (-40 to 185°F) |
| Operating Humidity Range: | 10 to 95% RH, non-condensing |
| Acceptable Pipe Size: | A/100/1K-S-XX: 1 1/4" (32mm) to 4" (100mm) A/100/1K-S10-XX: 2" (50mm) to 10" (250mm) |
| Foam Material Flammability Rating: | Neoprene/EPDM/SBR Polymer UL94-HF1; MIL-R-6130C; FMVSS-302 |
| Lead Length Conductor Size: | 14" (35.6cm) 22 AWG (0.65mm) |
| Lead Wire Insulation Wire Rating: | Etched Teflon (PTFE) Colored Leads MIL-W-16878/4 (Type E) |
| Conductor Material: | Silver Plated Copper |
| Product Dimensions: | See Drawing on Back of Data Sheet |
| Product Weight: | A/100/1K-XX-GD: 0.81 lbs. (0.37kg) A/100/1K-XX-PB: 0.41 lbs. (0.19kg); A/100/1K-XX-4X: 0.56 lbs. (0.25kg) |
| Agency Approvals: | CE, RoHS2, WEEE |





DIMENSIONAL DRAWING

| Plastic Box Enclosure [PB] | | |
|----------------------------|-------------------|---|
| | | <p>Foam Pad Will Compress Upon Installation</p> |
| | | <p>Foam Pad Will Compress Upon Installation</p> |
| | | <p>Foam Pad Will Compress Upon Installation</p> |
| Front View | Right View | Top View |

STANDARD ORDERING

Model # Example: **A100-2W-S-GD** -OR- **119447**

| Model # | Item # | Description |
|----------------------|--------|---|
| A/100-2W-S-GD | 119447 | 100 Ohm RTD, 2-Wire, Strap-On, 1 1/4" to 4" Pipe, Galvanized Enclosure, 14" Brown/Brown Leads |
| A/100-2W-S-PB | 135211 | 100 Ohm RTD, 2-Wire, Strap-On, 1 1/4" to 4" Pipe, Plastic Enclosure, 14" Brown/Brown Leads |
| A/100-3W-S-GD | 119468 | 100 Ohm RTD, 3-Wire, Strap-On, 1 1/4" to 4" Pipe, Galvanized Enclosure, 14" Brown/Brown/Black Leads |
| A/100-3W-S-PB | 124218 | 100 Ohm RTD, 3-Wire, Strap-On, 1 1/4" to 4" Pipe, Plastic Enclosure, 14" Brown/Brown/Black Leads |
| A/1K-2W-S-GD | 119549 | 1K Ohm RTD, 2-Wire, Strap-On, 1 1/4" to 4" Pipe, Galvanized Enclosure, 14" Black/Black Leads |
| A/1K-2W-S-PB | 124202 | 1K Ohm RTD, 2-Wire, Strap-On, 1 1/4" to 4" Pipe, Plastic Enclosure, 14" Black/Black Leads |
| A/1K-3W-S-GD | 119571 | 1K Ohm RTD, 3-Wire, Strap-On, 1 1/4" to 4" Pipe, Galvanized Enclosure, 14" Black/Black/White Leads |
| A/1K-3W-S-PB | 142480 | 1K Ohm RTD, 3-Wire, Strap-On, 1 1/4" to 4" Pipe, Plastic Enclosure, 14" Black/Black/White Leads |

CUSTOM ORDERING

Model # Example: **A/ 100 2W S PB NIST**

| A. Sensor Series No Selection Required | A/ | MODEL # |
|--|---|-----------|
| B. Model Series Select One (1) | 100 = 100 Ohm Platinum RTD 1K = 1K Ohm Platinum RTD | A/ |
| C. Number of Wires Select One (1) | 2W = Two Wires 3W = Three Wires | |
| D. Configuration Select One (1) | S = Strap-On (1.25" to 4" Pipe Size) S10 = Strap-On (2" to 10" pipe size) | |
| E. Enclosure Select One (1) | GD = Galvanized PB = Plastic 4X = NEMA 4X Weather Proof | |
| F. NIST Select One (1) | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) | |

ACCESSORIES ORDERING

Model # Example: **A/HOSE CLAMP-2-12"** -OR- **142631**

| Model # | Item # | Description |
|-------------------------------------|--------|--|
| A/HOSE CLAMP-2-5" | 142630 | Hardware, 2-5" Hose Clamp, Quick Release Worm Gear, 201/301 Stainless Steel |
| A/HOSE CLAMP-2-12" | 142631 | Hardware, 2-12" Hose Clamp, Quick Release Worm Gear, 201/301 Stainless Steel |
| NSG HEAT TRANSFER PASTE 2OZ | 102595 | Thermal Grease, 2 oz. Tube, Silicone Free, -40 to 320°F (-40 to 160°C) |
| NSG HEAT TRANSFER PASTE 16OZ | 140574 | Thermal Grease, 16 oz. Jar, Silicone Free, -40 to 390°F (-40 to 198°C) |





WALL PLATES

Stainless & Aluminum Wall Plate, Platinum RTD



The ACI Platinum Wall Plate Series features a decorative Stainless Steel or Aluminum wall plate with two or three Teflon colored lead wires to differentiate between the different sensor types. All three-wire “-3W” sensors should be ordered when using with a 3-Wire temperature transmitter or sensor configuration on your building management system or PLC (Programmable Logic Controller). The purpose of the 3rd wire is to compensate for external lead wire resistance that will affect the accuracy of your sensor. ACI recommends the use of 18 AWG lead wires to reduce the effect of external lead wire resistance when using a Platinum RTD. The sensors in this series are manufactured using ACI’s double encapsulation process to eliminate the effects of moisture upon the sensors and to increase the thermal response using

our high quality, thermally conductive epoxy. A foam pad is included to insulate the sensor from thermal drafts within the wall. All wall plates are will provide a level of security and protection to the sensor when mounted over a single gang junction box or hole in the wall with the use of drywall anchors. Tamper Proof mounting screws, screw driver bits and NIST Certificates are available as referenced on the back of the data sheet. Other options including override and communication jacks may be available upon request.

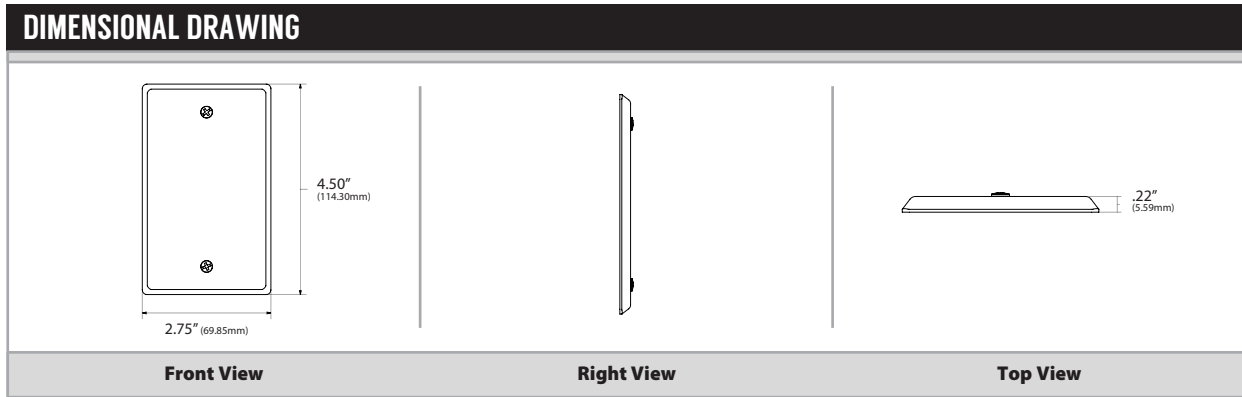
Applications: Ambient Air/Space Temperature Sensing, Tamper Proof/Secure Applications, Schools, Gymnasiums, Office Buildings, Hallways

The ACI Platinum Wall Plate Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|--|---|
| Sensor Type Sensor Curve: | Platinum RTD PTC (Positive Temperature Coefficient) |
| Number Sensing Points: | One |
| Number Wires: | A/100-2W-xP Series and A/1K-2W-xP Series: Two (Non-Polarity Sensitive) A/100-3W-xP Series and A/1K-3W-xP Series: Three (Polarity Sensitive) |
| Sensor Output @ 0°C (32°F): | A/100-xW-xP Series: 100 Ohms nominal A/1K-xW-xP Series: 1000 Ohms nominal |
| Sensor Accuracy @ 0°C (32°F): | +/- 0.06% Class A (Tolerance Formula: +/- °C = (0.15°C + (0.002 * t))) where t is the absolute value of Temperature above or below 0°C in °C -40°C (-40°F): +/- 0.23°C (+/- 0.414°F) 0°C (32°F): +/- 0.15°C (+/- 0.27°F) 71°C (160°F): +/- 0.292°C (+/- 0.53°F) |
| Din Standard Temperature Coefficient: | DIN EN 6075 (IEC 751) 3850 ppm / °C |
| Sensor Stability: | +/- 0.03% after 1000 Hours @ 300°C (572°F) |
| Response Time (63% Step Change): | 25 Seconds nominal |
| Self-Heating Maximum Operating Current: | 100 Ohm RTD: 7 mW/°C (Still Air) 5 mA 1K Ohm RTD: 4mW/°C (Still Air) 3 mA |
| Operating Storage Temperature Range: | -40 to 71°C (-40 to 160°F) |
| Operating Humidity Range: | 10 to 95% RH, non-condensing |
| Plate Material: | A/100/1K-SP Series: 430 Stainless Steel (Brushed Stainless Steel Finish) A/100/1K-AP Series: Aluminum (Smooth Satin Finish, Clear Anodized) |
| Foam Material Flammability Rating: | Cross-Linked Polyethylene FMVSS-302 |
| Lead Length Conductor Size: | 14" (35.56cm) 22 AWG (0.65mm) |
| Lead Wire Insulation Wire Rating: | Etched Teflon (PTFE) Colored Leads MIL-W-16878/4 (Type E) |
| Conductor Material: | Silver Plated Copper |
| Product Dimensions (L x W x D): | 4.50" (114.3mm) x 2.78" (70.6mm) x 0.187" (4.76mm) |
| Product Weight: | A/100/1K-SP Series: 0.15 lbs. (68.04g) A/100/1K-AP Series: 0.09 lbs. (40.82g) |
| Agency Approvals: | CE, RoHS2, WEEE |





STANDARD ORDERING

Model # Example: **A/100-2W-SP** -OR- **119979**

| Model # | Item # | Description |
|--------------------|--------|---|
| A/100-2W-SP | 119979 | 100 Ohm RTD, 2-Wire, Stainless Wall Plate, 14" Brown/Brown Leads, 1/8" Foam Pad |
| A/100-3W-SP | 120059 | 100 Ohm RTD, 3-Wire, Stainless Wall Plate, 14" Brown/Brown/Black Leads, 1/8" Foam Pad |
| A/1K-2W-SP | 120368 | 1K Ohm RTD, 2-Wire, Stainless Wall Plate, 14" Black/Black Leads, 1/8" Foam Pad |
| A/1K-3W-SP | 142479 | 1K Ohm RTD, 3-Wire, Stainless Wall Plate, 14" Black/Black/White Leads, 1/8" Foam Pad |

CUSTOM ORDERING

Model # Example: **A/** **100** **2W** **SP** **NIST**

| | MODEL # |
|--|--|
| A. Sensor Series <i>No Selection Required</i> | A/ → |
| B. Model Series <i>Select One (1)</i> | 100 = 100 Ohm Platinum RTD 1K = 1K Ohm Platinum RTD |
| C. Number of Wires <i>Select One (1)</i> | 2W = Two Wires 3W = Three Wires |
| D. Configuration <i>Select One (1)</i> | SP = 1 Gang Stainless Steel Wall Plate AP = 1 Gang Aluminum Wall Plate |
| E. NIST <i>Select One (1)</i> | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) |

ACCESSORIES ORDERING

Model # Example: **A/TAMPER PROOF SCREWS** -OR- **144865**

| Model # | Item # | Description |
|-------------------------------|--------|---|
| A/TAMPER PROOF SCREWS | 144865 | Two (2) Screws, Tamper Proof, #6 x 5/8", Zinc Plated, Flat Head, 1/8" |
| SCREWDRIVER INSERT BIT | 143067 | Screwdriver Bit, Tamper Proof Screw, 5/64 |





BULLET PROBE

1" Bullet Probe, Nickel RTD



The ACI Nickel Bullet Probe Series features a one inch stainless steel probe with two, 24 inch 22 AWG Etched Teflon colored lead wires to differentiate the many different NTC sensor types. The sensors in this series are manufactured using ACI's proven double encapsulation process to eliminate the effects of moisture upon the sensors and to increase the thermal response times using our high quality, thermally conductive epoxy. The bullet style sensor is designed to be used to monitor air temperatures and should not be fully submerged in water. This series can be ordered with different wire options and NIST Certification as referenced in the Ordering grid on the back of the product data sheet.

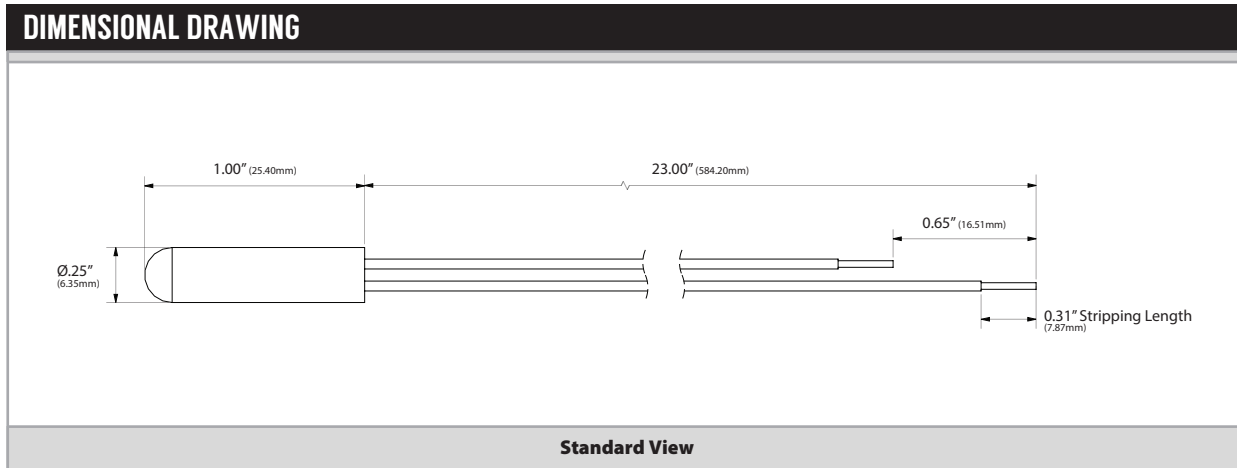
Applications: Roof Top Units, Air Handlers, Discharge Air/Supply/Return/Mixed Air Duct Temperature, Remote Temperature Sensing

The ACI Nickel Bullet Probe Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|--|---|
| Sensor Type Sensor Curve: | Nickel RTD PTC (Positive Temperature Coefficient) |
| Number Sensing Points: | One |
| Number Wires: | Two (Non-Polarity Sensitive) |
| Sensor Output @ 21.1°C (70°F) Lead Wire Colors: | 1000 Ohms nominal Red/Red |
| Sensor Accuracy: | <p>-40°C (-40°F): +/- 1.52°C (+/- 2.73°F)</p> <p>0°C (32°F): +/- 0.4°C (+/- 0.72°F)</p> <p>21.1°C (70°F): +/- 0.17°C (+/- 0.34°F)</p> <p>54.4°C (130°F): +/- 0.56°C (1.00°F)</p> <p>121°C (250°F): +/- 1.25°C (+/- 2.25°F)</p> |
| Din Standard Temperature Coefficient (0-100°C): | Din 43760 6370 ppm/°C |
| Sensor Stability: | +/- 0.05% after 1000 Hours @ 150°C (302°F) |
| Response Time (63% Step Change): | 8 Seconds nominal |
| Self-Heating Maximum Operating Current: | 0.3°C/mW (Still Air) 5 mA |
| Probe Material: | 304 Stainless Steel |
| Operating Temperature Range: | -40 to 121°C (-40 to 250°F) |
| Storage Temperature Range: | -40 to 85°C (-40 to 185°F) |
| Operating Humidity Range: | 10 to 95% RH, non-condensing |
| Lead Length Conductor Size: | 24" (61cm) 22 AWG (0.65mm) |
| Lead Wire Insulation Wire Rating: | Etched Teflon Colored Leads MIL-W-16878/4 (Type E) |
| Conductor Material: | Silver Plated Copper |
| Product Dimensions (Length x Diameter): | 1.00" (25.4mm) x 0.250" (6.35mm) |
| Product Weight: | 0.02 lbs. (9.07g) |
| Agency Approvals: | CE, RoHS2, WEEE |





STANDARD ORDERING

Model # Example: **A/1K-NI-BP** -OR- **120490**

| Model # | Item # | Description |
|----------------------------|--------|---|
| A/1K-NI-BP | 120490 | 1K Nickel Bullet Probe, 24" (61.0 cm) (Leads, 1" Probe |
| A/1K-NI-BP-10'CL2P | 130028 | 1K Nickel Bullet Probe, 10' (3.05m) CL2P Plenum Leads, 1" Probe |
| A/1K-NI-BP-20'CL2P* | 131900 | 1K Nickel Bullet Probe, 20' (6.10m) CL2P Plenum Leads, 1" Probe |
| A/1K-NI-BP-20'Z* | 130472 | 1K Nickel Bullet Probe, 20' (6.10m) Zip Cord Leads, 1" Probe |

Note*: The 20' Length is not CE Compliant but it is RoHS Compliant

OPTIONAL SENSOR ORDERING

Model # Example: **A/ 1K-NI BP 6'CL2P NIST**
A. B. C. D. E.

| MODEL # |
|---------------|
| A/ |
| 1K-NI |
| BP |
| 6'CL2P |
| NIST |

| | | |
|--|---|--|
| A. Sensor Series <i>No Selection Required</i> | A/ _____ → | |
| B. Model Series <i>No Selection Required</i> | 1K-NI _____ → | |
| C. Configuration <i>No Selection Required</i> | BP = 1" Stainless Steel Probe _____ → | |
| D. Lead Wire Type <i>Select One (1)</i> | ---- = Standard 24" Etched PTFE Colored Leads 6'CL2P = 6 ft (1.83m), 2 Conductor Plenum Rated Cable 10'CL2P = 10 ft (3.05m), 2 Conductor Plenum Rated Cable 20'CL2P = 20 ft (6.10m), 2 Conductor Plenum Rated Cable | |
| E. NIST <i>Select One (1)</i> | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) | |

ACCESSORIES ORDERING

Model # Example: **A/MOUNTING U-CLIP-1/4"** -OR- **143352**

| Model # | Item # | Description | Galvanized Metal | Plastic w/ Adhesive |
|-------------------------------|--------|---|------------------|---------------------|
| A/MOUNTING CLIP-1/4" | 143351 | Hardware, 1/4" Mounting Clip | • | |
| A/MOUNTING U-CLIP-1/4" | 143352 | Hardware, 1/4" U-Mounting Clip Adhesive | | • |





COPPER AVERAGING

Bendable Copper, Nickel RTD



The ACI Nickel Copper Averaging Series features a bendable copper sensing element with two colored lead wires to differentiate the different sensor types. The sensors in this series are manufactured with multiple sensing points determined by the length of the sensing element. Averaging sensors provide a more accurate average temperature of the air inside large ducts when compared to that of a single point sensor. Each of the elements is hermetically sealed to prevent moisture intrusion and includes an integrated foam pad to seal the duct and dampen vibrations. The benefits of copper sensing elements are that they have improved thermal conductivity and higher corrosion resistance when compared to similar aluminum style sensors. Copper has also been proven to provide an additional antibacterial effect to many of the airborne contaminants, molds and bacteria found in duct systems. Sensor lengths should be selected based upon the dimensional area of your duct. ACI's standard enclosures include the "-GD" Galvanized or "-PB" plastic box with hinged cover. Each unit includes nylon wire ties and

mounts for mounting. Optional copper capillary and universal mounting clips, NEMA/IP rated weather proof enclosures and NIST Certificates are also available.

Applications: Air Handlers, Roof Top Units, Mixed Air/Discharge/Supply Air Temperature Monitoring, Data Centers, Hospitals

The ACI Nickel Copper Averaging Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's web site, workaci.com.

PRODUCT SPECIFICATIONS

| | | |
|---|--|---|
| Sensor Type Sensor Curve: | Nickel RTD PTC (Positive Temperature Coefficient) | |
| Number Sensing Points: | 8' & 12' Lengths: Four 24' Length: Nine | |
| Number Wires: | Two (Non-Polarity Sensitive) | |
| Sensor Output @ 21.1°C (70°F) Lead Wire Colors: | 1000 Ohms nominal Red/Red | |
| Sensor Accuracy: | 8' & 12' Lengths: | 24' Lengths: |
| | +/- 0.31°C (+/- 0.56°F) @ 21.1°C (70°F) +/- 0.71°C (+/- 1.28°F) @ 54.4°C (130°F) | +/- 0.41°C (+/- 0.74°F) @ 21.1°C (70°F) +/- 0.87°C (+/- 1.56°F) @ 54.4°C (130°F) |
| Din Standard Temperature Coefficient (0-100°C): | Din 43760 6370 ppm/°C | |
| Sensor Stability: | +/- 0.05% after 1000 Hours @ 150°C (302°F) | |
| Self-Heating Maximum Operating Current: | 0.3°C/mW (Still Air) 5 mA | |
| Response Time (63% Step Change): | 8 Seconds nominal | |
| Enclosure Specifications (Temperature, Flammability, NEMA/IP Ratings): | "-GD" Enclosure: Galvanized Steel, -40°C to 115°C (-40°F to 239°F), NEMA 1 (IP10) | |
| | "-PB" Enclosure: ABS Plastic, -30°C to 90°C (-22°F to 194°F), UL94-HB, Plenum Rated | |
| | "-BB" Enclosure: Aluminum, -40°C to 115°C (-40°F to 239°F), NEMA 3R | |
| | "-4X" Enclosure: Polystyrene Plastic, -40°C to 70°C (-40°F to 158°F), UL94-V2, NEMA 4X (IP 66) | |
| Storage Temperature Range: | -40 to 85°C (-40 to 185°F) | |
| Sensor Operating Temperature Range: | -40 to 250°F (-40 to 121°C) | |
| Operating Humidity Range: | 10 to 95% RH, non-condensing | |
| Sensing Element Material Element Diameter: | Copper 0.210" (5.34mm) nominal | |
| Fitting Material Flammability Rating: | Polyamide 66 (High Performance Nylon) UL94-HB | |
| Foam Pad Material Flammability Ratings: | Neoprene/EPDM/SBR Polymer UL94-HBF; FMVSS-302; MIL-R-6130C | |
| Lead Length Conductor Size: | 12" (30.5cm) 22 AWG (0.65mm) | |
| Lead Wire Insulation Wire Ratings: | Etched Teflon (PTFE) Colored Leads MIL-W-16878/4 (Type E) | |
| Conductor Material: | Silver Plated Copper | |
| Product Dimensions Product Weight: | See table on back of Product Data sheet | |
| Agency Approvals: | RoHS2, WEEE | |





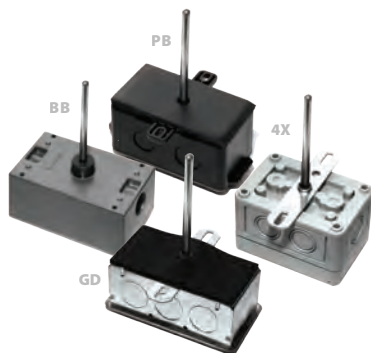
| DIMENSIONAL DRAWING, WEIGHTS | | | | | | | | | | | | | |
|--|---|----------------------|-------------------|--------------------|--------------|----------------------|----------------------|-------------|--------------------|--|--------------|----------------------|--|
| <p>Plastic Box Enclosure [PB]</p> <p>Averaging Available in 8', 12' & 24' Lengths</p> | <p>Plastic Box Enclosure [PB] Weights</p> <table border="1"> <thead> <tr> <th>ACI MODEL #</th> <th>8' (PROBE LENGTH)</th> <th>12' (PROBE LENGTH)</th> </tr> </thead> <tbody> <tr> <td>A/xx-A-yy-PB</td> <td>0.72 LBS. (0.327 KG)</td> <td>0.96 LBS. (0.435 KG)</td> </tr> <tr> <th>ACI MODEL #</th> <th colspan="2">24' (PROBE LENGTH)</th> </tr> <tr> <td>A/xx-A-yy-PB</td> <td colspan="2">1.70 LBS. (0.771 KG)</td> </tr> </tbody> </table> | ACI MODEL # | 8' (PROBE LENGTH) | 12' (PROBE LENGTH) | A/xx-A-yy-PB | 0.72 LBS. (0.327 KG) | 0.96 LBS. (0.435 KG) | ACI MODEL # | 24' (PROBE LENGTH) | | A/xx-A-yy-PB | 1.70 LBS. (0.771 KG) | |
| ACI MODEL # | 8' (PROBE LENGTH) | 12' (PROBE LENGTH) | | | | | | | | | | | |
| A/xx-A-yy-PB | 0.72 LBS. (0.327 KG) | 0.96 LBS. (0.435 KG) | | | | | | | | | | | |
| ACI MODEL # | 24' (PROBE LENGTH) | | | | | | | | | | | | |
| A/xx-A-yy-PB | 1.70 LBS. (0.771 KG) | | | | | | | | | | | | |
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| ACI MODEL # | 8' (PROBE LENGTH) | 12' (PROBE LENGTH) | | | | | | | | | | | |
| A/xx-A-yy-GD | 1.16 LBS. (0.526 KG) | 1.40 LBS. (0.635 KG) | | | | | | | | | | | |
| ACI MODEL # | 24' (PROBE LENGTH) | | | | | | | | | | | | |
| A/xx-A-yy-GD | 2.20 LBS. (0.998 KG) | | | | | | | | | | | | |
| <p>Bell Box Enclosure [BB]</p> <p>Averaging Available in 8', 12' & 24' Lengths</p> | <p>Bell Box Enclosure [BB] Weights</p> <table border="1"> <thead> <tr> <th>ACI MODEL #</th> <th>8' (PROBE LENGTH)</th> <th>12' (PROBE LENGTH)</th> </tr> </thead> <tbody> <tr> <td>A/xx-A-yy-BB</td> <td>1.22 LBS. (0.553 KG)</td> <td>1.44 LBS. (0.653 KG)</td> </tr> <tr> <th>ACI MODEL #</th> <th colspan="2">24' (PROBE LENGTH)</th> </tr> <tr> <td>A/xx-A-yy-BB</td> <td colspan="2">2.18 LBS. (0.988 KG)</td> </tr> </tbody> </table> | ACI MODEL # | 8' (PROBE LENGTH) | 12' (PROBE LENGTH) | A/xx-A-yy-BB | 1.22 LBS. (0.553 KG) | 1.44 LBS. (0.653 KG) | ACI MODEL # | 24' (PROBE LENGTH) | | A/xx-A-yy-BB | 2.18 LBS. (0.988 KG) | |
| ACI MODEL # | 8' (PROBE LENGTH) | 12' (PROBE LENGTH) | | | | | | | | | | | |
| A/xx-A-yy-BB | 1.22 LBS. (0.553 KG) | 1.44 LBS. (0.653 KG) | | | | | | | | | | | |
| ACI MODEL # | 24' (PROBE LENGTH) | | | | | | | | | | | | |
| A/xx-A-yy-BB | 2.18 LBS. (0.988 KG) | | | | | | | | | | | | |
| <p>NEMA 4X Enclosure [4X]</p> <p>Averaging Available in 8', 12' & 24' Lengths</p> | <p>NEMA 4X Enclosure [4X] Weights</p> <table border="1"> <thead> <tr> <th>ACI MODEL #</th> <th>8' (PROBE LENGTH)</th> <th>12' (PROBE LENGTH)</th> </tr> </thead> <tbody> <tr> <td>A/xx-A-yy-4X</td> <td>0.84 LBS. (0.381 KG)</td> <td>1.06 LBS. (0.481 KG)</td> </tr> <tr> <th>ACI MODEL #</th> <th colspan="2">24' (PROBE LENGTH)</th> </tr> <tr> <td>A/xx-A-yy-4X</td> <td colspan="2">1.80 LBS. (0.816 KG)</td> </tr> </tbody> </table> | ACI MODEL # | 8' (PROBE LENGTH) | 12' (PROBE LENGTH) | A/xx-A-yy-4X | 0.84 LBS. (0.381 KG) | 1.06 LBS. (0.481 KG) | ACI MODEL # | 24' (PROBE LENGTH) | | A/xx-A-yy-4X | 1.80 LBS. (0.816 KG) | |
| ACI MODEL # | 8' (PROBE LENGTH) | 12' (PROBE LENGTH) | | | | | | | | | | | |
| A/xx-A-yy-4X | 0.84 LBS. (0.381 KG) | 1.06 LBS. (0.481 KG) | | | | | | | | | | | |
| ACI MODEL # | 24' (PROBE LENGTH) | | | | | | | | | | | | |
| A/xx-A-yy-4X | 1.80 LBS. (0.816 KG) | | | | | | | | | | | | |
| Standard View | Product Weights | | | | | | | | | | | | |

xx = Sensor Type | yy = Insertion Length

| CUSTOM ORDERING | | Model # Example: A/ 1K-NI A 24' GD NIST | MODEL # |
|---|--|---|---------|
| | | A. B. C. D. E. F. | |
| A. Sensor Series No Selection Required | A/ | → | A/ |
| B. Model Series No Selection Required | 1K-NI | → | 1K-NI |
| C. Configuration No Selection Required | A = Bendable Copper Averaging | → | A |
| D. Probe Length Select One (1) | 8' = 8' Sensor 12' = 12' Sensor 24' = 24' Sensor | | |
| E. Enclosure Select One (1) | GD = Galvanized PB = Plastic BB = Aluminum, NEMA 3R 4X = NEMA 4X | | |
| F. NIST³ Select One (1) | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) | | |

| ACCESSORIES ORDERING | | | Model # Example: A/CAPILLARY CLIP QTY:1 -OR- 130525 |
|-------------------------|--------|--|---|
| Model # | Item # | Description | |
| A/CAPILLARY CLIP QTY: 1 | 130525 | Capillary Mounting Clip, Copper, Quantity: 1 | |
| UNIVERSAL CLIP 50 | 145430 | Capillary Mounting Clip, Plastic, Quantity: 50/Bag | |
| UNIVERSAL CLIP 6 | 145421 | Universal Mounting Clip, Plastic, Quantity: 6/Bag | |





DUCT

Duct Sensor, Nickel RTD

The ACI Nickel Duct Series features a 1/4" diameter stainless steel probe with two, 22 AWG Etched Teflon colored lead wires to differentiate the different sensor types. The Nickel sensors are manufactured using ACI's proven double encapsulation process to eliminate the effects of moisture on the sensors as well as increased thermal response times from our high quality, thermally conductive epoxy. The duct style sensor is a single point sensor designed to be used in smaller duct applications and includes an insulation pad for sealing the duct and dampening vibration. For best results, the sensor length should be determined by the width or diameter of your duct such that the tip of the probe is in the approximate center of the duct. Our standard enclosure options include the galvanized junction box "-GD" or plastic duct enclosure with the

hinged cover "-PB". On larger ducts, you may want to refer to our Rigid or Bendable Copper Averaging sensor for increased sensing points and better temperature control. This series can be ordered with optional NEMA/IP rated weather proof enclosures and NIST Certificates as referenced in the ordering grid.

Applications: Roof Top Units, Air Handlers, Monitoring Supply/Discharge/Return/Mixed Air Temperatures

The ACI Nickel Duct Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

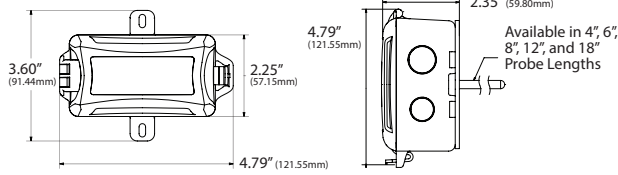
| | |
|---|---|
| Sensor Type Sensor Curve: | Nickel RTD PTC (Positive Temperature Coefficient) |
| Number Sensing Points Number Wires: | One Two (Non-Polarity Sensitive) |
| Sensor Output @ 21.1°C (70°F) Lead Wire Colors: | 1000 Ohms nominal Red/Red |
| Sensor Accuracy: | -40°C (-40°F): +/- 1.52°C (+/- 2.73°F) 0°C (32°F): +/- 0.4°C (+/- 0.72°F) 21.1°C (70°F): +/- 0.17°C (+/- 0.34°F) 54.4°C (130°F): +/- 0.56°C (1.00°F) 121°C (250°F): +/- 1.25°C (+/- 2.25°F) |
| Din Standard Temperature Coefficient (0-100°C): | Din 43760 6370 ppm/°C |
| Sensor Stability: | 8 Seconds nominal |
| Response Time (63% Step Change): | +/- 0.05% after 1000 Hours @ 150°C (302°F) |
| Self-Heating Maximum Operating Current: | 0.3°C/mW (Still Air) 5 mA |
| Enclosure Specifications (Operating Temperature Range, Material, Flammability, NEMA/IP Ratings): | "-GD" Enclosure: -40 to 115°C (-40 to 239°F); Galvanized Steel; NEMA 1 (IP10) "-PB" Enclosure: -30 to 90°C (-22 to 194°F); ABS Plastic; UL94-HB; Plenum Rated "-BB" Enclosure: Aluminum, -40 to 121°C (-40 to 250°F), Plenum Rated, NEMA 3R "-4X" Enclosure: -40 to 70°C (-40 to 158°F); Polystyrene Plastic; UL94-V2; NEMA 4X (IP 66) |
| Storage Temperature Range: | -40 to 85°C (-40 to 185°F) |
| Sensor Operation Temperature Range: | -40 to 250°F (-40 to 121°C) |
| Operating Humidity Range: | 10 to 95% RH, non-condensing |
| Probe Material: | 304 Stainless Steel |
| Fitting Material Flammability Rating: | Polyamide 66 (High Performance Nylon) UL94-HB |
| Foam Pad Material Flammability Rating: | Neoprene/EPDM/SBR Polymer UL94-HBF; FMVSS-302; MIL-R-6130C |
| Lead Length Conductor Size: | 4", 6" & 8" Sensors: 14" (35.6cm) 12" or 18" Sensors: 24" (61cm) 22 AWG (0.65mm) |
| Lead Wire Insulation Wire Rating: | Etched Teflon (PTFE) Colored Leads Mil Spec 16878/4 Type E |
| Conductor Material: | Silver Plated Copper |
| Product Dimensions Product Weight: | See table on back of Product Data sheet |
| Probe Diameter: | 0.250" (6.35mm) |
| Agency Approvals: | CE, RoHS2, WEEE |





DIMENSIONAL DRAWING, WEIGHTS

Plastic Box Enclosure [PB]

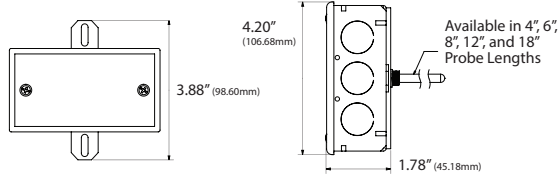


xx = Sensor Type | yy = Insertion Length

Plastic Box Enclosure [PB] Weights

| ACI Model # | 4" (Probe Length) | 6" (Probe Length) | 8" (Insertion Length) |
|--------------|----------------------|----------------------|-----------------------|
| A/xx-D-yy-PB | 0.24 lbs. (0.109 kg) | 0.25 lbs. (0.113 kg) | 0.26 lbs. (0.117 kg) |
| ACI Model # | 12" (Probe Length) | 18" (Probe Length) | |
| A/xx-D-yy-PB | 0.28 lbs. (0.127 kg) | 0.30 lbs. (0.136 kg) | |

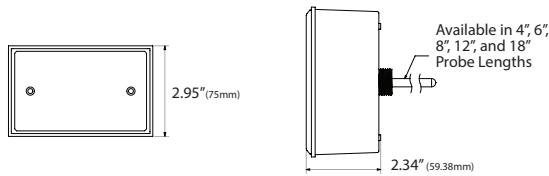
Galvanized Enclosure [GD]



Galvanized Enclosure [GD] Weights

| ACI Model # | 4" (Probe Length) | 6" (Probe Length) | 8" (Insertion Length) |
|--------------|----------------------|----------------------|-----------------------|
| A/xx-D-yy-GD | 0.66 lbs. (0.299 kg) | 0.67 lbs. (0.303 kg) | 0.68 lbs. (0.308 kg) |
| ACI Model # | 12" (Probe Length) | 18" (Probe Length) | |
| A/xx-D-yy-GD | 0.70 lbs. (0.317 kg) | 0.74 lbs. (0.336 kg) | |

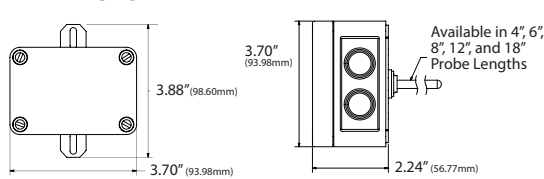
Bell Box Enclosure [BB]



Bell Box Enclosure [BB] Weights

| ACI Model # | 4" (Probe Length) | 6" (Probe Length) | 8" (Insertion Length) |
|--------------|----------------------|----------------------|-----------------------|
| A/xx-D-yy-BB | 0.70 lbs. (0.317 kg) | 0.71 lbs. (0.322 kg) | 0.72 lbs. (0.326 kg) |
| ACI Model # | 12" (Probe Length) | 18" (Probe Length) | |
| A/xx-D-yy-BB | 0.74 lbs. (0.336 kg) | 0.78 lbs. (0.354 kg) | |

NEMA 4X Enclosure [4X]



NEMA 4X Enclosure [4X] Weights

| ACI Model # | 4" (Probe Length) | 6" (Probe Length) | 8" (Insertion Length) |
|--------------|----------------------|----------------------|-----------------------|
| A/xx-D-yy-4X | 0.34 lbs. (0.154 kg) | 0.35 lbs. (0.159 kg) | 0.36 lbs. (0.163 kg) |
| ACI Model # | 12" (Probe Length) | 18" (Probe Length) | |
| A/xx-D-yy-4X | 0.38 lbs. (0.172 kg) | 0.40 lbs. (0.181 kg) | |

Standard Views

Product Weights

CUSTOM ORDERING

Model # Example: A/ 1K-NI D 8" GD NIST
 A. B. C. D. E. F.

MODEL

| | | |
|---|---|--------------|
| A. Sensor Series No Selection Required | A/ _____ → | A/ |
| B. Model Series No Selection Required | 1K-NI _____ → | 1K-NI |
| C. Configuration No Selection Required | D = Duct _____ → | D |
| D. Probe Length Select One (1) | 4" = 4" Probe 6" = 6" Probe 8" = 8" Probe 12" = 12" Probe 18" = 18" Probe | |
| E. Enclosure Select One (1) | GD = Galvanized PB = Plastic BB = Aluminum, NEMA 3R 4X = NEMA 4X | |
| F. NIST Select One (1) | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) | |

| |
|--------------|
| A/ |
| 1K-NI |
| D |
| |
| |
| |





DUCT WITHOUT BOX

Flange Mounted Duct Sensor, Nickel RTD

The ACI Nickel Duct without Box series features a 1/4" diameter stainless steel probe with etched teflon lead wires. The sensors in this series are manufactured using ACI's proven double encapsulation process to eliminate the effects of moisture upon the sensors as well as increased thermal response times using our high quality, thermally conductive epoxy. The duct style sensor is a single point sensor designed to be used in smaller duct applications and includes an insulation pad for properly sealing your duct as well as to dampen vibration. For best results, the sensor length should be determined by the actual width or diameter of your duct such that the tip of the probe is in the approximate center of the duct. On larger ducts, you may want to refer to our Rigid or Bendable Copper Averaging sensor for increased sensing

points and better temperature control. This series can be ordered with optional plenum rated cable in standard lead lengths.

Applications: Roof Top Units, Air Handlers, Monitoring Supply/Discharge/Return/Mixed Air Temperatures

ACI's Nickel Duct Without Box is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|--|--|
| Sensor Type Sensor Curve: | Nickel RTD PTC (Positive Temperature Coefficient) |
| Number Sensing Points: | One |
| Number Wires: | Two (Non-Polarity Sensitive) |
| Sensor Output @ 21.1°C (70°F) Lead Wire Colors: | 1000 Ohms nominal Red/Red |
| Sensor Accuracy: | -40°C (-40°F): +/- 1.52°C (+/- 2.73°F) 0°C (32°F): +/- 0.4°C (+/- 0.72°F) 21.1°C (70°F): +/- 0.17°C (+/- 0.34°F) 54.4°C (130°F): +/- 0.56°C (1.00°F) 121°C (250°F): +/- 1.25°C (+/- 2.25°F) |
| Din Standard Temperature Coefficient (0-100°C): | Din 43760 6370 ppm/°C |
| Sensor Stability: | +/- 0.05% after 1000 Hours @ 150°C (302°F) |
| Response Time (63% Step Change): | 8 Seconds nominal |
| Operating Temperature Range: | -40 to 115°C (-40 to 239°F) |
| Storage Temperature Range: | -40 to 85°C (-40 to 185°F) |
| Operating Humidity Range: | 10 to 95% RH, non-condensing |
| Probe Material Flange Material: | 304 Stainless Steel Galvanized Steel |
| Fitting Material Flammability Rating: | Polyamide 66 (High Performance Nylon) UL94-HB |
| Foam Pad Material Flammability Rating: | Neoprene/EPDM/SBR Polymer UL94-HBF; FMVSS-302; MIL-R-6130C |
| Lead Length Conductor Size: | 4", 6" & 8" Probes: 14" (35.6 cm) 12" & 18" Probes: 24" (61cm) 22 AWG (0.65mm) |
| Lead Wire Insulation Wire Rating: | Etched Teflon (PTFE) Colored Leads MIL-W-16878/4 (Type E) |
| Conductor Material: | Silver Plated Copper |
| Probe Diameter: | 0.250" (6.35mm) |
| Product Dimensions Product Weight: | See table on back of Product Data sheet |
| Agency Approvals: | CE, RoHS2, WEEE |





DIMENSIONAL DRAWING. WEIGHTS

Available in 4", 6", 8", 12", and 18" Probe Lengths

xx = Sensor Type | yy = Insertion Length

Duct Without Box [DO] Weights

| ACI Model # | 4" (Probe Length) | 6" (Probe Length) | 8" (Insertion Length) |
|---------------------|----------------------|----------------------|-----------------------|
| A/xx-DO-yy | 0.10 lbs. (0.045 kg) | 0.11 lbs. (0.050 kg) | 0.12 lbs. (0.054 kg) |
| A/xx-DO-yy-6'-CL2P | 0.15 lbs. (0.068 kg) | 0.16 lbs. (0.073 kg) | 0.17 lbs. (0.077 kg) |
| A/xx-DO-yy-10'-CL2P | 0.20 lbs. (0.091 kg) | 0.21 lbs. (0.095 kg) | 0.22 lbs. (0.100 kg) |
| A/xx-DO-yy-20'-CL2P | 0.27 lbs. (0.122 kg) | 0.28 lbs. (0.127 kg) | 0.29 lbs. (0.132 kg) |

| ACI Model # | 12" (Insertion Length) | 18" (Insertion Length) |
|---------------------|------------------------|------------------------|
| A/xx-DO-yy | 0.14 lbs. (0.064 kg) | 0.16 lbs. (0.073 kg) |
| A/xx-DO-yy-6'-CL2P | 0.20 lbs. (0.091 kg) | 0.22 lbs. (0.100 kg) |
| A/xx-DO-yy-10'-CL2P | 0.24 lbs. (0.108 kg) | 0.27 lbs. (0.122 kg) |
| A/xx-DO-yy-20'-CL2P | 0.31 lbs. (0.141 kg) | 0.34 lbs. (0.154 kg) |

Standard Views
Product Weights

STANDARD ORDERING

Model # Example: **A/1K-NI-DO-4"** -OR- **120510**

| Model # | Item # | Description |
|-----------------------|--------|---|
| A/1K-NI-DO-4" | 120510 | 1K Nickel, Duct 4" without Box, Flange Only, 14" Leads |
| A/1K-NI-DO-6" | 133239 | 1K Nickel, Duct 6" without Box, Flange Only, 14" Leads |
| A/1K-NI-DO-8" | 120512 | 1K Nickel, Duct 8" without Box, Flange Only, 14" Leads |
| A/1K-NI-DO-12" | 120507 | 1K Nickel, Duct 12" without Box, Flange Only, 24" Leads |
| A/1K-NI-DO-18" | 120508 | 1K Nickel, Duct 18" without Box, Flange Only, 24" Leads |

CUSTOM ORDERING

Model # Example: **A/** **1K-NI** **DO** **6"** **6'CL2P** **NIST**

| | MODEL # |
|--|--------------|
| A. Sensor Series No Selection Required A/ | A/ |
| B. Model Series No Selection Required 1K-NI | 1K-NI |
| C. Configuration No Selection Required DO = Duct without Box (Mounting Flange Only) | DO |
| D. Probe Length Select One (1) 4" = 4" Probe 6" = 6" Probe 8" = 8" Probe 12" = 12" Probe 18" = 18" Probe | |
| E. Lead Wire Options Select One (1) ---- = Standard 14 or 24" Etched PTFE Colored Leads 6'CL2P = 6 ft (1.83m), 2 Conductor Plenum Rated Cable 10'CL2P = 10 ft (3.05m), 2 Conductor Plenum Rated Cable 20'CL2P = 20 ft (6.10m), 2 Conductor Plenum Rated Cable | |
| F. NIST Select One (1) ---- = No NIST Certificate NIST = NIST Certificate (3 Points) | |





FLEXIBLE AVERAGING

Multipoint Averaging Sensors, Nickel RTD

The ACI Nickel Flexible Averaging Series features an 18 AWG Plenum Rated cable sensing element with two, 12 inch 22 AWG Etched Teflon colored lead wires to differentiate the different sensor types. All sensors are manufactured with 4 or 9 sensing points determined by the length of the sensing element. Averaging sensors provide a better average temperature of the air inside larger ducts when compared to a single point sensor. The flexible averaging sensors are limited to applications where operating temperatures are limited to 0 to 75°C (32 to 158°F) or high humidity, chemical resistance and UV Light Air Treatment Systems aren't required. Each of the sensing elements is sealed using a dual wall adhesive lined heat shrink tubing to provide a level of moisture protection to each of the sensing elements. The sensor

length should be determined by the dimensional size of your duct. Our standard enclosure options include a galvanized junction box "-GD" or plastic duct enclosure with hinged cover "-PB". Each unit includes nylon wire ties and mounts for standard mounting. Optional copper capillary or universal plastic mounting clips, NEMA/IP Rated weather proof enclosures and NIST Certificates are available as referenced in the ordering grid.

Applications: Air Handlers, Roof Top Units, Mixed Air/Discharge/Supply Air Temperature Monitoring, Data Centers, Hospitals

The ACI Nickel Flexible Averaging Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|--|--|
| Sensor Type Sensor Curve: | Nickel RTD PTC (Positive Temperature Coefficient) |
| Number Sensing Points Number Wires: | 8' and 12' Lengths: Four 24' and 50' Lengths: Nine Two (Non-Polarity Sensitive) |
| Sensor Output @ 21.1°C (70°F) Lead Wire Colors: | 1000 Ohms nominal (Red/Red) |
| Sensor Accuracy: | 8' and 12' Models: +/- 0.23°C (+/- 0.40°F) @ 21.1°C (70°F) +/- 1.59°C (+/- 1.06°F) @ 54.4°C (130°F) 24' and 50' Models: +/- 0.24°C (+/- 0.42°F) @ 21.1°C (70°F) +/- 0.61°C (+/- 1.09°F) @ 54.4°C (130°F) |
| Din Standard Temperature Coefficient (0-100°C): | Din 43760 6370 ppm/°C |
| Sensor Stability: | +/- 0.05% after 1000 Hours @ 150°C (302°F) |
| Response Time (63% Step Change): | 15 Seconds nominal |
| Self-Heating Maximum Operating Current: | 0.3°C/mW (Still Air) 5 mA |
| Operating Temperature Range: | 0 to 75°C (32 to 167°F) |
| Storage Temperature Range: | -20 to 75°C (-4 to 167°F) |
| Operating Humidity Range: | 10 to 90% RH, non-condensing |
| Enclosure Specifications (Material, Flammability, NEMA IP Ratings): | "-GD" Enclosure: Galvanized Steel; NEMA 1 (IP10); "-PB" Enclosure: ABS Plastic, UL94-HB; Plenum Rated "-BB" Enclosure: Aluminum; NEMA 3R (IP 14) "-4X" Enclosure: Polystyrene Plastic; UL94-V2; NEMA 4X (IP 66) |
| Sensor Jacket Material Cable Ratings: | Low Smoke PVC CL2P or CMP Plenum Rated Cable |
| Sensor Cable Diameter: | 0.170" (4.32mm) nominal |
| Lead Length Conductor Size: | 12" (30.5cm) 22 AWG (0.65mm) |
| Lead Wire Insulation Wire Rating: | Etched Teflon (PTFE) Colored Leads MIL-W-16878/4 (Type E) |
| Lead Wire Conductor Material: | Silver Plated Copper |
| Product Dimensions Product Weight: | See table on back of Product Data sheet |
| Agency Approvals: | RoHS2, WEEE |





| DIMENSIONAL DRAWING | | |
|-----------------------------------|-------------------|-----------------|
| Plastic Box Enclosure [PB] | | |
| Galvanized Enclosure [GD] | | |
| Bell Box Enclosure [BB] | | |
| | | |
| NEMA 4X Enclosure [4X] | | |
| Front View | Right View | Top View |

| CUSTOM ORDERING | | Model # Example: A/ 1K-NI FA 24' GD NIST | MODEL # |
|---|---|--|---------|
| | | A. B. C. D. E. F. | |
| A. Sensor Series No Selection Required | A/ | → | A/ |
| B. Model Series No Selection Required | 1K-NI | → | 1K-NI |
| C. Configuration No Selection Required | FA = Flexible Plenum Rated Cable Averaging Sensor | → | FA |
| D. Probe Length Select One (1) | 8' = 8' Sensor 12' = 12' Sensor 24' = 24' Sensor 50' = 50' Sensor | | |
| E. Enclosure Select One (1) | GD = Galvanized PB = Plastic BB = Aluminum, NEMA 3R 4X = NEMA 4X | | |
| F. NIST Select One (1) | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) | | |

| ACCESSORIES ORDERING | | Model # Example: A/CAPILLARY CLIP QTY:1 -OR- 130525 |
|-------------------------|--------|---|
| Model # | Item # | Description |
| A/CAPILLARY CLIP QTY: 1 | 130525 | Capillary Mounting Clip, Copper, Quantity: 1 |
| UNIVERSAL CLIP 50 | 145430 | Capillary Mounting Clip, Plastic, Quantity: 50/Bag |
| UNIVERSAL CLIP 6 | 145421 | Universal Mounting Clip, Plastic, Quantity: 6/Bag |





FLUSH MOUNT BUTTONS

Brass, Stainless Steel & Plastic Nickel RTDs



The ACI Nickel Flush Mount Button Series features a stainless steel, brass or white plastic button sensor with two, 24 inch 22 AWG Etched Teflon colored lead wires to differentiate the different sensor types. The sensors in this series are manufactured using ACI's proven encapsulation process to eliminate the effects of moisture on the sensors and to increase the thermal response time using our high quality, thermally conductive epoxy. This sensor uses a small, low profile design and should be used in applications where aesthetics is one of your primary concerns. Each unit is supplied with a mounting kit such that they can be hidden underneath cabinets or shelving units, in decorative metal plates, trim, drywall or from a 1/2" piece of conduit coming down from the ceiling or roof. Note that if painting the sensors, be sure to coat with as

little paint as possible so as to not limit the effect on the accuracy or responsiveness of the sensor. This series can be ordered with an optional NIST Certificate as designated in the product ordering grid.

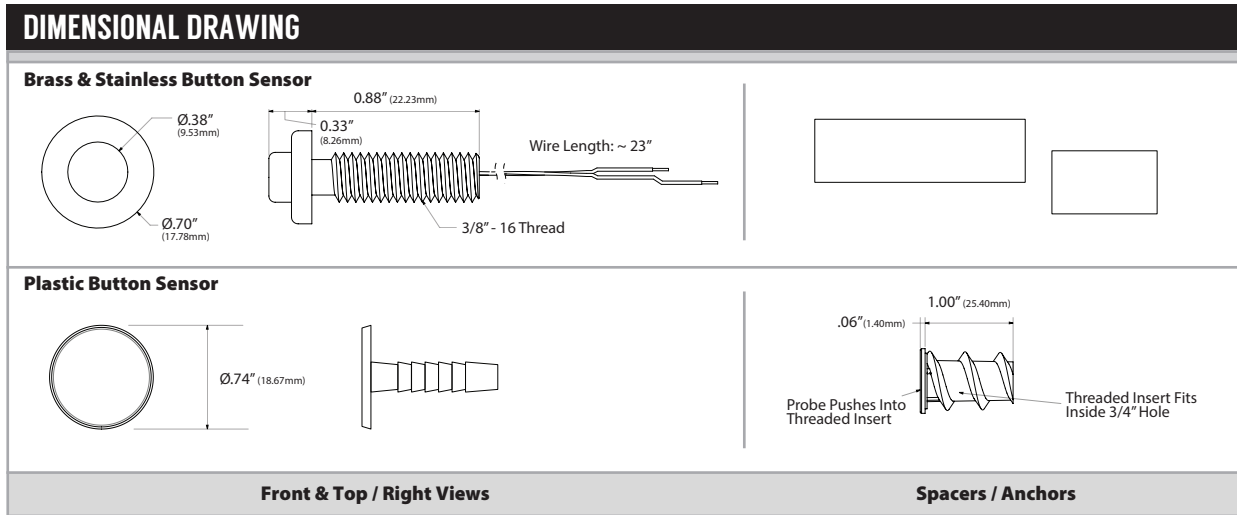
Applications: Museums, Historical Buildings, Monitoring Space Temperatures, Office Buildings, Schools, Retail, Remote Sensor

The Nickel Flush Mount Button Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|--|--|
| Sensor Type Sensor Curve: | Nickel RTD PTC (Positive Temperature Coefficient) |
| Number Sensing Points: | One |
| Number Wires: | Two (Non-Polarity Sensitive) |
| Sensor Output @ 21.1°C (70°F) Lead Wire Colors: | 1000 Ohms nominal Red/Red |
| Sensor Accuracy: | -40°C (-40°F): +/- 1.52°C (+/- 2.73°F) 0°C (32°F): +/- 0.4°C (+/- 0.72°F) 21.1°C (70°F): +/- 0.17°C (+/- 0.34°F) 54.4°C (130°F): +/- 0.56°C (1.00°F) 121°C (250°F): +/- 1.25°C (+/- 2.25°F) |
| Din Standard Temperature Coefficient (0-100°C): | Din 43760 6370 ppm/°C |
| Sensor Stability: | +/- 0.05% after 1000 Hours @ 150°C (302°F) |
| Response Time (63% Step Change) | 8 Seconds nominal |
| Self-Heating Maximum Operating Current: | 0.3°C/mW (Still Air) 5 mA |
| Button Sensor Enclosure Material: | A/1K-NI-BBS: Brass A/1K-NI-SBS: 304 Stainless Steel A/1K-NI-PBS: ABS |
| Plastic Button Flammability Rating: | UL94-HB |
| Operating Storage Temperature Range: | A/1K-NI-PBS: -40 to 70°C (-40 to 158°F) -40 to 85°C (-40 to 185°F) A/1K-NI-BBS & A/1K-NI-SBS: -40 to 121°C (-40 to 250°F) -40 to 85°C (-40 to 185°F) |
| Operating Humidity Range: | 10 to 95% RH, non-condensing |
| Lead Length Conductor Size: | 24" (61cm) 22 AWG (0.65mm) |
| Lead Wire Insulation Wire Rating: | Etched Teflon (PTFE) Colored Leads Mil Spec 16878/4 Type E |
| Conductor Material: | Silver Plated Copper |
| Product Dimensions (Length x Diameter): | A/1K-NI-PBS: 1.00" (25.4mm) x 0.750" (19mm) A/1K-NI-BBS and A/1K-NI-SBS: 1.20" (30.48mm) x 0.700" (17.78mm) |
| Product Weight: | A/1K-NI-PBS: 0.04 lbs. (18.15g) A/1K-NI-BBS & A/1K-NI-SBS: 0.10 lbs. (45.36g) |
| Agency Approvals: | CE, RoHS2, WEEE |





STANDARD ORDERING

Model # Example: **A/1K-NI-PBS -OR- 125600**

| Model # | Item # | Description |
|--------------------|--------|---|
| A/1K-NI-PBS | 125600 | 1K Nickel Plastic Button Sensor, 24" Leads, Anchor |
| A/1K-NI-BBS | 120488 | 1K Nickel Brass Button Sensor, 24" Leads, Spacers & Brass Nut |
| A/1K-NI-SBS | 120551 | 1K Nickel Stainless Steel Button Sensor, 24" Leads, SPacers & Brass Nut |

OPTIONAL SENSOR ORDERING

Model # Example: **A/ 1K-NI PBS NIST**
A. B. C. D.

| | | MODEL # |
|--|---|----------------|
| A. Sensor Series <i>No Selection Required</i> | A/ _____ → | A/ |
| B. Model Series <i>No Selection Required</i> | 1K-NI _____ → | 1K-NI |
| C. Configuration <i>Select One (1)</i> | PBS = Plastic Button BBS = Brass Button SBS = Stainless Steel Button | |
| D. NIST <i>Select One (1)</i> | ---- = No NIST Certification NIST = NIST Certificate (3 Points) | |





IMMERSION

Stainless Steel Immersion, Nickel RTD

The ACI Nickel Immersion Series features a 1/4" diameter stainless steel probe with two, 14 inch 22 AWG Etched Teflon colored lead wires to differentiate the many different sensor types. The sensors in this series are manufactured using ACI's proven double encapsulation process to eliminate the effects of moisture upon the sensors and to increase the thermal response times using our high quality, thermally conductive epoxy. The immersion sensors come standard with a welded thermowell "I" version but can also be ordered without the thermowell "INW" version. The "INW" Version includes a standard 1/2" NPS (National Pipe Straight) process thread to be used with an optional machined thermowell or in an existing thermowell application. This series can be ordered with optional NEMA rated weather proof enclosures and NIST Certificates as referenced on the back of the product data sheet. Please contact ACI for more information regarding this sensor or if you would like to discuss your application in further detail.

Applications: Chilled Water Systems, Hot Water Systems, Boilers, Pumps, Compressors, Chillers

The ACI Nickel Immersion Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's web site, workaci.com.

Disclaimer: Specification of any thermowell and the materials of construction are the sole responsibility of the designer of the system that incorporates the thermowell. Sole responsibility for ensuring compatibility of the process fluid with the system rests with the end user.

PRODUCT SPECIFICATIONS

| | |
|---|---|
| Sensor Type Sensor Curve: | Nickel RTD PTC (Positive Temperature Coefficient) |
| Number Sensing Points: | One |
| Number Wires: | Two (Non-Polarity Sensitive) |
| Sensor Output @ 21.1°C (70°F) Lead Wire Colors: | 1000 Ohms nominal (Red/Red) |
| Sensor Accuracy: | -40°C (-40°F): +/- 1.52°C (+/- 2.73°F) 0°C (-40°F): +/- 0.4°C (+/- 0.72°F) 21.1°C (70°F): +/- 0.17°C (+/- 0.34°F) 54.4°C (130°F): +/- 0.56°C (+/- 1.00°F) 121°C (250°F): +/- 1.25°C (+/- 2.25°F) |
| Din Standard Temperature Coefficient (0-100°C): | DIN 43760 6370 ppm / °C |
| Sensor Stability: | +/- 0.05% after 1000 Hours @ 150°C (302°F) |
| Response Time (63% Step Change): | 8 Seconds nominal |
| Self-Heating Maximum Operating Current: | 0.3°C/mW (Still Air) 5 mA |
| Sensor Operating Temperature Range: | -40 to 121°C (-40 to 250°F) |
| Enclosure Specifications (Temperature, Flammability, NEMA/IP Ratings): | "-GD" Enclosure: Galvanized Steel, -40°C to 121°C (-40°F to 250°F), NEMA 1 (IP10) "-PB" Enclosure: ABS Plastic, -30°C to 90°C (-22°F to 194°F), UL94-HB, Plenum Rated "-BB" Enclosure: Aluminum, -40°C to 121°C (-40°F to 250°F), Plenum Rated, NEMA 3R "-4X" Enclosure: Polystyrene Plastic, -40°C to 70°C (-40°F to 158°F), UL94-V2, NEMA 4X (IP 66) |
| Storage Temperature Range: | -40 to 85°C (-40 to 185°F) |
| Operating Humidity Range: | 10 to 95% RH, non-condensing |
| Probe Diameter Thermowell Bore Diameter: | 0.250" (6.35mm) 0.260" |
| Probe Material Thermowell Material: | 304 Stainless Steel 304 Series Stainless Steel |
| Thermowell Instrument Process Thread Size: | 1/2" NPS (National Pipe Straight) Female Thread 1/2" NPT (National Pipe Tapered) Male Thread |
| Fitting Material Flammability Rating: | Polyamide 66 (High Performance Nylon 66) UL94-HB |
| Fitting Thread Size: | 1/2" NPS (National Pipe Straight) Male Thread |
| Foam Pad Material Flammability Rating: | Neoprene/EPDM/SBR Polymer UL94-HBF; FMVSS-302; MIL-R-6130C |
| Lead Length Conductor Size: | 14" (35.6 cm) 22 AWG (0.65mm) |
| Lead Wire Insulation Wire Rating: | Etched Teflon (PTFE) Colored Leads Mil Spec 16878/4 Type E |
| Conductor Material: | Silver Plated Copper |
| Product Dimensions Product Weight: | See table on back of Product Data sheet |
| Agency Approvals: | CE, RoHS2, WEEE |





MAXIMUM VELOCITY VS THERMOWELL INSERTION LENGHT MACHINED THERMOWELL

| Straight Shank Insertion Length "U" | | | | | Stepped Shank Insertion Length "U" | | | | |
|-------------------------------------|----------------------------|-------------------------|-------------------------|-------------------------|------------------------------------|-------------------------|-----------------------|-----------------------|----------------------|
| Material: | Media Type: | 1.0" (25.4 mm) | 2.5" (63.5 mm) | 8.0" (203.2 mm) | 4.0" (101.6 mm) | 6.0" (152.4 mm) | 12.0" (304.8 mm) | 18.0" (457.2 mm) | 24" (609.6 mm) |
| 304/316 SS | Air/Gas/Steam ¹ | 349 ft/s (106.3 m/s) | 349 ft/s (106.3 m/s) | 71.9 ft/s (21.9 m/s) | 109 ft/s (33.2 m/s) | 73.6 ft/s (22.4 m/s) | 19.4 ft/s (5.9m/s) | 8.8 ft/s (2.7m/s) | 5.2 ft/s (1.6m/s) |
| 304/316 SS | Water | 360 ft/s (109.7 m/s) | 360 ft/s (109.7 m/s) | 71.9 ft/s (21.9 m/s) | 82.2 ft/s (25.1 m/s) | 26.9 ft/s (8.2 m/s) | 11.3 ft/s (3.4m/s) | 4.7 ft/s (1.43m/s) | 2.5 ft/s (0.8m/s) |

Note 1: Values are for Air/Gas/Steam and similar density media based upon Max pressure of 2900 PSI @ 1000°F (537.8°C) | **Note 2:** Values are for Water (No Glycol or other Chemicals factored in) @ 68 °F (20°C) and max pressure of 5700 PSI. (Calculated to ASME PTC 19.3 TW-2016 Code B31.1) | **Note 3:** 6-24" Machined Thermowells meet ASME PTC 19.3 TW-2016 Code B31.1.

MAXIMUM PRESSURE VS TEMPERATURE RATINGS TWO-PART FABRICATED | WELDED THERMOWELL

| Material: | 70°F (21.1°C) | 200°F (93.3°C) | 400°F (204.4°C) | 600°F (315.6°C) | 800°F (426.7°C) | 1000°F (537.8°C) | 1200°F (648.9°C) |
|------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| 304/316 SS | 982 PSI (67.7 Bar) | 820 PSI (56.6 Bar) | 675 PSI (46.5 Bar) | 604 PSI (41.6 Bar) | 550 PSI (37.9 Bar) | 510 PSI (35.1 Bar) | 290 PSI (20.0 Bar) |

MAXIMUM FLUID VELOCITY RATINGS TWO-PART FABRICATED | WELDED THERMOWELL

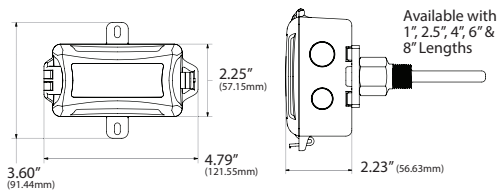
| Straight Shank Insertion Length "U" | | | | |
|-------------------------------------|----------------------------|---------------------|--------------------|--------------------|
| Material: | Media Type: | 2.5" (63.5 mm) | 4.0" (101.6 mm) | 6.0" (152.4 mm) |
| 304/316 SS | Air/Gas/Steam ² | 169 ft/s (51.5 m/s) | 61 ft/s (18.6 m/s) | 20 ft/s (6.1 m/s) |
| 304/316 SS | Water | 88 ft/s (26.8 m/s) | 20 ft/s (6.1 m/s) | 10 ft/s (3.05 m/s) |

Note 2: Values are for Air/Gas/Steam and similar density media



DIMENSIONAL DRAWINGS, WEIGHTS

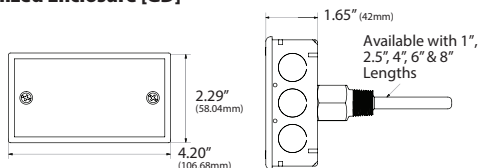
Plastic Box Enclosure [PB]



Plastic Box Enclosure [PB] Weights

| ACI Model # | 1.0" | 2.5" | 4.0" | 6.0" | 8.0" |
|----------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| A/xx-INW-yy-PB | 0.20 lbs. (0.091 kg) | 0.24 lbs. (0.109 kg) | 0.28 lbs. (0.127 kg) | 0.32 lbs. (0.145 kg) | 0.36 lbs. (0.163 kg) |
| A/xx-I-yy-PB | N/A | 0.24 lbs. (0.109 kg) | 0.60 lbs. (0.272 kg) | 0.64 lbs. (0.290 kg) | N/A |
| A/xx-IM-yy-PB | 0.40 lbs. (0.182 kg) | 0.58 lbs. (0.263 kg) | 0.74 lbs. (0.336 kg) | 0.92 lbs. (0.417 kg) | 1.15 lbs. (0.522 kg) |

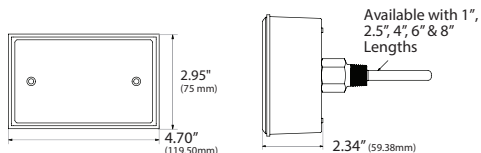
Galvanized Enclosure [GD]



Galvanized Enclosure [GD] Weights

| ACI Model # | 1.0" | 2.5" | 4.0" | 6.0" | 8.0" |
|----------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| A/xx-INW-yy-GD | 0.62 lbs. (0.281 kg) | 0.66 lbs. (0.299 kg) | 0.70 lbs. (0.318 kg) | 0.74 lbs. (0.336 kg) | 0.78 lbs. (0.354 kg) |
| A/xx-I-yy-GD | N/A | 0.88 lbs. (0.399 kg) | 1.00 lbs. (0.454 kg) | 1.04 lbs. (0.472 kg) | N/A |
| A/xx-IM-yy-GD | 0.81 lbs. (0.367 kg) | 1.00 lbs. (0.454 kg) | 1.16 lbs. (0.526 kg) | 1.32 lbs. (0.599 kg) | 1.55 lbs. (0.703 kg) |

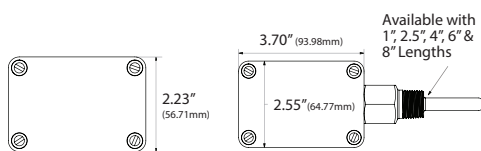
Bell Box Enclosure [BB]



Bell Box Enclosure [BB] Weights

| ACI Model # | 1.0" | 2.5" | 4.0" | 6.0" | 8.0" |
|----------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| A/xx-INW-yy-BB | 0.64 lbs. (0.290 kg) | 0.68 lbs. (0.308 kg) | 0.70 lbs. (0.318 kg) | 0.74 lbs. (0.336 kg) | 0.80 lbs. (0.363 kg) |
| A/xx-I-yy-BB | N/A | 1.02 lbs. (0.463 kg) | 1.00 lbs. (0.454 kg) | 1.04 lbs. (0.472 kg) | N/A |
| A/xx-IM-yy-BB | 0.83 lbs. (0.376 kg) | 1.02 lbs. (0.463 kg) | 1.16 lbs. (0.526 kg) | 1.32 lbs. (0.599 kg) | 1.59 lbs. (0.721 kg) |

NEMA 4X Enclosure [4X]

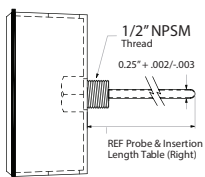


NEMA 4X Enclosure [4X] Weights

| ACI Model # | 1.0" | 2.5" | 4.0" | 6.0" | 8.0" |
|----------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| A/xx-INW-yy-4X | 0.28 lbs. (0.127 kg) | 0.32 lbs. (0.145 kg) | 0.36 lbs. (0.163 kg) | 0.40 lbs. (0.181 kg) | 0.44 lbs. (0.200 kg) |
| A/xx-I-yy-4X | N/A | 0.64 lbs. (0.290 kg) | 0.68 lbs. (0.308 kg) | 0.72 lbs. (0.327 kg) | N/A |
| A/xx-IM-yy-4X | 0.48 lbs. (0.218 kg) | 0.66 lbs. (0.299 kg) | 0.82 lbs. (0.372 kg) | 1.00 lbs. (0.454 kg) | 1.27 lbs. (0.576 kg) |

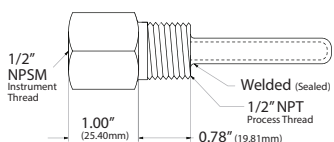
N/A = Not Available | xx = Sensor Type | yy = Insertion Length

PROBE AND INSERTION LENGTH IMMERSION NO WELL



Pictured Above: immersion no well (INW) sensor in Bell Box Enclosure (BB).

Pictured Below: welded two piece thermowell to show connection and depth reference. Thermowell not included with immersion no well (INW).



Probe & Insertion Length

| Probe Length | Insertion Length | ACI Part # | Thermowell Part # |
|--------------|------------------|---------------------|-------------------|
| 3" | 2.81" +/- 0.13" | A/xx-INW-1"-yy-zz | A/M1" |
| 4.5" | 4.31" +/- 0.13" | A/xx-INW-2.5"-yy-zz | A/2.5" or A/M2.5" |
| 6" | 5.81" +/- 0.13" | A/xx-INW-4"-yy-zz | A/4" or A/M4" |
| 8" | 7.81" +/- 0.13" | A/xx-INW-6"-yy-zz | A/6" or A/M6" |
| 10" | 9.81" +/- 0.13" | A/xx-INW-8"-yy-zz | A/M8" |
| 13" | 12.75" +/- 0.13" | A/xx-INW-12"-yy-zz | A/M12" |
| 19" | 18.75" +/- 0.13" | A/xx-INW-18"-yy-zz | A/M18" |
| 25" | 24.75" +/- 0.13" | A/xx-INW-24"-yy-zz | A/M24" |





| CUSTOM ORDERING WELDED THERMOWELL | | Model # Example: A/ 1K-NI I 4" GD NIST | MODEL # |
|--|--|--|---------|
| A. Sensor Series No Selection Required | A/ → | A. | A/ |
| B. Model Series No Selection Required | 1K-NI → | B. | 1K-NI |
| C. Configuration Select One (1) | I=Immersion with Welded Thermowell | C. | |
| D. Insertion Length Select One (1) | 2.5" = 2.5" Insertion 4" = 4" Insertion 6" = 6" Insertion | D. | |
| E. Enclosure Select One (1) | GD=Galvanized PB=Plastic BB=Aluminum, NEMA 3R 4X=NEMA 4X | E. | |
| F. NIST Select One (1) | ---- = No NIST Certificate NIST= NIST Certificate (3 Points) | F. | |

| CUSTOM ORDERING MACHINED THERMOWELL | | Model # Example: A/ 1K-NI IM 4" GD NIST | MODEL # |
|--|---|---|---------|
| A. Sensor Series No Selection Required | A/ → | A. | A/ |
| B. Model Series No Selection Required | 1K-NI → | B. | 1K-NI |
| C. Configuration Select One (1) | IM=Immersion with Machined Thermowell | C. | |
| D. Insertion Length Select One (1) | 1" = 1" Insertion 2.5" = 2.5" Insertion 4" = 4" Insertion 6" = 6" Insertion 8" = 8" Insertion | D. | |
| E. Enclosure Select One (1) | GD=Galvanized PB=Plastic BB=Aluminum, NEMA 3R 4X=NEMA 4X | E. | |
| F. NIST Select One (1) | ---- = No NIST Certificate NIST= NIST Certificate (3 Points) | F. | |

Note: Machined Thermowells with lengths of 12", 18" and 24" are available and must be ordered separately | See the Machined Thermowells Data Sheet (Accessories)

| CUSTOM ORDERING SENSOR ONLY NO THERMOWELL | | Model # Example: A/ 1K-NI INW 4" GD NIST | MODEL # |
|---|---|--|---------|
| A. Sensor Series No Selection Required | A/ → | A. | A/ |
| B. Model Series No Selection Required | 1K-NI → | B. | 1K-NI |
| C. Configuration Select One (1) | INW = Immersion without Thermowell | C. | |
| D. Insertion Length Select One (1) | 1" = 1" Insertion 2.5" = 2.5" Insertion 4" = 4" Insertion 6" = 6" Insertion 8" = 8" Insertion 12" = 12" Insertion 18" = 18" Insertion 24" = 24" Insertion | D. | |
| E. Enclosure Select One (1) | GD=Galvanized PB=Plastic BB=Aluminum, NEMA 3R 4X=NEMA 4X | E. | |
| F. NIST Select One (1) | ---- = No NIST Certificate NIST= NIST Certificate (3 Points) | F. | |

| ACCESSORIES ORDERING | | Model # Example: NSG HEAT TRANSFER PASTRE 2 oz Or 102595 |
|--------------------------------|--------|--|
| Model # | Item # | Description |
| NSG Heat Transfer Paste 2 oz. | 102595 | Thermal Grease, 2 oz. Tube, Silicone Free, -40 to 320°F (-40 to 160°C) |
| NSG Heat Transfer Paste 16 oz. | 140574 | Thermal Grease, 16 oz. Jar, Silicon Free, -40 to 390°F (-40 to 198°C) |
| A/2.5" | 128349 | 2.5" (63.5 mm) Insertion, 304 Stainless, Welded, 1/2" NPT Thermowell |
| A/4" | 128350 | 4" (101.6 mm) Insertion, 304 Stainless, Welded, 1/2" NPT Thermowell |
| A/6" | 128351 | 6" (152.4 mm) Insertion, 304 Stainless, Welded, 1/2" NPT Thermowell |
| A/M1" | 128337 | 1" (25.4 mm) Insertion, 304 Stainless, Machined, 1/2" NPT Thermowell |
| A/M2.5" | 128338 | 2.5" (63.5 mm) Insertion, 304 Stainless, Machined, 1/2" NPT Thermowell |
| A/M4" | 128343 | 4" (101.6 mm) Insertion, 304 Stainless, Machined, 1/2" NPT Thermowell |
| A/M6" | 128344 | 6" (152.4 mm) Insertion, 304 Stainless, Machined, 1/2" NPT Thermowell |
| A/M8" | 138725 | 8" (203.2 mm) Insertion, 304 Stainless, Machined, 1/2" NPT Thermowell |
| A/M12" | 128339 | 12" (304.80 mm) Insertion, 304 Stainless, Machined, 1/2" NPT Thermowell |
| A/M18" | 128341 | 18" (457.20 mm) Insertion, 304 Stainless, Machined, 1/2" NPT Thermowell |
| A/M24" | 128342 | 24" (609.6 mm) Insertion, 304 Stainless, Machined, 1/2" NPT Thermowell |
| A/M2.5" - 316SS | 128352 | 2.5" (63.5 mm) Insertion, 316 Stainless, Machined, 1/2" NPT Thermowell |
| A/M4" - 316SS | 128353 | 4" (101.6 mm) Insertion, 316 Stainless, Machined, 1/2" NPT Thermowell |
| A/M6" - 316SS | 128354 | 6" (152.4 mm) Insertion, 316 Stainless, Machined, 1/2" NPT Thermowell |





OUTSIDE AIR

Weatherproof Outside Air, Nickel RTD

The ACI Nickel Outside Air Series features a weather proof European Style Plastic enclosure with twist off cover and water tight cord grip. The sensing element contains two, 14 inch 22 AWG Etched Teflon colored lead wires to differentiate the different sensor types. All sensors in this series are manufactured using ACI's proven double encapsulation process to eliminate the effects of moisture on the sensors as well as to increase the thermal response time using our high quality, thermally conductive epoxy. The outdoor air sensor is a single point sensor designed to be mounted under an eave or on the North side of a building in a shaded location with the sensing tube pointed downward to prevent any water or ice from settling in the sensing tube. Optional NEMA 4X "-4X" plastic or NEMA 3R rated "-BB" Aluminum enclosures and

NIST Certificates are available as referenced in the ordering information on the back of the product data sheet. For Applications in which the sensor must be mounted in direct sunlight, please see the Sun Shield data sheet which will allow you to order a Temperature or Temperature/Humidity Combination sensor.

Applications: Outside Air Temperature Sensing, Cold Storage Facilities, High Dew Point/Condensing Environments, Wash Down Environments

The ACI Nickel Outside Air Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|---|---|
| Sensor Type Sensor Curve: | Nickel RTD PTC (Positive Temperature Coefficient) |
| Number Sensing Points: | One |
| Number Wires: | Two (Non-Polarity Sensitive) |
| Sensor Output @21.1°C (70°F) Lead Wire Colors: | 1000 Ohms nominal Red/Red |
| Sensor Accuracy: | -40°C (-40°F): +/- 1.52°C (+/- 2.73°F) 0°C (32°F): +/- 0.4°C (+/- 0.72°F) 21.1°C (70°F): +/- 0.17°C (+/- 0.34°F) 54.4°C (130°F): +/- 0.56°C (1.00°F) |
| Standardization Temperature Coefficient (0-100°C): | Din 43760 6370 ppm/°C |
| Sensor Stability: | +/- 0.05% after 1000 Hours @ 150°C (302°F) |
| Response Time (63% Step Change) | 30 Seconds nominal |
| Self-Heating Maximum Operating Current: | 0.3°C/mW (Still Air) 5 mA |
| Operating Temperature Range: | -40 to 70°C (-22 to 158°F) |
| Storage Temperature Range: | -40 to 70°C (-22 to 158°F) |
| Operating Humidity Range: | 10 to 100% RH, Condensing |
| Enclosure Specifications (Temperature, Material, Flammability, NEMA/IP Ratings): | "-EH" Enclosure: PC/ASA Plastic w/ UV Protectant; -40 to 88°C (-40 to 190°F); UL94-V0 "-4X" Enclosure: Polystyrene Plastic, -40 to 70°C (-40 to 158°F), UL94-V2, NEMA 4X (IP 66) "-BB" Enclosure: Aluminum, -40 to 121°C (-40 to 250°F), NEMA 3R |
| Lead Length Conductor Size: | 14" (35.6cm) 22 AWG (0.65mm) |
| Lead Wire Insulation Wire Rating: | Etched (PTFE) Teflon Colored Leads MIL-W-16878/4 (Type E) |
| Conductor Material: | Silver Plated Copper |
| Product Dimensions: | See Drawings on back of Data Sheet |
| Product Weight: | A/1K-NI-O-EH: 0.46 lbs. (0.21kg) A/1K-NI-O-4X: 0.38 lbs. (0.17kg); A/1K-NI-O-BB: 0.76 lbs. (0.35kg) |
| Agency Approvals: | CE, RoHS2, WEEE |





DIMENSIONAL DRAWING, WEIGHTS

xx = Sensor Type

| Bell Box Enclosure [BB] | | | Bell Box Enclosure [BB] Weight | | | | | | |
|--|----------------------|--|---|-------------|--------|-----------|----------------------|--|--|
| 2.95" (75mm) | 2.34" (59.38mm) | 4.70" (119.50mm) 4.73" (120.14mm) | <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>ACI Model #</th> <th>Weight</th> </tr> </thead> <tbody> <tr> <td>A/xx-O-BB</td> <td>0.76 lbs. (0.172 kg)</td> </tr> </tbody> </table> | ACI Model # | Weight | A/xx-O-BB | 0.76 lbs. (0.172 kg) | | |
| ACI Model # | Weight | | | | | | | | |
| A/xx-O-BB | 0.76 lbs. (0.172 kg) | | | | | | | | |
| Euro Enclosure [EH] | | | Euro Enclosure [EH] Weight | | | | | | |
| 4.00" (101.57mm) 4.30" (109.22mm) | 2.12" (53.72mm) | 3.51" (89.16mm) 4.73" (120.14mm) | <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>ACI Model #</th> <th>Weight</th> </tr> </thead> <tbody> <tr> <td>A/xx-O-EH</td> <td>0.46 lbs. (0.345 kg)</td> </tr> </tbody> </table> | ACI Model # | Weight | A/xx-O-EH | 0.46 lbs. (0.345 kg) | | |
| ACI Model # | Weight | | | | | | | | |
| A/xx-O-EH | 0.46 lbs. (0.345 kg) | | | | | | | | |
| NEMA 4X Enclosure [4X] | | | NEMA 4X Enclosure [4X] Weight | | | | | | |
| 2.55" (64.77mm) | 2.23" (56.71mm) | 3.70" (93.98mm) 4.73" (120.14mm) | <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>ACI Model #</th> <th>Weight</th> </tr> </thead> <tbody> <tr> <td>A/xx-O-4X</td> <td>0.38 lbs. (0.209 kg)</td> </tr> </tbody> </table> | ACI Model # | Weight | A/xx-O-4X | 0.38 lbs. (0.209 kg) | | |
| ACI Model # | Weight | | | | | | | | |
| A/xx-O-4X | 0.38 lbs. (0.209 kg) | | | | | | | | |
| Front & Right Views | | Top View | Product Weight | | | | | | |

STANDARD ORDERING

Model # Example: **A/1K-NI-O-EH -OR- 125209**

| Model # | Item # | Description |
|---------------------|--------|---|
| A/1K-NI-O-EH | 125209 | 1K Nickel, Outside Air Sensor, 14" Leads, Euro Enclosure |
| A/1K-NI-O-BB | 120526 | 1K Nickel, Outside Air Sensor, 14" Leads, Cast Aluminum Enclosure |
| A/1K-NI-O-4X | 126720 | 1K Nickel, Outside Air Sensor, 14" Leads, NEMA 4X Enclosure |

CUSTOM ORDERING

Model # Example: **A/ 1K-NI O-4X NIST**

| | A/ | 1K-NI | O-4X | NIST | MODEL # |
|---|--|-------|------|------|--------------|
| A. Sensor Series No Selection Required | A/ _____ → | | | | A/ |
| B. Model Series No Selection Required | 1K-NI _____ → | | | | 1K-NI |
| C. Enclosure Select One (1) | O-EH = Euro Enclosure O-BB = Aluminum Enclosure O-4X = NEMA 4X Enclosure | | | | |
| D. NIST Select One (1) | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) | | | | |





PIPE MOUNT

Small Pipe/Coil Sensor, Nickel RTD



The ACI Nickel Pipe Mount Series features a 1.1" long Brass sensing enclosure with slight curvature on the bottom that is designed to increase the surface area and improve thermal conductivity between the pipe and sensor. Each sensor has two, 24 inch 22 AWG Etched Teflon colored lead wires to differentiate many different sensor types. The sensors in this series are manufactured using ACI's proven double encapsulation process to eliminate the effects of moisture upon the sensors and to improve the thermal response times using our high quality, thermally conductive epoxy. The Pipe Mount sensor should be used on pipe or coil sizes from 1/2" to 1" in diameter and condensing environments. A 7.5" nylon wire tie is supplied for fastening the sensor to the top of the pipe. For best accuracy and increased thermal

conduction between the pipe and the sensor, we recommend cleaning the pipe and to use thermal grease between the mating surfaces and then to insulate the sensor from the effects of the ambient air. An optional plenum rated cable or NIST Certificates can be ordered as referenced in the ordering grid. Please contact ACI for more information regarding this sensor or to discuss your application in further detail. Other Options may be available upon request.

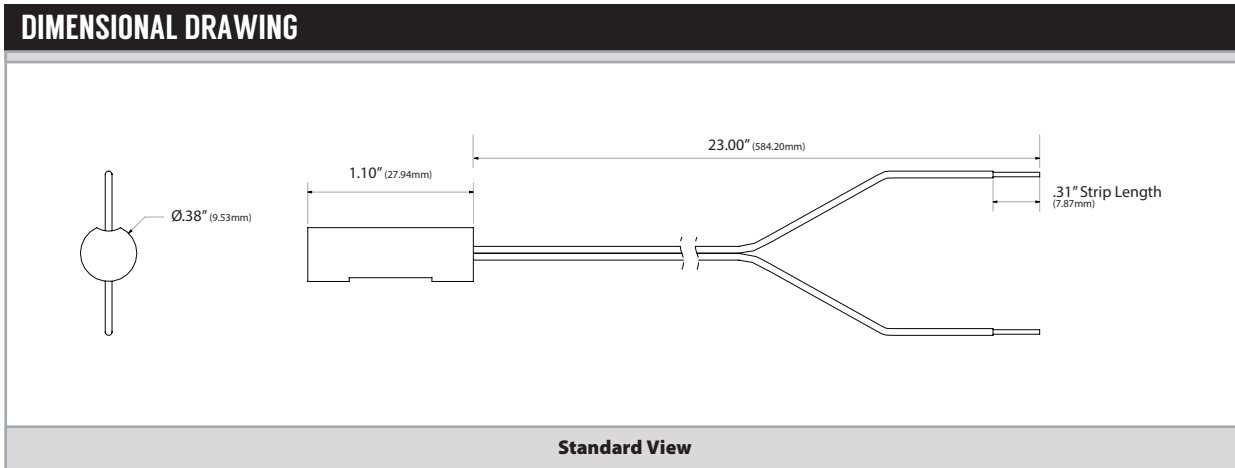
Applications: Cooling Coils, Heating Coils, Hot Water Systems, Chilled Water Systems, Hydronic Heating Systems, Chillers

The ACI Nickel Pipe Mount Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|--|--|
| Sensor Type Sensor Curve: | Nickel RTD PTC (Positive Temperature Coefficient) |
| Number Sensing Points: | One |
| Number Wires: | Two (Non-Polarity Sensitive) |
| Sensor Output @21.1°C (70°F) Lead Wire Colors: | 1000 Ohms nominal Red/Red |
| Sensor Accuracy: | -40°C (-40°F): +/- 1.52°C (+/- 2.73°F) 0°C (32°F): +/- 0.4°C (+/- 0.72°F) 21.1°C (70°F): +/- 0.17°C (+/- 0.34°F) 54.4°C (130°F): +/- 0.56°C (1.00°F) 121°C (250°F): +/- 1.25°C (+/- 2.25°F) |
| Din Standard Temperature Coefficient (0-100°C): | Din 43760 6370 ppm/°C |
| Sensor Stability: | +/- 0.05% after 1000 Hours @ 150°C (302°F) |
| Response Time (63% Step Change): | 15 Seconds nominal |
| Self-Heating Maximum Operating Current: | 0.3°C / mW (Still Air) 5 mA |
| Pipe Mount Sensor Enclosure Material: | Brass |
| Pipe Sizes Accepted: | 1/2" (12.7mm) to 1" (25.4mm) |
| Operating Temperature Range: | -40 to 121°C (-40 to 250°F) |
| Storage Temperature Range: | -40 to 85°C (-40 to 185°F) |
| Operating Humidity Range: | 10 to 95% RH condensing |
| Lead Length Conductor Size: | 24" (61cm) 22 AWG (0.65mm) |
| Lead Wire Insulation Wire Rating: | Etched Teflon (PTFE) Colored Leads MIL-W-16878/4 (Type E) |
| Conductor Material: | Silver Plated Copper |
| Product Dimensions (Length x Diameter): | 1.10" (27.9mm) x 0.375" (9.53mm) |
| Product Weight: | 0.05 lbs. (22.68g) |
| Agency Approvals: | CE, RoHS2, WEEE |





STANDARD ORDERING

Model # Example: **A/1K-NI-PM -OR- 138656**

| Model # | Item # | Description |
|-------------------|--------|----------------------------------|
| A/1K-NI-PM | 138656 | 1K Nickel, Pipe Mount, 24" Leads |

OPTIONAL SENSOR ORDERING

Model # Example: **A/ 1K-NI PM 20' NIST**
A. B. C. D. E. F.

| | | MODEL # |
|--|---|----------------|
| A. Sensor Series <i>No Selection Required</i> | A/ → | A/ |
| B. Model Series <i>No Selection Required</i> | 1K-NI → | 1K-NI |
| C. Configuration <i>No Selection Required</i> | PM = 1.1" Brass Pipe Mount Sensor → | PM |
| D. Lead Length <i>Select One (1)</i> | ---- = Standard (24" Etched Teflon) 10' = 10 Feet (3.05m) 20' = 20 Feet** (6.10m) | |
| E. Lead Wire Type <i>Select One (1)</i> | ---- = Standard (24" Teflon Colored Leads) CL2P = Plenum Rated Cable | |
| F. NIST <i>Select One (1)</i> | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) | |

Note*: The 20' Length is not CE Compliant but it is RoHS Compliant

ACCESSORIES ORDERING

Model # Example: **HARDWARE, 2" HOSE CLAMP -OR- 100235**

| Model # | Item # | Description |
|-------------------------------------|--------|---|
| HARDWARE, 2" HOSE CLAMP | 100235 | Hardware, 2" Hose Clamp, Quick Release Worm Gear, 201/301 Stainless Steel |
| NSG HEAT TRANSFER PASTE 2OZ | 102595 | Thermal Grease, 2 oz. Tube, Silicone Free, -40 to 320°F (-40 to 160°C) |
| NSG HEAT TRANSFER PASTE 16OZ | 140574 | Thermal Grease, 16 oz. Jar, Silicone Free, -40 to 390°F (-40 to 198°C) |





PROBE ONLY

Stainless Steel Probe, Nickel RTD



The ACI Nickel Probe Only Series features a 1/4" diameter stainless steel probe with two, 14" or 24 inch 22 AWG Etched Teflon colored lead wires to differentiate the different sensor types. The sensors in this series are manufactured using ACI's proven double encapsulation process to eliminate the effects of moisture on the sensors and to increase the thermal response time using our high quality, thermally conductive epoxy. The probe is designed to be used in either duct and immersion applications when used with the proper length thermowell. Optional lead lengths, cable types and NIST Certificates are available as referenced in the ordering grid on the Product Data Sheet. Please contact ACI for more information regarding this sensor or to discuss your application in further detail. Other options that may be available upon request.

Applications: Roof Top Units, Air Handlers, Supply/Discharge Air/Return/Mixed/Exhaust Air Duct Temperature Sensing, Immersion Temperature Sensors, Replacement Temperature Sensors.

The ACI Nickel RTD Probe Only Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, workaci.com.

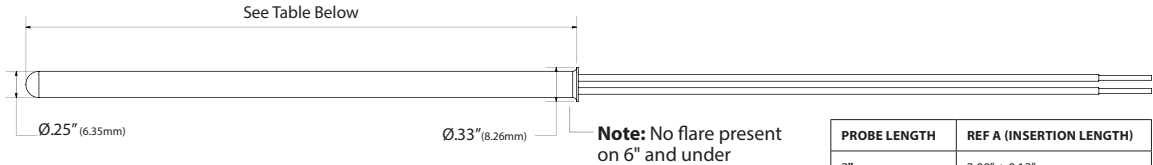
PRODUCT SPECIFICATIONS

| | |
|---|--|
| Sensor Type Sensor Curve: | Nickel RTD PTC (Positive Temperature Coefficient) |
| Number Sensing Points: | One |
| Number Wires: | Two (Non-Polarity Sensitive) |
| Sensor Output @ 25°C (77°F) (Standard Lead Wire Colors): | 1000 Ohms nominal (Red/Red) |
| Sensor Accuracy: | -40°C (-40°F): +/- 1.52°C (+/- 2.73°F) 0°C (-40°F): +/- 0.4°C (+/- 0.72°F) 21.1°C (70°F): +/- 0.17°C (+/- 0.34°F) 54.4°C (130°F): +/- 0.56°C (+/- 1.00°F) 121°C (250°F): +/- 1.25°C (+/- 2.25°F) |
| Din Standard Temperature Coefficient (0-100°C): | Din 43760 6370 ppm/°C |
| Sensor Stability: | +/- 0.05% after 1000 Hours @ 150°C (302°F) |
| Response Time (63% Step Change): | 8 Seconds nominal |
| Power Dissipation Constant: | 0.3°C/mW (Still Air) 5 mA |
| Operating Temperature Range: | -40 to 121°C (-40 to 250°F) |
| Storage Temperature Range: | -40 to 85°C (-40 to 185°F) |
| Operating Humidity Range: | 10 to 95% RH, non-condensing |
| Probe Material: | 304 Stainless Steel |
| Standard Wire | Lead Wire Insulation Wire Rating: Etched Teflon (PTFE) Colored Leads MIL-W-16878/4 (Type E) Temperature Rating: -55°C (-67°F) to 200°C (392°F) Conductor Material: Silver Plated Copper Rated Application: Suitable for Indoor and Outdoor (wet) location. Oil, Moisture, Acids, Oils and Moisture Resistant Lead Length Conductor Size: 4", 6" and 8" Probes: 14" (35.6 cm) 12" and 18" Probes: 24" (61cm) 22 AWG (0.65mm) |
| Plenum Wire | Lead Wire Insulation Wire Rating: CL2P: FEP (Fluorinated Ethylene Propylene) TYPE CL2P - TYPE CMP 22 AWG (UL), C(UL) FEP/FEP E130356 ROHS Temperature Rating: CL2P: -80°C (-112°F) to 150°C (302°F) Conductor Material: CL2P: Tinned Copper Rated Application: CL2P: Suitable for Indoor and Outdoor (wet) locations. Oil, Gas, Sunlight, Abrasion Acid Resistant |
| Product Dimensions Probe Diameter: | See table on back of product data sheet 0.250" (6.35mm) |
| Product Weight: | 4" = 0.028 lbs. (12.7g) 6" = 0.036 lbs. (16.3g) 8" = 0.044 lbs. (20g) 12" = 0.066 lbs. (29.9g) 18" = 0.09 lbs. (40.8g) |
| Agency Approvals: | CE, RoHS2, WEEE |





DIMENSIONAL DRAWING



| PROBE LENGTH | REF A (INSERTION LENGTH) |
|--------------|--------------------------|
| 2" | 2.00" ± 0.13" |
| 4" | 4.00" ± 0.13" |
| 6" | 6.00" ± 0.13" |
| 8" | 8.00" ± 0.13" |
| 12" | 12.00" ± 0.25" |
| 18" | 18.00" ± 0.25" |

Standard View

CUSTOM ORDERING

Model # Example:

A/ 1K-NI PO 4" 6'CL2P NIST

MODEL #

| | | | |
|---|--|---|-------|
| A. Sensor Series¹ No Selection Required | A/ | ➔ | A/ |
| B. Model Series Select One (1) | 1K-NI | ➔ | 1K-NI |
| C. Configuration Select One (1) | PO = Probe Only | ➔ | PO |
| D. Probe Length Select One (1) | 2" = 2" Probe 4" = 4" Probe 6" = 6" Probe 8" = 8" Probe 12" = 12" Probe 18" = 18" Probe | | |
| E. Lead Wire Options Select One (1) | ---- = Standard 14 or 24" Etched PTFE Colored Leads 6'CL2P = 6 ft (1.83m), 2 Conductor Plenum Rated Cable 10'CL2P = 10 ft (3.05m), 2 Conductor Plenum Rated Cable 20'CL2P = 20 ft (6.10m), 2 Conductor Plenum Rated Cable | | |
| F. NIST Select One (1) | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) | | |

ACCESSORIES ORDERING

Model # Example: NSG HEAT TRANSFER PASTE 20Z -OR- 102595

| Model # | Item # | Description |
|------------------------------|--------|--|
| NSG HEAT TRANSFER PASTE 20Z | 102595 | Thermal Grease, 2 oz. Tube, Silicone Free, -40 to 320°F (-40 to 160°C) |
| NSG HEAT TRANSFER PASTE 16OZ | 140574 | Thermal Grease, 16 oz. Jar, Silicone Free, -40 to 390°F (-40 to 198°C) |





RAW POTTED

Remote Sensing Plastic Cap, Nickel RTD



The ACI Nickel Raw Series features a one inch long, 1/4" diameter plastic cup with two, 24 inch 22 AWG Etched Teflon colored lead wires to differentiate many different sensor types. The sensors in this series are manufactured using ACI's proven manufacturing process to eliminate the effects of moisture upon the sensors and increased thermal response times using our high quality, thermally conductive epoxy. The raw sensor configuration is designed to monitor air temperatures and should not be fully submerged in liquid. This series can be ordered with optional NIST Certificate and a plenum rated cable option as shown in the ordering grid on the back of the product data sheet. All additional wire specifications can be found on our products download page on-line. Please contact ACI for more information regarding this product or to

discuss your application in further detail. Other options may be available upon request.

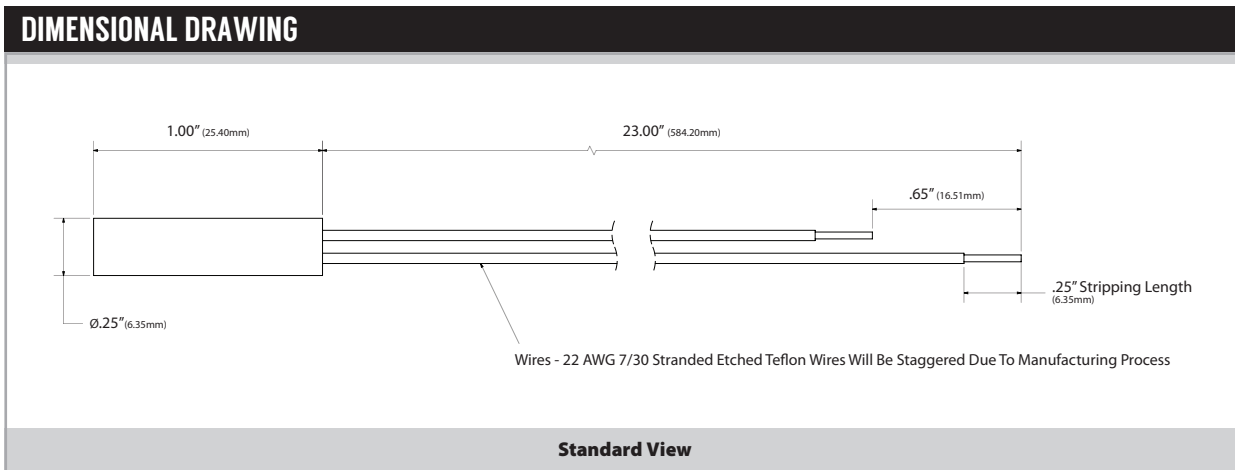
Applications: Roof Top Units, Air Handlers, Discharge Air/Supply/Return/Mixed Air Duct Temperature, Remote Temperature Sensing

The ACI Nickel Raw Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|--|--|
| Sensor Type: | Nickel RTD |
| Sensor Curve: | PTC (Positive Temperature Coefficient) |
| Number Sensing Points: | One |
| Number Wires: | Two (Non-Polarity Sensitive) |
| Sensor Output @ 21.1°C (70°F) Lead Wire Colors: | A/1K-NI Series: 1000 Ohms @21.1°C (70°F) nominal (Red/Red) |
| Accuracy: | 21.1°C (70°F) (+/- 0.17°C (+/-0.34°F)) 1183.5Ω +/- 3.181Ω (+/- 0.56°C (1.0°F) @ 54.4°C (130°F)) -40 to 0°C (-40 to 32°F): +/- (0.8C + (0.056 x °C))°C; 0 to 121°C (32 to 250°F): +/- (0.8C + (0.0144 x °C))°C |
| Sensor Stability: | +/- 0.05% after 1000 Hours @ 150°C (302°F) |
| Din Standard: | Din 43760 |
| Temperature Coefficient (0-100°C): | 6370 ppm/°C |
| Response Time (63% Step Change): | 8 Seconds nominal |
| Self-Heating: | 0.3°C/mW (Still Air) |
| Operating Current (Maximum) | 5 mA |
| Cup Plastic Material: | Glass Filled, Flame Retardant, Diallyl Ortho Phthalate |
| Cup Flammability Rating: | UL94-V0 |
| Cup MIL-M-14, ASTM D-5948-96: | Type SDG-F |
| Operating Temperature Range: | -40 to 121°C (-40 to 250°F) |
| Storage Temperature Range: | -40 to 85°C (-40 to 185°F) |
| Operating Humidity Range: | 10 to 95% RH, non-condensing |
| Lead Length Conductor Size: | 24" (0.61m) 22 AWG (0.65mm) |
| Lead Wire Insulation Wire Rating: | Etched Teflon (PTFE) Colored Leads Mil Spec 16878/4 Type E |
| Conductor Material: | Silver Plated Copper |
| Product Dimensions (Length x Diameter): | 1.00" (25.4mm) x 0.250" (6.35mm) |
| Product Weight: | 0.04 lbs. (18.15g) |
| Agency Approvals: | CE, RoHS2, WEEE |





STANDARD ORDERING

Model # Example: **A/1K-NI-W -OR- 120554**

| Model # | Item # | Description |
|------------------|--------|----------------------------------|
| A/1K-NI-W | 120554 | 1K-Nickel Raw, 24" Leads, 1" Cup |

OPTIONAL SENSOR ORDERING

Model # Example: **A/ 1K-NI W 6' CL2P NIST**
A. B. C. D. E. F.

| MODEL # | MODEL # |
|---|--|
| A. Sensor Series <i>No Selection Required</i> | A/ |
| B. Model Series <i>No Selection Required</i> | 1K-NI |
| C. Configuration <i>No Selection Required</i> | W |
| D. Lead Length <i>Select One (1)</i> | 6' = 6 Feet (1.83m) 10' = 10 Feet (3.05m) 20' = 20 Feet (6.10m)* |
| E. Lead Wire Type <i>No Selection Required</i> | CL2P |
| F. NIST <i>Select One (1)</i> | ---- = No NIST Certificate NIST = NIST Certificate (Must Specify 1, 3 or 5 Points) |

Note*: The 20' Length is not CE Compliant but it is RoHS Compliant

ACCESSORIES ORDERING

Model # Example: **¼" Mount Clip -OR- 108169**

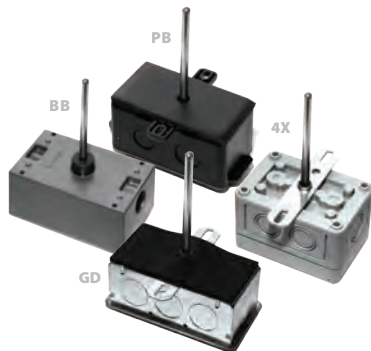
| Model # | Item # | Description | Galvanized Metal | Plastic w/ Adhesive |
|----------------------|--------|---------------------------------------|------------------|---------------------|
| ¼" Mount Clip | 108169 | Hardware, ¼" Mounting Clip | ● | |
| ¼" U-Mount CL | 100090 | Hardware, ¼" U-Mounting Clip Adhesive | | ● |





RIGID AVERAGING

Four Point Averaging, Nickel RTD



The ACI Nickel Rigid Averaging Series features a stainless steel, probe style sensing element with two 12 inch 22 AWG Etched Teflon colored lead wires to differentiate the different sensor types. The Nickel Rigid Averaging sensors are manufactured with 4 sensing points to provide a better average temperature in smaller to medium sized ducts when compared to that of a single point duct sensor or the longer Flexible and Copper averaging sensors can't be easily incorporated. Each of the elements is hermetically sealed to prevent moisture intrusion and includes an integrated foam pad to seal the duct and dampen vibrations. Some of the benefits of using a stainless steel Rigid Averaging sensor is that it can be installed easily in either a horizontal or vertical position, like that of a single point duct sensor and can be used in applications where a longer Flexible or Copper averaging sensor aren't easily installed. As an added benefit, the stainless steel probe also offers a higher level of corrosion resistance to

chemicals and moisture in the air stream when compared to that of the Flexible or Copper Averaging sensors. Actual sensor length should be selected based upon the overall dimensional area of your duct. ACI's standard enclosures include the galvanized junction box "-GD" or plastic duct enclosure with the hinged cover "-PB". Optional NEMA/IP rated Weather Proof enclosures and NIST Certificates are available as referenced in the ordering grid.

Applications: Air Handlers, Roof Top Units, Mixed Air/Discharge/Supply Air Temperature Monitoring, Data Centers, Hospitals

The ACI Nickel Rigid Averaging Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|---|--|
| Sensor Type Sensor Curve: | Nickel RTD PTC (Positive Temperature Coefficient) |
| Number Sensing Points Number Wires: | Four Two (Non-Polarity Sensitive) |
| Sensor Output @ 21.1°C (70°F) Lead Wire Colors: | 1000 Ohms nominal Red/Red |
| Sensor Accuracy: | 21.1°C (70°F) = +/- 0.22°C (+/- 0.39°F) 54.4°C (130°F) = +/- 0.60°C (+/- 1.07°F) |
| Din Standard Temperature Coefficient (0-100°C) | Din 43760 6370 ppm/°C |
| Sensor Stability: | +/- 0.05% after 1000 Hours @ 150°C (302°F) |
| Self-Heating Maximum Operating Current: | 0.3°C/mW (Still Air) 5 mA |
| Response Time (63% Step Change): | 10 Seconds nominal |
| Enclosure Specifications (Operating Temperature, Material, Flammability, NEMA/IP Ratings): | <p>"-GD" Enclosure: Galvanized Steel, -40 to 115°C (-40 to 239°F), NEMA 1 (IP10)</p> <p>"-PB" Enclosure: ABS Plastic, -30 to 90°C (-22 to 194°F), UL94-HB, Plenum Rated</p> <p>"-BB" Enclosure: Aluminum, -40 to 115°C (-40 to 239°F), NEMA 3R (IP 14)</p> <p>"-4X" Enclosure: Polystyrene Plastic, -40 to 70°C (-40 to 158°F), UL94-V2, NEMA 4X (IP 66)</p> |
| Storage Temperature Range: | -40 to 85°C (-40 to 185°F) |
| Operating Humidity Range: | 10 to 95% RH, non-condensing |
| Sensing Element Material Element Diameter: | 304 Series Stainless Steel 0.250" (6.35mm) nominal |
| Fitting Material Flammability Rating: | Polyamide 66 (High Performance Nylon) UL94-HB |
| Foam Pad Material Flammability Ratings: | Neoprene/EPDM/SBR Polymer UL94-HBF; FMVSS-302; MIL-R-6130C |
| Lead Length Conductor Size: | 12" (30.5cm) 22 AWG (0.65mm) |
| Lead Wire Insulation Wire Ratings: | Etched Teflon (PTFE) Colored Leads MIL-W-16878/4 (Type E) |
| Conductor Material: | Silver Plated Copper |
| Product Dimensions Product Weight: | See table on back of Product Data sheet |
| Agency Approvals: | CE, RoHS2, WEEE |





DIMENSIONAL DRAWING. WEIGHTS

xx = Sensor Type | yy = Insertion Length

Plastic Box Enclosure [PB]

Plastic Box Enclosure [PB] Weights

| ACI Model # | 12" (Probe Length) | 18" (Probe Length) |
|---------------|----------------------|----------------------|
| A/xx-RA-yy-PB | 0.28 lbs. (0.127 kg) | 0.30 lbs. (0.136 kg) |

| ACI Model # | 24" (Probe Length) | 36" (Probe Length) |
|---------------|----------------------|----------------------|
| A/xx-RA-yy-PB | 0.32 lbs. (0.145 kg) | 0.36 lbs. (0.163 kg) |

Galvanized Enclosure [GD]

Galvanized Enclosure [GD] Weights

| ACI Model # | 12" (Probe Length) | 18" (Probe Length) |
|---------------|----------------------|----------------------|
| A/xx-RA-yy-GD | 0.70 lbs. (0.317 kg) | 0.74 lbs. (0.336 kg) |

| ACI Model # | 24" (Probe Length) | 36" (Probe Length) |
|---------------|----------------------|----------------------|
| A/xx-RA-yy-GD | 0.78 lbs. (0.354 kg) | 0.82 lbs. (0.372 kg) |

Bell Box Enclosure [BB]

Bell Box Enclosure [BB] Weights

| ACI Model # | 12" (Probe Length) | 18" (Probe Length) |
|---------------|----------------------|----------------------|
| A/xx-RA-yy-BB | 0.74 lbs. (0.336 kg) | 0.78 lbs. (0.354 kg) |

| ACI Model # | 24" (Probe Length) | 36" (Probe Length) |
|---------------|----------------------|----------------------|
| A/xx-RA-yy-BB | 0.78 lbs. (0.354 kg) | 0.84 lbs. (0.381 kg) |

NEMA 4X Enclosure [4X]

NEMA 4X Enclosure [PB] Weights

| ACI Model # | 12" (Probe Length) | 18" (Probe Length) |
|---------------|----------------------|----------------------|
| A/xx-RA-yy-4X | 0.38 lbs. (0.172 kg) | 0.40 lbs. (0.181 kg) |

| ACI Model # | 24" (Probe Length) | 36" (Probe Length) |
|---------------|----------------------|----------------------|
| A/xx-RA-yy-4X | 0.44 lbs. (0.200 kg) | 0.50 lbs. (0.227 kg) |

Standard Views **Product Weights**

STANDARD ORDERING

Model # Example: **A/1K-NI-RA-12"-GD** -OR- 142466

| Model # | Item # | Description |
|--------------------------|--------|--|
| A/1K-NI-RA-12"-GD | 142466 | 1K Nickel, Rigid Averaging, Stainless Steel, 12" (30.5cm), Galvanized Enclosure, 12" Leads |
| A/1K-NI-RA-12"-PB | 138666 | 1K Nickel, Rigid Averaging, Stainless Steel, 12" (30.5cm), Plastic Enclosure, 12" Leads |
| A/1K-NI-RA-18"-GD | 131112 | 1K Nickel, Rigid Averaging, Stainless Steel, 18" (45.7cm), Galvanized Enclosure, 12" Leads |
| A/1K-NI-RA-18"-PB | 126522 | 1K Nickel, Rigid Averaging, Stainless Steel, 18" (45.7cm), Plastic Enclosure, 12" Leads |
| A/1K-NI-RA-24"-GD | 131113 | 1K Nickel, Rigid Averaging, Stainless Steel, 24" (61cm), Galvanized Enclosure, 12" Leads |
| A/1K-NI-RA-24"-PB | 129210 | 1K Nickel, Rigid Averaging, Stainless Steel, 24" (61cm), Plastic Enclosure, 12" Leads |
| A/1K-NI-RA-36"-GD | 131114 | 1K Nickel, Rigid Averaging, Stainless Steel, 36" (91.5cm), Galvanized Enclosure, 12" Leads |
| A/1K-NI-RA-36"-PB | 134238 | 1K Nickel, Rigid Averaging, Stainless Steel, 36" (91.5cm), Plastic Enclosure, 12" Leads |

CUSTOM ORDERING

Model # Example: **A/ 1K-NI RA 18" GD NIST**

| | A/ | 1K-NI | RA | 18" | GD | NIST | MODEL # |
|---|---|-------|----|-----|----|------|--------------|
| A. Sensor Series No Selection Required | A/ → | | | | | | A/ |
| B. Model Series No Selection Required | 1K-NI → | | | | | | 1K-NI |
| C. Configuration No Selection Required | RA = Rigid Averaging → | | | | | | RA |
| D. Probe Length Select One (1) | 12" = 12" Probe 18" = 18" Probe 24" = 24" Probe 36" = 36" Probe | | | | | | |
| E. Enclosure Select One (1) | GD = Galvanized PB = Plastic BB = Aluminum 4X = NEMA 4X | | | | | | |
| F. NIST Select One (1) | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) | | | | | | |





ROOM

Wall Mount Enclosure, Nickel RTD

The ACI Nickel Room Series combines option flexibility with attractive styling in our “-R2” or “-R” style enclosures which both include four-way air flow design too minimize self-heating to the sensor. These enclosures are offered in a White “-R2” or Beige “-R” color depending on the enclosure style. All units are designed to be mounted over a single gang junction box or hole in the wall with the use of drywall anchors. Screw terminal blocks are provided for making all connections to the temperature sensor, Set Point, “After Hours” Override, and Communication Jacks for easy access to your building management system. An optional 1/8” Black foam pad with pressure sensitive adhesive is available to insulate the sensor from thermal drafts within the wall or wall surface temperature. A 1/16” Hex driver should be used to secure the cover from being easily removed. The “LCD” option uses two temperature sensors to monitor the ambient air

temperature in the space and is factory calibrated at a single point.

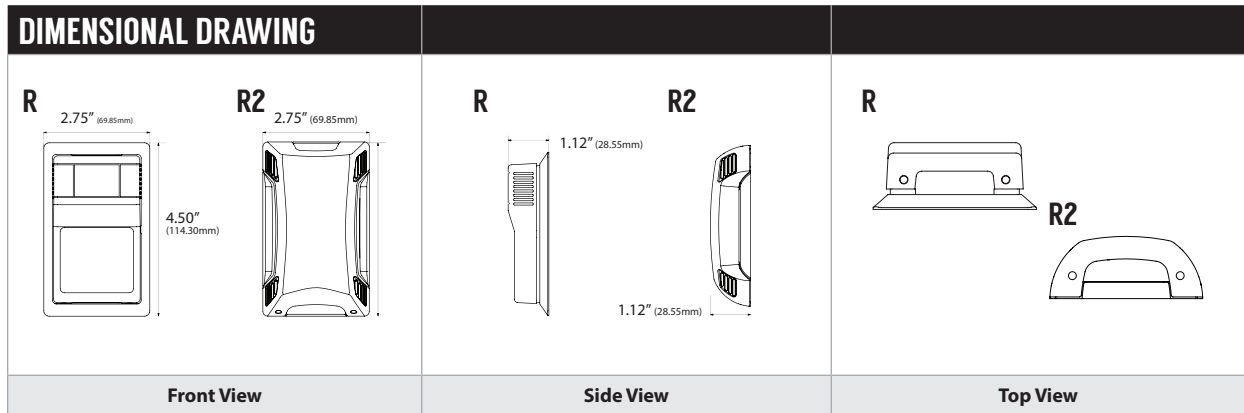
Applications: Space Temperature Sensing, Decorative Wall Sensor Applications, Office Buildings, Schools, Colleges, Commercial Buildings, OEM Opportunities

The ACI Nickel Room Series is covered by ACI’s Five (5) Year Limited Warranty. The warranty can be found in the front of ACI’s Sensors & Transmitters catalog, as well as on ACI’s web site, workaci.com.

| PRODUCT SPECIFICATIONS | |
|--|---|
| Sensor Type Sensor Curve: | Nickel RTD PTC (Positive Temperature Coefficient) |
| Number Sensing Points: | One |
| Sensor Output @ 21.1°C (70°F): | 1000 Ohms Nominal |
| Sensor Accuracy: | 0°C (32°F): +/- 0.4°C (+/- 0.72°F) 21.1°C (70°F): +/- 0.17°C (+/- 0.34°F) 54.4°C (130°F): +/- 0.56°C (1°F) |
| Din Standard Temperature Coefficient (0-100°C): | Din 43760 6370 ppm/°C |
| Sensor Stability: | +/- 0.05% after 1000 Hours @ 150°C (302°F) |
| Response Time (63% Step Change): | 8 Seconds Nominal |
| Self-Heating Maximum Operating Current: | 0.3 mW/°C (Still Air) 5 mA |
| LCD Display Supply Voltage: | +9 to 35 VDC / 24 VAC (50/60 Hz) |
| LCD Display Supply Current/VA: | <4 mA / 0.12VA |
| LCD Display Accuracy: | +/- 2°F or +/- 2°C @ 71°F (21.5°C) Typical |
| LCD Display Descriptor Number of Digits: | °F (Fahrenheit) or °C (Celsius) 3 1/2 Segment Display |
| LCD Display Life Expectancy: | 50,000 Hours Minimum |
| Set Point Specifications Set Point Indication: | See Ordering Grid Options on back of Product Data Sheet |
| Set Point Tolerance: | +/- 10% of Range |
| Override Options: | Short Thermistor (Default); Field (Jumper) Selectable “Dry Contact” Closure; Short Set Point available upon request |
| Operating Storage Temperature Range: | 1.5 to 50°C (35 to 122°F) Non-LCD: -40 to 65°C (-40 to 149°F) LCD Display: -10 to 65°C (14 to 149°F) |
| Operating Humidity Range: | 10 to 95% RH, non-condensing |
| Connections Wire Size: | Screw Terminal Blocks (Non-Polarity Sensitive) 16 AWG (1.31 mm ²) to 26 AWG (0.129 mm ²) |
| Terminal Block Torque Rating: | 0.5 Nm (Minimum) 0.6 Nm (Maximum) |
| Enclosure Material Flammability Rating Color: | “-R2” Enclosure: ABS Plastic, UL94-HB, White “-R” Enclosure: ABS Plastic, UL94-HB, Beige |
| Product Dimensions: | See Drawing on back of Product Data Sheet |
| Product Weight: | A/1K-NI-R/RS/RO Series: 0.14 lbs. (63.5g) A/1K-NI-RSO Series: 0.18 lbs. (81.6g) A/1K-NI-R2/R2S/R2O Series: 0.16 lbs. (72.6g) A/1K-NI-R2SO Series: 0.20 lbs. (90.7g) All LCD Display Units: 0.18 lbs. (81.6g) |
| Agency Approvals: | CE**, RoHS2, WEEE |

Note**: All LCD Display Units are not CE Compliant, but they are RoHS2 Compliant





| STANDARD ORDERING | | |
|-------------------|--------|--|
| Model # | Item # | Description |
| A/1K-NI-R | 144152 | 1K Nickel RTD, "R" Version, Beige, No Options |
| A/1K-NI-R2 | 144153 | 1K Nickel RTD, "R2" Version, White, No Options |

| CUSTOM ORDERING | | MODEL # |
|--|--|---------|
| A. Sensor Series¹ No Selection Required | A/ | A/ |
| B. Model Series Select One (1) | 1K-NI | 1K-NI |
| C. Configuration Select One (1) | R = Room RO = Room with Override RS = Room with Set Point R5O = Room with Setpoint and Override R2 = Room R2O = Room with Override R2S = Room with Set Point R2SO = Room with Set Point and Override | |
| D. Communication Jack Select One (1) | ---- = No Jack RJ4 = 4 Pin 4 Conductor RJ9, RJ10 or RJ22 Style Head Set Modular Connector RJ6 = 6 Pin 6 Conductor RJ12 Modular Phone Connector 232 = 3.5mm (1/8") Stereo Jack | |
| E. LCD Display² Select One (1) | ---- = No LCD Display LCD ² = With LCD Display (Only Available with "R" Style Enclosure) | |
| F. LCD Display Descriptor Select One (1) | F = °F (Fahrenheit) C = °C (Celsius) | |
| G. NIST³ Select One (1) | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) | |
| Setpoint Configuration Options Select Options below if RS, R5O, R2S or R2SO was selected as a Configuration (C) | | |
| 1. Slidepots⁴ Select One (1) | Direct Acting (Range in Ohms) A02 = 0 to 20K A03 = 0 to 10K A09 = 0 to 2K A10 = 0 to 1K | |
| 2. Setpoint Indication Select One (1) | A3 = 18-28 DEG C A4 = 20-30 DEG C B4 = 55-85 DEG F B7 = 60-90 DEG F C5 = COOL/WARM C6 = COOLER/WARMER D3 = WARM/COOL G5 = BLUE/RED (R2 Enclosure) | |

Note¹: A/ part numbers come without logo. For custom logo, replace A/ with Company abbreviation. Please contact ACI | **Note²:** LCD Display is not compatible with NIST | **Note³:** NIST is available in "R" and "R2" only configurations | **Note⁴:** Other Setpoint configurations are available. Please contact ACI | **Note***: Short Sensor is factory default, but the Dry Contact option is field selectable with jumper shunts included

| ACCESSORIES ORDERING | | |
|---------------------------|--------|---|
| Model # | Item # | Description |
| A/MOUNTING PLATE BEIGE R | 106821 | Wall Mounting Back Plate, Plastic, Beige ("R") |
| A/MOUNTING PLATE WHITE R | 126386 | Wall Mounting Back Plate, Plastic, White ("R") |
| A/MOUNTING PLATE WHITE R2 | 143369 | Wall Mounting Back Plate, Plastic, White ("R2") |
| LOCKING COVER | 107370 | Clear Thermostat Guard, Locking Cover, Low Profile |
| A/ROOM-FOAM-PAD | 125690 | 1/8" Foam Insulation Pad with Adhesive (3" x 2", Black) |





STRAP ON

Non-Intrusive Pipe Mount, Nickel RTD

The ACI Nickel Strap-On Series features a 1.5" square copper plate with the sensor encapsulated to the back side of the plate to improve the thermal conductivity between the pipe and the sensor when an Immersion style sensor can't be inserted into the pipe in a retrofit application. Each sensor has two, 14 inch 22 AWG Etched Teflon colored lead wires to differentiate the many different sensor types. The sensors in this series are manufactured using ACI's proven double encapsulation process to eliminate the effects of moisture upon the sensors as well as to improve the thermal response times using our high quality, thermally conductive epoxy. The Strap-On Series sensors can be used to monitor pipe sizes from 1 ¼" to 10" in diameter. For best accuracy and increased thermal conduction between the pipe and sensor, ACI recommends to

clean the pipe before applying thermal grease and insulating the sensor from the effects of the ambient air. Optional Weather Proof enclosure and NIST Certificates are available as referenced in the ordering grid on the back of the Product Data Sheet. Please contact ACI for more information regarding this sensor or to discuss your application in further detail. Other Options may be available upon request.

Applications: Cold Water Systems, Hot Water Systems, Retrofit applications, Hydronic Heating Systems, Chillers

The ACI Nickel Strap-On Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|--|--|
| Sensor Type Sensor Curve: | Nickel RTD PTC (Positive Temperature Coefficient) |
| Number Sensing Points: | One |
| Number Wires: | Two (Non-Polarity Sensitive) |
| Sensor Output @ 21.1°C (70°F) (Lead Wire Colors): | 1000 Ohms nominal (Red/Red) |
| Sensor Accuracy: | -40°C (-40°F): +/- 1.52°C (+/- 2.73°F) 0°C (32°F): +/- 0.4°C (+/- 0.72°F) 21.1°C (70°F): +/- 0.17°C (+/- 0.34°F) 54.4°C (130°F): +/- 0.56°C (+/- 1.00°F) 121°C (250°F): +/- 1.25°C (+/- 2.25°F) |
| Din Standard Temperature Coefficient (0-100°C): | Din 43760 6370 ppm/°C |
| Sensor Stability: | +/- 0.05% after 1000 Hours @ 150°C (302°F) |
| Response Time (63% Step Change): | 8 Seconds nominal |
| Self-Heating Operating Current (Maximum): | 0.3°C/mW (Still Air) 5 mA |
| Enclosure Specifications (Operating Temperature Range, Flammability, NEMA/IP Rating): | A/1K-NI-S-GD: Galvanized Steel, -40 to 93°C (-40 to 200°F), NEMA 1 (IP 10) A/1K-NI-PB: ABS Plastic, -30 to 85°C (-22 to 185°F), UL94-HB, Plenum Rated A/1K-NI-S-4X: Polystyrene, -40 to 70°C (-40 to 158°F), UL94-V2, NEMA 4X (IP 66) |
| Storage Temperature Range: | -40 to 85°C (-40 to 185°F) |
| Operating Humidity Range: | 10 to 95% RH, non-condensing |
| Acceptable Pipe Size: | A/1K-NI-S-XX: 1 ¼" (32mm) to 4" (100mm) A/1K-NI-S10-XX: 2" (50mm) to 10" (250mm) |
| Foam Material Flammability Rating: | Neoprene/EPDM/SBR Polymer UL94-HF1; MIL-R-6130C; FMVSS-302 |
| Lead Length Conductor Size: | 14" (35.6cm) 22 AWG (0.65mm) |
| Lead Wire Insulation Wire Rating: | Etched Teflon (PTFE) Colored Leads MIL-W-16878/4 (Type E) |
| Conductor Material: | Silver Plated Copper |
| Product Dimensions (Length x Diameter): | See Drawing on Back of Data Sheet |
| Product Weight: | A/1K-NI-XX-GD: 0.80 lbs. (0.37kg) A/1K-NI-XX-PB: 0.40 lbs. (0.18kg); A/1K-NI-XX-4X: 0.55 lbs. (0.25kg) |
| Agency Approvals: | CE, RoHS2, WEEE |





DIMENSIONAL DRAWING

| Plastic Box Enclosure [PB] | | |
|----------------------------|-------------------|-----------------|
| | | |
| | | |
| | | |
| Front View | Right View | Top View |

STANDARD ORDERING

Model # Example: **A/1K-NI-S-GD** -OR- **114893**

| Model # | Item # | Description |
|---------------------|--------|--|
| A/1K-NI-S-GD | 114893 | 1K Nickel, Strap-On, 1 1/4" to 4" Pipe, Galvanized Enclosure, 24" Leads |
| A/1K-NI-S-PB | 124206 | 1K Nickel, Strap-On, 1 1/4" to 4" Pipe, Plastic Enclosure, 24" Leads |
| A/1K-NI-S-4X | 120547 | 1K Nickel, Strap-On, 1 1/4" to 4" Pipe, NEMA 4X Plastic Enclosure, 24" Leads |

CUSTOM ORDERING

Model # Example: **A/ 1K-NI S PB NIST**
A. B. C. D. E.

| | | MODEL # |
|---|---|----------------|
| A. Sensor Series No Selection Required | A/ _____ → | A/ |
| B. Model Series No Selection Required | 1K-NI _____ → | 1K-NI |
| C. Configuration Select One (1) | S = Strap-On (1.25" to 4" Pipe Size) S10 = Strap-On (2" to 10" pipe size) | |
| D. Enclosure Select One (1) | GD = Galvanized PB = Plastic 4X = NEMA 4X Weather Proof | |
| E. NIST Select One (1) | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) | |

ACCESSORIES ORDERING

Model # Example: **A/HOSE CLAMP-2-12"** -OR- **142631**

| Model # | Item # | Description |
|-------------------------------------|--------|--|
| A/HOSE CLAMP-2-5" | 142630 | Hardware, 2-5" Hose Clamp, Quick Release Worm Gear, 201/301 Stainless Steel |
| A/HOSE CLAMP-2-12" | 142631 | Hardware, 2-12" Hose Clamp, Quick Release Worm Gear, 201/301 Stainless Steel |
| NSG HEAT TRANSFER PASTE 20Z | 102595 | Thermal Grease, 2 oz. Tube, Silicone Free, -40 to 320°F (-40 to 160°C) |
| NSG HEAT TRANSFER PASTE 160Z | 140574 | Thermal Grease, 16 oz. Jar, Silicone Free, -40 to 390°F (-40 to 198°C) |





WALL PLATES

Stainless & Aluminum Wall Plate, Nickel RTD

The ACI Nickel Wall Plate Series features a decorative, single gang brushed Stainless Steel or Smooth Satin Finished Anodized Aluminum wall plate with two, 14 inch 22 AWG Etched Teflon colored lead wires to differentiate between the different sensor types. The sensors in this series are manufactured using ACI's proven double encapsulation process to eliminate the effects of moisture upon the sensors and to increase the thermal response times using our high quality, thermally conductive epoxy. A foam pad is included to insulate the sensor from thermal drafts within the wall, since the plates are designed to be mounted over a standard single gang junction box or directly over a hole in the wall with the use of drywall anchors. These plates are designed to provide a level of protection and security when monitoring the ambient air

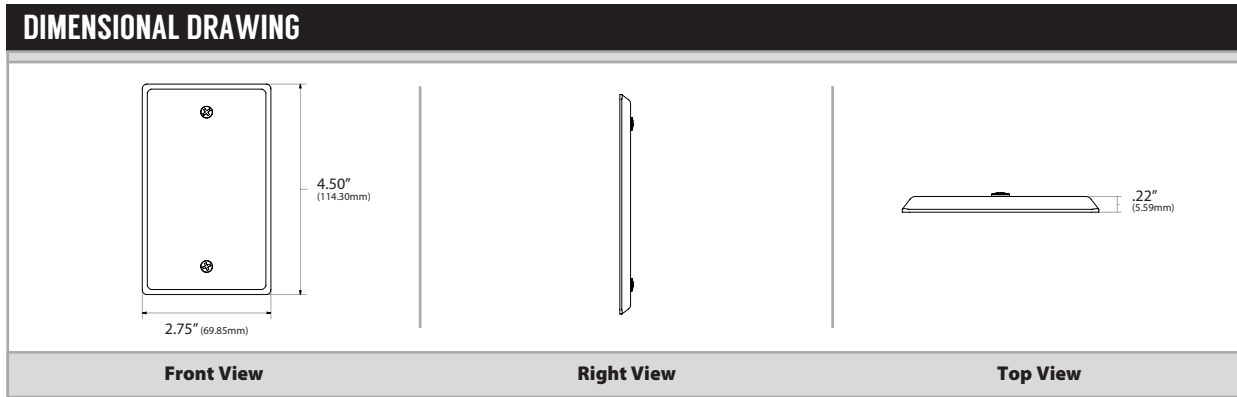
temperatures in a space. Tamper Proof mounting screws, tamper proof screw driver bits and NIST Certificates are available as referenced on the back of the product data sheet. Please contact ACI for more information regarding the wall mount sensors or to discuss your application in further detail. Other options including override and communication jacks may be available upon request.

Applications: Space Temperature Sensing, Decorative Wall Plate Applications, Tamper Proof Applications, Schools, Gymnasiums

The ACI Nickel Wall Plate Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

| PRODUCT SPECIFICATIONS | |
|--|---|
| Sensor Type Sensor Curve: | Nickel RTD PTC (Positive Temperature Coefficient) |
| Number Sensing Points: | One |
| Number Wires: | Two (Non-Polarity Sensitive) |
| Sensor Output @ 21.1°C (70°F) Lead Wire Colors: | 1000 Ohms nominal Red/Red |
| Sensor Accuracy: | -40°C (-40°F): +/- 1.52°C (+/- 2.73°F) 0°C (32°F): +/- 0.4°C (+/- 0.72°F) 21.1°C (70°F): +/- 0.17°C (+/- 0.34°F) 54.4°C (130°F): +/- 0.56°C (1.00°F) |
| Din Standard Temperature Coefficient (0-100°C): | Din 43760 6370 ppm/°C |
| Sensor Stability: | +/- 0.05% after 1000 Hours @ 150°C (302°F) |
| Response Time (63% Step Change): | 25 Seconds nominal |
| Self-Heating Operating Current (Maximum) | 0.3°C/mW (Still Air) 5 mA |
| Plate Material: | A/1K-NI-SP Series: 430 Stainless Steel (Brushed Stainless Steel Finish) A/1K-NI-AP Series: Aluminum (Smooth Satin Finish, Clear Anodized) |
| Foam Material Flammability Rating: | Cross-Linked Polyethylene FMVSS-302 |
| Operating Storage Temperature Range: | -40 to 71°C (-40 to 160°F) |
| Operating Humidity Range: | 10 to 95% RH, non-condensing |
| Lead Length Conductor Size: | 14" (35.56cm) 22 AWG (0.65mm) |
| Lead Wire Insulation Wire Rating: | Etched Teflon (PTFE) Colored Leads MIL-W-16878/4 (Type E) |
| Conductor Material: | Silver Plated Copper |
| Product Dimensions (L x W x D): | 4.50" (114.3 mm) x 2.78" (70.6 mm) x 0.187" (4.76 mm) |
| Product Weight: | A/1K-NI-SP Series: 0.14 lbs. (63.5g) A/1K-NI-AP Series: 0.08 lbs. (36.29g) |
| Agency Approvals: | CE, RoHS2, WEEE |





STANDARD ORDERING

Model # Example: A/1K-NI-SP -OR- 120549

| Model # | Item # | Description |
|------------|--------|--|
| A/1K-NI-SP | 120549 | 1K Nickel Stainless Wall Plate, 14" Leads, 1/8" Foam Pad |
| A/1K-NI-AP | 120487 | 1K Nickel Aluminum Wall Plate, 14" Leads, 1/8" Foam Pad |

CUSTOM ORDERING

Model # Example: A/ 1K-NI SP NIST

| | | MODEL # |
|--|--|---------|
| A. Sensor Series <i>No Selection Required</i> | A/ → | A/ |
| B. Model Series <i>No Selection Required</i> | 1K-NI → | 1K-NI |
| C. Configuration <i>Select One (1)</i> | SP = 1 Gang Stainless Steel Wall Plate AP = 1 Gang Aluminum Wall Plate | |
| D. NIST <i>Select One (1)</i> | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) | |

ACCESSORIES ORDERING

Model # Example: A/TAMPER PROOF SCREWS -OR- 144865

| Model # | Item # | Description |
|-------------------------|--------|---|
| A/TAMPER PROOF SCREWS | 144865 | Two (2) Screws, Tamper Proof, #6 x 5/8", Zinc Plated, Flat Head, 1/8" |
| SCREWDRIIVER INSERT BIT | 143067 | Screwdriver Bit, Tamper Proof Screw, 5/64 |





BULLET PROBE

1" Bullet Probe, Balco RTD



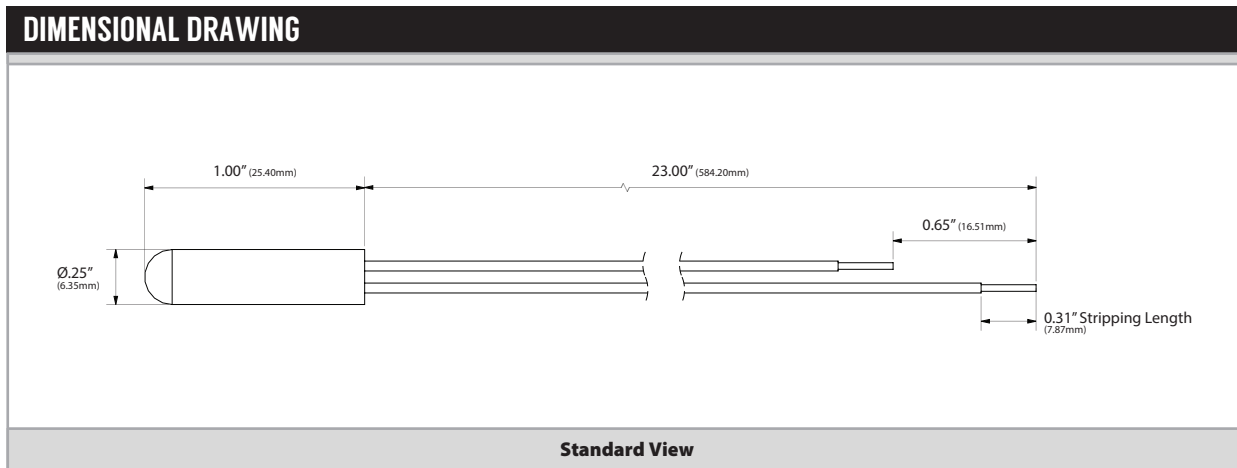
The ACI Balco Bullet Probe Series features a one inch stainless steel probe with two, 24 inch 22 AWG Etched Teflon colored lead wires to differentiate the many different NTC sensor types. The sensors in this series are manufactured using ACI's proven double encapsulation process to eliminate the effects of moisture upon the sensors and to increase the thermal response times using our high quality, thermally conductive epoxy. The bullet style sensor is designed to be used to monitor air temperatures and should not be fully submerged in water. This series can be ordered with different wire options and NIST Certification as referenced in the Ordering grid on the back of the product data sheet.

Applications: Roof Top Units, Air Handlers, Discharge Air/Supply/Return/Mixed Air Duct Temperature, Remote Temperature Sensing

The ACI Balco Bullet Probe Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

| PRODUCT SPECIFICATIONS | |
|--|--|
| Sensor Type Sensor Curve: | Balco RTD PTC (Positive Temperature Coefficient) |
| Number Sensing Points: | One |
| Number Wires: | Two (Non-Polarity Sensitive) |
| Sensor Output @ 70°F (21.1°C) Lead Wire Colors: | 1000 Ohms nominal Orange/Yellow |
| Sensor Accuracy: | 70°F (21.1°C) : +/- 1% |
| Temperature Coefficient (0-100°C): | 4618 ppm/°C |
| Sensor Stability: | +/- 0.05% after 1000 Hours @ 150°C (302°F) |
| Response Time (63% Step Change): | 8 Seconds nominal |
| Maximum Operating Current: | 5 mA |
| Probe Material: | 304 Stainless Steel |
| Operating Temperature Range: | -40 to 121°C (-40 to 250°F) |
| Storage Temperature Range: | -40 to 85°C (-40 to 185°F) |
| Operating Humidity Range: | 10 to 95% RH, non-condensing |
| Lead Length Conductor Size: | 24" (61cm) 22 AWG (0.65mm) |
| Lead Wire Insulation Wire Rating: | Etched Teflon Colored Leads MIL-W-16878/4 (Type E) |
| Conductor Material: | Silver Plated Copper |
| Product Dimensions (Length x Diameter): | 1.00" (25.4mm) x 0.250" (6.35mm) |
| Product Weight: | 0.02 lbs. (9.07g) |
| Agency Approvals: | CE, RoHS2, WEEE |





STANDARD ORDERING

Model # Example: **A/BALCO-BP -OR- 121866**

| Model # | Item # | Description |
|----------------------------|--------|---|
| A/BALCO-BP | 121866 | Balco Bullet Probe, 24" (61.0 cm) Leads, 1" Probe |
| A/BALCO-BP-10'CL2P | 142712 | Balco Bullet Probe, 10' (3.05m) CL2P Plenum Leads, 1" Probe |
| A/BALCO-BP-20'CL2P* | 129139 | Balco Bullet Probe, 20' (6.10m) CL2P Plenum Leads, 1" Probe |

Note*: The 20' Length is not CE Compliant but it is RoHS Compliant

OPTIONAL SENSOR ORDERING

Model # Example: **A/ BALCO BP 6'CL2P NIST**
A. B. C. D. E.

| MODEL # | DESCRIPTION |
|--------------|--|
| A/ | A. Sensor Series <i>No Selection Required</i> → |
| BALCO | B. Model Series <i>No Selection Required</i> → |
| BP | C. Configuration <i>No Selection Required</i> → BP = 1" Stainless Steel Probe |
| | D. Lead Wire Options <i>Select One (1)</i> ---- = Standard 24" Etched PTFE Colored Leads 6'CL2P = 6 ft (1.83m), 2 Conductor Plenum Rated Cable 10'CL2P = 10 ft (3.05m), 2 Conductor Plenum Rated Cable 20'CL2P = 20 ft (6.10m), 2 Conductor Plenum Rated Cable |
| | E. NIST <i>Select One (1)</i> ---- = No NIST Certificate NIST = NIST Certificate (3 Points) |

ACCESSORIES ORDERING

Model # Example: **A/MOUNTING U-CLIP-1/4" -OR- 143352**

| Model # | Item # | Description | Galvanized Metal | Plastic w/ Adhesive |
|-------------------------------|--------|---|------------------|---------------------|
| A/MOUNTING CLIP-1/4" | 143351 | Hardware, 1/4" Mounting Clip | ● | |
| A/MOUNTING U-CLIP-1/4" | 143352 | Hardware, 1/4" U-Mounting Clip Adhesive | | ● |





COPPER AVERAGING

Bendable Copper, Balco RTD

The ACI Balco Copper Averaging Series features a bendable copper sensing element with two colored lead wires to differentiate the different sensor types. The sensors in this series are manufactured with multiple sensing points determined by the length of the sensing element. Averaging sensors provide a more accurate average temperature of the air inside large ducts when compared to that of a single point sensor. Each of the elements is hermetically sealed to prevent moisture intrusion and includes an integrated foam pad to seal the duct and dampen vibrations. The benefits of copper sensing elements are that they have improved thermal conductivity and higher corrosion resistance when compared to similar aluminum style sensors. Copper has also been proven to provide an additional antibacterial effect to many of the airborne contaminants, molds and bacteria found in duct systems. Sensor lengths should be selected based upon the dimensional area of your duct. ACI's standard enclosures include

the "-GD" Galvanized or "-PB" plastic box with hinged cover. Each unit includes nylon wire ties and mounts for mounting. Optional copper capillary and universal mounting clips, NEMA/IP rated weather proof enclosures and NIST Certificates are also available.

Applications: Air Handlers, Roof Top Units, Mixed Air/Discharge/Supply Air Temperature Monitoring, Data Centers, Hospitals

The ACI Balco Copper Averaging Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|---|---|
| Sensor Type Sensor Curve: | Balco RTD PTC (Positive Temperature Coefficient) |
| Number Sensing Points: | 8' & 12' Lengths: Four 24' Length: Nine |
| Number Wires: | Two (Non-Polarity Sensitive) |
| Sensor Output @ 70°F (21.1°C) Lead Wire Colors: | 1000 Ohms nominal Orange/Yellow |
| Sensor Accuracy: | 8' Length: +/- 1.26% @ 70°F (21.1°C) 12' Length: +/- 1.37% @ 70°F (21.1°C) 24' Length: +/- 1.64% @ 70°F (21.1°C) |
| Temperature Coefficient (0-100°C) | 4618 ppm/°C |
| Sensor Stability: | +/- 0.05% after 1000 Hours @ 150°C (302°F) |
| Maximum Operating Current: | 5 mA |
| Response Time (63% Step Change): | 8 Seconds nominal |
| Enclosure Specifications (Operating Temperature, Material, Flammability, NEMA/IP Ratings): | "-GD" Enclosure: Galvanized Steel, -40 to 115°C (-40 to 239°F), NEMA 1 (IP10) "-PB" Enclosure: ABS Plastic, -30 to 90°C (-22 to 194°F), UL94-HB, Plenum Rated "-BB" Enclosure: Aluminum, -40 to 115°C (-40 to 239°F), NEMA 3R (IP 14) "-4X" Enclosure: Polystyrene Plastic, -40 to 70°C (-40 to 158°F), UL94-V2, NEMA 4X (IP 66) |
| Storage Temperature Range: | -40 to 85°C (-40 to 185°F) |
| Sensor Operation Temperature Range: | -40 to 239°F (-40 to 115°C) |
| Operating Humidity Range: | 10 to 95% RH, non-condensing |
| Sensing Element Material Element Diameter: | Copper 0.210" (5.34mm) nominal |
| Fitting Material Flammability Rating: | Polyamide 66 (High Performance Nylon) UL94-HB |
| Foam Pad Material Flammability Ratings: | Neoprene/EPDM/SBR Polymer UL94-HBF; FMVSS-302; MIL-R-6130C |
| Lead Length Conductor Size: | 12" (30.5cm) 22 AWG (0.65mm) |
| Lead Wire Insulation Wire Ratings: | Etched Teflon (PTFE) Colored Leads MIL-W-16878/4 (Type E) |
| Conductor Material: | Silver Plated Copper |
| Product Dimensions Product Weight: | See table on back of Product Data sheet |
| Agency Approvals: | RoHS2, WEEE |





DIMENSIONAL DRAWING. WEIGHTS

xx = Sensor Type | yy = Insertion Length

Plastic Box Enclosure [PB]

| ACI Model # | 8' (Probe Length) | 12' (Probe Length) |
|--------------|----------------------|----------------------|
| A/xx-A-yy-PB | 0.72 lbs. (0.327 kg) | 0.96 lbs. (0.435 kg) |
| ACI Model # | 24' (Probe Length) | |
| A/xx-A-yy-PB | 1.70 lbs. (0.771 kg) | |

Galvanized Enclosure [GD]

| ACI Model # | 8' (Probe Length) | 12' (Probe Length) |
|--------------|----------------------|----------------------|
| A/xx-A-yy-GD | 1.16 lbs. (0.526 kg) | 1.40 lbs. (0.635 kg) |
| ACI Model # | 24' (Probe Length) | |
| A/xx-A-yy-GD | 2.20 lbs. (0.998 kg) | |

Bell Box Enclosure [BB]

| ACI Model # | 8' (Probe Length) | 12' (Probe Length) |
|--------------|----------------------|----------------------|
| A/xx-A-yy-BB | 1.22 lbs. (0.553 kg) | 1.44 lbs. (0.653 kg) |
| ACI Model # | 24' (Probe Length) | |
| A/xx-A-yy-BB | 2.18 lbs. (0.988 kg) | |

NEMA 4X Enclosure [4X]

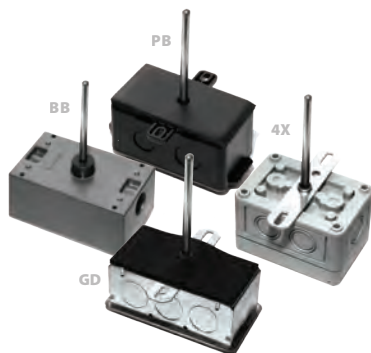
| ACI Model # | 8' (Probe Length) | 12' (Probe Length) |
|--------------|----------------------|----------------------|
| A/xx-A-yy-4X | 0.84 lbs. (0.381 kg) | 1.06 lbs. (0.481 kg) |
| ACI Model # | 24' (Probe Length) | |
| A/xx-A-yy-4X | 1.80 lbs. (0.816 kg) | |

Standard Views Product Weights

| CUSTOM ORDERING | | Model # Example: A/ BALCO A 24' GD NIST | MODEL # |
|---|--|---|---------|
| | | A. B. C. D. E. F. | |
| A. Sensor Series No Selection Required | A/ _____ → | | A/ |
| B. Model Series No Selection Required | BALCO _____ → | | BALCO |
| C. Configuration No Selection Required | A = Bendable Copper Averaging _____ → | | A |
| D. Probe Length Select One (1) | 8' = 8' Sensor 12' = 12' Sensor 24' = 24' Sensor | | |
| E. Enclosure Select One (1) | GD = Galvanized PB = Plastic BB = Aluminum, NEMA 3R 4X = NEMA 4X | | |
| F. NIST Select One (1) | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) | | |

| ACCESSORIES ORDERING | | Model # Example: A/CAPILLARY CLIP QTY1 -OR- 130525 |
|-------------------------|--------|--|
| Model # | Item # | Description |
| A/CAPILLARY CLIP QTY: 1 | 130525 | Capillary Mounting Clip, Copper, Quantity: 1 |
| UNIVERSAL CLIP 50 | 145430 | Capillary Mounting Clip, Plastic, Quantity: 50/Bag |
| UNIVERSAL CLIP 6 | 145421 | Universal Mounting Clip, Plastic, Quantity: 6/Bag |





DUCT

Duct Sensor, Balco RTD

The ACI Balco Duct Series features a 1/4" diameter stainless steel probe with two, 22 AWG Etched Teflon colored lead wires to differentiate the different sensor types. The Balco sensors are manufactured using ACI's proven double encapsulation process to eliminate the effects of moisture on the sensors as well as increased thermal response times from our high quality, thermally conductive epoxy. The duct style sensor is a single point sensor designed to be used in smaller duct applications and includes an insulation pad for sealing the duct and dampening vibration. For best results, the sensor length should be determined by the width or diameter of your duct such that the tip of the probe is in the approximate center of the duct. Our standard enclosure options include the galvanized junction box "-GD" or plastic duct enclosure with the hinged cover

"-PB". On larger ducts, you may want to refer to our Rigid or Bendable Copper Averaging sensor for increased sensing points and better temperature control. This series can be ordered with optional NEMA/IP rated weather proof enclosures and NIST Certificates as referenced in the ordering grid.

Applications: Roof Top Units, Air Handlers, Monitoring Supply/Discharge/Return/Mixed Air Temperatures

The ACI Balco Duct Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

| PRODUCT SPECIFICATIONS | |
|---|--|
| Sensor Type Sensor Curve: | Balco RTD PTC (Positive Temperature Coefficient) |
| Number Sensing Points: | One |
| Number Wires: | Two (Non-Polarity Sensitive) |
| Sensor Output @ 70°F (21.1°C) Lead Wire Colors: | 1000 Ohms nominal Orange/Yellow |
| Sensor Accuracy: | 70°F (21.1°C): +/- 1% |
| Temperature Coefficient (0-100°C): | 4618 ppm/°C |
| Sensor Stability: | +/- 0.05% after 1000 Hours @ 150°C (302°F) |
| Response Time (63% Step Change): | 8 Seconds nominal |
| Enclosure Specifications (Operating Temperature Range, Material, Flammability, NEMA/IP Ratings): | <p>"-GD" Enclosure: -40 to 115°C (-40 to 239°F); Galvanized Steel; NEMA 1 (IP10)</p> <p>"-PB" Enclosure: -30 to 90°C (-22 to 194°F); ABS Plastic; UL94-HB; Plenum Rated</p> <p>"-BB" Enclosure: Aluminum, -40 to 121°C (-40 to 250°F), Plenum Rated, NEMA 3R</p> <p>"-4X" Enclosure: -40 to 70°C (-40 to 158°F); Polystyrene Plastic; UL94-V2; NEMA 4X (IP 66)</p> |
| Sensor Operating Temperature Range: | -40 to 115°C (-40 to 239°F) |
| Storage Temperature Range: | -40 to 85°C (-40 to 185°F) |
| Operating Humidity Range: | 10 to 95% RH, non-condensing |
| Probe Material Flange Material: | 304 Stainless Steel Galvanized Steel |
| Fitting Material Flammability Rating: | Polyamide 66 (High Performance Nylon) UL94-HB |
| Foam Pad Material Flammability Rating: | Neoprene/EPDM/SBR Polymer UL94-HBF; FMVSS-302; MIL-R-6130C |
| Lead Length Conductor Size: | 4", 6" & 8" Probes: 14" (35.6 cm) 12" & 18" Probes: 24" (61 cm) 22 AWG (0.65mm) |
| Lead Wire Insulation Wire Rating: | Etched Teflon (PTFE) Colored Leads MIL-W-16878/4 (Type E) |
| Conductor Material: | Silver Plated Copper |
| Probe Diameter: | 0.250" (6.35mm) |
| Product Dimensions Product Weight: | See table on back of Product Data sheet |
| Agency Approvals: | CE, RoHS2, WEEE |





| DIMENSIONAL DRAWING, WEIGHTS | | | | | | | | | | | | | | | |
|--|---|----------------------|-----------------------|-------------------|-----------------------|--------------|----------------------|----------------------|----------------------|-------------|--------------------|--------------------|--------------|----------------------|----------------------|
| <p>Plastic Box Enclosure [PB]</p> | <p>Plastic Box Enclosure [PB] Weights</p> <p>xx = Sensor Type yy = Insertion Length</p> <table border="1"> <thead> <tr> <th>ACI Model #</th> <th>4" (Probe Length)</th> <th>6" (Probe Length)</th> <th>8" (Insertion Length)</th> </tr> </thead> <tbody> <tr> <td>A/xx-D-yy-PB</td> <td>0.24 lbs. (0.109 kg)</td> <td>0.25 lbs. (0.113 kg)</td> <td>0.26 lbs. (0.117 kg)</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>ACI Model #</th> <th>12" (Probe Length)</th> <th>18" (Probe Length)</th> </tr> </thead> <tbody> <tr> <td>A/xx-D-yy-PB</td> <td>0.28 lbs. (0.127 kg)</td> <td>0.30 lbs. (0.136 kg)</td> </tr> </tbody> </table> | ACI Model # | 4" (Probe Length) | 6" (Probe Length) | 8" (Insertion Length) | A/xx-D-yy-PB | 0.24 lbs. (0.109 kg) | 0.25 lbs. (0.113 kg) | 0.26 lbs. (0.117 kg) | ACI Model # | 12" (Probe Length) | 18" (Probe Length) | A/xx-D-yy-PB | 0.28 lbs. (0.127 kg) | 0.30 lbs. (0.136 kg) |
| ACI Model # | 4" (Probe Length) | 6" (Probe Length) | 8" (Insertion Length) | | | | | | | | | | | | |
| A/xx-D-yy-PB | 0.24 lbs. (0.109 kg) | 0.25 lbs. (0.113 kg) | 0.26 lbs. (0.117 kg) | | | | | | | | | | | | |
| ACI Model # | 12" (Probe Length) | 18" (Probe Length) | | | | | | | | | | | | | |
| A/xx-D-yy-PB | 0.28 lbs. (0.127 kg) | 0.30 lbs. (0.136 kg) | | | | | | | | | | | | | |
| <p>Galvanized Enclosure [GD]</p> | <p>Galvanized Enclosure [GD] Weights</p> <table border="1"> <thead> <tr> <th>ACI Model #</th> <th>4" (Probe Length)</th> <th>6" (Probe Length)</th> <th>8" (Insertion Length)</th> </tr> </thead> <tbody> <tr> <td>A/xx-D-yy-GD</td> <td>0.66 lbs. (0.299 kg)</td> <td>0.67 lbs. (0.303 kg)</td> <td>0.68 lbs. (0.308 kg)</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>ACI Model #</th> <th>12" (Probe Length)</th> <th>18" (Probe Length)</th> </tr> </thead> <tbody> <tr> <td>A/xx-D-yy-GD</td> <td>0.70 lbs. (0.317 kg)</td> <td>0.74 lbs. (0.336 kg)</td> </tr> </tbody> </table> | ACI Model # | 4" (Probe Length) | 6" (Probe Length) | 8" (Insertion Length) | A/xx-D-yy-GD | 0.66 lbs. (0.299 kg) | 0.67 lbs. (0.303 kg) | 0.68 lbs. (0.308 kg) | ACI Model # | 12" (Probe Length) | 18" (Probe Length) | A/xx-D-yy-GD | 0.70 lbs. (0.317 kg) | 0.74 lbs. (0.336 kg) |
| ACI Model # | 4" (Probe Length) | 6" (Probe Length) | 8" (Insertion Length) | | | | | | | | | | | | |
| A/xx-D-yy-GD | 0.66 lbs. (0.299 kg) | 0.67 lbs. (0.303 kg) | 0.68 lbs. (0.308 kg) | | | | | | | | | | | | |
| ACI Model # | 12" (Probe Length) | 18" (Probe Length) | | | | | | | | | | | | | |
| A/xx-D-yy-GD | 0.70 lbs. (0.317 kg) | 0.74 lbs. (0.336 kg) | | | | | | | | | | | | | |
| <p>Bell Box Enclosure [BB]</p> | <p>Bell Box Enclosure [BB] Weights</p> <table border="1"> <thead> <tr> <th>ACI Model #</th> <th>4" (Probe Length)</th> <th>6" (Probe Length)</th> <th>8" (Insertion Length)</th> </tr> </thead> <tbody> <tr> <td>A/xx-D-yy-BB</td> <td>0.70 lbs. (0.317 kg)</td> <td>0.71 lbs. (0.322 kg)</td> <td>0.72 lbs. (0.326 kg)</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>ACI Model #</th> <th>12" (Probe Length)</th> <th>18" (Probe Length)</th> </tr> </thead> <tbody> <tr> <td>A/xx-D-yy-BB</td> <td>0.74 lbs. (0.336 kg)</td> <td>0.78 lbs. (0.354 kg)</td> </tr> </tbody> </table> | ACI Model # | 4" (Probe Length) | 6" (Probe Length) | 8" (Insertion Length) | A/xx-D-yy-BB | 0.70 lbs. (0.317 kg) | 0.71 lbs. (0.322 kg) | 0.72 lbs. (0.326 kg) | ACI Model # | 12" (Probe Length) | 18" (Probe Length) | A/xx-D-yy-BB | 0.74 lbs. (0.336 kg) | 0.78 lbs. (0.354 kg) |
| ACI Model # | 4" (Probe Length) | 6" (Probe Length) | 8" (Insertion Length) | | | | | | | | | | | | |
| A/xx-D-yy-BB | 0.70 lbs. (0.317 kg) | 0.71 lbs. (0.322 kg) | 0.72 lbs. (0.326 kg) | | | | | | | | | | | | |
| ACI Model # | 12" (Probe Length) | 18" (Probe Length) | | | | | | | | | | | | | |
| A/xx-D-yy-BB | 0.74 lbs. (0.336 kg) | 0.78 lbs. (0.354 kg) | | | | | | | | | | | | | |
| <p>NEMA 4X Enclosure [4X]</p> | <p>NEMA 4X Enclosure [4X] Weights</p> <table border="1"> <thead> <tr> <th>ACI Model #</th> <th>4" (Probe Length)</th> <th>6" (Probe Length)</th> <th>8" (Insertion Length)</th> </tr> </thead> <tbody> <tr> <td>A/xx-D-yy-4X</td> <td>0.34 lbs. (0.154 kg)</td> <td>0.35 lbs. (0.159 kg)</td> <td>0.36 lbs. (0.163 kg)</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>ACI Model #</th> <th>12" (Probe Length)</th> <th>18" (Probe Length)</th> </tr> </thead> <tbody> <tr> <td>A/xx-D-yy-4X</td> <td>0.38 lbs. (0.172 kg)</td> <td>0.40 lbs. (0.181 kg)</td> </tr> </tbody> </table> | ACI Model # | 4" (Probe Length) | 6" (Probe Length) | 8" (Insertion Length) | A/xx-D-yy-4X | 0.34 lbs. (0.154 kg) | 0.35 lbs. (0.159 kg) | 0.36 lbs. (0.163 kg) | ACI Model # | 12" (Probe Length) | 18" (Probe Length) | A/xx-D-yy-4X | 0.38 lbs. (0.172 kg) | 0.40 lbs. (0.181 kg) |
| ACI Model # | 4" (Probe Length) | 6" (Probe Length) | 8" (Insertion Length) | | | | | | | | | | | | |
| A/xx-D-yy-4X | 0.34 lbs. (0.154 kg) | 0.35 lbs. (0.159 kg) | 0.36 lbs. (0.163 kg) | | | | | | | | | | | | |
| ACI Model # | 12" (Probe Length) | 18" (Probe Length) | | | | | | | | | | | | | |
| A/xx-D-yy-4X | 0.38 lbs. (0.172 kg) | 0.40 lbs. (0.181 kg) | | | | | | | | | | | | | |
| Standard Views | Product Weights | | | | | | | | | | | | | | |

| CUSTOM ORDERING | | Model # Example: A/ BALCO D 8" GD NIST | MODEL # |
|---|---|--|---------|
| | | A. B. C. D. E. F. | |
| A. Sensor Series No Selection Required | A/ | → | A/ |
| B. Model Series No Selection Required | BALCO | → | BALCO |
| C. Configuration No Selection Required | D = Duct | → | D |
| D. Probe Length Select One (1) | 4" = 4" Probe 6" = 6" Probe 8" = 8" Probe 12" = 12" Probe 18" = 18" Probe | | |
| E. Enclosure Select One (1) | GD = Galvanized PB = Plastic BB = Aluminum, NEMA 3R 4X = NEMA 4X | | |
| F. NIST Select One (1) | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) | | |





DUCT WITHOUT BOX

Flange Mounted Duct Sensor, Balco RTD

The ACI Balco Duct without Box series features a 1/4" diameter stainless steel probe with etched teflon lead wires. The sensors in this series are manufactured using ACI's proven double encapsulation process to eliminate the effects of moisture upon the sensors as well as increased thermal response times using our high quality, thermally conductive epoxy. The duct style sensor is a single point sensor designed to be used in smaller duct applications and includes an insulation pad for properly sealing your duct as well as to dampen vibration. For best results, the sensor length should be determined by the actual width or diameter of your duct such that the tip of the probe is in the approximate center of the duct. On larger ducts, you may want to refer to our Rigid or Bendable Copper Averaging sensor for increased sensing points and better

temperature control. This series can be ordered with optional NIST Certificates and plenum rated cable in 6', 10' and 20' lead lengths.

Applications: Roof Top Units, Air Handlers, Monitoring Supply/Discharge/Return/Mixed Air Temperatures

ACI's Balco Duct Without Box is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|--|--|
| Sensor Type Sensor Curve: | Balco RTD PTC (Positive Temperature Coefficient) |
| Number Sensing Points: | One |
| Number Wires: | Two (Non-Polarity Sensitive) |
| Sensor Output @ 70°F (21.1°C) Lead Wire Colors: | 1000 Ohms nominal Orange/Yellow |
| Sensor Accuracy: | 70°F (21.1°C): +/- 1% |
| Temperature Coefficient (0-100°C): | 4618 ppm/°C |
| Sensor Stability: | +/- 0.05% after 1000 Hours @ 150°C (302°F) |
| Response Time (63% Step Change): | 8 Seconds nominal |
| Operating Temperature Range: | -40 to 115°C (-40 to 239°F) |
| Storage Temperature Range: | -40 to 85°C (-40 to 185°F) |
| Operating Humidity Range: | 10 to 95% RH, non-condensing |
| Probe Material Flange Material: | 304 Stainless Steel Galvanized Steel |
| Fitting Material Flammability Rating: | Polyamide 66 (High Performance Nylon) UL94-HB |
| Foam Pad Material Flammability Rating: | Neoprene/EPDM/SBR Polymer UL94-HBF; FMVSS-302; MIL-R-6130C |
| Lead Length Conductor Size: | 4", 6" & 8" Probes: 14" (35.6 cm) 12" & 18" Probes: 24" (61cm) 22 AWG (0.65mm) |
| Lead Wire Insulation Wire Rating: | Etched Teflon (PTFE) Colored Leads MIL-W-16878/4 (Type E) |
| Conductor Material: | Silver Plated Copper |
| Probe Diameter: | 0.250" (6.35mm) |
| Product Dimensions Product Weight: | See table on back of Product Data sheet |
| Agency Approvals: | CE, RoHS2, WEEE |





DIMENSIONAL DRAWING, WEIGHTS

Available in 4", 6", 8", 12", and 18" Probe Lengths

xx = Sensor Type | yy = Insertion Length

Duct Without Box [DO] Weights

| ACI Model # | 4" (Probe Length) | 6" (Probe Length) | 8" (Insertion Length) |
|---------------------|----------------------|----------------------|-----------------------|
| A/xx-DO-yy | 0.10 lbs. (0.045 kg) | 0.11 lbs. (0.050 kg) | 0.12 lbs. (0.054 kg) |
| A/xx-DO-yy-6'-CL2P | 0.15 lbs. (0.068 kg) | 0.16 lbs. (0.073 kg) | 0.17 lbs. (0.077 kg) |
| A/xx-DO-yy-10'-CL2P | 0.20 lbs. (0.091 kg) | 0.21 lbs. (0.095 kg) | 0.22 lbs. (0.100 kg) |
| A/xx-DO-yy-20'-CL2P | 0.27 lbs. (0.122 kg) | 0.28 lbs. (0.127 kg) | 0.29 lbs. (0.132 kg) |

| ACI Model # | 12" (Insertion Length) | 18" (Insertion Length) |
|---------------------|------------------------|------------------------|
| A/xx-DO-yy | 0.14 lbs. (0.064 kg) | 0.16 lbs. (0.073 kg) |
| A/xx-DO-yy-6'-CL2P | 0.20 lbs. (0.091 kg) | 0.22 lbs. (0.100 kg) |
| A/xx-DO-yy-10'-CL2P | 0.24 lbs. (0.108 kg) | 0.27 lbs. (0.122 kg) |
| A/xx-DO-yy-20'-CL2P | 0.31 lbs. (0.141 kg) | 0.34 lbs. (0.154 kg) |

Standard Views
Product Weights

STANDARD ORDERING

Model # Example: A/BALCO-DO-4" -OR- 121876

| Model # | Item # | Description |
|----------------|--------|---|
| A/BALCO-DO-4" | 121876 | Balco, Duct 4" without Box, Flange Only, 14" Leads |
| A/BALCO-DO-6" | 133340 | Balco, Duct 6" without Box, Flange Only, 14" Leads |
| A/BALCO-DO-8" | 121877 | Balco, Duct 8" without Box, Flange Only, 14" Leads |
| A/BALCO-DO-12" | 142001 | Balco, Duct 12" without Box, Flange Only, 24" Leads |
| A/BALCO-DO-18" | 121875 | Balco, Duct 18" without Box, Flange Only, 24" Leads |

CUSTOM ORDERING

Model # Example: A / BALCO DO 6" 6'CL2P NIST

| A. Sensor Series <i>No Selection Required</i> | A/ | MODEL # |
|---|--|---------|
| B. Model Series <i>No Selection Required</i> | BALCO | BALCO |
| C. Configuration <i>No Selection Required</i> | DO = Duct without Box (Mounting Flange Only) | DO |
| D. Probe Length <i>Select One (1)</i> | 4" = 4" Probe 6" = 6" Probe 8" = 8" Probe 12" = 12" Probe 18" = 18" Probe | |
| E. Lead Wire Options <i>Select One (1)</i> | ---- = Standard 14 or 24" Etched PTFE Colored Leads 6'CL2P = 6 ft (1.83m), 2 Conductor Plenum Rated Cable 10'CL2P = 10 ft (3.05m), 2 Conductor Plenum Rated Cable 20'CL2P = 20 ft (6.10m), 2 Conductor Plenum Rated Cable | |
| F. NIST <i>Select One (1)</i> | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) | |





FLEXIBLE AVERAGING

Multipoint Averaging Sensors, Balco RTD

The ACI Balco Flexible Averaging Series features an 18 AWG Plenum Rated cable sensing element with two, 12 inch 22 AWG Etched Teflon colored lead wires to differentiate the different sensor types. All sensors are manufactured with 4 or 9 sensing points determined by the length of the sensing element. Averaging sensors provide a better average temperature of the air inside larger ducts when compared to a single point sensor. The flexible averaging sensors are limited to applications where operating temperatures are limited to 0 to 75°C (32 to 158°F) or high humidity, chemical resistance and UV Light Air Treatment Systems aren't required. Each of the sensing elements is sealed using a dual wall adhesive lined heat shrink tubing to provide a level of moisture protection to each of the sensing elements. The sensor

length should be determined by the dimensional size of your duct. Our standard enclosure options include a galvanized junction box "-GD" or plastic duct enclosure with hinged cover "-PB". Each unit includes nylon wire ties and mounts for standard mounting. Optional copper capillary or universal plastic mounting clips, NEMA/IP Rated weather proof enclosures and NIST Certificates are available as referenced in the ordering grid.

Applications: Air Handlers, Roof Top Units, Mixed Air/Discharge/Supply Air Temperature Monitoring, Data Centers, Hospitals

The ACI Balco Flexible Averaging Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|--|--|
| Sensor Type Sensor Curve: | Balco RTD PTC (Positive Temperature Coefficient) |
| Number Sensing Points Number Wires: | 8' and 12' Lengths: Four, 24' and 50' Lengths: Nine Two (Non-Polarity Sensitive) |
| Sensor Output @ 70°F (21.1°C) Lead Wire Colors: | 1000 Ohms nominal (Red/Red) |
| Sensor Accuracy: | 8' Length: +/- 1.04% @ 70°F (21.1°C) 12' Length: +/- 1.08% @ 70°F (21.1°C) 24' Length: +/- 1.11% @ 70°F (21.1°C) 50' Length: +/- 1.22% @ 70°F (21.1°C) |
| Temperature Coefficient (0-100°C): | 4618 ppm/°C |
| Sensor Stability: | +/- 0.05% after 1000 Hours @ 150°C (302°F) |
| Response Time (63% Step Change): | 15 Seconds nominal |
| Maximum Operating Current: | 5 mA |
| Operating Temperature Range: | 0 to 75°C (32 to 167°F) |
| Storage Temperature Range: | -20 to 75°C (-4 to 167°F) |
| Operating Humidity Range: | 10 to 90% RH, non-condensing |
| Enclosure Specifications (Material, Flammability, NEMA IP Ratings): | "-GD" Enclosure: Galvanized Steel; NEMA 1 (IP10); "-PB" Enclosure: ABS Plastic, UL94-HB; Plenum Rated "-BB" Enclosure: Aluminum; NEMA 3R (IP 14) "-4X" Enclosure: Polystyrene Plastic; UL94-V2; NEMA 4X (IP 66) |
| Sensor Jacket Material Cable Ratings: | Low Smoke PVC CL2P or CMP Plenum Rated Cable |
| Sensor Cable Diameter: | 0.170" (4.32mm) nominal |
| Lead Length Conductor Size: | 12" (30.5cm) 22 AWG (0.65mm) |
| Lead Wire Insulation Wire Rating: | Etched Teflon (PTFE) Colored Leads MIL-W-16878/4 (Type E) |
| Lead Wire Conductor Material: | Silver Plated Copper |
| Product Dimensions Product Weight: | See table on back of Product Data sheet |
| Agency Approvals: | RoHS2, WEEE |





| DIMENSIONAL DRAWING | | |
|---------------------------------------|------------|----------|
| Plastic Box Enclosure [PB] | | |
| Galvanized Enclosure [GD] | | |
| Bell Box Enclosure [BB] | | |
| NEMA 4X Enclosure [4X] | | |
| Front View | Right View | Top View |

| CUSTOM ORDERING | | Model # Example: A/ BALCO FA 24' GD NIST | MODEL # |
|---|---|--|---------|
| | | A. B. C. D. E. F. | |
| A. Sensor Series No Selection Required | A/ _____ → | | A/ |
| B. Model Series No Selection Required | BALCO _____ → | | BALCO |
| C. Configuration No Selection Required | FA = Flexible Plenum Rated Cable Averaging Sensor _____ → | | FA |
| D. Probe Length Select One (1) | 8' = 8' Sensor 12' = 12' Sensor 24' = 24' Sensor 50' = 50' Sensor | | |
| E. Enclosure Select One (1) | GD = Galvanized PB = Plastic BB = Aluminum, NEMA 3R 4X = NEMA 4X | | |
| F. NIST Select One (1) | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) | | |

| ACCESSORIES ORDERING | | Model # Example: A/CAPILLARY CLIP QTY1 -OR- 130525 |
|-------------------------|--------|--|
| Model # | Item # | Description |
| A/CAPILLARY CLIP QTY: 1 | 130525 | Capillary Mounting Clip, Copper, Quantity: 1 |
| UNIVERSAL CLIP 50 | 145430 | Capillary Mounting Clip, Plastic, Quantity: 50/Bag |
| UNIVERSAL CLIP 6 | 145421 | Universal Mounting Clip, Plastic, Quantity: 6/Bag |





FLUSH MOUNT BUTTONS

Brass, Stainless Steel & Plastic Balco RTDs



The ACI Balco Flush Mount Button Series features a stainless steel, brass or white plastic button sensor with two, 24 inch 22 AWG Etched Teflon colored lead wires to differentiate the different sensor types. The sensors in this series are manufactured using ACI's proven encapsulation process to eliminate the effects of moisture on the sensors and to increase the thermal response time using our high quality, thermally conductive epoxy. This sensor uses a small, low profile design and should be used in applications where aesthetics is one of your primary concerns. Each unit is supplied with a mounting kit such that they can be hidden underneath cabinets or shelving units, in decorative metal plates, trim, drywall or from a 1/2" piece of conduit coming down from the ceiling or roof. Note that if painting the sensors, be sure to coat with as

little paint as possible so as to not limit the effect on the accuracy or responsiveness of the sensor. This series can be ordered with optional NIST Certificates as designated in the product ordering grid.

Applications: Museums, Historical Buildings, Monitoring Space Temperatures, Office Buildings, Schools, Retail, Remote Sensor

The Balco Flush Mount Button Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|--|---|
| Sensor Type Sensor Curve: | Balco RTD PTC (Positive Temperature Coefficient) |
| Number Sensing Points: | One |
| Number Wires: | Two (Non-Polarity Sensitive) |
| Sensor Output @ 70°F (21°C) Lead Wire Colors: | 1000 Ohms nominal Orange/Yellow |
| Sensor Accuracy: | 70°F (21°C): +/- 1% |
| Temperature Coefficient (0-100°C): | 4618 ppm/°C |
| Sensor Stability: | +/- 0.05% after 1000 Hours @ 150°C (302°F) |
| Response Time (63% Step Change) | 8 Seconds nominal |
| Maximum Operating Current: | 5 mA |
| Button Sensor Enclosure Material: | A/BALCO-BBS: Brass A/BALCO-SBS: 304 Stainless Steel A/BALCO-PBS: ABS |
| Plastic Button Flammability Rating: | UL94-HB |
| Operating Storage Temperature Range: | A/BALCO-PBS: -40 to 70°C (-40 to 158°F) -40 to 85°C (-40 to 185°F) A/BALCO-BBS & A/BALCO-SBS: -40 to 121°C (-40 to 250°F) -40 to 85°C (-40 to 185°F) |
| Operating Humidity Range: | 10 to 95% RH, non-condensing |
| Lead Length Conductor Size: | 24" (61cm) 22 AWG (0.65mm) |
| Lead Wire Insulation Wire Rating: | Etched Teflon (PTFE) Colored Leads Mil Spec 16878/4 Type E |
| Conductor Material: | Silver Plated Copper |
| Product Dimensions (Length x Diameter): | A/BALCO-PBS: 1.00" (25.4mm) x 0.750" (19mm) A/BALCO-BBS and A/BALCO-SBS: 1.20" (30.48mm) x 0.700" (17.78mm) |
| Product Weight: | A/BALCO-PBS: 0.04 lbs. (18.15g) A/BALCO-BBS & A/BALCO-SBS: 0.10 lbs. (45.36g) |
| Agency Approvals: | CE, RoHS2, WEEE |





DIMENSIONAL DRAWING

Brass & Stainless Button Sensor

Plastic Button Sensor

Front & Top / Right Views
Spacers / Anchors

STANDARD ORDERING

Model # Example: **A/BALCO-PBS** -OR- **130120**

| Model # | Item # | Description |
|--------------------|--------|---|
| A/BALCO-PBS | 130120 | Balco Plastic Button Sensor, 24" Leads, Anchor |
| A/BALCO-BBS | 121853 | Balco Brass Button Sensor, 24" Leads, Spacers & Brass Nut |
| A/BALCO-SBS | 121860 | Balco Stainless Steel Button Sensor, 24" Leads, Spacers & Brass Nut |

OPTIONAL SENSOR ORDERING

Model # Example: **A/ BALCO PBS NIST**
A. B. C. D.

| MODEL # | MODEL # |
|--------------|--------------|
| A/ | A/ |
| BALCO | BALCO |
| | |
| | |

| | |
|--|---|
| A. Sensor Series <i>No Selection Required</i> | A/ _____ → |
| B. Model Series <i>No Selection Required</i> | BALCO _____ → |
| C. Configuration <i>Select One (1)</i> | PBS = Plastic Button BBS = Brass Button SBS = Stainless Steel Button |
| D. NIST <i>Select One (1)</i> | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) |





IMMERSION

Stainless Steel Immersion, Balco RTD

The ACI Balco Immersion Series features a 1/4" diameter stainless steel probe with two, 14 inch 22 AWG Etched Teflon colored lead wires to differentiate the many different sensor types. The sensors in this series are manufactured using ACI's proven double encapsulation process to eliminate the effects of moisture upon the sensors and to increase the thermal response times using our high quality, thermally conductive epoxy. The immersion sensors come standard with a welded thermowell "-I" version but can also be ordered without the thermowell "-INW" version. The "-INW" Version includes a standard 1/2" NPS (National Pipe Straight) process thread to be used with an optional machined thermowell or in an existing thermowell application. This series can be ordered with optional NEMA rated weather proof enclosures and NIST Certificates as referenced on the back of the product data sheet.

Applications: Chilled Water Systems, Hot Water Systems, Boilers, Pumps, Compressor, Chillers

The ACI Balco Immersion Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's web site, workaci.com.

Disclaimer: Specification of any thermowell and the materials of construction are the sole responsibility of the designer of the system that incorporates the thermowell. Sole responsibility for ensuring compatibility of the process fluid with the system rests with the end user.

| PRODUCT SPECIFICATIONS | |
|---|--|
| Sensor Type Sensor Curve: | Balco RTD PTC (Positive Temperature Coefficient) |
| Number Sensing Points: | One |
| Number Wires: | Two (Non-Polarity Sensitive) |
| Sensor Output @ 21.1°C (70°F) Lead Wire Colors: | 1000 Ohms nominal (Orange/Yellow) |
| Sensor Accuracy: | 21°C (70°F): +/- 1% |
| Temperature Coefficient (0-100°C): | 4618 ppm / °C |
| Sensor Stability: | +/- 0.05% after 1000 Hours @ 150°C (302°F) |
| Response Time (63% Step Change): | 8 Seconds nominal |
| Operating Current (Maximum): | 5 mA |
| Sensor Operating Temperature Range: | -40 to 121°C (-40 to 250°F) |
| Enclosure Specifications (Temperature, Flammability, NEMA/IP Ratings): | "-GD" Enclosure: Galvanized Steel, -40°C to 121°C (-40°F to 250°F), NEMA 1 (IP10) |
| | "-PB" Enclosure: ABS Plastic, -30°C to 90°C (-22°F to 194°F), UL94-HB, Plenum Rated |
| | "-BB" Enclosure: Aluminum, -40°C to 121°C (-40°F to 250°F), Plenum Rated, NEMA 3R |
| | "-4X" Enclosure: Polystyrene Plastic, -40°C to 70°C (-40°F to 158°F), UL94-V2, NEMA 4X (IP 66) |
| Storage Temperature Range: | -40 to 85°C (-40 to 185°F) |
| Operating Humidity Range: | 10 to 95% RH, non-condensing |
| Probe Diameter Thermowell Bore Diameter: | 0.250" (6.35mm) 0.260" |
| Probe Material Thermowell Material: | 304 Stainless Steel 304 Series Stainless Steel |
| Thermowell Instrument Process Thread Size: | 1/2" NPS (National Pipe Straight) Female Thread 1/2" NPT (National Pipe Tapered) Male Thread |
| Fitting Material Flammability Rating: | Polyamide 66 (High Performance Nylon 66) UL94-HB |
| Fitting Thread Size: | 1/2" NPS (National Pipe Straight) Male Thread |
| Foam Pad Material Flammability Rating: | Neoprene/EPDM/SBR Polymer UL94-HBF; FMVSS-302; MIL-R-6130C |
| Lead Length Conductor Size: | 14" (35.6 cm) 22 AWG (0.65mm) |
| Lead Wire Insulation Wire Rating: | Etched Teflon (PTFE) Colored Leads Mil Spec 16878/4 Type E) |
| Conductor Material: | Silver Plated Copper |
| Product Dimensions Product Weight: | See table on back of Product Data sheet |
| Agency Approvals: | CE, RoHS2, WEEE |





MAXIMUM VELOCITY VS THERMOWELL INSERTION LENGHT MACHINED THERMOWELL

| Straight Shank Insertion Length "U" | | | | | Stepped Shank Insertion Length "U" | | | | |
|-------------------------------------|----------------------------|-------------------------|-------------------------|-------------------------|------------------------------------|-------------------------|-----------------------|-----------------------|----------------------|
| Material: | Media Type: | 1.0" (25.4 mm) | 2.5" (63.5 mm) | 8.0" (203.2 mm) | 4.0" (101.6 mm) | 6.0" (152.4 mm) | 12.0" (304.8 mm) | 18.0" (457.2 mm) | 24" (609.6 mm) |
| 304/316 SS | Air/Gas/Steam ¹ | 349 ft/s (106.3 m/s) | 349 ft/s (106.3 m/s) | 71.9 ft/s (21.9 m/s) | 109 ft/s (33.2 m/s) | 73.6 ft/s (22.4 m/s) | 19.4 ft/s (5.9m/s) | 8.8 ft/s (2.7m/s) | 5.2 ft/s (1.6m/s) |
| 304/316 SS | Water | 360 ft/s (109.7 m/s) | 360 ft/s (109.7 m/s) | 71.9 ft/s (21.9 m/s) | 82.2 ft/s (25.1 m/s) | 26.9 ft/s (8.2 m/s) | 11.3 ft/s (3.4m/s) | 4.7 ft/s (1.43m/s) | 2.5 ft/s (0.8m/s) |

Note 1: Values are for Air/Gas/Steam and similar density media based upon Max pressure of 2900 PSI @ 1000°F (537.8°C) | **Note 2:** Values are for Water (No Glycol or other Chemicals factored in) @ 68 °F (20°C) and max pressure of 5700 PSI. (Calculated to ASME PTC 19.3 TW-2016 Code B31.1) | **Note 3:** 6-24" Machined Thermowells meet ASME PTC 19.3 TW-2016 Code B31.1.

MAXIMUM PRESSURE VS TEMPERATURE RATINGS TWO-PART FABRICATED | WELDED THERMOWELL

| Material: | 70°F (21.1°C) | 200°F (93.3°C) | 400°F (204.4°C) | 600°F (315.6°C) | 800°F (426.7°C) | 1000°F (537.8°C) | 1200°F (648.9°C) |
|------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| 304/316 SS | 982 PSI (67.7 Bar) | 820 PSI (56.6 Bar) | 675 PSI (46.5 Bar) | 604 PSI (41.6 Bar) | 550 PSI (37.9 Bar) | 510 PSI (35.1 Bar) | 290 PSI (20.0 Bar) |

MAXIMUM FLUID VELOCITY RATINGS TWO-PART FABRICATED | WELDED THERMOWELL

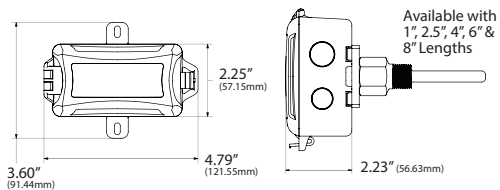
| Straight Shank Insertion Length "U" | | | | |
|-------------------------------------|----------------------------|---------------------|--------------------|--------------------|
| Material: | Media Type: | 2.5" (63.5 mm) | 4.0" (101.6 mm) | 6.0" (152.4 mm) |
| 304/316 SS | Air/Gas/Steam ² | 169 ft/s (51.5 m/s) | 61 ft/s (18.6 m/s) | 20 ft/s (6.1 m/s) |
| 304/316 SS | Water | 88 ft/s (26.8 m/s) | 20 ft/s (6.1 m/s) | 10 ft/s (3.05 m/s) |

Note 2: Values are for Air/Gas/Steam and similar density media



DIMENSIONAL DRAWINGS, WEIGHTS

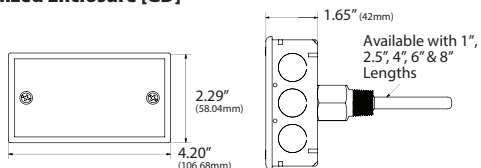
Plastic Box Enclosure [PB]



Plastic Box Enclosure [PB] Weights

| ACI Model # | 1.0" | 2.5" | 4.0" | 6.0" | 8.0" |
|----------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| A/xx-INW-yy-PB | 0.20 lbs. (0.091 kg) | 0.24 lbs. (0.109 kg) | 0.28 lbs. (0.127 kg) | 0.32 lbs. (0.145 kg) | 0.36 lbs. (0.163 kg) |
| A/xx-I-yy-PB | N/A | 0.24 lbs. (0.109 kg) | 0.60 lbs. (0.272 kg) | 0.64 lbs. (0.290 kg) | N/A |
| A/xx-IM-yy-PB | 0.40 lbs. (0.182 kg) | 0.58 lbs. (0.263 kg) | 0.74 lbs. (0.336 kg) | 0.92 lbs. (0.417 kg) | 1.15 lbs. (0.522 kg) |

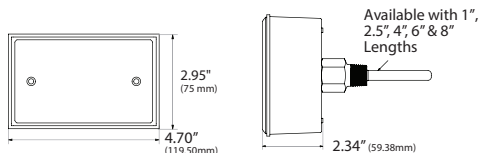
Galvanized Enclosure [GD]



Galvanized Enclosure [GD] Weights

| ACI Model # | 1.0" | 2.5" | 4.0" | 6.0" | 8.0" |
|----------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| A/xx-INW-yy-GD | 0.62 lbs. (0.281 kg) | 0.66 lbs. (0.299 kg) | 0.70 lbs. (0.318 kg) | 0.74 lbs. (0.336 kg) | 0.78 lbs. (0.354 kg) |
| A/xx-I-yy-GD | N/A | 0.88 lbs. (0.399 kg) | 1.00 lbs. (0.454 kg) | 1.04 lbs. (0.472 kg) | N/A |
| A/xx-IM-yy-GD | 0.81 lbs. (0.367 kg) | 1.00 lbs. (0.454 kg) | 1.16 lbs. (0.526 kg) | 1.32 lbs. (0.599 kg) | 1.55 lbs. (0.703 kg) |

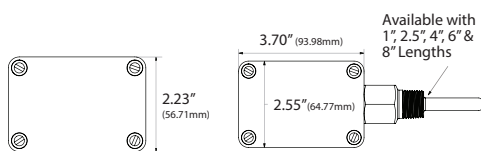
Bell Box Enclosure [BB]



Bell Box Enclosure [BB] Weights

| ACI Model # | 1.0" | 2.5" | 4.0" | 6.0" | 8.0" |
|----------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| A/xx-INW-yy-BB | 0.64 lbs. (0.290 kg) | 0.68 lbs. (0.308 kg) | 0.70 lbs. (0.318 kg) | 0.74 lbs. (0.336 kg) | 0.80 lbs. (0.363 kg) |
| A/xx-I-yy-BB | N/A | 1.02 lbs. (0.463 kg) | 1.00 lbs. (0.454 kg) | 1.04 lbs. (0.472 kg) | N/A |
| A/xx-IM-yy-BB | 0.83 lbs. (0.376 kg) | 1.02 lbs. (0.463 kg) | 1.16 lbs. (0.526 kg) | 1.32 lbs. (0.599 kg) | 1.59 lbs. (0.721 kg) |

NEMA 4X Enclosure [4X]

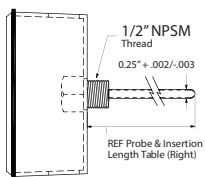


NEMA 4X Enclosure [4X] Weights

| ACI Model # | 1.0" | 2.5" | 4.0" | 6.0" | 8.0" |
|----------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| A/xx-INW-yy-4X | 0.28 lbs. (0.127 kg) | 0.32 lbs. (0.145 kg) | 0.36 lbs. (0.163 kg) | 0.40 lbs. (0.181 kg) | 0.44 lbs. (0.200 kg) |
| A/xx-I-yy-4X | N/A | 0.64 lbs. (0.290 kg) | 0.68 lbs. (0.308 kg) | 0.72 lbs. (0.327 kg) | N/A |
| A/xx-IM-yy-4X | 0.48 lbs. (0.218 kg) | 0.66 lbs. (0.299 kg) | 0.82 lbs. (0.372 kg) | 1.00 lbs. (0.454 kg) | 1.27 lbs. (0.576 kg) |

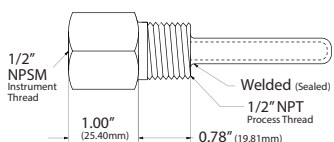
N/A = Not Available | xx = Sensor Type | yy = Insertion Length

PROBE AND INSERTION LENGTH IMMERSION NO WELL



Pictured Above: immersion no well (INW) sensor in Bell Box Enclosure (BB).

Pictured Below: welded two piece thermowell to show connection and depth reference. Thermowell not included with immersion no well (INW).



Probe & Insertion Length

| Probe Length | Insertion Length | ACI Part # | Thermowell Part # |
|--------------|------------------|---------------------|-------------------|
| 3" | 2.81" +/- 0.13" | A/xx-INW-1"-yy-zz | A/M1" |
| 4.5" | 4.31" +/- 0.13" | A/xx-INW-2.5"-yy-zz | A/2.5" or A/M2.5" |
| 6" | 5.81" +/- 0.13" | A/xx-INW-4"-yy-zz | A/4" or A/M4" |
| 8" | 7.81" +/- 0.13" | A/xx-INW-6"-yy-zz | A/6" or A/M6" |
| 10" | 9.81" +/- 0.13" | A/xx-INW-8"-yy-zz | A/M8" |
| 13" | 12.75" +/- 0.13" | A/xx-INW-12"-yy-zz | A/M12" |
| 19" | 18.75" +/- 0.13" | A/xx-INW-18"-yy-zz | A/M18" |
| 25" | 24.75" +/- 0.13" | A/xx-INW-24"-yy-zz | A/M24" |





| CUSTOM ORDERING WELDED THERMOWELL | | Model # Example: A/ BALCO I 4" GD NIST | MODEL # |
|--|--|--|---------|
| A. Sensor Series No Selection Required | A/ | | A/ |
| B. Model Series No Selection Required | BALCO | | BALCO |
| C. Configuration Select One (1) | I=Immersion with Welded Thermowell | | |
| D. Insertion Length Select One (1) | 2.5" = 2.5" Insertion 4" = 4" Insertion 6" = 6" Insertion | | |
| E. Enclosure Select One (1) | GD=Galvanized PB=Plastic BB=Aluminum, NEMA 3R 4X=NEMA 4X | | |
| F. NIST Select One (1) | ---- = No NIST Certificate NIST= NIST Certificate (3 Points) | | |

| CUSTOM ORDERING MACHINED THERMOWELL | | Model # Example: A/ BALCO IM 4" GD NIST | MODEL # |
|--|---|---|---------|
| A. Sensor Series No Selection Required | A/ | | A/ |
| B. Model Series No Selection Required | BALCO | | BALCO |
| C. Configuration Select One (1) | IM=Immersion with Machined Thermowell | | |
| D. Insertion Length Select One (1) | 1" = 1" Insertion 2.5" = 2.5" Insertion 4" = 4" Insertion 6" = 6" Insertion 8" = 8" Insertion | | |
| E. Enclosure Select One (1) | GD=Galvanized PB=Plastic BB=Aluminum, NEMA 3R 4X=NEMA 4X | | |
| F. NIST Select One (1) | ---- = No NIST Certificate NIST= NIST Certificate (3 Points) | | |

Note: Machined Thermowells with lengths of 12", 18" and 24" are available and must be ordered separately | See the Machined Thermowells Data Sheet (Accessories)

| CUSTOM ORDERING SENSOR ONLY NO THERMOWELL | | Model # Example: A/ BALCO INW 4" GD NIST | MODEL # |
|---|---|--|---------|
| A. Sensor Series No Selection Required | A/ | | A/ |
| B. Model Series No Selection Required | BALCO | | BALCO |
| C. Configuration Select One (1) | INW = Immersion without Thermowell | | |
| D. Insertion Length Select One (1) | 1" = 1" Insertion 2.5" = 2.5" Insertion 4" = 4" Insertion 6" = 6" Insertion 8" = 8" Insertion 12" = 12" Insertion 18" = 18" Insertion 24" = 24" Insertion | | |
| E. Enclosure Select One (1) | GD=Galvanized PB=Plastic BB=Aluminum, NEMA 3R 4X=NEMA 4X | | |
| F. NIST Select One (1) | ---- = No NIST Certificate NIST= NIST Certificate (3 Points) | | |

| ACCESSORIES ORDERING | | Model # Example: NSG HEAT TRANSFER PASTRE 2 oz | Or 102595 |
|--------------------------------|--------|--|---|
| Model # | Item # | Description | |
| NSG Heat Transfer Paste 2 oz. | 102595 | Thermal Grease, 2 oz. Tube, Silicone Free, -40 to 320°F (-40 to 160°C) | |
| NSG Heat Transfer Paste 16 oz. | 140574 | Thermal Grease, 16 oz. Jar, Silicon Free, -40 to 390°F (-40 to 198°C) | |
| A/2.5" | 128349 | 2.5" (63.5 mm) Insertion, 304 Stainless, Welded, 1/2" NPT Thermowell | |
| A/4" | 128350 | 4" (101.6 mm) Insertion, 304 Stainless, Welded, 1/2" NPT Thermowell | |
| A/6" | 128351 | 6" (152.4 mm) Insertion, 304 Stainless, Welded, 1/2" NPT Thermowell | |
| A/M1" | 128337 | 1" (25.4 mm) Insertion, 304 Stainless, Machined, 1/2" NPT Thermowell | |
| A/M2.5" | 128338 | 2.5" (63.5 mm) Insertion, 304 Stainless, Machined, 1/2" NPT Thermowell | |
| A/M4" | 128343 | 4" (101.6 mm) Insertion, 304 Stainless, Machined, 1/2" NPT Thermowell | |
| A/M6" | 128344 | 6" (152.4 mm) Insertion, 304 Stainless, Machined, 1/2" NPT Thermowell | |
| A/M8" | 138725 | 8" (203.2 mm) Insertion, 304 Stainless, Machined, 1/2" NPT Thermowell | |
| A/M12" | 128339 | 12" (304.80 mm) Insertion, 304 Stainless, Machined, 1/2" NPT Thermowell | |
| A/M18" | 128341 | 18" (457.20 mm) Insertion, 304 Stainless, Machined, 1/2" NPT Thermowell | |
| A/M24" | 128342 | 24" (609.6 mm) Insertion, 304 Stainless, Machined, 1/2" NPT Thermowell | |
| A/M2.5" - 316SS | 128352 | 2.5" (63.5 mm) Insertion, 316 Stainless, Machined, 1/2" NPT Thermowell | |
| A/M4" - 316SS | 128353 | 4" (101.6 mm) Insertion, 316 Stainless, Machined, 1/2" NPT Thermowell | |
| A/M6" - 316SS | 128354 | 6" (152.4 mm) Insertion, 316 Stainless, Machined, 1/2" NPT Thermowell | |





OUTSIDE AIR

Weatherproof Outside Air, Balco RTD

The ACI Balco Outside Air Series features a weather proof European Style Plastic enclosure with twist off cover and water tight cord grip. The sensing element contains two, 14 inch 22 AWG Etched Teflon colored lead wires to differentiate the different sensor types. All sensors in this series are manufactured using ACI's proven double encapsulation process to eliminate the effects of moisture on the sensors as well as to increase the thermal response time using our high quality, thermally conductive epoxy. The outdoor air sensor is a single point sensor designed to be mounted under an eave or on the North side of a building in a shaded location with the sensing tube pointed downward to prevent any water or ice from settling in the sensing tube. Optional NEMA 4X "4X" plastic or NEMA 3R rated "BB" Aluminum enclosures and NIST Certificates are

available as referenced in the ordering information on the back of the product data sheet. For Applications in which the sensor must be mounted in direct sunlight, please see the Sun Shield data sheet which will allow you to order a Temperature or Temperature/Humidity Combination sensor.

Applications: Outside Air Temperature Sensing, Cold Storage Facilities, High Dew Point/Condensing Environments, Wash Down Environments

The ACI Balco Outside Air Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|---|--|
| Sensor Type Sensor Curve: | Balco RTD PTC (Positive Temperature Coefficient) |
| Number Sensing Points: | One |
| Number Wires: | Two (Non-Polarity Sensitive) |
| Sensor Output @ 70°F (21.1°C) Lead Wire Colors: | 1000 Ohms nominal Orange/Yellow |
| Sensor Accuracy: | 70°F (21.1°C): +/- 1% |
| Temperature Coefficient (0-100°C): | 4618 ppm/°C |
| Sensor Stability: | +/- 0.05% after 1000 Hours @ 150°C (302°F) |
| Response Time (63% Step Change) | 30 Seconds nominal |
| Maximum Operating Current: | 5 mA |
| Operating Temperature Range: | -40 to 70°C (-22 to 158°F) |
| Storage Temperature Range: | -40 to 70°C (-22 to 158°F) |
| Operating Humidity Range: | 10 to 100% RH, Condensing |
| Enclosure Specifications (Temperature, Material, Flammability, NEMA/IP Ratings): | <p>"-EH" Enclosure: PC/ASA Plastic w/ UV Protectant; -40 to 88°C (-40 to 190°F); UL94-V0</p> <p>"-4X" Enclosure: Polystyrene Plastic, -40 to 70°C (-40 to 158°F), UL94-V2, NEMA 4X (IP 66)</p> <p>"-BB" Enclosure: Aluminum, -40 to 121°C (-40 to 250°F), NEMA 3R</p> |
| Lead Length Conductor Size: | 14" (35.6cm) 22 AWG (0.65mm) |
| Lead Wire Insulation Wire Rating: | Etched (PTFE) Teflon Colored Leads MIL-W-16878/4 (Type E) |
| Conductor Material: | Silver Plated Copper |
| Product Dimensions: | See Drawings on back of Data Sheet |
| Product Weight: | A/BALCO-O-EH: 0.46 lbs. (0.21kg) A/BALCO-O-4X: 0.38 lbs. (0.17kg); A/BALCO-O-BB: 0.76 lbs. (0.35kg) |
| Agency Approvals: | CE, RoHS2, WEEE |





DIMENSIONAL DRAWING, WEIGHTS

xx = Sensor Type

| Bell Box Enclosure [BB] | | | Bell Box Enclosure [BB] Weight | | | | |
|--|----------------------|--|---|-------------|--------|-----------|----------------------|
| 2.95" (75mm) | 2.34" (59.38mm) | 4.70" (119.50mm) 4.73" (120.14mm) | <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>ACI Model #</th> <th>Weight</th> </tr> </thead> <tbody> <tr> <td>A/xx-O-BB</td> <td>0.76 lbs. (0.172 kg)</td> </tr> </tbody> </table> | ACI Model # | Weight | A/xx-O-BB | 0.76 lbs. (0.172 kg) |
| ACI Model # | Weight | | | | | | |
| A/xx-O-BB | 0.76 lbs. (0.172 kg) | | | | | | |
| Euro Enclosure [EH] | | | Euro Enclosure [EH] Weight | | | | |
| 4.00" (101.57mm) 4.30" (109.22mm) | 2.12" (53.72mm) | 3.51" (89.16mm) 4.73" (120.14mm) | <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>ACI Model #</th> <th>Weight</th> </tr> </thead> <tbody> <tr> <td>A/xx-O-EH</td> <td>0.46 lbs. (0.345 kg)</td> </tr> </tbody> </table> | ACI Model # | Weight | A/xx-O-EH | 0.46 lbs. (0.345 kg) |
| ACI Model # | Weight | | | | | | |
| A/xx-O-EH | 0.46 lbs. (0.345 kg) | | | | | | |
| NEMA 4X Enclosure [4X] | | | NEMA 4X Enclosure [4X] Weight | | | | |
| 2.55" (64.77mm) | 2.23" (56.71mm) | 3.70" (93.98mm) 4.73" (120.14mm) | <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>ACI Model #</th> <th>Weight</th> </tr> </thead> <tbody> <tr> <td>A/xx-O-4X</td> <td>0.38 lbs. (0.209 kg)</td> </tr> </tbody> </table> | ACI Model # | Weight | A/xx-O-4X | 0.38 lbs. (0.209 kg) |
| ACI Model # | Weight | | | | | | |
| A/xx-O-4X | 0.38 lbs. (0.209 kg) | | | | | | |
| Front & Right Views | | Top View | Product Weight | | | | |

STANDARD ORDERING

Model # Example: **A/BALCO-O-EH -OR- 125274**

| Model # | Item # | Description |
|---------------------|--------|---|
| A/BALCO-O-EH | 125274 | Balco, Outside Air Sensor, 14" Leads, Euro Enclosure |
| A/BALCO-O-BB | 121833 | Balco, Outside Air Sensor, 14" Leads, Cast Aluminum Enclosure |
| A/BALCO-O-4X | 134237 | Balco, Outside Air Sensor, 14" Leads, NEMA 4X Enclosure |

CUSTOM ORDERING

Model # Example: **A/ BALCO O-4X NIST**
A. B. C. D.

| | | MODEL # |
|---|--|--------------|
| A. Sensor Series No Selection Required | A/ _____ → | A/ |
| B. Model Series No Selection Required | BALCO _____ → | BALCO |
| C. Enclosure Select One (1) | O-EH = Euro Enclosure O-BB = Aluminum Enclosure O-4X = NEMA 4X Enclosure | |
| D. NIST Select One (1) | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) | |





PIPE MOUNT

Small Pipe/Coil Sensor, Balco RTD



The ACI Balco Pipe Mount Series features a 1.1" long Brass sensing enclosure with slight curvature on the bottom that is designed to increase the surface area and improve thermal conductivity between the pipe and sensor. Each sensor has two, 24 inch 22 AWG Etched Teflon colored lead wires to differentiate many different sensor types. The sensors in this series are manufactured using ACI's proven double encapsulation process to eliminate the effects of moisture upon the sensors and to improve the thermal response times using our high quality, thermally conductive epoxy. The Pipe Mount sensor should be used on pipe or coil sizes from 1/2" to 1" in diameter and condensing environments. A 7.5" nylon wire tie is supplied for fastening the sensor to the top of the pipe. For best accuracy and increased thermal conduction

between the pipe and the sensor, we recommend cleaning the pipe and to use thermal grease between the mating surfaces and then to insulate the sensor from the effects of the ambient air. An optional plenum rated cable and NIST Certificates can be ordered as referenced in the ordering grid.

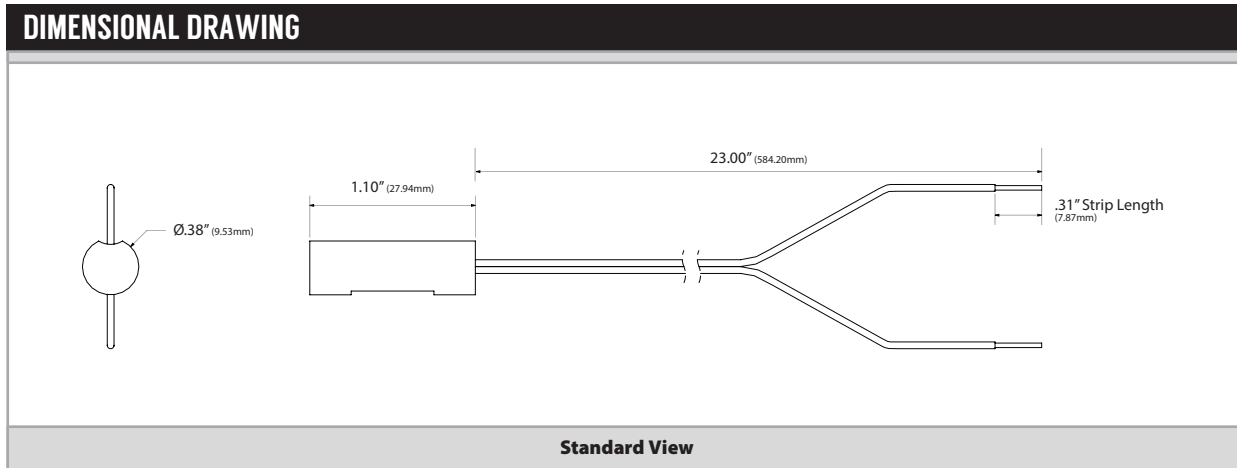
Applications: Cooling Coils, Heating Coils, Hot Water Systems, Chilled Water Systems, Hydronic Heating Systems, Chillers

The ACI Balco Pipe Mount Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|--|---|
| Sensor Type Sensor Curve: | Balco RTD PTC (Positive Temperature Coefficient) |
| Number Sensing Points: | One |
| Number Wires: | Two (Non-Polarity Sensitive) |
| Sensor Output @ 70°F (21.1°C) Lead Wire Colors: | 1000 Ohms nominal Orange/Yellow |
| Sensor Accuracy: | 70°F (21.1°C): +/- 1% |
| Temperature Coefficient (0-100°C): | 4618 ppm/°C |
| Sensor Stability: | +/- 0.05% after 1000 Hours @ 150°C (302°F) |
| Response Time (63% Step Change): | 15 Seconds nominal |
| Maximum Operating Current: | 5 mA |
| Pipe Mount Sensor Enclosure Material: | Brass |
| Pipe Sizes Accepted: | 1/2" (12.7mm) to 1" (25.4mm) |
| Operating Temperature Range: | -40 to 121°C (-40 to 250°F) |
| Storage Temperature Range: | -40 to 85°C (-40 to 185°F) |
| Operating Humidity Range: | 10 to 95% RH condensing |
| Lead Length Conductor Size: | 24" (61cm) 22 AWG (0.65mm) |
| Lead Wire Insulation Wire Rating: | Etched Teflon (PTFE) Colored Leads MIL-W-16878/4 (Type E) |
| Conductor Material: | Silver Plated Copper |
| Product Dimensions (Length x Diameter): | 1.10" (27.9mm) x 0.375" (9.53mm) |
| Product Weight: | 0.05 lbs. (22.68g) |
| Agency Approvals: | CE, RoHS2, WEEE |





STANDARD ORDERING

Model # Example: **A/BALCO-PM -OR- 138661**

| Model # | Item # | Description |
|-------------------|--------|------------------------------|
| A/BALCO-PM | 138661 | Balco, Pipe Mount, 24" Leads |

OPTIONAL SENSOR ORDERING

Model # Example: **A/ BALCO PM 20' NIST**

| | | MODEL # |
|--|---|----------------|
| A. Sensor Series <i>No Selection Required</i> | A/ → | A/ |
| B. Model Series <i>No Selection Required</i> | BALCO → | BALCO |
| C. Configuration <i>No Selection Required</i> | PM = 1.1" Brass Pipe Mount Sensor → | PM |
| D. Lead Length <i>Select One (1)</i> | ---- = Standard (24" Etched Teflon) 10' = 10 Feet (3.05m) 20' = 20 Feet** (6.10m) | |
| E. Lead Wire Type <i>Select One (1)</i> | ---- = Standard (24" Teflon Colored Leads) CL2P = Plenum Rated Cable | |
| F. NIST <i>Select One (1)</i> | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) | |

Note*: The 20' Length is not CE Compliant but it is RoHS Compliant

ACCESSORIES ORDERING

Model # Example: **HARDWARE, 2" HOSE CLAMP -OR- 100235**

| Model # | Item # | Description |
|-------------------------------------|--------|---|
| HARDWARE, 2" HOSE CLAMP | 100235 | Hardware, 2" Hose Clamp, Quick Release Worm Gear, 201/301 Stainless Steel |
| NSG HEAT TRANSFER PASTE 2OZ | 102595 | Thermal Grease, 2 oz. Tube, Silicone Free, -40 to 320°F (-40 to 160°C) |
| NSG HEAT TRANSFER PASTE 16OZ | 140574 | Thermal Grease, 16 oz. Jar, Silicone Free, -40 to 390°F (-40 to 198°C) |





PROBE ONLY

Stainless Steel Probe, Balco RTD



The ACI Balco Probe Only Series features a 1/4" diameter stainless steel probe with two, 14" or 24 inch 22 AWG Etched Teflon colored lead wires to differentiate the different sensor types. The sensors in this series are manufactured using ACI's proven double encapsulation process to eliminate the effects of moisture on the sensors and to increase the thermal response time using our high quality, thermally conductive epoxy. The probe is designed to be used in either duct and immersion applications when used with the proper length thermowell. Optional NIST Certificates are available as referenced in the ordering grid on the Product Data Sheet.

Applications: Roof Top Units, Air Handlers, Supply/Discharge Air/Return/Mixed/Exhaust Air Duct Temperature Sensing, Immersion Temperature Sensors, Replacement Temperature Sensors

The ACI Balco RTD Probe Only Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, workaci.com.

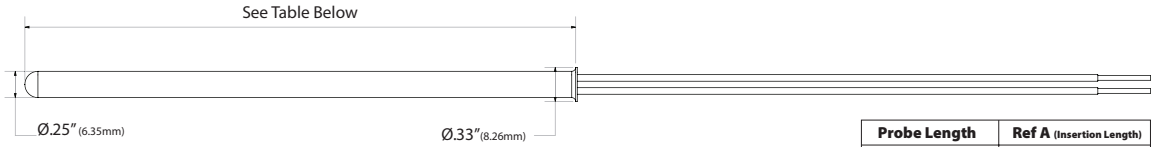
PRODUCT SPECIFICATIONS

| | | |
|---|--|---|
| Sensor Type Sensor Curve: | | Balco RTD PTC (Positive Temperature Coefficient) |
| Number Sensing Points: | | One |
| Number Wires: | | Two (Non-Polarity Sensitive) |
| Sensor Output @ 25°C (77°F) (Standard Lead Wire Colors): | | 1000 Ohms nominal (Orange/Yellow) |
| Sensor Accuracy: | | 70°F (21.1°C): +/- 1% |
| Temperature Coefficient (0-100°C): | | 4618 ppm/°C |
| Sensor Stability: | | +/- 0.05% after 1000 Hours @ 150°C (302°F) |
| Response Time (63% Step Change): | | 8 Seconds nominal |
| Maximum Operating Current: | | 5mA |
| Operating Temperature Range: | | -40 to 121°C (-40 to 250°F) |
| Storage Temperature Range: | | -40 to 85°C (-40 to 185°F) |
| Operating Humidity Range: | | 10 to 95% RH, non-condensing |
| Probe Material: | | 304 Stainless Steel |
| Standard Wire | Lead Wire Insulation Wire Rating: | Etched Teflon (PTFE) Colored Leads MIL-W-16878/4 (Type E) |
| | Temperature Rating: | -55°C (-67°F) to 200°C (392°F) |
| | Conductor Material: | Silver Plated Copper |
| | Rated Application: | Suitable for Indoor and Outdoor (wet) location. Oil, Moisture, Acids, Oils and Moisture Resistant |
| Lead Length Conductor Size: | | 4", 6" and 8" Probes: 14" (35.6 cm) 12" and 18" Probes: 24" (61cm) 22 AWG (0.65mm) |
| Plenum Wire | Lead Wire Insulation Wire Rating: | CL2P: FEP (Fluorinated Ethylene Propylene) TYPE CL2P - TYPE CMP 22 AWG (UL), C(UL) FEP/FEP E1 30356 ROHS |
| | Temperature Rating: | CL2P: -80°C (-112°F) to 150°C (302°F) |
| | Conductor Material: | CL2P: Tinned Copper |
| | Rated Application: | CL2P: Suitable for Indoor and Outdoor (wet) locations. Oil, Gas, Sunlight, Abrasion Acid Resistant |
| Product Dimensions Probe Diameter: | | See table on back of product data sheet 0.250" (6.35mm) |
| Product Weight: | | 4" = 0.028 lbs. (12.7g) 6" = 0.036 lbs. (16.3g) 8" = 0.044 lbs. (20g) 12" = 0.066 lbs. (29.9g) 18" = 0.09 lbs. (40.8g) |
| Agency Approvals: | | CE, RoHS2, WEEE |





DIMENSIONAL DRAWING



| Probe Length | Ref A (Insertion Length) |
|--------------|--------------------------|
| 4" | 4.00" ± 0.13" |
| 6" | 6.00 ± 0.13" |
| 8" | 8.00" ± 0.13" |
| 12" | 12.00" ± 0.25" |
| 18" | 18.00" ± 0.25" |

Standard View

CUSTOM ORDERING

Model # Example:

A/ BALCO PO 4" 6' CL2P NIST

MODEL #

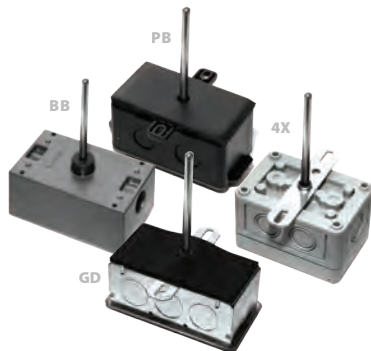
| | | | |
|--|--|---|-------|
| A. Sensor Series ¹ No Selection Required | A/ | ▶ | A/ |
| B. Model Series No Selection Required | BALCO | ▶ | BALCO |
| C. Configuration No Selection Required | PO = Probe Only | ▶ | PO |
| D. Probe Length Select One (1) | 4" = 4" Probe 6" = 6" Probe 8" = 8" Probe 12" = 12" Probe 18" = 18" Probe | | |
| E. Lead Wire Options Select One (1) | ---- = Standard 14 or 24" Etched PTFE Colored Leads 6'CL2P = 6 ft (1.83m), 2 Conductor Plenum Rated Cable 10'CL2P = 10 ft (3.05m), 2 Conductor Plenum Rated Cable 20'CL2P = 20 ft (6.10m), 2 Conductor Plenum Rated Cable | | |
| F. NIST Select One (1) | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) | | |

ACCESSORIES ORDERING

Model # Example: NSG HEAT TRANSFER PASTE 2OZ -OR- 102595

| Model # | Item # | Description |
|------------------------------|--------|--|
| NSG HEAT TRANSFER PASTE 2OZ | 102595 | Thermal Grease, 2 oz. Tube, Silicone Free, -40 to 320°F (-40 to 160°C) |
| NSG HEAT TRANSFER PASTE 16OZ | 140574 | Thermal Grease, 16 oz. Jar, Silicone Free, -40 to 390°F (-40 to 198°C) |





RIGID AVERAGING

Four Point Averaging, Balco RTD

The ACI Balco Rigid Averaging Series features a stainless steel, probe style sensing element with two 12 inch 22 AWG Etched Teflon colored lead wires to differentiate the different sensor types. The Nickel Rigid Averaging sensors are manufactured with 4 sensing points to provide a better average temperature in smaller to medium sized ducts when compared to that of a single point duct sensor or the longer Flexible and Copper averaging sensors can't be easily incorporated. Each of the elements is hermetically sealed to prevent moisture intrusion and includes an integrated foam pad to seal the duct and dampen vibrations. Some of the benefits of using a stainless steel Rigid Averaging sensor is that it can be installed easily in either a horizontal or vertical position, like that of a single point duct sensor and can be used in applications where a longer Flexible or Copper averaging sensor aren't easily installed. As an added benefit, the stainless steel probe also offers a higher level of corrosion resistance to chemicals and moisture

in the air stream when compared to that of the Flexible or Copper Averaging sensors. Actual sensor length should be selected based upon the overall dimensional area of your duct. ACI's standard enclosures include the galvanized junction box "-GD" or plastic duct enclosure with the hinged cover "-PB". Optional NEMA/IP rated Weather Proof enclosures and NIST Certificates are available as referenced in the ordering grid.

Applications: Air Handlers, Roof Top Units, Mixed Air/Discharge/Supply Air Temperature Monitoring, Data Centers, Hospitals

The ACI Balco Rigid Averaging Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|---|--|
| Sensor Type Sensor Curve: | Balco RTD PTC (Positive Temperature Coefficient) |
| Number Sensing Points Number Wires: | Four Two (Non-Polarity Sensitive) |
| Sensor Output @ 70°F (21.1°C) Lead Wire Colors: | 1000 Ohms nominal Orange/Yellow |
| Sensor Accuracy: | 70°F (21.1°C): +/- 1% |
| Temperature Coefficient (0-100°C) | 4618 ppm/°C |
| Sensor Stability: | +/- 0.05% after 1000 Hours @ 150°C (302°F) |
| Maximum Operating Current: | 5 mA |
| Response Time (63% Step Change): | 10 Seconds nominal |
| Enclosure Specifications (Operating Temperature, Material, Flammability, NEMA/IP Ratings): | <p>"-GD" Enclosure: Galvanized Steel, -40 to 115°C (-40 to 239°F), NEMA 1 (IP10)</p> <p>"-PB" Enclosure: ABS Plastic, -30 to 90°C (-22 to 194°F), UL94-HB, Plenum Rated</p> <p>"-BB" Enclosure: Aluminum, -40 to 115°C (-40 to 239°F), NEMA 3R (IP 14)</p> <p>"-4X" Enclosure: Polystyrene Plastic, -40 to 70°C (-40 to 158°F), UL94-V2, NEMA 4X (IP 66)</p> |
| Storage Temperature Range: | -40 to 85°C (-40 to 185°F) |
| Operating Humidity Range: | 10 to 95% RH, non-condensing |
| Sensing Element Material Element Diameter: | 304 Series Stainless Steel 0.250" (6.35mm) nominal |
| Fitting Material Flammability Rating: | Polyamide 66 (High Performance Nylon) UL94-HB |
| Foam Pad Material Flammability Ratings: | Neoprene/EPDM/SBR Polymer UL94-HBF; FMVSS-302; MIL-R-6130C |
| Lead Length Conductor Size: | 12" (30.5cm) 22 AWG (0.65mm) |
| Lead Wire Insulation Wire Ratings: | Etched Teflon (PTFE) Colored Leads MIL-W-16878/4 (Type E) |
| Conductor Material: | Silver Plated Copper |
| Product Dimensions Product Weight: | See table on back of Product Data sheet |
| Agency Approvals: | CE, RoHS2, WEEE |





| DIMENSIONAL DRAWING, WEIGHTS | | | | | | | | | | | | | |
|---|--|----------------------|--------------------|--------------------|---------------|----------------------|----------------------|-------------|--------------------|--------------------|---------------|----------------------|----------------------|
| <p>Plastic Box Enclosure [PB]</p> <p>3.60" (91.44mm) x 4.79" (121.55mm) x 2.25" (57.15mm)</p> <p>4.79" (121.55mm) x 2.35" (59.80mm)</p> <p>Available with 12", 18", 24", and 36" Probe Lengths</p> | <p>Plastic Box Enclosure [PB] Weights</p> <p>xx = Sensor Type yy = Insertion Length</p> <table border="1"> <thead> <tr> <th>ACI Model #</th> <th>12" (Probe Length)</th> <th>18" (Probe Length)</th> </tr> </thead> <tbody> <tr> <td>A/xx-RA-yy-PB</td> <td>0.28 lbs. (0.127 kg)</td> <td>0.30 lbs. (0.136 kg)</td> </tr> <tr> <th>ACI Model #</th> <th>24" (Probe Length)</th> <th>36" (Probe Length)</th> </tr> <tr> <td>A/xx-RA-yy-PB</td> <td>0.32 lbs. (0.145 kg)</td> <td>0.36 lbs. (0.163 kg)</td> </tr> </tbody> </table> | ACI Model # | 12" (Probe Length) | 18" (Probe Length) | A/xx-RA-yy-PB | 0.28 lbs. (0.127 kg) | 0.30 lbs. (0.136 kg) | ACI Model # | 24" (Probe Length) | 36" (Probe Length) | A/xx-RA-yy-PB | 0.32 lbs. (0.145 kg) | 0.36 lbs. (0.163 kg) |
| ACI Model # | 12" (Probe Length) | 18" (Probe Length) | | | | | | | | | | | |
| A/xx-RA-yy-PB | 0.28 lbs. (0.127 kg) | 0.30 lbs. (0.136 kg) | | | | | | | | | | | |
| ACI Model # | 24" (Probe Length) | 36" (Probe Length) | | | | | | | | | | | |
| A/xx-RA-yy-PB | 0.32 lbs. (0.145 kg) | 0.36 lbs. (0.163 kg) | | | | | | | | | | | |
| <p>Galvanized Enclosure [GD]</p> <p>3.88" (98.60mm) x 4.20" (106.68mm) x 1.78" (45.18mm)</p> <p>Available with 12", 18", 24", and 36" Probe Lengths</p> | <p>Galvanized Enclosure [GD] Weights</p> <table border="1"> <thead> <tr> <th>ACI Model #</th> <th>12" (Probe Length)</th> <th>18" (Probe Length)</th> </tr> </thead> <tbody> <tr> <td>A/xx-RA-yy-GD</td> <td>0.70 lbs. (0.317 kg)</td> <td>0.74 lbs. (0.336 kg)</td> </tr> <tr> <th>ACI Model #</th> <th>24" (Probe Length)</th> <th>36" (Probe Length)</th> </tr> <tr> <td>A/xx-RA-yy-GD</td> <td>0.78 lbs. (0.354 kg)</td> <td>0.82 lbs. (0.372 kg)</td> </tr> </tbody> </table> | ACI Model # | 12" (Probe Length) | 18" (Probe Length) | A/xx-RA-yy-GD | 0.70 lbs. (0.317 kg) | 0.74 lbs. (0.336 kg) | ACI Model # | 24" (Probe Length) | 36" (Probe Length) | A/xx-RA-yy-GD | 0.78 lbs. (0.354 kg) | 0.82 lbs. (0.372 kg) |
| ACI Model # | 12" (Probe Length) | 18" (Probe Length) | | | | | | | | | | | |
| A/xx-RA-yy-GD | 0.70 lbs. (0.317 kg) | 0.74 lbs. (0.336 kg) | | | | | | | | | | | |
| ACI Model # | 24" (Probe Length) | 36" (Probe Length) | | | | | | | | | | | |
| A/xx-RA-yy-GD | 0.78 lbs. (0.354 kg) | 0.82 lbs. (0.372 kg) | | | | | | | | | | | |
| <p>Bell Box Enclosure [BB]</p> <p>2.95" (75mm) x 2.34" (59.38mm)</p> <p>Available with 12", 18", 24", and 36" Probe Lengths</p> | <p>Bell Box Enclosure [BB] Weights</p> <table border="1"> <thead> <tr> <th>ACI Model #</th> <th>12" (Probe Length)</th> <th>18" (Probe Length)</th> </tr> </thead> <tbody> <tr> <td>A/xx-RA-yy-BB</td> <td>0.74 lbs. (0.336 kg)</td> <td>0.78 lbs. (0.354 kg)</td> </tr> <tr> <th>ACI Model #</th> <th>24" (Probe Length)</th> <th>36" (Probe Length)</th> </tr> <tr> <td>A/xx-RA-yy-BB</td> <td>0.78 lbs. (0.354 kg)</td> <td>0.84 lbs. (0.381 kg)</td> </tr> </tbody> </table> | ACI Model # | 12" (Probe Length) | 18" (Probe Length) | A/xx-RA-yy-BB | 0.74 lbs. (0.336 kg) | 0.78 lbs. (0.354 kg) | ACI Model # | 24" (Probe Length) | 36" (Probe Length) | A/xx-RA-yy-BB | 0.78 lbs. (0.354 kg) | 0.84 lbs. (0.381 kg) |
| ACI Model # | 12" (Probe Length) | 18" (Probe Length) | | | | | | | | | | | |
| A/xx-RA-yy-BB | 0.74 lbs. (0.336 kg) | 0.78 lbs. (0.354 kg) | | | | | | | | | | | |
| ACI Model # | 24" (Probe Length) | 36" (Probe Length) | | | | | | | | | | | |
| A/xx-RA-yy-BB | 0.78 lbs. (0.354 kg) | 0.84 lbs. (0.381 kg) | | | | | | | | | | | |
| <p>NEMA 4X Enclosure [4X]</p> <p>3.88" (98.60mm) x 3.70" (93.98mm) x 2.24" (56.77mm)</p> <p>Available with 12", 18", 24", and 36" Probe Lengths</p> | <p>NEMA 4X Enclosure [PB] Weights</p> <table border="1"> <thead> <tr> <th>ACI Model #</th> <th>12" (Probe Length)</th> <th>18" (Probe Length)</th> </tr> </thead> <tbody> <tr> <td>A/xx-RA-yy-4X</td> <td>0.38 lbs. (0.172 kg)</td> <td>0.40 lbs. (0.181 kg)</td> </tr> <tr> <th>ACI Model #</th> <th>24" (Probe Length)</th> <th>36" (Probe Length)</th> </tr> <tr> <td>A/xx-RA-yy-4X</td> <td>0.44 lbs. (0.200 kg)</td> <td>0.50 lbs. (0.227 kg)</td> </tr> </tbody> </table> | ACI Model # | 12" (Probe Length) | 18" (Probe Length) | A/xx-RA-yy-4X | 0.38 lbs. (0.172 kg) | 0.40 lbs. (0.181 kg) | ACI Model # | 24" (Probe Length) | 36" (Probe Length) | A/xx-RA-yy-4X | 0.44 lbs. (0.200 kg) | 0.50 lbs. (0.227 kg) |
| ACI Model # | 12" (Probe Length) | 18" (Probe Length) | | | | | | | | | | | |
| A/xx-RA-yy-4X | 0.38 lbs. (0.172 kg) | 0.40 lbs. (0.181 kg) | | | | | | | | | | | |
| ACI Model # | 24" (Probe Length) | 36" (Probe Length) | | | | | | | | | | | |
| A/xx-RA-yy-4X | 0.44 lbs. (0.200 kg) | 0.50 lbs. (0.227 kg) | | | | | | | | | | | |
| Standard Views | Product Weights | | | | | | | | | | | | |

| CUSTOM ORDERING | | Model # Example: A/ BALCO RA 18" GD NIST | MODEL # |
|---|---|--|---------|
| | | A. B. C. D. E. F. | |
| A. Sensor Series No Selection Required | A/ | → | A/ |
| B. Model Series No Selection Required | BALCO | → | BALCO |
| C. Configuration No Selection Required | RA = Rigid Averaging | → | RA |
| D. Probe Length Select One (1) | 12" = 12" Probe 18" = 18" Probe 24" = 24" Probe 36" = 36" Probe | | |
| E. Enclosure Select One (1) | GD = Galvanized PB = Plastic BB = Aluminum 4X = NEMA 4X | | |
| F. NIST Select One (1) | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) | | |





ROOM

Wall Mount Enclosure, Balco RTD

The ACI Balco Room Series combines option flexibility with attractive styling in our “-R2” or “-R” style enclosures which both include four-way air flow design too minimize self-heating to the sensor. These enclosures are offered in a White “-R2” or Beige “-R” color depending on the enclosure style. All units are designed to be mounted over a single gang junction box or hole in the wall with the use of drywall anchors. Screw terminal blocks are provided for making all connections to the temperature sensor, Set Point, “After Hours” Override, and Communication Jacks for easy access to your building management system. An optional 1/8” Black foam pad with pressure sensitive adhesive is available to insulate the sensor from thermal drafts within the wall or wall surface temperature. A 1/16” Hex driver should be used to secure the cover from being easily removed. The “LCD” option uses two temperature sensors to monitor the ambient air temperature in the space

and is factory calibrated at a single point.

Applications: Space Temperature Sensing, Decorative Wall Sensor Applications, Office Buildings, Schools, Colleges, Commercial Buildings, OEM Opportunities

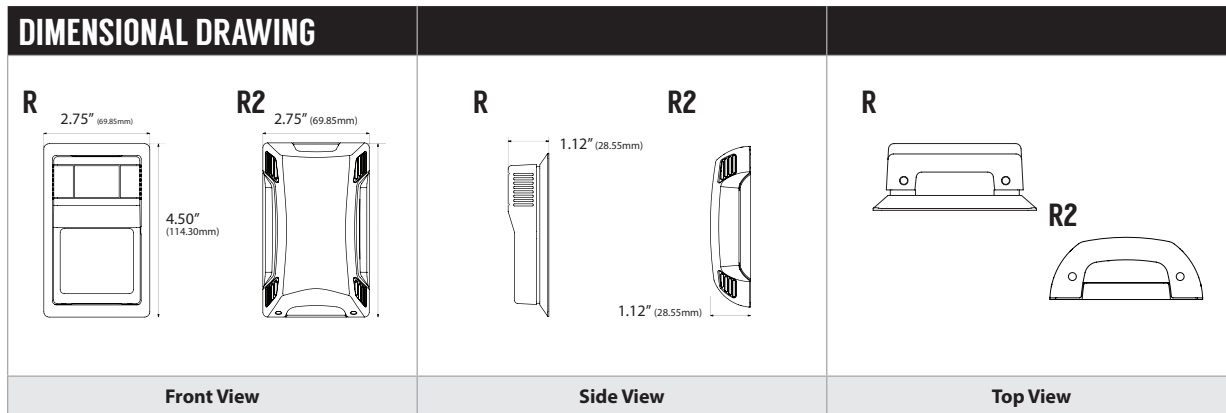
The ACI Balco Room Series is covered by ACI’s Five (5) Year Limited Warranty. The warranty can be found in the front of ACI’s Sensors & Transmitters catalog, as well as on ACI’s web site, workaci.com.

PRODUCT SPECIFICATIONS

| | |
|--|---|
| Sensor Type Sensor Curve: | Balco RTD PTC (Positive Temperature Coefficient) |
| Number Temperature Sensing Points: | One |
| Sensor Output @ 70°F (21.1°C): | 1000 Ohms Nominal |
| Sensor Accuracy: | 70°F (21.1°C): +/- 1% |
| Temperature Coefficient (0-100°C): | 4681 ppm/°C |
| Sensor Stability: | +/- 0.05% after 1000 Hours @ 150°C (302°F) |
| Response Time (63% Step Change): | 8 Seconds Nominal |
| Maximum Operating Current: | 5 mA |
| LCD Display Supply Voltage: | +9 to 35 VDC / 24 VAC (50/60 Hz) |
| LCD Display Supply Current/VA: | <4 mA / 0.12VA |
| LCD Display Accuracy: | +/- 2°F or +/- 2°C @ 71°F (21.5°C) Typical |
| LCD Display Descriptor Number of Digits: | °F (Fahrenheit) or °C (Celsius) 3 1/2 Segment Display |
| LCD Display Life Expectancy: | 50,000 Hours Minimum |
| Set Point Specifications Set Point Indication: | See Ordering Grid Options on back of Product Data Sheet |
| Set Point Tolerance: | +/- 10% of Range |
| Override Options: | Short Thermistor (Default); Field (Jumper) Selectable “Dry Contact” Closure Short Set Point available upon request |
| Operating Temperature Range: | 1.5 to 50°C (35 to 122°F) |
| Storage Temperature Range: | Non-LCD: -40 to 65°C (-40 to 149°F) LCD Display: -10 to 65°C (14 to 149°F) |
| Operating Humidity Range: | 10 to 95% RH, non-condensing |
| Connections Wire Size: | Screw Terminal Blocks (Non-Polarity Sensitive) 16 AWG (1.31 mm ²) - 26 AWG (0.129 mm ²) |
| Terminal Block Torque Rating: | 0.5 Nm (Minimum) 0.6 Nm (Maximum) |
| Enclosure Material Flammability Rating Color: | “-R2” Enclosure: ABS Plastic, UL94-HB, White “-R” Enclosure: ABS Plastic, UL94-HB, Beige |
| Product Dimensions: | See Drawing on back of Product Data Sheet |
| Product Weight: | A/BALCO-R/RS/RO Series: 0.14 lbs. (63.5g) A/BALCO-RSO Series: 0.18 lbs. (81.6g) A/BALCO-R2/R2S/R2O Series: 0.16 lbs. (72.6g) A/BALCO-R2SO Series: 0.20 lbs. (90.7g) All LCD Display Units: 0.18 lbs. (81.6g) |
| Agency Approvals: | CE**, RoHS2, WEEE |

Note**: All LCD Display Units are not CE Compliant, but they are RoHS2 Compliant





| STANDARD ORDERING | | |
|-------------------|--------|---|
| Model # | Item # | Description |
| A/BALCO-R | 144158 | 1K Balco RTD, "R" Version, Beige, No Options |
| A/BALCO-R2 | 144159 | 1K Balco RTD, "R2" Version, White, No Options |

| CUSTOM ORDERING | | MODEL # |
|--|--|---------|
| A. Sensor Series¹ No Selection Required | A/ | A/ |
| B. Model Series Select One (1) | BALCO | BALCO |
| C. Configuration Select One (1) | R = Room RO = Room with Override RS = Room with Set Point RSO = Room with Setpoint and Override R2 = Room R2O = Room with Override R2S = Room with Set Point R2SO = Room with Set Point and Override | |
| D. Communication Jack Select One (1) | ---- = No Jack RJ4 = 4 Pin 4 Conductor RJ9, RJ10 or RJ22 Style Head Set Modular Connector RJ6 = 6 Pin 6 Conductor RJ12 Modular Phone Connector 232 = 3.5mm (1/8") Stereo Jack | |
| E. LCD Display² Select One (1) | ---- = No LCD Display LCD ² = With LCD Display (Only Available with "R" Style Enclosure) | |
| F. LCD Display Descriptor Select One (1) | F = °F (Fahrenheit) C = °C (Celsius) | |
| G. NIST³ Select One (1) | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) | |
| Setpoint Configuration Options Select Options below if RS, RSO, R2S or R2SO was selected as a Configuration (C) | | |
| 1. Slidepots⁴ Select One (1) | Direct Acting (Range in Ohms) A03 = 0 to 10K A09 = 0 to 2K A10 = 0 to 1K A28 = 806 to 1206 | |
| 2. Setpoint Indication Select One (1) | A3 = 18-28 DEG C A4 = 20-30 DEG C B4 = 55-85 DEG F B7 = 60-90 DEG F C5 = COOL/WARM C6 = COOLER/WARMER D3 = WARM/COOL G5 = BLUE/RED (R2 Enclosure) | |

Note¹: A/ part numbers come without logo. For custom logo, replace A/ with Company abbreviation. Please contact ACI | **Note²:** LCD Display is not compatible with NIST | **Note³:** NIST is available in "R" and "R2" only configurations | **Note⁴:** Other Setpoint configurations are available. Please contact ACI | **Note*:** Short Sensor is factory default, but the Dry Contact option is field selectable with jumper shunts included

| ACCESSORIES ORDERING | | |
|---------------------------|--------|---|
| Model # | Item # | Description |
| A/MOUNTING PLATE BEIGE R | 106821 | Wall Mounting Back Plate, Plastic, Beige ("R") |
| A/MOUNTING PLATE WHITE R | 126386 | Wall Mounting Back Plate, Plastic, White ("R") |
| A/MOUNTING PLATE WHITE R2 | 143369 | Wall Mounting Back Plate, Plastic, White ("R2") |
| LOCKING COVER | 107370 | Clear Thermostat Guard, Locking Cover, Low Profile |
| A/ROOM-FOAM-PAD | 125690 | 1/8" Foam Insulation Pad with Adhesive (3" x 2", Black) |





STRAP ON Non-Intrusive Pipe Mount, Balco RTD

The ACI Balco Strap-On Series features a 1.5" square copper plate with the sensor encapsulated to the back side of the plate to improve the thermal conductivity between the pipe and the sensor when an Immersion style sensor can't be inserted into the pipe in a retrofit application. Each sensor has two, 14 inch 22 AWG Etched Teflon colored lead wires to differentiate the many different sensor types. The sensors in this series are manufactured using ACI's proven double encapsulation process to eliminate the effects of moisture upon the sensors as well as to improve the thermal response times using our high quality, thermally conductive epoxy. The Strap-On Series sensors can be used to monitor pipe sizes from 1 1/4" to 10" in diameter. For best accuracy and increased thermal conduction between the pipe and sensor, ACI recommends to

clean the pipe before applying thermal grease and insulating the sensor from the effects of the ambient air. Optional Weather Proof enclosure and NIST Certificates are available as referenced in the ordering grid on the back of the Product Data Sheet.

Applications: Cold Water Systems, Hot Water Systems, Retrofit applications, Hydronic Heating Systems, Chillers

The ACI Balco Strap-On Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|--|--|
| Sensor Type Sensor Curve: | Balco RTD PTC (Positive Temperature Coefficient) |
| Number Sensing Points: | One |
| Number Wires: | Two (Non-Polarity Sensitive) |
| Sensor Output @ 70°F (21.1°C) (Lead Wire Colors): | 1000 Ohms nominal (Orange/Yellow) |
| Sensor Accuracy: | 70°F (21.1°C): +/- 1% |
| Temperature Coefficient (0-100°C): | 4618 ppm/°C |
| Sensor Stability: | +/- 0.05% after 1000 Hours @ 150°C (302°F) |
| Response Time (63% Step Change): | 8 Seconds nominal |
| Operating Current (Maximum): | 5 mA |
| Enclosure Specifications (Operating Temperature Range, Flammability, NEMA/IP Rating): | A/BALCO-S-GD: Galvanized Steel, -40 to 93°C (-40 to 200°F), NEMA 1 (IP 10) A/BALCO-PB: ABS Plastic, -30 to 85°C (-22 to 185°F), UL94-HB, Plenum Rated A/BALCO-S-4X: Polystyrene, -40 to 70°C (-40 to 158°F), UL94-V2, NEMA 4X (IP 66) |
| Storage Temperature Range: | -40 to 85°C (-40 to 185°F) |
| Operating Humidity Range: | 10 to 95% RH, non-condensing |
| Acceptable Pipe Size: | A/BALCO-S-XX: 1 1/4" (32mm) to 4" (100mm) A/BALCO-S10-XX: 2" (50mm) to 10" (250mm) |
| Foam Material Flammability Rating: | Neoprene/EPDM/SBR Polymer UL94-HF1; MIL-R-6130C; FMVSS-302 |
| Lead Length Conductor Size: | 14" (35.6cm) 22 AWG (0.65mm) |
| Lead Wire Insulation Wire Rating: | Etched Teflon (PTFE) Colored Leads MIL-W-16878/4 (Type E) |
| Conductor Material: | Silver Plated Copper |
| Product Dimensions (Length x Diameter): | See Drawing on Back of Data Sheet |
| Product Weight: | A/BALCO-XX-GD: 0.80 lbs. (0.37kg) A/BALCO-XX-PB: 0.40 lbs. (0.18kg); A/BALCO-XX-4X: 0.55 lbs. (0.25kg) |
| Agency Approvals: | CE, RoHS2, WEEE |





DIMENSIONAL DRAWING

| <p>Plastic Box Enclosure [PB]</p> | | |
|--|-------------------|-----------------|
| <p>Galvanized Enclosure [GD]</p> | | |
| <p>NEMA 4X Enclosure [4X]</p> | | |
| Front View | Right View | Top View |

STANDARD ORDERING

Model # Example: A/BALCO-S-GD -OR- 114910

| Model # | Item # | Description |
|--------------|--------|--|
| A/BALCO-S-GD | 114910 | Balco, Strap-On, 1 1/4" to 4" Pipe, Galvanized Enclosure, 24" Leads |
| A/BALCO-S-PB | 124210 | Balco, Strap-On, 1 1/4" to 4" Pipe, Plastic Enclosure, 24" Leads |
| A/BALCO-S-4X | 137376 | Balco, Strap-On, 1 1/4" to 4" Pipe, NEMA 4X Plastic Enclosure, 24" Leads |

CUSTOM ORDERING

Model # Example: A/ BALCO S PB NIST

| A. Sensor Series No Selection Required | A/ _____ → | A/ |
|---|---|--------------|
| B. Model Series No Selection Required | BALCO _____ → | BALCO |
| C. Configuration Select One (1) | S = Strap-On (1.25" to 4" Pipe Size) S10 = Strap-On (2" to 10" pipe size) | |
| D. Enclosure Select One (1) | GD = Galvanized PB = Plastic 4X = NEMA 4X Weather Proof | |
| E. NIST Select One (1) | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) | |

ACCESSORIES ORDERING

Model # Example: A/HOSE CLAMP-2-12" -OR- 142631

| Model # | Item # | Description |
|------------------------------|--------|--|
| A/HOSE CLAMP-2-5" | 142630 | Hardware, 2-5" Hose Clamp, Quick Release Worm Gear, 201/301 Stainless Steel |
| A/HOSE CLAMP-2-12" | 142631 | Hardware, 2-12" Hose Clamp, Quick Release Worm Gear, 201/301 Stainless Steel |
| NSG HEAT TRANSFER PASTE 20Z | 102595 | Thermal Grease, 2 oz. Tube, Silicone Free, -40 to 320°F (-40 to 160°C) |
| NSG HEAT TRANSFER PASTE 160Z | 140574 | Thermal Grease, 16 oz. Jar, Silicone Free, -40 to 390°F (-40 to 198°C) |





WALL PLATES

Stainless & Aluminum Wall Plate, Balco RTD

The ACI Balco Wall Plate Series features a decorative, single gang brushed Stainless Steel or Smooth Satin Finished Anodized Aluminum wall plate with two, 14 inch 22 AWG Etched Teflon colored lead wires to differentiate between the different sensor types. The sensors in this series are manufactured using ACI's proven double encapsulation process to eliminate the effects of moisture upon the sensors and to increase the thermal response times using our high quality, thermally conductive epoxy. A foam pad is included to insulate the sensor from thermal drafts within the wall, since the plates are designed to be mounted over a standard single gang junction box or directly over a hole in the wall with the use of drywall anchors. These plates are designed to provide a level of protection and security when monitoring the ambient air temperatures in a space. Tamper Proof

mounting screws, tamper proof screw driver bits and NIST Certificates are available as referenced on the back of the product data sheet.

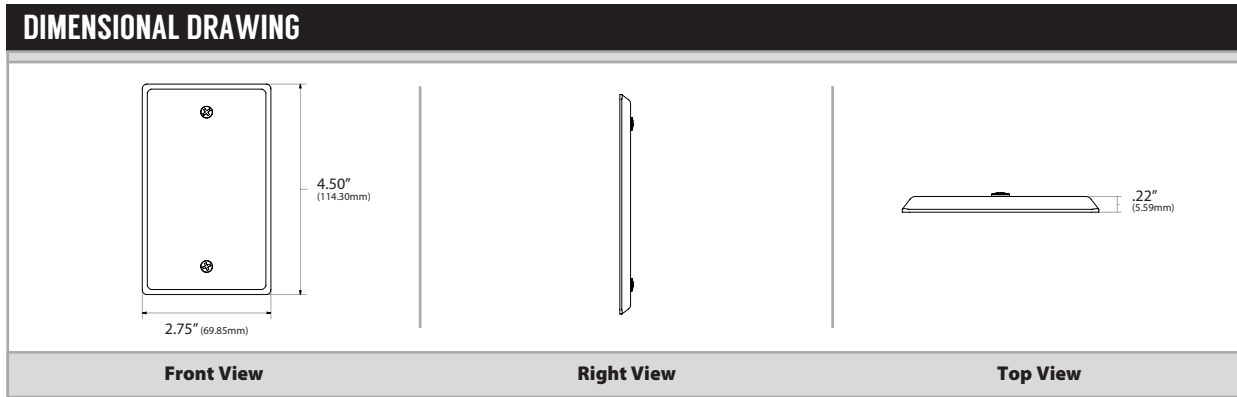
Applications: Space Temperature Sensing, Decorative Wall Plate Applications, Tamper Proof Applications, Schools, Gymnasiums

The ACI Balco Wall Plate Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|--|--|
| Sensor Type Sensor Curve: | Balco RTD PTC (Positive Temperature Coefficient) |
| Number Sensing Points: | One |
| Number Wires: | Two (Non-Polarity Sensitive) |
| Sensor Output @ 70°F (21.1°C) Lead Wire Colors: | 1000 Ohms nominal Orange/Red |
| Sensor Accuracy: | 70°F (21.1°C): +/- 1% |
| Temperature Coefficient (0-100°C): | 4618 ppm/°C |
| Sensor Stability: | +/- 0.05% after 1000 Hours @ 150°C (302°F) |
| Response Time (63% Step Change): | 25 Seconds nominal |
| Operating Current (Maximum) | 5 mA |
| Plate Material: | A/BALCO-SP Series: 430 Stainless Steel (Brushed Stainless Steel Finish) A/BALCO-AP Series: Aluminum (Smooth Satin Finish, Clear Anodized) |
| Foam Material Flammability Rating: | Cross-Linked Polyethylene FMVSS-302 |
| Operating Storage Temperature Range: | -40 to 71°C (-40 to 160°F) |
| Operating Humidity Range: | 10 to 95% RH, non-condensing |
| Lead Length Conductor Size: | 14" (35.56cm) 22 AWG (0.65mm) |
| Lead Wire Insulation Wire Rating: | Etched Teflon (PTFE) Colored Leads MIL-W-16878/4 (Type E) |
| Conductor Material: | Silver Plated Copper |
| Product Dimensions (L x W x D): | 4.50" (114.3mm) x 2.78" (70.6mm) x 0.187" (4.76mm) |
| Product Weight: | A/BALCO-SP Series: 0.14 lbs. (63.5g) A/BALCO-AP Series: 0.08 lbs. (36.29g) |
| Agency Approvals: | CE, RoHS2, WEEE |





STANDARD ORDERING

Model # Example: A/BALCO-SP -OR- 121894

| Model # | Item # | Description |
|------------|--------|--|
| A/BALCO-SP | 121894 | Balco Stainless Wall Plate, 14" Leads, 1/8" Foam Pad |
| A/BALCO-AP | 142711 | Balco Aluminum Wall Plate, 14" Leads, 1/8" Foam Pad |

CUSTOM ORDERING

Model # Example: A/ BALCO SP NIST

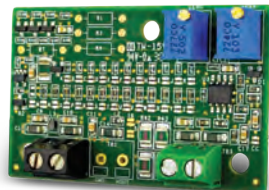
| | MODEL # |
|---|---|
| A. Sensor Series <i>No Selection Required</i> | A/ |
| B. Model Series <i>No Selection Required</i> | BALCO |
| C. Configuration <i>Select One (1)</i> | SP = 1 Gang Stainless Steel Wall Plate AP = 1 Gang Aluminum Wall Plate |
| D. NIST <i>Select One (1)</i> | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) |

ACCESSORIES ORDERING

Model # Example: A/TAMPER PROOF SCREWS -OR- 144865

| Model # | Item # | Description |
|-------------------------|--------|---|
| A/TAMPER PROOF SCREWS | 144865 | Two (2) Screws, Tamper Proof, #6 x 5/8", Zinc Plated, Flat Head, 1/8" |
| SCREWDRIIVER INSERT BIT | 143067 | Screwdriver Bit, Tamper Proof Screw, 5/64 |





BOARD ONLY

Calibrated Transmitter, No Sensor

The ACI Transmitter Board Only Series features a two-wire, 4 to 20 mA loop powered output signal with optional 3-Wire voltage output signals available. Sensors are not included with the board only transmitter since they are designed to be used with any existing 100 or 1000 Ohm Platinum RTD sensor with a 385 temperature coefficient. All transmitters must be ordered with the temperature span that you require, since the boards are tuned to give you the best performance characteristics for the temperature span specified. Zero and Span adjustments are available for recalibration in the field when using NIST Certified equipment. ACI recommends

the use of an 18 to 22 AWG shielded cable for all temperature transmitter installations to protect against the introduction of noise onto the signal lines. ACI does offer recalibration services for any transmitters sent back to us for a nominal fee.

Applications: Replacement Temperature Transmitters, High Moisture and Corrosive Environments, Conversion of existing Platinum 2 or 3 Wire RTD's to linear current or voltage output signal, transmit signals over long wire runs

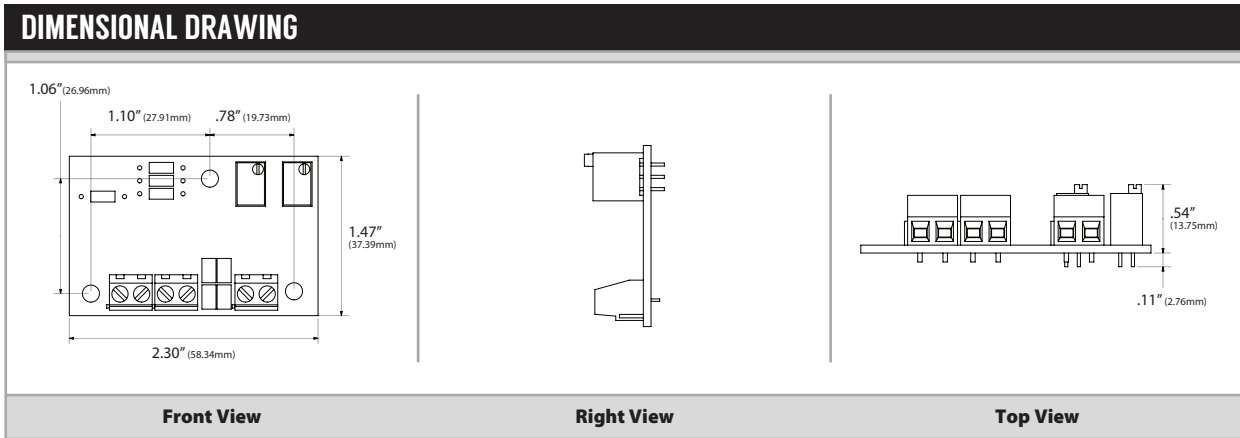
The ACI Transmitter Board Only Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|---|--|
| Transmitter Supply Voltage Supply Current: | +8.5 to 32 VDC (Reverse Polarity Protected) 25 mA minimum 250 Ohm Load: +13.5 to 32 VDC 500 Ohm Load: +18.5 to 32 VDC |
| Maximum Load Resistance: | (Terminal Voltage - 8.5 V) / 0.020 A |
| Transmitter Output Signals: | Current: 4-20 mA (2-Wire, Loop Powered) Voltage: 1-5 VDC or 2-10 VDC (3-Wires) |
| Calibrated Accuracy Linearity ¹: | Temp. Spans < 500°F (260°C): +/- 0.2% Temp. Spans > 500°F (260°C): +/- 0.5% |
| Temperature Drift ²: | Temp. Spans < 100°F (38°C): +/- 0.04%/°F Temp. Spans > 100°F (38°C): +/- 0.02% |
| TTM100/TTM1K Certification Points: | 3 Point NIST: 20%, 50% & 80% of span 5 Point NIST: 20%, 35%, 50%, 65%, 80% of span |
| Calibrated Temperature Spans ¹: | Minimum Temp. Span: 50°F (28°C) Maximum Temp. Span: 1000°F (538°C) |
| Sensor Type Accepted Sensor Curve: | Platinum RTD PTC (Positive Temperature Coefficient) |
| Sensor Resistance Characteristics (Nominal): | A/TT100 Series: 100 Ohms @ 32°F (0°C) A/TT1K Series: 1000 Ohms @ 32°F (0°C) |
| Sensor Din Standard Temperature Coefficient: | DIN EN 60751 (IEC 751) 3850 ppm / °C |
| Warm Up Time Warm Up Drift: | 10 Minutes +/- 0.1% |
| Operating Temperature Range: | -40°F to 185°F (-40 to 85°C) |
| Storage Temperature Range: | -40 to 80°C (-40 to 176°F) |
| Operating Humidity Range: | 0 to 90%, non-condensing |
| Connections Wire Size: | Screw Terminal Blocks (Polarity Sensitive) 16 AWG (1.31 mm ²) to 26 AWG (0.129 mm ²) |
| Terminal Block Torque Rating: | 0.37 ft-lb (0.5 Nm) nominal |
| Mounting Configuration: | Three Adhesive Standoffs included |
| Standoff Material Type Flammability Rating: | Nylon 66 UL94-V2 |
| Standoff Temperature Rating: | -40 to 85°C (-40 to 185°F) |
| Standoff Dimensions: | 0.70" (17.8 mm) x 0.70" (17.8 mm) x 0.65" (16.5 mm) |
| Product Dimensions (L x W x H) Product Weight: | 2.30" (58.42 mm) x 1.478" (37.54 mm) x 0.775" (19.69 mm) 0.034 lbs. (15.4 g) |
| Agency Approvals: | RoHS2, WEEE |

Note ¹: Transmitter's calibrated at 71°F (22°C) nominal | **Note ²:** Temperature Drift is referenced to 71°F nominal calibration temperature





STANDARD ORDERING

Model # Example: **A/TT100-BO-4** -OR- **118462**

| Model # | Item # | Description |
|---------------------|--------|---|
| A/TT100-BO-1 | 118459 | TT100 Board Only with 1-5 VDC Output and Adhesive Standoffs (Specify Temperature Span) |
| A/TT100-BO-2 | 118460 | TT100 Board Only with 2-10 VDC Output and Adhesive Standoffs (Specify Temperature Span) |
| A/TT100-BO-4 | 118462 | TT100 Board Only with 4-20 mA Output and Adhesive Standoffs (Specify Temperature Span) |
| A/TT1K-BO-1 | 118689 | TT1K Board Only with 1-5 VDC Output and Adhesive Standoffs (Specify Temperature Span) |
| A/TT1K-BO-2 | 118692 | TT1K Board Only with 2-10 VDC Output and Adhesive Standoffs (Specify Temperature Span) |
| A/TT1K-BO-4 | 118694 | TT1K Board Only with 4-20 mA Output and Adhesive Standoffs (Specify Temperature Span) |

CUSTOM ORDERING

Model # Example: **A/ TT100 BO 1 0 to 40°C**

| | | MODEL # |
|--|---|-----------|
| A. Sensor Series <i>No Selection Required</i> | A/ _____ → | A/ |
| B. Model Series <i>Select One (1)</i> | TT100 = Accepts 100 Ohm Platinum RTD TT1K = Accepts 1K Ohm Platinum RTD | |
| C. Configuration <i>No Selection Required</i> | BO = Board Only _____ → | BO |
| D. Output Signal <i>Select One (1)</i> | 1 = 1 to 5 VDC 2 = 2 to 10 VDC 4 = 4 to 20 mA | |
| E. Calibrated Span | Specify Span in °F or °C (Best Accuracy in 100°F Increments) | |





BULLET PROBE

Remote Probes with Transmitters



The ACI Transmitter Bullet Probe Series features a two-wire, 4 to 20 mA loop powered output signal with an optional 3-Wire voltage output signal available. All transmitters include Zero and Span adjustments for field calibration and are calibrated using NIST Certified Calibration equipment. We recommend the use of an 18 to 22 AWG shielded cable for all temperature transmitter installations to help eliminate the possibility of noise

being introduced onto the signal lines. The sensor assemblies are manufactured using a 2 conductor unshielded FEP/FEP Plenum rated, unshielded cable and ACI's proven double encapsulation process to eliminate the effects of moisture on the sensors as well as increased response times using our high quality, thermally conductive epoxy. The Bullet Probe remote sensors include an optional 10 or 20 Foot Plenum rated cable for use in remote sensor applications. All TT100 and TT1K Series Bullet Probe transmitter's sensor leads may be shortened in the field as needed but all Matched TTM100 and TTM1K Series transmitter's sensor leads should not be shortened due to the affect that it would have on the calibration accuracy of the sensor and transmitter. Optional NEMA/IP rated weather proof enclosures are available as specified on the back of the product data sheet. For best accuracy, ACI recommends the use of the A/TTM Series Matched transmitters with 3 or 5 Point NIST Calibration Certificate, since they include a second calibration step in which the RTD and transmitter are calibrated together as a system.

Applications: Chilled Water Systems, Hot Water Systems, Boilers, Pumps, Compressors, Chillers, Remote Sensing, Process Control

The ACI Transmitter Bullet Probe Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's web site, workaci.com.

PRODUCT SPECIFICATIONS

| | |
|---|---|
| Transmitter Supply Voltage Supply Current: | +8.5 to 32 VDC (Reverse Polarity Protected) 25 mA minimum 250 Ohm Load: +13.5 to 32 VDC 500 Ohm Load: +18.5 to 32 VDC |
| Maximum Load Resistance: | (Terminal Voltage - 8.5 V) 0.020 A |
| Output Signals: | Current: 4-20 mA (2-Wire Loop Powered) Voltage: 1-5 VDC or 2-10 VDC (3-Wires) |
| Calibrated Accuracy Linearity¹: | Temp. Spans < 500°F (260°C): +/- 0.2% |
| Thermal Drift²: | Temp. Spans < 100°F (38°C): +/- 0.04%/°F Temp. Spans > 100°F (38°C): +/- 0.02% |
| Min./Max. Calibrated Temperature Spans: | Minimum Temp. Span: 50°F (28°C) Maximum Temp. Span: 400°F (204°C) |
| Matched Calibrated Temperature Spans (A/TTM models) Range: | -45 to 155°C (-49 to 311°F) |
| TTM100/TTM1K Certification Points: | 3 Point NIST: 20%, 50% & 80% of span 5 Point NIST: 20%, 35%, 50%, 65%, 80% of span |
| Warm Up Time Warm Up Drift: | 10 Minutes +/- 0.1% |
| Transmitter Operating Temperature Range: | -40 to 200°C (-40 to 392°F) |
| Transmitter Operating Humidity Range: | 0 to 90%, non-condensing |
| Connections Wire Size: | Screw Terminal Blocks (Polarity Sensitive) 16 AWG (1.31 mm2) to 26 AWG (0.129 mm2) |
| Terminal Block Torque Rating: | 0.37 ft-lb (0.5 Nm) nominal |
| Sensor Type Sensor Curve Sensing Points: | Platinum RTD PTC (Positive Temperature Coefficient) One |
| Number Wires Wire Colors: | Two Red and Black (Non Polarity Sensitive) |
| Sensor Output @ 0°C (32°F): | A/TT100/TTM100 Series: 100 Ohms nominal A/TT1K/TTM1K Series: 1000 Ohms nominal |
| RTD Tolerance Class Accuracy: | +/- 0.06% Class A (Tolerance Formula: +/- °C = (0.15°C + (0.002 * t)) where t is the absolute value of temperature above or below 0°C in °C) |
| Din Standard Temperature Coefficient: | DIN EN 60751 (IEC 751) 3850 ppm / °C |
| Sensor Stability: | +/- 0.03% after 1000 Hours @ 300°C (572°F) |
| Response Time (63% Step Change): | 8 Seconds nominal |
| Sensor Operating Temperature Range: | -40 to 150°C (-40 to 302°F) |
| Enclosure Specifications (Operating Temperature, Material, Flammability, NEMA/IP Ratings): | "-GD" Enclosure: Galvanized Steel, -40 to 85°C (-40 to 185°F), NEMA 1 (IP10) "-PB" Enclosure: ABS Plastic, -30 to 85°C (-22 to 185°F), UL94-HB, Plenum Rated "-BB" Enclosure: Aluminum, -40 to 85°C (-40 to 185°F), NEMA 3R (IP 14) "-4X" Enclosure: Polystyrene Plastic, -40 to 70°C (-40 to 158°F), UL94-V2, NEMA 4X (IP 66) |
| Storage Temperature Range: | -40 to 80°C (-40 to 176°F) |
| Operating Humidity Range: | 5 to 95% RH, non-condensing |
| Probe Diameter Probe Material: | 0.250" (6.35mm) 304 Stainless Steel |
| Cord Grip Fitting Material Flammability Rating: | Polyamide 6.6 UL94-V2 |
| Cord Grip Seal Material NEMA/IP Rating: | Neoprene IP68 (NEMA 4X) |
| Torque Recommendation Cord Grip: | 1.83 ft-lbs (2.50 Nm) |



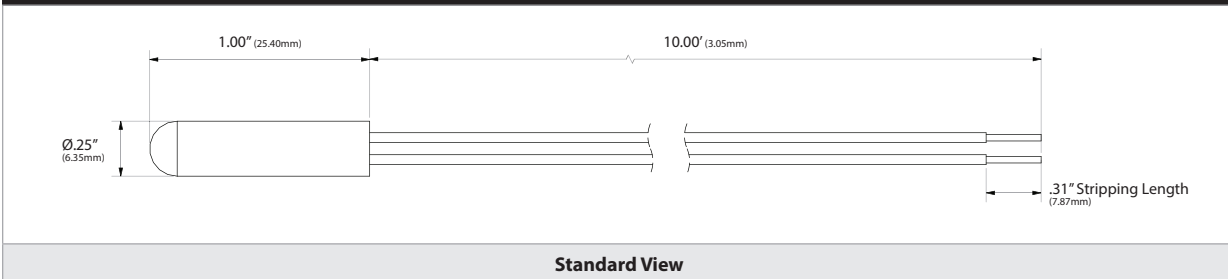


PRODUCT SPECIFICATIONS

| | |
|---|---|
| Lead Length Cable Diameter Conductor Size: | 10' (3.05 m) or 20' (6.1 m) 0.106" nominal (2.69 mm) 22 AWG (0.65mm) |
| Lead Wire Insulation Wire Rating: | FEP/FEP Teflon Unshielded Cable UL CL2P or CL3P; CMP C(UL) US 150°C, FT-6 |
| Conductor Material: | Tin Plated Copper |
| Product Dimensions Product Weight: | See table on back of Product Data sheet |
| Agency Approvals: | RoHS2, WEEE |

Note¹: Transmitter's calibrated at 71°F (22°C) nominal | **Note²:** Temperature Drift is referenced to 71°F nominal calibration temperature

DIMENSIONAL DRAWING



OPTIONAL SENSOR ORDERING

Model # Example: **A/** **TT100** **BP** **1** **PB** **10'CL2P** **0 to 40°C**

MODEL #

| | | |
|--|---|-----------|
| A. Sensor Series <i>No Selection Required</i> | A/ → | A/ |
| B. Model Series <i>Select One (1)</i> | TT100 = 100Ω TTM100 = Matched 100Ω* TT1K = 1KΩ TTM1K = Matched 1KΩ* | |
| C. Configuration <i>No Selection Required</i> | BP = 1" Stainless Steel Probe → | BP |
| D. Output Signal <i>Select One (1)</i> | 1 = 1 to 5 VDC 2 = 2 to 10 VDC 4 = 4 to 20 mA | |
| E. Enclosure <i>Select One (1)</i> | GD = Galvanized PB = Plastic BB = Aluminum, NEMA 3R 4X = NEMA 4X | |
| F. Lead Wire Type <i>Select One (1)</i> | ---- = Standard 24" Etched PTFE Colored Leads 6'CL2P = 6 ft (1.83m), 2 Conductor Plenum Rated Cable 10'CL2P = 10 ft (3.05m), 2 Conductor Plenum Rated Cable 20'CL2P = 20 ft (6.10m), 2 Conductor Plenum Rated Cable | |
| G. Calibration Span | Specify Span in °F or °C (Best Accuracy in 100°F Increments) | |

Note*: For TTM100 or TTM1k part numbers, the default NIST is 3 points | 5 points may be specified by using "-5PTNIST" at the end of any TTM part number.

ACCESSORIES ORDERING | MOUNTING CLIPS

| Model # | Item # | Description | Galvanized Metal | Plastic w/ Adhesive |
|------------------------|--------|---|------------------|---------------------|
| A/MOUNTING CLIP-1/4" | 143351 | Hardware, 1/4" Mounting Clip | ● | |
| A/MOUNTING U-CLIP-1/4" | 143352 | Hardware, 1/4" U-Mounting Clip Adhesive | | ● |

ACCESSORIES ORDERING (NIST)

| Model # | Description |
|----------|---|
| -5PTNIST | 5 Point Calibration & Certificate for TTM parts |



COPPER AVERAGING

Bendable Copper, Transmitter

The ACI Transmitter Copper Averaging Series features a two-wire, 4 to 20 mA loop powered output signal with an optional 3-Wire voltage output signal available. The Copper Averaging sensors are designed to be installed in medium to large ducts or air handling units where moisture, UV Light Air Treatment equipment, critical temperature control, higher corrosion resistance and faster response times when compared to similar Aluminum sensing elements. Copper has also been proven to provide an anti-bacterial effect on molds, fungus and other bacteria typically found in ducts. All transmitters include Zero and Span adjustments for field calibration and are calibrated using NIST Certified Calibration equipment. ACI recommends the use of an 18 to 22 AWG shielded cable for all temperature transmitter installations to reduce the possibility of noise being introduced onto the signal lines. The 1K Ohm Rigid Averaging sensor assemblies include a continuous sensing element that covers the entire length of the 8 to 100 foot sensing elements and are manufactured using Etched Teflon lead wires to differentiate between the different sensor types. All units are hermetically sealed using our epoxy material to eliminate the effects of moisture on the sensors. All Copper Averaging transmitters include a foam pad to properly seal the duct and limit vibration once installed. Optional NEMA/IP rated weather proof enclosures are available as specified on the back of the product data sheet. For best accuracy, ACI recommends the use of the A/TTM Series Matched transmitters with a 3 or 5 Point NIST Calibration Certificate, since they include a second calibration process in which the RTD and transmitter are calibrated together as a system.

Applications: Roof Top Units, Air Handlers, Monitoring Supply/Discharge/Return/Mixed Air Temperatures, Data Centers, Hospitals, Laboratories

The ACI Copper Averaging Transmitter Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's web site, workaci.com.

PRODUCT SPECIFICATIONS

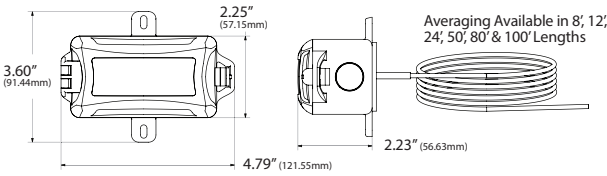
| | |
|---|---|
| Transmitter Supply Voltage Supply Current: | +8.5 to 32 VDC (Reverse Polarity Protected) 25 mA minimum 250 Ohm Load: +13.5 to 32 VDC 500 Ohm Load: +18.5 to 32 VDC |
| Maximum Load Resistance: | (Terminal Voltage - 8.5 V) 0.020 A |
| Output Signals: | Current: 4-20 mA (2-Wire Loop Powered) Voltage: 1-5 VDC or 2-10 VDC (3-Wires) |
| Calibrated Accuracy Linearity¹: | Temp. Spans < 500°F (260°C): +/- 0.2% |
| Thermal Drift²: | Temp. Spans < 100°F (38°C): +/- 0.04%/°F Temp. Spans > 100°F (38°C): +/- 0.02% |
| Min/Max Temperature Spans: | Minimum Span: 50°F (28°C) Maximum Span: 400°F (204°C) |
| TTM1K NIST Certification Points: | 3 Point NIST: 20%, 50% & 80% of span 5 Point NIST: 20%, 35%, 50%, 65%, 80% of span |
| Warm Up Time Warm Up Drift: | 10 Minutes +/- 0.1% |
| Transmitter Operating Temperature Range: | -40°F to 185°F (-40 to 85°C) |
| Transmitter Operating Humidity Range: | 0 to 90%, non-condensing |
| Connections Wire Size: | Screw Terminal Blocks (Polarity Sensitive) 16 AWG (1.31 mm ²) to 26 AWG (0.129 mm ²) |
| Terminal Block Torque Rating: | 0.37 ft-lb (0.5 Nm) nominal |
| Sensor Type Sensor Curve Sensing Points: | Platinum RTD PTC (Positive Temperature Coefficient) Continuous |
| Number Wires Wire Colors: | Three Black/Black/White (Polarity Sensitive) |
| Sensor Output @ 0°C (32°F): | 1000 Ohms nominal |
| Sensor Accuracy: | +/- 0.1% @ 0°C (32°F) +/- 0.25% @ 21°C (70°F) +/- 1.0% @ 130°C (266°F) |
| Temperature Coefficient: | 3850 ppm / °C |
| Response Time (63% Step Change): | 15 Seconds nominal |
| Sensor Operating Temperature Range: | -40 to 135°C (-40 to 275°F) |
| Enclosure Specifications (Operating Temperature, Material, Flammability, NEMA/IP Ratings): | "-GD" Enclosure: -40 to 115°C (-40 to 239°F); Galvanized Steel; NEMA 1 (IP10) "-PB" Enclosure: -30 to 90°C (-22 to 194°F); ABS Plastic; UL94-HB; Plenum Rated "-BB" Enclosure: -40 to 115°C (-40 to 239°F); Aluminum; NEMA 3R (IP 14) "-4X" Enclosure: -40 to 70°C (-40 to 158°F); Polystyrene Plastic; UL94-V2; NEMA 4X (IP 66) |
| Storage Temperature Range: | -40 to 80°C (-40 to 176°F) |
| Operating Humidity Range: | 5 to 90% RH, non-condensing |
| Sensing Element Material Sensor Diameter: | Copper 0.210" (5.34mm) nominal |
| Probe Diameter Probe Material: | 0.250" (6.35mm) 304 Stainless Steel |
| Fitting Material Flammability Rating: | Polyamide 66 (High Performance Nylon 66) UL94-HB |
| Fitting Thread Size: | 1/8"-27 NPSM |
| Foam Pad Material Flammability Rating: | Neoprene/EPDM/SBR Polymer UL94-HBF; FMVSS-302; MIL-R-6130C |
| Lead Length Conductor Size: | 12" (30.5 cm) 22 AWG (0.65mm) |
| Lead Wire Insulation Wire Rating: | Etched Teflon (PTFE) Colored Leads Mil Spec 16878/4 Type E |
| Conductor Material: | Silver Plated Copper |
| Product Dimensions Product Weight: | See table on back of Product Data sheet |
| Agency Approvals: | RoHS2, WEEE |





DIMENSIONAL DRAWING, WEIGHTS

Plastic Box Enclosure [PB]

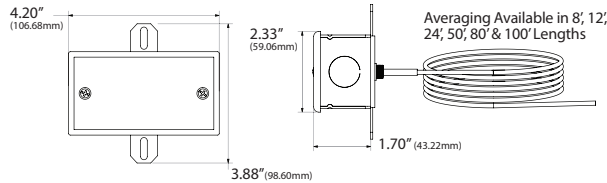


xx = Sensor Type | yy = Insertion Length

Plastic Box Enclosure [PB] Weights

| ACI Model # | 8' (Probe Length) | 12' (Probe Length) | 24' (Probe Length) |
|--------------|----------------------|----------------------|----------------------|
| A/xx-A-yy-PB | 0.72 lbs. (0.327 kg) | 0.96 lbs. (0.435 kg) | 1.70 lbs. (0.771 kg) |
| ACI Model # | 50' (Probe Length) | 80' (Probe Length) | 100' (Probe Length) |
| A/xx-A-yy-PB | 3.28 lbs. (1.488 kg) | 4.54 lbs. (2.059 kg) | 5.62 lbs. (2.549 kg) |

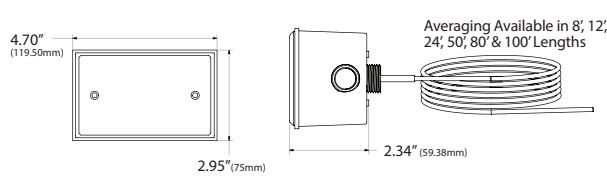
Galvanized Enclosure [GD]



Galvanized Enclosure [GD] Weights

| ACI Model # | 8' (Probe Length) | 12' (Probe Length) | 24' (Probe Length) |
|--------------|----------------------|----------------------|----------------------|
| A/xx-A-yy-GD | 1.16 lbs. (0.526 kg) | 1.40 lbs. (0.635 kg) | 2.20 lbs. (0.998 kg) |
| ACI Model # | 50' (Probe Length) | 80' (Probe Length) | 100' (Probe Length) |
| A/xx-A-yy-GD | 3.78 lbs. (1.715 kg) | 5.08 lbs. (2.304 kg) | 6.16 lbs. (2.794 kg) |

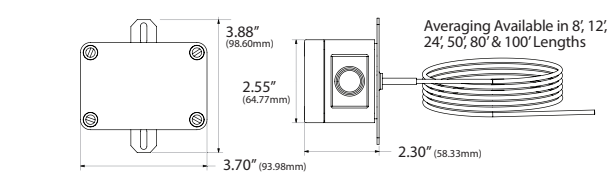
Bell Box Enclosure [BB]



Bell Box Enclosure [BB] Weights

| ACI Model # | 8' (Probe Length) | 12' (Probe Length) | 24' (Probe Length) |
|--------------|----------------------|----------------------|----------------------|
| A/xx-A-yy-BB | 1.22 lbs. (0.553 kg) | 1.44 lbs. (0.653 kg) | 2.18 lbs. (0.989 kg) |
| ACI Model # | 50' (Probe Length) | 80' (Probe Length) | 100' (Probe Length) |
| A/xx-A-yy-BB | 3.74 lbs. (1.696 kg) | 5.04 lbs. (2.286 kg) | 6.12 lbs. (2.776 kg) |

NEMA 4X Enclosure [4X]



NEMA 4X Enclosure [4X] Weights

| ACI Model # | 8' (Probe Length) | 12' (Probe Length) | 24' (Probe Length) |
|--------------|----------------------|----------------------|----------------------|
| A/xx-A-yy-4X | 0.84 lbs. (0.381 kg) | 1.06 lbs. (0.481 kg) | 1.80 lbs. (0.816 kg) |
| ACI Model # | 50' (Probe Length) | 80' (Probe Length) | 100' (Probe Length) |
| A/xx-A-yy-4X | 3.36 lbs. (1.524 kg) | 4.66 lbs. (2.114 kg) | 5.74 lbs. (2.604 kg) |

Standard Views

Product Weights

CUSTOM ORDERING

Model # Example: A/ TT1K A 24' 1 PB 0 to 40°C

| | |
|---|---|
| A. Sensor Series No Selection Required | A/ → |
| B. Model Series Select One (1) | TT1K = 1K Ω RTD, Temperature Transmitter TTM1K = 1K Ω Matched RTD/Transmitter* |
| C. Configuration No Selection Required | A = Bendable Copper Averaging → |
| D. Probe Length Select One (1) | 8' = 8' (2.44 m) 12' = 12' (3.66 m) 24' = 24' (7.32 m) 50' = 50' (15.24 m) 80' = 80' (24.38 m) 100' = 100' (30.48 m) |
| E. Output Signal Select One (1) | 1=1 to 5 VDC 2=2 to 10 VDC 4=4 to 20 mA |
| F. Enclosure Select One (1) | GD=Galvanized PB=Plastic BB=Aluminum, NEMA 3R 4X=NEMA 4X |
| G. Calibration Span | Specify Span in °F or °C (Best Accuracy in 100°F Increments) |

MODEL

| |
|----|
| A/ |
| A |
| |
| |
| |
| |
| |
| |

Note*: For TTM100 or TTM1K part numbers, the default NIST is 3 points | 5 points may be specified by using "-5PTNIST" at the end of any TTM part number.

ACCESSORIES ORDERING

| Model # | Item # | Description |
|------------------------------|--------|--|
| A/CAPILLARY CLIP QTY: 1 | 130525 | Capillary Mounting Clip, Copper, Quantity: 1 |
| A/CAPILLARY CLIP QTY: 50/BAG | 142410 | Capillary Mounting Clip, Copper, Quantity: 50/Bag |
| UNIVERSAL CLIP 50 | 145430 | Universal Mounting Clip, Plastic, Quantity: 50/Bag |
| UNIVERSAL CLIP 6 | 145421 | Universal Mounting Clip, Plastic, Quantity: 6/Bag |

ACCESSORIES ORDERING (NIST)

| Model # | Description |
|----------|---|
| -5PTNIST | 5 Point Calibration & Certificate for TTM parts |





DUCT

Duct Sensors with Transmitters

The ACI Transmitter Duct Series features a two-wire, 4 to 20 mA loop powered output signal with an optional 3-Wire voltage output signal available. All transmitters include Zero and Span adjustments for field calibration and are calibrated using NIST Certified Calibration equipment. ACI recommends the use of an 18 to 22 AWG shielded cable for all temperature transmitter installations to help eliminate the possibility of noise being introduced onto the signal lines. The sensor assemblies are manufactured using colored Etched Teflon lead wires and ACI's proven double encapsulation process to eliminate the effects of moisture on the sensors as well as increased response times using our high quality, thermally conductive epoxy. The duct sensors include a foam pad to properly seal the duct and limit vibration once installed. Optional NEMA/IP rated weather proof enclosures are available as specified on the back of the product data sheet. For best accuracy, ACI recommends the use of the A/TTM Series Matched transmitters with 3 or 5 Point NIST

Calibration Certificate, since they include a second calibration step in which the RTD and transmitter are calibrated together as a system.

Applications: Roof Top Units, Air Handlers, Supply/Discharge/Return/Mixed Air Temperatures

The ACI Transmitter Duct Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's web site, workaci.com.

PRODUCT SPECIFICATIONS

| | |
|---|---|
| Transmitter Supply Voltage Supply Current: | +8.5 to 32 VDC (Reverse Polarity Protected) 25 mA minimum 250 Ohm Load: +13.5 to 32 VDC 500 Ohm Load: +18.5 to 32 VDC |
| Maximum Load Resistance: | (Terminal Voltage - 8.5 V) 0.020 A |
| Output Signals: | Current: 4-20 mA (2-Wire Loop Powered) Voltage: 1-5 VDC or 2-10 VDC (3-Wires) |
| Calibrated Accuracy Linearity¹: | Temp. Spans < 500°F (260°C): +/- 0.2% Temp. Spans > 500°F (260°C): +/- 0.5% |
| Temperature Drift²: | Temp. Spans < 100°F (38°C): +/- 0.04%/°F Temp. Spans > 100°F (38°C): +/- 0.02% |
| TTM100/TTM1K Certification Points: | 3 Point NIST: 20%, 50% & 80% of span 5 Point NIST: 20%, 35%, 50%, 65%, 80% of span |
| Warm Up Time Warm Up Drift: | 10 Minutes +/- 0.1% |
| Transmitter Operating Temperature Range: | -40°F (-40°C) to 185°F (85°C) |
| Operating Humidity Range: | 0 to 90%, non-condensing |
| Calibrated Temperature Spans¹: | Minimum Temp. Span: 50°F (28°C) Maximum Temp. Span: 500°F (260°C) |
| Matched Calibrated Temperature Spans (A/TTM models) Range: | -45 to 155°C (-49 to 311°F) |
| Connections Wire Size: | Screw Terminal Blocks (Polarity Sensitive) 16 AWG (1.31 mm ²) to 26 AWG (0.129 mm ²) |
| Terminal Block Torque Rating: | 0.37 ft-lb (0.5 Nm) nominal |
| Sensor Type Sensor Curve Sensing Points: | Platinum RTD PTC (Positive Temperature Coefficient) One |
| Number Wires Wire Colors: | Two A/TT100/TTM100 Series: Brown/Brown A/TT1K/TTM1K Series: Black/Black |
| Sensor Output @ 0°C (32°F): | A/TT100/TTM100 Series: 100 Ohms nominal A/TT1K/TTM1K Series: 1000 Ohms nominal |
| RTD Tolerance Class Accuracy: | +/- 0.06% Class A (Tolerance Formula: +/- °C = (0.15°C + (0.002 * t))) where t is the absolute value of Temperature above or below 0°C in °C |
| Din Standard Temperature Coefficient: | DIN EN 60751 (IEC 751) 3850 ppm / °C |
| Sensor Stability: | +/- 0.03% after 1000 Hours @ 300°C (572°F) |
| Response Time (63% Step Change): | 8 Seconds nominal |
| Sensor Operating Temperature Range: | -40 to 200°C (-40 to 392°F) |
| Enclosure Specifications (Operating Temperature, Material, Flammability, NEMA/IP Ratings): | "-GD" Enclosure: Galvanized Steel, -40 to 121°C (-40 to 250°F), NEMA 1 (IP10) "-PB" Enclosure: ABS Plastic, -30 to 90°C (-22 to 194°F), UL94-HB "-BB" Enclosure: Aluminum, -40 to 121°C (-40 to 250°F), Plenum Rated, NEMA 3R "-4X" Enclosure: Polystyrene Plastic, -40 to 70°C (-40 to 158°F), UL94-V2, NEMA 4X (IP 66) |
| Storage Temperature Range: | -40 to 85°C (-40 to 185°F) |
| Operating Humidity Range: | 10 to 90% RH, non-condensing |
| Probe Diameter Probe Material: | 0.250" (6.35mm) 304 Stainless Steel |
| Fitting Material Flammability Rating: | Polyamide 66 (High Performance Nylon 66) UL94-HB |
| Foam Pad Material Flammability Rating: | Neoprene/EPDM/SBR Polymer UL94-HBF; FMVSS-302; MIL-R-6130C |
| Lead Length Conductor Size: | 14" (35.6 cm) 22 AWG (0.65mm) |
| Lead Wire Insulation Wire Rating: | Etched Teflon (PTFE) Colored Leads Mil Spec 16878/4 Type E |
| Conductor Material: | Silver Plated Copper |
| Product Dimensions Product Weight: | See table on back of Product Data sheet |
| Agency Approvals: | RoHS2, WEEE |

Note¹: Transmitter's calibrated at 71°F (22°C) nominal | **Note²:** Temperature Drift is referenced to 71°F nominal calibration temperature





| DIMENSIONAL DRAWING | | | | | | | | | | | | | | | |
|---|---|----------------------|-----------------------|-------------------|-----------------------|--------------|----------------------|----------------------|----------------------|-------------|--------------------|--------------------|--------------|----------------------|----------------------|
| <p>Plastic Box Enclosure [PB]</p> <p>Available in 4", 6", 8", 12", and 18" Probe Lengths</p> | <p>Plastic Box Enclosure [PB] Weights</p> <table border="1"> <thead> <tr> <th>ACI Model #</th> <th>4" (Probe Length)</th> <th>6" (Probe Length)</th> <th>8" (Insertion Length)</th> </tr> </thead> <tbody> <tr> <td>A/xx-D-yy-PB</td> <td>0.24 lbs. (0.109 kg)</td> <td>0.25 lbs. (0.113 kg)</td> <td>0.26 lbs. (0.117 kg)</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>ACI Model #</th> <th>12" (Probe Length)</th> <th>18" (Probe Length)</th> </tr> </thead> <tbody> <tr> <td>A/xx-D-yy-PB</td> <td>0.28 lbs. (0.127 kg)</td> <td>0.30 lbs. (0.136 kg)</td> </tr> </tbody> </table> | ACI Model # | 4" (Probe Length) | 6" (Probe Length) | 8" (Insertion Length) | A/xx-D-yy-PB | 0.24 lbs. (0.109 kg) | 0.25 lbs. (0.113 kg) | 0.26 lbs. (0.117 kg) | ACI Model # | 12" (Probe Length) | 18" (Probe Length) | A/xx-D-yy-PB | 0.28 lbs. (0.127 kg) | 0.30 lbs. (0.136 kg) |
| ACI Model # | 4" (Probe Length) | 6" (Probe Length) | 8" (Insertion Length) | | | | | | | | | | | | |
| A/xx-D-yy-PB | 0.24 lbs. (0.109 kg) | 0.25 lbs. (0.113 kg) | 0.26 lbs. (0.117 kg) | | | | | | | | | | | | |
| ACI Model # | 12" (Probe Length) | 18" (Probe Length) | | | | | | | | | | | | | |
| A/xx-D-yy-PB | 0.28 lbs. (0.127 kg) | 0.30 lbs. (0.136 kg) | | | | | | | | | | | | | |
| <p>Galvanized Enclosure [GD]</p> <p>Available in 4", 6", 8", 12", and 18" Probe Lengths</p> | <p>Galvanized Enclosure [GD] Weights</p> <table border="1"> <thead> <tr> <th>ACI Model #</th> <th>4" (Probe Length)</th> <th>6" (Probe Length)</th> <th>8" (Insertion Length)</th> </tr> </thead> <tbody> <tr> <td>A/xx-D-yy-GD</td> <td>0.66 lbs. (0.299 kg)</td> <td>0.67 lbs. (0.303 kg)</td> <td>0.68 lbs. (0.308 kg)</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>ACI Model #</th> <th>12" (Probe Length)</th> <th>18" (Probe Length)</th> </tr> </thead> <tbody> <tr> <td>A/xx-D-yy-GD</td> <td>0.70 lbs. (0.317 kg)</td> <td>0.74 lbs. (0.336 kg)</td> </tr> </tbody> </table> | ACI Model # | 4" (Probe Length) | 6" (Probe Length) | 8" (Insertion Length) | A/xx-D-yy-GD | 0.66 lbs. (0.299 kg) | 0.67 lbs. (0.303 kg) | 0.68 lbs. (0.308 kg) | ACI Model # | 12" (Probe Length) | 18" (Probe Length) | A/xx-D-yy-GD | 0.70 lbs. (0.317 kg) | 0.74 lbs. (0.336 kg) |
| ACI Model # | 4" (Probe Length) | 6" (Probe Length) | 8" (Insertion Length) | | | | | | | | | | | | |
| A/xx-D-yy-GD | 0.66 lbs. (0.299 kg) | 0.67 lbs. (0.303 kg) | 0.68 lbs. (0.308 kg) | | | | | | | | | | | | |
| ACI Model # | 12" (Probe Length) | 18" (Probe Length) | | | | | | | | | | | | | |
| A/xx-D-yy-GD | 0.70 lbs. (0.317 kg) | 0.74 lbs. (0.336 kg) | | | | | | | | | | | | | |
| <p>Bell Box Enclosure [BB]</p> <p>Available in 4", 6", 8", 12", and 18" Probe Lengths</p> | <p>Bell Box Enclosure [BB] Weights</p> <table border="1"> <thead> <tr> <th>ACI Model #</th> <th>4" (Probe Length)</th> <th>6" (Probe Length)</th> <th>8" (Insertion Length)</th> </tr> </thead> <tbody> <tr> <td>A/xx-D-yy-BB</td> <td>0.70 lbs. (0.317 kg)</td> <td>0.71 lbs. (0.322 kg)</td> <td>0.72 lbs. (0.326 kg)</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>ACI Model #</th> <th>12" (Probe Length)</th> <th>18" (Probe Length)</th> </tr> </thead> <tbody> <tr> <td>A/xx-D-yy-BB</td> <td>0.74 lbs. (0.336 kg)</td> <td>0.78 lbs. (0.354 kg)</td> </tr> </tbody> </table> | ACI Model # | 4" (Probe Length) | 6" (Probe Length) | 8" (Insertion Length) | A/xx-D-yy-BB | 0.70 lbs. (0.317 kg) | 0.71 lbs. (0.322 kg) | 0.72 lbs. (0.326 kg) | ACI Model # | 12" (Probe Length) | 18" (Probe Length) | A/xx-D-yy-BB | 0.74 lbs. (0.336 kg) | 0.78 lbs. (0.354 kg) |
| ACI Model # | 4" (Probe Length) | 6" (Probe Length) | 8" (Insertion Length) | | | | | | | | | | | | |
| A/xx-D-yy-BB | 0.70 lbs. (0.317 kg) | 0.71 lbs. (0.322 kg) | 0.72 lbs. (0.326 kg) | | | | | | | | | | | | |
| ACI Model # | 12" (Probe Length) | 18" (Probe Length) | | | | | | | | | | | | | |
| A/xx-D-yy-BB | 0.74 lbs. (0.336 kg) | 0.78 lbs. (0.354 kg) | | | | | | | | | | | | | |
| <p>NEMA 4X Enclosure [4X]</p> <p>Available in 4", 6", 8", 12", and 18" Probe Lengths</p> | <p>NEMA 4X Enclosure [4X] Weights</p> <table border="1"> <thead> <tr> <th>ACI Model #</th> <th>4" (Probe Length)</th> <th>6" (Probe Length)</th> <th>8" (Insertion Length)</th> </tr> </thead> <tbody> <tr> <td>A/xx-D-yy-4X</td> <td>0.34 lbs. (0.154 kg)</td> <td>0.35 lbs. (0.159 kg)</td> <td>0.36 lbs. (0.163 kg)</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>ACI Model #</th> <th>12" (Probe Length)</th> <th>18" (Probe Length)</th> </tr> </thead> <tbody> <tr> <td>A/xx-D-yy-4X</td> <td>0.38 lbs. (0.172 kg)</td> <td>0.40 lbs. (0.181 kg)</td> </tr> </tbody> </table> | ACI Model # | 4" (Probe Length) | 6" (Probe Length) | 8" (Insertion Length) | A/xx-D-yy-4X | 0.34 lbs. (0.154 kg) | 0.35 lbs. (0.159 kg) | 0.36 lbs. (0.163 kg) | ACI Model # | 12" (Probe Length) | 18" (Probe Length) | A/xx-D-yy-4X | 0.38 lbs. (0.172 kg) | 0.40 lbs. (0.181 kg) |
| ACI Model # | 4" (Probe Length) | 6" (Probe Length) | 8" (Insertion Length) | | | | | | | | | | | | |
| A/xx-D-yy-4X | 0.34 lbs. (0.154 kg) | 0.35 lbs. (0.159 kg) | 0.36 lbs. (0.163 kg) | | | | | | | | | | | | |
| ACI Model # | 12" (Probe Length) | 18" (Probe Length) | | | | | | | | | | | | | |
| A/xx-D-yy-4X | 0.38 lbs. (0.172 kg) | 0.40 lbs. (0.181 kg) | | | | | | | | | | | | | |
| Standard View | Product Weights | | | | | | | | | | | | | | |

xx = Sensor Type | yy = Insertion Length

| CUSTOM ORDERING HIGHER ACCURACY | | MODEL # |
|---|---|---------|
| A. Sensor Series¹ No Selection Required | A/ _____ | A/ |
| B. Model Series Select One (1) | TT100 = 100Ω TTM100 = Matched 100Ω* TT1K = 1KΩ TTM1K = Matched 1KΩ* | |
| C. Configuration No Selection Required | D = Duct _____ | D |
| D. Probe Length Select One (1) | 4" = 4" Probe 6" = 6" Probe 8" = 8" Probe 12" = 12" Probe 18" = 18" Probe | |
| E. Output Signal Select One (1) | 1 = 1 to 5 VDC 2 = 2 to 10 VDC 4 = 4 to 20 mA | |
| F. Enclosure Select One (1) | GD = Galvanized PB = Plastic BB = Aluminum, NEMA 3R 4X = NEMA 4X | |
| G. Calibrated Span | Specify Span in °F or °C (Best Accuracy in 100°F Increments ³) | |

Note*: For TTM100 or TTM1k part numbers, the default NIST is 3 points | 5 points may be specified by using "-5PTNIST" at the end of any TTM part number.

| ACCESSORIES ORDERING (NIST) | |
|-----------------------------|---|
| Model # | Description |
| -5PTNIST | 5 Point Calibration & Certificate for TTM parts |





IMMERSION

Stainless Steel Immersion, Transmitters

The ACI Transmitter Immersion Series features a two-wire, 4 to 20 mA loop powered output signal with optional three-wire voltage output signal available. All transmitters include Zero and Span adjustments for field calibration and are calibrated using NIST Certified Calibration equipment. We recommend the use of an 18 to 22 AWG shielded cable for all temperature transmitter installations to keep noise from being introduced onto the signal lines. The sensor assemblies are manufactured using Etched Teflon colored lead wires and ACI's proven double encapsulation process to eliminate the effects of moisture on the sensors as well as increased response times from our high quality, thermally conductive epoxy. The immersion sensors "I" include a welded thermowell but can be ordered without the thermowell "-INW" version. The "-INW" includes a standard 1/2" NPS process thread to be used with a machined thermowell or existing thermowell application. Optional NEMA/IP rated weather proof enclosures and

NIST Calibration Certificates are available when ordering the A/TTM Series transmitters as referenced in the ordering grid on the back of the product data sheet. For best accuracy, ACI recommends the use of the A/TTM Series Matched transmitters which includes a 3 or 5 Point NIST Calibration Certificate, since they include a second calibration step in which the RTD and transmitter are calibrated together as a system.

Applications: Chilled Water Systems, Hot Water Systems, Boilers, Pumps, Compressors, Chillers, Cooling Towers, Process Control

The ACI Transmitter Immersion Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's web site, workaci.com.

Disclaimer: Specification of any thermowell and the materials of construction are the sole responsibility of the designer of the system that incorporates the thermowell. Sole responsibility for ensuring compatibility of the process fluid with the system rests with the end user.

PRODUCT SPECIFICATIONS

| | |
|---|---|
| Transmitter Supply Voltage Supply Current: | +8.5 to 32 VDC (Reverse Polarity Protected) 25 mA minimum 250 Ohm Load: +13.5 to 32 VDC 500 Ohm Load: +18.5 to 32 VDC |
| Maximum Load Resistance: | (Terminal Voltage - 8.5 V) 0.020 A |
| Output Signals: | Current: 4-20 mA (2-Wire Loop Powered) Voltage: 1-5 VDC or 2-10 VDC (3-Wires) |
| Calibrated Transmitter Accuracy Linearity¹: | Temp. Spans < 500°F (260°C): +/- 0.2% Temp. Spans > 500°F (260°C): +/- 0.5% |
| Temperature Drift²: | Temp. Spans < 100°F (38°C): +/- 0.04% Temp. Spans > 100°F (38°C): +/- 0.02% |
| TTM100/TTM1K Certification Points: | 3 Point NIST: 20%, 50% & 80% of span 5 Point NIST: 20%, 35%, 50%, 65%, 80% of span |
| Warm Up Time Warm Up Drift: | 10 Minutes +/- 0.1% |
| Operating Storage Temperature: | -40 to 185°F (-40 to 85°C) |
| Operating Humidity Range: | 0 to 90%, non-condensing |
| Calibrated Temperature Spans¹: | Minimum Temp. Span: 50°F (28°C) Maximum Temp. Span: 500F (260°C) |
| Matched Calibrated Temperature Spans (A/TTM models) Range: | -45 to 155°C (-49 to 311°F) |
| Connections Wire Size: | Screw Terminal Blocks (Polarity Sensitive) 16 AWG (1.31 mm ²) to 26 AWG (0.129 mm ²) |
| Terminal Block Torque Rating: | 0.37 ft-lb (0.5 Nm) nominal |
| Sensor Type Sensor Curve Sensing Points: | Platinum RTD PTC (Positive Temperature Coefficient) One |
| Number Wires Wire Colors: | Two A/TT100/TTM100 Series: Brown/Brown A/TT1K/TTM1K Series: Black/Black |
| Sensor Output @ 0°C (32°F): | A/TT100/TTM100 Series: 100 Ohms nominal A/TT1K/TTM1K Series: 1000 Ohms nominal +/- 0.06% Class A (Tolerance Formula: +/- °C = (0.15°C + (0.002 * t))) |
| RTD Class Accuracy: | where t is the absolute value of temperature above or below 0°C |
| Din Standard Temperature Coefficient: | DIN EN 60751 (IEC 751) 3850 ppm/°C |
| Sensor Stability: | +/- 0.03% after 1000 Hours @ 300°C (572°F) |
| Response Time (63% Step Change): | 8 Seconds nominal |
| Sensor Operating Temperature Range: | -40 to 200°C (-40 to 392°F) |
| Enclosure Specifications (Operating Temperature, Material, Flammability, NEMA/IP Ratings): | "-GD" Enclosure: Galvanized Steel, -40 to 121°C (-40 to 250°F), NEMA 1 (IP10) "-PB" Enclosure: ABS Plastic, -30 to 90°C (-22 to 194°F), UL94-HB, Plenum Rated "-BB" Enclosure: Aluminum, -40 to 121°C (-40 to 250°F), NEMA 3R "-4X" Enclosure: Polystyrene Plastic, -40 to 70°C (-40 to 158°F), UL94-V2, NEMA 4X (IP 66) |
| Storage Temperature Range: | -40 to 85°C (-40 to 185°F) |
| Operating Humidity Range: | 10 to 90% RH, non-condensing |
| Probe Diameter Thermowell Bore Diameter: | 0.250" (6.35 mm) 0.260" (6.60mm) |

Note¹: Transmitter's calibrated at 71°F (22°C) nominal | **Note²:** Temperature Drift is referenced to 71°F nominal calibration temperature





PRODUCT SPECIFICATIONS CONTINUED

| | |
|---|--|
| Probe Material Thermowell Material: | 304 Stainless Steel 304 Stainless Steel |
| Thermowell Instrument Thread Process Thread: | 1/2" NPS (National Pipe Straight) 1/2" NPT (National Pipe Tapered) |
| Fitting Material Flammability Rating: | Polyamide 66 (High Performance Nylon 66) UL94-HB |
| Fitting Thread Size: | 1/2" NPS (National Pipe Straight) Male Thread |
| Lead Length Conductor Size: | 14" (35.6 cm) 22 AWG (0.65 mm) |
| Lead Wire Insulation Wire Rating: | Etched Teflon (PTFE) Colored Leads Mil Spec 16878/4 Type E |
| Conductor Material: | Silver Plated Copper |
| Product Dimensions Product Weight: | See table on back of Product Data Sheet |
| Agency Approvals: | RoHS2, WEEE |

MAXIMUM VELOCITY VS THERMOWELL INSERTION LENGTH MACHINED THERMOWELL

| Straight Shank Insertion Length "U" | | | | Stepped Shank Insertion Length "U" | | | | | |
|-------------------------------------|----------------------------|-------------------------|-------------------------|------------------------------------|-------------------------|-------------------------|------------------------|------------------------|-----------------------|
| Material: | Media Type: | 1.0" (25.4 mm) | 2.5" (63.5 mm) | 8.0" (203.2 mm) | 4.0" (101.6 mm) | 6.0" (152.4 mm) | 12.0" (304.8 mm) | 18.0" (457.2 mm) | 24" (609.6 mm) |
| 304/316 SS | Air/Gas/Steam ¹ | 349 ft/s (106.3 m/s) | 349 ft/s (106.3 m/s) | 71.9 ft/s (21.9 m/s) | 109 ft/s (33.2 m/s) | 73.6 ft/s (22.4 m/s) | 19.4 ft/s (5.9 m/s) | 8.8 ft/s (2.7 m/s) | 5.2 ft/s (1.6 m/s) |
| 304/316 SS | Water | 360 ft/s (109.7 m/s) | 360 ft/s (109.7 m/s) | 71.9 ft/s (21.9 m/s) | 82.2 ft/s (25.1 m/s) | 26.9 ft/s (8.2 m/s) | 11.3 ft/s (3.4 m/s) | 4.7 ft/s (1.43 m/s) | 2.5 ft/s (0.8 m/s) |

Note 1: Values are for Air/Gas/ Steam and similar density media based upon Max pressure of 2900 PSI @ 1000°F (537.8°C) | **Note 2:** Values are for Water (No Glycol or other Chemicals factored in) @ 68 °F (20°C) and max pressure of 5700 PSI. (Calculated to ASME PTC 19.3 TW-2016 Code B31.1) | **Note 3:** 6-24" Machined Thermowells meet ASME PTC 19.3 TW-2016 Code B31.1.

MAXIMUM PRESSURE VS TEMPERATURE RATINGS TWO-PART FABRICATED | WELDED THERMOWELL

| Material: | 70°F (21.1°C) | 200°F (93.3°C) | 400°F (204.4°C) | 600°F (315.6°C) | 800°F (426.7°C) | 1000°F (537.8°C) | 1200°F (648.9°C) |
|------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| 304/316 SS | 982 PSI (67.7 Bar) | 820 PSI (56.6 Bar) | 675 PSI (46.5 Bar) | 604 PSI (41.6 Bar) | 550 PSI (37.9 Bar) | 510 PSI (35.1 Bar) | 290 PSI (20.0 Bar) |

MAXIMUM FLUID VELOCITY RATINGS TWO-PART FABRICATED | WELDED THERMOWELL

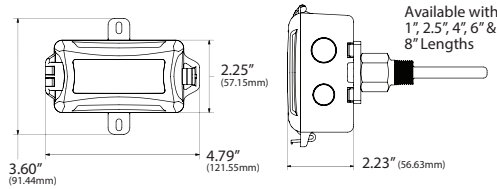
| Straight Shank Insertion Length "U" | | | | |
|-------------------------------------|----------------------------|---------------------|--------------------|--------------------|
| Material: | Media Type: | 2.5" (63.5 mm) | 4.0" (101.6 mm) | 6.0" (152.4 mm) |
| 304/316 SS | Air/Gas/Steam ² | 169 ft/s (51.5 m/s) | 61 ft/s (18.6 m/s) | 20 ft/s (6.1 m/s) |
| 304/316 SS | Water | 88 ft/s (26.8 m/s) | 20 ft/s (6.1 m/s) | 10 ft/s (3.05 m/s) |

Note 2: Values are for Air/Gas/ Steam and similar density media



DIMENSIONAL DRAWINGS, WEIGHTS

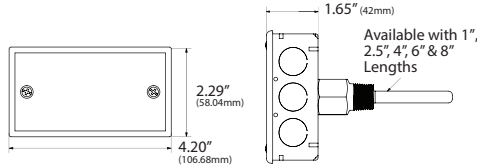
Plastic Box Enclosure [PB]



Plastic Box Enclosure [PB] Weights

| ACI Model # | 1.0" | 2.5" | 4.0" | 6.0" | 8.0" |
|----------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| A/xx-INW-yy-PB | 0.20 lbs. (0.091 kg) | 0.24 lbs. (0.109 kg) | 0.28 lbs. (0.127 kg) | 0.32 lbs. (0.145 kg) | 0.36 lbs. (0.163 kg) |
| A/xx-I-yy-PB | N/A | 0.24 lbs. (0.109 kg) | 0.60 lbs. (0.272 kg) | 0.64 lbs. (0.290 kg) | N/A |
| A/xx-IM-yy-PB | 0.40 lbs. (0.182 kg) | 0.58 lbs. (0.263 kg) | 0.74 lbs. (0.336 kg) | 0.92 lbs. (0.417 kg) | 1.15 lbs. (0.522 kg) |

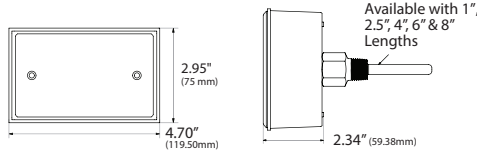
Galvanized Enclosure [GD]



Galvanized Enclosure [GD] Weights

| ACI Model # | 1.0" | 2.5" | 4.0" | 6.0" | 8.0" |
|----------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| A/xx-INW-yy-GD | 0.62 lbs. (0.281 kg) | 0.66 lbs. (0.299 kg) | 0.70 lbs. (0.318 kg) | 0.74 lbs. (0.336 kg) | 0.78 lbs. (0.354 kg) |
| A/xx-I-yy-GD | N/A | 0.88 lbs. (0.399 kg) | 1.00 lbs. (0.454 kg) | 1.04 lbs. (0.472 kg) | N/A |
| A/xx-IM-yy-GD | 0.81 lbs. (0.367 kg) | 1.00 lbs. (0.454 kg) | 1.16 lbs. (0.526 kg) | 1.32 lbs. (0.599 kg) | 1.55 lbs. (0.703 kg) |

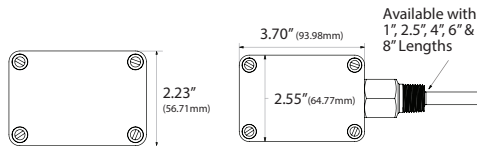
Bell Box Enclosure [BB]



Bell Box Enclosure [BB] Weights

| ACI Model # | 1.0" | 2.5" | 4.0" | 6.0" | 8.0" |
|----------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| A/xx-INW-yy-BB | 0.64 lbs. (0.290 kg) | 0.68 lbs. (0.308 kg) | 0.70 lbs. (0.318 kg) | 0.74 lbs. (0.336 kg) | 0.80 lbs. (0.363 kg) |
| A/xx-I-yy-BB | N/A | 1.02 lbs. (0.463 kg) | 1.00 lbs. (0.454 kg) | 1.04 lbs. (0.472 kg) | N/A |
| A/xx-IM-yy-BB | 0.83 lbs. (0.376 kg) | 1.02 lbs. (0.463 kg) | 1.16 lbs. (0.526 kg) | 1.32 lbs. (0.599 kg) | 1.59 lbs. (0.721 kg) |

NEMA 4X Enclosure [4X]

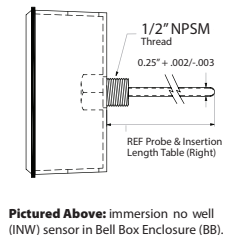


NEMA 4X Enclosure [4X] Weights

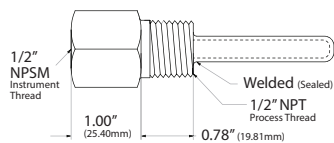
| ACI Model # | 1.0" | 2.5" | 4.0" | 6.0" | 8.0" |
|----------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| A/xx-INW-yy-4X | 0.28 lbs. (0.127 kg) | 0.32 lbs. (0.145 kg) | 0.36 lbs. (0.163 kg) | 0.40 lbs. (0.181 kg) | 0.44 lbs. (0.200 kg) |
| A/xx-I-yy-4X | N/A | 0.64 lbs. (0.290 kg) | 0.68 lbs. (0.308 kg) | 0.72 lbs. (0.327 kg) | N/A |
| A/xx-IM-yy-4X | 0.48 lbs. (0.218 kg) | 0.66 lbs. (0.299 kg) | 0.82 lbs. (0.372 kg) | 1.00 lbs. (0.454 kg) | 1.27 lbs. (0.576 kg) |

N/A = Not Available | xx = Sensor Type | yy = Insertion Length

PROBE AND INSERTION LENGTH IMMERSION NO WELL



Pictured Below: welded two piece thermowell to show connection and depth reference. Thermowell not included with immersion no well (INW).



Probe & Insertion Length

| Probe Length | Insertion Length | ACI Part # | Thermowell Part # |
|--------------|------------------|---------------------|-------------------|
| 3" | 2.81" +/- 0.13" | A/xx-INW-1"-yy-zz | A/M1" |
| 4.5" | 4.31" +/- 0.13" | A/xx-INW-2.5"-yy-zz | A/2.5" or A/M2.5" |
| 6" | 5.81" +/- 0.13" | A/xx-INW-4"-yy-zz | A/4" or A/M4" |
| 8" | 7.81" +/- 0.13" | A/xx-INW-6"-yy-zz | A/6" or A/M6" |
| 10" | 9.81" +/- 0.13" | A/xx-INW-8"-yy-zz | A/M8" |
| 13" | 12.75" +/- 0.13" | A/xx-INW-12"-yy-zz | A/M12" |
| 19" | 18.75" +/- 0.13" | A/xx-INW-18"-yy-zz | A/M18" |
| 25" | 24.75" +/- 0.13" | A/xx-INW-24"-yy-zz | A/M24" |





| CUSTOM ORDERING WELDED THERMOWELL | | Model # Example: | A/ | TT100 | I | 4" | 2 | GD | 100°F | MODEL # | |
|---|---|------------------|----|-------|----|----|----|----|-------|---------|----|
| | | | A. | B. | C. | D. | E. | F. | G. | | |
| A. Sensor Series <i>No Selection Required</i> | A/ | | | | | | | | | | A/ |
| B. Model Series <i>Select One (1)</i> | TT100 = 100Ω TTM100 = Matched 100Ω* TT1K = 1KΩ TTM1K = Matched 1KΩ* | | | | | | | | | | |
| C. Configuration <i>Select One (1)</i> | I=Immersion with Welded Thermowell | | | | | | | | | | |
| D. Insertion Length <i>Select One (1)</i> | 2.5" = 2.5" Insertion 4" = 4" Insertion 6" = 6" Insertion | | | | | | | | | | |
| E. Output Signal <i>Select One (1)</i> | 1 = 1 to 5 VDC 2 = 2 to 10 VDC 4 = 4 to 20 mA | | | | | | | | | | |
| F. Enclosure <i>Select One (1)</i> | GD=Galvanized PB=Plastic BB=Aluminum, NEMA 3R 4X=NEMA 4X | | | | | | | | | | |
| G. Calibration Span | Specify Span in °F or °C (Best Accuracy in 100°F Increments) | | | | | | | | | | |

Note*: For TTM100 or TTM1k part numbers, the default NIST is 3 points | 5 points may be specified by using "-5PTNIST" at the end of any TTM part number.

| CUSTOM ORDERING MACHINED THERMOWELL | | Model # Example: | A/ | TT100 | IM | 4" | 2 | GD | 100°F | MODEL # | |
|---|---|------------------|----|-------|----|----|----|----|-------|---------|----|
| | | | A. | B. | C. | D. | E. | F. | G. | | |
| A. Sensor Series <i>No Selection Required</i> | A/ | | | | | | | | | | A/ |
| B. Model Series <i>Select One (1)</i> | TT100 = 100Ω TTM100 = Matched 100Ω* TT1K = 1KΩ TTM1K = Matched 1KΩ* | | | | | | | | | | |
| C. Configuration <i>Select One (1)</i> | IM=Immersion with Machined Thermowell | | | | | | | | | | |
| D. Insertion Length <i>Select One (1)</i> | 1" = 1" Insertion 2.5" = 2.5" Insertion 4" = 4" Insertion 6" = 6" Insertion 8" = 8" Insertion | | | | | | | | | | |
| E. Output Signal <i>Select One (1)</i> | 1 = 1 to 5 VDC 2 = 2 to 10 VDC 4 = 4 to 20 mA | | | | | | | | | | |
| F. Enclosure <i>Select One (1)</i> | GD=Galvanized PB=Plastic BB=Aluminum, NEMA 3R 4X=NEMA 4X | | | | | | | | | | |
| G. Calibration Span | Specify Span in °F or °C (Best Accuracy in 100°F Increments) | | | | | | | | | | |

Note: Machined Thermowells with lengths of 12", 18" and 24" are available and must be ordered separately | See the Machined Thermowells Data Sheet (Accessories). Note*: For TTM100 or TTM1k part numbers, the default NIST is 3 points | 5 points may be specified by using "-5PTNIST" at the end of any TTM part number.

| CUSTOM ORDERING SENSOR ONLY NO THERMOWELL | | Model # Example: | A/ | TT100 | IMW | 4" | 2 | GD | 100°F | MODEL # | |
|---|---|------------------|----|-------|-----|----|----|----|-------|---------|----|
| | | | A. | B. | C. | D. | E. | F. | G. | | |
| A. Sensor Series <i>No Selection Required</i> | A/ | | | | | | | | | | A/ |
| B. Model Series <i>Select One (1)</i> | TT100 = 100Ω TTM100 = Matched 100Ω* TT1K = 1KΩ TTM1K = Matched 1KΩ* | | | | | | | | | | |
| C. Configuration <i>Select One (1)</i> | INW = Immersion without Thermowell | | | | | | | | | | |
| D. Insertion Length <i>Select One (1)</i> | 1" = 1" Insertion 2.5" = 2.5" Insertion 4" = 4" Insertion 6" = 6" Insertion 8" = 8" Insertion 12" = 12" Insertion 18" = 18" Insertion 24" = 24" Insertion | | | | | | | | | | |
| E. Output Signal <i>Select One (1)</i> | 1 = 1 to 5 VDC 2 = 2 to 10 VDC 4 = 4 to 20 mA | | | | | | | | | | |
| F. Enclosure <i>Select One (1)</i> | GD=Galvanized PB=Plastic BB=Aluminum, NEMA 3R 4X=NEMA 4X | | | | | | | | | | |
| G. Calibration Span | Specify Span in °F or °C (Best Accuracy in 100°F Increments) | | | | | | | | | | |

Note*: For TTM100 or TTM1k part numbers, the default NIST is 3 points | 5 points may be specified by using "-5PTNIST" at the end of any TTM part number.





| ACCESSORIES ORDERING | | |
|--------------------------------|--------|---|
| Model # | Item # | Description |
| NSG Heat Transfer Paste 2 oz. | 102595 | Thermal Grease, 2 oz. Tube, Silicone Free, -40 to 320°F (-40 to 160°C) |
| NSG Heat Transfer Paste 16 oz. | 140574 | Thermal Grease, 16 oz. Jar, Silicon Free, -40 to 390°F (-40 to 198°C) |
| A/2.5" | 128349 | 2.5" (63.5 mm) Insertion, 304 Stainless, Welded, 1/2" NPT Thermowell |
| A/4" | 128350 | 4" (101.6 mm) Insertion, 304 Stainless, Welded, 1/2" NPT Thermowell |
| A/6" | 128351 | 6" (152.4 mm) Insertion, 304 Stainless, Welded, 1/2" NPT Thermowell |
| A/M1" | 128337 | 1" (25.4 mm) Insertion, 304 Stainless, Machined, 1/2" NPT Thermowell |
| A/M2.5" | 128338 | 2.5" (63.5 mm) Insertion, 304 Stainless, Machined, 1/2" NPT Thermowell |
| A/M4" | 128343 | 4" (101.6 mm) Insertion, 304 Stainless, Machined, 1/2" NPT Thermowell |
| A/M6" | 128344 | 6" (152.4 mm) Insertion, 304 Stainless, Machined, 1/2" NPT Thermowell |
| A/M8" | 138725 | 8" (203.2 mm) Insertion, 304 Stainless, Machined, 1/2" NPT Thermowell |
| A/M12" | 128339 | 12" (304.80 mm) Insertion, 304 Stainless, Machined, 1/2" NPT Thermowell |
| A/M18" | 128341 | 18" (457.20 mm) Insertion, 304 Stainless, Machined, 1/2" NPT Thermowell |
| A/M24" | 128342 | 24" (609.6 mm) Insertion, 304 Stainless, Machined, 1/2" NPT Thermowell |
| A/M2.5" - 316SS | 128352 | 2.5" (63.5 mm) Insertion, 316 Stainless, Machined, 1/2" NPT Thermowell |
| A/M4" - 316SS | 128353 | 4" (101.6 mm) Insertion, 316 Stainless, Machined, 1/2" NPT Thermowell |
| A/M6" - 316SS | 128354 | 6" (152.4 mm) Insertion, 316 Stainless, Machined, 1/2" NPT Thermowell |
| NIST TTM CERT-5PT. | 129743 | 5 Point Calibration & Certificate |

| ACCESSORIES ORDERING (NIST) | |
|-----------------------------|---|
| Model # | Description |
| -5PTNIST | 5 Point Calibration & Certificate for TTM parts |





OUTSIDE AIR

Weatherproof Outside Air Transmitters



The ACI Transmitter Outside Air Series features a two-wire, 4 to 20 mA loop powered output with optional 3-Wire voltage output signals available. These units are designed to be mounted out of direct sunlight on the North side of a building or under an eave or intake hood. The Ruggedized epoxy coated transmitters “-POT” option should be used in extreme environments or in applications where you are looking for improved accuracy and reduced thermal drift due to the thermally conductive epoxy and more consistent board temperatures. Zero and Span adjustments are available for recalibration in the field when using NIST Certified equipment. All units include a Weather Proof or NEMA/IP rated enclosure and 1/2” knockouts or 1/2” NPT threaded hubs for use during installation. ACI recommends the use of 18 to 22 AWG shielded

cable for all temperature transmitter installations to protect against the introduction of noise onto the signal lines. ACI does offer recalibration services for any transmitters sent back to us for a nominal fee.

Applications: Outside Air Temperature Sensing, Economizer Control, Cold Storage Facilities or Warehouses, High Moisture Environments

The ACI Transmitter Outside Air Series is covered by ACI’s Five (5) Year Limited Warranty. The warranty can be found in the front of ACI’s Sensors & Transmitters catalog, as well as on ACI’s web site, workaci.com.

PRODUCT SPECIFICATIONS

| | |
|---|---|
| Transmitter Supply Voltage Supply Current: | +8.5 to 32 VDC (Reverse Polarity Protected) 25 mA minimum 250 Ohm Load: +13.5 to 32 VDC 500 Ohm Load: +18.5 to 32 VDC |
| Maximum Load Resistance: | (Terminal Voltage - 8.5 V) 0.020 A |
| Transmitter Output Signals: | Current: 4-20 mA (2-Wire, Loop Powered) Voltage: 1-5 VDC or 2-10 VDC (3-Wires) |
| Calibrated Accuracy Linearity¹: | Temp. Spans < 500°F (260°C): +/- 0.2% |
| Thermal Drift²: | Temp. Spans < 100°F (38°C): +/- 0.04%/°F Temp. Spans > 100°F (38°C): +/- 0.02%/°F |
| TTM100/TTM1K Certification Points: | 3 Point NIST: 20%, 50% & 80% of span 5 Point NIST: 20%, 35%, 50%, 65%, 80% of span |
| Min./Max. Calibrated Temperature Spans: | Minimum Temp. Span: 50°F (28°C) Maximum Temp. Span: 300°F (148°C) |
| Warm Up Time Warm Up Drift: | 10 Minutes +/- 0.1% |
| Transmitter Operating Temperature Range: | -40°F to 185°F (-40 to 85°C) |
| Connections Wire Size: | Screw Terminal Blocks (Polarity Sensitive) 16 AWG (1.31 mm ²) to 26 AWG (0.129 mm ²) |
| Terminal Block Torque Rating: | 0.37 ft-lb (0.5 Nm) nominal |
| Sensor Type Sensor Curve Sensing Points: | Platinum RTD PTC (Positive Temperature Coefficient) One |
| Sensor Resistance @ 0°C (32°F) Lead Colors: | A/TT/TTM100 Series: 100 Ohms (Brown/Brown) A/TT/TTM1K Series: 1000 Ohms (Black/Black) |
| RTD Tolerance Class Sensor Accuracy: | +/- 0.06% Class A (Class A Tolerance Formula: +/- °C = (0.15°C + (0.002 * t)) where t is the absolute value of Temperature above or below 0°C in °C) |
| Sensor Din Standard Temperature Coefficient: | DIN EN 60751 (IEC 751) 3850 ppm / °C |
| Operating Storage Temperature Range: | -40 to 71°C (-40 to 160°F) -40 to 71°C (-40 to 160°F) |
| Operating Humidity Range: | 0 to 100% RH |
| Enclosure Specifications (Temperature, Material, Flammability, NEMA/IP Ratings): | “-EH” Enclosure: PC/ASA Plastic w/ UV Protectant; -40 to 88°C (-40 to 190°F); UL94-V0 “-4X” Enclosure: Polystyrene Plastic, -40 to 70°C (-40 to 158°F), UL94-V2, NEMA 4X (IP 66) “-BB” Enclosure: Aluminum, -40 to 121°C (-40 to 250°F), NEMA 3R |
| Lead Length Conductor Size: | 14” (35.6cm) 22 AWG (0.65mm) |
| Lead Wire Insulation Wire Rating: | Etched (PTFE) Teflon Colored Leads MIL-W-16878/4 (Type E) |
| Conductor Material: | Silver Plated Copper |
| Cord Grip Fitting Material Flammability Rating: | Polyamide 6.6 UL94-V2 (Included with “-4X” enclosure option only) |
| Cord Grip Seal Material NEMA/IP Rating: | Neoprene IP68 (NEMA 4X) |
| Torque Recommendation Cord Grip: | 1.83 ft-lbs (2.50 Nm) |
| Product Dimensions: | See Drawings on back of Data Sheet |
| Product Weight: | A/TT/TTM-O-EH Series: 0.49 lbs. (0.222 kg) A/TT/TTM-O-4X Series: 0.41 lbs. (0.180 kg); A/TT/TTM-O-BB Series: 0.79 lbs. (0.358 kg) “-POT” Option: +0.12 lbs. (0.055 kg) to other weights |
| Agency Approvals: | RoHS2, WEEE |

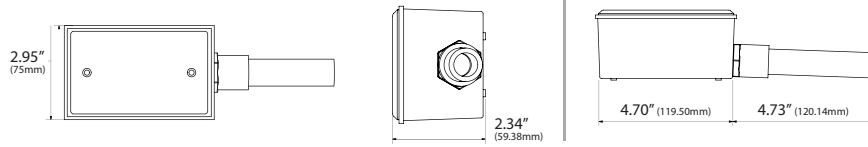
Note¹: Transmitter’s calibrated at 71°F (22°C) nominal | **Note²:** Temperature Drift is referenced to 71°F nominal calibration temperature





DIMENSIONAL DRAWING, WEIGHTS

Bell Box Enclosure [BB]

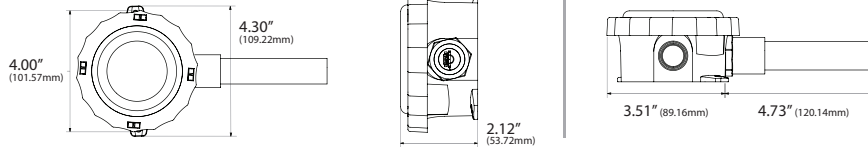


xx = Sensor Type

Bell Box Enclosure [BB] Weight

| ACI Model # | Weight |
|-------------|----------------------|
| A/xx-O-BB | 0.76 lbs. (0.172 kg) |

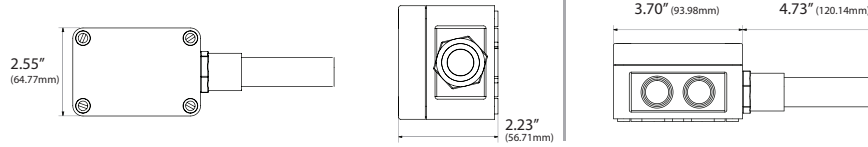
Euro Enclosure [EH]



Euro Enclosure [EH] Weight

| ACI Model # | Weight |
|-------------|----------------------|
| A/xx-O-EH | 0.46 lbs. (0.345 kg) |

NEMA 4X Enclosure [4X]



NEMA 4X Enclosure [4X] Weight

| ACI Model # | Weight |
|-------------|----------------------|
| A/xx-O-4X | 0.38 lbs. (0.209 kg) |

Front & Right Views

Top View

Product Weight

STANDARD ORDERING

| Model # | Item # | Description |
|------------------|--------|---|
| A/TT100-O-1-EH | 142557 | TT100 Outside Air; Euro Enclosure; 1-5 VDC Output (Specify Temperature Span) |
| A/TT100-O-2-BB | 130413 | TT100 Outside Air; Aluminum NEMA 3R Enclosure; 2-10 VDC Output (Specify Temperature Span) |
| A/TT100-O-4-4X | 118434 | TT100 Outside Air; Plastic NEMA 4X Enclosure; 4-20 mA Output (Specify Temperature Span) |
| A/TT100-O-2-EH* | 142558 | TT100 Outside Air; Euro Enclosure; 2-10 VDC Output (Specify Temperature Span) |
| A/TTM100-O-2-BB* | 130413 | TT100 Outside Air; Aluminum NEMA 3R Enclosure; 2-10 VDC Output (Specify Temperature Span) |
| A/TTM100-O-4-4X* | 131180 | TT100 Outside Air; Plastic NEMA 4X Enclosure; 4-20 mA Output (Specify Temperature Span) |
| A/TT1K-O-1-EH | 138289 | TT1K Outside Air; Euro Enclosure; 1-5 VDC Output (Specify Temperature Span) |
| A/TT1K-O-2-BB | 118636 | TT1K Outside Air; Aluminum NEMA 3R Enclosure; 2-10 VDC Output (Specify Temperature Span) |
| A/TT1K-O-4-4X | 118640 | TT1K Outside Air; Plastic NEMA 4X Enclosure; 4-20 mA Output (Specify Temperature Span) |
| A/TTM1K-O-4* | 118972 | TT1K Outside Air; Euro Enclosure; 4-20 mA Output (Specify Temperature Span) |
| A/TTM1K-O-4-BB* | 133615 | TT1K Outside Air; Aluminum NEMA 3R Enclosure; 4-20 mA Output (Specify Temperature Span) |
| A/TTM1K-O-4-4X* | 118969 | TT1K Outside Air; Plastic NEMA 4X Enclosure; 4-20 mA Output (Specify Temperature Span) |

CUSTOM ORDERING

Model # Example: **A/** **TT100** **O** **2** **EH** **0** to 70°C

| | | MODEL # |
|--|--|---------|
| A. Sensor Series No Selection Required | A/ | A/ |
| B. Model Series Select One (1) | TT100=100Ω TTM100=Matched 100Ω * TT1K=1KΩ TTM1K=Matched 1KΩ * | |
| C. Configuration No Selection Required | O = Outside Air | O |
| D. Output Signal Select One (1) | 1 = 1 to 5 VDC 2 = 2 to 10 VDC 4 = 4 to 20 mA | |
| E. Enclosure Select One (1) | EH = Euro Enclosure BB = Aluminum NEMA 3R 4X = Plastic NEMA 4X Enclosure | |
| F. Potted Transmitter No Selection Required | ---- = Standard POT = Epoxy Potted Transmitter, Plastic Cup** | |
| G. Calibration Span Select One (1) | Specify Span in °F or °C (Best Accuracy in 100 °F Increments) | |

Note*: For TTM100 or TTM1K part numbers, the default NIST is 3 points | 5 points may be specified by using "-5PTNIST" at the end of any TTM part number.

Note**: Not available in "EH" style enclosure option

ACCESSORIES ORDERING (NIST)

| Model # | Description |
|----------|---|
| -5PTNIST | 5 Point Calibration & Certificate for TTM parts |





RIGID AVERAGING

Continuous Averaging, Transmitter



The ACI Transmitter Rigid Averaging Series features a two-wire, 4 to 20 mA loop powered output signal with an optional 3-Wire voltage output signal available. The Rigid Averaging sensors are designed to be installed in small to medium size ducts to give you a better average compared to that of a single point sensor. All transmitters include Zero and Span adjustments for field calibration and are calibrated using NIST Certified Calibration equipment. ACI recommends the use of an 18 to 22 AWG shielded cable for all temperature transmitter installations to help eliminate the possibility of noise being introduced onto the signal lines. The 1K Ohm Rigid Averaging sensor assemblies include a continuous sensing element that covers the entire length of the stainless steel probe and are manufactured using colored Etched Teflon lead wires to differentiate between the different sensor types. All units are hermetically sealed using our epoxy

material to eliminate the effects of moisture on the sensors. The Rigid Averaging transmitters include a foam pad to properly seal the duct and limit vibration once installed. Optional NEMA/IP rated weather proof enclosures are available as specified on the back of the product data sheet. For best accuracy, ACI recommends the use of the A/TTM Series Matched transmitters with a 3 or 5 Point NIST Calibration Certificate, since they include a second calibration process in which the RTD and transmitter are calibrated together as a system. On larger ducts, ACI's bendable copper averaging transmitter should be used for better coverage and control of the air inside of the duct.

Applications: Roof Top Units, Air Handlers, Monitoring Supply/Discharge/Return/Mixed Air Temperatures, Data Centers, Hospitals

The ACI Rigid Averaging Transmitter Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's web site, workaci.com.

PRODUCT SPECIFICATIONS

| | |
|---|---|
| Transmitter Supply Voltage Supply Current: | +8.5 to 32 VDC (Reverse Polarity Protected) 25 mA minimum 250 Ohm Load: +13.5 to 32 VDC 500 Ohm Load: +18.5 to 32 VDC |
| Maximum Load Resistance: | (Terminal Voltage - 8.5 V) 0.020 A |
| Output Signals: | Current: 4-20 mA (2-Wire Loop Powered) Voltage: 1-5 VDC or 2-10 VDC (3-Wires) |
| Calibrated Accuracy Linearity¹: | Temp. Spans < 500°F (260°C): +/- 0.2% |
| Thermal Drift²: | Temp. Spans < 100°F (38°C): +/- 0.04%/°F Temp. Spans > 100°F (38°C): +/- 0.02% |
| Min/Max Temperature Spans: | Minimum Span: 50°F (28°C) Maximum Span: 400°F (204°C) |
| TTM100/TTM1K NIST Certification Points: | 3 Point NIST: 20%, 50% & 80% of span 5 Point NIST: 20%, 35%, 50%, 65%, 80% of span |
| Warm Up Time Warm Up Drift: | 10 Minutes +/- 0.1% |
| Transmitter Operating Temperature Range: | -40°F to 185°F (-40 to 85°C) |
| Transmitter Operating Humidity Range: | 0 to 90%, non-condensing |
| Connections Wire Size: | Screw Terminal Blocks (Polarity Sensitive) 16 AWG (1.31 mm ²) to 26 AWG (0.129 mm ²) |
| Terminal Block Torque Rating: | 0.37 ft-lb (0.5 Nm) nominal |
| Sensor Type Sensor Curve Sensing Points: | Platinum RTD PTC (Positive Temperature Coefficient) Continuous |
| Number Wires Wire Colors: | Three Black/Black/White (Polarity Sensitive) |
| Sensor Output @ 0°C (32°F): | 1000 Ohms nominal |
| Sensor Accuracy: | +/- 0.1% @ 0°C (32°F) +/- 0.25% @ 21°C (70°F) +/- 1.0% @ 130°C (266°F) |
| Din Standard Temperature Coefficient: | DIN EN 60751 (IEC 751) 3850 ppm / °C |
| Response Time (63% Step Change): | 15 Seconds nominal |
| Sensor Operating Temperature Range: | -40 to 135°C (-40 to 275°F) |
| Enclosure Specifications (Operating Temperature, Material, Flammability, NEMA/IP Ratings): | "-GD" Enclosure: -40 to 115°C (-40 to 239°F); Galvanized Steel; NEMA 1 (IP10) "-PB" Enclosure: -30 to 90°C (-22 to 194°F); ABS Plastic; UL94-HB; Plenum Rated "-BB" Enclosure: -40 to 115°C (-40 to 239°F); Aluminum; NEMA 3R (IP 14) "-4X" Enclosure: -40 to 70°C (-40 to 158°F); Polystyrene Plastic; UL94-V2; NEMA 4X (IP 66) |
| Storage Temperature Range: | -40 to 80°C (-40 to 176°F) |
| Operating Humidity Range: | 5 to 90% RH, non-condensing |
| Probe Diameter Probe Material: | 0.250" (6.35mm) 304 Stainless Steel |
| Fitting Material Flammability Rating: | Polyamide 66 (High Performance Nylon 66) UL94-HB |
| Fitting Thread Size: | 1/8"-27 NPSM |
| Foam Pad Material Flammability Rating: | Neoprene/EPDM/SBR Polymer UL94-HBF; FMVSS-302; MIL-R-6130C |
| Lead Length Conductor Size: | 12" (30.5 cm) 22 AWG (0.65mm) |
| Lead Wire Insulation Wire Rating: | Etched Teflon (PTFE) Colored Leads Mil Spec 16878/4 Type E |
| Conductor Material: | Silver Plated Copper |
| Product Dimensions Product Weight: | See table on back of Product Data sheet |
| Agency Approvals: | RoHS2, WEEE |

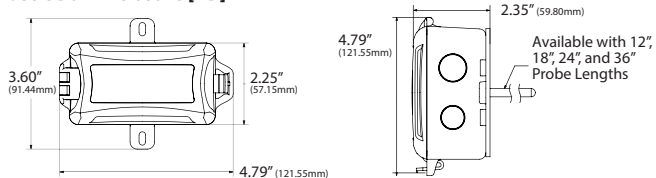
Note¹: Transmitter's calibrated at 71°F (22°C) nominal | **Note²:** Temperature Drift is referenced to 71°F nominal calibration temperature





DIMENSIONAL DRAWING, WEIGHTS

Plastic Box Enclosure [PB]

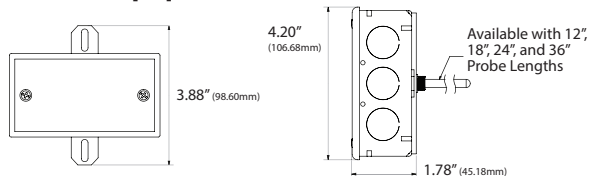


xx = Sensor Type | yy = Insertion Length

Plastic Box Enclosure [PB] Weights

| ACI Model # | 12" (Probe Length) | 18" (Probe Length) |
|---------------|----------------------|----------------------|
| A/xx-RA-yy-PB | 0.28 lbs. (0.127 kg) | 0.30 lbs. (0.136 kg) |
| ACI Model # | 24" (Probe Length) | 36" (Probe Length) |
| A/xx-RA-yy-PB | 0.32 lbs. (0.145 kg) | 0.36 lbs. (0.163 kg) |

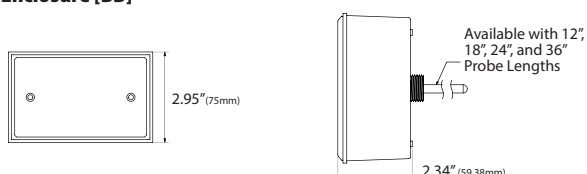
Galvanized Enclosure [GD]



Galvanized Enclosure [GD] Weights

| ACI Model # | 12" (Probe Length) | 18" (Probe Length) |
|---------------|----------------------|----------------------|
| A/xx-RA-yy-GD | 0.70 lbs. (0.317 kg) | 0.74 lbs. (0.336 kg) |
| ACI Model # | 24" (Probe Length) | 36" (Probe Length) |
| A/xx-RA-yy-GD | 0.78 lbs. (0.354 kg) | 0.82 lbs. (0.372 kg) |

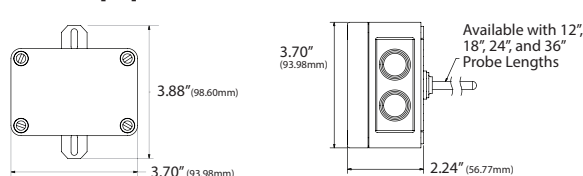
Bell Box Enclosure [BB]



Bell Box Enclosure [BB] Weights

| ACI Model # | 12" (Probe Length) | 18" (Probe Length) |
|---------------|----------------------|----------------------|
| A/xx-RA-yy-BB | 0.74 lbs. (0.336 kg) | 0.78 lbs. (0.354 kg) |
| ACI Model # | 24" (Probe Length) | 36" (Probe Length) |
| A/xx-RA-yy-BB | 0.78 lbs. (0.354 kg) | 0.84 lbs. (0.381 kg) |

NEMA 4X Enclosure [4X]



NEMA 4X Enclosure [4X] Weights

| ACI Model # | 12" (Probe Length) | 18" (Probe Length) |
|---------------|----------------------|----------------------|
| A/xx-RA-yy-4X | 0.38 lbs. (0.172 kg) | 0.40 lbs. (0.181 kg) |
| ACI Model # | 24" (Probe Length) | 36" (Probe Length) |
| A/xx-RA-yy-4X | 0.44 lbs. (0.200 kg) | 0.50 lbs. (0.227 kg) |

Standard Views

Product Weights

PRODUCT WEIGHT

| Model # | Weight (lbs.) | Weight (kg) | Model # | Weight (lbs.) | Weight (kg) |
|--------------------|---------------|-------------|--------------------|---------------|-------------|
| A/TT1K-RA-18"-x-PB | 0.32 | 0.145 | A/TT1K-RA-24"-x-BB | 0.83 | 0.376 |
| A/TT1K-RA-18"-x-GD | 0.76 | 0.345 | A/TT1K-RA-24"-x-4X | 0.47 | 0.213 |
| A/TT1K-RA-18"-x-BB | 0.80 | 0.363 | A/TT1K-RA-36"-x-PB | 0.43 | 0.195 |
| A/TT1K-RA-18"-x-4X | 0.44 | 0.200 | A/TT1K-RA-36"-x-GD | 0.89 | 0.404 |
| A/TT1K-RA-24"-x-PB | 0.35 | 0.159 | A/TT1K-RA-36"-x-BB | 0.91 | 0.413 |
| A/TT1K-RA-24"-x-GD | 0.79 | 0.358 | A/TT1K-RA-36"-x-4X | 0.57 | 0.259 |

CUSTOM ORDERING

Model # Example: **A/ TT1K RA 24" 1 GD 0 to 40°C**

| | |
|---|---|
| A. Sensor Series No Selection Required | A/ |
| B. Model Series Select One (1) | TT1K = 1K Ω RTD, Temperature Transmitter* TTM1K = 1K Ω Matched RTD/Transmitter* |
| C. Configuration No Selection Required | RA = Rigid Averaging |
| D. Probe Length Select One (1) | 12" = 12" Probe 18" = 18" Probe 24" = 24" Probe 36" = 36" Probe |
| E. Output Signal Select One (1) | 1=1 to 5 VDC 2=2 to 10 VDC 4=4 to 20 mA |
| F. Enclosure Select One (1) | GD=Galvanized PB=Plastic BB=Aluminum, NEMA 3R 4X=NEMA 4X |
| G. Calibration Span | Specify Span in °F or °C (Best Accuracy in 100°F Increments) |

MODEL

A/

RA

Note*: For TTM100 or TTM1K part numbers, the default NIST is 3 points | 5 points may be specified by using "-5PTNIST" at the end of any TTM part number.

ACCESSORIES ORDERING (NIST)

| Model # | Description |
|----------|---|
| -5PTNIST | 5 Point Calibration & Certificate for TTM parts |





ROOM

Wall Mount Enclosures, Transmitter

The ACI Transmitter Room Series features a two-wire, 4 to 20 mA loop powered output with optional 3-Wire voltage output signals available. All transmitters include Zero and Span adjustments for field calibration and are calibrated using NIST Certified Calibration equipment. ACI recommends the use of an 18 to 22 AWG shielded cable for all temperature transmitter installations to reduce the chances of noise being introduced onto the signal lines. The room transmitters are designed to be mounted over a standard single gang junction box or hole in the wall. For best accuracy, ACI recommends the use of the A/TTM Series Matched transmitters with 3 or 5 Point NIST Calibration Certificate, since they include a second calibration step in which the RTD and transmitter are calibrated together as a system. A/TTM series matched transmitters include a foam pad to reduce the effects of self-heating from the transmitter and thermal drafts from within the wall. Optional Set Point, Override and Loop Powered LCD Display.

Applications: Space Temperature Sensing, Office Buildings, Schools, Gyms, Manufacturing Plants, Pharmaceutical, Hospitals, Data Centers

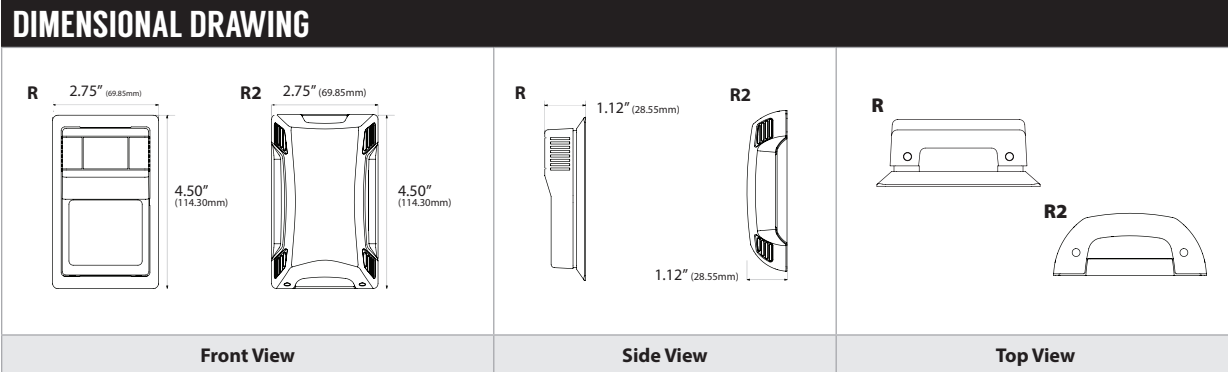
The ACI Transmitter Room Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's web site, workaci.com.

PRODUCT SPECIFICATIONS

| | |
|--|--|
| Transmitter Supply Voltage Supply Current: | +8.5 to 32 VDC (Reverse Polarity Protected) 25 mA minimum 250 Ohm Load: +13.5 to 32 VDC 500 Ohm Load: +18.5 to 32 VDC “-LCD” Loop Powered: Add +7 VDC to 250/500 Ohm Load Supply Voltage above |
| Maximum Load Resistance: | (Terminal Voltage - 8.5 V) 0.020 A |
| Output Signals: | Current: 4-20 mA (2-Wire Loop Powered) Voltage: 1-5 VDC or 2-10 VDC (3-Wires) |
| Calibrated Transmitter Accuracy Linearity¹: | Temp. Spans < 500°F (260°C): +/- 0.2% |
| Temperature Drift²: | Temp. Spans < 100°F (38°C): +/- 0.04%/°F Temp. Spans > 100°F (38°C): +/- 0.02% |
| TTM100/TTM1K Certification Points: | 3 Point NIST: 20%, 50% & 80% of span 5 Point NIST: 20%, 35%, 50%, 65% & 80% of span |
| Warm Up Time Warm Up Drift: | 10 minutes +/- 0.1% |
| Calibration Temperature Spans¹: | Minimum Temp. Span: 50°F (28°C) Maximum Temp. Span: 200°F (93°C) |
| Connections Wire Size: | Screw Terminal Blocks (Polarity Sensitive) 16 AWG (1.31 mm ²) to 26 AWG (0.129 mm ²) |
| Terminal Block Torque Rating: | 0.37 ft-lb (0.5 N-3m) nominal |
| Override Contact Type Contact Ratings: | Dry Contact “N/O” Contact Minimum: 10 uA @ 1 VDC Maximum: 50 mA @ 24 VDC |
| Set Point Accuracy: | +/- 10% 4-20 mA: 4 mA (Far Left) / 20 mA (Far Right)(DA-Direct Acting (Default)) 20 mA (Far Left) / 4 mA (Far Right)(RA-Reverse Acting (Optional)) |
| Sensor Type Sensor Curve Sensing Points: | Platinum RTD PTC (Positive Temperature Coefficient) One |
| Number Wires Wire Colors (TTM Series only): | Two A/TTM100-R/R2: Brown/Brown A/TTM1K-R/R2: Black/Black |
| Nominal Sensor Output @ 0°C (32°F): | A/TT100/TTM100-R/R2: 100 Ohms A/TT1K/TTM1K-R/R2: 1000 Ohms |
| RTD Tolerance Class Sensor Accuracy: | +/- 0.06% Class A (Tolerance Formula: +/- °C = (0.002 * t)) where t is the absolute value of temperature above or below 0°C in °C |
| Din Standard Temperature Coefficient: | DIN EN 60751 (IEC 751) 3850 ppm / °C |
| Sensor Stability: | +/- 0.03% after 1000 hours @ 300°C (572°F) |
| LCD Display Input Signal: | 4 to 20 mA Only (2-Wire Loop Powered) |
| LCD Display Accuracy: | +/- 1.0% of Calibrated Temperature Span or +/- Whichever is Greater |
| LCD Display Descriptor Number of Digits: | °F (Fahrenheit) or °C (Celsius) 3 1/2 Segment Display |
| LCD Display Life Expectancy: | 50,000 Hours Minimum |
| Operating Temperature Range³: | 35 to 122°F (1.5 to 50°C) |
| Storage Temperature Range³: | Non-LCD: -40 to 65°C (-40 to 149°F) LCD Display: -10 to 65°C (14 to 149°F) |
| Operating Humidity Range: | 5 to 95% RH non-condensing |
| Enclosure Specifications (Material Type, Color, UL Flammability Range): | “-R2” Enclosure: ABS Plastic White UL94-HB “-R” Enclosure: ABS Plastic Beige UL94-HB |
| Foam Pad Material Flammability Rating (TTM Only): | Neoprene/EPDM/SBR Polymer UL94-HBD; FMVSS-302; MIL-R-6130C |
| Product Dimentions (L x W x H): | 4.50" (114.3 mm) x 2.78" (70.6 mm) x 1.00" (25.4 mm) “-R/RS/RO” Series: 0.17 lbs. (0.375 kg) “-RSO” Series: 0.21 lbs. (0.46 kg) |
| Product Weight: | “-R2/R2S/R2O” Series: 0.19 lbs. (0.42 kg) “-R2SO” Series: 0.23 lbs. (0.51 kg) All LCD Display Units: 0.174 lbs (0.079 kg) |
| Agency Approvals: | RoHS2, WEEE |

Note¹: Transmitter's calibrated at 71°F (22°C) nominal | **Note²:** Temperature Drift is referenced to 71°F (22°C) nominal calibration temperature | **Note³:** Temperature spans may go outside of the operating temperature range but the unit must be used within the operating temperature limit





| CUSTOM ORDERING STANDARD ACCURACY | | MODEL # |
|--|--|---------|
| A. Sensor Series¹ No Selection Required | A/ | A/ |
| B. Model Series Select One (1) | TT100 = 100 Ohm Platinum RTD TT1K = 1K Ohm Platinum RTD | |
| C. Configuration Select One (1) | R = Room RO = Room with Override RS = Room with Set Point RSO = Room with Setpoint and Override R2 = Room R2O = Room with Override R2S = Room with Set Point R2SO = Room with Set Point and Override | |
| D. Output Signal Select One (1) | 1 = 1 to 5 VDC 2 = 2 to 10 VDC 4 = 4 to 20 mA | |
| E. LCD Display² Select One (1) | ---- = No LCD Display LCD ² = With LCD Display (Only Available with "R" Style Enclosure) | |
| F. Calibrated Span | Specify Span in °F or °C (Best Accuracy in 100°F Increments ³) | |
| Setpoint Configuration Options Select Options below if RS, RSO, R2S or R2SO was selected as a Configuration (C) | | |
| 1. Potentiometer Select One (1) | 4-20 mA | |
| 2. Setpoint Indication Select One (1) | A3 = 18-28 DEG C A4 = 20-30 DEG C B4 = 55-85 DEG F B7 = 60-90 DEG F C5 = COOL/WARM C6 = COOLER/WARMER D3 = WARM/COOL G5 = BLUE/RED (R2 Enclosure) | |

Note¹: A/ part numbers come without logo. For custom logo, replace A/ with Company abbreviation. Please contact ACI | **Note²:** LCD Display is not compatible with NIST | **Note³:** Best transmitter accuracy with spans in 100°F Increments (ie. 0 to 100°F or 1.5 to 40°C)

| CUSTOM ORDERING HIGHER ACCURACY | | MODEL # |
|---|--|---------|
| A. Sensor Series¹ No Selection Required | A/ | A/ |
| B. Model Series Select One (1) | TTM100 = Matched 100Ω Platinum RTD TTM1K = Matched 1KΩ Platinum RTD ² | |
| C. Configuration Select One (1) | R = Room R2 = Room | |
| D. Output Signal Select One (1) | 1 = 1 to 5 VDC 2 = 2 to 10 VDC 4 = 4 to 20 mA | |
| E. Calibrated Span | Specify Span in °F or °C (Best Accuracy in 100°F Increments ³) | |

Note¹: A/ part numbers come without logo. For custom logo, replace A/ with Company abbreviation. Please contact ACI | **Note²:** For TTM100 or TTM1K part numbers, the default NIST is 3 points / 5 points may be specified by using "-5PTNIST" at the end of any TTM part number. | **Note³:** Best transmitter accuracy with spans in 100°F Increments (ie. 0 to 100°F or 1.5 to 40°C)

ACCESSORIES ORDERING

| Model # | Item # | Description |
|---------------------------|--------|---|
| A/MOUNTING PLATE BEIGE R | 106821 | Wall Mounting Back Plate, Plastic, Beige ("R") |
| A/MOUNTING PLATE WHITE R | 126386 | Wall Mounting Back Plate, Plastic, White ("R") |
| A/MOUNTING PLATE WHITE R2 | 143369 | Wall Mounting Back Plate, Plastic, White ("R2") |

ACCESSORIES ORDERING (NIST)

| Model # | Description |
|----------|---|
| -5PTNIST | 5 Point Calibration & Certificate for TTM parts |





STRAP ON

Non-Intrusive Pipe Mount, Transmitter

The ACI Transmitter Strap-On Series features a standard two-wire, 4 to 20 mA loop powered output signal with optional 3-Wire voltage output signals available. The Strap-On transmitter should be used in retrofit applications where an immersion style sensor can't be inserted into the pipe or in applications where high accuracy is not required. For best results, ACI recommends cleaning the pipes with a brush or small piece of sand paper before applying thermal grease to the top of the copper plate and securing to the pipe. Be sure not to over tighten before insulating the transmitter from the effects of the ambient air. For best results the sensor should be mounted on the top or sides of the pipe such that moisture and condensation will not cause the transmitter to fail prematurely. All transmitters must be ordered with the temperature span that you require, since the boards are tuned

to give you the best performance characteristics for the temperature span specified. Zero and Span adjustments are available for recalibration in the field when using NIST Certified equipment. ACI recommends the use of an 18 to 22 AWG shielded cable for all temperature transmitter installations to protect against the introduction of noise onto the signal lines.

Applications: Hot Water Systems, Chilled Water Systems, Hydronic Systems, Chillers, Boilers

The ACI Transmitter Strap-On Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's web site, workaci.com.

| PRODUCT SPECIFICATIONS | |
|---|---|
| Transmitter Supply Voltage Supply Current: | +8.5 to 32 VDC (Reverse Polarity Protected) 25 mA minimum 250 Ohm Load: +13.5 to 32 VDC 500 Ohm Load: +18.5 to 32 VDC |
| Maximum Load Resistance: | Terminal Voltage - 8.5 V 0.020 A |
| Transmitter Output Signals: | Current: 4-20 mA (2-Wire, Loop Powered) Voltage: 1-5 VDC or 2-10 VDC (3-Wires) |
| Calibrated Accuracy Linearity¹: | Temp. Spans < 500°F (260°C): +/- 0.2% Temp. Spans > 500°F (260°C): +/- 0.5% |
| Temperature Drift²: | Temp. Spans < 100°F (38°C): +/- 0.04%/°F Temp. Spans > 100°F (38°C): +/- 0.02% |
| TTM100/TTM1K NIST Certification Points: | 3 Point NIST: 20%, 50% & 80% of span 5 Point NIST: 20%, 35%, 50%, 65%, 80% of span |
| Calibrated Temperature Spans: | Minimum Temp. Span: 50°F (28°C) Maximum Temp. Span: 300°F (148°C) |
| Transmitter Warm Up Time Warm Up Drift: | 10 Minutes +/- 0.1% |
| Transmitter Operating Temperature Range: | -40°F to 185°F (-40 to 85°C) |
| Transmitter Operating Humidity Range: | 0 to 90%, non condensing |
| Connections Wire Size: | Screw Terminal Blocks (Polarity Sensitive) 16 AWG (1.31 mm ²) to 26 AWG (0.129 mm ²) |
| Terminal Block Torque Rating: | 0.37 ft-lb (0.5 Nm) nominal |
| Sensor Type Sensor Curve: | Platinum RTD PTC (Positive Temperature Coefficient) |
| Nominal Sensor Resistance @ 32°F (0°C): | A/TT/TTM100 Series: 100 Ohms A/TT/TTM1K Series: 1000 Ohms |
| RTD Tolerance Class Accuracy: | +/- 0.06% Class A (Tolerance Formula: +/- °C = (0.15°C + (0.002 * t)) where t is the absolute value of Temperature above or below 0°C in °C) |
| Sensor Din Standard Temperature Coefficient: | DIN EN 60751 (IEC 751) 3850 ppm / °C |
| Enclosure Specifications (Operating Temp. Range, Flammability, NEMA/IP Ratings): | A/XX-S-GD: Galvanized Steel, -40 to 93°C (-40 to 200°F), NEMA 1 (IP 10) A/XX-S-PB: ABS Plastic, -30 to 85°C (-22 to 185°F), UL94-HB, Plenum Rated A/XX-S-4X: Polystyrene Plastic, -40 to 70°C (-40 to 158°F), UL94-V2, NEMA 4X (IP 66) |
| Storage Temperature Range: | -40 to 75°C (-40 to 167°F) |
| Operating Humidity Range: | 10 to 90% RH, non-condensing |
| Sensing Plate Material: | Copper |
| Fits Pipe Sizes: | 1 1/4" (32 mm) to 4" (100 mm) |
| Foam Material Flammability Rating: | Neoprene/EPDM/SBR Polymer UL94-HF1; MIL-R-6130C; FMVSS-302 |
| Lead Length Conductor Size: | 14" (35.6 cm) 22 AWG (0.65 mm) |
| Lead Wire Insulation Wire Rating: | Etched Teflon (PTFE) Colored Leads MIL-W-16878/4 (Type E) |
| Conductor Material: | Silver Plated Copper |
| Product Weight: | A/XX-S-GD: 0.83 lbs. (0.38kg) A/XX-S-PB: 0.43 lbs. (0.20kg) A/XX-S-4X: 0.58 lbs. (0.27kg) |
| Agency Approvals: | RoHS2, WEEE |

Note¹: Transmitter's calibrated at 71°F (22°C) nominal | **Note²:** Temperature Drift is referenced to 71°F nominal calibration temperature





| DIMENSIONAL DRAWING | | |
|--|------------------|---|
| <p>Plastic Box Enclosure [PB]</p> | | <p>Foam Pad Will Compress Upon Installation</p> |
| <p>Galvanized Enclosure [GD]</p> | | <p>Foam Pad Will Compress Upon Installation</p> |
| <p>NEMA 4X Enclosure [4X]</p> | | <p>Foam Pad Will Compress Upon Installation</p> |
| Front View | Side View | Back View |

| CUSTOM ORDERING | | Model # Example: A/ TT100 S 2 GD 10 to 110°F | MODEL # |
|---|---|---|---------|
| | | A. B. C. D. E. F. | |
| A. Sensor Series No Selection Required | A/ | → | A/ |
| B. Model Series Select One (1) | TT100 = 100Ω TTM100 = Matched 100Ω* TT1K = 1KΩ TTM1K = Matched 1KΩ* | | |
| C. Configuration No Selection Required | S = Strap-On (1.25" to 4" Pipe Size) | → | S |
| D. Analog Output Select One (1) | 1 = 1 to 5 VDC 2 = 2 to 10 VDC 4 = 4 to 20 mA | | |
| E. Enclosure Select One (1) | GD = Galvanized PB = Plastic 4X = NEMA 4X Weather Proof | | |
| F. Calibrated Span | Specify Span in °F or °C (Best Accuracy in 100°F Increments) | | |

Note*: For TTM100 or TTM1k part numbers, the default NIST is 3 points | 5 points may be specified by using "-5PTNIST" at the end of any TTM part number.

| ACCESSORIES ORDERING | | |
|------------------------------|--------|--|
| Model # | Item # | Description |
| A/HOSE CLAMP-2-5" | 142630 | Hardware, 2-5" Hose Clamp, Quick Release Worm Gear, 201/301 Stainless Steel |
| A/HOSE CLAMP-2-12" | 142631 | Hardware, 2-12" Hose Clamp, Quick Release Worm Gear, 201/301 Stainless Steel |
| NSG HEAT TRANSFER PASTE 2OZ | 102595 | Thermal Grease, 2 oz. Tube, Silicone Free, -40 to 320°F (-40 to 160°C) |
| NSG HEAT TRANSFER PASTE 16OZ | 140574 | Thermal Grease, 16 oz. Jar, Silicone Free, -40 to 390°F (-40 to 198°C) |

| ACCESSORIES ORDERING (NIST) | |
|-----------------------------|---|
| Model # | Description |
| -5PTNIST | 5 Point Calibration & Certificate for TTM parts |





WALL PLATES

Wall Plates with Transmitters

The ACI Transmitter Wall Plate Series features a two-wire, 4 to 20 mA loop powered output with optional 3-Wire voltage output signals available. All transmitters include Zero and Span adjustments for field calibration and are calibrated using NIST Certified Calibration equipment. We recommend the use of an 18 to 22 AWG shielded cable for all temperature transmitter installations to reduce the chances of noise being introduced onto the signal lines. The sensor assemblies are manufactured using colored Etched Teflon lead wires and ACI's proven double encapsulation process to eliminate the effects of moisture on the sensors as well as increase the thermal response times using our high quality, thermally conductive epoxy. The wall plate transmitters are designed to be mounted over a standard single gang junction box or hole in the wall and includes a foam pad to reduce the effects of self-heating from the transmitter and thermal drafts from within the wall. For best accuracy, ACI recommends the use of the A/TTM Series Matched transmitters with 3 or 5 Point NIST Calibration Certificate, since they include a second calibration step in which the RTD and transmitter are calibrated together as a system. Optional tamper proof mounting screws and screw driver bits are available to keep people from removing the plates from the wall.

Applications: Space Temperature Sensing, Office Buildings, Hallways, Schools, Gyms, Manufacturing Plants, Clean Rooms, Pharmaceutical, Hospitals, Secure Installations

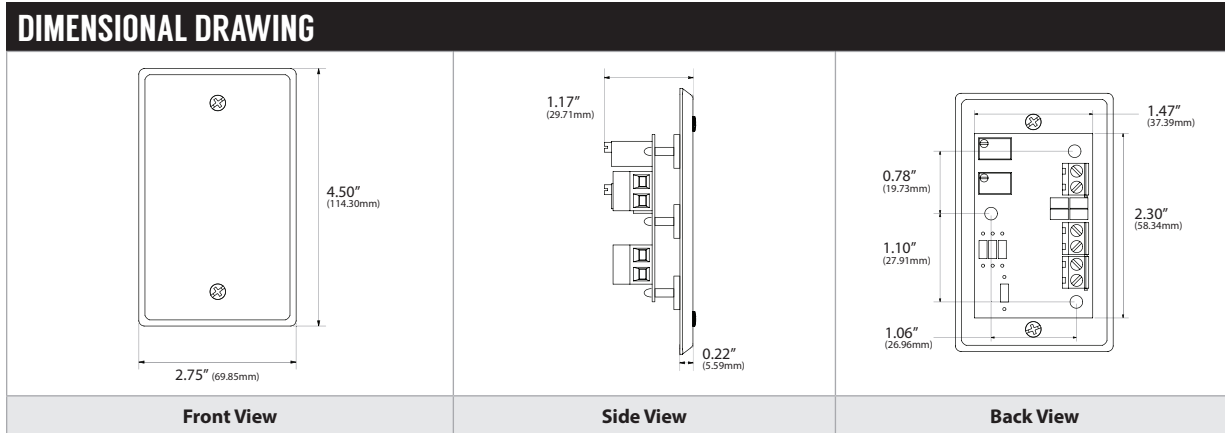
The ACI Transmitter Wall Plate Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's web site, workaci.com.

PRODUCT SPECIFICATIONS

| | |
|---|--|
| Transmitter Supply Voltage Supply Current: | +8.5 to 32 VDC (Reverse Polarity Protected) 25 mA minimum 250 Ohm Load: +13.5 to 32 VDC 500 Ohm Load: +18.5 to 32 VDC |
| Maximum Load Resistance: | (Terminal Voltage - 8.5 V) 0.020 A |
| Output Signals: | Current: 4-20 mA (2-Wire Loop Powered) Voltage: 1-5 VDC or 2-10 VDC (3-Wires) |
| Calibrated Transmitter Accuracy Linearity¹: | Temp. Spans < 500°F (260°C): +/- 0.2% |
| Temperature Drift²: | Temp. Spans < 100°F (38°C): +/- 0.04%/°F Temp. Spans > 100°F (38°C): +/- 0.02% |
| TTM100/TTM1K Certification Points: | 3 Point NIST: 20%, 50% & 80% of span 5 Point NIST: 20%, 35%, 50%, 65% & 80% of span |
| Warm Up Time Warm Up Drift: | 10 minutes +/- 0.1% |
| Calibration Temperature Spans¹: | Minimum Temp. Span: 50°F (28°C) Maximum Temp. Span: 200°F (93°C) |
| Connections Wire Size: | Screw Terminal Blocks (Polarity Sensitive) 16 AWG (1.31 mm ²) to 26 AWG (0.129 mm ²) |
| Terminal Block Torque Rating: | 0.37 ft-lb (0.5 N-3m) nominal |
| Sensor Type Sensor Curve Sensing Points: | Platinum RTD PTC (Positive Temperature Coefficient) One |
| Number Wires Wire Colors: | Two A/TT100/TTM100-SP: Brown/Brown A/TT1K/TTM1K-SP: Black/Black |
| Sensor Output @ 0°C (32°F): | A/TT100/TTM100-SP: 100 Ohms nominal A/TT1K/TTM1K-SP: 1000 Ohms nominal |
| RTD Tolerance Class Sensor Accuracy: | +/- 0.06% Class A (Tolerance Formula: +/- °C = (0.15°C + (0.002 * t)) where t is the absolute value of temperature above or below 0°C in °C) |
| Din Standard Temperature Coefficient: | DIN EN 60751 (IEC 751) 3850 ppm / °C |
| Sensor Stability: | +/- 0.03% after 1000 Hours @ 300°C (572vF) |
| Response Time (63% Step Change): | 20 Seconds nominal |
| Operating Temperature Range: | 35°F to 160°F (1.5 to 71°C) |
| Storage Temperature Range: | -40 to 160°F (-40 to 71°C) |
| Operating Humidity Range: | 5 to 90% RH, non-condensing |
| Plate Material: | 430 Stainless Steel (Brushed Stainless Steel Finish) |
| Foam Pad Material Flammability Rating: | Neoprene/EPDM/SBR Polymer UL94-HBF; FMVSS-302; MIL-R-6130C |
| Lead Length Conductor Size: | 14" (35.6 cm) 22 AWG (0.65 mm) |
| Lead Wire Insulation Wire Rating: | Etched Teflon (PTFE) Colored Leads Mil Spec 16878/4 Type E |
| Conductor Material: | Silver Plated Copper |
| Product Dimensions (L x W x D): | 4.50" (114.3 mm) x 2.78" (70.6 mm) x 1.00" (25.4 mm) |
| Product Weight: | 0.19 lbs. (86.2 g) |
| Agency Approvals: | RoHS2, WEEE |

Note¹: Transmitter's calibrated at 71°F (22°C) nominal | **Note²:** Temperature Drift is referenced to 71°F nominal calibration temperature





ACCESSORIES ORDERING

| Model # | Item # | Description |
|----------------|--------|---|
| A/TT100-SP-1 | 142559 | TT100 Stainless Plate; 100 Ohm RTD; 1-5 VDC (3-Wire) Output; Foam Pad |
| A/TT100-SP-2 | 118450 | TT100 Stainless Plate; 100 Ohm RTD; 2-10 VDC (3-Wire) Output; Foam Pad |
| A/TT100-SP-4 | 118451 | TT100 Stainless Plate; 100 Ohm RTD; 4-20 mA (2-Wire) Output; Foam Pad |
| A/TTM100-SP-1* | 134459 | TTM100 Matched Sensor/Transmitter; Stainless Plate; 1-5 VDC (3-Wire) Output, Foam Pad* |
| A/TTM100-SP-2* | 142560 | TTM100 Matched Sensor/Transmitter; Stainless Plate; 2-10 VDC (3-Wire) Output, Foam Pad* |
| A/TTM100-SP-4* | 118904 | TTM100 Matched Sensor/Transmitter; Stainless Plate; 4-20 mA (2-Wire) Output, Foam Pad* |
| A/TT1K-SP-1 | 118661 | TT1K Stainless Plate; 1K Ohm RTD; 1-5 VDC (3-Wire) Output; Foam Pad |
| A/TT1K-SP-2 | 118663 | TT1K Stainless Plate; 1K Ohm RTD; 2-10 VDC (3-Wire) Output; Foam Pad |
| A/TT1K-SP-4 | 118664 | TT1K Stainless Plate; 1K Ohm RTD; 4-20 mA (2-Wire) Output; Foam Pad |
| A/TTM1K-SP-1* | 142561 | TTM1K Matched Sensor/Transmitter; Stainless Plate; 1-5 VDC (3-Wire) Output, Foam Pad* |
| A/TTM1K-SP-2* | 118982 | TTM1K Matched Sensor/Transmitter; Stainless Plate; 2-10 VDC (3-Wire) Output, Foam Pad* |
| A/TTM1K-SP-4* | 118983 | TTM1K Matched Sensor/Transmitter; Stainless Plate; 4-20 mA (2-Wire) Output, Foam Pad* |

CUSTOM ORDERING

| | | MODEL # |
|---|--|---------|
| A. Sensor Series¹ No Selection Required | A/ | A/ |
| B. Model Series Select One (1) | TT100 = 100Ω TTM100 = Matched 100Ω* TT1K = 1KΩ TTM1K = Matched 1KΩ* | |
| C. Configuration No Selection Required | SP = 1 Gang Stainless Steel Wall Plate | SP |
| D. Output Signal Select One (1) | 1 = 1 to 5 VDC 2 = 2 to 10 VDC 4 = 4 to 20 mA | |
| E. Calibrated Span | Specify Span in °F or °C (Best Accuracy in 100°F Increments ³) | |

Note*: For TTM100 or TTM1K part numbers, the default NIST is 3 points | 5 points may be specified by using "-5PTNIST" at the end of any TTM part number.

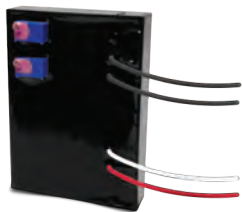
ACCESSORIES ORDERING

| Model # | Item # | Description |
|------------------------|--------|---|
| A/TAMPER PROOF SCREWS | 144865 | Two (2) Screws, Tamper Proof, #6 x 5/8", Zinc Plated, Flat Head, 1/8" |
| SCREWDRIVER INSERT BIT | 143067 | Screwdriver Bit, Tamper Proof Screw, 5/64 |

ACCESSORIES ORDERING (NIST)

| Model # | Description |
|----------|---|
| -5PTNIST | 5 Point Calibration & Certificate for TTM parts |





POTTED TT

Calibrated Transmitter, No Sensor

The ACI Potted transmitter with the transmitter board encapsulated in epoxy for extra moisture and corrosion protection. ACI's epoxy is thermally conductive which allows the heat from the transmitter to dissipate more freely than would occur in air or with other conformal coatings and reduces hot spots by evenly distributing the heat over the entire PCB assembly. The potted transmitter can be ordered with a two-wire 4 to 20mA loop powered output signal or 3-wire 1 to 5V or 2 to 10V output based upon the ordered temperature span range. The transmitter can be used with any existing 100 or 1K ohm Platinum RTD sensor with a 385 temperature

coefficient and features flying leads for easy wiring. Zero and Span adjustments are standard for recalibration in the field when using NIST Certified equipment. ACI recommends the use of an 18 to 22 AWG shielded cable for all temperature transmitter installations to protect against the introduction of noise onto the signal lines. ACI does offer recalibration services for any transmitters sent back to us for a nominal fee.

Applications: Replacement Temperature Transmitters, High Moisture and Corrosive Environments, Conversion of existing Platinum 2 or 3 Wire RTD's to linear current or voltage output signal, transmit signals over long wire runs

The ACI Potted Transmitter is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|---|--|
| Transmitter Supply Voltage Supply Current: | +8.5 to 32 VDC (Reverse Polarity Protected) 25 mA minimum |
| | 250 Ohm Load: +13.5 to 32 VDC 500 Ohm Load: +18.5 to 32 VDC |
| Maximum Load Resistance: | (Terminal Voltage - 8.5 V) / 0.020 A |
| Transmitter Output Signals: | Current: 4-20 mA (2-Wire, Loop Powered) Voltage: 1-5 VDC or 2-10 VDC (3-Wires) |
| Calibrated Accuracy Linearity ¹: | Temp. Spans < 500°F (260°C): +/- 0.2% Temp. Spans > 500°F (260°C): +/- 0.5% |
| Temperature Drift ²: | Temp. Spans < 100°F (38°C): +/- 0.04%/°F Temp. Spans > 100°F (38°C): +/- 0.02% |
| Calibrated Temperature Spans ¹: | Minimum Temp. Span: 50°F (28°C) Maximum Temp. Span: 1000°F (538°C) |
| Sensor Type Accepted Sensor Curve: | Platinum RTD PTC (Positive Temperature Coefficient) |
| Sensor Resistance Characteristics (Nominal): | A/TT100 Series: 100 Ohms @ 32°F (0°C) A/TT1K Series: 1000 Ohms @ 32°F (0°C) |
| Sensor Din Standard Temperature Coefficient: | DIN EN 60751 (IEC 751) 3850 ppm / °C |
| Warm Up Time Warm Up Drift: | 10 Minutes +/- 0.1% |
| Operating Temperature Range: | -40°F to 185°F (-40 to 85°C) |
| Storage Temperature Range: | -40 to 80°C (-40 to 176°F) |
| Operating Humidity Range: | 0 to 90%, non-condensing |
| Potting Material: | Two (2) part epoxy / resin |
| Dielectric Strength: | 420V / mil |
| Thermal Conductivity: | 0.642 w / m.k |
| Hardness, Shore Scale: | 92D ASTM D 2240 |
| Mounting Configuration: | Double Sided Tape |
| Product Dimensions (L x W x H) Product Weight: | 2.30" (58.42 mm) x 1.478" (37.54 mm) x 0.775" (19.69 mm) 0.15 lbs. (68.04 g) |
| Agency Approvals: | RoHS2, WEEE |

Note ¹: Transmitter's calibrated at 71°F (22°C) nominal | **Note ²:** Temperature Drift is referenced to 71°F nominal calibration temperature

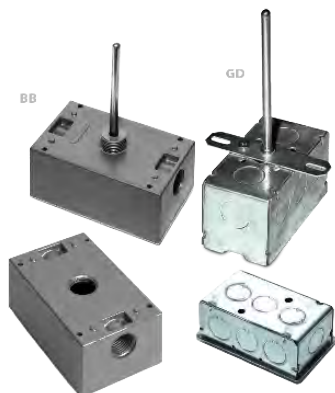
STANDARD ORDERING

Model # Example: **A/TT100-BO-4-POTTED** -OR- **118464**

| Model # | Item # | Description |
|----------------------------|--------|---|
| A/TT100-BO-4-POTTED | 118464 | Potted Transmitter, Board Only for 100 Ohm Platinum RTD Sensor |
| A/TT1K-BO-4-POTTED | 129768 | Potted Transmitter, Board Only for 1000 Ohm Platinum RTD Sensor |

For Additional Potted TT Configurations & Ordering, Contact ACI (888) 967-5224





DUCT

Low Temperature Duct Sensors & Transmitters

The ACI Low Temperature Duct Series sensors and transmitters are a single point duct sensor featuring a three wire RTD sensor assembly using Teflon Lead wires and a 316 Series stainless steel probe. The three wire sensors can be used with a two wire transmitter by connecting the two (Red) colored wires to one of the RTD Terminal blocks with the third wire (White) wire going to the second RTD Terminal block. The purpose of the third wire is to compensate for external lead wire resistance that will affect the accuracy of your sensor output when using with a three wire temperature transmitter or sensor configuration on your Building Management System or PLC (Programmable Logic Controller). ACI recommends the use of 18 AWG lead wires to reduce the external lead wire resistance when using a Platinum RTD. The operating specifications are for both the sensor and transmitter as designated in the specification table. Standard enclosure options include the “-GD” Galvanized or “-BB” Aluminum weather proof enclosure. NIST Certificates are available for all of the configurations listed in the ordering grid on the back of the product data sheet. For best accuracy, ACI recommends the use of the TTM100 or TTM1K Series

Matched transmitters since they include a second calibration step in which the RTD and transmitter are calibrated together as a system, in order to remove most of the sensor error over the calibrated temperature span of the transmitter.

Applications: Pharmaceutical, Liquid Nitrogen, Refrigerators, Freezers, Hydronic Heating, Remote Sensor Applications

The ACI Low Temperature Duct Sensors and Transmitters Series is covered by ACI’s Five (5) Year Limited Warranty. The warranty can be found in the front of ACI’s Sensors & Transmitters catalog, as well as on ACI’s web site, workaci.com.

| PRODUCT SPECIFICATIONS | |
|--|--|
| Transmitter Supply Voltage Supply Current: | +8.5 to 32 VDC (Reverse Polarity Protected) 25 mA minimum |
| Maximum Load Resistance: | 250 Ohm Load: +13.5 to 32 VDC 500 Ohm Load: +18.5 to 32 VDC (Terminal Voltage - 8.5 V) 0.020 A |
| Output Signal: | Current: 4-20 mA (2-Wire Loop Powered) Voltage: 1-5 VDC or 2-10 VDC (3-Wires) |
| Calibration Transmitter Accuracy Linearity: | Temp. Spans < 500°F (260°C): +/- 0.2% Temp. Spans > 500°F (260°C): +/- 0.5% |
| Temperature Drift: | Temp. Spans < 100°F (38°C): +/- 0.04%/°F Temp. Spans > 100°F (38°C): +/- 0.02% |
| Warm Up Time Warm Up Drift: | 10 Minutes +/- 0.1% |
| Operating Storage Temperature Range: | -40°F (-40°C) to 185°F (85°C) |
| Operating Humidity Range: | 0 to 90%, non-condensing |
| Calibration Temperature Spans¹: | Minimum Temp. Span: 50°F (28°C) Maximum Temp. Span: 700°F (370°C) |
| Connections Wire Size: | Screw Terminal Blocks (Non-Polarity Sensitive) 16 AWG (1.31 mm ²) to 26 AWG (0.129 mm ²) |
| Terminal Block Torque Rating: | 0.5 Nm nominal |
| Sensor Type Sensor Curve Sensor Points: | Platinum RTD PTC (Positive Temperature Coefficient) One |
| Number Wires: | A/100-3W-LT-I-XX” and A/1K-3W-LT-I-xx”: Three (White / Two Red) Polarity Sensitive |
| Sensor Output @ 0°C (32°F): | A/100-3W-LT-I-xx”: 100 Ohms nominal A/1K-3W-LT-I-xx”: 1000 Ohms nominal |
| Sensor Tolerance Accuracy²: | +/- 0.12% Class B Class B Tolerance Formula: +/- °C = (0.30°C + (0.005 * t)) |
| Din Standard Temperature Coefficient: | DIN EN 60751 (IEC 751) 3850 ppm / °C |
| Sensor Stability: | < 0.04 % at 1000 hours at 400°C |
| Self-Heating Maximum Operating Current: | 100 Ohm RTD: 7 mW/°C (Still Air) 5 mA 1K Ohm RTD: 4 mW/°C (Still Air) 3 mA |
| Sensor Operating Temperature Range: | -198 to 150°C (-324 to 302°F) |
| Enclosure Specifications (Operating Temperature Range, Material, Flammability, NEMA/IP Rating): | “-GD” Enclosure: -40 to 199°C (-40 to 390°F); Galvanized Steel; NEMA 1 (IP10) “-BB” Enclosure: Aluminum, -40 to 121°C (-40 to 250°F), Plenum Rated, NEMA 3R |
| Storage Temperature Range: | -40 to 85°C (-40 to 185°F) |
| Operating Humidity Range: | 10 to 95% RH, non-condensing |
| Probe Material Probe Diameter: | 316 Stainless Steel 0.250” (6.35mm) |
| Compression Fitting Material: | 316 Stainless Steel |
| Lead Length Conductor Size: | 8’ (2.44 m) 22 AWG (0.25 mm) |
| Lead Wire Insulation Conductor Material: | Etched Teflon (PTFE) Silver Plated Copper |
| Product Dimensions Product Weight: | See table on back of Product Data sheet |
| Agency Approvals: | RoHS2, WEEE |

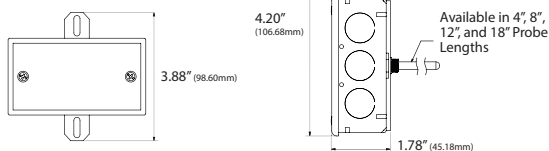
Note¹: Transmitter’s calibrated at 71°F (22°C) nominal | **Note²:** Where |t| is the absolute value of temperature above or below 0°C in Centigrade





DIMENSIONAL DRAWING

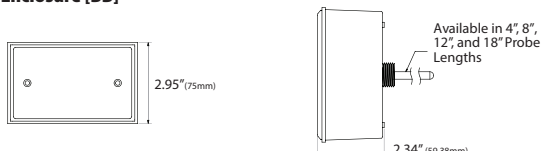
Galvanized Enclosure [GD]



Galvanized Enclosure [GD] Weights

| ACI Model # | 4" (Probe Length) | 8" (Insertion Length) |
|--------------|----------------------|-----------------------|
| A/xx-D-yy-GD | 0.66 lbs. (0.299 kg) | 0.68 lbs. (0.308 kg) |
| ACI Model # | 12" (Probe Length) | 18" (Probe Length) |
| A/xx-D-yy-GD | 0.70 lbs. (0.317 kg) | 0.74 lbs. (0.336 kg) |

Bell Box Enclosure [BB]



Bell Box Enclosure [BB] Weights

| ACI Model # | 4" (Probe Length) | 8" (Insertion Length) |
|--------------|----------------------|-----------------------|
| A/xx-D-yy-BB | 0.70 lbs. (0.317 kg) | 0.72 lbs. (0.326 kg) |
| ACI Model # | 12" (Probe Length) | 18" (Probe Length) |
| A/xx-D-yy-BB | 0.74 lbs. (0.336 kg) | 0.78 lbs. (0.354 kg) |

Standard Views

Product Weights

Note: There are two enclosures included with configurations involving Temperature Transmitters. A secondary GD (Galvanized) enclosure contains the transmitter board to protect it from the extreme temperatures exposed to the sensing element

CUSTOM ORDERING LOW TEMPERATURE DUCT SENSORS

Model # Example: A/ 1K 3W LT D 4" GD NIST

| Option | Description | Selection |
|--------------------------------|-----------------------|--|
| A. Sensor Series | No Selection Required | A/ |
| B. Model Series | Select One (1) | 100 = 100 Ohm Platinum RTD only 1K = 1K Ohm Platinum RTD only |
| C. Number of Wires | No Selection Required | 3W = Three Wires (Specify for 100 and 1K RTD Sensors only) |
| D. High Temperature | No Selection Required | LT = Low Temperature Series |
| E. Configuration | Select One (1) | D = Duct |
| F. Thermowell Insertion Length | Select One (1) | 4" = 4" Probe 8" = 8" Probe 12" = 12" Probe 18" = 18" Probe |
| G. Enclosure | Select One (1) | GD = Galvanized Enclosure BB = Cast Aluminum Weather Proof Enclosure |
| H. NIST | Select One (1) | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) |

MODEL

| |
|------|
| A/ |
| 1K |
| 3W |
| LT |
| D |
| 4" |
| GD |
| NIST |

CUSTOM ORDERING LOW TEMPERATURE DUCT TRANSITTERS

Model # Example: A/ TT100 LT D 8" 2 GD

| Option | Description | Selection |
|--------------------------------|-----------------------|--|
| A. Sensor Series | No Selection Required | A/ |
| B. Model Series | Select One (1) | TT100 = Unmatched Temperature Transmitter & 100 Ohm RTD TT1K = Unmatched Temperature Transmitter & 1K RTD TTM100 = Matched 100 Ohm Temperature Transmitter/Sensor TTM1K = Matched 1K Ohm Temperature Transmitter/Sensor (Must specify 3 or 5 Point NIST Certificates for all TTM100 and TTM1K Transmitters) |
| C. High Temperature | No Selection Required | LT = Low Temperature Series |
| D. Configuration | Select One (1) | D = Duct |
| E. Thermowell Insertion Length | Select One (1) | 4" = 4" Probe 8" = 8" Probe 12" = 12" Probe 18" = 18" Probe |
| F. Analog Output | Select One (1) | 1 = 1 to 5 VDC 2 = 2 to 10 VDC 4 = 4 to 20 mA |
| G. Enclosure | Select One (1) | GD = Galvanized Enclosure BB = Cast Aluminum Weather Proof Enclosure |
| H. Calibration Span | | Specify Span in °F or °C (Best Accuracy in 100°F Increments) |

MODEL

| |
|-------|
| A/ |
| TT100 |
| LT |
| D |
| 8" |
| 2 |
| GD |

ACCESSORIES ORDERING

Model # Example: A/316SS_1-8IN_NPT_COMPRESS_FIT -OR- 143457

| Model # | Item # | Description |
|--------------------------------|--------|---|
| A/316SS_1-8IN_NPT_COMPRESS_FIT | 143457 | 1/8" MNPT x 1/4" Tube Fitting (Bore Through), Compression Fitting |
| A/316SS_1-2IN_NPT_COMPRESS_FIT | 143458 | 1/2" MNPT x 1/4" Tube Fitting (Bore Through), Compression Fitting |





IMMERSION

Low Temperature Immersion Sensors & Transmitters

The ACI Low Temperature Immersion Series sensors and transmitters are a single point immersion sensor featuring a three wire RTD sensor assembly using Teflon insulated lead wires and a 316 Series stainless steel probe. The three wire sensors can be used with a two wire transmitter by connecting the two (Red) colored wires to one of the RTD Terminal blocks with the 3rd (White) wire going to the second RTD Terminal block. The purpose of the 3rd wire is to compensate for external lead wire resistance that will affect the accuracy of your sensor output when using with a three wire temperature transmitter or sensor configuration on your Building Management System or PLC (Programmable Logic Controller). ACI recommends the use of 18 AWG lead wires to reduce the external lead wire resistance when using a Platinum RTD. The operating specifications are for both the sensor and transmitter as designated in the specification table. The overall accuracy of the temperature transmitter must be calculated using the transmitter calibrated accuracy plus that of the sensor error over temperature unless ordering as a TTM matched transmitter. Standard enclosure options include the “-GD” Galvanized or “-BB” Aluminum weather proof

enclosure. NIST Certificates are available for all of the configurations listed in the ordering grid on the back of the product data sheet. For best accuracy, ACI recommends the use of the TTM100 or TTM1K Series Matched transmitters since they include a second calibration step in which the RTD and transmitter are calibrated together as a system, in order to remove most of the sensor error over the calibrated temperature span of the transmitter.

Applications: Chillers, Pharmaceutical, Refrigeration, Process Cooling, Industrial Process Control

The ACI Low Temperature Immersion Sensors and Transmitters Series is covered by ACI’s Five (5) Year Limited Warranty. The warranty can be found in the front of ACI’s Sensors & Transmitters catalog, as well as on ACI’s web site, workaci.com.

PRODUCT SPECIFICATIONS

| | |
|--|--|
| Transmitter Supply Voltage Supply Current: | +8.5 to 32 VDC (Reverse Polarity Protected) 25 mA minimum 250 Ohm Load: +13.5 to 32 VDC 500 Ohm Load: +18.5 to 32 VDC |
| Maximum Load Resistance: | (Terminal Voltage - 8.5 V) 0.020 A |
| Output Signal: | Current: 4-20 mA (2-Wire Loop Powered) Voltage: 1-5 VDC or 2-10 VDC (3-Wires) |
| Calibration Transmitter Accuracy Linearity: | Temp. Spans < 500°F (260°C): +/- 0.2% Temp. Spans > 500°F (260°C): +/- 0.5% |
| Temperature Drift: | Temp. Spans < 100°F (38°C): +/- 0.04%/°F Temp. Spans > 100°F (38°C): +/- 0.02% |
| Warm Up Time Warm Up Drift: | 10 Minutes +/- 0.1% |
| Operating Storage Temperature Range: | -40°F (-40°C) to 185°F (85°C) |
| Operating Humidity Range: | 0 to 90%, non-condensing |
| Calibration Temperature Spans¹: | Minimum Temp. Span: 50°F (28°C) Maximum Temp. Span: 700°F (370°C) |
| Connections Wire Size: | Screw Terminal Blocks (Non-Polarity Sensitive) 16 AWG (1.31 mm ²) to 26 AWG (0.129 mm ²) |
| Terminal Block Torque Rating: | 0.5 Nm nominal |
| Sensor Type Sensor Curve Sensor Points: | Platinum RTD PTC (Positive Temperature Coefficient) One |
| Number Wires: | A/100-3W-LT-I-XX” and A/1K-3W-LT-I-xx”: Three (White / Two Red) Polarity Sensitive |
| Sensor Output @ 0°C (32°F): | A/100-3W-LT-I-xx”: 100 Ohms nominal A/1K-3W-LT-I-xx”: 1000 Ohms nominal |
| Sensor Tolerance Accuracy²: | +/- 0.12% Class B Class B Tolerance Formula: +/- °C = (0.30°C + (0.005 * t)) |
| Din Standard Temperature Coefficient: | DIN EN 60751 (IEC 751) 3850 ppm / °C |
| Sensor Stability: | < 0.04 % at 1000 hours at 400°C |
| Self-Heating Maximum Operating Current: | 100 Ohm RTD: 7 mW/°C (Still Air) 5 mA 1K Ohm RTD: 4 mW/°C (Still Air) 3 mA |
| Sensor Operating Temperature Range: | -198 to 150°C (-324 to 302°F) |
| Enclosure Specifications (Operating Temperature Range, Material, Flammability, NEMA/IP Rating): | “-GD” Enclosure: -40 to 199°C (-40 to 390°F); Galvanized Steel; NEMA 1 (IP10) “-BB” Enclosure: -50 to 115°C (-58 to 239°F); Aluminum; NEMA 3R |
| Storage Temperature Range: | -40 to 85°C (-40 to 185°F) |
| Operating Humidity Range: | 10 to 95% RH, non-condensing |
| Probe Material Probe Diameter: | 316 Stainless Steel 0.250” (6.35mm) |
| Compression Fitting Material: | 316 Stainless Steel |
| Lead Length Conductor Size: | 8’ (2.44 m) 22 AWG (0.25 mm ²) |
| Lead Wire Insulation Conductor Material: | Etched Teflon (PTFE) Silver Plated Copper |
| Product Dimensions Product Weight: | See table on back of Product Data sheet |
| Agency Approvals: | RoHS2, WEEE |

Note¹: Transmitter’s calibrated at 71°F (22°C) nominal | **Note²:** Where |t| is the absolute value of temperature above or below 0°C in Centigrade





MAXIMUM VELOCITY VS THERMOWELL INSERTION LENGTH MACHINED THERMOWELL

| Straight Shank Insertion Length "U" | | | | Stepped Shank Insertion Length "U" | | |
|-------------------------------------|----------------------------|----------------------|----------------------|------------------------------------|----------------------|----------------------|
| Material: | Media Type: | 1.0" (25.4 mm) | 2.5" (63.5 mm) | 8.0" (203.2 mm) | 4.0" (101.6 mm) | 6.0" (152.4 mm) |
| 304/316 SS | Air/Gas/Steam ¹ | 349 ft/s (106.3 m/s) | 349 ft/s (106.3 m/s) | 71.9 ft/s (21.9 m/s) | 109 ft/s (33.2 m/s) | 39.5 ft/s (12.0 m/s) |
| 304/316 SS | Water | 360 ft/s (109.7 m/s) | 360 ft/s (109.7 m/s) | 71.9 ft/s (21.9 m/s) | 82.2 ft/s (25.1 m/s) | 39.5 ft/s (12.0 m/s) |

Note 1: Values are for Air/Gas/ Steam and similar density media | All velocity ratings are based upon an operating temperature of 1000°F (537.8°C)

DIMENSIONAL DRAWING

| <p>Galvanized Enclosure [GD]</p> <p>Available with 2.5", 4", and 6" Lengths</p> | <p>Galvanized Enclosure [GD] Weights</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr style="background-color: #cccccc;"> <th>ACI Model #</th> <th>2.5" (Insertion Length)</th> <th>4" (Insertion Length)</th> <th>6" (Insertion Length)</th> </tr> </thead> <tbody> <tr> <td>A/xx-INW-yy-GD</td> <td>0.66 lbs. (0.299 kg)</td> <td>0.70 lbs. (0.318 kg)</td> <td>0.74 lbs. (0.336 kg)</td> </tr> <tr> <td>A/xx-IM-yy-GD</td> <td>1.00 lbs. (0.454 kg)</td> <td>1.16 lbs. (0.526 kg)</td> <td>1.32 lbs. (0.599 kg)</td> </tr> </tbody> </table> | ACI Model # | 2.5" (Insertion Length) | 4" (Insertion Length) | 6" (Insertion Length) | A/xx-INW-yy-GD | 0.66 lbs. (0.299 kg) | 0.70 lbs. (0.318 kg) | 0.74 lbs. (0.336 kg) | A/xx-IM-yy-GD | 1.00 lbs. (0.454 kg) | 1.16 lbs. (0.526 kg) | 1.32 lbs. (0.599 kg) |
|--|--|-----------------------|-------------------------|-----------------------|-----------------------|----------------|----------------------|----------------------|----------------------|---------------|----------------------|----------------------|----------------------|
| ACI Model # | 2.5" (Insertion Length) | 4" (Insertion Length) | 6" (Insertion Length) | | | | | | | | | | |
| A/xx-INW-yy-GD | 0.66 lbs. (0.299 kg) | 0.70 lbs. (0.318 kg) | 0.74 lbs. (0.336 kg) | | | | | | | | | | |
| A/xx-IM-yy-GD | 1.00 lbs. (0.454 kg) | 1.16 lbs. (0.526 kg) | 1.32 lbs. (0.599 kg) | | | | | | | | | | |
| <p>Bell Box Enclosure [BB]</p> <p>Available with 2.5", 4", and 6" Lengths</p> | <p>Bell Box Enclosure [BB] Weights</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr style="background-color: #cccccc;"> <th>ACI Model #</th> <th>2.5" (Insertion Length)</th> <th>4" (Insertion Length)</th> <th>6" (Insertion Length)</th> </tr> </thead> <tbody> <tr> <td>A/xx-INW-yy-BB</td> <td>0.68 lbs. (0.308 kg)</td> <td>0.72 lbs. (0.326 kg)</td> <td>0.76 lbs. (0.345 kg)</td> </tr> <tr> <td>A/xx-IM-yy-BB</td> <td>1.02 lbs. (0.463 kg)</td> <td>1.20 lbs. (0.544 kg)</td> <td>1.36 lbs. (0.617 kg)</td> </tr> </tbody> </table> | ACI Model # | 2.5" (Insertion Length) | 4" (Insertion Length) | 6" (Insertion Length) | A/xx-INW-yy-BB | 0.68 lbs. (0.308 kg) | 0.72 lbs. (0.326 kg) | 0.76 lbs. (0.345 kg) | A/xx-IM-yy-BB | 1.02 lbs. (0.463 kg) | 1.20 lbs. (0.544 kg) | 1.36 lbs. (0.617 kg) |
| ACI Model # | 2.5" (Insertion Length) | 4" (Insertion Length) | 6" (Insertion Length) | | | | | | | | | | |
| A/xx-INW-yy-BB | 0.68 lbs. (0.308 kg) | 0.72 lbs. (0.326 kg) | 0.76 lbs. (0.345 kg) | | | | | | | | | | |
| A/xx-IM-yy-BB | 1.02 lbs. (0.463 kg) | 1.20 lbs. (0.544 kg) | 1.36 lbs. (0.617 kg) | | | | | | | | | | |
| Standard Views | Product Weights | | | | | | | | | | | | |

Note: There are two enclosures included with configurations involving Temperature Transmitters. A secondary GD (Galvanized) enclosure contains the transmitter board to protect it from the extreme temperatures exposed to the sensing element

PROBE AND INSERTION LENGTH IMMERSION NO WELL

| <p>Pictured Above: Immersion no well (INW) sensor in Bell Box Enclosure (BB).</p> <p>Pictured Below: welded two piece thermowell to show connection and depth reference. Thermowell not included with immersion no well (INW).</p> | <p>Probe & Insertion Length</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr style="background-color: #cccccc;"> <th>Probe Length</th> <th>Insertion Length</th> <th>ACI Part #</th> <th>Thermowell Part #</th> </tr> </thead> <tbody> <tr> <td>4.5"</td> <td>4.31" +/- 0.13"</td> <td>A/xx-INW-2.5"-yy-zz</td> <td>A/M2.5"</td> </tr> <tr> <td>6"</td> <td>5.81" +/- 0.13"</td> <td>A/xx-INW-4"-yy-zz</td> <td>A/M4"</td> </tr> <tr> <td>8"</td> <td>7.81" +/- 0.13"</td> <td>A/xx-INW-6"-yy-zz</td> <td>A/M6"</td> </tr> </tbody> </table> | Probe Length | Insertion Length | ACI Part # | Thermowell Part # | 4.5" | 4.31" +/- 0.13" | A/xx-INW-2.5"-yy-zz | A/M2.5" | 6" | 5.81" +/- 0.13" | A/xx-INW-4"-yy-zz | A/M4" | 8" | 7.81" +/- 0.13" | A/xx-INW-6"-yy-zz | A/M6" |
|--|---|---------------------|-------------------|------------|-------------------|------|-----------------|---------------------|---------|----|-----------------|-------------------|-------|----|-----------------|-------------------|-------|
| Probe Length | Insertion Length | ACI Part # | Thermowell Part # | | | | | | | | | | | | | | |
| 4.5" | 4.31" +/- 0.13" | A/xx-INW-2.5"-yy-zz | A/M2.5" | | | | | | | | | | | | | | |
| 6" | 5.81" +/- 0.13" | A/xx-INW-4"-yy-zz | A/M4" | | | | | | | | | | | | | | |
| 8" | 7.81" +/- 0.13" | A/xx-INW-6"-yy-zz | A/M6" | | | | | | | | | | | | | | |
| Standard Views | Product Weights | | | | | | | | | | | | | | | | |



| CUSTOM ORDERING LOW TEMPERATURE IMMERSION SENSORS | | Model # Example: | A/ | 1K | 3W | LT | I | 4" | GD | NIST | MODEL # | |
|---|--|---|----|----|----|----|----|----|----|------|---------|----|
| | | | A. | B. | C. | D. | E. | F. | G. | H. | | |
| A. Sensor Series <i>No Selection Required</i> | A/ | → | | | | | | | | | | A/ |
| B. Model Series <i>Select One (1)</i> | 100 = 100 Ohm Platinum RTD only 1K = 1K Ohm Platinum RTD only | | | | | | | | | | | |
| C. Number of Wires <i>No Selection Required</i> | 3W | = Three Wires (Specify for 100 and 1K RTD Sensors only) → | | | | | | | | | | 3W |
| D. High Temperature <i>No Selection Required</i> | LT | = Low Temperature Series → | | | | | | | | | | LT |
| E. Configuration <i>Select One (1)</i> | IM = Immersion with Machined Thermowell INW = Immersion without Thermowell | | | | | | | | | | | |
| F. Thermowell Insertion Length <i>Select One (1)</i> | 2.5" = 2.5" Probe 4" = 4" Probe 6" = 6" Probe | | | | | | | | | | | |
| G. Enclosure <i>Select One (1)</i> | GD = Galvanized Enclosure BB = Cast Aluminum Weather Proof Enclosure | | | | | | | | | | | |
| H. NIST <i>Select One (1)</i> | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) | | | | | | | | | | | |

| CUSTOM ORDERING LOW TEMPERATURE TRANSMITTERS | | Model # Example: | A/ | TT100 | LT | I | 6" | 2 | GD | MODEL # | | |
|---|--|----------------------------|----|-------|----|----|----|----|----|---------|--|----|
| | | | A. | B. | C. | D. | E. | F. | G. | H. | | |
| A. Sensor Series <i>No Selection Required</i> | A/ | → | | | | | | | | | | A/ |
| B. Model Series <i>Select One (1)</i> | TT100 = Unmatched Temperature Transmitter & 100 Ohm RTD TT1K = Unmatched Temperature Transmitter & 1K RTD TTM100 = Matched 100 Ohm Temperature Transmitter/Sensor TTM1K = Matched 1K Ohm Temperature Transmitter/Sensor (Must specify 3 or 5 Point NIST Certificates for all TTM100 and TTM1K Transmitters) | | | | | | | | | | | |
| C. High Temperature <i>No Selection Required</i> | LT | = Low Temperature Series → | | | | | | | | | | LT |
| D. Configuration <i>Select One (1)</i> | IM = Immersion with Machined Thermowell INW = Immersion without Thermowell | | | | | | | | | | | |
| E. Thermowell Insertion Length <i>Select One (1)</i> | 2.5" = 2.5" Probe 4" = 4" Probe 6" = 6" Probe | | | | | | | | | | | |
| F. Analog Output <i>Select One (1)</i> | 1 = 1 to 5 VDC 2 = 2 to 10 VDC 4 = 4 to 20 mA | | | | | | | | | | | |
| G. Enclosure <i>Select One (1)</i> | GD = Galvanized Enclosure BB = Cast Aluminum Weather Proof Enclosure | | | | | | | | | | | |
| H. Calibration Span | Specify Span in °F or °C (Best Accuracy in 100°F Increments) | | | | | | | | | | | |

| ACCESSORIES ORDERING | | | Model # Example: |
|--------------------------------|--------|---|--|
| Model # | Item # | Description | A/316SS_1-8IN_NPT_COMPRESS_FIT -OR- 143457 |
| A/316SS_1-8IN_NPT_COMPRESS_FIT | 143457 | 1/8" MNPT x 1/4" Tube Fitting (Bore Through), Compression Fitting | |
| A/316SS_1-2IN_NPT_COMPRESS_FIT | 143458 | 1/2" MNPT x 1/4" Tube Fitting (Bore Through), Compression Fitting | |





OUTSIDE AIR

Low Temperature Outside Air Sensor & Transmitters

The ACI Low Temperature Outside Air Series temperature sensors and transmitters are a single point sensor featuring a three wire RTD sensor assembly with a 316 Series stainless steel probe. The three wire sensors can be used with a two wire transmitter by connecting the two (Red) colored wires to one of the RTD terminal blocks with the 3rd wire (White) wire connected to the second RTD Terminal block. The purpose of the 3rd wire is to compensate for external lead wire resistance that will affect the accuracy of your sensor output when using with a three wire temperature transmitter or sensor configuration on your Building Management System or PLC (Programmable Logic Controller). ACI recommends the use of 18 AWG lead wires to reduce the external lead wire resistance when using the A/100/1K-3W-O style Platinum RTD series sensors without temperature transmitter. The operating specifications are for both the sensor and transmitter as designated in the specification table. The transmitter is mounted in the

Galvanized junction and should be mounted inside your building with the sensor assembly mounted in the Aluminum Bell Box for mounting outdoors due to the extreme temperatures. NIST Certificates are available for all of the configurations listed in the ordering grid on the back of the product data sheet. For best accuracy, ACI recommends the use of the TTM100 or TTM1K Series Matched transmitters with a 3 or 5 Point NIST Calibration Certificate since they include a second calibration step in which the RTD and transmitter are calibrated together as a system, which will remove most of the sensor error over the calibrated temperature span of the transmitter.

Applications: Freezers, Outside Air Temperature, Cold Storage Facilities, Manufacturing Facilities, Process Control

The ACI Low Temperature Outside Air Sensors and Transmitters are covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|---|--|
| Transmitter Supply Voltage Supply Current: | +8.5 to 32 VDC (Reverse Polarity Protected) 25 mA minimum |
| Maximum Load Resistance: | 250 Ohm Load (1-5 VDC): +13.5 to 32 VDC 500 Ohm Load (2-10 VDC): +18.5 to 32 VDC (Terminal Voltage - 8.5 V) 0.020 A |
| Output Signals: | Current: 4-20 mA (2-Wire Loop Powered) Voltage: 1-5 VDC or 2-10 VDC (3-Wires) |
| Calibrated Transmitter Accuracy Linearity: | Temp. Spans < 500°F (260°C): +/- 0.2% Temp. Spans > 500°F (260°C): +/- 0.5% |
| Temperature Drift: | Temp. Spans < 100°F (38°C): +/- 0.04%/°F Temp. Spans > 100°F (38°C): +/- 0.02% |
| Warm Up Time Warm Up Drift: | 10 Minutes +/- 0.1% |
| Operating Storage Temperature Range: | -40°F (-40°C) to 185°F (85°C) |
| Operating Humidity Range: | 0 to 90%, non-condensing |
| Calibrated Temperature Spans¹: | Minimum Temp. Span: 50°F (28°C) Maximum Temp. Span: 700°F (370°C) |
| Connections Wire Size: | Screw Terminal Blocks (Non-Polarity Sensitive) 16 AWG (1.31 mm ²) to 26 AWG (0.129 mm ²) |
| Terminal Block Torque Rating: | 0.5 Nm nominal |
| Sensor Type Sensor Curve Sensing Points: | Platinum RTD PTC (Positive Temperature Coefficient) One |
| Number Wires: | A/100-3W-LT-O and A/1K-3W-LT-O: Three (Two Red / White) Polarity Sensitive |
| Sensor Output @ 0°C (32°F): | A/100-3W-LT-O: 100 Ohms nominal A/1K-3W-LT-O: 1000 Ohms nominal |
| Sensor Tolerance Class Accuracy²: | +/- 0.12% Class B Class B Tolerance Formula: +/- °C = (0.30°C + (0.005 * t)) |
| Din Standard Temperature Coefficient: | DIN EN 60751 (IEC 751) 3850 ppm / °C |
| Sensor Stability: | < 0.04 % at 1000 hours at 400°C |
| Self-Heating Maximum Operating Current: | 100 Ohm RTD: 7 mW °C (Still Air) 5 mA 1K Ohm RTD: 4 mW °C (Still Air) 3 mA |
| Sensor Operating Temperature Range: | -198 to 150°C (-324 to 302°F) |
| Enclosure Specifications (Operating Temperature Range, Material, Flammability, NEMA/IP Ratings): | "-GD" Enclosure: -40 to 199°C (-40 to 390°F); Galvanized Steel; NEMA 1 (IP10) |
| Storage Temperature Range: | "-BB" Enclosure: Aluminum, -40 to 121°C (-40 to 250°F), NEMA 3R -40 to 85°C (-40 to 185°F) |
| Operating Humidity Range: | 5 to 100% RH |
| Probe Material Probe Diameter: | 316 Stainless Steel 0.250" (6.35mm) |
| Compression Fitting Material: | 316 Stainless Steel |
| Lead Length Conductor Size: | 8' (2.44 m) 22 AWG (0.25 mm ²) |
| Lead Wire Insulation Conductor Material: | Etched Teflon (PTFE) Silver Plated Copper |
| Product Dimensions Product Weight: | See table on back of Product Data sheet |
| Agency Approvals: | RoHS2, WEEE |

Note¹: Transmitter's calibrated at 71°F (22°C) nominal | **Note²:** Where |t| is the absolute value of temperature above or below 0°C in Centigrade)





DIMENSIONAL DRAWING. WEIGHTS

Front View

Right View

xx = Sensor Type

Top View, Product Weight

| ACI Model # | Weight |
|-----------------|----------------------|
| A/xx-3W-LT-O-BB | 0.94 lbs. (0.252 kg) |

STANDARD ORDERING

Model # Examples: **A/1K-3W-LT-O-BB** -OR- **125205**

| Model # | Item # | Description |
|-------------------------|--------|---|
| A/100-3W-LT-O-BB | 142523 | 100 Ohm RTD, 3-Wire, Outside Air Sensor, Aluminum Weather Proof Enclosure, 8 Foot Leads |
| A/1K-3W-LT-O-BB | 125205 | 1K Ohm RTD, 3-Wire, Outside Air Sensor, Aluminum Weather Proof Enclosure, 8 Foot Leads |

CUSTOM ORDERING | LOW TEMPERATURE OUTSIDE AIR

Model # Example: **A/** **1K** **3W** **LT** **O** **BB** **NIST**
A. B. C. D. E. F. G.

| A. Sensor Series <i>No Selection Required</i> | A/ | MODEL # |
|--|---|-----------|
| B. Model Series <i>Select One (1)</i> | 100 = 100 Ohm Platinum RTD only 1K = 1K Ohm Platinum RTD only | A/ |
| C. Number of Wires <i>No Selection Required</i> | 3W = Three Wires (Specify for 100 and 1K RTD Sensors only) | 3W |
| D. Low Temperature <i>No Selection Required</i> | LT = Low Temperature Series | LT |
| E. Configuration <i>No Selection Required</i> | O = Outside Air | O |
| F. Enclosure <i>No Selection Required</i> | BB = Cast Aluminum Weather Proof Enclosure | BB |
| G. NIST <i>Select One (1)</i> | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) | |

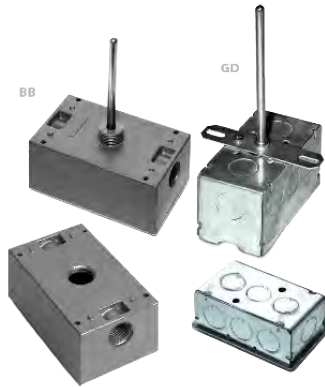
CUSTOM ORDERING | LOW TEMPERATURE OUTSIDE AIR TRANSMITTERS

Model # Example: **A/** **TT100** **LT** **O** **2** **BB**
A. B. C. D. E. F. G.

| A. Sensor Series <i>No Selection Required</i> | A/ | MODEL # |
|--|---|-----------|
| B. Model Series <i>Select One (1)</i> | TT100 = Unmatched Temperature Transmitter & 100 Ohm RTD TT1K = Unmatched Temperature Transmitter & 1K RTD TTM100 = Matched 100 Ohm Temperature Transmitter/Sensor TTM1K = Matched 1K Ohm Temperature Transmitter/Sensor (Must specify 3 or 5 Point NIST Certificates for all TTM100 and TTM1K Transmitters) | |
| C. Low Temperature <i>No Selection Required</i> | LT = Low Temperature Series | LT |
| D. Configuration <i>No Selection Required</i> | O = Outside Air | O |
| E. Analog Output <i>Select One (1)</i> | 1 = 1 to 5 VDC 2 = 2 to 10 VDC 4 = 4 to 20 mA | |
| F. Enclosure <i>No Selection Required</i> | BB = Cast Aluminum Weather Proof Enclosure | BB |
| G. Calibrated Span | Specify Span in °F or °C (Best Accuracy in 100°F Increments) | |

Note: There are two enclosures included with configurations involving Temperature Transmitters. A secondary GD (Galvanized) enclosure contains the transmitter board to protect it from the extreme temperatures exposed to the sensing element





DUCT

High Temperature Duct Sensors & Transmitters

The ACI High Temperature Duct Series sensors and transmitters are a single point duct sensor featuring a three wire RTD sensor assembly and a 316 Series stainless steel probe. The three wire sensors can be used with a two wire transmitter by connecting the two (White) colored wires to one of the RTD terminal blocks with the third wire (Red) wire going to the second RTD Terminal block. The purpose of the third wire is to compensate for external lead wire resistance that will affect the accuracy of your sensor output when using with a three wire temperature transmitter or sensor configuration on your Building Management System or PLC (Programmable Logic Controller). ACI recommends the use of 18 AWG lead wires to reduce the external lead wire resistance when using the A/100/1K-3W-D style Platinum RTD series sensors without temperature transmitter. The operating specifications are for both the sensor and transmitter as designated in the specification table. Standard enclosure options include the “-GD” Galvanized or “-BB” Aluminum weather proof enclosure. NIST Certificates are available for all of the configurations listed in the ordering grid on the back of the product data sheet. For best accuracy, ACI

recommends the use of the TTM100 or TTM1K Series Matched transmitters with a 3 NIST Calibration Certificate since they include a second calibration step in which the RTD and transmitter are calibrated together as a system, which will remove most of the sensor error over the calibrated temperature span of the transmitter.

Applications: Burners, Boilers, Stacks, Exhaust, Incinerators, Ovens, Conveyor Systems, Process Heating, Process Control.

The ACI High Temperature Duct Sensors and Transmitters Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's web site, workaci.com.

| PRODUCT SPECIFICATIONS | |
|--|--|
| Transmitter Supply Voltage Supply Current: | +8.5 to 32 VDC (Reverse Polarity Protected) 25 mA minimum 250 Ohm Load: +13.5 to 32 VDC 500 Ohm Load: +18.5 to 32 VDC |
| Maximum Load Resistance: | (Terminal Voltage - 8.5 V) 0.020 A |
| Output Signal: | Current: 4-20 mA (2-Wire Loop Powered) Voltage: 1-5 VDC or 2-10 VDC (3-Wires) |
| Calibration Transmitter Accuracy Linearity: | Temp. Spans < 500°F (260°C): +/- 0.2% Temp. Spans > 500°F (260°C): +/- 0.5% |
| Temperature Drift: | Temp. Spans < 100°F (38°C): +/- 0.04%/°F Temp. Spans > 100°F (38°C): +/- 0.02% |
| Warm Up Time Warm Up Drift: | 10 Minutes +/- 0.1% |
| Operating Storage Temperature Range: | -40°F (-40°C) to 185°F (85°C) |
| Operating Humidity Range: | 0 to 90%, non-condensing |
| Calibration Temperature Spans¹: | Minimum Temp. Span: 50°F (28°C) Maximum Temp. Span: 800°F (426°C) |
| Matched Calibrated Temperature Spans (A/TTM Models) Ranges: | -49°F to 311°F (-45°C to 155°C) |
| Connections Wire Size: | Screw Terminal Blocks (Non-Polarity Sensitive) 16 AWG (1.31 mm ²) to 26 AWG (0.129 mm ²) |
| Terminal Block Torque Rating: | 0.5 Nm nominal |
| Sensor Type Sensor Curve Sensor Points: | Platinum RTD PTC (Positive Temperature Coefficient) One |
| Number Wires: | A/100-3W-HT-D-XX" and A/1K-3W-HT-D-xx": Three (White / Two Red) Polarity Sensitive |
| Sensor Output @ 0°C (32°F): | A/100-3W-HT-D-xx": 100 Ohms nominal A/1K-3W-HT-D-xx": 1000 Ohms nominal |
| Sensor Tolerance Accuracy²: | +/- 0.12% Class B Class B Tolerance Formula: +/- °C = (0.30°C + (0.005 * t)) |
| Din Standard Temperature Coefficient: | DIN EN 60751 (IEC 751) 3850 ppm / °C |
| Sensor Stability: | < 0.04 % at 1000 hours at 400°C |
| Self-Heating Maximum Operating Current: | 100 Ohm RTD: 7 mW/°C (Still Air) 5 mA 1K Ohm RTD: 4 mW/°C (Still Air) 3 mA |
| Sensor Operating Temperature Range: | -40 to 395°C (-40 to 743°F) |
| Enclosure Specifications (Operating Temperature Range, Material, Flammability, NEMA/IP Rating): | "-GD" Enclosure: -40 to 199°C (-40 to 390°F); Galvanized Steel; NEMA 1 (IP10) "-BB" Enclosure: Aluminum, -40 to 121°C (-40 to 250°F), Plenum Rated, NEMA 3R |
| Storage Temperature Range: | -40 to 85°C (-40 to 185°F) |
| Operating Humidity Range: | 10 to 90% RH, non-condensing |
| Probe Material Probe Diameter: | 316 Stainless Steel 0.250" (6.35mm) |
| Compression Fitting Material: | 316 Stainless Steel |
| Lead Length Conductor Size: | 8' (2.44 m) 24 AWG (0.20 mm ²) |
| Lead Wire Insulation Conductor Material: | Fiberglass Braided Insulation with Mica Tape 27% Nickel Plated Copper |
| Product Dimensions Product Weight: | See table on back of Product Data sheet |
| Agency Approvals: | RoHS2, WEEE |

Note¹: Transmitter's calibrated at 71°F (22°C) nominal | **Note²:** Where |t| is the absolute value of temperature above or below 0°C in Centigrade





| DIMENSIONAL DRAWING | | | | | | | | | | | | | |
|---|--|-----------------------|-------------------|-----------------------|--------------|----------------------|----------------------|-------------|--------------------|--------------------|--------------|----------------------|----------------------|
| <p>Galvanized Enclosure [GD]</p> | <p>Galvanized Enclosure [GD] Weights</p> <table border="1"> <thead> <tr> <th>ACI Model #</th> <th>4" (Probe Length)</th> <th>8" (Insertion Length)</th> </tr> </thead> <tbody> <tr> <td>A/xx-D-yy-GD</td> <td>0.66 lbs. (0.299 kg)</td> <td>0.68 lbs. (0.308 kg)</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>ACI Model #</th> <th>12" (Probe Length)</th> <th>18" (Probe Length)</th> </tr> </thead> <tbody> <tr> <td>A/xx-D-yy-GD</td> <td>0.70 lbs. (0.317 kg)</td> <td>0.74 lbs. (0.336 kg)</td> </tr> </tbody> </table> | ACI Model # | 4" (Probe Length) | 8" (Insertion Length) | A/xx-D-yy-GD | 0.66 lbs. (0.299 kg) | 0.68 lbs. (0.308 kg) | ACI Model # | 12" (Probe Length) | 18" (Probe Length) | A/xx-D-yy-GD | 0.70 lbs. (0.317 kg) | 0.74 lbs. (0.336 kg) |
| ACI Model # | 4" (Probe Length) | 8" (Insertion Length) | | | | | | | | | | | |
| A/xx-D-yy-GD | 0.66 lbs. (0.299 kg) | 0.68 lbs. (0.308 kg) | | | | | | | | | | | |
| ACI Model # | 12" (Probe Length) | 18" (Probe Length) | | | | | | | | | | | |
| A/xx-D-yy-GD | 0.70 lbs. (0.317 kg) | 0.74 lbs. (0.336 kg) | | | | | | | | | | | |
| <p>Bell Box Enclosure [BB]</p> | <p>Bell Box Enclosure [BB] Weights</p> <table border="1"> <thead> <tr> <th>ACI Model #</th> <th>4" (Probe Length)</th> <th>8" (Insertion Length)</th> </tr> </thead> <tbody> <tr> <td>A/xx-D-yy-BB</td> <td>0.70 lbs. (0.317 kg)</td> <td>0.72 lbs. (0.326 kg)</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>ACI Model #</th> <th>12" (Probe Length)</th> <th>18" (Probe Length)</th> </tr> </thead> <tbody> <tr> <td>A/xx-D-yy-BB</td> <td>0.74 lbs. (0.336 kg)</td> <td>0.78 lbs. (0.354 kg)</td> </tr> </tbody> </table> | ACI Model # | 4" (Probe Length) | 8" (Insertion Length) | A/xx-D-yy-BB | 0.70 lbs. (0.317 kg) | 0.72 lbs. (0.326 kg) | ACI Model # | 12" (Probe Length) | 18" (Probe Length) | A/xx-D-yy-BB | 0.74 lbs. (0.336 kg) | 0.78 lbs. (0.354 kg) |
| ACI Model # | 4" (Probe Length) | 8" (Insertion Length) | | | | | | | | | | | |
| A/xx-D-yy-BB | 0.70 lbs. (0.317 kg) | 0.72 lbs. (0.326 kg) | | | | | | | | | | | |
| ACI Model # | 12" (Probe Length) | 18" (Probe Length) | | | | | | | | | | | |
| A/xx-D-yy-BB | 0.74 lbs. (0.336 kg) | 0.78 lbs. (0.354 kg) | | | | | | | | | | | |
| Standard Views | Product Weights | | | | | | | | | | | | |

Note: There are two enclosures included with configurations involving Temperature Transmitters. A secondary GD (Galvanized) enclosure contains the transmitter board to protect it from the extreme temperatures exposed to the sensing element

| CUSTOM ORDERING HIGH TEMPERATURE DUCT SENSORS | | Model # Example: A/ 1K 3W HT D 4" GD NIST | MODEL # |
|--|--|---|---------|
| A. Sensor Series No Selection Required | A/ | → | A/ |
| B. Model Series Select One (1) | 100 = 100 Ohm Platinum RTD only 1K = 1K Ohm Platinum RTD only | | |
| C. Number of Wires No Selection Required | 3W = Three Wires (Specify for 100 and 1K RTD Sensors only) | → | 3W |
| D. High Temperature No Selection Required | HT = High Temperature Series | → | HT |
| E. Configuration Select One (1) | D = Duct | → | D |
| F. Thermowell Insertion Length Select One (1) | 4" = 4" Probe 8" = 8" Probe 12" = 12" Probe 18" = 18" Probe | | |
| G. Enclosure Select One (1) | GD = Galvanized Enclosure BB = Cast Aluminum Weather Proof Enclosure | | |
| H. NIST Select One (1) | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) | | |

| CUSTOM ORDERING HIGH TEMPERATURE DUCT TRANSMITTERS | | Model # Example: A/ TT100 HT D 8" 2 GD | MODEL # |
|--|--|--|---------|
| A. Sensor Series No Selection Required | A/ | → | A/ |
| B. Model Series Select One (1) | TT100 = Unmatched Temperature Transmitter & 100 Ohm RTD TT1K = Unmatched Temperature Transmitter & 1K RTD TTM100 = Matched 100 Ohm Temperature Transmitter/Sensor TTM1K = Matched 1K Ohm Temperature Transmitter/Sensor (Must specify 3 or 5 Point NIST Certificates for all TTM100 and TTM1K Transmitters) | | |
| C. High Temperature No Selection Required | HT = High Temperature Series | → | HT |
| D. Configuration Select One (1) | D = Duct | → | D |
| E. Thermowell Insertion Length Select One (1) | 4" = 4" Probe 8" = 8" Probe 12" = 12" Probe 18" = 18" Probe | | |
| F. Analog Output Select One (1) | 1 = 1 to 5 VDC 2 = 2 to 10 VDC 4 = 4 to 20 mA | | |
| G. Enclosure Select One (1) | GD = Galvanized Enclosure BB = Cast Aluminum Weather Proof Enclosure | | |
| H. Calibration Span | Specify Span in °F or °C (Best Accuracy in 100°F Increments) | | |

| ACCESSORIES ORDERING | | | Model # Example: A/316SS_1-8IN_NPT_COMPRESS_FIT -OR- 143457 |
|--------------------------------|--------|---|---|
| Model # | Item # | Description | |
| A/316SS_1-8IN_NPT_COMPRESS_FIT | 143457 | 1/8" MNPT x 1/4" Tube Fitting (Bore Through), Compression Fitting | |
| A/316SS_1-2IN_NPT_COMPRESS_FIT | 143458 | 1/2" MNPT x 1/4" Tube Fitting (Bore Through), Compression Fitting | |





IMMERSION

High Temperature Immersion Sensors & Transmitters

The ACI High Temperature Immersion Series sensors and transmitters are a single point immersion sensor featuring a three wire RTD sensor assembly using Nickel Fiberglass Lead wires, a 316 Series stainless steel probe, and a Machined 304 SS Steel thermowell. The "INW" version of the product can be ordered without the thermowell for applications in which there is an existing thermowell, increased design parameters or other materials are required for higher corrosion resistance. The three wire sensors can be used with a two wire transmitter by connecting the two (Red) colored wires to one of the RTD Terminal blocks with the 3rd wire (White) wire going to the second RTD Terminal block. The purpose of the 3rd wire is to compensate for external lead wire resistance that will affect the accuracy of your sensor output when using with a three wire temperature transmitter or sensor configuration on your Building Management System or PLC (Programmable Logic Controller). ACI recommends the use of 18 AWG lead wires to reduce the external lead wire resistance when using a Platinum RTD. The operating specifications are for both the sensor and transmitter as designated in the specification table. Standard enclosure options include the

"-GD" Galvanized or "-BB" Aluminum weather proof enclosure. NIST Certificates are available for all of the configurations listed in the ordering grid on the back of the product data sheet. For best accuracy, ACI recommends the use of the TTM100 or TTM1K Series Matched transmitters with a 3 or 5 Point NIST Calibration Certificate since they include a second calibration step in which the RTD and transmitter are calibrated together as a system, which removes most of the sensor error over the calibrated temperature span of the transmitter.

Applications: Burners, Boilers, Stacks, Exhaust, Incinerators, Ovens, Plastics Processing, Process Heating, Process Control, Steam Lines

The ACI High Temperature Immersion Sensors and Transmitters Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's web site, workaci.com.

| PRODUCT SPECIFICATIONS | |
|--|--|
| Transmitter Supply Voltage Supply Current: | +8.5 to 32 VDC (Reverse Polarity Protected) 25 mA minimum |
| Maximum Load Resistance: | 250 Ohm Load: +13.5 to 32 VDC 500 Ohm Load: +18.5 to 32 VDC |
| Output Signal: | (Terminal Voltage - 8.5 V) 0.020 A |
| Calibration Transmitter Accuracy Linearity: | Current: 4-20 mA (2-Wire Loop Powered) Voltage: 1-5 VDC or 2-10 VDC (3-Wires) |
| Temperature Drift: | Temp. Spans < 500°F (260°C): +/- 0.2% Temp. Spans > 500°F (260°C): +/- 0.5% |
| Warm Up Time Warm Up Drift: | Temp. Spans < 100°F (38°C): +/- 0.04%/°F Temp. Spans > 100°F (38°C): +/- 0.02% |
| Operating Storage Temperature Range: | 10 Minutes +/- 0.1% |
| Operating Humidity Range: | -40°F (-40°C) to 185°F (85°C) |
| Calibration Temperature Spans¹: | 0 to 90%, non-condensing |
| Matched Calibrated Temperature Spans (A/TTM Models) Ranges: | Minimum Temp. Span: 50°F (28°C) Maximum Temp. Span: 800°F (426°C) |
| Connections Wire Size: | -49°F to 311°F (-45°C to 155°C) |
| Terminal Block Torque Rating: | Screw Terminal Blocks (Non-Polarity Sensitive) 16 AWG (1.31 mm ²) to 26 AWG (0.129 mm ²) |
| Sensor Type Sensor Curve Sensor Points: | 0.5 Nm nominal |
| Number Wires: | Platinum RTD PTC (Positive Temperature Coefficient) One |
| Sensor Output @ 0°C (32°F): | A/100-3W-HT-D-XX" and A/1K-3W-HT-D-xx": Three (White / Two Red) Polarity Sensitive |
| Sensor Tolerance Accuracy²: | A/100-3W-HT-D-xx": 100 Ohms nominal A/1K-3W-HT-D-xx": 1000 Ohms nominal |
| Din Standard Temperature Coefficient: | +/- 0.12% Class B Class B Tolerance Formula: +/- °C = (0.30°C + (0.005 * t)) |
| Sensor Stability: | DIN EN 60751 (IEC 751) 3850 ppm / °C |
| Self-Heating Maximum Operating Current: | < 0.04 % at 1000 hours at 400°C |
| Sensor Operating Temperature Range: | 100 Ohm RTD: 7 mW/°C (Still Air) 5 mA 1K Ohm RTD: 4 mW/°C (Still Air) 3 mA |
| Enclosure Specifications (Operating Temperature Range, Material, Flammability, NEMA/IP Rating): | -40 to 395°C (-40 to 743°F) |
| Storage Temperature Range: | "-GD" Enclosure: -40 to 199°C (-40 to 390°F); Galvanized Steel; NEMA 1 (IP10) |
| Operating Humidity Range: | "-BB" Enclosure: -40 to 85°C (-40 to 185°F); Aluminum; NEMA 3R |
| Probe Material Probe Diameter: | 10 to 90% RH, non-condensing |
| Compression Fitting Material Thread Size: | 316 Stainless Steel 0.250" (6.35mm) |
| Thermowell Material: | 316 Stainless Steel ½" NPT |
| Thermowell Instrument Thread Process Thread: | 304 Series Stainless Steel |
| Lead Length Conductor Size: | ½" NPS (National Pipe Straight - Female) ½" NPT (National Pipe Tapered - Male) |
| Lead Wire Insulation Conductor Material: | 8' (2.44 m) 24 AWG (0.20 mm ²) |
| Product Dimensions Product Weight: | Fiberglass Braided Insulation with Mica Tape 27% Nickel Plated Copper |
| Agency Approvals: | See table on back of Product Data sheet |
| | RoHS2, WEEE |

Note¹: Transmitter's calibrated at 71°F (22°C) nominal | **Note²:** Where |t| is the absolute value of temperature above or below 0°C in Centigrade





MAXIMUM VELOCITY VS THERMOWELL INSERTION LENGTH MACHINED THERMOWELL

| Straight Shank Insertion Length "U" | | | Stepped Shank Insertion Length "U" | |
|-------------------------------------|----------------------------|----------------------|------------------------------------|----------------------|
| Material: | Media Type: | 2.5" (63.5 mm) | 4.0" (101.6 mm) | 6.0" (152.4 mm) |
| 304/316 SS | Air/Gas/Steam ¹ | 349 ft/s (106.3 m/s) | 109 ft/s (33.2 m/s) | 39.5 ft/s (12.0 m/s) |
| 304/316 SS | Water | 360 ft/s (109.7 m/s) | 82.2 ft/s (25.1 m/s) | 39.5 ft/s (12.0 m/s) |

Note 1: Values are for Air/Gas/ Steam and similar density media | All velocity ratings are based upon an operating temperature of 1000°F (537.8°C)

DIMENSIONAL DRAWING

| Standard Views | Product Weights | | | | | | | | | | | | |
|--|---|-----------------------|-------------------------|-----------------------|-----------------------|----------------|----------------------|----------------------|----------------------|---------------|----------------------|----------------------|----------------------|
| <p>Galvanized Enclosure [GD]</p> <p>Available with 2.5", 4", and 6" Lengths</p> | <p>Galvanized Enclosure [GD] Weights</p> <table border="1"> <thead> <tr> <th>ACI Model #</th> <th>2.5" (Insertion Length)</th> <th>4" (Insertion Length)</th> <th>6" (Insertion Length)</th> </tr> </thead> <tbody> <tr> <td>A/xx-INW-yy-GD</td> <td>0.66 lbs. (0.299 kg)</td> <td>0.70 lbs. (0.318 kg)</td> <td>0.74 lbs. (0.336 kg)</td> </tr> <tr> <td>A/xx-IM-yy-GD</td> <td>1.00 lbs. (0.454 kg)</td> <td>1.16 lbs. (0.526 kg)</td> <td>1.32 lbs. (0.599 kg)</td> </tr> </tbody> </table> | ACI Model # | 2.5" (Insertion Length) | 4" (Insertion Length) | 6" (Insertion Length) | A/xx-INW-yy-GD | 0.66 lbs. (0.299 kg) | 0.70 lbs. (0.318 kg) | 0.74 lbs. (0.336 kg) | A/xx-IM-yy-GD | 1.00 lbs. (0.454 kg) | 1.16 lbs. (0.526 kg) | 1.32 lbs. (0.599 kg) |
| ACI Model # | 2.5" (Insertion Length) | 4" (Insertion Length) | 6" (Insertion Length) | | | | | | | | | | |
| A/xx-INW-yy-GD | 0.66 lbs. (0.299 kg) | 0.70 lbs. (0.318 kg) | 0.74 lbs. (0.336 kg) | | | | | | | | | | |
| A/xx-IM-yy-GD | 1.00 lbs. (0.454 kg) | 1.16 lbs. (0.526 kg) | 1.32 lbs. (0.599 kg) | | | | | | | | | | |
| <p>Bell Box Enclosure [BB]</p> <p>Available with 2.5", 4", and 6" Lengths</p> | <p>Bell Box Enclosure [BB] Weights</p> <table border="1"> <thead> <tr> <th>ACI Model #</th> <th>2.5" (Insertion Length)</th> <th>4" (Insertion Length)</th> <th>6" (Insertion Length)</th> </tr> </thead> <tbody> <tr> <td>A/xx-INW-yy-BB</td> <td>0.68 lbs. (0.308 kg)</td> <td>0.72 lbs. (0.326 kg)</td> <td>0.76 lbs. (0.345 kg)</td> </tr> <tr> <td>A/xx-IM-yy-BB</td> <td>1.02 lbs. (0.463 kg)</td> <td>1.20 lbs. (0.544 kg)</td> <td>1.36 lbs. (0.617 kg)</td> </tr> </tbody> </table> | ACI Model # | 2.5" (Insertion Length) | 4" (Insertion Length) | 6" (Insertion Length) | A/xx-INW-yy-BB | 0.68 lbs. (0.308 kg) | 0.72 lbs. (0.326 kg) | 0.76 lbs. (0.345 kg) | A/xx-IM-yy-BB | 1.02 lbs. (0.463 kg) | 1.20 lbs. (0.544 kg) | 1.36 lbs. (0.617 kg) |
| ACI Model # | 2.5" (Insertion Length) | 4" (Insertion Length) | 6" (Insertion Length) | | | | | | | | | | |
| A/xx-INW-yy-BB | 0.68 lbs. (0.308 kg) | 0.72 lbs. (0.326 kg) | 0.76 lbs. (0.345 kg) | | | | | | | | | | |
| A/xx-IM-yy-BB | 1.02 lbs. (0.463 kg) | 1.20 lbs. (0.544 kg) | 1.36 lbs. (0.617 kg) | | | | | | | | | | |

Note: There are two enclosures included with configurations involving Temperature Transmitters. A secondary GD (Galvanized) enclosure contains the transmitter board to protect it from the extreme temperatures exposed to the sensing element

PROBE AND INSERTION LENGTH IMMERSION NO WELL

| Standard Views | Product Weights | | | | | | | | | | | | | | | | |
|--|--|---------------------|-------------------|------------|-------------------|------|-----------------|---------------------|---------|----|-----------------|-------------------|-------|----|-----------------|-------------------|-------|
| <p>Pictured Above: immersion no well (INW) sensor in Bell Box Enclosure (BB).</p> <p>Pictured Below: welded two piece thermowell to show connection and depth reference. Thermowell not included with immersion no well (INW).</p> | <p>Probe & Insertion Length</p> <table border="1"> <thead> <tr> <th>Probe Length</th> <th>Insertion Length</th> <th>ACI Part #</th> <th>Thermowell Part #</th> </tr> </thead> <tbody> <tr> <td>4.5"</td> <td>4.31" +/- 0.13"</td> <td>A/xx-INW-2.5"-yy-zz</td> <td>A/M2.5"</td> </tr> <tr> <td>6"</td> <td>5.81" +/- 0.13"</td> <td>A/xx-INW-4"-yy-zz</td> <td>A/M4"</td> </tr> <tr> <td>8"</td> <td>7.81" +/- 0.13"</td> <td>A/xx-INW-6"-yy-zz</td> <td>A/M6"</td> </tr> </tbody> </table> | Probe Length | Insertion Length | ACI Part # | Thermowell Part # | 4.5" | 4.31" +/- 0.13" | A/xx-INW-2.5"-yy-zz | A/M2.5" | 6" | 5.81" +/- 0.13" | A/xx-INW-4"-yy-zz | A/M4" | 8" | 7.81" +/- 0.13" | A/xx-INW-6"-yy-zz | A/M6" |
| Probe Length | Insertion Length | ACI Part # | Thermowell Part # | | | | | | | | | | | | | | |
| 4.5" | 4.31" +/- 0.13" | A/xx-INW-2.5"-yy-zz | A/M2.5" | | | | | | | | | | | | | | |
| 6" | 5.81" +/- 0.13" | A/xx-INW-4"-yy-zz | A/M4" | | | | | | | | | | | | | | |
| 8" | 7.81" +/- 0.13" | A/xx-INW-6"-yy-zz | A/M6" | | | | | | | | | | | | | | |



| CUSTOM ORDERING HIGH TEMPERATURE IMMERSION SENSORS | | Model # Example: A/ 1K 3W HT I 4" GD NIST | MODEL # |
|---|--|---|---------|
| | | A. B. C. D. E. F. G. H. | |
| A. Sensor Series <i>No Selection Required</i> | A/ _____ → | | A/ |
| B. Model Series <i>Select One (1)</i> | 100 = 100 Ohm Platinum RTD only 1K = 1K Ohm Platinum RTD only | | |
| C. Number of Wires <i>No Selection Required</i> | 3W = Three Wires (Specify for 100 and 1K RTD Sensors only) _____ → | | 3W |
| D. High Temperature <i>No Selection Required</i> | HT = High Temperature Series _____ → | | HT |
| E. Configuration <i>Select One (1)</i> | IM = Immersion with Machined Thermowell INW = Immersion without Thermowell | | |
| F. Thermowell Insertion Length <i>Select One (1)</i> | 2.5" = 2.5" Probe 4" = 4" Probe 6" = 6" Probe | | |
| G. Enclosure <i>Select One (1)</i> | GD = Galvanized Enclosure BB = Cast Aluminum Weather Proof Enclosure | | |
| H. NIST <i>Select One (1)</i> | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) | | |

| CUSTOM ORDERING HIGH TEMPERATURE IMMERSION TRANSMITTERS | | Model # Example: A/ TT100 HT I 6" 2 GD NIST | MODEL # |
|---|--|---|---------|
| | | A. B. C. D. E. F. G. H. | |
| A. Sensor Series <i>No Selection Required</i> | A/ _____ → | | A/ |
| B. Model Series <i>Select One (1)</i> | TT100 = Unmatched Temperature Transmitter & 100 Ohm RTD TT1K = Unmatched Temperature Transmitter & 1K RTD TTM100 = Matched 100 Ohm Temperature Transmitter/Sensor TTM1K = Matched 1K Ohm Temperature Transmitter/Sensor (Must specify 3 or 5 Point NIST Certificates for all TTM100 and TTM1K Transmitters) | | |
| C. High Temperature <i>No Selection Required</i> | HT = High Temperature Series _____ → | | HT |
| D. Configuration <i>Select One (1)</i> | IM = Immersion with Machined Thermowell INW = Immersion without Thermowell | | |
| E. Thermowell Insertion Length <i>Select One (1)</i> | 2.5" = 2.5" Probe 4" = 4" Probe 6" = 6" Probe | | |
| F. Analog Output <i>Select One (1)</i> | 1 = 1 to 5 VDC 2 = 2 to 10 VDC 4 = 4 to 20 mA | | |
| G. Enclosure <i>Select One (1)</i> | GD = Galvanized Enclosure BB = Cast Aluminum Weather Proof Enclosure | | |
| H. Calibration Span | Specify Span in °F or °C (Best Accuracy in 100°F Increments) | | |

| ACCESSORIES ORDERING | | | Model # Example: A/316SS_1-8IN_NPT_COMPRESS_FIT -OR- 143457 |
|---------------------------------------|--------|---|---|
| Model # | Item # | Description | |
| A/316SS_1-8IN_NPT_COMPRESS_FIT | 143457 | 1/8" MNPT x 1/4" Tube Fitting (Bore Through), Compression Fitting | |
| A/316SS_1-2IN_NPT_COMPRESS_FIT | 143458 | 1/2" MNPT x 1/4" Tube Fitting (Bore Through), Compression Fitting | |





FREEZER

Remote Freezer, Thermistor

The ACI Thermistor Freezer Series features a 3/16" diameter stainless steel probe with a 30 Foot, 3 Conductor, 24 AWG Jacketed Teflon Cable. The sensors in this series are manufactured using ACI's proven encapsulation process to eliminate the effects of moisture upon the sensors. The probe is designed to be used in a Refrigerated, Freezer or Hydronic applications where a remote sensor must be used. An optional NEMA 4X rated weatherproof enclosure and NIST Certificate is available as referenced in the ordering grid on the back of the product data sheet

Applications: Pharmaceutical, Refrigerators, Freezers, Hydronic Heating, Remote Sensor Applications

The ACI Thermistor Freezer Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's web site, workaci.com.

PRODUCT SPECIFICATIONS

| | |
|--|--|
| Sensor Type Sensor Curve | Thermistor Non-Linear, NTC (Negative Temperature Coefficient) |
| Number Sensing Points: | One |
| Number Wires: | Three Conductors (White and Two Red Wires); Polarity Sensitive (Tie Red wires together) |
| Sensor Output @ 25°C (77°F) | A/CP (Type II): 10KΩ nominal A/AN (Type III): 10KΩ nominal |
| Accuracy 0-70°C (32-158°F): | A/CP Series & A/AN Series: +/- 0.85°C (+/-1.53°F); |
| Stability: | Sensor Dependent; Contact ACI for more information on specific sensor |
| Power Dissipation Constant: | A/CP-Series & A/AN Series: 2 mW/°C |
| Sensor Operating Temperature Range: | -40 to 150°C (-40 to 302°F) |
| Enclosure Operating Temperature Range: | -40 to 70°C (-40 to 158°F) |
| Storage Temperature Range: | -40 to 80°C (-40 to 176°F) |
| Operating Humidity Range: | 10 to 95% RH, non-condensing |
| Enclosure Material Flammability Rating: | Polystyrene UL94-V2 |
| Enclosure Ratings: | NEMA 4X (IP 66) |
| Cable Gland (Fitting) Size Hole Size: | PG7 15 mm (0.591") |
| Cable Gland Material Sleeve Material: | Polyamide 6 Neoprene |
| Cable Gland Wire Clamping Size IP Rating: | 0.098" (2.5 mm) to 0.256" (6.5 mm) IP 68 (NEMA 6P) |
| Cable Gland Torque Rating: | 2.5 Nm (22.127 lb. inch) |
| Probe Material: | 316 Stainless Steel |
| Probe Length Probe Diameter: | 2" (50.8 mm) 0.1875" (4.76 mm) |
| Lead Length Cable Diameter: | 30' (9.15 m) 0.106" nominal (2.69 mm) |
| Conductor Size Conductor Material: | 24 AWG (0.51 mm) Silver Plated Copper |
| Lead Wire Insulation Jacket Color: | FEP/FEP (Teflon) Jacketed Cable White |
| Product Weight: | A/xxK-FRZ2"-30': 0.36 lbs. (0.163 kg) A/xxK-FRZ2"-4X-30': 0.60 lbs. (0.272 kg) |
| Agency Approvals: | WEEE, RoHS2 |





| DIMENSIONAL DRAWINGS | | |
|-------------------------------|-----------|----------|
| NEMA 4X Enclosure [4X] | | |
| | | |
| Sensor Probe | | |
| | | |
| Front View | Side View | Top View |

| STANDARD ORDERING | | | Model # Example: A/1.8K-FRZ2"-30' -OR- 125164 |
|--------------------------|--------|--|--|
| Model # | Item # | Description | |
| A/AN-FRZ2"-30' | 121305 | AN Freezer Sensor, 30' Leads, 2" Probe | |
| A/CP-FRZ2"-30' | 125285 | CP Freezer Sensor, 30' Leads, 2" Probe | |
| A/AN-FRZ2"-4X-30' | 134410 | AN Freezer Sensor, 30' Leads, 2" Probe, 4X Enclosure | |
| A/CP-FRZ2"-4X-30' | 125094 | CP Freezer Sensor, 30' Leads, 2" Probe, 4X Enclosure | |

| OPTIONAL SENSOR ORDERING | | Model # Example: A/ 1.8K FRZ2" 4X 30' NIST | MODEL # |
|---|---|---|----------------|
| | | A. B. C. D. E. F. | |
| A. Sensor Series No Selection Required | A/ <input type="text"/> | | A/ |
| B. Model Series Select One (1) | AN CP | | |
| C. Configuration No Selection Required | FRZ2" = Freezer Sensor <input type="text"/> | | FRZ2" |
| D. Enclosure Select One (1) | ---- = No Enclosure 4X = NEMA 4X Weather Proof Plastic Enclosure | | |
| E. Lead Length No Selection Required | 30' = 30 Feet (9.15m) <input type="text"/> | | 30' |
| F. NIST Select One (1) | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) | | |

| ACCESSORIES ORDERING | | | Model # Example: A/TB-2.0-GLA -OR- 147220 |
|-----------------------|--------|--|--|
| Model # | Item # | Description | |
| A/TB-2.0-GLA | 147220 | Thermal Buffer, 2 oz Nalgene Bottle, 1 Sensing Point, Mounting Bracket, Glass Beads | |
| A/TB-2.0-GLY | 147221 | Thermal Buffer, 2 oz Nalgene Bottle, 1 Sensing Point, Mounting Bracket, Food Grade Glycol | |
| A/TB-8.5-1-GLA | 147223 | Thermal Buffer, 8.5 oz Nalgene Bottle, 1 Sensing Point, Mounting Bracket, Glass Beads | |
| A/TB-8.5-1-GLY | 147225 | Thermal Buffer, 8.5 oz Nalgene Bottle, 1 Sensing Point, Mounting Bracket, Food Grade Glycol | |
| A/TB-8.5-3-GLA | 147227 | Thermal Buffer, 8.5 oz Nalgene Bottle, 3 Sensing Points, Mounting Bracket, Glass Beads | |
| A/TB-8.5-3-GLY | 147228 | Thermal Buffer, 8.5 oz Nalgene Bottle, 3 Sensing Points, Mounting Bracket, Food Grade Glycol | |





FREEZER

Remote Freezer, Platinum RTD

The ACI RTD Freezer Series features a 3/16" diameter stainless steel probe with a 10 Foot or 30 Foot, 3 Conductor, 24 AWG Plenum rated jacketed Teflon cable. The sensors in this series are manufactured using ACI's proven encapsulation process to eliminate the effects of moisture upon the sensors. The sensor is designed to be used in Pharmaceutical, Liquid Nitrogen, Freezers, Refrigerators and Hydronic applications where a remote sensor is required due to the extreme temperature ranges and presence of ice and moisture. An optional "-GD" galvanized or "-4x" NEMA 4X weather proof enclosure and NIST Certificates are available as referenced in the ordering grid on the product data sheet. The Freezer RTD sensors can be used with any of the Single or Triple Point Thermal Buffers for when slower response time is desired.

Applications: Pharmaceutical, Liquid Nitrogen, Refrigerators, Freezers, Hydronic Heating, Remote Sensor Applications, Hospital, Agricultural

The ACI RTD Freezer Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's web site, workaci.com.

PRODUCT SPECIFICATIONS

| | |
|--|---|
| Sensor Type Sensor Curve | Platinum RTD Linear, PTC (Positive Temperature Coefficient) |
| Number Sensing Points Number Wires: | One Three Conductors (White and Two Red Wires); Polarity Sensitive (Tie Red wires together) |
| Sensor Output @ 0°C (32°F) | A/100-LTS Series: 100 Ohms nominal A/1K-LTS Series: 1000 Ohms nominal |
| Sensor Tolerance Class: | Class B Accuracy Formula: $\pm 0.30^\circ\text{C} = (\pm 0.30^\circ\text{C} + (0.005 \times t))$ where t is the Absolute Value of temperature in °C above or below 0°C -200°C (-328°F): $\pm 1.30^\circ\text{C} (\pm 2.34^\circ\text{F})$ 0°C (-32°F): $\pm 0.30^\circ\text{C} (\pm 0.54^\circ\text{F})$ |
| Temperature Coefficient Din Standard: | 3850 ppm / °C DIN EN 60751 (IEC 751) |
| Response Time (63% Step Change): | A/100-LTS Series: In still air: 3:40 (Min:Sec) In water: 19 (Sec) A/1K-LTS Series: In still air: 3:50 (Min:Sec) In water: 22 (Sec) |
| Sensor Operating Temperature Range: | -198 to 150°C (-324 to 302°F) |
| Enclosure Operating Temperature Range: | "-GD" Enclosure: -40 to 100°C (-40 to 212°F) "-4X" Enclosure: -40 to 70°C (-40 to 158°F) |
| Storage Temperature Range: | -40 to 80°C (-40 to 176°F) |
| Operating Humidity Range: | 10 to 100% RH |
| Enclosure Material Flammability Rating: | "-GD" Enclosure: Galvanized Steel "-4X" Enclosure: Polystyrene UL94-V2 |
| Enclosure NEMA/IP Ratings: | "-GD" Enclosure: NEMA 1 (IP10) "-4X" Enclosure: NEMA 4X (IP 66) |
| Cable Gland (Fitting) Size Hole Size: | PG7 15 mm (0.591") |
| Cable Gland Material Sleeve Material: | Polyamide 6 Neoprene |
| Cable Gland Wire Clamping Size IP Rating: | 0.098" (2.5 mm) to 0.256" (6.5 mm) IP 68 (NEMA 6P) |
| Cable Gland Torque Rating: | 2.5 Nm (22.127 lb. inch) |
| Probe Material Length Diameter: | 316 Stainless Steel 2" (50.8 mm) 0.1875" (4.76 mm) nominal |
| Lead Length Cable Diameter: | 10' (3.05 m) or 30' (9.15 m) 0.106" nominal (2.69 mm) |
| Conductor Size Conductor Material: | 24 AWG (0.51 mm) Silver Plated Copper |
| Lead Wire Insulation Jacket Color: | FEP/FEP (Teflon) Jacketed Cable White |
| Product Weight: | A/xx-LTS-10': 0.16lbs (0.073kg) A/xx-LTS-4X-10': 0.40lbs (0.181kg) A/xx-LTS-GD-10': 0.71lbs (0.322kg) A/xx-LTS-30': 0.36lbs (0.163kg) A/xx-LTS-4X-30': 0.60lbs (0.272kg) A/xx-LTS-GD-30': 0.91lbs (0.413kg) |
| Agency Approvals: | WEEE, RoHS |





| DIMENSIONAL DRAWING | | |
|---|------------------|-----------------|
| <p>NEMA 4X Enclosure [4X]</p> | | |
| <p>Galvanized Enclosure [GD]</p> | | |
| <p>Sensor Probe</p> | | |
| Front View | Side View | Top View |

| STANDARD ORDERING | | |
|-------------------|--------|--|
| Model # | Item # | Description |
| A/100-LTS-10' | 125169 | 100 Ohm RTD, 2" Probe, Freezer Sensor, 10' Leads |
| A/100-LTS-GD-10' | 142513 | 100 Ohm RTD, 2" Probe, Freezer Sensor, 10' Leads, Galvanized Enclosure |
| A/100-LTS-4X-10' | 142515 | 100 Ohm RTD, 2" Probe, Freezer Sensor, 10' Leads; NEMA 4X Enclosure |
| A/100-LTS-30' | 126443 | 100 Ohm RTD, 2" Probe, Freezer Sensor, 30' Leads |
| A/100-LTS-GD-30' | 142514 | 100 Ohm RTD, 2" Probe, Freezer Sensor, 30' Leads, Galvanized Enclosure |
| A/100-LTS-4X-30' | 129131 | 100 Ohm RTD, 2" Probe, Freezer Sensor, 30' Leads; NEMA 4X Enclosure |
| A/1K-LTS-10' | 125213 | 1K Ohm RTD, 2" Probe, Freezer Sensor, 10' Leads |
| A/1K-LTS-GD-10' | 142139 | 1K Ohm RTD, 2" Probe, Freezer Sensor, 10' Leads, Galvanized Enclosure |
| A/1K-LTS-4X-10' | 133656 | 1K Ohm RTD, 2" Probe, Freezer Sensor, 10' Leads; NEMA 4X Enclosure |
| A/1K-LTS-30' | 125214 | 1K Ohm RTD, 2" Probe, Freezer Sensor, 30' Leads |
| A/1K-LTS-GD-30' | 142516 | 1K Ohm RTD, 2" Probe, Freezer Sensor, 30' Leads, Galvanized Enclosure |
| A/1K-LTS-4X-30' | 125212 | 1K Ohm RTD, 2" Probe, Freezer Sensor, 30' Leads, NEMA 4X Enclosure |

Model # Example: **A/1K-LTS-GD-30' -OR- 142516**

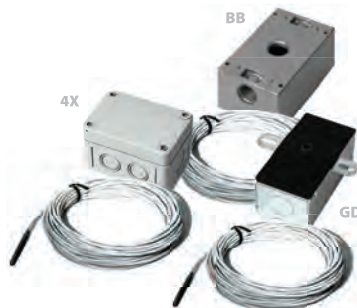


| OPTIONAL SENSOR ORDERING | | Model # Example: A/ 1K LTS 4X 30' NIST | MODEL # |
|--|--|--|---------|
| | | <small>A.</small> <small>B.</small> <small>C.</small> <small>D.</small> <small>E.</small> <small>F.</small> | |
| A. Sensor Series <i>No Selection Required</i> | A/ _____ → | | A/ |
| B. Model Series <i>Select One (1)</i> | 100 = 100 Ohm RTD 1K = 1K Ohm RTD | | |
| C. Configuration <i>No Selection Required</i> | LTS = Freezer Sensor _____ → | | LTS |
| D. Enclosure <i>Select One (1)</i> | ---- = No Enclosure GD = Galvanized Enclosure 4X = NEMA 4X Enclosure | | |
| E. Lead Length <i>Select One (1)</i> | 10' = 10 Feet Leads (3.05 m) 30' = 30 Feet (9.15m) | | |
| F. NIST <i>Select One (1)</i> | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) | | |

| ACCESSORIES ORDERING | | | Model # Example: A/TB-2.0-GLA -OR- 147220 |
|----------------------|--------|--|---|
| Model # | Item # | Description | |
| A/TB-2.0-GLA | 147220 | Thermal Buffer, 2 oz Nalgene Bottle, 1 Sensing Point, Mounting Bracket, Glass Beads, Rated to -100°C | |
| A/TB-2.0-GLY | 147221 | Thermal Buffer, 2 oz Nalgene Bottle, 1 Sensing Point, Mounting Bracket, Food Grade Glycol, Rated to -40°C | |
| A/TB-2.0-XXY | 147222 | Thermal Buffer, 2 oz Nalgene Bottle, 1 Sensing Point, Mounting Bracket, Empty Bottle, Polyamide Fitting, Rated to -40°C | |
| A/TB-2.0-XXA | 147653 | Thermal Buffer, 2 oz Nalgene Bottle, 1 Sensing Point, Mounting Bracket, Empty Bottle, SS Fitting, Rated to -100°C | |
| A/TB-8.5-1-GLA | 147223 | Thermal Buffer, 8.5 oz Nalgene Bottle, 1 Sensing Point, Mounting Bracket, Glass Beads, Rated to -100°C | |
| A/TB-8.5-1-GLY | 147225 | Thermal Buffer, 8.5 oz Nalgene Bottle, 1 Sensing Point, Mounting Bracket, Food Grade Glycol, Rated to -40°C | |
| A/TB-8.5-1-XXX | 147226 | Thermal Buffer, 8.5 oz Nalgene Bottle, 1 Sensing Point, Mounting Bracket, Empty Bottle, Rated to -100°C | |
| A/TB-8.5-3-GLA | 147227 | Thermal Buffer, 8.5 oz Nalgene Bottle, 3 Sensing Points, Mounting Bracket, Glass Beads, Rated to -100°C | |
| A/TB-8.5-3-GLY | 147228 | Thermal Buffer, 8.5 oz Nalgene Bottle, 3 Sensing Points, Mounting Bracket, Food Grade Glycol, Rated to -40°C | |
| A/TB-8.5-3-XXX | 147229 | Thermal Buffer, 8.5 oz Nalgene Bottle, 3 Sensing Points, Mounting Bracket, Empty Bottle, Rated to -100°C | |
| A/GLYCOL 250ML | 144021 | Glycol Filled Bottle (250 ML) | |
| A/GLA 250ML | 147328 | Glass Bead Filled Bottle (250 ML) | |

Note: 2.0 (2oz) models are shipped with the original lid in place along with an additional lid drilled out with the sensor cord grip.





FREEZER

Remote Freezer Transmitters

The ACI RTD Freezer Series features a 3/16" diameter stainless steel probe with a 10 Foot or 30 Foot, 3 Conductor, 24 AWG Plenum rated jacketed Teflon cable. The sensor is designed to be used in Pharmaceutical, Liquid Nitrogen, Freezers, Refrigerators and Hydronic applications where a remote sensor is required. Optional "-GD" galvanized, "-BB" Aluminum, or "-4x" NEMA 4X weather proof plastic enclosures are available as well as NIST Certificates as referenced on the back of the product data sheet. A/TT Series transmitter accuracies must be calculated using both the calibration accuracy of the transmitter and the sensor accuracy over your applications operating temperature range. For higher accuracies, the A/TTM Series includes a secondary calibration process designed to eliminate most of the sensor error from the overall system accuracy. Any Freezer Transmitter can be used with the Single or Triple Point Glycol Kits when a Thermal Buffer (slower) response time is desired.

Applications: Pharmaceutical, Liquid Nitrogen, Refrigerators, Freezers, Hydronic Heating, Remote Sensor Applications, Hospital, Agricultural

The ACI Transmitter Freezer Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's web site, workaci.com.

PRODUCT SPECIFICATIONS

| | | |
|---|---|--|
| Transmitter Supply Voltage Supply Current: | +13.5 to 32 VDC into 250 Ohm Load (Reverse Polarity Protected) 25 mA minimum +18.5 to 32 VDC into 500 Ohm Load | |
| Maximum Load Resistance: | Terminal Voltage - 8.5 V 0.020 A (775 Ohms @ 24 VDC) | |
| Output Signals: | Current: 4-20 mA (2-Wire Loop Powered) Voltage: 1-5 VDC or 2-10 VDC (3-Wires) | |
| Calibrated Transmitter Accuracy Linearity: | Temp. Spans < 500°F (260°C): +/- 0.2% Temp. Spans > 500°F (260°C): +/- 0.5% | |
| Temperature Drift: | Temp. Spans < 100°F (38°C): +/- 0.04%/°F Temp. Spans > 100°F (38°C): +/- 0.02% | |
| TTM100/TTM1K Certification Points: | 3 Point NIST: 20%, 50% & 80% of span 5 Point NIST: 20%, 35%, 50%, 65%, 80% of span | |
| Warm Up Time Warm Up Drift: | 10 Minutes +/- 0.1% | |
| Operating Storage Temperature Range: | -40°F (-40°C) to 185°F (85°C) | |
| Operating Humidity Range: | 0 to 95%, non-condensing | |
| Calibrated Temperature Spans¹: | Minimum Temp. Span: 50°F (28°C) Maximum Temp. Span: 1000°F (538°C) | |
| Matched Calibrated Temperature Spans (A/TTM models) Range: | -45 to 155°C (-49 to 311°F) | |
| Connections Wire Size: | Screw Terminal Blocks (Polarity Sensitive) 16 AWG (1.31 mm ²) to 26 AWG (0.129 mm ²) | |
| Terminal Block Torque Rating: | 0.5 Nm nominal | |
| Sensor Type Sensor Curve: | Platinum RTD Linear, PTC (Positive Temperature Coefficient) | |
| Number Wires: | Three Conductors (White and Two Red Wires); Polarity Sensitive (Red wires tied together) | |
| Sensor Output @ 0°C (32°F): | A/TT/TTM100-LTS Series: 100 Ohms nominal A/TT/TTM1K-LTS Series: 1000 Ohms nominal | |
| RTD Tolerance Class² Sensory Accuracy: | Class B Accuracy Formula: +/- °C = (+/- 0.30°C + (0.005 x t)) -200°C (-328°F): +/- 1.30°C (+/- 2.43°F) 0°C (-32°F): +/- 0.30°C (+/- 0.54°F) | |
| Response Time (63% Step Change): | A/TT/TTM100-LTS Series: In still air: 3:40 (Min:Sec) In water: 19 (Sec) A/TT/TTM1K-LTS Series: In still air: 3:50 (Min:Sec) In water: 22 (Sec) | |
| Temperature Coefficient Din Standard: | 3850 ppm / °C DIN EN 60751 (IEC 751) | |
| Stability: | < 0.04% @ 1000 hours @ 400°C (752°F) | |
| Sensor Operating Temperature Range: | -198 to 150°C (-324 to 302°F) | |
| Enclosure Specifications (Operating Temperature, Material, Flammability, NEMA/IP Ratings): | " -GD " Enclosure: -40 to 121°C (-40 to 250°F); Galvanized Steel; NEMA 1 (IP10) " -BB " Enclosure: Aluminum, -40 to 121°C (-40 to 250°F), Plenum Rated, NEMA 3R (IP 14) " -4X " Enclosure: -40 to 70°C (-40 to 158°F); Polystyrene Plastic; UL94-V2; NEMA 4X (IP 66) | |
| Storage Temperature Range: | -40 to 80°C (-40 to 176°F) | |
| Cable Gland (Fitting) Size Hole Size Material: | PG7 15 mm (0.591") Polyamide 6 | |
| Cable Gland Sleeve Material Wire Clamping Size: | Neoprene 0.098" (2.5 mm) to 0.256" (6.5 mm) | |
| Cable Gland IP Rating Torque Rating: | IP 68 (NEMA 6P) 2.5 Nm (22.127 lb. inch) | |
| Probe Material Length Diameter: | 316 Stainless Steel 2" (50.8 mm) 0.1875" (4.76 mm) nominal | |
| Lead Length Cable Diameter: | 10' (3.05 m) or 30' (9.15 m) 0.106" nominal (2.69 mm) | |
| Conductor Size Conductor Material: | 24 AWG (0.51 mm) Silver Plated Copper | |
| Lead Wire Insulation Jacket Color: | FEP/FEP (Teflon Jacketed Cable) White | |
| Product Weights: | A/TT/TTMxxx-LTS-BB-10': 0.84 lbs (0.39 kg) A/TT/TTMxxx-LTS-BB-30': 1.04 lbs (0.48 kg) A/TT/TTMxxx-LTS-4X-10': 0.42 lbs (0.19 kg) A/TT/TTMxxx-LTS-4X-30': 0.62 lbs (0.29 kg) A/TT/TTMxxx-LTS-GD-10': 0.73 lbs (0.32 kg) A/TT/TTMxxx-LTS-GD-30': 0.93 lbs (0.43 kg) | |
| Agency Approvals: | WEEE, RoHS | |

Note¹: Transmitter's calibrated at 71°F (22°C) nominal | Note²: Where t is the Absolute Value of temperature in Centigrade above or below 0°C





| DIMENSIONAL DRAWING | | |
|---|---|---|
| <p>NEMA 4X Enclosure [4X]</p> <p>2.55" (64.77mm)</p> | <p>2.21" (56.13mm) 3.11" (78.994mm) 3.70" (93.98mm)</p> | <p>0.86" (21.84mm) 1.96" (49.78mm)</p> |
| <p>Galvanized Enclosure [GD]</p> | <p>1.62" (41.14mm)</p> | <p>2.33" (59.18mm) 4.20" (106.68mm)</p> |
| <p>Bell Box Enclosure [BB]</p> <p>3.18" (80.77mm) 3.50" (88.90mm) .199" (5.05mm)</p> | <p>2.82" (71.62mm)</p> | <p>4.56" (115.82mm) 2.00" (50.80mm)</p> |
| <p>Sensor Probe</p> | <p>.1875" (4.76 mm) DIA. NOMINAL</p> | <p>2.0" (50.78mm)</p> |
| Front View | Side View | Top View |



| OPTIONAL SENSOR ORDERING | | Model # Example: A/ TT100 LTS 1 GD 10' | MODEL # |
|--|--|--|---------|
| | | <small>A. B. C. D. E. F. G.</small> | |
| A. Sensor Series <i>No Selection Required</i> | A/ _____ ▶ | | A/ |
| B. Model Series <i>Select One (1)</i> | TT100 = 100Ω RTD TTM100 = Matched 100Ω RTD (Specify 3 or 5 Point NIST)* TT1K = 1KΩ RTD TTM1K = Matched 1KΩ RTD (Specify 3 or 5 Point NIST)* | | |
| C. Configuration <i>No Selection Required</i> | LTS = Freezer Sensor _____ ▶ | | LTS |
| D. Output Signal <i>Select One (1)</i> | 1 = 1 to 5 VDC (3-Wire) 2 = 2 to 10 VDC (3-Wire) 4 = 4 to 20 mA (2-Wire Loop Powered) | | |
| E. Enclosure <i>Select One (1)</i> | GD = Galvanized Enclosure BB = NEMA 3R Enclosure 4X = NEMA 4X Enclosure | | |
| F. Lead Length <i>Select One (1)</i> | 10' = 10 Feet Leads (3.05 m) 30' = 30 Feet (9.15m) | | |
| G. Calibration Span | Specify Span in °F or °C (Best Accuracy in 100°F Increments) | | |

Note*: For TTM100 or TTM1k part numbers, the default NIST is 3 points | 5 points may be specified by using "-5PTNIST" at the end of any TTM part number.

| ACCESSORIES ORDERING (NIST) | |
|-----------------------------|---|
| Model # | Description |
| -5PTNIST | 5 Point Calibration & Certificate for TTM parts |





TEMPERATURE PROBE

Probe w/Buffer for Refrigeration/Freezer



ACI Thermal Buffers counter rapid temperature fluctuations typically caused by doors opening in a walk-in freezer or cooler applications rated down to -40°C (-40°F). The 2 oz Nalgene bottles listed on this data sheet are designed to accept ACI's standard 4 inch probe with 20 foot, Plenum rated FEP/FEP (Teflon) cable. The Platinum, Nickel and Thermistor sensors are manufactured using ACI's proven double encapsulation process and dual wall heat shrinking process to eliminate the effects of moisture on the sensors using our high quality, thermally conductive epoxy. The sensor should be installed inside the bottle such that the tip of the sensor is suspended approximately ½ inch above the bottom of the bottle. NIST Certificates are available when required. (See ACI's Freezer Series Data Sheets for additional sensor and thermal buffer options).

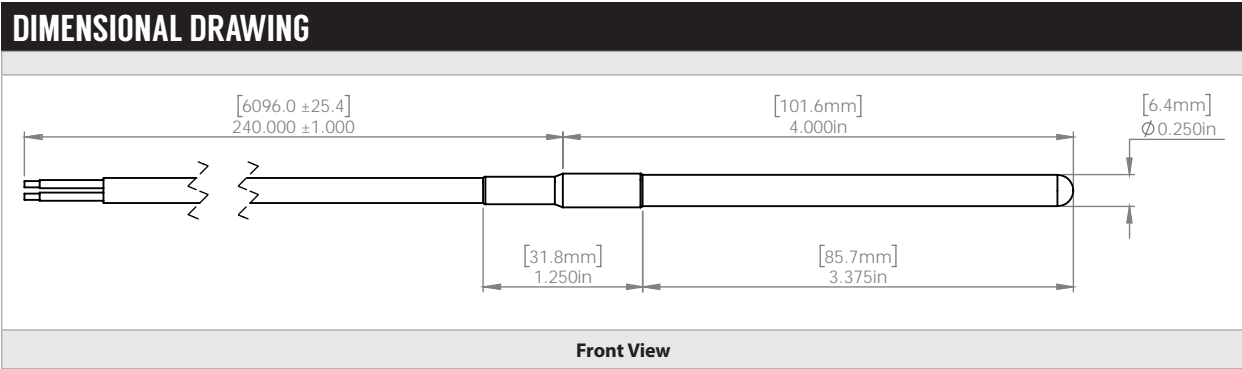
Applications: Monitor Freezer and Refrigerator Temperatures, Pharmaceuticals, Thermal Buffer

The ACI Thermal Buffer Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, workaci.com.

PRODUCT SPECIFICATIONS

| | | | | |
|------------------------------------|--|--|----------------------------|----------------------------------|
| Platinum RTD Probe | Sensor Type Curve Type Sensing Points: | Platinum RTD PTC (Positive Temperature Coefficient) One | | |
| | Number Wires: | A/100/1K-2W-PO-4": Two (Non-Polarity Sensitive) A/100/1K-3W-PO-4": Three (Polarity Sensitive) | | |
| | RTD Sensor Output @ 0°C (32°F): | A/100-xW-PO-4": 100 Ohms nominal A/1K-xW-PO-4": 1000 Ohms nominal | | |
| | RTD Sensor Accuracy: | +/- 0.06% Class A (Tolerance Formula: +/- °C = (0.15°C + (0.002 * t)) where t is the absolute value of Temperature above or below 0°C in °C) -40°C (-40°F): +/-0.23°C (+/-0.414°F) 0°C (32°F): +/-0.15°C (+/-0.27°F) 120°C (248°F): +/-0.39°C (+/-0.71°F) | | |
| | Din Standard Temperature Coefficient: | Din EN 60751 (IEC 751) 3850 ppm / °C | | |
| | Sensor Stability: | +/- 0.03% after 1000 Hours @ 300°C (572°F) | | |
| | Self-Heating Maximum Operating Current: | 100 Ohm RTD: 7 mW/°C (Still Air) 5 mA; 1K Ohm RTD: 4mW/°C (Still Air) 3 mA | | |
| Nickel RTD Probe | Sensor Type Curve Type Sensing Point: | Nickel RTD PTC (Positive Temperature Coefficient) One | | |
| | Number Wires: | Two (Non-Polarity Sensitive) | | |
| | Sensor Output @21.1°C (70°F): | 1000 Ohms nominal | | |
| | Sensor Accuracy: | -40°C (-40°F): +/-1.52°C (+/-2.73°F) 0°C (32°F): +/-0.4°C (+/-0.72°F) 21.1°C (70°F): +/-0.17°C (+/-0.34°F) 54.4°C (130°F): +/-0.56°C (+/-1.00°F) 121°C (250°F): +/-1.25°C (+/-2.25°F) | | |
| | Din Standard Temp. Coefficient (0-100°C): | Din 43760 6370 ppm/°C | | |
| | Sensor Stability: | +/- 0.05% after 1000 Hours @ 150°C (302°F) | | |
| Thermistor Probe | Sensor Type Curve Type Sensing Points: | Thermistor NTC (Negative Temperature Coefficient) One | | |
| | Thermistor Output @ 25°C (77°F): | A/1.8K: 1.8KΩ nom. | A/10KS: 10KΩ nom. | A/CP (Type II): 10KΩ nom. |
| | | A/3K: 3KΩ nom. | A/100KS: 100KΩ nom. | A/AN-BC: 5.238KΩ nom. |
| | | A/AN (Type III): 10KΩ nom. | A/20K: 20KΩ nom. | A/CSI: 10KΩ nom. |
| | Thermistor Accuracy 0-70°C (32-158°F): | +/-0.2°C (+/-0.36°F) A/1.8K: +/-0.5°C @ 25°C (77°F) & (+/-1.0°C) (+/-1.8°F) | | |
| Stability: | Sensor Dependent; Contact ACI for more information on the sensor in question | | | |
| Power Dissipation Constant: | 3 mW/°C except A/1.8K: 1 mW/°C | | | |
| General Specs | Response Time (63% Step Change): | 10 Seconds Nominal | | |
| | Operating Storage Temperature Range: | -40 to 150°C (-40 to 302°F) -40 to 85°C (-40 to 185°F) | | |
| | Operating Humidity Range: | 10 to 95% RH, condensing | | |
| | Lead Length Conductor Size Material: | 20 Feet (6.10m) 22 AWG (0.65mm) Tin Plated Copper | | |
| | Lead Wire Insulation Wire Rating: | FEP/FEP (Teflon) Cable CL2P/CMP Plenum Rated Cable (minimum) | | |
| | Probe Material Probe Diameter: | 304 Stainless Steel 0.250" (6.35mm) | | |
| | Product Dimensions: | See Table on back of Product Data Sheet | | |
| | Product Weight: | A/xx-PO-4"-20'CL2P: 0.025 lbs. (113.4g) | | |
| | Agency Approvals: | RoHS2, WEEE | | |





CUSTOM ORDERING

Model # Example: **A/** **100** **3W** **PO** **4"** **20'** **CL2P-HS** **NIST**

| | A. | B. | C. | D. | E. | F. | G. | H. | MODEL # | |
|--|---|----|---|----|----|----|----|----|---------|--|
| A. Sensor Series <i>No Selection Required</i> | A/ _____ → | | | | | | | | A/ | |
| B. Model Series <i>Select One (1)</i> | 100 = 100 Ohm Platinum RTD 1K = 1000 Ohm Platinum RTD 1K-NI = 1000 Ohm Nickel RTD 1.8K = 1.8K Ohm Thermistor 3K = 3K Ohm Thermistor AN = 10K (Type III) Ohm Thermistor | | AN-BC = 10K Thermistor Ohm 11K Shunt CP = 10K (Type II) Ohm Thermistor CSI = 10K Ohm Thermistor 10KS = 10K Ohm Thermistor 20K = 20K Ohm Thermistor 100KS = 100K Ohm Thermistor | | | | | | | |
| C. Number of Wires <i>Select One (1)</i> | ---- = Any Thermistor/Nickel Sensor 2W = Two Wire (100/1K RTD only) 3W = Three Wire (100/1K RTD Only) | | | | | | | | | |
| D. Configuration <i>No Selection Required</i> | PO = Probe Only _____ → | | | | | | | | PO | |
| E. Probe Length <i>No Selection Required</i> | 4" = 4" Probe _____ → | | | | | | | | 4" | |
| F. Lead Length <i>No Selection Required</i> | 20' = 20 Feet* (6.10m) _____ → | | | | | | | | 20' | |
| G. Lead Wire Type <i>No Selection Required</i> | CL2P-HS = 2 Conductor Plenum Rated Cable with Heat Shrink _____ → | | | | | | | | CL2P-HS | |
| H. NIST <i>Select One (1)</i> | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) | | | | | | | | | |

ACCESSORIES ORDERING

Model # Example: **A/GLYCOL KIT** **-OR-** **130127**

| Model # | Item # | Description |
|--------------|--------|---|
| A/TB-2.0-GLY | 147221 | Thermal Buffer, 2 oz Nalgene Bottle, 1 Sensing Point, Mounting Bracket, Food Grade Glycol |
| A/TB-2.0-XXX | 147222 | Thermal Buffer, 2 oz Nalgene Bottle, 1 Sensing Point, Mounting Bracket, Empty Bottle |





THERMAL BUFFER BOTTLE KIT

Thermal Buffer



ACI Thermal Buffers counter rapid temperature fluctuations typically caused by doors opening in a walk-in freezer or cooler. The ACI Thermal Buffer Bottle comes with all the items needed to add a buffer to any new or existing sensor installation. All the parts include the food grade Glycol or Glass beads buffer, 304 series stainless steel Mounting bracket, stainless steel screws, Nalgene Bottle, and probe fitting. The 2oz Glycol bottle includes a PG7 Cable Gland with Neoprene Gasket (Seal) that will fit 3/16" to 1/4" probe sizes. The 2oz Glass beads Thermal Buffer bottle includes a 316 stainless steel compression fitting that will fit 3/16" diameter sensing probes only. The 8.5oz bottle will fit 3/16" diameter sensing probes only.

ACI's Glycol buffer should be used in freezer/fridge applications, rated down to -40°C (-40°F). ACI's Glass Bead Buffer should be used in extreme low temperature applications, rated down to -100°C (-148°F).

The "-3PT" Triple Point Thermal buffer should be used in pharmaceutical or critical applications where multiple sensor redundancy is required with the 3rd sensing opening available for insertion of your NIST Certified standard or reference.

For more information regarding the Glycol or Glass Bead Thermal Buffer Bottles and Accessories, or to discuss your application in more detail, please contact ACI.

Applications: Monitor Freezer and Refrigerator Temperatures, Cryogenic Temperatures, Pharmaceuticals, Meat Packing Plants, Cold Storage Facilities, Thermal Buffer (Slows Response Times)

The ACI Thermal Buffer Bottles and Accessories Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's web site.

PRODUCT SPECIFICATIONS

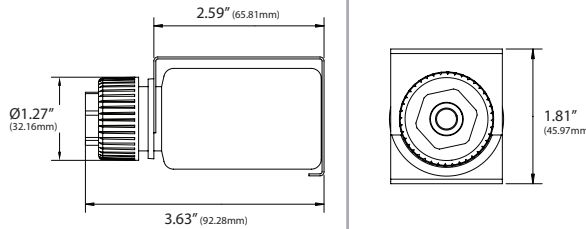
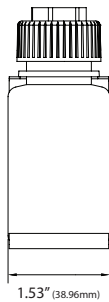
| | | |
|--|--|---|
| 2 oz Thermal Buffer Bottle Glycol | Thermal Media: | Glycol |
| | Bottle Material/Cap Material: | Nalgene (HDPE) / Polypropylene |
| | Fluid Capacity: | 67 ml (2 oz) |
| | Bottle Dimensions: (Height x Diameter) | 3.386" (86.00 mm) x 1.535" (39.00 mm) |
| | Cable Gland Material / Gland Material | Polyamide 6 / Neoprene |
| | Cable Gland Torque Rating | 1.66 Nm (14.7 lb. inch) |
| | Probe Size Accepted: | 0.098" to 0.256" (2.49mm to 6.50mm) |
| | Operating Temperature Range: | -40 to 120°C (-40 to 248°F) |
| 2 oz Thermal Buffer Bottle Glass Bead | Thermal Media: | Glass Beads |
| | Bottle Material/Cap Material: | Nalgene (HDPE) / Polypropylene |
| | Fluid Capacity: | 67 ml (2 oz) |
| | Bottle Dimensions: (Height x Diameter) | 3.386" (86.00 mm) x 1.535" (39.00 mm) |
| | Compression Fitting Material: | 316 Stainless Steel |
| | Probe Size Accepted: | 0.1875" (4.762 mm) |
| | Operating Temperature Range: | -100 to 120°C (-148 to 248°F) |
| 8.5 oz Thermal Buffer Bottle | Thermal Media: | Glycol or Glass Beads |
| | Bottle Material/Cap Material: | Nalgene (HDPE) / Polypropylene w/ PTFE Foam Liner |
| | Fluid Capacity: | 250 ml (8.5 oz) |
| | Bottle Dimensions: (Height x Diameter) | 4.04" (102.62 mm) x 2.18" (55.37 mm) |
| | Thermowell Material (3PT only): | 316 SS Steel |
| | Probe Size Accepted: | 0.1875" (4.762 mm) |
| | Operating Temp Range – Glycol: | -40 to 120°C (-40 to 248°F) |
| | Operating Temp Range – Glass Bead: | -100 to 120°C (-148 to 248°F) |
| Bracket | Bracket Material: | 304 Stainless Steel |
| | Bracket Size(H x W x D): | 2 oz Bottle: 2.541" (64.54 mm) x 1.500" (38.10 mm) x 1.760" (44.71 mm) 8.5 oz Bottle: 3.366" (85.49 mm) x 2.630" (66.80 mm) x 3.00" (76.20 mm) |
| | Mounting Screws / Material: | #10-16 Thread x 1/2" (12.7mm) / 410 Stainless steel |
| Thermal Buffer Media | Glycol Properties / Glycol Freezing Point: | Food Grade USP (Propylene Glycol); Non-Toxic -59°C (-74.2°F) |
| | Glass Bead Properties / Glass Freezing Point: | Soda Lime Glass / NA |
| General Specs | Chemical Resistance: | Resistant to most acids, bases, and alcohols |
| | Bottle Sterility: | Lab Quality, Non-Sterile |
| | Storage Temperature Range: | -40 to 85°C (-40 to 185°F) |
| | Operating Humidity Range: | 10 to 100% RH, condensing |
| | Agency Approvals: | RoHS2, WEEE |





DIMENSIONAL DRAWING. WEIGHTS

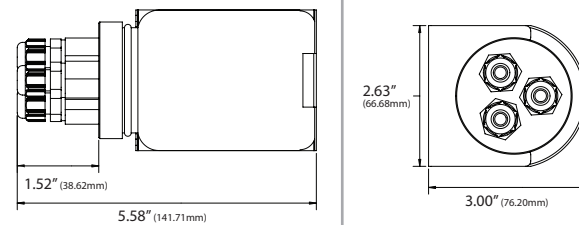
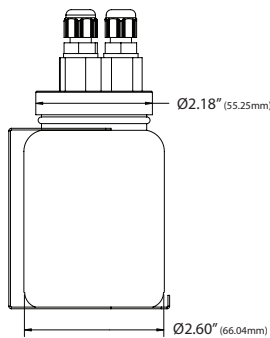
2.0 oz Bottle



2.0 oz Bottle Weights

| ACI Model # | Weight |
|--------------|---------------------|
| A/TB-2.0-GLA | 0.5 lbs (0.227 kg) |
| A/TB-2.0-GLY | 0.2 lbs (0.091 kg) |
| A/TB-2.0-XXX | 0.14 lbs (0.064 kg) |

8.5 oz Bottle



8.5 oz Bottle Weights

| ACI Model # | Weight |
|----------------|----------------------|
| A/TB-8.5-1-GLA | 1.20 lbs (0.544 kg) |
| A/TB-8.5-1-GLY | 0.892 lbs (0.404 kg) |
| A/TB-8.5-1-XX | 0.314 lbs (0.143 kg) |
| A/TB-8.5-3-GLA | 1.37 lbs (0.621 kg) |
| A/TB-8.5-3-GLY | 1.066 lbs (0.484 kg) |
| A/TB-8.5-3-XXX | 0.488 lbs (0.221 kg) |

Front View

Right View

Top View

STANDARD ORDERING

Model # Example: **A/TB-2.0-GLA** -OR- **147220**

| Model # | Item # | Description |
|-----------------------|--------|---|
| A/TB-2.0-GLA | 147220 | Thermal Buffer, 2 oz Nalgene Bottle, 1 Sensing Point, Mounting Bracket, Glass Beads, Rated to -100°C |
| A/TB-2.0-GLY | 147221 | Thermal Buffer, 2 oz Nalgene Bottle, 1 Sensing Point, Mounting Bracket, Food Grade Glycol, Rated to -40°C |
| A/TB-2.0-XXY | 147222 | Empty 2 oz Nalgene Bottle, 1 Sensing Point, Mounting Bracket, Polyamide Fitting, Rated to -40°C |
| A/TB-2.0-XXA | 147653 | Empty 2 oz Nalgene Bottle, 1 Sensing Point, Mounting Bracket, SS Fitting, Rated to -100°C |
| A/TB-8.5-1-GLA | 147223 | Thermal Buffer, 8.5 oz Nalgene Bottle, 1 Sensing Point, Mounting Bracket, Glass Beads, Rated to -100°C |
| A/TB-8.5-1-GLY | 147225 | Thermal Buffer, 8.5 oz Nalgene Bottle, 1 Sensing Point, Mounting Bracket, Food Grade Glycol, Rated to -40°C |
| A/TB-8.5-1-XXX | 147226 | Empty 8.5 oz Nalgene Bottle, 1 Sensing Point, Mounting Bracket, Rated to -100°C |
| A/TB-8.5-3-GLA | 147227 | Thermal Buffer, 8.5 oz Nalgene Bottle, 3 Sensing Points, Mounting Bracket, Glass Beads, Rated to -100°C |
| A/TB-8.5-3-GLY | 147228 | Thermal Buffer, 8.5 oz Nalgene Bottle, 3 Sensing Points, Mounting Bracket, Food Grade Glycol, Rated to -40°C |
| A/TB-8.5-3-XXX | 147229 | Empty 8.5 oz Nalgene Bottle, 3 Sensing Points, Mounting Bracket, Rated to -100°C |
| A/GLYCOL 250ML | 144021 | Glycol Filled Bottle (250 ML) |
| A/GLA 250ML | 147328 | Glass Bead Filled Bottle (250 ML) |

Note: 2.0 (2oz) models are shipped with the original lid in place along with an additional lid drilled out with the sensor cord grip.





| ACCESSORIES ORDERING. FOR USE WITH GLYCOL (2 OZ) | | |
|--|--------|--|
| Model # | Item # | Description |
| A/1K-3W-PO-4"-20'CL2P-HS | 147719 | 1K Ohm RTD, Three Wires, Probe Only, 4", 20' Plenum Cable, w/ Additional Moisture Protection |
| A/100-3W-PO-4"-20'CL2P-HS | 147720 | 100 Ohm RTD, Three Wires, Probe Only, 4", 20' Plenum Cable w/ Additional Moisture Protection |
| A/1K-NI-PO-4"-20'CL2P-HS | 147721 | 1K Ohm Nickel RTD, Probe Only, 4", 20' Plenum Cable, w/ Additional Moisture Protection |
| A/CP-PO-4"-20'CL2P-HS | 144077 | 10K Ohm (Type II) Thermistor, Probe Only, 4", 20' Plenum Cable, w/ Additional Moisture Protection |
| A/AN-PO-4"-20'CL2P-HS | 147723 | 10K Ohm (Type III) Thermistor, Probe Only, 4", 20' Plenum Cable, w/ Additional Moisture Protection |
| A/CSI-PO-4"-20'CL2P-HS | 147724 | 10K Ohm (CSI) Thermistor, Probe Only, 4", 20' Plenum Cable, w/ Additional Moisture Protection |
| A/1.8K-PO-4"-20'CL2P-HS | 147725 | 1.8K Ohm Thermistor, Probe Only, 4", 20' Plenum Cable, w/ Additional Moisture Protection |
| A/3K-PO-4"-20'CL2P-HS | 142215 | 3K Ohm Thermistor, Probe Only, 4", 20' Plenum Cable, w/ Additional Moisture Protection |
| A/AN-BC-PO-4"-20'CL2P-HS | 147726 | 10K Thermistor w/ 11K Shunt, Probe Only, 4", 20' Plenum Cable, w/ Additional Moisture Protection |
| A/10KS-PO-4"-20'CL2P-HS | 147727 | 10K Ohm Thermistor, Probe Only, 4", 20' Plenum Cable, w/ Additional Moisture Protection |
| A/20K-PO-4"-20'CL2P-HS | 147728 | 20K Ohm Thermistor, Probe Only, 4", 20' Plenum Cable, w/ Additional Moisture Protection |
| A/100KS-PO-4"-20'CL2P-HS | 147729 | 100K Ohm Thermistor, Probe Only, 4", 20' Plenum Cable, w/ Additional Moisture Protection |

| ACCESSORIES ORDERING. FOR USE WITH GLYCOL OR GLASS BEADS (ANY SIZE) | | |
|---|--------|--|
| Model # | Item # | Description |
| A/100-LTS-30' | 126443 | 100 Ohm RTD, 2" Probe, Freezer Sensor, 30' Leads |
| A/1K-LTS-30' | 125214 | 1K Ohm RTD, 2" Probe, Freezer Sensor, 30' Leads |

ACCESSORIES

Sensor Probes for Refrigerator/Freezer Applications

See Data Sheet: Refrigerator/Freezer Thermistors
<https://www.workaci.com/sites/default/files/category-files/Thermistors%20Freezer.pdf>

See Data Sheet: Freezer RTDs (100-LTS and 1,000-LTS ohm platinum RTD)
https://www.workaci.com/sites/default/files/product_cutsheet/Platinum%20RTDs%20Freezer.pdf

See Data Sheet: Freezer Transmitters (TT100-LTS, TT1K-LTS, TTM100-LTS, TTM1K-LTS)
<https://www.workaci.com/sites/default/files/category-files/Transmitter%20Freezer.pdf>





HAZARDOUS

Room, Duct & Immersion Thermistor

The ACI Hazardous Thermistor Series features a 1/2" NPT Process threaded fitting and 1/4" diameter stainless steel probe with two, 22 AWG Etched Teflon colored lead wires to differentiate the different NTC sensor types. The sensors in this series are manufactured using ACI's proven double encapsulation process to eliminate the effects of moisture upon the sensors and to increase response times using our high quality, thermally conductive epoxy. The Hazardous sensors come standard with a heavy duty Feraloy® Iron or Aluminum Connection Head depending on the configuration ordered. These sensors can be used in Wall Mounted (Room), Duct, and Immersion style configurations and include an O-Ring Seal, Green Ground Screw, and weather resistant finish. The "INW" Immersion sensor without thermowell can be used with an existing thermowell or paired with any of the Machined thermowells (See

Accessories) when higher flow rates, temperatures, pressure rating or corrosion resistance is required. NIST Certificates are available as shown in the ordering grid on the back of the product data sheet. This product should be installed by a trained professional with knowledge of local codes and regulations.

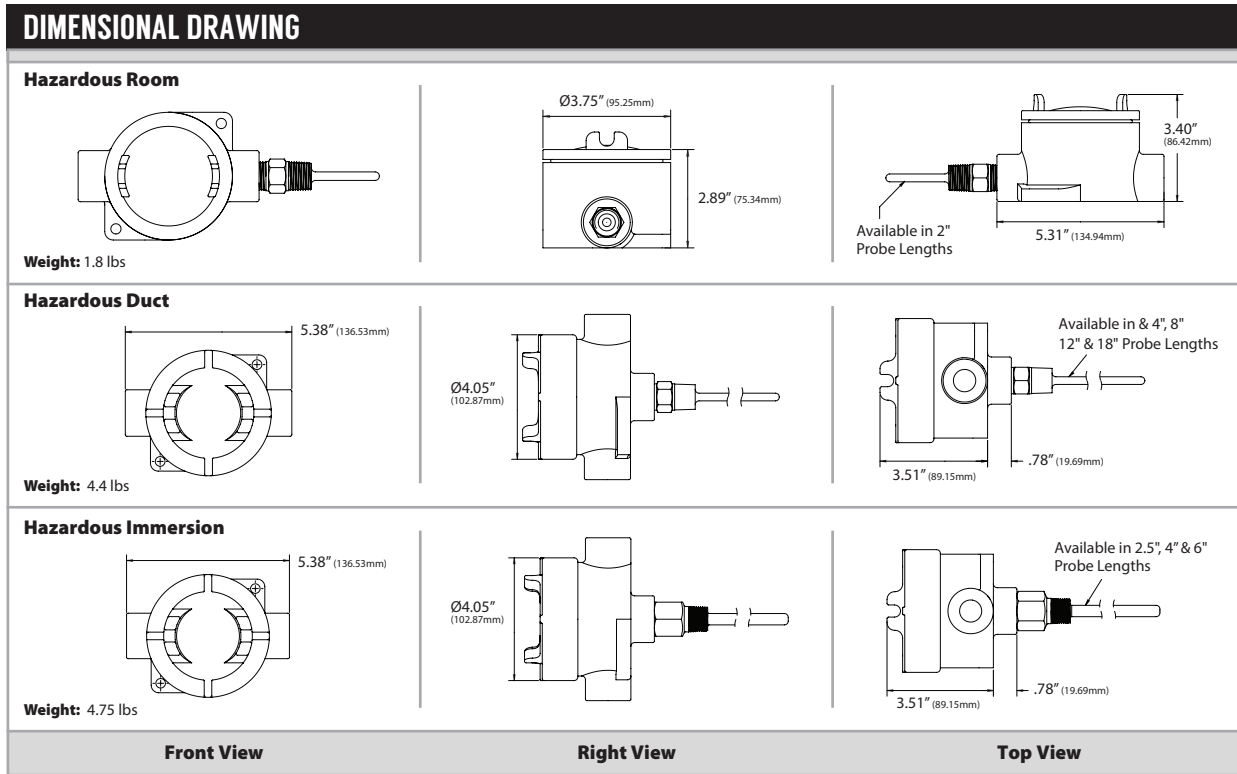
Applications: Hazardous Atmospheres, Industrial Sensor Applications, Process control, Exhaust Systems

The ACI Hazardous Thermistor Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|--|---|
| Sensor Type Sensor Curve | Thermistor Non-Linear, NTC (Negative Temperature Coefficient) |
| Sensing Points Number Wires: | One Two (Non-Polarity Sensitive) |
| Sensor Output @ 25°C (77°F) Lead Wire Colors: | A/AN (Type III): 10KΩ nominal White/White A/1.8K: 1.8KΩ nominal Red/Yellow A/CP (Type II): 10KΩ nominal White/Green A/3K: 3KΩ nominal White/Brown A/CP-HT (Type II): 10KΩ nominal White/Green A/20K: 20KΩ nominal Brown/Blue A/10K-E1: 10KΩ nominal Gray/Orange |
| Accuracy 0-70°C (32-158°F): | +/-0.2°C (+/-0.36°F) except A/10K-E1 Series: +/- 0.3°C (+/-0.54°F) A/1.8K Series: +/-0.5°C @ 25°C (77°F) and (+/-1.0°C) (+/-1.8°F) |
| Accuracy 25°C (77°F): | A/CP-HT: +/- 1% |
| Stability: | Sensor Dependent; Contact ACI for more information on specific sensor |
| Response Time (63% Step Change): | 10 Seconds nominal |
| Power Dissipation Constant: | 3 mW/°C except A/1.8K Series: 1 mW/°C A/10K-E1 and A/CP-HT Series: 2 mW/°C |
| Enclosure Specifications (Temperature, NEMA Ratings): | "-D" Enclosure: Feraloy® Iron Alloy, -50 to 60°C (-58 to 140°F), NEMA 3, 4, 7ABCD, 9EFG "-I or -INW" Enclosure: Feraloy® Iron Alloy, -50 to 60°C (-58 to 140°F), NEMA 3, 4, 7ABCD, 9EFG "-R" Enclosure: Copper-Free Aluminum, -50 to 60°C (-58 to 140°F), NEMA 3, 4, 7ABCD, 9EFG |
| Enclosure Explosion Proof Rating: | CL. I, Div. 1 & 2, Groups A, B, C, D |
| Enclosure Dust-Ignition Proof Rating: | CL. II, Div. 1, Groups E, F, G |
| Enclosure Raintight Rating: | CL. II, Div. 2, Groups F, G |
| Enclosure Wet Locations Rating: | CL. III |
| Enclosure UL CSA Standards: | UL 1203 CSA C22.2 No. 30 |
| Sensor Operating Temperature Range: | -40 to 150°C (-40 to 302°F) A/CP-HT: -40 to 200°C (-40 to 392°F) |
| Storage Temperature Range: | -40 to 85°C (-40 to 185°F) |
| Operating Humidity Range: | 10 to 95% RH, non-condensing |
| Enclosure Hubs Hub Size: | Two 1/2" NPT Female Hubs |
| Probe Diameter Sensor Threads: | 0.250" (6.35mm) 1/2" NPT (National Pipe Tapered) Thread |
| Probe Material: | 304 Stainless Steel |
| Thermowell Material Bore Diameter: | 304 Stainless Steel 0.260" |
| Thermowell Instrument Thread Process Thread: | 1/2" NPS (National Pipe Straight) Female Thread 1/2" NPT (National Pipe Tapered) Male Thread |
| Lead Length Conductor Size: | 14" (35.6 cm) or 24" (61 cm) 22 AWG (0.65mm) |
| Lead Wire Insulation Wire Rating: | Etched Teflon (PTFE) Colored Leads Mil Spec 16878/4 Type E |
| Conductor Material: | Silver Plated Copper |
| Product Dimensions Product Weight: | See back of Product Data sheet Room: 1.8 lbs, Duct: 4.4 lbs, Immersion: 4.75 lbs |
| Agency Approvals: | CE, RoHS2, WEEE |





| HAZARDOUS ROOM ORDERING | | Model # Example: A/ 1.8K R EXPL NIST | MODEL # |
|---|--|--|---------|
| | | A. B. C. D. E. | |
| A. Sensor Series No Selection Required | A/ <input type="text"/> | | A/ |
| B. Model Series Select One (1) | 1.8K 3K AN CP CP-HT 10K-E1 20K | | |
| C. Configuration No Selection Required | R = Room <input type="text"/> | | R |
| D. Sensor Model No Selection Required | EXPL = Hazardous Sensor <input type="text"/> | | EXPL |
| E. NIST Select One (1) | ---- = No NIST Certificate NIST = NIST Certificate (Must Specify 1, 3 or 5 Points) | | |

| HAZARDOUS DUCT ORDERING | | Model # Example: A/ 1.8K D 4" EXPL NIST | MODEL # |
|---|--|---|---------|
| | | A. B. C. D. E. F. | |
| A. Sensor Series No Selection Required | A/ <input type="text"/> | | A/ |
| B. Model Series Select One (1) | 1.8K 3K AN CP CP-HT 10K-E1 20K | | |
| C. Configuration No Selection Required | D = Duct <input type="text"/> | | D |
| D. Duct Probe Length Select One (1) | 4" = Duct 4" 8" = Duct 8" 12" = Duct 12" 18" = Duct 18" | | |
| E. Sensor Model No Selection Required | EXPL = Hazardous Sensor <input type="text"/> | | EXPL |
| F. NIST Select One (1) | ---- = No NIST Certificate NIST = NIST Certificate (Must Specify 1, 3 or 5 Points) | | |

| HAZARDOUS IMMERSION ORDERING | | Model # Example: A/ 3K I 4" EXPL NIST | MODEL # |
|---|--|---|---------|
| | | A. B. C. D. E. F. | |
| A. Sensor Series No Selection Required | A/ <input type="text"/> | | A/ |
| B. Model Series Select One (1) | 1.8K 3K AN CP CP-HT 10K-E1 20K | | |
| C. Configuration Select One (1) | I = Immersion with Welded Thermowell INW = Immersion without Welded Thermowell | | |
| D. Immersion Probe Length Select One (1) | 2.5" = Immersion 2.5" 4" = Immersion 4" 6" = Immersion 6" | | |
| E. Sensor Model No Selection Required | EXPL = Hazardous Sensor <input type="text"/> | | EXPL |
| F. NIST Select One (1) | ---- = No NIST Certificate NIST = NIST Certificate (Must Specify 1, 3 or 5 Points) | | |





HAZARDOUS

Room, Duct & Immersion Platinum RTD

The ACI Hazardous Platinum RTD Series features a ½" NPT Process threaded fitting and ¼" diameter stainless steel probe with 22 AWG Etched Teflon colored lead wires. The sensors in this series are manufactured using ACI's proven double encapsulation process to eliminate the effects of moisture upon the sensors and to increase response times using our high quality, thermally conductive epoxy. The Hazardous sensors come standard with a heavy duty Feraloy® Iron or Aluminum Connection Head depending on the configuration ordered. These sensors can be used in Wall Mounted (Room), Duct, and Immersion style configurations and include an O-Ring Seal, Ground Screw, and weather resistant finish. The "INW" Immersion sensor without thermowell can be used with an existing thermowell or paired with any of the Machined thermowells (See Accessories) when higher flow rates, temperatures, pressure rating or corrosion resistance is required. NIST Certificates are also available as shown on the back of the product data sheet. This product should be installed by a trained professional with knowledge of local codes and regulations.

corrosion resistance is required. NIST Certificates are also available as shown on the back of the product data sheet. This product should be installed by a trained professional with knowledge of local codes and regulations.

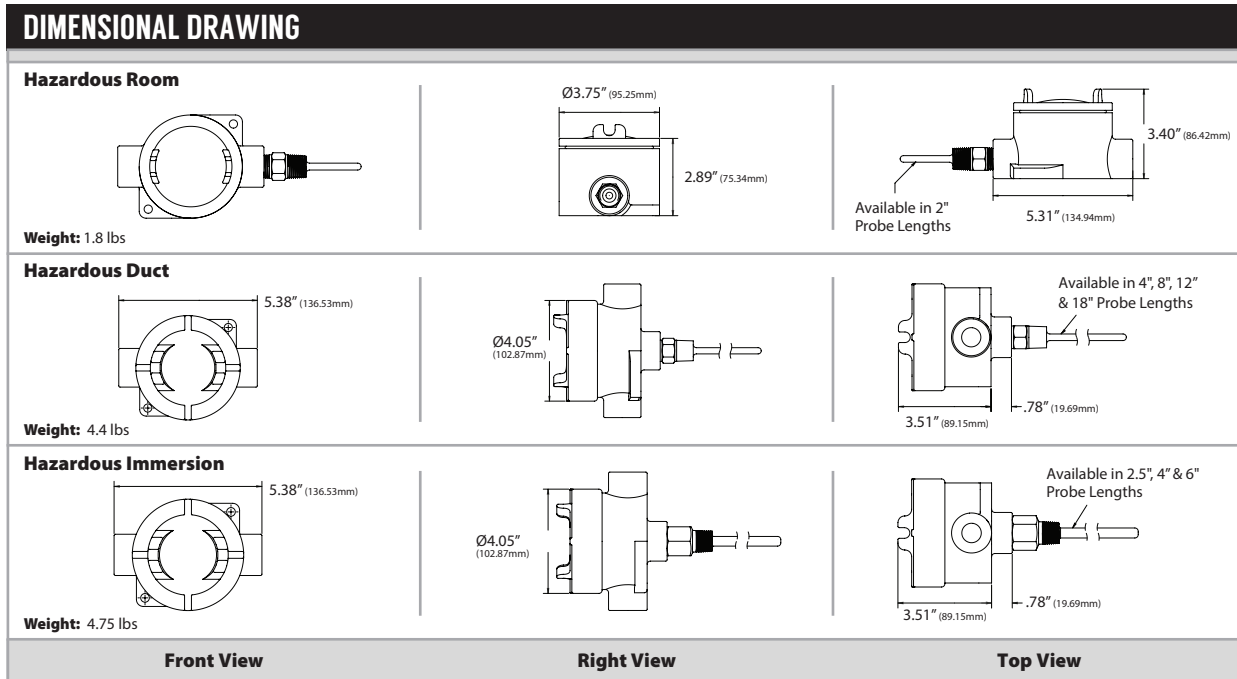
Applications: Hazardous Atmospheres, Industrial Sensor Applications, Process control, Exhaust Systems

The ACI Hazardous Platinum RTD Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|--|--|
| Sensor Type Sensor Curve: | Platinum RTD PTC (Positive Temperature Coefficient) |
| Number Sensing Points: | One |
| Number Wires: | A/100-2W-EXPL and A/1K-2W-EXPL: Two (Non-Polarity Sensitive) A/100-3W-EXPL and A/1K-3W-EXPL: Three (Polarity Sensitive) |
| Sensor Output @ 0°C (32°F): | A/100-xW-EXPL Series: 100 Ohms nominal A/1K-xW-EXPL Series: 1000 Ohms nominal |
| Sensor Tolerance Class Accuracy: | +/- 0.06% Class A (Tolerance Formula: +/- °C = (0.15°C + (0.002 * t)) where t is the absolute value of Temperature above or below 0°C in °C -40°C (-40°F): +/- 0.23°C (+/- 0.414°F) 0°C (32°F): +/- 0.15°C (+/- 0.27°F) 200°C (392°F) = +/- 0.55°C (+/- 1.00°F) |
| Din Standard Temperature Coefficient: | DIN EN 60751 (IEC 751) 3850 ppm / °C |
| Sensor Stability: | +/- 0.03% after 1000 Hours @ 300°C (572°F) |
| Response Time (63% Step Change): | 8 Seconds nominal |
| Self-Heating Maximum Operating Current: | 100 Ohm RTD: 7 mW/°C (Still Air) 5 mA 1K Ohm RTD: 4 mW/°C (Still Air) 3 mA |
| Enclosure Specifications (Material, Operating Temperature, NEMA Ratings): | "-D" Enclosure: Feraloy® Iron Alloy, -50 to 60°C (-58 to 140°F), NEMA 3, 4, 7ABCD, 9EFG "-I or -INW" Enclosure: Feraloy® Iron Alloy, -50 to 60°C (-58 to 140°F), NEMA 3, 4, 7ABCD, 9EFG "-R" Enclosure: Copper-Free Aluminum, -50 to 60°C (-58 to 140°F), NEMA 3, 4, 7ABCD, 9EFG |
| Enclosure Explosion Proof Rating: | CL. I, Div. 1 & 2, Groups A, B, C, D |
| Enclosure Dust-Ignition Proof Rating: | CL. II, Div. 1, Groups E, F, G |
| Enclosure Raintight Rating: | CL. II, Div. 2, Groups F, G |
| Enclosure Wet Locations Rating: | CL. III |
| Enclosure UL CSA Standards: | UL 1203 CSA C22.2 No. 30 |
| Sensor Operating Temperature Range: | -40 to 200°C (-40 to 392°F) |
| Storage Temperature Range: | -40 to 85°C (-40 to 185°F) |
| Operating Humidity Range: | 10 to 95% RH, non-condensing |
| Enclosure Hubs Hub Size: | Two 1/2" NPT Female Hubs |
| Probe Diameter Sensor Threads: | 0.250" (6.35mm) ½" NPT (National Pipe Tapered) Thread |
| Probe Material: | 304 Stainless Steel |
| Thermowell Material Thermowell Bore Diameter: | 304 Stainless Steel 0.260" |
| Thermowell Instrument Thread Process Thread: | ½" NPS (National Pipe Straight) Female Thread ½" NPT (National Pipe Tapered) Male Thread |
| Lead Length Conductor Size: | 14" (35.6 cm) or 24" (61 cm) 22 AWG (0.65mm) |
| Lead Wire Insulation Wire Rating: | Etched Teflon (PTFE) Colored Leads Mil Spec 16878/4 Type E) |
| Conductor Material: | Silver Plated Copper |
| Product Dimensions Product Weight: | See table on back of Product Data sheet Room: 1.8 lbs, Duct: 4.4 lbs, Immersion: 4.75 lbs |
| Agency Approvals: | CE, RoHS2, WEEE |





HAZARDOUS ROOM ORDERING

| | | Model # Example: | MODEL # |
|---|---|-----------------------|---------|
| | | A/ 100 2W R EXPL NIST | |
| | | A. B. C. D. E. F. | |
| A. Sensor Series No Selection Required | A/ | → | A/ |
| B. Model Series Select One (1) | 100 = 100 Ohm Platinum RTD 1K = 1K Ohm Platinum RTD | | |
| C. Number of Wires Select One (1) | 2W = Two Wires 3W = Three Wires | | |
| D. Configuration No Selection Required | R = Room | → | R |
| E. Sensor Model No Selection Required | EXPL = Hazardous Sensor | → | EXPL |
| F. NIST Select One (1) | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) | | |

HAZARDOUS DUCT ORDERING

| | | Model # Example: | MODEL # |
|---|---|--------------------------|---------|
| | | A/ 100 2W D 4" EXPL NIST | |
| | | A. B. C. D. E. F. G. | |
| A. Sensor Series No Selection Required | A/ | → | A/ |
| B. Model Series Select One (1) | 100 = 100 Ohm Platinum RTD 1K = 1K Ohm Platinum RTD | | |
| C. Number of Wires Select One (1) | 2W = Two Wires 3W = Three Wires | | |
| D. Configuration No Selection Required | D = Duct | → | D |
| E. Duct Probe Length Select One (1) | 4" = Duct 4" 8" = Duct 8" 12" = Duct 12" 18" = Duct 18" | | |
| F. Sensor Model No Selection Required | EXPL = Hazardous Sensor | → | EXPL |
| G. NIST Select One (1) | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) | | |

HAZARDOUS IMMERSION ORDERING

| | | Model # Example: | MODEL # |
|---|--|--------------------------|---------|
| | | A/ 100 3W I 4" EXPL NIST | |
| | | A. B. C. D. E. F. G. | |
| A. Sensor Series No Selection Required | A/ | → | A/ |
| B. Model Series Select One (1) | 100 = 100 Ohm Platinum RTD 1K = 1K Ohm Platinum RTD | | |
| C. Number of Wires Select One (1) | 2W = Two Wires 3W = Three Wires | | |
| D. Configuration Select One (1) | I = Immersion with Welded Thermowell INW = Immersion without Welded Thermowell | | |
| E. Immersion Length Select One (1) | 2.5" = Immersion 2.5" 4" = Immersion 4" 6" = Immersion 6" | | |
| F. Sensor Model No Selection Required | EXPL = Hazardous Sensor | → | EXPL |
| G. NIST Select One (1) | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) | | |





HAZARDOUS

Room, Duct & Immersion Transmitters

The ACI Hazardous Transmitter Series features an encapsulated temperature transmitter mounted in an industrial connection head style enclosure. The epoxy coating provides excellent protection of the transmitter from moisture and corrosion when used in harsh environments and improved accuracy due to the thermal conductivity of the epoxy keeping the components at a more stable operating temperature. The sensors are manufactured using ACI's double encapsulation process to eliminate the effects of moisture upon the sensors and to increase response times. For higher accuracies, ACI recommends the use of the A/TTM Series transmitters which includes a secondary calibration process that removes most of the sensor error over the calibrated temperature span of your transmitter and includes a 3 or 5 Point NIST Certificate. The unit includes an O-Ring seal,

ground screw, and weather resistant finish. The "INW" Immersion sensor without thermowell can be used with an existing thermowell or paired with one of our machined thermowells when higher flow rates, temperatures, pressure rating or corrosion resistance is required. This product should be installed by a trained professional with knowledge of local codes and regulations.

Applications: Hazardous Atmospheres, Industrial Sensor Applications, Process Control, Exhaust Systems

The ACI Hazardous Transmitter Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's web site, workaci.com.

PRODUCT SPECIFICATIONS

| | |
|--|---|
| Transmitter Supply Voltage Supply Current: | +8.5 to 32 VDC (Reverse Polarity Protected) 25 mA minimum |
| Maximum Load Resistance: | 250 Ohm Load: +13.5 to 32 VDC 500 Ohm Load: +18.5 to 32 VDC (Terminal Voltage - 8.5 V) 0.020 A |
| Output Signals: | Current: 4-20 mA (2-Wire Loop Powered) Voltage: 1-5 VDC or 2-10 VDC (3-Wires) |
| Calibrated Transmitter Accuracy Linearity: | Temp. Spans < 500°F (260°C): +/- 0.2% Temp. Spans > 500°F (260°C): +/- 0.5% |
| Temperature Drift: | Temp. Spans < 100°F (38°C): +/- 0.04% Temp. Spans > 100°F (38°C): +/- 0.02% |
| TTM100/TTM1K Certification Points: | 3 Point NIST: 20%, 50% & 80% of span 5 Point NIST: 20%, 35%, 50%, 65%, 80% of span |
| Protection Level: | Thermally Conductive, Low Moisture, Corrosion Resistant Epoxy / Plastic Cup |
| Warm Up Time Warm Up Drift: | 10 Minutes +/- 0.1% |
| Operating Storage Temperature Range: | -40 to 185°F (-40 to 85°C) |
| Operating Humidity Range: | 0 to 95%, non-condensing |
| Calibrated Temperature Spans¹: | Minimum Temp. Span: 50°F (28°C) Maximum Temp. Span: 500°F (260°C) |
| Connections: | 22 AWG (0.654 mm) Colored Leads; Polarity Sensitive 22 to 15 AWG Wire Nuts |
| Sensor Type Sensor Curve Sensing Points: | Platinum RTD PTC (Positive Temperature Coefficient) One |
| Number Sensor Wires Wire Colors: | Two A/TT100/TTM100-EXPL: Brown/Brown A/TT1K/TTM1K-EXPL: (Black/Black) |
| Nominal Sensor Output @ 0°C (32°F): | A/TT100/TTM100-EXPL: 100 Ohms A/TT1K/TTM1K-EXPL: 1000 Ohms |
| Sensor Tolerance Class Accuracy: | +/- 0.06% Class A (Tolerance Formula: +/- °C = (0.15°C + (0.002 * t))) where t is the absolute value of Temperature above or below 0°C in °C |
| Din Standard Temperature Coefficient: | DIN EN 60751 (IEC 751) 3850 ppm / °C |
| Sensor Stability: | +/- 0.03% after 1000 Hours @ 300°C (572°F) |
| Response Time (63% Step Change): | 8 Seconds nominal |
| Lead Length Conductor Size: | 14" (35.6 cm) or 24" (61 cm) 22 AWG (0.65mm) |
| Lead Wire Insulation Wire Rating: | Etched Teflon (PTFE) Colored Leads Mil Spec 16878/4 Type E |
| Conductor Material: | Silver Plated Copper |
| Enclosure Specifications (Material, Operating Temperature, NEMA Ratings): | "-D" Enclosure: Feraloy® Iron Alloy, -50 to 60°C (-58 to 140°F), NEMA 3, 4, 7ABCD, 9EFG "-I or -INW" Enclosure: Feraloy® Iron Alloy, -50 to 60°C (-58 to 140°F), NEMA 3, 4, 7ABCD, 9EFG "-R" Enclosure: Copper-Free Aluminum, -50 to 60°C (-58 to 140°F), NEMA 3, 4, 7ABCD, 9EFG |
| Enclosure Explosion Proof Rating: | CL. I, Div. 1 & 2, Groups A, B, C, D |
| Enclosure Dust-Ignition Proof Rating: | CL. II, Div. 1, Groups E, F, G |
| Enclosure Raintight Wet Locations Ratings: | CL. II, Div. 2, Groups F, G CL. III |
| Enclosure UL CSA Standards: | UL 1203 CSA C22.2 No. 30 |
| Sensor Operating Storage Temperature Ranges: | -40 to 200°C (-40 to 392°F) -40 to 85°C (-40 to 185°F) |
| Operating Humidity Range: | 0 to 95% RH, non-condensing |
| Enclosure Hubs Hub Size: | Two 1/2" NPT Female Hubs |
| Probe Material Diameter Sensor Threads: | 304 Stainless Steel 0.250" (6.35mm) nominal 1/2" NPT Threads |
| Thermowell Material Bore Diameter: | 304 Stainless Steel 0.260" nominal |





PRODUCT SPECIFICATIONS

| | |
|---|---|
| Thermowell Instrument Thread Process Thread: | ½" NPS (National Pipe Straight) Female Thread ½" NPT (National Pipe Tapered) Male Thread |
| Product Dimensions Product Weight: | See back of Product Data sheet Room: 1.9 lbs, Duct: 4.5 lbs, Immersion: 4.85 lbs |
| Agency Approvals: | RoHS2, WEEE |

Note¹: Transmitter's calibrated at 71°F (22°C) nominal | **Note²:** Temperature Drift is referenced to 71°F nominal calibration temperature

DIMENSIONAL DRAWING

| | | |
|---|---|---|
| Hazardous Room Weight: 1.9 lbs | Ø3.75" (95.25mm) 2.89" (73.34mm) | Available in 2" Probe Lengths 5.31" (134.94mm) 3.40" (86.42mm) |
| Hazardous Duct Weight: 4.5 lbs | Ø4.05" (102.87mm) | Available in 4", 8", 12" & 18" Probe Lengths 3.51" (89.15mm) .78" (19.69mm) |
| Hazardous Immersion Weight: 4.85 lbs | Ø4.05" (102.87mm) | Available in 2.5", 4" & 6" Probe Lengths 3.51" (89.15mm) .78" (19.69mm) |
| Front View | Side View | Top View |

HAZARDOUS ROOM ORDERING

| | | |
|---|---|----------------|
| Model # Example: A/ TT100 R 2 EXPL | | MODEL # |
| A. Sensor Series No Selection Required | A/ | |
| B. Model Series Select One (1) | TT100=100Ω TTM100=Matched 100Ω * TT1K=1KΩ TTM1K=Matched 1KΩ * | |
| C. Configuration No Selection Required | R = Room with 2" Stainless Steel Sensing Tube | |
| D. Analog Output Select One (1) | 1 = 1 to 5 VDC 2 = 2 to 10 VDC 4 = 4 to 20 mA | |
| E. Sensor Model No Selection Required | EXPL = Hazardous Sensor | |
| F. Calibration Span | Specify Span in °F or °C (Best Accuracy in 100°F Increments) | |

Note*: For TTM100 or TTM1K part numbers, the default NIST is 3 points | 5 points may be specified by using "-5PTNIST" at the end of any TTM part number.

HAZARDOUS DUCT ORDERING

| | | |
|---|---|----------------|
| Model # Example: A/ TT1K D 8" 1 EXPL | | MODEL # |
| A. Sensor Series No Selection Required | A/ | |
| B. Model Series Select One (1) | TT100=100Ω TTM100=Matched 100Ω * TT1K=1KΩ TTM1K=Matched 1KΩ * | |
| C. Configuration No Selection Required | D = Duct | |
| D. Duct Probe Length Select One (1) | 4" = Duct 4" 8" = Duct 8" 12" = Duct 12" 18" = Duct 18" | |
| E. Analog Output Select One (1) | 1 = 1 to 5 VDC 2 = 2 to 10 VDC 4 = 4 to 20 mA | |
| F. Sensor Model No Selection Required | EXPL = Hazardous Sensor | |
| G. Calibration Span | Specify Span in °F or °C (Best Accuracy in 100°F Increments) | |

Note*: For TTM100 or TTM1K part numbers, the default NIST is 3 points | 5 points may be specified by using "-5PTNIST" at the end of any TTM part number.





| HAZARDOUS IMMERSION ORDERING | | Model # Example: A/ TT100 1 4" 2 EXPL G. | MODEL # |
|--|--|---|---------|
| A. Sensor Series <i>No Selection Required</i> | A/ | | A/ |
| B. Model Series <i>Select One (1)</i> | TT100=100Ω TTM100=Matched 100Ω * TT1K=1KΩ TTM1K=Matched 1KΩ * | | |
| C. Configuration <i>Select One (1)</i> | I = Immersion with Welded Thermowell INW = Immersion without Welded Thermowell | | |
| D. Immersion Length <i>Select One (1)</i> | 2.5" = Immersion 2.5" 4" = Immersion 4" 6" = Immersion 6" | | |
| E. Analog Output <i>Select One (1)</i> | 1 = 1 to 5 VDC 2 = 2 to 10 VDC 4 = 4 to 20 mA | | |
| F. Sensor Model <i>No Selection Required</i> | EXPL = Hazardous Sensor | | EXPL |
| G. Calibration Span | Specify Span in °F or °C (Best Accuracy in 100°F Increments) | | |

Note*: For TTM100 or TTM1K part numbers, the default NIST is 3 points | 5 points may be specified by using "-5PTNIST" at the end of any TTM part number.

| ACCESSORIES ORDERING (NIST) | |
|-----------------------------|---|
| Model # | Description |
| -5PTNIST | 5 Point Calibration & Certificate for TTM parts |





SUN SHIELD

Weather Proof, Thermistor / RTD

The ACI Sun Shield is a reliable solution for protecting the temperature sensors when mounted in a location where an overhang or shade is unavailable. It consists of nine (9) molded, white plastic plates which are used to reduce the thermal effect of the sun and increasing the air flow between the plates. The Sun Shield also provides an added level of protection for the sensors from rain and snow. The Sun Shield is available with any of our standard Balco, Nickel, or Platinum RTDs as well as any of our standard thermistors.

Applications: Outdoor Temperature Monitoring

The ACI Thermistors & RTDs Sun Shield is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

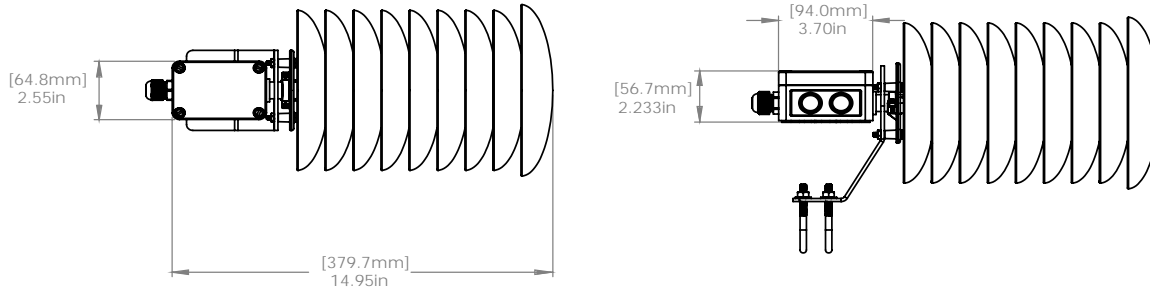
PRODUCT SPECIFICATIONS

| | | |
|--|---|--|
| Nominal Thermistor Resistive Output @ 77°F (25°C) (Lead Wire Colors) Non-Linear NTC (Negative Temperature Coefficient): | 1.8K Series: 1.8KΩ (Red/Yellow) 3K Series: 3KΩ (White/Brown) AN Series (Type III): 10KΩ (White/White) AN-BC Series: 5.238KΩ (White/Yellow) CP Series (Type II): 10KΩ (White/Green) | CSI Series: 10KΩ (Green/Yellow) 10KS Series: 10KΩ (White/Blue) 10K-E1 Series: 10KΩ (Gray/Orange) 20K Series: 20KΩ (Brown/Blue) 100KS Series: 100KΩ (Black/Yellow) |
| Thermistor Accuracy 32-158°F (0-70°C): | +/- 0.36°F (0.2°C) except 10K-E1 Series: +/- 0.54°F (0.3°C) 1.8K Series: +/- 0.9°F (0.5°C) @ 77°F (25°C) & +/- 1.8°F (1.0°C) from 32 to 158°F (0 to 70°C) | |
| Thermistor Power Dissipation Constant: | 3 mW/°C except 1.8K Series: 1 mW/°C; 10K-E1 Series: 2 mW/°C | |
| Thermistor Sensor Response Time (T63): | 10 Seconds nominal | |
| Lead Wire Length Conductor Size: | 14" (35.6 cm) 22 AWG (0.65 mm) | |
| Insulation Rating: | Etched Teflon (PTFE) Colored Leads Mil Spec 16878/4 Type E | |
| Platinum RTD (PTC) Number Wires (Wire Colors): | 100-2W Series: (Brown/Brown) & RHx-2W-1K Series: (Black/Black) 100-3W Series: (Brown/Brown/Black) & RHx-3W-1K Series: (Black/Black/White) | |
| Platinum RTD Output @ 32°F (0°C): | 100-xW-O-SUN Series: 100 Ohms nominal 1K-xW-O-SUN Series: 1000 Ohms nominal (x = # of wires) | |
| Platinum RTD Tolerance Class: | +/-0.06% Class A Tolerance Formula: +/-°C = (0.15°C + (0.002 * t)) | |
| Platinum RTD Din Standard: | DIN EN 60751 (IEC 751) | |
| Temperature Coefficient: | 3850 ppm/°C | |
| Platinum RTD Stability: | +/-0.03% after 1000 Hours @ 572°F (300°C) | |
| Nickel RTD (PTC) Output @ 70°F (21.1°C) (Wire Colors): | 1K-NI-O-SUN Series: 1000 Ohms nominal (1K-Nickel RTD) Red/Red | |
| Nickel RTD Sensor Accuracy: | 32°F (0°C): +/-0.72°F (0.4°F); 70°F (21.1°C): +/-0.34°F (0.17°C); 130°F (54.4°C): +/-1.00°F (0.56°C) | |
| Nickel Din Standard: | Din 43760 | |
| Temperature Coefficient (0-100°C): | 6370 ppm/°C | |
| Nickel RTD Stability: | +/-0.05% after 1000 Hours @ 302°F (150°C) | |
| Balco RTD Output @ 70°F (21.1°C) (Wire Colors): | BALCO-O-SUN Series: 1000 Ohms nominal (Balco RTD) Orange/Yellow | |
| Balco RTD Sensor Accuracy 70°F (21.1°C): | +/- 1.0% | |
| Balco RTD Temperature Coefficient (0-100°C): | 4618 ppm/°C | |
| Balco RTD Stability: | +/-0.05% after 1000 Hours @ 302°F (150°C) | |
| Temperature Sensor Response Time (T63): | 10 Seconds nominal | |
| Enclosure Specifications (Material, Flammability, Temperature, NEMA/IP Rating): | Polystyrene Plastic; UL94-V2; -40 to 158°F (-40 to 70°C); NEMA 4X (IP 66) | |
| Probe Material Probe Dimensions (Length x Diameter): | 304 Stainless Steel 6.00" (152.4 mm) x 0.25" (6.35mm) | |
| Product Dimensions (L x W x D): | 14.95" (379.7 mm) x 7.50" (190.50 mm) | |
| Product Weight: | 4.16 lbs(1.89 kg) | |
| Agency Approvals: | CE, RoHS2, WEEE | |





DIMENSIONAL DRAWING



Side View(s)

CUSTOM ORDERING

Model # Example: **A/** | **AN-BC** | **O-SUN** | **NIST**
A. B. C. D.

MODEL #

| | | |
|--|---|--------------|
| A. Sensor Series <i>No Selection Required</i> | A/ → | A/ |
| B. Model Series <i>Select One (1)</i> | 100-2W 100-3W 1K-2W 1K-3W 1K-NI BALCO 1.8K 3K 10KS 10K-E1 AN (Type III) AN-BC CP (Type II) CSI 20K 100KS | |
| C. Configuration <i>No Selection Required</i> | O-SUN = Outside Sun Shield (NEMA 4X) → | O-SUN |
| D. NIST (Temperature) <i>Select One (1)</i> | ---- = No NIST Certificate NIST = NIST Certificate (Must Specify 1, 3 or 5 Points) | |





SUN SHIELD

Weather Proof, Temperature Transmitter

The ACI Sun Shield is a reliable solution for protecting the temperature sensors when mounted in a location where an overhang or shade is unavailable. It consists of nine (9) molded, white plastic plates which are used to reduce the thermal effect of the sun and increasing the air flow between the plates. The Sun Shield also provides an added level of protection for the sensors from rain and snow. The Sun Shield is available with our TT100 or TT1K Series 4-20 mA output temperature transmitters.

Applications: Outdoor Temperature Monitoring

The ACI TT Sun Shield is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

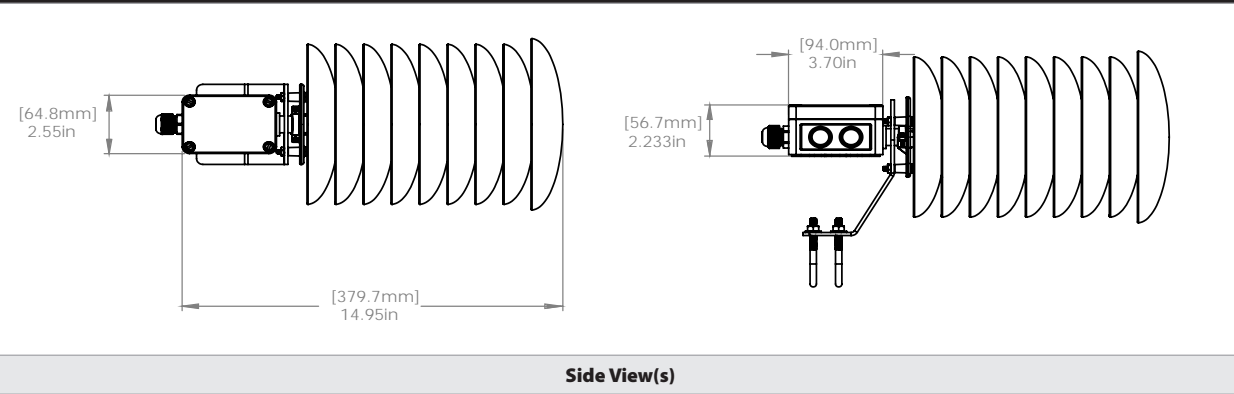
PRODUCT SPECIFICATIONS

| | |
|--|--|
| TT Supply Voltage Supply Current: | +8.5 to 32 VDC (Reverse Polarity Protected) 25 mA minimum 250 Ohm Load: +13.5 to 32 VDC 500 Ohm Load: +18.5 to 32 VDC |
| TT Maximum Load Resistance: | (Terminal Voltage – 8.5 V) 0.020 A |
| TT Output Signals: | Current Output: 4-20 mA (2-Wire Loop Powered) Voltage Output: 1-5 VDC or 2-10 VDC (3-Wires) |
| TT Calibrated Accuracy Linearity ¹: | Temperature Spans < 500°F (260°C): +/- 0.2% Temperature Spans > 500°F (260°C): +/- 0.5% |
| TT Temperature Drift ²: | Temperature Spans < 100°F (38°C): +/- 0.04%/°F Temperature Spans > 100°F (38°C): +/- 0.02%/°F |
| TTM100/TTM1K NIST Certification Points: | 3 Point NIST: 20%, 50% & 80% of span 5 Point NIST: 20%, 35%, 50%, 65%, 80% of span |
| TT Warm Up Time: | 10 Minutes |
| Warm Up Drift: | +/- 0.1% |
| TT Operating Temperature Range: | -40 to 185°F (-40 to 85°C) |
| RH Range: | 0 to 90% RH, non-condensing |
| Platinum RTD (PTC) Number Wires Wire Colors: | Two A/TT100 Series: Brown/Brown A/TT1K Series: Black/Black |
| Platinum RTD Sensor Output @ 32°F (0°C): | A/TT100 Series: 100 Ohms Nominal A/TT1K Series: 1000 Ohms Nominal |
| Platinum RTD Tolerance Class Accuracy: | +/- 0.06% Class A Tolerance Formula: +/- °C = (0.15°C + (0.002 * t)) where t is the absolute value of Temperature above or below 0°C in °C |
| Platinum RTD Sensor Stability: | +/-0.03% after 1000 Hours @ 572°F (300°C) |
| Platinum RTD Response Time (63% Step Change): | 8 Seconds nominal |
| Enclosure Specifications (Material, Flammability, Temperature, NEMA/IP Rating): | "-4X" Enclosure: Polystyrene Plastic; UL94-V2; -40 to 158°F (-40 to 70°C); NEMA 4X (IP 66) |
| Probe Material: | 304 Stainless Steel |
| Probe Dimensions (Length x Diameter): | 6.00" (152.4 mm) x 0.25" (6.35mm) |
| Product Dimensions (L x W x D): | 14.95" (379.7 mm) x 7.50" (190.50 mm) |
| Product Weight: | 4.16 lbs(1.89 kg) |
| Agency Approvals: | RoHS2, WEEE |





DIMENSIONAL DRAWING



| CUSTOM ORDERING | | Model # Example: A/ TT1K O-SUN 2 20-120°F | MODEL # |
|--|--|--|----------------|
| | | A. B. C. D. E. | |
| A. Sensor Series <i>No Selection Required</i> | A/ _____ | | A/ |
| B. Temperature Sensor <i>Select One (1)</i> | TT100 = 100 Ohms TT1K = 1K Ohms | | |
| C. Configuration <i>No Selection Required</i> | O-SUN = Outside Sun Shield (NEMA 4X) _____ | | O-SUN |
| D. Output Signal <i>Select One (1)</i> | --- = 4 to 20 mA (Default) 1= 1 to 5 VDC* 2 = 2 to 10 VDC* | | |
| E. Calibrated Span <i>Select One (1)</i> | Specify Span in °F or °C (Best Accuracy in 100°F Increments) | | |





LOOP POWER LCD

Wall Display for 4-20 mA Devices

The A/LCD-R-4-20MA is a low power, high accuracy, 3.5 digit LCD display module that is available in an attractive wall mount enclosure. The A/LCD-R-4-20MA may be used with any 4 to 20 mA loop powered Temperature, Relative Humidity, Current, and Differential or Gage Pressure transmitter. The display can be calibrated for any range between (-) 1999 and 1999 and has factory set descriptors which include C, F, and a decimal point. A great solution for remote monitoring of any 4-20 mA loop powered device, these units are designed to be mounted over a single gang junction box or hole in the wall using drywall anchors. Screw

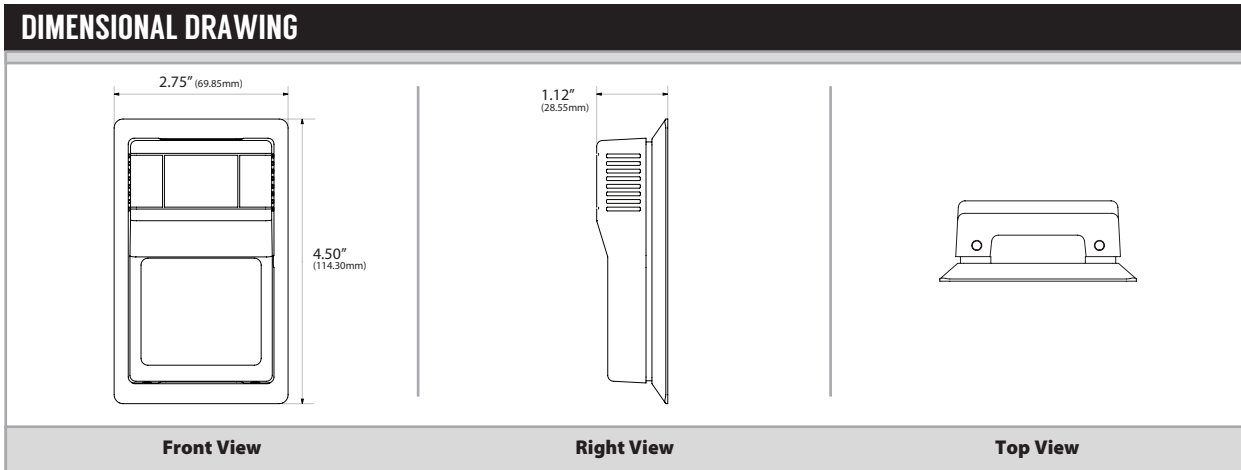
terminal blocks are available for making all connections to your building management system (network). An optional 1/8" Black foam pad with pressure sensitive adhesive is available to insulate the sensor from thermal drafts within the wall or wall surface. A 1/16" Hex driver is needed to secure the cover from being easily removed.

Applications: Remote Monitoring of any 4-20 mA Output Device

ACI's LCD-R series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com

| PRODUCT SPECIFICATIONS | |
|---|--|
| Input: | 2 Wire, 4-20 mA current loop |
| Maximum Voltage Drop: | +7 VDC for LCD Display |
| Display Accuracy: | +/- 0.5% of span |
| LCD Resolution Descriptors: | 3 ½ Digit LCD (-199.9 to 199.9) F (Fahrenheit), C (Centigrade) or No Descriptor |
| Override Contact Type Contact Ratings: | Dry Contact "N/O" Contact Minimum: 10 uA @ 1 VDC; Maximum: 50 mA @ 24 VDC |
| Override Contact Resistance Life Expectancy: | 0.1 Ohms maximum 100,000 Cycles |
| Set Point Accuracy: | +/- 10% 4-20 mA: 4 mA (Far Left) 20 mA Far Right (DA- Direct Acting (Default) 20 mA (Far Left / 4 mA Far Right (RA- Reverse Acting (Optional) |
| Setpoint Indication: | Cool/Warm |
| Setpoint Supply Voltage: (4 to 20 mA Only): | +24 VDC +/-10% |
| Operating Temperature Range: | 35 to 131°F (1.5 to 55°C) |
| Storage Temperature Range: | -40 to 160°F (-40 to 71°C) |
| Operating Relative Humidity Range: | 5 to 95% non-condensing |
| Enclosure Color: | Beige (Standard) |
| Enclosure Material UL Flammability Rating: | ABS Plastic UL94-HB |
| Connections Wire Size: | Screw Terminal Blocks 16 (1.31 mm ²) to 26 AWG (0.129 mm ²) |
| Terminal Block Torque Rating: | 0.5 Nm (Minimum); 0.6 Nm (Maximum) |
| Product Dimensions: | (L) 4.50" (1.00 mm) x (W) 2.78" (70.6 mm) x (H) 1.00" (25.4 mm) |
| Product Weight: | "-R/RS/RO" Series: 0.17 lbs (0.375 kg) "-RSO" Series: 0.21 lbs (0.46 kg) |
| Agency Approvals: | RoHS2, WEEE |





STANDARD ORDERING Model # Example: **A/LCD-R-420** -OR- **122451**

| Model # | Item # | Description |
|-----------------------|--------|---|
| A/LCD-R-420 | 122451 | Room with Display, 4-20 mA Loop Power |
| A/LCD-RO-420 | 139485 | Room with Display, Override, 4-20 mA Loop Power |
| A/LCD-RS-420* | 122454 | Room with Display, Setpoint, 4-20 mA Loop Power |
| A/LCD-RSO-420* | 122463 | Room with Display, Override, Setpoint, 4-20 mA Loop Power |

Note*: Must specify a Temperature Span in °F, °C or Descriptor

ACCESSORIES ORDERING Model # Example: **LOCKING COVER** -OR- **107370**

| Model # | Item # | Description |
|---------------------------------|--------|---|
| A/MOUNTING PLATE BEIGE R | 106821 | Wall Mounting Back Plate, Plastic, Beige ("R") |
| A/MOUNTING PLATE WHITE R | 143369 | Wall Mounting Back Plate, Plastic, White ("R") |
| LOCKING COVER | 107370 | Clear Thermostat Guard, Locking Cover, Low Profile |
| A/ROOM-FOAM-PAD | 125690 | 1/8" Foam Insulation Pad with Adhesive (3" x 2", Black) |





THERMOWELLS

Two Part Welded Wells



ACI's two part Welded Thermowells are used with temperature instruments in process systems where gas or liquid medias are used to provide a degree of protection to the sensing element when installed inside of a pipe, tank, or piece of equipment. The thermowell provides easy access for NIST Certified applications and enables users to easily replace the sensor without having to drain the entire system. Thermowells also protect the small diameter sensing probes from stresses created by high temperatures and pressures, corrosive environments, or the flow of gas and liquid medias through pipes or equipment. ACI's standard thermowells are made of 304 stainless steel which ensures long lasting reliability and good corrosion resistance. For applications requiring higher flow rates, corrosion resistance, operating temperatures and pressures, please see the ACI Machined Thermowell product data sheet where the thermowells are machined out of a solid piece

of 304 or 316 Series Stainless steel. Thermal Grease or Heat Transfer paste is not required to be used with any of the ACI Thermowells due to the tight tolerances maintained between the sensor probe and thermowell. When necessary, thermal grease is available from ACI to improve the sensor's response time. Insertion depth should be long enough to permit the entire temperature-sensitive section of the temperature probe to project into the medium being monitored, thus maximizing measurement accuracy. The ACI Welded Thermowell Series is only offered in three lengths in order to eliminate premature failures.

Applications: Chilled and Hot Water Systems, Hydronic Heating Systems, Boilers, Pumps, Compressors, Chillers, Refrigeration Systems, Tanks, Aquariums, Process Control Systems, Compressed Air and Gas lines

The ACI Thermowells are covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's web site, workaci.com.

PRODUCT SPECIFICATIONS

| | |
|--|---|
| Thermowell Hex Size: | 1.125" (28.57 mm) |
| Insertion Length: | See Ordering Grid Tolerance: +/- 0.060" (+/- 1.524 mm) |
| Shank Type: | Straight |
| Bore Inside Diameter: | 0.260" +/- 0.003" (6.60 mm +/- 0.0762 mm) |
| Shank Outside Diameter: | 0.375" (9.52 mm) +/- 0.010" (0.254 mm) |
| Tip Thickness: | 0.060" (1.524 mm) +/- 0.010" (0.254 mm) |
| Tensile Strength (304 Stainless Welded Tube)¹: | 75,000 PSI @ Ambient Room Temperature |
| Allowable Stress (Factor of Safety = 4)²: | 15,000 PSI (1034 Bar) (Weld Joint Efficiency = 0.80) |
| Maximum Allowable Working Pressure²: | 6392 PSI (440.71 Bar) from -20°F (-28.9°C) to 100°F (37.8°C) |
| Calculated Burst Pressure²: | 30,130 PSI (2077.39 Bar) |
| Maximum Operating Temperature: | 700°F (371°C) (Weld Integrity due to Corrosion may occur above 700°F) |
| Pressure (100% Leak) Tested: | 100 PSI nominal @ Ambient Air Temperature |
| Internal "Instrument" Thread: | ½" NPS |
| External "Process" Thread: | ½" MNPT - 14 |
| Material Type: | 304 Series Stainless Steel |
| Surface Finish: | Polished to 16 RMS |

Note 1: All maximum ratings have been calculated using the theoretical values of the materials being used | **Note 2:** All of the theoretical pressure ratings above are for reference purposes only using a Safety Factor of 4

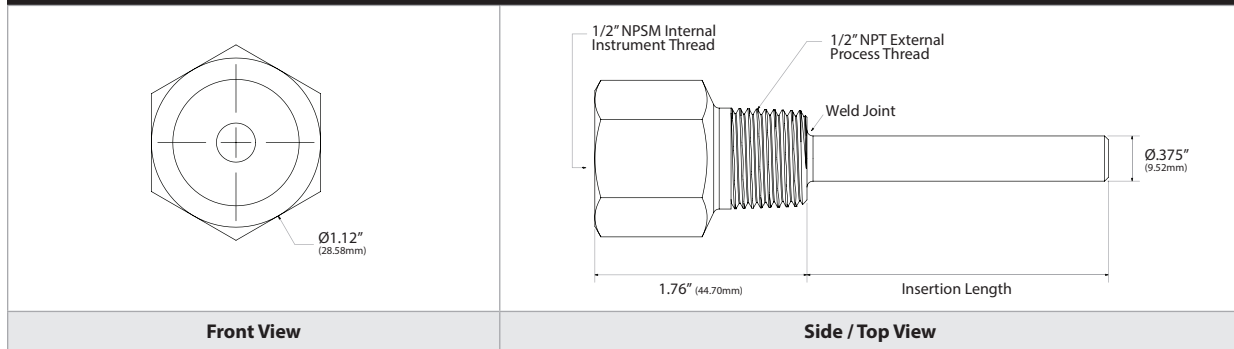
MAXIMUM ALLOWABLE WORKING PRESSURE VS TEMPERATURE RATINGS (304 STAINLESS STEEL)

| | | | | | | | |
|---------------------|-----------------|----------------|----------------|-----------------|-----------------|-----------------|-----------------|
| Temperature: | -20°F (-28.9°C) | 100°F (37.8°C) | 200°F (93.3°C) | 300°F (148.9°C) | 400°F (204.4°C) | 500°F (260.0°C) | 700°F (371.1°C) |
| PSIG (Bar): | 6392 (440.7) | 6392 (440.7) | 5369 (370.1) | 4794 (330.5) | 4410 (304.0) | 4154 (286.4) | 3835 (264.4) |





DIMENSIONAL DRAWING



STANDARD ORDERING

Model # Example: **A/2.5"** -OR- **128349**

| Model # | Item # | Description | Material Type | Insertion Length | Internal Thread | External Thread | Shipping Weight |
|---------------|--------|-------------------------|---------------|------------------|-----------------|-----------------|--------------------|
| A/2.5" | 128349 | 2.50" 2-Part Thermowell | 304 SS | 2.50" (63.5 mm) | 1/2" NPS Thread | 1/2" NPT Thread | 0.34 lbs (0.16 kg) |
| A/4" | 128350 | 4" 2-Part Thermowell | 304 SS | 4.00" (101.6 mm) | 1/2" NPS Thread | 1/2" NPT Thread | 0.36 lbs (0.17 kg) |
| A/6" | 128351 | 6" 2-Part Thermowell | 304 SS | 6.00" (152.4 mm) | 1/2" NPS Thread | 1/2" NPT Thread | 0.40 lbs (0.19 kg) |

ACCESSORIES ORDERING

Model # Example: **A/3/4" TO 1/2" REDUCER** -OR- **138479**

| Model # | Item # | Description |
|-------------------------------------|--------|--|
| SG | 102951 | -40-400°F Silicone Grease, 5.0 oz |
| NSG HEAT TRANSFER PASTE 2 OZ | 102595 | -40-392°F Non-Silicone Grease, 2.0 oz |
| A/3/4" TO 1/2" REDUCER | 138479 | 3/4" to 1/2" Reducer Steel, 3/4" MNPT to 1/2" FNPT |
| A/1/8" TO 1/4" ADAPTER | 138480 | 1/8" to 1/4" Adapter Steel, 1/8" FNPT to 1/4" MNPT |
| A/1/2" TO 1/4" REDUCER | 138478 | 1/2" to 1/4" Reducer Brass, 1/2" FNPT to 1/4" MNPT |





THERMOWELLS

Machined Wells

ACI's Machined Thermowells are used with temperature instruments in process systems where gas or liquid medias are used to provide a degree of protection for the sensing element when installed inside of a pipe, tank, or piece of equipment. The thermowell provides easy access for NIST Certified applications and enables users to easily replace the sensor without having to drain the entire system. Thermowells also protect the small diameter sensing probes from stresses created by high

temperatures and pressures, corrosive environments, or the flow of gas or liquid medias through pipes or equipment. It is recommended to follow a Wake Frequency calculator using the ASME PTC 19.3 TW-2016 standard to help prevent vibrational destruction from damaging the thermowell. ACI's standard thermowells are made of 304 stainless steel which ensures long lasting reliability and corrosion resistance. Optional 316 Stainless Steel is available for use in applications where higher corrosion resistance is required. This series is machined from solid bar stock to precision tolerances which provides maximum heat transfer when used with a corresponding ACI sensor. When necessary, thermal grease is available from ACI to improve the sensor's response time. Insertion depth should be long enough to permit the entire temperature-sensitive section of the temperature probe to project into the medium being monitored, thus maximizing measurement accuracy.

Applications: Chilled and Hot Water Systems, Hydronic Heating Systems, Boilers, Pumps, Compressors, Chillers, Refrigeration Systems, Tanks, Aquariums, Process Control Systems, Compressed Air and Gas lines

All ACI Thermowells are covered by ACI's Five Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website.

PRODUCT SPECIFICATIONS

| | |
|---|--|
| Thermowell Hex Size: | 1.125" (28.57 mm) |
| Insertion Length: | See Ordering Grid (Tolerance: +/- 0.050" (+/- 1.27 mm)) |
| Thermowell Bore Diameter: | 0.260" +/- 0.003" (6.60 mm +/- 0.0762 mm) |
| Shank Type: | Stepped and Straight (See Ordering Grid) |
| Shank Dimensions: | Straight: Root Diameter: 0.500" (12.7 mm); Tip Diameter: 0.500" (12.7 mm) |
| +/- 0.010" (+/- 0.254 mm): | Stepped: Root Diameter: 0.630" (16.002 mm); Tip Diameter: 0.500" (12.7 mm) |
| Stepped Thermowell Reduced Tip Length: | 2.500" (63.5 mm) |
| Tip Thickness: | 0.250" (6.35 mm) |
| Internal "Instrument" Thread: | 1/2" NPS |
| External "Process" Thread: | 1/2" MNPT - 14 |
| Material Type: | 304 and 316 Series Stainless Steel Available (See Ordering Grid) |
| Surface Finish: | Polished to 16 RMS |

MAXIMUM PRESSURE VS TEMPERATURE RATINGS [304 STAINLESS STEEL]

| | | | | | | | |
|---------------------|---------------|----------------|-----------------|-----------------|-----------------|------------------|------------------|
| Temperature: | 70°F (21.1°C) | 200°F (93.2°C) | 400°F (204.2°C) | 600°F (315.2°C) | 800°F (426.2°C) | 1000°F (537.2°C) | 1200°F (648.2°C) |
| PSIG (Bar): | 7000 (482.6) | 6000 (413.7) | 5600 (386.1) | 5400 (372.3) | 5200 (358.5) | 4500 (310.3) | 1650 (110.3) |

MAXIMUM PRESSURE VS TEMPERATURE RATINGS [316 STAINLESS STEEL]

| | | | | | | | |
|---------------------|---------------|----------------|-----------------|-----------------|-----------------|------------------|------------------|
| Temperature: | 70°F (21.1°C) | 200°F (93.2°C) | 400°F (204.2°C) | 600°F (315.2°C) | 800°F (426.2°C) | 1000°F (537.2°C) | 1200°F (648.2°C) |
| PSIG (Bar): | 7000 (482.6) | 7000 (482.6) | 6400 (441.2) | 6200 (427.4) | 6100 (420.5) | 5100 (351.6) | 2500 (172.3) |

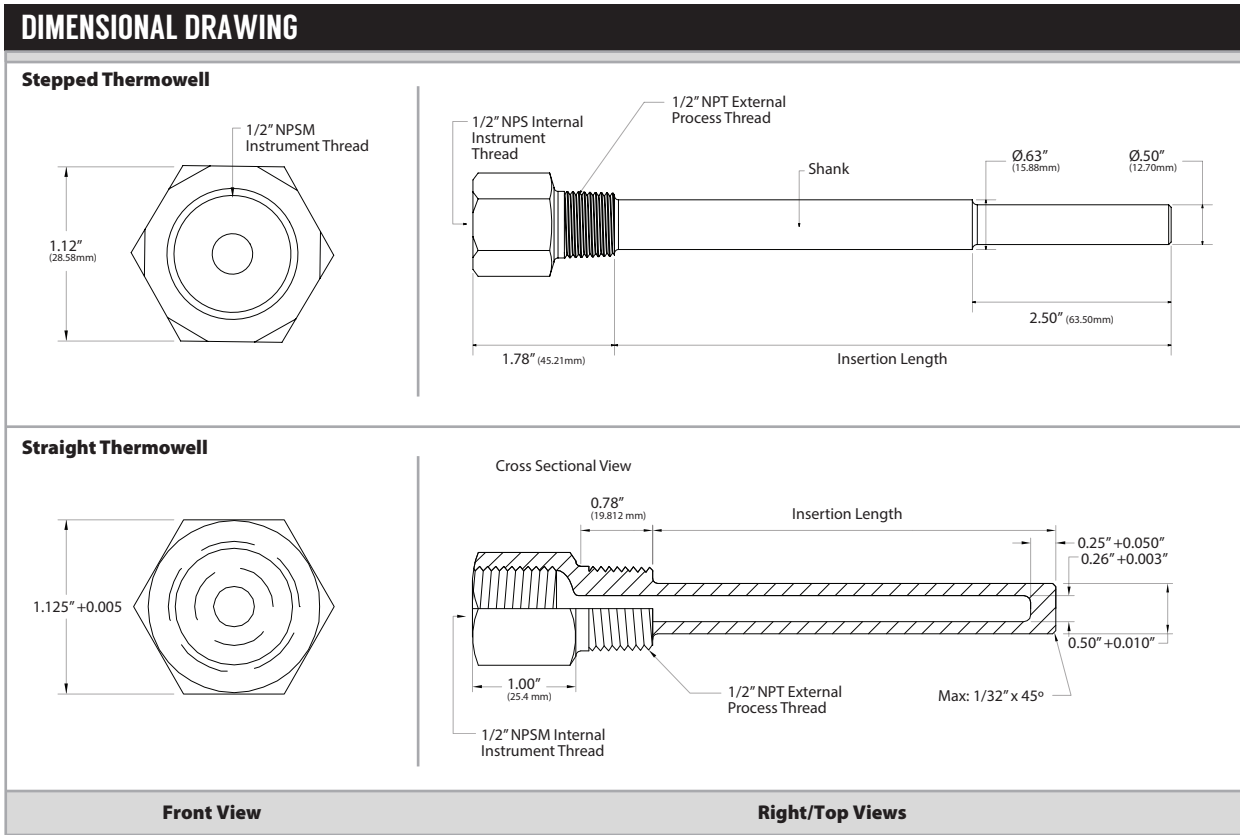
Note: All machined thermowells, materials, corrosion resistance, flow rating, temp & pressures are the sole responsibility of the systems engineer that incorporates the thermowell into design

MAXIMUM VELOCITY VS THERMOWELL INSERTION LENGTH

| Media Type: | Straight Shank Insertion Length "U" | | | Stepped Shank Insertion Length "U" | | | | |
|----------------------------|-------------------------------------|---------------------|---------------------|------------------------------------|---------------------|--------------------|-------------------|-------------------|
| | 1.0" (25.4mm) | 2.5" (63.5mm) | 8.0" (203.2mm) | 4.0" (101.6mm) | 6.0" (152.4mm) | 12.0" (304.8mm) | 18.0" (457.2mm) | 24.0" (609.6mm) |
| Air/Gas/Steam ¹ | 349 ft/s (106.3m/s) | 349 ft/s (106.3m/s) | 71.9 ft/s (21.9m/s) | 109 ft/s (33.2m/s) | 39.5 ft/s (12.0m/s) | 12.2 ft/s (3.7m/s) | 5.9 ft/s (1.8m/s) | 3.2 ft/s (1.0m/s) |
| Water | 360 ft/s (109.7m/s) | 360 ft/s (109.7m/s) | 71.9 ft/s (21.9m/s) | 82.2 ft/s (25.1m/s) | 39.5 ft/s (12.0m/s) | 12.2 ft/s (3.7m/s) | 5.9 ft/s (1.8m/s) | 3.2 ft/s (1.0m/s) |

Note 1: Values are for Air/Gas/Steam and similar density media | All velocity ratings are based upon an operating temperature of 1000°F (537.8°C)





STANDARD ORDERING

Model # Example: **A/M24"** -OR- **128342**

| Model # | Item # | Insertion Length | Material Type | Shank Type | Internal Thread | External Thread | Shipping Weight |
|----------------------|--------|------------------|---------------|------------|-----------------|-----------------|-------------------|
| A/M1" | 128337 | 1.25" (31.7 mm) | 304 SS | Straight | 1/2" NPS Thread | 1/2" NPT Thread | 0.19 lbs (0.08kg) |
| A/M2.5" | 128338 | 2.5" (63.5 mm) | 304 SS | Straight | 1/2" NPS Thread | 1/2" NPT Thread | 0.39 lbs (0.18kg) |
| A/M4" | 128343 | 4.0" (101.6 mm) | 304 SS | Stepped | 1/2" NPS Thread | 1/2" NPT Thread | 0.52 lbs (0.24kg) |
| A/M6" | 128344 | 6.25" (158.7 mm) | 304 SS | Stepped | 1/2" NPS Thread | 1/2" NPT Thread | 0.68 lbs (0.31kg) |
| A/M8" | 138725 | 8.0" (203.2 mm) | 304 SS | Straight | 1/2" NPS Thread | 1/2" NPT Thread | 0.89 lbs (0.40kg) |
| A/M12" | 128339 | 12.0" (304.8 mm) | 304 SS | Stepped | 1/2" NPS Thread | 1/2" NPT Thread | 1.11 lbs (0.50kg) |
| A/M18" | 128341 | 18.0" (457.2 mm) | 304 SS | Stepped | 1/2" NPS Thread | 1/2" NPT Thread | 1.57 lbs (0.71kg) |
| A/M24" | 128342 | 24.0" (609.6 mm) | 304 SS | Stepped | 1/2" NPS Thread | 1/2" NPT Thread | 2.05 lbs (0.93kg) |
| A/M2.5"-316SS | 128352 | 2.5" (63.5 mm) | 316 SS | Straight | 1/2" NPS Thread | 1/2" NPT Thread | 0.39 lbs (0.18kg) |
| A/M4"-316SS | 128353 | 4.0" (101.6 mm) | 316 SS | Stepped | 1/2" NPS Thread | 1/2" NPT Thread | 0.52 lbs (0.24kg) |
| A/M6"-316SS | 128354 | 6.0" (152.4 mm) | 316 SS | Stepped | 1/2" NPS Thread | 1/2" NPT Thread | 0.68 lbs (0.31kg) |

ACCESSORIES ORDERING

Model # Example: **A/3/4" TO 1/2" REDUCER** -OR- **138479**

| Model # | Item # | Description |
|-------------------------------------|--------|--|
| SG | 102951 | -40-400°F Silicone Grease, 5.0 oz |
| NSG HEAT TRANSFER PASTE 2 OZ | 102595 | -40-392°F Non-Silicone Grease, 2.0 oz |
| A/3/4" TO 1/2" REDUCER | 138479 | 3/4" to 1/2" Reducer Steel, 3/4" MNPT to 1/2" FNPT |
| A/1/8" TO 1/4" ADAPTER | 138480 | 1/8" to 1/4" Adapter Steel, 1/8" FNPT to 1/4" MNPT |
| A/1/2" TO 1/4" REDUCER | 138478 | 1/2" to 1/4" Reducer Brass, 1/2" FNPT to 1/4" MNPT |





LOCKING COVER

For Thermostats



The LOCKING COVER can be used to protect a room mounted enclosure from physical damage or tampering. It includes a clear vented cover and two keys to provide easy access to the enclosed device. The plastic is clear, so mechanical and digital functions are protected but remain visible.

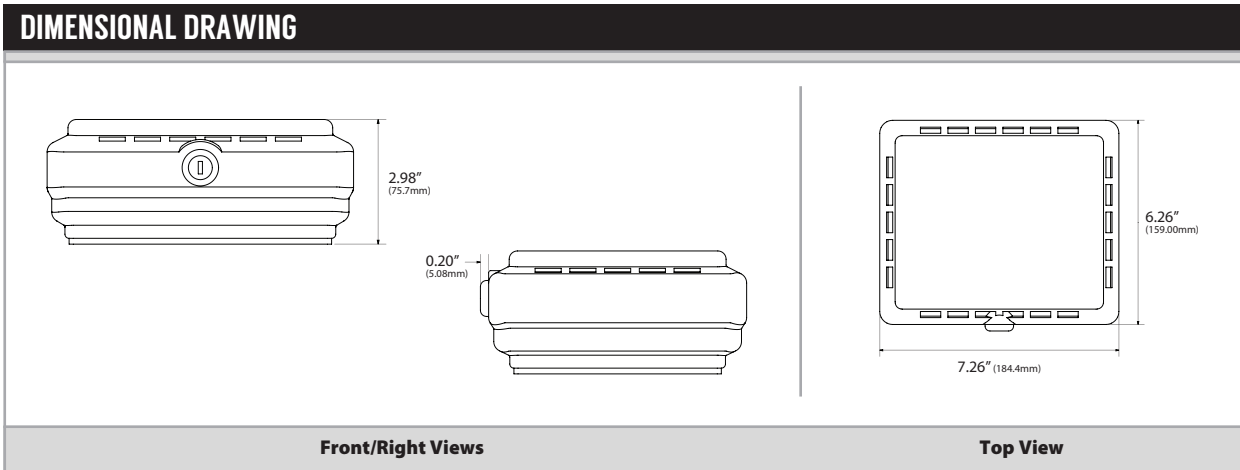
Applications: Gymnasiums, Schools, Prisons, Offices

The LOCKING COVER is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|--|---|
| Base Material: | High Impact Polymeric Construction |
| Color(Cover): | Clear |
| Color(Base): | Beige |
| Inside Product Dimensions for Thermostat: | 6.06" x 5.06" x 2.63" (153.9 x 128.5 x 66.8mm) |
| Outside Dimensions: | 7.26" x 6.26" x 2.98" (184.4 x 159 x 75.7mm) |
| Features: | <ul style="list-style-type: none"> • High Impact Thermoplastic Guard, Tamper Resistant internal walls, Crack Resistant • Beige Thermoplastic Base, Brass/Nickel plated keys, Metal Lock, Ring Base for Existing Installations, Solid Base for New Installations |
| Product Weight: | 1.05 lbs. (0.476 Kg) |





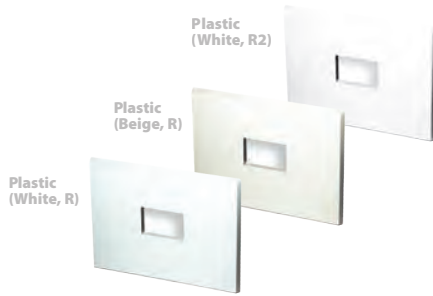
STANDARD ORDERING Model # Example: **LOCKING COVER** -OR- **107370**

| Model # | Item # | Description |
|----------------------|--------|-------------------------------|
| LOCKING COVER | 107370 | Locking Cover for Thermostats |

ACCESSORIES ORDERING Model # Example: **LOCKING COVER KEYS** -OR- **144221**

| Model # | Item # | Description |
|---------------------------|--------|--------------------------------|
| LOCKING COVER KEYS | 144221 | Replacement Locking Cover Keys |





WALL MOUNTING PLATES

Decorative Backing Plates for Room Sensors

The A/MOUNTING PLATE may be used to mount devices over a larger electrical enclosure or hole in the wall. It is made of a plastic material and contains numerous mounting holes to match most standard electrical boxes used in the industry today. It may be mounted vertically or horizontally. The colors available match ACI's standard room enclosures but will match many similar colored devices.

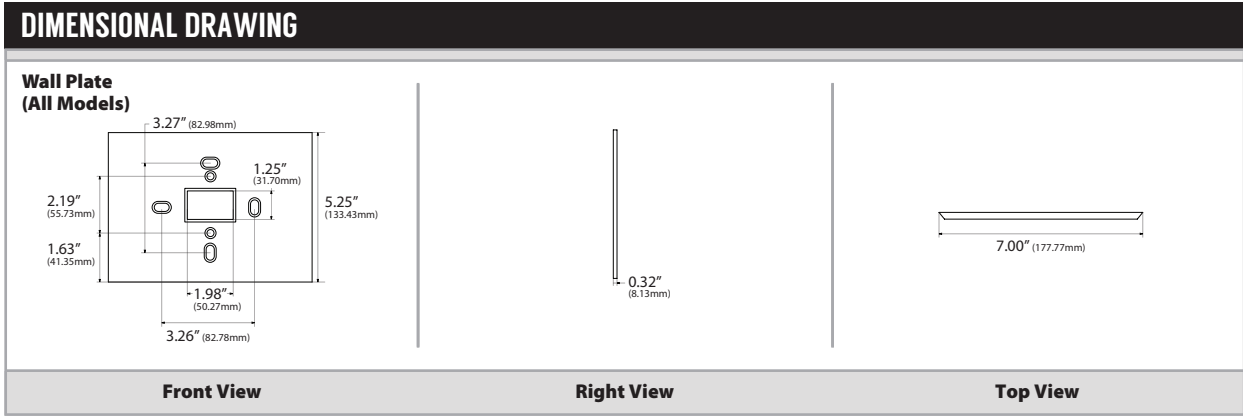
Applications: Space Temperature Sensing, Decorative Wall Sensor Applications, Office Buildings, Schools, Colleges, Commercial Buildings, OEM Opportunities

The A/MOUNTING PLATE is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|---|---|
| Base Material: | ABS 3501 |
| Color: | See Ordering Grid on Back of Data Sheet |
| Product Dimensions (All Models): | (L) 5.25" (133.43 mm) x (W) 7.00" (177.77 mm) x (H) 0.32" (8.13 mm) |
| Product Weight: | 0.2 lbs. (0.091 Kg) |
| Agency Approvals: | CE, RoHS2, WEEE |





STANDARD ORDERING

Model # Example: **A/MOUNTING PLATE WHITE R** -OR- **126386**

| Model # | Item # | Color | For Use With |
|----------------------------------|--------|---------------|---|
| A/MOUNTING PLATE BEIGE R | 106821 | Beige (9981) | ACI "R" Beige Room Enclosures, Infinity |
| A/MOUNTING PLATE WHITE R | 126386 | White (90201) | ACI "R-W" White Room Enclosures, Infinity |
| A/MOUNTING PLATE WHITE R2 | 143369 | White (90198) | ACI "R2" Room Enclosures, Aries |





RH ROOM

Relative Humidity Room

The ACI Relative Humidity Room Series utilizes a thermoset polymer capacitive sensing element with a factory fitted hydrophobic filter to improve its moisture resistance. The sensing elements multilayer construction also provides excellent resistance in applications where dust, dirt, oils and common environmental chemicals are found. The RH room sensors include on board DIP switches which allow the user to select the desired output signal and can be powered by AC or DC power sources. Single point field calibration can be performed by using the increment and decrement calibration DIP switches to adjust your curve up or down in +/- 0.5% increments with each toggle of the corresponding switches. These enhancements provide increased flexibility and outstanding long-term reliability without the need to replace the sensors in the field. There are two enclosure options in this series which should satisfy most commercial decors. Both enclosures feature four-way

airflow to minimize self-heating. Three point NIST Calibration Certificates are available.

Applications: Humidification, Dehumidification, Monitoring Indoor Space Humidity, Clean Rooms, Hospitals, Process Control, Laboratories, Museums, Schools, Office Buildings, Data Centers, ESD (Anti-Static) Control

The ACI RH Room is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, workaci.com.

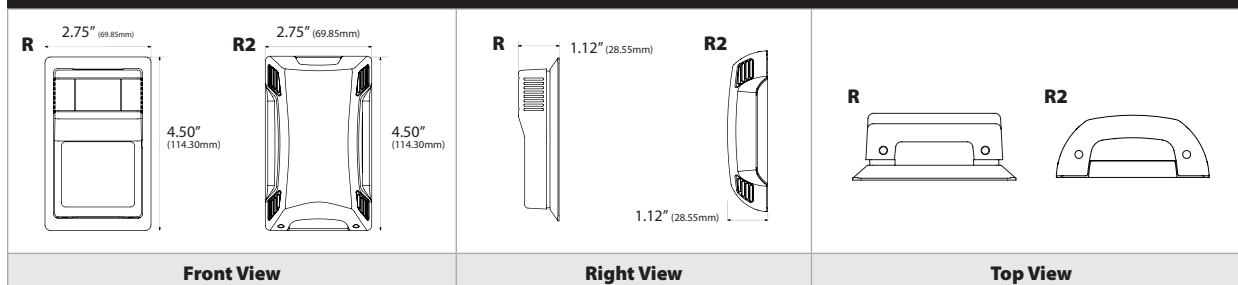
PRODUCT SPECIFICATIONS

| | |
|--|--|
| RH Supply Voltage (Reverse Polarity Protected): | 4-20 mA: 250 Ohm Load: 15 - 40 VDC / 18 - 28 VAC 500 Ohm Load: 18 - 40 VDC / 18 - 28 VAC 0-5 VDC: 12 - 40 VDC / 18 - 28 VAC 0-10 VDC: 18 - 40 VDC / 18 - 28 VAC |
| RH Supply Current (VA): | Voltage Output: 8 mA maximum (0.32 VA) Current Output: 24 mA maximum (0.83 VA) |
| RH Output Load Resistance: | 4-20 mA: 700 Ohms maximum 0-5 VDC or 0-10 VDC: 4K Ohms Minimum |
| RH Output Signal: | 2-wire: 4 - 20 mA (Factory Default) 3-wire: 0-5 or 0-10 VDC and 4 - 20 mA (Field Selectable) |
| RH Accuracy @ 77°F (25°C): | +/- 1% over 20% RH Range between 20 to 90% +/- 2%, 3%, or 5% from 10 to 95% |
| RH Measurement Range: | 0-100% |
| Operating RH Range: | 0 to 95% RH, non-condensing |
| Operating Temperature Range: | 35 to 122°F (1.5 to 60°C) |
| Storage Temperature Range: | -40 to 149°F (-40 to 65°C) |
| RH Stability Repeatability Sensitivity: | Less than 2% drift / 5 years 0.5% RH 0.1% RH |
| RH Response Time (T63): | 20 Seconds Typical |
| RH Sensor Type: | Capacitive with Hydrophobic Filter |
| RH Transmitter Stabilization Time: | 30 Minutes (Recommended time before doing accuracy verification) |
| RH Connections Wire Size: | Screw Terminal Blocks (Polarity Sensitive) 16 (1.31 mm ²) to 26 AWG (0.129 mm ²) |
| RH Terminal Block Torque Rating: | 4.43 to 5.31 lb-in (0.5 to 0.6 Nm) |
| RH NIST Test Points: | Default Test Points: 3 Points (20%, 50% & 80%) 1% NIST Test Points: 5 Points within selected 20% Range (ie. 30%-50% are 30, 35, 40, 45 & 50) |
| Enclosure Material (Color): | "-R2" Enclosure: ABS (White) "-R" Enclosure: ABS (Beige) |
| Enclosure Flammability Rating: | UL94-HB |
| Product Dimensions (L x W x D): | "-R2" Enclosure: 4.50" (114.3 mm) x 2.75" (69.85 mm) x 1.12" (28.45 mm) "-R" Enclosure: 4.50" (114.3 mm) x 2.75" (69.85 mm) x 1.12" (28.45 mm) |
| Product Weight: | A/RHx-R2 Series: 0.17 lbs. (0.077 kg) A/RHx-R Series: 0.17 lbs. (0.077 kg) |
| Agency Approvals: | CE, RoHS2, WEEE |





DIMENSIONAL DRAWING



STANDARD ORDERING

| Model # | Item # | Description |
|---------------|--------|---|
| A/RH1-R | 122538 | RH Room, +/- 1%, 4-20 mA Output (default), 0-5 VDC or 0-10 VDC (selectable) |
| A/RH1-R-NIST | 149233 | RH Room, +/- 1%, 4-20 mA Output (default), 0-5 VDC or 0-10 VDC (selectable), NIST Certificate |
| A/RH1-R2 | 130822 | RH Room, +/- 1%, 4-20 mA Output (default), 0-5 VDC or 0-10 VDC (selectable) |
| A/RH1-R2-NIST | 149263 | RH Room, +/- 1%, 4-20 mA Output (default), 0-5 VDC or 0-10 VDC (selectable), NIST Certificate |
| A/RH2-R | 122708 | RH Room, +/- 2%, 4-20 mA Output (default), 0-5 VDC or 0-10 VDC (selectable) |
| A/RH2-R-NIST | 148191 | RH Room, +/- 2%, 4-20 mA Output (default), 0-5 VDC or 0-10 VDC (selectable), NIST Certificate |
| A/RH2-R2 | 130553 | RH Room, +/- 2%, 4-20 mA Output (default), 0-5 VDC or 0-10 VDC (selectable) |
| A/RH2-R2-NIST | 145405 | RH Room, +/- 2%, 4-20 mA Output (default), 0-5 VDC or 0-10 VDC (selectable), NIST Certificate |
| A/RH3-R | 122944 | RH Room, +/- 3%, 4-20 mA Output (default), 0-5 VDC or 0-10 VDC (selectable) |
| A/RH3-R-NIST | 148194 | RH Room, +/- 3%, 4-20 mA Output (default), 0-5 VDC or 0-10 VDC (selectable), NIST Certificate |
| A/RH3-R2 | 130554 | RH Room, +/- 3%, 4-20 mA Output (default), 0-5 VDC or 0-10 VDC (selectable) |
| A/RH3-R2-NIST | 148195 | RH Room, +/- 3%, 4-20 mA Output (default), 0-5 VDC or 0-10 VDC (selectable), NIST Certificate |
| A/RH5-R | 123099 | RH Room, +/- 5%, 4-20 mA Output (default), 0-5 VDC or 0-10 VDC (selectable) |
| A/RH5-R2 | 130555 | RH Room, +/- 5%, 4-20 mA Output (default), 0-5 VDC or 0-10 VDC (selectable) |

ACCESSORIES ORDERING

| Model # | Item # | Description |
|---------------------------|--------|---|
| A/MOUNTING PLATE BEIGE R | 106821 | Wall Mounting Back Plate, Plastic, Beige ("R") |
| A/MOUNTING PLATE WHITE R2 | 143369 | Wall Mounting Back Plate, Plastic, White ("R2") |
| LOCKING COVER | 107370 | Clear Thermostat Guard, Locking Cover, Low Profile |
| A/ROOM-FOAM-PAD | 125690 | 1/8" Foam Insulation Pad with Adhesive (3" x 2", Black) |



RH ROOM

Relative Humidity Room, Thermistor

The ACI Relative Humidity with Thermistor Room Series utilizes a thermoset polymer capacitive sensing element with a factory fitted hydrophobic filter to improve its moisture resistance. The sensing elements multilayer construction also provides excellent resistance in applications where dust, dirt, oils and common environmental chemicals are found. The RH room sensors include on board DIP switches which allow the user to select the desired output signal and can be powered by AC or DC power sources. Single point field calibration can be performed by using the increment and decrement calibration DIP switches to adjust your curve up or down in +/- 0.5% increments with each toggle of the corresponding switches. These enhancements provide increased flexibility and outstanding long-term reliability without the need to replace the sensors in the field. There are two enclosure options in this series which should satisfy most commercial decors. Both enclosures feature four-way airflow to minimize self-heating. Three point NIST Calibration Certificates are available.

commercial decors. Both enclosures feature four-way airflow to minimize self-heating. Three point NIST Calibration Certificates are available.

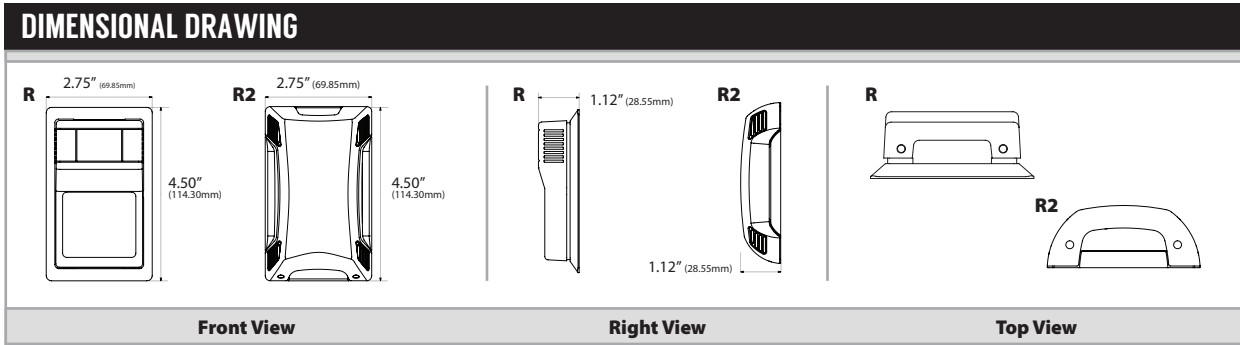
Applications: Humidification, Dehumidification, Monitoring Indoor Space Humidity, Clean Rooms, Hospitals, Process Control, Laboratories, Museums, Schools, Office Buildings, Data Centers, ESD (Anti-Static) Control

The ACI RH Thermistors Room is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | | |
|--|---|--|
| RH Supply Voltage: | 4-20 mA: 250 Ohm Load: 15 - 40 VDC / 18 - 28 VAC 500 Ohm Load: 18 - 40 VDC / 18 - 28 VAC | |
| (Reverse Polarity Protected): | 0-5 VDC: 12 - 40 VDC / 18 - 28 VAC 0-10 VDC: 18 - 40 VDC / 18 - 28 VAC | |
| RH Supply Current (VA): | Voltage Output: 8 mA maximum (0.32 VA) Current Output: 24 mA maximum (0.83 VA) | |
| RH Output Load Resistance: | 4-20 mA: 700 Ohms maximum 0-5 VDC or 0-10 VDC: 4K Ohms Minimum | |
| RH Output Signal: | 2-wire: 4 - 20 mA (Factory Default) 3-wire: 0-5 or 0-10 VDC & 4 - 20 mA (Field Selectable) | |
| RH Accuracy @ 77°F (25°C): | +/- 1% over 20% RH Range between 20 to 90% +/- 2%, 3%, or 5% from 10 to 95% | |
| RH Measurement Range: | 0-100% | |
| Operating RH Range: | 0 to 95% RH, non-condensing | |
| Operating Temperature Range: | 35 to 122°F (1.5 to 60°C) | |
| Storage Temperature Range: | -40 to 149°F (-40 to 65°C) | |
| RH Stability Repeatability Sensitivity: | Less than 2% drift / 5 years 0.5% RH 0.1% RH | |
| RH Response Time (T63): | 20 Seconds Typical | |
| RH Sensor Type: | Capacitive with Hydrophobic Filter | |
| RH Transmitter Stabilization Time: | 30 Minutes (Recommended time before doing accuracy verification) | |
| RH Connections Wire Size: | Screw Terminal Blocks (Polarity Sensitive) 16 (1.31 mm ²) to 26 AWG (0.129 mm ²) | |
| RH Terminal Block Torque Rating: | 4.43 to 5.31 lb-in (0.5 to 0.6 Nm) | |
| RH NIST Test Points: | Default Test Points: 3 Points (20%, 50% & 80%) 1% NIST Test Points: 5 Points within selected 20% Range (ie. 30%-50% are 30, 35, 40, 45 & 50) | |
| Nominal Thermistor Resistive Output @ 77°F (25°C) (Lead Wire Colors) Non-Linear NTC (Negative Temperature Coefficient): | RHx-1.8K Series: 1.8KΩ (Red/Yellow) | RHx-10KS Series: 10KΩ (White/Blue) |
| | RHx-3K Series: 3KΩ (White/Brown) | RHx-10K-E1 Series: 10KΩ (Gray/Orange) |
| | RHx-AN Series (Type III): 10KΩ (White/White) | RHx-20K Series: 20KΩ (Brown/Blue) |
| | RHx-AN-BC Series: 5.238KΩ (White/Yellow) | RHx-50K Series: 50KΩ nominal (Brown/Yellow) |
| | RHx-CP Series (Type II): 10KΩ (White/Green) | RHx-100KS Series: 100KΩ (Black/Yellow) |
| | RHx-CSI Series: 10KΩ (Green/Yellow) | |
| Thermistor Accuracy 32-158°F (0-70°C): | +/- 0.36°F (0.2°C) except 10K-E1 Series: +/- 0.54°F (0.3°C) | |
| | 1.8K Series: +/- 0.9°F (0.5°C) @ 77°F (25°C) & +/- 1.8°F (1.0°C) from 32 to 158°F (0 to 70°C) | |
| Thermistor Power Dissipation Constant: | 3 mW/°C except 1.8K Series: 1 mW/°C; 10K-E1 Series: 2 mW/°C | |
| Thermistor Sensor Response Time (T63): | 10 Seconds nominal | |
| Temperature Connections Wire Size: | Screw Terminal Blocks 16 (1.31 mm ²) to 26 AWG (0.129 mm ²) | |
| Temperature Terminal Block Torque Rating: | 4.43 to 5.31 lb-in (0.5 to 0.6 Nm) | |
| Enclosure Material (Color): | "-R2" Enclosure: ABS (White) "-R" Enclosure: ABS (Beige) | |
| Enclosure Flammability Rating: | UL94-HB | |
| Product Dimensions (L x W x D): | "-R2" Enclosure: 4.50" (114.3 mm) x 2.75" (69.85 mm) x 1.12" (28.45 mm) "-R" Enclosure: 4.50" (114.3 mm) x 2.75" (69.85 mm) x 1.12" (28.45 mm) | |
| Product Weight: | A/RHx-xx-R2 Series: 0.17 lbs. (0.077 kg) A/RHx-xx-R Series: 0.17 lbs. (0.077 kg) | |
| Agency Approvals: | CE, RoHS2, WEEE | |





| CUSTOM ORDERING | | Model # Example: A/ RH2 CP RSO NIST 0 Ohms 1K Ohms DA + to - | MODEL # |
|--|---|---|---------|
| A. Sensor Series <i>No Selection Required</i> | A/ A. B. C. D. E. F. 1. 2. 3. 4. | | A/ |
| B. Accuracy <i>Select One (1)</i> | RH1 = +/--1% (Specify a 20% Range between 20 to 90% RH) RH2 = +/--2% RH3 = +/--3% RH5 = +/--5% | | |
| C. Temperature Sensor <i>Select One (1)</i> | 1.8K 3K 10KS AN (Type III) AN-BC CP (Type II) CSI 10K-E1 20K 50K 100KS | | |
| D. Configuration <i>Select One (1)</i> | R = Room R2 = Room RO = Room with Override R2O = Room with Override RS = Room with Setpoint R2S = Room with Setpoint RSO = Room with Setpoint and Override R2SO = Room with Setpoint and Override | | |
| E. Output Signal <i>Select One (1)</i> | ---- = 4 to 20 mA (Default) 0 to 10 VDC (Field Selectable) 0 to 5 VDC (Field Selectable) | | |
| F. NIST (Temperature & RH) <i>Select One (1)</i> | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) | | |
| Setpoint Configuration Options <i>Select Options below if RS, RSO, R2S or R2SO was selected as a Configuration (C).</i> | | | |
| 1. Slidepots <i>Select One (1)</i> | Direct Acting (<i>Range in Ohms</i>) A01 = 0 to 100K A02 = 0 to 20K A03 = 0 to 10K A06 = 4.75K to 24.75K A07 = 10K to 30K A08 = 1K to 11K A09 = 0 to 2K A10 = 0 to 1K A11 = 2.05K to 3.05K A12 = 0 to 400 A16 = 0 to 5K A18 = 10K to 15K A26 = 866 to 1,266 A29 = 7.87K to 27.8K Reverse Acting (<i>Range in Ohms</i>) A04 = 1051.1 to 51.1 A14 = 10K to 0 A24 = 9.5K to 1K | | |
| 2. Setpoint Stickers <i>Select One (1)</i> | A3 = 18-28 DEG C A4 = 20-30 DEG C B4 = 55-85 DEG F B7 = 60-90 DEG F C5 = COOL/WARM C6 = COOLER/WARMER D3 = WARM/COOL G5 = BLUE/RED (R2 Enclosure) | | |

Note: Outputs are field selectable between 4-20 mA, 0-5 VDC & 0-10 VDC

| ACCESSORIES ORDERING | | | Model # Example: A/MOUNTING PLATE BEIGE R -OR- 106821 |
|---------------------------|--------|---|--|
| Model # | Item # | Description | |
| A/MOUNTING PLATE BEIGE R | 106821 | Wall Mounting Back Plate, Plastic, Beige ("R") | |
| A/MOUNTING PLATE WHITE R2 | 143369 | Wall Mounting Back Plate, Plastic, White ("R2") | |
| LOCKING COVER | 107370 | Clear Thermostat Guard, Locking Cover, Low Profile | |
| A/ROOM-FOAM-PAD | 125690 | 1/8" Foam Insulation Pad with Adhesive (3" x 2", Black) | |





RH ROOM

Relative Humidity Room, Platinum RTD

The ACI Relative Humidity with Platinum RTD Room Series utilizes a thermoset polymer capacitive sensing element with a factory fitted hydrophobic filter to improve its moisture resistance. The sensing elements multilayer construction also provides excellent resistance in applications where dust, dirt, oils and common environmental chemicals are found. The RH room sensors include on board DIP switches which allow the user to select the desired output signal and can be powered by AC or DC power sources. Single point field calibration can be performed by using the increment and decrement calibration DIP switches to adjust your curve up or down in +/- 0.5% increments with each toggle of the corresponding switches. These enhancements provide increased flexibility and outstanding long-term reliability without the need to replace the sensors in the field. There are two enclosure options in this series which

should satisfy most commercial decors. Both enclosures feature four-way airflow to minimize self-heating. Three point NIST Calibration Certificates are available.

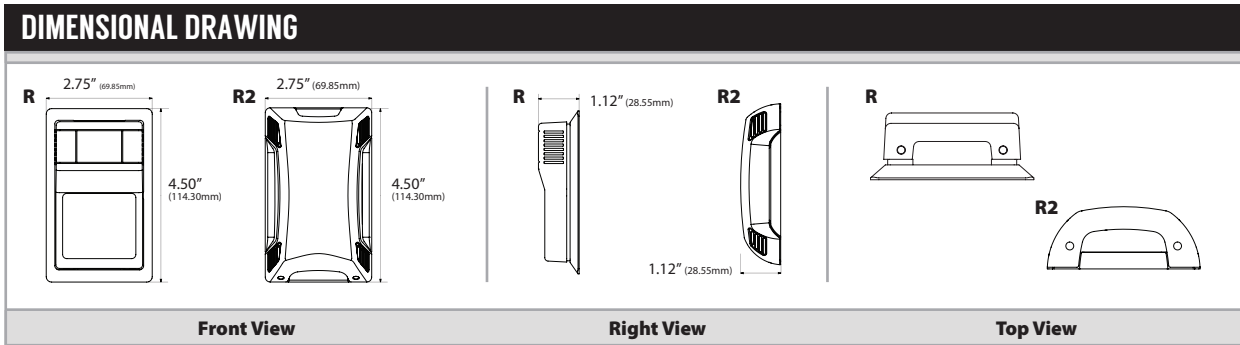
Applications: Humidification, Dehumidification, Monitoring Indoor Space Humidity, Clean Rooms, Hospitals, Process Control, Laboratories, Museums, Schools, Office Buildings, Data Centers, ESD (Anti-Static) Control

The ACI RH Platinum RTDs Room is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|---|--|
| RH Supply Voltage (Reverse Polarity Protected): | 4-20 mA: 250 Ohm Load: 15 - 40 VDC / 18 - 28 VAC 500 Ohm Load: 18 - 40 VDC / 18 - 28 VAC 0-5 VDC: 12 - 40 VDC / 18 - 28 VAC 0-10 VDC: 18 - 40 VDC / 18 - 28 VAC |
| RH Supply Current (VA): | Voltage Output: 8 mA maximum (0.32 VA) Current Output: 24 mA maximum (0.83 VA) |
| RH Output Load Resistance: | 4-20 mA: 700 Ohms maximum 0-5 VDC or 0-10 VDC: 4K Ohms Minimum |
| RH Output Signal: | 2-wire: 4 - 20 mA (Factory Default) 3-wire: 0-5 or 0-10 VDC and 4 - 20 mA (Field Selectable) |
| RH Accuracy @ 77°F (25°C): | +/- 1% over 20% RH Range between 20 to 90% +/- 2%, 3%, or 5% from 10 to 95% |
| RH Measurement Range: | 0-100% |
| Operating RH Range: | 0 to 95% RH, non-condensing |
| Operating Temperature Range: | 35 to 122°F (1.5 to 60°C) |
| Storage Temperature Range: | -40 to 149°F (-40 to 65°C) |
| RH Stability Repeatability Sensitivity: | Less than 2% drift / 5 years 0.5% RH 0.1% RH |
| RH Response Time (T63): | 20 Seconds Typical |
| RH Sensor Type: | Capacitive with Hydrophobic Filter |
| RH Transmitter Stabilization Time: | 30 Minutes (Recommended time before doing accuracy verification) |
| RH Connections Wire Size: | Screw Terminal Blocks (Polarity Sensitive) 16 (1.31 mm ²) to 26 AWG (0.129 mm ²) |
| RH Terminal Block Torque Rating: | 4.43 to 5.31 lb-in (0.5 to 0.6 Nm) |
| RH NIST Test Points: | Default Test Points: 3 Points (20%, 50% & 80%) 1% NIST Test Points: 5 Points within selected 20% Range (ie. 30%-50% are 30, 35, 40, 45 & 50) |
| Platinum RTD Output @ 32°F (0°C): | RHx-100-xW-R2 Series: 100 Ohms nominal RHx-1K-xW-R2 Series: 1000 Ohms nominal |
| Platinum RTD Tolerance Class: | +/-0.06% Class A Tolerance Formula: +/-°C = (0.15°C + (0.002 * t)) |
| Platinum RTD Din Standard: | DIN EN 60751 (IEC 751) |
| Temperature Coefficient: | 3850 ppm/°C |
| Platinum RTD Stability: | +/-0.03% after 1000 Hours @ 572°F (300°C) |
| Temperature Connections Wire Size: | Screw Terminal Blocks 16 (1.31 mm ²) to 26 AWG (0.129 mm ²) |
| Temperature Terminal Block Torque Rating: | 4.43 to 5.31 lb-in (0.5 to 0.6 Nm) |
| Enclosure Material (Color): | "-R2" Enclosure: ABS (White) "-R" Enclosure: ABS (Beige) |
| Enclosure Flammability Rating: | UL94-HB |
| Product Dimensions (L x W x D): | "-R2" Enclosure: 4.50" (114.3 mm) x 2.75" (69.85 mm) x 1.12" (28.45 mm) "-R" Enclosure: 4.50" (114.3 mm) x 2.75" (69.85 mm) x 1.12" (28.45 mm) |
| Product Weight: | A/RHx-xx-xW-R2 Series: 0.17 lbs. (0.077 kg) A/RHx-xx-xW-R Series: 0.17 lbs. (0.077 kg) |
| Agency Approvals: | CE, RoHS2, WEEE |





| CUSTOM ORDERING | | Model # Example: A/ RH2 1K 2W RSO NIST 0 Ohms 1K Ohms DA + to - | MODEL # |
|---|--|---|---------|
| | | A. B. C. D. E. F. G. 1. 2. 3. 4. | |
| A. Sensor Series <i>No Selection Required</i> | A/ → | | A/ |
| B. Accuracy <i>Select One (1)</i> | RH1 = +/-1% (Specify a 20% Range between 20 to 90% RH) RH2 = +/-2% RH3 = +/-3% RH5 = +/-5% | | |
| C. Model Series <i>Select One (1)</i> | 100 = 100 Ohm Platinum RTD 1K = 1K Ohm Platinum RTD | | |
| D. Number of Wires <i>Select One (1)</i> | 2W = Two Wires 3W = Three Wires | | |
| E. Configuration <i>Select One (1)</i> | R = Room R2 = Room RO = Room with Override R2O = Room with Override RS = Room with Setpoint R2S = Room with Setpoint RSO = Room with Setpoint and Override R2SO = Room with Setpoint and Override | | |
| F. Output Signal <i>Select One (1)</i> | ---- = 4 to 20 mA (Default) 0 to 10 VDC (Field Selectable) 0 to 5 VDC (Field Selectable) | | |
| G. NIST (Temperature & RH) <i>Select One (1)</i> | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) | | |
| Setpoint Configuration Options <i>Select Options below if RS, RSO, R2S or R2SO was selected as a Configuration (C)</i> | | | |
| 1. Slidepots <i>Select One (1)</i> | Direct Acting (Range in Ohms) A01 = 0 to 100K A02 = 0 to 20K A03 = 0 to 10K A08 = 1K to 11K A09 = 0 to 2K A10 = 0 to 1K A12 = 0 to 400 A16 = 0 to 5K A28 = 806 to 1206 A32 = 900 to 1300 Reverse Acting (Range in Ohms) A14 = 10K to 0 | | |
| 2. Setpoint Stickers <i>Select One (1)</i> | A3 = 18-28 DEG C A4 = 20-30 DEG C B4 = 55-85 DEG F B7 = 60-90 DEG F C5 = COOL/WARM C6 = COOLER/WARMER D3 = WARM/COOL G5 = BLUE/RED (R2 Enclosure) | | |

Note: Outputs are field selectable between 4-20 mA, 0-5 VDC & 0-10 VDC

ACCESSORIES ORDERING

| Model # | Item # | Description |
|---------------------------|--------|---|
| A/MOUNTING PLATE BEIGE R | 106821 | Wall Mounting Back Plate, Plastic, Beige ("R") |
| A/MOUNTING PLATE WHITE R2 | 143369 | Wall Mounting Back Plate, Plastic, White ("R2") |
| LOCKING COVER | 107370 | Clear Thermostat Guard, Locking Cover, Low Profile |
| A/ROOM-FOAM-PAD | 125690 | 1/8" Foam Insulation Pad with Adhesive (3" x 2", Black) |





RH ROOM

Relative Humidity Room, Nickel RTD

The ACI Relative Humidity with Nickel RTD Room Series utilizes a thermoset polymer capacitive sensing element with a factory fitted hydrophobic filter to improve its moisture resistance. The sensing elements multilayer construction also provides excellent resistance in applications where dust, dirt, oils and common environmental chemicals are found. The RH room sensors include on board DIP switches which allow the user to select the desired output signal and can be powered by AC or DC power sources. Single point field calibration can be performed by using the increment and decrement calibration DIP switches to adjust your curve up or down in +/- 0.5% increments with each toggle of the corresponding switches. These enhancements provide increased flexibility and outstanding long-term reliability without the need to replace the sensors in the field. There are two enclosure options in this series which should satisfy most

commercial decors. Both enclosures feature four-way airflow to minimize self-heating. Three point NIST Calibration Certificates are available.

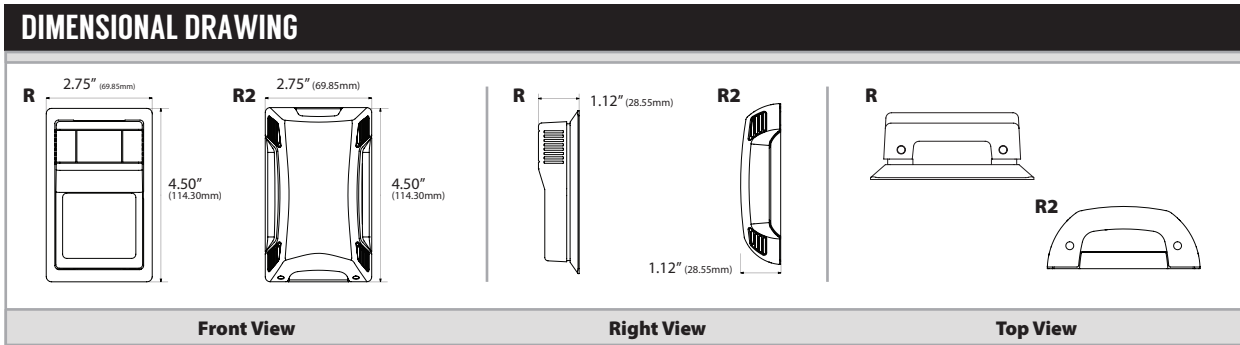
Applications: Humidification, Dehumidification, Monitoring Indoor Space Humidity, Clean Rooms, Hospitals, Process Control, Laboratories, Museums, Schools, Office Buildings, Data Centers, ESD (Anti-Static) Control

The ACI RH Nickel RTD Room is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|--|--|
| RH Supply Voltage (Reverse Polarity Protected): | 4-20 mA: 250 Ohm Load: 15 - 40 VDC / 18 - 28 VAC 500 Ohm Load: 18 - 40 VDC / 18 - 28 VAC 0-5 VDC: 12 - 40 VDC / 18 - 28 VAC 0-10 VDC: 18 - 40 VDC / 18 - 28 VAC |
| RH Supply Current (VA): | Voltage Output: 8 mA maximum (0.32 VA) Current Output: 24 mA maximum (0.83 VA) |
| RH Output Load Resistance: | 4-20 mA: 700 Ohms maximum 0-5 VDC or 0-10 VDC: 4K Ohms Minimum |
| RH Output Signal: | 2-wire: 4 - 20 mA (Factory Default) 3-wire: 0-5 or 0-10 VDC and 4 - 20 mA (Field Selectable) |
| RH Accuracy @ 77°F (25°C): | +/- 1% over 20% RH Range between 20 to 90% +/- 2%, 3%, or 5% from 10 to 95% |
| RH Measurement Range: | 0-100% |
| Operating RH Range: | 0 to 95% RH, non-condensing |
| Operating Temperature Range: | 35 to 122°F (1.5 to 60°C) |
| Storage Temperature Range: | -40 to 149°F (-40 to 65°C) |
| RH Stability Repeatability Sensitivity: | Less than 2% drift / 5 years 0.5% RH 0.1% RH |
| RH Response Time (T63): | 20 Seconds Typical |
| RH Sensor Type: | Capacitive with Hydrophobic Filter |
| RH Transmitter Stabilization Time: | 30 Minutes (Recommended time before doing accuracy verification) |
| RH Connections Wire Size: | Screw Terminal Blocks (Polarity Sensitive) 16 (1.31 mm ²) to 26 AWG (0.129 mm ²) |
| RH Terminal Block Torque Rating: | 4.43 to 5.31 lb-in (0.5 to 0.6 Nm) |
| RH NIST Test Points: | Default Test Points: 3 Points (20%, 50% & 80%) 1% NIST Test Points: 5 Points within selected 20% Range (ie. 30%-50% are 30, 35, 40, 45 & 50) |
| Nickel RTD (PTC) Output @ 70°F (21.1°C) | RHx-1K-NI-R2 Series: 1000 Ohms nominal (1K-Nickel RTD) |
| Nickel RTD Sensor Accuracy: | 32°F (0°C): +/-0.72°F (0.4°F); 70°F (21.1°C): +/-0.34°F (0.17°C); 130°F (54.4°C): +/-1.00°F (0.56°C) |
| Nickel Din Standard | Din 43760 |
| Temperature Coefficient (0-100°C): | 6370 ppm/°C |
| Nickel RTD Stability: | +/-0.05% after 1000 Hours @ 302°F (150°C) |
| Temperature Connections Wire Size: | Screw Terminal Blocks 16 (1.31 mm ²) to 26 AWG (0.129 mm ²) |
| Temperature Terminal Block Torque Rating: | 4.43 to 5.31 lb-in (0.5 to 0.6 Nm) |
| Enclosure Material (Color): | "-R2" Enclosure: ABS (White) "-R" Enclosure: ABS (Beige) |
| Enclosure Flammability Rating: | UL94-HB |
| Product Dimensions (L x W x D): | "-R2" Enclosure: 4.50" (114.3 mm) x 2.75" (69.85 mm) x 1.12" (28.45 mm) "-R" Enclosure: 4.50" (114.3 mm) x 2.75" (69.85 mm) x 1.12" (28.45 mm) |
| Product Weight: | A/RHx-1K-NI-R2 Series: 0.17 lbs. (0.077 kg) A/RHx-1K-NI-R Series: 0.17 lbs. (0.077 kg) |
| Agency Approvals: | CE, RoHS2, WEEE |





| CUSTOM ORDERING | | Model # Example: | MODEL # |
|--|--|---|---------|
| | | A/ RH2 1K-NI RSO NIST 0 Ohms 20K Ohms DA + to - | |
| | | A. B. C. D. E. F. 1. 2. 3. 4. | |
| A. Sensor Series <i>No Selection Required</i> | A/ | | A/ |
| B. Accuracy <i>Select One (1)</i> | RH1 = +/-1% (Specify a 20% Range between 20 to 90% RH) RH2 = +/-2% RH3 = +/-3% RH5 = +/-5% | | |
| C. Temperature Sensor <i>No Selection Required</i> | 1K-NI | | 1K-NI |
| D. Configuration <i>Select One (1)</i> | R = Room RO = Room with Override RS = Room with Setpoint RSO = Room with Setpoint and Override R2 = Room R2O = Room with Override R2S = Room with Setpoint R2SO = Room with Setpoint and Override | | |
| E. Output Signal <i>Select One (1)</i> | ---- = 4 to 20 mA (Default) 0 to 10 VDC (Field Selectable) 0 to 5 VDC (Field Selectable) | | |
| F. NIST (Temperature & RH) <i>Select One (1)</i> | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) | | |
| Setpoint Configuration Options <i>Select Options below if RS, RSO, R2S or R2SO was selected as a Configuration (C).</i> | | | |
| 1. Offset Resistor <i>Select One (1)</i> | 0 Ohms 51.1 Ohms 499 Ohms 750 Ohms 806 Ohms 1K Ohms 2K Ohms 2.49K Ohms 4.75K Ohms 6.19K Ohms 7.87 Ohms 10K Ohms 20K Ohms | | |
| 2. Potentiometer <i>Select One (1)</i> | 400 Ohm 1K Ohms 2K Ohms 5K Ohms 8.5K Ohms 10K Ohms 20K Ohms 100K Ohms | | |
| 3. Setpoint Direction <i>Select One (1)</i> | DA = Direct Acting (Bottom to Top (Smaller to Larger)) RA = Reverse Acting (Bottom to Top (Larger to Smaller)) | | |
| 4. Setpoint Indication <i>Select One (1)</i> | + to - Cool Warm 55 to 85F 10-30C (R Only) Blue Red (R2 Only) | | |

Note: Outputs are field selectable between 4-20 mA, 0-5 VDC & 0-10 VDC

| ACCESSORIES ORDERING | | | Model # Example: |
|---------------------------|--------|---|--------------------------------------|
| | | | A/MOUNTING PLATE BEIGE R -OR- 106821 |
| Model # | Item # | Description | |
| A/MOUNTING PLATE BEIGE R | 106821 | Wall Mounting Back Plate, Plastic, Beige ("R") | |
| A/MOUNTING PLATE WHITE R2 | 143369 | Wall Mounting Back Plate, Plastic, White ("R2") | |
| LOCKING COVER | 107370 | Clear Thermostat Guard, Locking Cover, Low Profile | |
| A/ROOM-FOAM-PAD | 125690 | 1/8" Foam Insulation Pad with Adhesive (3" x 2", Black) | |





RH ROOM

Relative Humidity Room, Balco RTD

The ACI Relative Humidity with Balco RTD Room Series utilizes a thermoset polymer capacitive sensing element with a factory fitted hydrophobic filter to improve its moisture resistance. The sensing elements multilayer construction also provides excellent resistance in applications where dust, dirt, oils and common environmental chemicals are found. The RH room sensors include on board DIP switches which allow the user to select the desired output signal and can be powered by AC or DC power sources. Single point field calibration can be performed by using the increment and decrement calibration DIP switches to adjust your curve up or down in +/- 0.5% increments with each toggle of the corresponding switches. These enhancements provide increased flexibility and outstanding long-term reliability without the need to replace the sensors in the field. There are two enclosure options in this series which should satisfy most

commercial decors. Both enclosures feature four-way airflow to minimize self-heating. Three point NIST Calibration Certificates are available.

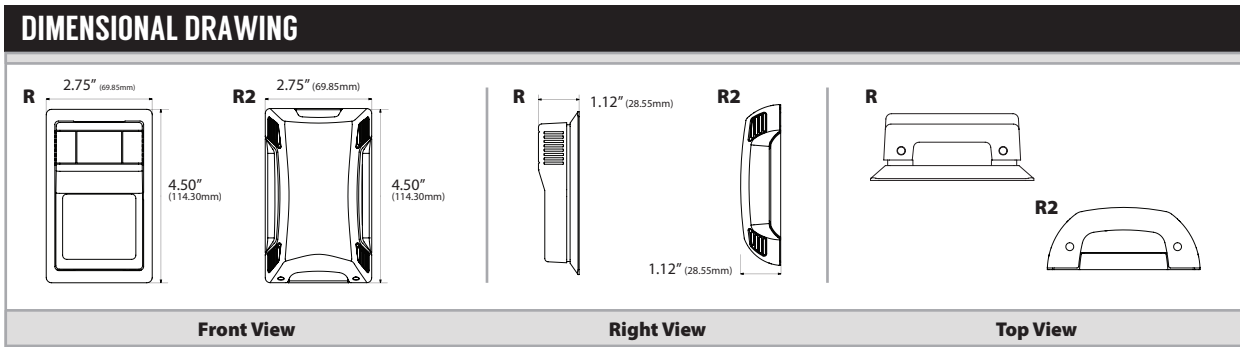
Applications: Humidification, Dehumidification, Monitoring Indoor Space Humidity, Clean Rooms, Hospitals, Process Control, Laboratories, Museums, Schools, Office Buildings, Data Centers, ESD (Anti-Static) Control

The ACI RH Balco RTD Room is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|--|--|
| RH Supply Voltage (Reverse Polarity Protected): | 4-20 mA: 250 Ohm Load: 15 - 40 VDC / 18 - 28 VAC 500 Ohm Load: 18 - 40 VDC / 18 - 28 VAC 0-5 VDC: 12 - 40 VDC / 18 - 28 VAC 0-10 VDC: 18 - 40 VDC / 18 - 28 VAC |
| RH Supply Current (VA): | Voltage Output: 8 mA maximum (0.32 VA) Current Output: 24 mA maximum (0.83 VA) |
| RH Output Load Resistance: | 4-20 mA: 700 Ohms maximum 0-5 VDC or 0-10 VDC: 4K Ohms Minimum |
| RH Output Signal: | 2-wire: 4 - 20 mA (Factory Default) 3-wire: 0-5 or 0-10 VDC and 4 - 20 mA (Field Selectable) |
| RH Accuracy @ 77°F (25°C): | +/- 1% over 20% RH Range between 20 to 90% +/- 2%, 3%, or 5% from 10 to 95% |
| RH Measurement Range: | 0-100% |
| Operating RH Range: | 0 to 95% RH, non-condensing |
| Operating Temperature Range: | 35 to 122°F (1.5 to 60°C) |
| Storage Temperature Range: | -40 to 149°F (-40 to 65°C) |
| RH Stability Repeatability Sensitivity: | Less than 2% drift / 5 years 0.5% RH 0.1% RH |
| RH Response Time (T63): | 20 Seconds Typical |
| RH Sensor Type: | Capacitive with Hydrophobic Filter |
| RH Transmitter Stabilization Time: | 30 Minutes (Recommended time before doing accuracy verification) |
| RH Connections Wire Size: | Screw Terminal Blocks (Polarity Sensitive) 16 (1.31 mm ²) to 26 AWG (0.129 mm ²) |
| RH Terminal Block Torque Rating: | 4.43 to 5.31 lb-in (0.5 to 0.6 Nm) |
| RH NIST Test Points: | Default Test Points: 3 Points (20%, 50% & 80%) 1% NIST Test Points: 5 Points within selected 20% Range (ie. 30%-50% are 30, 35, 40, 45 & 50) |
| Balco RTD Output @ 70°F (21.1°C): | RHx-BALCO-R2 Series: 1000 Ohms nominal (Balco RTD) |
| Balco RTD Sensor Accuracy 70°F (21.1°C): | +/- 1.0% |
| Balco RTD Temperature Coefficient (0-100°C): | 4618 ppm/°C |
| Balco RTD Stability: | +/- 0.05% after 1000 Hours @ 302°F (150°C) |
| Temperature Sensor Response Time (T63): | 10 Seconds nominal |
| Temperature Connections Wire Size: | Screw Terminal Blocks 16 (1.31 mm ²) to 26 AWG (0.129 mm ²) |
| Temperature Terminal Block Torque Rating: | 4.43 to 5.31 lb-in (0.5 to 0.6 Nm) |
| Enclosure Material (Color): | "-R2" Enclosure: ABS (White) "-R" Enclosure: ABS (Beige) |
| Enclosure Flammability Rating: | UL94-HB |
| Product Dimensions (L x W x D): | "-R2" Enclosure: 4.50" (114.3 mm) x 2.75" (69.85 mm) x 1.12" (28.45 mm) "-R" Enclosure: 4.50" (114.3 mm) x 2.75" (69.85 mm) x 1.12" (28.45 mm) |
| Product Weight: | A/RHx-BALCO-R2 Series: 0.17 lbs. (0.077 kg) A/RHx-BALCO-R Series: 0.17 lbs. (0.077 kg) |
| Agency Approvals: | CE, RoHS2, WEEE |





| CUSTOM ORDERING | | Model # Example: A/ RH2 BALCO RSO NIST 0 Ohms 1K Ohms DA + to - | MODEL # |
|--|---|---|---------|
| | | A. B. C. D. E. F. 1. 2. 3. 4. | |
| A. Sensor Series <i>No Selection Required</i> | A/ | → | A/ |
| B. Accuracy <i>Select One (1)</i> | RH1 = +/-1% (Specify a 20% Range between 20 to 90% RH) RH2 = +/-2% RH3 = +/-3% RH5 = +/-5% | | |
| C. Temperature Sensor <i>No Selection Required</i> | BALCO | → | BALCO |
| D. Configuration <i>Select One (1)</i> | R = Room R2 = Room RO = Room with Override R2O = Room with Override RS = Room with Setpoint R2S = Room with Setpoint RSO = Room with Setpoint and Override R2SO = Room with Setpoint and Override | | |
| E. Output Signal <i>Select One (1)</i> | ---- = 4 to 20 mA (Default) 0 to 10 VDC (Field Selectable) 0 to 5 VDC (Field Selectable) | | |
| F. NIST (Temperature & RH) <i>Select One (1)</i> | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) | | |
| Setpoint Configuration Options <i>Select Options below if RS, RSO, R2S or R2SO was selected as a Configuration (C).</i> | | | |
| 1. Slidepots <i>Select One (1)</i> | Direct Acting (Range in Ohms) A03 = 0 to 10K A09 = 0 to 2K A10 = 0 to 1K A28 = 806 to 1206 | | |
| 2. Setpoint Stickers <i>Select One (1)</i> | A3 = 18-28 DEG C A4 = 20-30 DEG C B4 = 55-85 DEG F B7 = 60-90 DEG F C5 = COOL/WARM C6 = COOLER/WARMER D3 = WARM/COOL G5 = BLUE/RED (R2 Enclosure) | | |

Note: Outputs are field selectable between 4-20 mA, 0-5 VDC & 0-10 VDC

| ACCESSORIES ORDERING | | Model # Example: A/MOUNTING PLATE BEIGE R -OR- 106821 |
|---------------------------|--------|---|
| Model # | Item # | Description |
| A/MOUNTING PLATE BEIGE R | 106821 | Wall Mounting Back Plate, Plastic, Beige ("R") |
| A/MOUNTING PLATE WHITE R2 | 143369 | Wall Mounting Back Plate, Plastic, White ("R2") |
| LOCKING COVER | 107370 | Clear Thermostat Guard, Locking Cover, Low Profile |
| A/ROOM-FOAM-PAD | 125690 | 1/8" Foam Insulation Pad with Adhesive (3" x 2", Black) |





RH TT ROOM



Relative Humidity (RH), Temperature Transmitter (TT)

The ACI Relative Humidity with Temperature Transmitter Room Series utilizes a thermoset polymer capacitive sensing element with a factory applied hygroscopic filter to deliver a proportional analog current or voltage output signal. The hygroscopic filter provides added resistance to moisture, dust, and other chemicals for greater long term reliability. The RH Room transmitter features integral DIP switches for field selection of the proper output signal and supply voltage to meet your applications requirements. Each unit also contains 0%, 50%, and 100% test options to verify that the transmitter is both working and wired properly. Field calibration can be performed by using the increment and decrement calibration DIP switches without the need to replace the sensing element. These enhancements provide increased flexibility and outstanding long-term reliability. The temperature transmitter must be powered with 13.5 to 24 VDC power source and can be ordered as either a two-

wire 4-20 mA or 3-wire voltage output sensor. The temperature transmitter is installed on the back of the enclosure and must be mounted over a single gang junction box in the wall. There are two styling options in this series which should satisfy most commercial decors. Both styles feature four-way airflow to minimize self-heating. NIST Calibration Certificates (Temperature and RH) are included for all TTM RH part series.

Applications: Monitor Room RH Levels, Humidification, Dehumidification, Hospitals, Clean Rooms, Office Buildings, Schools, Museums, Process Control, ESD (Anti-Static) Control, Data Centers

The ACI RH TT Room is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, workaci.com.

PRODUCT SPECIFICATIONS

| | |
|---|--|
| RH Supply Voltage (Reverse Polarity Protected): | 4-20 mA: 250 Ohm Load: 15 - 40 VDC / 18 - 28 VAC 500 Ohm Load: 18 - 40 VDC / 18 - 28 VAC 0-5 VDC: 12 - 40 VDC / 18 - 28 VAC 0-10 VDC: 18 - 40 VDC / 18 - 28 VAC |
| RH Supply Current (VA): | Voltage Output: 8 mA maximum (0.32 VA) Current Output: 24 mA maximum (0.83 VA) |
| RH Output Load Resistance: | 4-20 mA: 700 Ohms maximum 0-5 VDC or 0-10 VDC: 4K Ohms Minimum |
| RH Output Signal: | 2-wire: 4 - 20 mA (Factory Default) 3-wire: 0-5 or 0-10 VDC and 4 - 20 mA (Field Selectable) |
| RH Accuracy @ 77°F (25°C): | +/- 1% over 20% RH Range between 20 to 90% +/- 2%, 3%, or 5% from 10 to 95% |
| RH Measurement Range: | 0-100% |
| Operating RH Range: | 0 to 95% RH, non-condensing |
| Operating Temperature Range: | -40 to 140°F (-40 to 60°C) |
| Storage Temperature Range: | -40 to 149°F (-40 to 65°C) |
| RH Stability Repeatability Sensitivity: | Less than 2% drift / 5 years 0.5% RH 0.1% RH |
| RH Response Time (T63): | 20 Seconds Typical |
| RH Sensor Type: | Capacitive with Hydrophobic Filter |
| RH Transmitter Stabilization Time: | 30 Minutes (Recommended time before doing accuracy verification) |
| RH Connections Wire Size: | Screw Terminal Blocks (Polarity Sensitive) 16 (1.31 mm ²) to 26 AWG (0.129 mm ²) |
| RH Terminal Block Torque Rating: | 4.43 to 5.31 lb-in (0.5 to 0.6 Nm) |
| RH NIST Test Points: | Default Test Points: 3 Points (20%, 50% & 80%) 1% NIST Test Points: 5 Points within selected 20% Range (ie. 30%-50% are 30, 35, 40, 45 & 50) +8.5 to 32 VDC (Reverse Polarity Protected) 25 mA minimum |
| TT Supply Voltage Supply Current: | 250 Ohm Load: +13.5 to 32 VDC 500 Ohm Load: +18.5 to 32 VDC |
| TT Maximum Load Resistance: | (Terminal Voltage - 8.5 V) 0.020 A |
| TT Output Signals: | Current Output: 4-20 mA (2-Wire Loop Powered) Voltage Output: 1-5 VDC/2-10 VDC (3-Wire) |
| TT Calibrated Accuracy Linearity ¹: | Temperature Spans < 500°F (260°C): +/- 0.2% Temp Spans > 500°F (260°C): +/- 0.5% |
| TT Temperature Drift ²: | Temperature Spans < 100°F (38°C): +/- 0.04%/°F Temp Spans > 100°F (38°C): +/- 0.02%/°F |
| TTM1K Certification Points: | 3 Point NIST: 20%, 50%, 80% of span 5 Point NIST: 20%, 35%, 50%, 65%, 80% of span |
| TT Warm Up Time Warm Up Drift: | 10 Minutes +/- 0.1% |
| Transmitter Operating Temperature/RH Range: | -40 to 185°F (-40 to 85°C) / 0 to 90% RH, non-condensing |
| Platinum RTD (PTC) Number Wires Wire Colors: | Two A/TT100/TTM100 Series: Brown/Brown A/TT1K/TTM1K Series: Black/Black |
| Platinum RTD Sensor Output @ 32°F (0°C): | A/TT100/TTM100 Series: 100 Ohms Nominal A/TT1K/TTM1K Series: 1000 Ohms Nominal |
| Platinum RTD Tolerance Class Accuracy: | +/- 0.06% Class A Tolerance Formula: +/- °C = (0.15°C + (0.002 * t)) where t is the absolute value of Temperature above or below 0°C in °C |
| Platinum RTD Sensor Stability: | +/-0.03% after 1000 Hours @ 572°F (300°C) |
| Platinum RTD Response Time (63% Step Change): | 8 Seconds nominal |



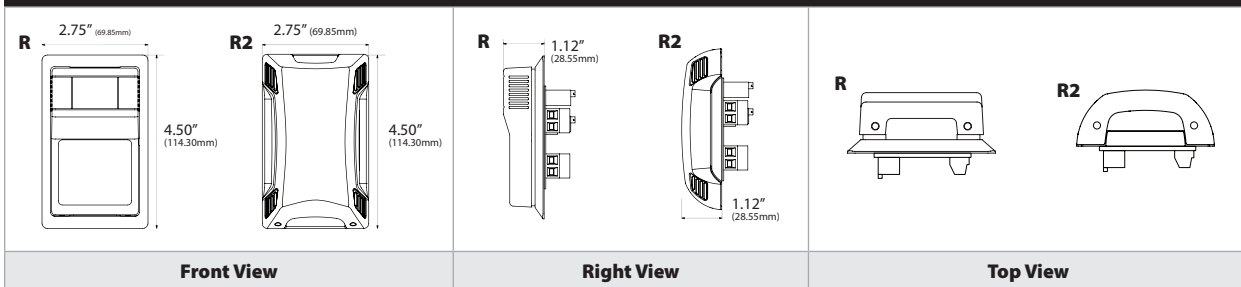


PRODUCT SPECIFICATIONS

| | |
|--|---|
| Enclosure Material (Color): | "-R2" Enclosure: ABS (White) "-R" Enclosure: ABS (Beige) |
| Enclosure Flammability Rating: | UL94-HB |
| Product Dimensions (L x W x D): | "-R2" Enclosure: 4.50" (114.3 mm) x 2.75" (69.85 mm) x 1.12" (28.45 mm) "-R" Enclosure: 4.50" (114.3 mm) x 2.75" (69.85 mm) x 1.12" (28.45 mm) |
| Product Weight: | A/RHx-TT-R2 Series: 0.21 lbs. (0.096 kg) A/RHx-TT-R Series: 0.21 lbs. (0.096 kg) |
| Agency Approvals: | RoHS2, WEEE |

Note¹: A Transmitter is calibrated at 71°F (22°C) Nominal | **Note²:** Temperature Drift is referenced to 71°F nominal calibration temperature

DIMENSIONAL DRAWING



CUSTOM ORDERING

| | | Model # Example: A/ RH1 TT100 R2 20 -100°F | MODEL # |
|--|--|--|---------|
| | | A. B. C. D. E. F. | |
| A. Sensor Series <i>No Selection Required</i> | A/ | → | A/ |
| B. Accuracy <i>Select One (1)</i> | RH1 = +/-1% (Specify a 20% Range between 20 to 90% RH) RH2 = +/-2% RH3 = +/-3% RH5 = +/-5% | | |
| C. Model Series <i>Select One (1)</i> | TT100 = 100 Ohms TT1K = 1K Ohms TTM1K = Matched 1K Ohms (3 Point RH & Temperature NIST) | | |
| D. Configuration <i>Select One (1)</i> | R = Room R2 = Room | | |
| E. Transmitter Output <i>Select One (1)</i> | 4 = 4 to 20 mA 1 = 1 to 5 VDC* 2 = 2 to 10 VDC* | | |
| F. Calibrated Span | Specify Span in °F or °C (Best Accuracy in 100°F Increments) | | |

Note*: A Temperature Transmitter Output of 1-5 VDC or 2-10 VDC would have a RH Output of 0-5 VDC or 0-10 VDC

Note: If a 5 Point NIST is required, put -5PTNIST at the end of the part number.

ACCESSORIES ORDERING

| Model # | Item # | Description |
|---------------------------|--------|---|
| A/MOUNTING PLATE BEIGE R | 106821 | Wall Mounting Back Plate, Plastic, Beige ("R") |
| A/MOUNTING PLATE WHITE R2 | 143369 | Wall Mounting Back Plate, Plastic, White ("R2") |
| LOCKING COVER | 107370 | Clear Thermostat Guard, Locking Cover, Low Profile |
| A/ROOM-FOAM-PAD | 125690 | 1/8" Foam Insulation Pad with Adhesive (3" x 2", Black) |

ACCESSORIES ORDERING (NIST)

| Model # | Description |
|----------|--|
| -5PTNIST | TTM Calibration Certificate (5 Point NIST) |

Note: For TTM100 or TTM1K part numbers, the default NIST is 3 points | 5 points may be specified by using "-5PTNIST" at the end of any TTM part number.



TUCH2

Microprocessor Based Sensor (Analog RH & Temp)

The A/TUCH2 Series is a customizable sensor that utilizes an on-board microprocessor and capacitive sensing element with built in hygroscopic filter designed to protect the RH sensor from moisture and chemicals while delivering an analog temperature and a proportional analog RH Output signal. This series includes a large backlit LCD Display which can be used to monitor your space temperature, relative humidity, set points, override and local system status when using the Override Feedback option. These units are factory configured to your desired specifications to reduce onsite programming. Additional features can be modified using the integral keypad and internal menu system, providing you with the flexibility required to meet any additional requests. These features include additional Temperature, RH and Set Point

configurations, Display brightness and functionality, Set Point Lockout, Direct and Reverse Acting Output adjustments for temp, RH and set points outputs, temperature and humidity offsets, test functions and more. For additional features including Fan Speed and System Configurations, please contact ACI for more information.

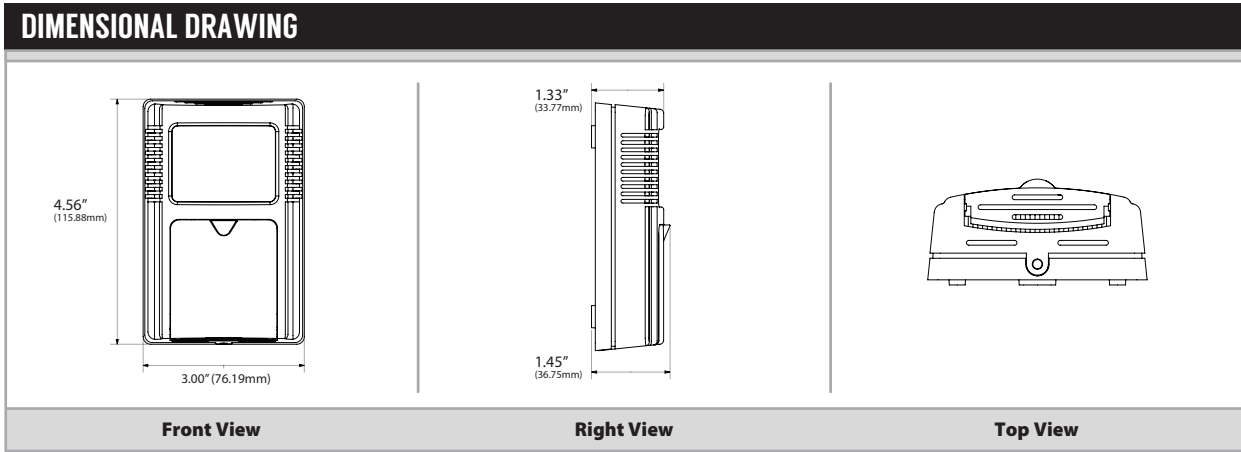
Applications: Schools and Universities, Office Buildings, Commercial Buildings, Labs, Hospitals, Clean Rooms, Pharmaceutical, Process Control, OEM's

The ACI TUCH2 Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|---|--|
| Supply Voltage: | 20-28 VAC / +12-40 VDC (0-1V, 0-5V, 1-5 VDC Output Signals) 20-28 VAC / +18-40 VDC (0-10V, 2-10V, 0-20 mA, and 4-20 mA Output Signals) |
| Supply Current: | Current Outputs: 100 mA maximum; Voltage Outputs: 16 mA maximum |
| Temperature Measurement Range: | 40 to 100°F, 40 to 90°F, 50 to 90°F, 50 to 100°F, 55 to 85°F (Others available) 4.5 to 40°C, 4.5 to 32°C, 10 to 32°C, 10 to 35°C, 13 to 32°C (Others available) |
| RH Measurement Range: | 0 to 100% RH |
| Analog Outputs (Temperature/Temp Set Point): | 0-1V, 0-5V, 1-5V, 0-10V, 2-10V, 0-20 mA, 4-20 mA |
| Analog Outputs (RH/RH Set Point): | 0-1V, 0-5V, 1-5V, 0-10V, 2-10V, 0-20 mA, 4-20 mA |
| Temperature Accuracy: | +/- 1°F (+/- 0.5°C) (Rounded to nearest 0.5°F/°C) |
| RH Accuracy @ 77°F (25°C): | +/- 2%, +/- 3% or +/- 5% RH from 10 to 95% RH (Dependent on Model Ordered) |
| Set Point Accuracy: | +/- 2% Full Scale (VDC/mA Outputs), +/- 5% Full Scale (All resistive outputs) |
| Set Point Midpoint (Room Temp/RH Set Point): | Select single point Temp from 55 to 89°F (14 to 31°C) and/or RH from 33 to 67% |
| Set Point Differential (Scale Above/Below Midpoint): | Select single point from +/- 1 to +/- 20° and/or +/- 1 to +/- 20% RH |
| "After Hours" Override Contact Style (Optional): | Normally-Open (N/O) Dry Contact Closure (See Ordering Grid for other Options) |
| Override Contact Resistance Life Expectancy: | < 30 Ohms 500,000 Actuations minimum |
| Override Feedback Signal: | Dry Contact (Logic Low) or 5-30 VDC / 24 VAC (Logic High) (Specify when Ordering) |
| LCD Backlight Color LCD Backlight Function: | Blue Turns on w/ Button Press (Default); Field adjustable (ALWAYS ON or OFF) |
| Display Mean Time Between Failure (MTBF): | 100,000 Hours Typical (When LCD Backlight set to ALWAYS ON) |
| Display Numeral Height: | 0.600" (15.24 mm) (Large); 0.280" (7.11 mm) (Small) |
| LCD Display Descriptors: | °F, °C, % RH, Occupied / Unoccupied (Override Feedback), Set Point |
| Communication Jacks (Optional): | RJ4 (4 Pin 4 Cond (RJ9, RJ10, RJ22 Phone)), RJ6 (6 Pin 6 Cond (RJ12 Phone)) and RS232 (1/8" (3.5 mm) Stereo Jack) |
| Power / Output Connections Communication Jack: | 12 Position Screw Terminal Blocks 26 AWG Flying Leads with Wire Nuts |
| Terminal Block Wire Size UL (SEL) Torque Rating: | Accepts 28 to 14 AWG (0.08 to 2.5 mm ²) 4.4 lb-in (0.5 Nm) |
| Enclosure Material Color: | ABS/Polycarbonate Blend White |
| Enclosure Flammability Rating: | UL 94-5VB |
| Operating Temperature / Storage Temperature: | 40 to 104°F (4.5 to 40°C) -4 to 158°F (-20 to 70°C) |
| Operating Humidity Storage Humidity: | 5 to 90% RH, non-condensing |
| Product Dimensions (H x W x D): | 4.56" (11.59 cm) x 3.00" (7.62 cm) x 1.26" (3.20 cm) |
| Product Weight: | 0.35 lbs (0.162 kg) |
| Agency Approvals: | CE (EMC 2014/30/EU); RoHS2 2011/65/EU |





| TEMPERATURE ORDERING OPTIONS | | Model # Example: TUCH2 - 16 F2 1L | MODEL # |
|---|--|-----------------------------------|---------|
| | | A. B. C. D. | |
| A. Sensor Series <i>No Selection Required</i> | TUCH2 | | TUCH2 |
| B. Temp Output Signal <i>Select One (1)</i> <i>Output Signal can be Reversed in field using integral menu system</i> | VDC Output: 05 = 0 to 5 VDC 01 = 0 to 1 VDC 08 = 2 to 10 VDC 04 = 1 to 5 VDC 10 = 0 to 10 VDC mA Output: 16 = 4 to 20 mA 20 = 0 to 20 mA | | |
| C. Analog Output Temperature Scale: <i>Select One (1)</i> | F2 = 40 to 90°F F3 = 40 to 100°F F4 = 50 to 90°F F5 = 50 to 100°F F6 = 55 to 85°F C1 = 4.5 to 40°C C2 = 4.5 to 32°C C3 = 10 to 32°C C4 = 10 to 35°C C5 = 13 to 29.5°C C6 = 13 to 32°C | | |
| D. Set Point Temperature Scale: <i>Select One (1)</i> <i>See Specifications for more details regarding Midpoint/Differential set point specifications available</i> | XX = No Set Point Centigrade: 1A = 6 to 30 (Midpoint = 18, Set Point Differential = +/- 12) 1B = 10 to 30 (Midpoint = 20, Set Point Differential = +/- 10) 1C = 15 to 31 (Midpoint = 23, Set Point Differential = +/- 8) 1D = 18 to 28 (Midpoint = 23, Set Point Differential = +/- 5) Fahrenheit: 1E = 50 to 90 (Midpoint = 70, Set Point Differential = +/- 20) 1F = 55 to 85 (Midpoint = 70, Set Point Differential = +/- 15) 1G = 55 to 95 (Midpoint = 75, Set Point Differential = +/- 20) 1H = 60 to 80 (Midpoint = 70, Set Point Differential = +/- 10) 1I = 62 to 82 (Midpoint = 72, Set Point Differential = +/- 10) 1J = 65 to 75 (Midpoint = 70, Set Point Differential = +/- 5) 1K = 67 to 73 (Midpoint = 70, Set Point Differential = +/- 3) 1L = 67 to 77 (Midpoint = 72, Set Point Differential = +/- 5) 1M = 68 to 72 (Midpoint = 70, Set Point Differential = +/- 2) 1N = 68 to 76 (Midpoint = 72, Set Point Differential = +/- 4) 1O = 68 to 78 (Midpoint = 73, Set Point Differential = +/- 5) Custom = Specify (Midpoint = ??, Set Point Differential = +/- ??) | | |





| TEMPERATURE ORDERING OPTIONS <i>continued</i> | | | Model # Example: G0 X X 2 16 N2 G0 X X <small>E. F. G. H. I. J. K. L. M.</small> | MODEL # |
|---|---|---|---|----------|
| E. Set Point Temperature Output: <i>Select One (1)</i> <i>See Specifications for more details regarding Midpoint/Differential set point specifications available)</i> | XX = No Set Point A0 = 0 to 1 VDC B0 = 0 to 5 VDC C0 = 0 to 10 VDC D0 = 1 to 5 VDC E0 = 2 to 10 VDC F0 = 0 to 20 mA G0 = 4 to 20 mA | ZZ = 0 to 1.5K Ohms ZY = 0 to 10K Ohms ZW = 0 to 20K Ohms ZT = 0 to 100K Ohms ZS = 100 to 6500 Ohms ZR = 333 to 1695 Ohms ZQ = 866 to 1290 Ohms ZP = 889 to 111 Ohms ZO = 1089 to 879 Ohms | ZN = 3890 to 6110 Ohms ZM = 4550 to 6650 Ohms ZL = 5K to 15K Ohms ZK = 7.8K to 27.8K Ohms ZJ = 9577 to 1421 Ohms ZI = 9843 to 1290 Ohms ZH = 10K to 30K Ohms ZG = 10K to 20K Ohms ZF = 2.49K to 3.49K Ohms | |
| F. "After Hours" Override Options: <i>Select One (1)</i> | X = No Override S = Short Sensor C = Dry Contact/Logic Low P = Short Set Point | | | |
| G. Override Feedback Options: <i>Select One (1)</i> | X = None L = Dry Contact / Logic Low H = Logic High / 24 VAC or 5 to 30 VDC | | | |
| H. RH Measurement Accuracy: <i>Select One (1)</i> | 2 = +/- 2% RH 3 = +/- 3% RH | | | |
| I. RH Output Signal: <i>Select One (1)</i> | 01 = 0 to 1 VDC 02 = 20 to 0 mA 04 = 1 to 5 VDC 05 = 0 to 5 VDC 08 = 2 to 10 VDC 10 = 0 to 10 VDC 16 = 4 to 20 mA 20 = 0 to 20 mA 61 = 20 to 4 mA | | | |
| J. RH Set Point Scale: <i>Select One (1)</i> | M1 = 13 to 53% (Midpoint = 33, Set Point Differential = +/- 20) M2 = 32 to 38% (Midpoint = 35, Set Point Differential = +/- 3) M3 = 30 to 40% (Midpoint = 35, Set Point Differential = +/- 5) M4 = 25 to 55% (Midpoint = 40, Set Point Differential = +/- 15) M5 = 20 to 60% (Midpoint = 40, Set Point Differential = +/- 20) M6 = 35 to 55% (Midpoint = 45, Set Point Differential = +/- 10) M7 = 25 to 65% (Midpoint = 45, Set Point Differential = +/- 20) M8 = 45 to 51% (Midpoint = 48, Set Point Differential = +/- 3) M9 = 48 to 52% (Midpoint = 50, Set Point Differential = +/- 2) N1 = 46 to 54% (Midpoint = 50, Set Point Differential = +/- 4) N2 = 40 to 60% (Midpoint = 50, Set Point Differential = +/- 10) N3 = 35 to 65% (Midpoint = 50, Set Point Differential = +/- 15) N4 = 30 to 70% (Midpoint = 50, Set Point Differential = +/- 20) N5 = 35 to 75% (Midpoint = 55, Set Point Differential = +/- 20) N6 = 40 to 80% (Midpoint = 60, Set Point Differential = +/- 20) N7 = 45 to 79% (Midpoint = 62, Set Point Differential = +/- 17) N8 = 48 to 83% (Midpoint = 65, Set Point Differential = +/- 18) N9 = 57 to 77% (Midpoint = 67, Set Point Differential = +/- 10) O1 = 47 to 87% (Midpoint = 67, Set Point Differential = +/- 20) XX = No Set Point | | | |
| K. RH Set Point Output Signal: <i>Select One (1)</i> | XX = No RH Set Point A0 = 0 to 1 VDC B0 = 0 to 5 VDC C0 = 0 to 10 VDC D0 = 1 to 5 VDC | E0 = 2 to 10 VDC F0 = 0 to 20 mA G0 = 4 to 20 mA ZY = 0 to 10K Ohms | ZW = 0 to 20K Ohms ZH = 10K to 30K Ohms ZG = 10K to 20K Ohms ZF = 2.49K to 3.49K Ohms | |
| L. Communication Jack Options: <i>Select One (1)</i> | X = None 4 = 4 Pin 4 Conductor RJ9, RJ10, or RJ22 Style Head Set Modular Connector 6 = 6 Pin 6 Conductor RJ12 Modular Phone Connector 8 = 3.5mm (1/8") Stereo Jack | | | |
| M. Manufacturer Provided <i>No Selection Required</i> | X = Default → | | | X |

| ACCESSORIES ORDERING | | | Model # Example: A/LOCKING COVER -OR- 10370 |
|------------------------|--------|--|--|
| Model # | Item # | Description | |
| A/MOUNT PLATE W | 126386 | Wall Mounting Back Plate, Plastic, White | |
| A/LOCKING COVER | 107370 | Clear Thermostat Guard, Locking Cover, Low Profile | |





5 Button Membrane



4 Button Membrane

TUCH2

Microprocessor Based Sensor (Resistive Temp / Analog RH)

The A/TUCH2 Series is a customizable sensor that utilizes an on-board microprocessor and capacitive sensing element with built in hygroscopic filter designed to protect the RH sensor from moisture and chemicals while delivering a resistive temperature and a proportional analog RH Output signal. This series includes a large backlit LCD Display which can be used to monitor your space temperature, relative humidity, set points, override and local system status when using the Override Feedback option. These units are factory configured to your desired specifications to reduce onsite programming. Additional features can be modified using the integral keypad and internal menu system, providing you with the flexibility required to meet your customers additional requests. These features include additional Set Point configurations, Backlight Display brightness and functionality, Set Point Lockout, Direct and Reverse Acting Configurations, please contact ACI for more information.

Output adjustments, temperature and humidity offsets, test functions and more. For additional features including Fan Speed and System Configurations, please contact ACI for more information.

Applications: Schools and Universities, Office Buildings, Commercial Buildings, Labs, Hospitals, Clean Rooms, Pharmaceutical, Process Control, OEM's

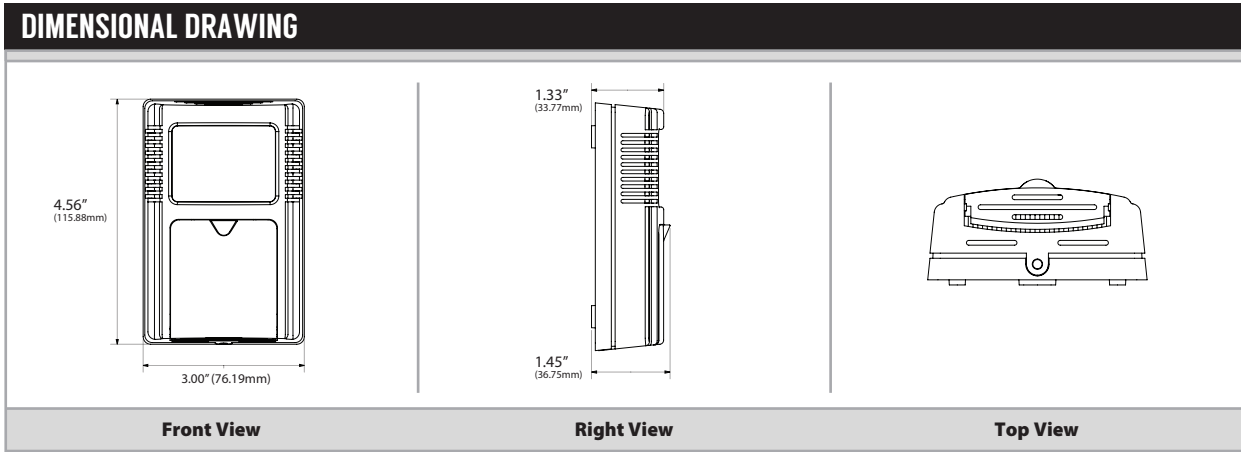
The ACI TUCH2 Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|---|--|
| Supply Voltage: | 20-28 VAC / +12-40 VDC (Resistive Temp, 0-1V, 0-5V, 1-5 VDC RH Outputs) 20-28 VAC / +18-40 VDC (Resistive Temp, 0-10V, 2-10V, 0-20 mA, and 4-20 mA RH Output Signals) |
| Supply Current (Maximum): | Resistive / Current RH Output: 60 mA; Resistive / Voltage RH Output: 16 mA |
| Temperature Sensor Type 1: | NTC Thermistor's (Single Sensor Technology); PTC RTD's (Dual Sensor Technology) |
| Temperature Sensor Type: | NTC Thermistor Types: See Ordering Grid PTC RTD Types: See Ordering Grid |
| Temperature Measurement Range: | 40 to 104°F (4.5 to 40°C) |
| RH Measurement Range: | 0 to 100% RH |
| Analog Outputs (RH/RH Set Point): | 0-1V, 0-5V, 1-5V, 0-10V, 2-10V, 0-20 mA, 4-20 mA, 20-4 mA, 20 to 0 mA (Specify when ordering) |
| Temperature Accuracy: | +/- 1°F (+/- 0.5°C) (Rounded to nearest 0.5°F/°C) |
| RH Accuracy @ 77°F (25°C): | +/- 2%, +/- 3% or +/- 5% RH from 10 to 95% RH (Dependent on Model) |
| Set Point Accuracy: | +/- 5% Full Scale Output; +/- 2% of FS for all VDC/mA Outputs |
| Set Point Midpoint (Room Temp/RH Set Point): | Select single point Temp from 55 to 89°F (14 to 31°C) and/or RH from 33 to 67% |
| Set Point Differential (Scale Above/Below Midpoint): | Select single point from +/- 1 to +/- 20° and/or +/- 1 to +/- 20% RH |
| "After Hours" Override Contact Style (Optional): | Normally-Open (N/O) Short Sensor (Default); Optional Dry Contact or Short Set Point |
| Override Contact Resistance Life Expectancy: | < 30 Ohms 500,000 Actuations minimum |
| Override Feedback Signal: | Dry Contact (Logic Low) or 5-30 VDC / 24 VAC (Logic High) (Specify when Ordering) |
| LCD Backlight Color LCD Backlight Function: | Blue Turns on w/ Button Press (Default); Field adjustable (ALWAYS ON or OFF) |
| Display Mean Time Between Failure (MTBF): | 100,000 Hours Typical (When LCD Backlight set to ALWAYS ON) |
| Display Viewing Angle Numeral Height: | 12 O'Clock Large: 0.600" (15.24 mm); Small: 0.280" (7.11 mm) |
| LCD Display Descriptors: | °F, °C, % RH, Set Point, Occupied/Unoccupied (Override Feedback) |
| Communication Jacks (Optional): | RJ4 (4 Pin 4 Cond (RJ9, RJ10, RJ22 Phone)), RJ6 (6 Pin 6 Cond (RJ12 Phone)) and RS232 (1/8" (3.5 mm) Stereo Jack) |
| Power / Output Connections Communication Jack: | 12 Position Screw Terminal Block 26 AWG Flying Leads with Wire Nuts |
| Terminal Block Wire Size UL (SEL) Torque Rating: | Accepts 28 to 14 AWG (0.08 to 2.5 mm ²) 4.4 lb-in (0.5 Nm) |
| Enclosure Material Color: | ABS/Polycarbonate Blend White |
| Enclosure Flammability Rating: | UL 94-5VB |
| Operating Temperature / Storage Temperature: | 40 to 104°F (4.5 to 40°C) -4 to 158°F (-20 to 70°C) |
| Operating Humidity Storage Humidity: | 5 to 90% RH, non-condensing |
| Product Dimensions (H x W x D) | 4.56" (11.59 cm) x 3.00" (7.62 cm) x 1.26" (3.20 cm) |
| Product Weight: | 0.35 lbs (0.162 kg) |
| Agency Approvals: | CE (EMC 2014/30/EU); RoHS2 2011/65/EU |

Note 1: Power must be applied to the single sensor version of this unit that includes an NTC Thermistor Output signal





| TEMPERATURE ORDERING OPTIONS | | Model # Example: TUCH2 CP F1 A. B. C. | MODEL # |
|--|--|--|--------------|
| A. Sensor Series <i>No Selection Required</i> | TUCH2 → | | TUCH2 |
| B. Temp Output Sensor Type <i>Select One (1)</i> | NTC Thermistors: 18 = 1.8K Ohms @ 77°F (25°C) 3K = 3K Ohms @ 77°F (25°C) 20 = 20K Ohms @ 77°F (25°C) AS = 3K Ohms @ 77°F (25°C) (3K-ASI) AN = 10K Ohms (Type III) @ 77°F (25°C) (10K-AN) BC = 10K Ohms (Type III) w/ 11K Shunt (5.238K @ 77°F (25°C)) (10K-AN-BC) CP = 10K Ohms (Type II) @ 77°F (25°C) (10K-CP) CS = 10K Ohms @ 77°F (25°C) (10K-CSI) KS = 10K Ohms @ 77°F (25°C) (10KS) <hr/> PTC RTD's: 1K = 1K Ohms @ 32°F (0°C); Class A Platinum RTD; 385 TC NI = 1000 Ohms @ 70°F (21.1°C); Nickel RTD; 6370 TC (1000-NI) 35 = 1035 Ohms @ 77°F (25°C); Silicon Sensor; +/- 3% from 40 to 104°F | | |
| C. Temperature Scale <i>Select One (1)</i> | F1 = 40 to 104°F C1 = 4.5 to 40°C | | |





| TEMPERATURE ORDERING OPTIONS <i>continued</i> | | Model # Example: 1H ZW S H 2 16 | | | | | | MODEL # |
|---|---|--|--|----|----|----|----|---------|
| | | D. | E. | F. | G. | H. | L. | |
| <p>D. Set Point Temperature Scale: <i>Select One (1)</i></p> <p><i>See Specifications for more details regarding Midpoint/Differential set point specifications available)</i></p> | <p>XX = No Set Point</p> <hr/> <p>Centigrade: 1A = 6 to 30 (Midpoint = 18, Set Point Differential = +/- 12) 1B = 10 to 30 (Midpoint = 20, Set Point Differential = +/- 10) 1C = 15 to 31 (Midpoint = 23, Set Point Differential = +/- 8) 1D = 18 to 28 (Midpoint = 23, Set Point Differential = +/- 5)</p> <hr/> <p>Fahrenheit: 1E = 50 to 90 (Midpoint = 70, Set Point Differential = +/- 20) 1F = 55 to 85 (Midpoint = 70, Set Point Differential = +/- 15) 1G = 55 to 95 (Midpoint = 75, Set Point Differential = +/- 20) 1H = 60 to 80 (Midpoint = 70, Set Point Differential = +/- 10) 1I = 62 to 82 (Midpoint = 72, Set Point Differential = +/- 10) 1J = 65 to 75 (Midpoint = 70, Set Point Differential = +/- 5) 1K = 67 to 73 (Midpoint = 70, Set Point Differential = +/- 3) 1L = 67 to 77 (Midpoint = 72, Set Point Differential = +/- 5) 1M = 68 to 72 (Midpoint = 70, Set Point Differential = +/- 2) 1N = 68 to 76 (Midpoint = 72, Set Point Differential = +/- 4) 1O = 68 to 78 (Midpoint = 73, Set Point Differential = +/- 5)</p> <hr/> <p>Custom = Specify (Midpoint = ??, Set Point Differential = +/- ??)</p> | | | | | | | |
| <p>E. Set Point Temperature Output: <i>Select One (1)</i></p> <p><i>See Specifications for more details regarding Midpoint/Differential set point specifications available)</i></p> | <p>XX = No Set Point A0 = 0 to 1 VDC B0 = 0 to 5 VDC C0 = 0 to 10 VDC D0 = 1 to 5 VDC E0 = 2 to 10 VDC F0 = 0 to 20 mA G0 = 4 to 20 mA</p> | <p>ZZ = 0 to 1.5K Ohms ZY = 0 to 10K Ohms ZW = 0 to 20K Ohms ZT = 0 to 100K Ohms ZS = 100 to 6500 Ohms ZR = 333 to 1695 Ohms ZQ = 866 to 1290 Ohms ZP = 889 to 111 Ohms ZO = 1089 to 879 Ohms</p> | <p>ZN = 3890 to 6110 Ohms ZM = 4550 to 6650 Ohms ZL = 5K to 15K Ohms ZK = 7.8K to 27.8K Ohms ZJ = 9577 to 1421 Ohms ZI = 9843 to 1290 Ohms ZH = 10K to 30K Ohms ZG = 10K to 20K Ohms ZF = 2.49K to 3.49K Ohms</p> | | | | | |
| <p>F. "After Hours" Override Options: <i>Select One (1)</i></p> | <p>X = No Override S = Short Sensor C = Dry Contact/Logic Low P = Short Set Point</p> | | | | | | | |
| <p>G. Override Feedback Options: <i>Select One (1)</i></p> | <p>X = None L = Dry Contact / Logic Low H = Logic High / 24 VAC or 5 to 30 VDC</p> | | | | | | | |
| <p>H. RH Measurement Accuracy: <i>Select One (1)</i></p> | <p>2 = +/- 2% RH 3 = +/- 3% RH</p> | | | | | | | |
| <p>I. RH Output Signal: <i>Select One (1)</i></p> | <p>01 = 0 to 1 VDC 02 = 20 to 0 mA 04 = 1 to 5 VDC 05 = 0 to 5 VDC 08 = 2 to 10 VDC 10 = 0 to 10 VDC 16 = 4 to 20 mA 20 = 0 to 20 mA 61 = 20 to 4 mA</p> | | | | | | | |





| TEMPERATURE ORDERING OPTIONS <i>continued</i> | | Model # Example: M6 G0 X X <i>J. K. L. M.</i> | MODEL # |
|---|--|--|----------|
| J. RH Set Point Scale: <i>Select One (1)</i> | <p>M1 = 13 to 53% (Midpoint = 33, Set Point Differential = +/- 20) M2 = 32 to 38% (Midpoint = 35, Set Point Differential = +/- 3) M3 = 30 to 40% (Midpoint = 35, Set Point Differential = +/- 5) M4 = 25 to 55% (Midpoint = 40, Set Point Differential = +/- 15) M5 = 20 to 60% (Midpoint = 40, Set Point Differential = +/- 20) M6 = 35 to 55% (Midpoint = 45, Set Point Differential = +/- 10) M7 = 25 to 65% (Midpoint = 45, Set Point Differential = +/- 20) M8 = 45 to 51% (Midpoint = 48, Set Point Differential = +/- 3) M9 = 48 to 52% (Midpoint = 50, Set Point Differential = +/- 2) N1 = 46 to 54% (Midpoint = 50, Set Point Differential = +/- 4) N2 = 40 to 60% (Midpoint = 50, Set Point Differential = +/- 10) N3 = 35 to 65% (Midpoint = 50, Set Point Differential = +/- 15) N4 = 30 to 70% (Midpoint = 50, Set Point Differential = +/- 20) N5 = 35 to 75% (Midpoint = 55, Set Point Differential = +/- 20) N6 = 40 to 80% (Midpoint = 60, Set Point Differential = +/- 20) N7 = 45 to 79% (Midpoint = 62, Set Point Differential = +/- 17) N8 = 48 to 83% (Midpoint = 65, Set Point Differential = +/- 18) N9 = 57 to 77% (Midpoint = 67, Set Point Differential = +/- 10) O1 = 47 to 87% (Midpoint = 67, Set Point Differential = +/- 20) XX = No Set Point</p> | | |
| K. RH Set Point Output Signal: <i>Select One (1)</i> | <p>XX = No RH Set Point E0 = 2 to 10 VDC ZW = 0 to 20K Ohms A0 = 0 to 1 VDC F0 = 0 to 20 mA ZH = 10K to 30K Ohms B0 = 0 to 5 VDC G0 = 4 to 20 mA ZG = 10K to 20K Ohms C0 = 0 to 10 VDC ZY = 0 to 10K Ohms ZF = 2.49K to 3.49K Ohms D0 = 1 to 5 VDC</p> | | |
| L. Communication Jack Options: <i>Select One (1)</i> | <p>X = None 4 = 4 Pin 4 Conductor RJ9, RJ10, or RJ22 Style Head Set Modular Connector 6 = 6 Pin 6 Conductor RJ12 Modular Phone Connector 8 = 3.5mm (1/8") Stereo Jack</p> | | |
| M. Manufacturer Provided <i>No Selection Required</i> | X = Default → | | X |





RH LCD

Humidity Sensor with LCD

The ACI Relative Humidity with LCD utilizes a thermoset polymer capacitive sensing element with integral hydrophobic filter to deliver a proportional analog current or voltage output with long term reliability. The styling of the white, wall mounted enclosure with hinged cover makes it suitable for use in a wide variety of applications. The ACI RH LCD series products can be powered with either an AC or DC supply voltage and features a large, backlit display which improves the overall visibility of the display. Other features include onsite field calibration through a single point offset through the programming of the device using the integral keypad.

All units must be ordered with one of the supported output signals of 4-20 mA, 0-5 VDC, or 0-10 VDC. For additional options, including temperature, set point, override, fan and system settings, please see the A/TUCH2 product data sheet.

Applications: Local Humidity Display, Hospitals and Operating Rooms, Pharmaceutical Labs, Clean Rooms, ESD Static Control, Humidification, Dehumidification

The ACI RH LCD is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

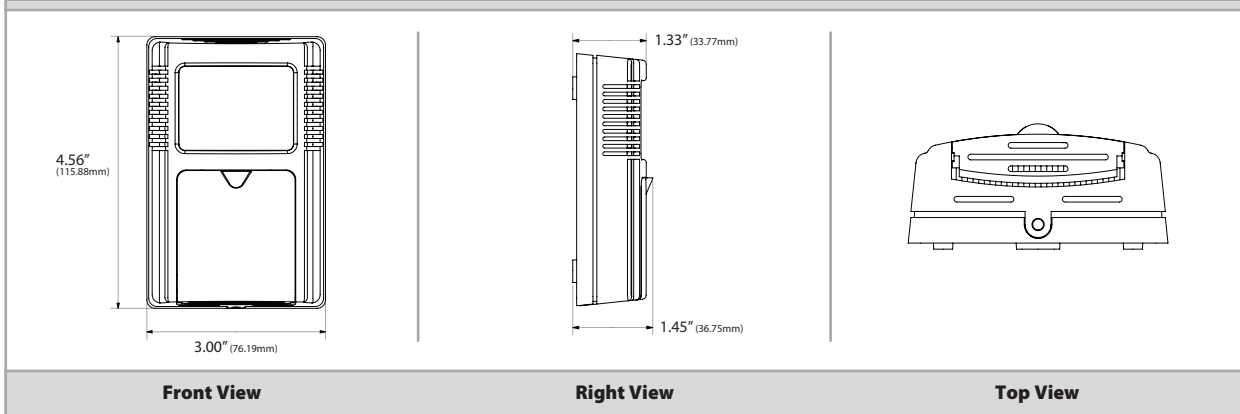
PRODUCT SPECIFICATIONS

| | |
|---|--|
| Supply Voltage: | +12-40 VDC (0-5V) +18-40 VDC (0-10V, 4 to 20 mA) 20-28 VAC (All Outputs) |
| Supply Current: | Current Output: 30 mA maximum Voltage Output: 16 mA maximum |
| Analog Outputs: | 0-5 VDC, 0-10 VDC, or 4-20 mA |
| RH Measurement Range: | 0% to 100% RH |
| RH Accuracy at 77°F (25°C): | +/- 2%, +/- 3%, +/- 5% from 10 to 95% RH |
| Operating Temperature Range: | 32°F to 104°F (0°C to 40°C) |
| Operating Relative Humidity Environment: | 0 to 95% Relative Humidity (non-condensing) |
| Sensor Type: | Capacitive |
| Product Dimensions: | (H) 4.56" (115.88 mm) x (W) 3.00" (76.19 mm) x (D) 1.45" (36.75 mm) |





DIMENSIONAL DRAWING



STANDARD ORDERING

Model # Example: **A/RH2-R-LCD-010** -OR- **131759**

| Model # | Item # | Description |
|------------------------|--------|---|
| A/RH2-R-LCD-010 | 131759 | Humidity, +/-2%, Room, Display, 0 to 10 VDC Output, 4 Button Membrane |
| A/RH2-R-LCD-05 | 131760 | Humidity, +/-2%, Room, Display, 0 to 5 VDC Output, 4 Button Membrane |
| A/RH2-R-LCD-420 | 131761 | Humidity, +/-2%, Room, Display, 4 to 20 mA Output, 4 Button Membrane |
| A/RH3-R-LCD-010 | 131765 | Humidity, +/-3%, Room, Display, 0 to 10 VDC Output, 4 Button Membrane |
| A/RH3-R-LCD-05 | 131217 | Humidity, +/-3%, Room, Display, 0 to 5 VDC Output, 4 Button Membrane |
| A/RH3-R-LCD-420 | 131715 | Humidity, +/-3%, Room, Display, 4 to 20 mA Output, 4 Button Membrane |
| A/RH5-R-LCD-010 | 142795 | Humidity, +/-5%, Room, Display, 0 to 10 VDC Output, 4 Button Membrane |
| A/RH5-R-LCD-05 | 131763 | Humidity, +/-5%, Room, Display, 0 to 5 VDC Output, 4 Button Membrane |
| A/RH5-R-LCD-420 | 131764 | Humidity, +/-5%, Room, Display, 4 to 20 mA Output, 4 Button Membrane |

Note: RH-LCD Model numbers come with a standard 4 Button Membrane (On/Off/Setup/Select)





RH DUCT

Relative Humidity, Duct



The ACI Relative Humidity Duct utilizes a thermoset polymer capacitive sensing element with a factory fitted hydrophobic filter to improve its moisture resistance. The sensing elements multilayer construction also provides excellent resistance in applications where dust, dirt, oils and common environmental chemicals are found. The RH duct sensors include on board DIP switches which allow the user to select the desired output signal and can be powered by AC or DC power sources. Each unit also contains 0%, 50%, and 100% test options to verify that the transmitter is both working and wired properly. Field calibration can be performed by using the increment and decrement calibration DIP switches without the need to replace the sensing element. These enhancements provide increased flexibility and outstanding long-term reliability without the need to replace the sensors in the field. Duct configurations feature a weatherproof Euro style enclosure with a gasketed cover and conformally coated circuit boards for increased moisture resistance in high humidity environments. The sensor is protected by a stainless-steel sintered filter. Three point NIST Calibration Certificates are available.

Applications: Humidification, Dehumidification, Supply / Discharge / Return Air, Economizers, Clean Rooms, Data Centers, Process Control, Schools, Hospitals, Office Buildings

The ACI RH Duct is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, workaci.com.

PRODUCT SPECIFICATIONS

| | |
|--|---|
| RH Supply Voltage (Reverse Polarity Protected): | 4-20 mA: 250 Ohm Load: 15 - 40 VDC / 18 - 28 VAC 500 Ohm Load: 18 - 40 VDC / 18 - 28 VAC 0-5 VDC: 12 - 40 VDC / 18 - 28 VAC 0-10 VDC: 18 - 40 VDC / 18 - 28 VAC |
| RH Supply Current (VA): | Voltage Output: 8 mA maximum (0.32 VA) Current Output: 24 mA maximum (0.83 VA) |
| RH Output Load Resistance: | 4-20 mA: 700 Ohms maximum 0-5 VDC or 0-10 VDC: 4K Ohms Minimum |
| RH Output Signal: | 2-wire: 4 - 20 mA (Factory Default) 3-wire: 0-5 or 0-10 VDC and 4 - 20 mA (Field Selectable) |
| RH Accuracy @ 77°F (25°C): | +/- 1% over 20% RH Range between 20 to 90% +/- 2%, 3%, or 5% from 10 to 95% |
| RH Measurement Range: | 0-100% |
| Operating RH Range: | 0 to 95% RH, non-condensing (Conformally Coated PCB's) |
| Operating Temperature Range: | -40 to 140°F (-40 to 60°C) |
| Storage Temperature Range: | -40 to 149°F (-40 to 65°C) |
| RH Stability Repeatability Sensitivity: | Less than 2% drift / 5 years 0.5% RH 0.1% RH |
| RH Response Time (T63): | 20 Seconds Typical |
| RH Sensor Type: | Capacitive with Hydrophobic Filter |
| RH Transmitter Stabilization Time: | 30 Minutes (Recommended time before doing accuracy verification) |
| RH Connections Wire Size: | Screw Terminal Blocks (Polarity Sensitive) 16 (1.31 mm ²) to 26 AWG (0.129 mm ²) |
| RH Terminal Block Torque Rating: | 4.43 to 5.31 lb-in (0.5 to 0.6 Nm) |
| RH NIST Test Points: | Default Test Points: 3 Points (20%, 50% & 80%) 1% NIST Test Points: 5 Points within selected 20% Range (ie. 30%-50% are 30, 35, 40, 45 & 50) |
| Enclosure Specifications (Material, Flammability, Temperature, NEMA/IP Rating): | "-EH" Enclosure: ABS Plastic UL94-V0 -40 to 140°F (-40 to 60°C) "-4X" Enclosure: Polystyrene Plastic UL94-V2 -40 to 158°F (-40 to 70°C) NEMA 4X (IP 66) "-BB" Enclosure: Aluminum -40 to 140°F (-40 to 60°C) |
| Sensing Tube Material Filter Material: | "-EH" Enclosure: 304 Series Stainless Steel 304 Series Stainless Steel "-4X" Enclosure: Schedule 40 PVC (White) Slotted PVC without filter "-BB" Enclosure: Schedule 40 PVC (White) Slotted PVC without filter |
| Sensing Tube Dimensions (Length x Diameter): | "-EH" Models with Sintered Filters: 7.75" (196.85 mm) x 0.75" (19.05 mm) "-4X" Models: 7.20" (182.88 mm) x 0.840" (21.34 mm) "-BB" Enclosure: 7.20" (182.88 mm) x 0.840" (21.34 mm) |
| Product Dimensions (L x W x H): | See drawings on back of data sheet |
| Product Weight: | A/RHx-D Series: 1.22 lbs. (0.55 kg) A/RHx-D-4X Series: 0.50 lbs. (0.227 kg) A/RHx-D-BB Series: 0.90 lbs. (0.41 kg) |
| Agency Approvals: | CE, RoHS2, WEEE |





DIMENSIONAL DRAWING

| Enclosure Type | Front View | Right View | Top View |
|---------------------------------|--|--|---|
| Euro Enclosure [EH] | <p>4.30" (109.22mm)</p> | <p>7.94" (201.60mm) Ø0.75" (19.05mm) 2.12" (53.72mm)</p> | |
| NEMA 4X Enclosure [4X] | <p>2.55" (64.77mm) 3.70" (93.98mm)</p> | <p>Ø1.16" (29.50mm) 2.23" (56.71mm) 7.19" (182.56)</p> | |
| NEMA 3R Enclosure [D-BB] | <p>[119.60] 4.70 [75] 2.95</p> | <p>[21.34] [29.54] Ø.84 1.16</p> | <p>[161.29] [180.09] 6.35 7.09 [57.93] 2.28</p> |
| | Front View | Right View | Top View |

STANDARD ORDERING

Model # Example: **A/RH1-D** -OR- **122531**

| Model # | Item # | Description |
|------------------------|--------|--|
| A/RH1-D | 122531 | RH Duct, +/- 1%, 4-20 mA Output (default), 0-5 VDC or 0-10 VDC (selectable), Euro Enclosure |
| A/RH1-D-NIST | 148178 | RH Duct, +/- 1%, 4-20 mA Output (default), 0-5 VDC or 0-10 VDC (selectable), Euro Enclosure, NIST Certificate |
| A/RH2-D | 122687 | RH Duct, +/- 2%, 4-20 mA Output (default), 0-5 VDC or 0-10 VDC (selectable), Euro Enclosure |
| A/RH2-D-4X | 122689 | RH Duct, +/- 2%, 4-20 mA Output (default), 0-5 VDC or 0-10 VDC (selectable), NEMA 4X Enclosure |
| A/RH2-D-BB | 122695 | RH Duct, +/- 2%, 4-20 mA Output (default), 0-5 VDC or 0-10 VDC (selectable), NEMA 3R Enclosure |
| A/RH2-D-NIST | 148181 | RH Duct, +/- 2%, 4-20 mA Output (default), 0-5 VDC or 0-10 VDC (selectable), Euro Enclosure, NIST Certificate |
| A/RH2-D-4X-NIST | 148183 | RH Duct, +/- 2%, 4-20 mA Output (default), 0-5 VDC or 0-10 VDC (selectable), NEMA 4X Enclosure, NIST Certificate |
| A/RH3-D | 122921 | RH Duct, +/- 3%, 4-20 mA Output (default), 0-5 VDC or 0-10 VDC (selectable), Euro Enclosure |
| A/RH3-D-4X | 122924 | RH Duct, +/- 3%, 4-20 mA Output (default), 0-5 VDC or 0-10 VDC (selectable), NEMA 4X Enclosure |
| A/RH3-D-BB | 122931 | RH Duct, +/- 3%, 4-20 mA Output (default), 0-5 VDC or 0-10 VDC (selectable), NEMA 3R Enclosure |
| A/RH3-D-NIST | 148182 | RH Duct, +/- 3%, 4-20 mA Output (default), 0-5 VDC or 0-10 VDC (selectable), Euro Enclosure, NIST Certificate |
| A/RH3-D-4X-NIST | 148184 | RH Duct, +/- 3%, 4-20 mA Output (default), 0-5 VDC or 0-10 VDC (selectable), NEMA 4X Enclosure, NIST Certificate |
| A/RH5-D | 123085 | RH Duct, +/- 5%, 4-20 mA Output (default), 0-5 VDC or 0-10 VDC (selectable), Euro Enclosure |



| CUSTOM ORDERING | | Model # Example: A/ RH1 D | MODEL # |
|--|--|---------------------------|---------|
| A. Sensor Series <i>No Selection Required</i> | A/ _____ → | A. B. C. D. | A/ |
| B. Accuracy <i>No Selection Required</i> | RH1 = +/-1% (Specify a 20% Range between 20 to 90% RH) RH2 = +/-2% RH3 = +/-3% RH5 = +/-5% | | |
| A. Configuration <i>Select One (1)</i> | D = Duct (Euro Enclosure) D-4X = Duct (NEMA 4X Enclosure) D-BB = Duct (NEMA 3R Enclosure) | | |
| D. Output Signal <i>Select One (1)</i> | ---- = 4 to 20 mA (Default) 0 to 10 VDC (Field Selectable) 0 to 5 VDC (Field Selectable) | | |
| E. NIST <i>Select One (1)</i> | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) | | |

Note: Outputs are field selectable between 4-20 mA, 0-5 VDC & 0-10 VDC

| ACCESSORIES ORDERING | | | Model # Example: A/SINTERED FILTER |
|----------------------|--------|---|------------------------------------|
| Model # | Item # | Description | |
| A/SINTERED FILTER | 143433 | 3/8" Sintered Filter for RH Duct/Stainless Plate/Remote Probe | |





RH DUCT

Relative Humidity, Duct, Thermistor



The ACI Relative Humidity with Thermistor Duct Series utilizes a thermoset polymer capacitive sensing element with a factory fitted hydrophobic filter to improve its moisture resistance. The sensing elements multilayer construction also provides excellent resistance in applications where dust, dirt, oils and common environmental chemicals are found. The RH duct sensors include on board DIP switches which allow the user to select the desired output signal and can be powered by AC or DC power sources. Each unit also contains 0%, 50%, and 100% test options to verify that the transmitter is both working and wired properly. Field calibration can be performed by using the increment and decrement calibration DIP switches without the need to replace the sensing element. These enhancements provide increased flexibility and outstanding long-term reliability without the need to replace the sensors in the field. Duct configurations feature a weatherproof Euro style enclosure with a gasketed cover and conformally coated circuit boards for increased moisture resistance in high humidity environments. The sensor is protected by a stainless-steel sintered filter. Three point NIST Calibration Certificates are available.

Applications: Humidification, Dehumidification, Supply / Discharge / Return Air, Economizers, Clean Rooms, Data Centers, Process Control, Schools, Hospitals, Office Buildings

The ACI RH Thermistor Duct is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, workaci.com.

PRODUCT SPECIFICATIONS

| | | |
|--|---|--|
| RH Supply Voltage (Reverse Polarity Protected): | 4-20 mA: 250 Ohm Load: 15 - 40 VDC / 18 - 28 VAC 500 Ohm Load: 18 - 40 VDC / 18 - 28 VAC 0-5 VDC: 12 - 40 VDC / 18 - 28 VAC 0-10 VDC: 18 - 40 VDC / 18 - 28 VAC | |
| RH Supply Current (VA): | Voltage Output: 8 mA maximum (0.32 VA) Current Output: 24 mA maximum (0.83 VA) | |
| RH Output Load Resistance: | 4-20 mA: 700 Ohms maximum 0-5 VDC or 0-10 VDC: 4K Ohms Minimum | |
| RH Output Signal: | 2-wire: 4 - 20 mA (Factory Default) 3-wire: 0-5 or 0-10 VDC and 4 - 20 mA (Field Selectable) | |
| RH Accuracy @ 77°F (25°C): | +/- 1% over 20% RH Range between 20 to 90% +/- 2%, 3%, or 5% from 10 to 95% | |
| RH Measurement Range: | 0-100% | |
| Operating RH Range: | 0 to 95% RH, non-condensing (Conformally Coated PCB's) | |
| Operating Temperature Range: | -40 to 140°F (-40 to 60°C) | |
| Storage Temperature Range: | -40 to 149°F (-40 to 65°C) | |
| RH Stability Repeatability Sensitivity: | Less than 2% drift / 5 years 0.5% RH 0.1% RH | |
| RH Response Time (T63): | 20 Seconds Typical | |
| RH Sensor Type: | Capacitive with Hydrophobic Filter | |
| RH Transmitter Stabilization Time: | 30 Minutes (Recommended time before doing accuracy verification) | |
| RH Connections Wire Size: | Screw Terminal Blocks (Polarity Sensitive) 16 (1.31 mm ²) to 26 AWG (0.129 mm ²) | |
| RH Terminal Block Torque Rating: | 4.43 to 5.31 lb-in (0.5 to 0.6 Nm) | |
| RH NIST Test Points: | Default Test Points: 3 Points (20%, 50% & 80%) 1% NIST Test Points: 5 Points within selected 20% Range (ie. 30%-50% are 30, 35, 40, 45 & 50) | |
| Nominal Thermistor Resistive Output @ 77°F (25°C) (Lead Wire Colors) Non-Linear NTC (Negative Temperature Coefficient): | RHx-1.8K Series: 1.8KΩ (Red/Yellow) RHx-3K Series: 3KΩ (White/Brown) RHx-AN Series (Type III): 10KΩ (White/White) RHx-AN-BC Series: 5.238KΩ (White/Yellow) RHx-CP Series (Type II): 10KΩ (White/Green) RHx-CSI Series: 10KΩ (Green/Yellow) | RHx-10KS Series: 10KΩ (White/Blue) RHx-10K-E1 Series: 10KΩ (Gray/Orange) RHx-20K Series: 20KΩ (Brown/Blue) RHx-50K Series: 50KΩ nominal (Brown/Yellow) RHx-100KS Series: 100KΩ (Black/Yellow) |
| Thermistor Accuracy 32-158°F (0-70°C): | +/- 0.36°F (0.2°C) except 10K-E1 Series: +/- 0.54°F (0.3°C) 1.8K Series: +/- 0.9°F (0.5°C) @ 77°F (25°C) & +/- 1.8°F (1.0°C) from 32 to 158°F (0 to 70°C) | |
| Thermistor Power Dissipation Constant: | 3 mW/°C except 1.8K Series: 1 mW/°C; 10K-E1 Series: 2 mW/°C | |
| Thermistor Sensor Response Time (T63): | 10 Second nominal | |
| Lead Wire Length Conductor Size: | 14" (35.6 cm) 22 AWG (0.65 mm) | |
| Insulation Rating: | Etched Teflon (PTFE) Colored Leads Mil Spec 16878/4 Type E | |
| Enclosure Specifications (Material, Flammability, Temperature, NEMA/IP Rating): | "-EH" Enclosure: ABS Plastic UL94-V0 -40 to 140°F (-40 to 60°C) "-4X" Enclosure: Polystyrene Plastic UL94-V2 -40 to 158°F (-40 to 70°C) NEMA 4X (IP 66) "-BB" Enclosure: Aluminum -40 to 140°F (-40 to 60°C) | |
| Sensing Tube Material Filter Material: | "-EH" Enclosure: 304 Series Stainless Steel 304 Series Stainless Steel "-4X" Enclosure: Schedule 40 PVC (White) Slotted PVC without filter "-BB" Enclosure: Schedule 40 PVC (White) Slotted PVC without filter | |
| Sensing Tube Dimensions (Length x Diameter): | "-EH" Models with Sintered Filters: 7.75" (196.85 mm) x 0.75" (19.05 mm) "-4X" Models: 7.20" (182.88 mm) x 0.840" (21.34 mm) "-BB" Enclosure: 7.20" (182.88 mm) x 0.840" (21.34 mm) | |
| Product Dimensions (L x W x H): | See drawings on back of data sheet | |





PRODUCT SPECIFICATIONS

| | |
|--------------------------|---|
| Product Weight: | A/RHx-xx-D Series: 1.22 lbs. (0.55 kg) A/RHx-xx-D-4X Series: 0.50 lbs. (0.227 kg) A/RHx-D-BB Series: 0.90 lbs. (0.41 kg) |
| Agency Approvals: | CE, RoHS2, WEEE |

DIMENSIONAL DRAWING

| | | |
|-------------------------------------|-------------------|-----------------|
| Euro Enclosure [EH] | | |
| NEMA 4X Enclosure [4X] | | |
| NEMA 3R Enclosure [D-BB] | | |
| Front View | Right View | Top View |

CUSTOM ORDERING

Model # Example: **A/** **RH2** **CP** **D** **NIST**

MODEL #

| | | |
|--|--|-------------------|
| A. Sensor Series No Selection Required | A/ | MODEL # A/ |
| B. Accuracy Select One (1) | RH1 = +/-1% (Specify a 20% Range between 20 to 90% RH) RH2 = +/-2% RH3 = +/-3% RH5 = +/-5% | |
| C. Temperature Sensor Select One (1) | 1.8K 3K 10KS AN (Type III) AN-BC CP (Type II) CSI 10K-E1 20K 50K 100KS | |
| D. Configuration Select One (1) | D = Duct (Euro Enclosure) D-4X = Duct (NEMA 4X Enclosure) D-BB = Duct (NEMA 3R Enclosure) | |
| E. Output Signal Select One (1) | ---- = 4 to 20 mA (Default) 0 to 10 VDC (Field Selectable) 0 to 5 VDC (Field Selectable) | |
| F. NIST (Temperature & RH) Select One (1) | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) | |

Note: Outputs are field selectable between 4-20 mA, 0-5 VDC & 0-10 VDC

ACCESSORIES ORDERING

Model # Example: **A/SINTERED FILTER**

| Model # | Item # | Description |
|-------------------|--------|---|
| A/SINTERED FILTER | 143433 | 3/8" Sintered Filter for RH Duct/Stainless Plate/Remote Probe |



RH DUCT

Relative Humidity, Duct, Platinum RTD



The ACI Relative Humidity with Platinum RTD Duct Series utilizes a thermoset polymer capacitive sensing element with a factory fitted hydrophobic filter to improve its moisture resistance. The sensing elements multilayer construction also provides excellent resistance in applications where dust, dirt, oils and common environmental chemicals are found. The RH duct sensors include on board DIP switches which allow the user to select the desired output signal and can be powered by AC or DC power sources. Each unit also contains 0%, 50%, and 100% test options to verify that the transmitter is both working and wired properly. Field calibration can be performed by using the increment and decrement calibration DIP switches without the need to replace the sensing element. These enhancements provide increased flexibility and outstanding long-term reliability without the need to replace the sensors in the field. Duct configurations feature a weatherproof Euro style enclosure with a gasketed cover and conformally coated circuit boards for increased moisture resistance in high humidity environments. The sensor is protected by a stainless-steel sintered filter. Three point NIST Calibration Certificates are available.

Applications: Humidification, Dehumidification, Supply / Discharge / Return Air, Economizers, Clean Rooms, Data Centers, Process Control, Schools, Hospitals, Office Buildings

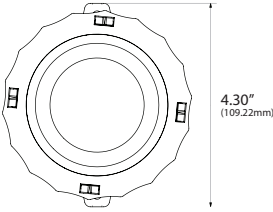
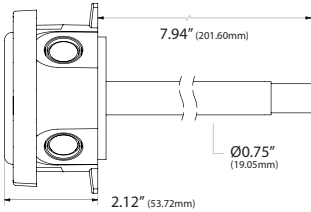
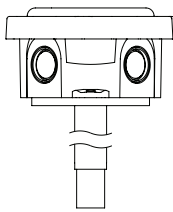
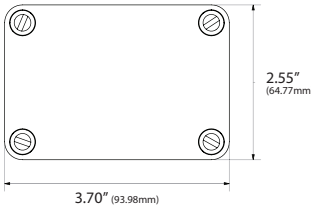
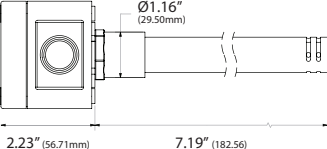
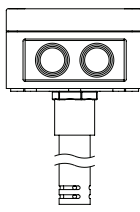
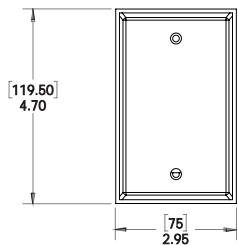
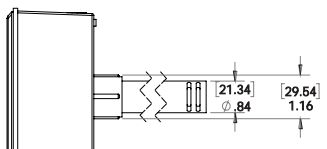
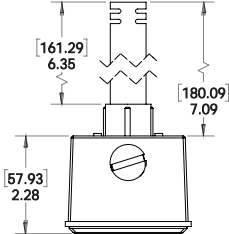
The ACI RH Platinum RTD Duct is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, workaci.com.

| PRODUCT SPECIFICATIONS | |
|--|---|
| RH Supply Voltage (Reverse Polarity Protected): | 4-20 mA: 250 Ohm Load: 15 - 40 VDC / 18 - 28 VAC 500 Ohm Load: 18 - 40 VDC / 18 - 28 VAC 0-5 VDC: 12 - 40 VDC / 18 - 28 VAC 0-10 VDC: 18 - 40 VDC / 18 - 28 VAC |
| RH Supply Current (VA): | Voltage Output: 8 mA maximum (0.32 VA) Current Output: 24 mA maximum (0.83 VA) |
| RH Output Load Resistance: | 4-20 mA: 700 Ohms maximum 0-5 VDC or 0-10 VDC: 4K Ohms Minimum |
| RH Output Signal: | 2-wire: 4 - 20 mA (Factory Default) 3-wire: 0-5 or 0-10 VDC and 4 - 20 mA (Field Selectable) |
| RH Accuracy @ 77°F (25°C): | +/- 1% over 20% RH Range between 20 to 90% +/- 2%, 3%, or 5% from 10 to 95% |
| RH Measurement Range: | 0-100% |
| Operating RH Range: | 0 to 95% RH, non-condensing (Conformally Coated PCB's) |
| Operating Temperature Range: | -40 to 140°F (-40 to 60°C) |
| Storage Temperature Range: | -40 to 149°F (-40 to 65°C) |
| RH Stability Repeatability Sensitivity: | Less than 2% drift / 5 years 0.5% RH 0.1% RH |
| RH Response Time (T63): | 20 Seconds Typical |
| RH Sensor Type: | Capacitive with Hydrophobic Filter |
| RH Transmitter Stabilization Time: | 30 Minutes (Recommended time before doing accuracy verification) |
| RH Connections Wire Size: | Screw Terminal Blocks (Polarity Sensitive) 16 (1.31 mm ²) to 26 AWG (0.129 mm ²) |
| RH Terminal Block Torque Rating: | 4.43 to 5.31 lb-in (0.5 to 0.6 Nm) |
| RH NIST Test Points: | Default Test Points: 3 Points (20%, 50% & 80%) 1% NIST Test Points: 5 Points within selected 20% Range (ie. 30%-50% are 30, 35, 40, 45 & 50) |
| Platinum RTD (PTC) Number Wires (Wire Colors): | RHx-100-2W Series: (Brown/Brown) & RHx-1K-2W Series: (Black/Black) RHx-100-3W Series: (Brown/Brown/Black) & RHx-1K-3W Series: (Black/Black/White) |
| Platinum RTD Output @ 32°F (0°C): | RHx-100-xW-D Series: 100 Ohms nominal RHx-1K-xW-D Series: 1000 Ohms nominal |
| Platinum RTD Tolerance Class: | +/-0.06% Class A Tolerance Formula: +/-°C = (0.15°C + (0.002 * t)) |
| Platinum RTD Din Standard: | DIN EN 60751 (IEC 751) |
| Temperature Coefficient: | 3850 ppm/°C |
| Platinum RTD Stability: | +/-0.03% after 1000 Hours @ 572°F (300°C) |
| Lead Wire Length Conductor Size: | 14" (35.6 cm) 22 AWG (0.65 mm) |
| Insulation Rating: | Etched Teflon (PTFE) Colored Leads Mil Spec 16878/4 Type E |
| Enclosure Specifications (Material, Flammability, Temperature, NEMA/IP Rating): | "-EH" Enclosure: ABS Plastic UL94-V0 -40 to 140°F (-40 to 60°C) "-4X" Enclosure: Polystyrene Plastic UL94-V2 -40 to 158°F (-40 to 70°C) NEMA 4X (IP 66) "-BB" Enclosure: Aluminum -40 to 140°F (-40 to 60°C) "EH" Enclosure: 304 Series Stainless Steel 304 Series Stainless Steel |
| Sensing Tube Material Filter Material: | "-4X" Enclosure: Schedule 40 PVC (White) Slotted PVC without filter "-BB" Enclosure: Schedule 40 PVC (White) Slotted PVC without filter "-EH" Models with Sintered Filters: 7.75" (196.85 mm) x 0.75" (19.05 mm) |
| Sensing Tube Dimensions (Length x Diameter): | "-4X" Models: 7.20" (182.88 mm) x 0.840" (21.34 mm) "-BB" Enclosure: 7.20" (182.88 mm) x 0.840" (21.34 mm) |
| Product Dimensions (L x W x H): | See drawings on back of data sheet |
| Product Weight: | A/RHx-xx-xW-D Series: 1.22 lbs. (0.55 kg) A/RHx-xx-xW-D-4X Series: 0.50 lbs. (0.227 kg) A/RHx-xx-xW-D-BB Series: 0.90 lbs. (0.41 kg) |
| Agency Approvals: | CE, RoHS2, WEEE |






DIMENSIONAL DRAWING

| | | |
|---|--|--|
| <p>Euro Enclosure [EH]</p>  |  |  |
| <p>NEMA 4X Enclosure [4X]</p>  |  |  |
| <p>NEMA 3R Enclosure [D-BB]</p>  |  |  |
| Front View | Right View | Top View |

CUSTOM ORDERING

Model # Example: **A/** **RH2** **1K** **2W** **D** **NIST**

MODEL #

| | | |
|--|--|----|
| A. Sensor Series No Selection Required | A/  | A/ |
| B. Accuracy Select One (1) | RH1 = +/-1% (Specify a 20% Range between 20 to 90% RH) RH2 = +/-2% RH3 = +/-3% RH5 = +/-5% | |
| C. Model Series Select One (1) | 100 = 100 Ohm Platinum RTD 1K = 1K Ohm Platinum RTD | |
| D. Number of Wires Select One (1) | 2W = Two Wires 3W = Three Wires | |
| E. Configuration Select One (1) | D = Duct (Euro Enclosure) D-4X = Duct (NEMA 4X Enclosure) D-BB = Duct (NEMA 3R Enclosure) | |
| F. Output Signal Select One (1) | ---- = 4 to 20 mA (Default) 0 to 10 VDC (Field Selectable) 0 to 5 VDC (Field Selectable) | |
| G. NIST (Temperature & RH) Select One (1) | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) | |

Note: Outputs are field selectable between 4-20 mA, 0-5 VDC & 0-10 VDC

ACCESSORIES ORDERING

Model # Example: **A/SINTERED FILTER**

| Model # | Item # | Description |
|-------------------|--------|---|
| A/SINTERED FILTER | 143433 | 3/8" Sintered Filter for RH Duct/Stainless Plate/Remote Probe |



RH DUCT

Relative Humidity, Duct, Nickel RTD



The ACI Relative Humidity with Nickel RTD Duct Series utilizes a thermoset polymer capacitive sensing element with a factory fitted hydrophobic filter to improve its moisture resistance. The sensing elements multilayer construction also provides excellent resistance in applications where dust, dirt, oils and common environmental chemicals are found. The RH duct sensors include on board DIP switches which allow the user to select the desired output signal and can be powered by AC or DC power sources. Each unit also contains 0%, 50%, and 100% test options to verify that the transmitter is both working and wired properly. Field calibration can be performed by using the increment and decrement calibration DIP switches without the need to replace the sensing element. These enhancements provide increased flexibility and outstanding long-term reliability without the need to replace the sensors in the field. Duct configurations feature a weatherproof Euro style enclosure with a gasketed cover and conformally coated circuit boards for increased moisture resistance in high humidity environments. The sensor is protected by a stainless-steel sintered filter. Three point NIST Calibration Certificates are available.

Applications: Humidification, Dehumidification, Supply / Discharge / Return Air, Economizers, Clean Rooms, Data Centers, Process Control, Schools, Hospitals, Office Buildings

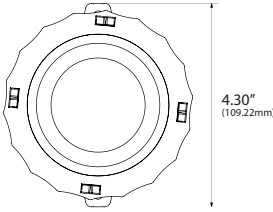
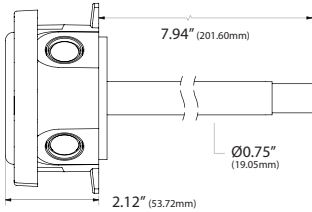
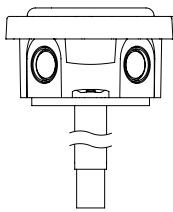
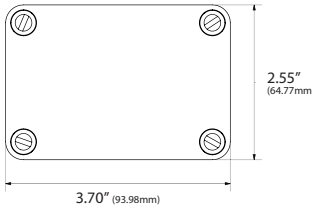
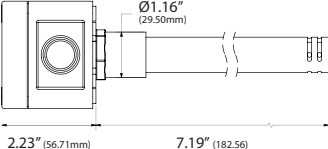
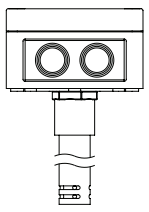
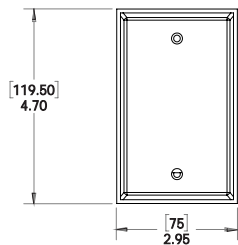
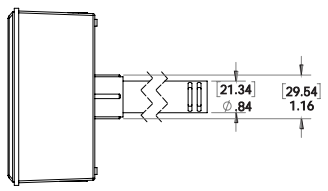
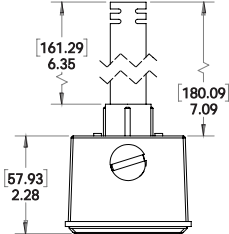
The ACI RH Nickel RTD Duct is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, workaci.com.

| PRODUCT SPECIFICATIONS | |
|--|---|
| RH Supply Voltage (Reverse Polarity Protected): | 4-20 mA: 250 Ohm Load: 15 - 40 VDC / 18 - 28 VAC 500 Ohm Load: 18 - 40 VDC / 18 - 28 VAC 0-5 VDC: 12 - 40 VDC / 18 - 28 VAC 0-10 VDC: 18 - 40 VDC / 18 - 28 VAC |
| RH Supply Current (VA): | Voltage Output: 8 mA maximum (0.32 VA) Current Output: 24 mA maximum (0.83 VA) |
| RH Output Load Resistance: | 4-20 mA: 700 Ohms maximum 0-5 VDC or 0-10 VDC: 4K Ohms Minimum |
| RH Output Signal: | 2-wire: 4 - 20 mA (Factory Default) 3-wire: 0-5 or 0-10 VDC and 4 - 20 mA (Field Selectable) |
| RH Accuracy @ 77°F (25°C): | +/- 1% over 20% RH Range between 20 to 90% +/- 2%, 3%, or 5% from 10 to 95% |
| RH Measurement Range: | 0-100% |
| Operating RH Range: | 0 to 95% RH, non-condensing (Conformally Coated PCB's) |
| Operating Temperature Range: | -40 to 140°F (-40 to 60°C) |
| Storage Temperature Range: | -40 to 149°F (-40 to 65°C) |
| RH Stability Repeatability Sensitivity: | Less than 2% drift / 5 years 0.5% RH 0.1% RH |
| RH Response Time (T63): | 20 Seconds Typical |
| RH Sensor Type: | Capacitive with Hydrophobic Filter |
| RH Transmitter Stabilization Time: | 30 Minutes (Recommended time before doing accuracy verification) |
| RH Connections Wire Size: | Screw Terminal Blocks (Polarity Sensitive) 16 (1.31 mm ²) to 26 AWG (0.129 mm ²) |
| RH Terminal Block Torque Rating: | 4.43 to 5.31 lb-in (0.5 to 0.6 Nm) |
| RH NIST Test Points: | Default Test Points: 3 Points (20%, 50% & 80%) 1% NIST Test Points: 5 Points within selected 20% Range (ie. 30%-50% are 30, 35, 40, 45 & 50) |
| Nickel RTD (PTC) Output @70°F (21.1°C) (Wire Colors): | RHx-1K-NI-D Series: 1000 Ohms nominal (1K-Nickel RTD) Red/Red |
| Nickel RTD Sensor Accuracy: | 32°F (0°C): +/-0.72°F (0.4°F); 70°F (21.1°C): +/-0.34°F (0.17°C); 130°F (54.4°C): +/-1.00°F (0.56°C) |
| Nickel RTD Din Standard: | Din 43760 |
| Temperature Coefficient: | 6370 ppm/ °C |
| Nickel RTD Stability: | +/-0.05% after 1000 Hours @ 302°F (150°C) |
| Lead Wire Length Conductor Size: | 14" (35.6 cm) 22 AWG (0.65 mm) |
| Insulation Rating: | Etched Teflon (PTFE) Colored Leads Mil Spec 16878/4 Type E |
| Enclosure Specifications (Material, Flammability, Temperature, NEMA/IP Rating): | "-EH" Enclosure: ABS Plastic UL94-V0 -40 to 140°F (-40 to 60°C) "-4X" Enclosure: Polystyrene Plastic UL94-V2 -40 to 158°F (-40 to 70°C) NEMA 4X (IP 66) "-BB" Enclosure: Aluminum -40 to 140°F (-40 to 60°C) |
| Sensing Tube Material Filter Material: | "-EH" Enclosure: 304 Series Stainless Steel 304 Series Stainless Steel "-4X" Enclosure: Schedule 40 PVC (White) Slotted PVC without filter "-BB" Enclosure: Schedule 40 PVC (White) Slotted PVC without filter |
| Sensing Tube Dimensions (Length x Diameter): | "-EH" Models with Sintered Filters: 7.75" (196.85 mm) x 0.75" (19.05 mm) "-4X" Models: 7.20" (182.88 mm) x 0.840" (21.34 mm) "-BB" Enclosure: 7.20" (182.88 mm) x 0.840" (21.34 mm) |
| Product Dimensions (L x W x H): | See drawings on back of data sheet |
| Product Weight: | A/RHx-1K-NI-D Series: 1.22 lbs. (0.55 kg) A/RHx-1K-NI-D-4X Series: 0.50 lbs. (0.227 kg) A/RHx-1K-NI-D-BB Series: 0.90 lbs. (0.41 kg) |
| Agency Approvals: | CE, RoHS2, WEEE |





DIMENSIONAL DRAWING

| | | |
|---|--|--|
| <p>Euro Enclosure [EH]</p>  |  |  |
| <p>NEMA 4X Enclosure [4X]</p>  |  |  |
| <p>NEMA 3R Enclosure [D-BB]</p>  |  |  |
| Front View | Right View | Top View |

CUSTOM ORDERING

Model # Example: **A/** **RH2** **1K-NI** **D** **NIST**

MODEL #

| | | |
|--|--|-------|
| A. Sensor Series No Selection Required | A/ | A/ |
| B. Accuracy Select One (1) | RH1 = +/-1% (Specify a 20% Range between 20 to 90% RH) RH2 = +/-2% RH3 = +/-3% RH5 = +/-5% | |
| C. Temperature Sensor No Selection Required | 1K-NI | 1K-NI |
| D. Configuration Select One (1) | D = Duct (Euro Enclosure) D-4X = Duct (NEMA 4X Enclosure) D-BB = Duct (NEMA 3R Enclosure) | |
| E. Output Signal Select One (1) | ---- = 4 to 20 mA (Default) 0 to 10 VDC (Field Selectable) 0 to 5 VDC (Field Selectable) | |
| F. NIST (Temperature & RH) Select One (1) | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) | |

Note: Outputs are field selectable between 4-20 mA, 0-5 VDC & 0-10 VDC

ACCESSORIES ORDERING

Model # Example: **A/SINTERED FILTER**

| Model # | Item # | Description |
|-------------------|--------|---|
| A/SINTERED FILTER | 143433 | 3/8" Sintered Filter for RH Duct/Stainless Plate/Remote Probe |



RH DUCT

Relative Humidity, Duct, Balco RTD



The ACI Relative Humidity with Balco RTD Duct Series utilizes a thermoset polymer capacitive sensing element with a factory fitted hydrophobic filter to improve its moisture resistance. The sensing elements multilayer construction also provides excellent resistance in applications where dust, dirt, oils and common environmental chemicals are found. The RH duct sensors include on board DIP switches which allow the user to select the desired output signal and can be powered by AC or DC power sources. Each unit also contains 0%, 50%, and 100% test options to verify that the transmitter is both working and wired properly. Field calibration can be performed by using the increment and decrement calibration DIP switches without the need to replace the sensing element. These enhancements provide increased flexibility and outstanding long-term reliability without the need to replace the sensors in the field. Duct configurations feature a weatherproof Euro style enclosure with a gasketed cover and conformally coated circuit boards for increased moisture resistance in high humidity environments. The sensor is protected by a stainless-steel sintered filter. Three point NIST Calibration Certificates are available.

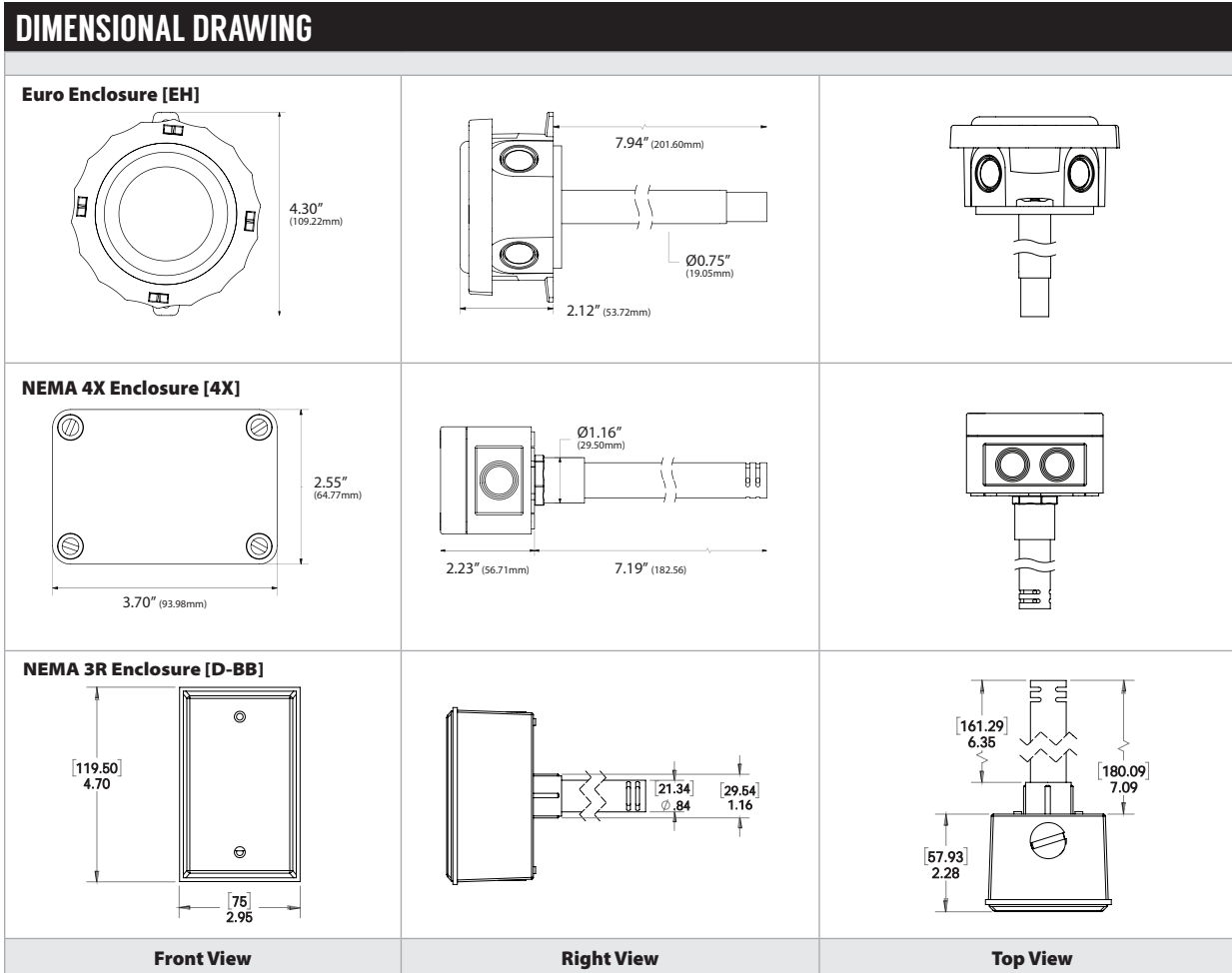
Applications: Humidification, Dehumidification, Supply / Discharge / Return Air, Economizers, Clean Rooms, Data Centers, Process Control, Schools, Hospitals, Office Buildings

The ACI RH Balco RTD Duct is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, workaci.com.

PRODUCT SPECIFICATIONS

| | |
|--|---|
| RH Supply Voltage (Reverse Polarity Protected): | 4-20 mA: 250 Ohm Load: 15 - 40 VDC / 18 - 28 VAC 500 Ohm Load: 18 - 40 VDC / 18 - 28 VAC 0-5 VDC: 12 - 40 VDC / 18 - 28 VAC 0-10 VDC: 18 - 40 VDC / 18 - 28 VAC |
| RH Supply Current (VA): | Voltage Output: 8 mA maximum (0.32 VA) Current Output: 24 mA maximum (0.83 VA) |
| RH Output Load Resistance: | 4-20 mA: 700 Ohms maximum 0-5 VDC or 0-10 VDC: 4K Ohms Minimum |
| RH Output Signal: | 2-wire: 4 - 20 mA (Factory Default) 3-wire: 0-5 or 0-10 VDC and 4 - 20 mA (Field Selectable) |
| RH Accuracy @ 77°F (25°C): | +/- 1% over 20% RH Range between 20 to 90% +/- 2%, 3%, or 5% from 10 to 95% |
| RH Measurement Range: | 0-100% |
| Operating RH Range: | 0 to 95% RH, non-condensing (Conformally Coated PCB's) |
| Operating Temperature Range: | -40 to 140°F (-40 to 60°C) |
| Storage Temperature Range: | -40 to 149°F (-40 to 65°C) |
| RH Stability Repeatability Sensitivity: | Less than 2% drift / 5 years 0.5% RH 0.1% RH |
| RH Response Time (T63): | 20 Seconds Typical |
| RH Sensor Type: | Capacitive with Hydrophobic Filter |
| RH Transmitter Stabilization Time: | 30 Minutes (Recommended time before doing accuracy verification) |
| RH Connections Wire Size: | Screw Terminal Blocks (Polarity Sensitive) 16 (1.31 mm ²) to 26 AWG (0.129 mm ²) |
| RH Terminal Block Torque Rating: | 4.43 to 5.31 lb-in (0.5 to 0.6 Nm) |
| RH NIST Test Points: | Default Test Points: 3 Points (20%, 50% & 80%) 1% NIST Test Points: 5 Points within selected 20% Range (ie. 30%-50% are 30, 35, 40, 45 & 50) |
| Balco RTD Output @ 70°F (21.1°C)(Wire Colors): | RHx-BALCO-D Series: 1000 Ohms nominal (Balco RTD) Orange/Yellow |
| Balco RTD Sensor Accuracy 70°F (21.1°C): | +/- 1.0% |
| Balco RTD Temperature Coefficient (0-100°C): | 4618 ppm/°C |
| Balco RTD Stability: | +/-0.05% after 1000 Hours @ 302°F (150°C) |
| Temperature Sensor Response Time (T63): | 10 Seconds nominal |
| Lead Wire Length Conductor Size: | 14" (35.6 cm) 22 AWG (0.65 mm) |
| Insulation Rating: | Etched Teflon (PTFE) Colored Leads Mil Spec 16878/4 Type E |
| Enclosure Specifications (Material, Flammability, Temperature, NEMA/IP Rating): | "-EH" Enclosure: ABS Plastic UL94-V0 -40 to 140°F (-40 to 60°C) "-4X" Enclosure: Polystyrene Plastic UL94-V2 -40 to 158°F (-40 to 70°C) NEMA 4X (IP 66) "-BB" Enclosure: Aluminum -40 to 140°F (-40 to 60°C) |
| Sensing Tube Material Filter Material: | "EH" Enclosure: 304 Series Stainless Steel 304 Series Stainless Steel "-4X" Enclosure: Schedule 40 PVC (White) Slotted PVC without filter "-BB" Enclosure: Schedule 40 PVC (White) Slotted PVC without filter |
| Sensing Tube Dimensions (Length x Diameter): | "-EH" Models with Sintered Filters: 7.75" (196.85 mm) x 0.75" (19.05 mm) "-4X" Models: 7.20" (182.88 mm) x 0.840" (21.34 mm) "-BB" Enclosure: 7.20" (182.88 mm) x 0.840" (21.34 mm) |
| Product Dimensions (L x W x H): | See drawings on back of data sheet |
| Product Weight: | A/RHx-BALCO-D Series: 1.22 lbs. (0.55 kg) A/RHx-BALCO-D-4X Series: 0.50 lbs. (0.227 kg) A/RHx-D-BB Series: 0.90 lbs. (0.41 kg) |
| Agency Approvals: | CE, RoHS2, WEEE |





| CUSTOM ORDERING | | Model # Example: A/ RH2 BALCO D E NIST | MODEL # |
|--|--|--|---------|
| A. Sensor Series No Selection Required | A/ _____ → | | A/ |
| B. Accuracy Select One (1) | RH1 = +/-1% (Specify a 20% Range between 20 to 90% RH) RH2 = +/-2% RH3 = +/-3% RH5 = +/-5% | | |
| C. Temperature Sensor No Selection Required | BALCO _____ → | | BALCO |
| D. Configuration Select One (1) | D = Duct (Euro Enclosure) D-4X = Duct (NEMA 4X Enclosure) D-BB = Duct (NEMA 3R Enclosure) | | |
| E. Output Signal Select One (1) | ---- = 4 to 20 mA (Default) 0 to 10 VDC (Field Selectable) 0 to 5 VDC (Field Selectable) | | |
| F. NIST (Temperature & RH) Select One (1) | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) | | |

Note: Outputs are field selectable between 4-20 mA, 0-5 VDC & 0-10 VDC

| ACCESSORIES ORDERING | | Model # Example: A/SINTERED FILTER |
|----------------------|--------|--|
| Model # | Item # | Description |
| A/SINTERED FILTER | 143433 | 3/8" Sintered Filter for RH Duct/Stainless Plate/Remote Probe |



RH TT DUCT



Relative Humidity (RH), Temperature Transmitter (TT)

The ACI Relative Humidity with Temperature Transmitter Duct Series utilizes a thermoset polymer capacitive sensing element with a factory fitted hydrophobic filter to improve its moisture resistance. The sensing elements multilayer construction also provides excellent resistance in applications where dust, dirt, oils and common environmental chemicals are found. The RH duct sensors include on board DIP switches which allow the user to select the desired output signal and can be powered by AC or DC power sources. Single point field calibration can be performed by using the increment and decrement calibration DIP switches to adjust your curve up or down in +/- 0.5% increments with each toggle of the corresponding switches. These enhancements provide increased flexibility and outstanding long-term reliability without the need to replace the sensors in the field. Duct configurations feature either a NEMA 4X or NEMA 3R enclosure and a conformally coated circuit

board for increased moisture resistance in high humidity environments. NIST Calibration Certificates (Temperature and RH) are included for all TTM RH part series.

Applications: Humidification, Dehumidification, Supply and Return RH sensors, Economizers, Clean Rooms, Data Centers, Process Control

The ACI RH TT Duct is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, workaci.com.

PRODUCT SPECIFICATIONS

| | |
|---|--|
| RH Supply Voltage (Reverse Polarity Protected): | 4-20 mA: 250 Ohm Load: 15 - 40 VDC / 18 - 28 VAC 500 Ohm Load: 18 - 40 VDC / 18 - 28 VAC 0-5 VDC: 12 - 40 VDC / 18 - 28 VAC 0-10 VDC: 18 - 40 VDC / 18 - 28 VAC |
| RH Supply Current (VA): | Voltage Output: 8 mA maximum (0.32 VA) Current Output: 24 mA maximum (0.83 VA) |
| RH Output Load Resistance: | 4-20 mA: 700 Ohms maximum 0-5 VDC or 0-10 VDC: 4K Ohms Minimum |
| RH Output Signal: | 2-wire: 4 - 20 mA (Factory Default) 3-wire: 0-5 or 0-10 VDC and 4 - 20 mA (Field Selectable) |
| RH Accuracy @ 77°F (25°C): | +/- 1% over 20% RH Range between 20 to 90% +/- 2%, 3%, or 5% from 10 to 95% |
| RH Measurement Range: | 0-100% |
| Operating RH Range: | 0 to 95% RH, non-condensing (Conformally Coated PCB's) |
| Operating Temperature Range: | -40 to 140°F (-40 to 60°C) |
| Storage Temperature Range: | -40 to 149°F (-40 to 65°C) |
| RH Stability Repeatability Sensitivity: | Less than 2% drift / 5 years 0.5% RH 0.1% RH |
| RH Response Time (T63): | 20 Seconds Typical |
| RH Sensor Type: | Capacitive with Hydrophobic Filter |
| RH Transmitter Stabilization Time: | 30 Minutes (Recommended time before doing accuracy verification) |
| RH Connections Wire Size: | Screw Terminal Blocks (Polarity Sensitive) 16 (1.31 mm ²) to 26 AWG (0.129 mm ²) |
| RH Terminal Block Torque Rating: | 4.43 to 5.31 lb-in (0.5 to 0.6 Nm) |
| RH NIST Test Points: | Default Test Points: 3 Points (20%, 50% & 80%) 1% NIST Test Points: 5 Points within selected 20% Range (ie. 30%-50% are 30, 35, 40, 45 & 50) |
| TT Supply Voltage Supply Current: | +8.5 to 32 VDC (Reverse Polarity Protected) 25 mA minimum 250 Ohm Load: +13.5 to 32 VDC 500 Ohm Load: +18.5 to 32 VDC |
| TT Maximum Load Resistance: | (Terminal Voltage - 8.5 V) 0.020 A |
| TT Output Signals: | Current Output: 4-20 mA (2-Wire Loop Powered) Voltage Output: 1-5 VDC/2-10 VDC (3-Wire) |
| TT Calibrated Accuracy Linearity ¹: | Temperature Spans < 500°F (260°C): +/- 0.2% Temp Spans > 500°F (260°C): +/- 0.5% |
| TT Temperature Drift ²: | Temperature Spans < 100°F (38°C): +/- 0.04%/°F Temp Spans > 100°F (38°C): +/- 0.02%/°F |
| TTM100/TTM1K Certification Points: | 3 Point NIST: 20%, 50%, 80% of span 5 Point NIST: 20%, 35%, 50%, 65%, 80% of span |
| TT Warm Up Time Warm Up Drift: | 10 Minutes +/- 0.1% |
| Transmitter Operating Temperature/RH Range: | -40 to 185°F (-40 to 85°C) / 0 to 90% RH, non-condensing |
| Platinum RTD (PTC) Number Wires Wire Colors: | Two A/TT100/TTM100 Series: Brown/Brown A/TT1K/TTM1K Series: Black/Black |
| Platinum RTD Sensor Output @ 32°F (0°C): | A/TT100/TTM100 Series: 100 Ohms Nominal A/TT1K/TTM1K Series: 1000 Ohms Nominal |
| Platinum RTD Tolerance Class Accuracy: | +/- 0.06% Class A Tolerance Formula: +/- °C = (0.15°C + (0.002 * t)) where t is the absolute value of Temperature above or below 0°C in °C |
| Platinum RTD Sensor Stability: | +/-0.03% after 1000 Hours @ 572°F (300°C) |
| Platinum RTD Response Time (63% Step Change): | 8 Seconds nominal |





PRODUCT SPECIFICATIONS

| | |
|--|---|
| Enclosure Specifications (Material, Flammability, Temperature, NEMA/IP Rating): | "-4X" Enclosure: Polystyrene Plastic; UL94-V2; -40 to 158°F (-40 to 70°C); NEMA 4X (IP 66) "-BB" Enclosure: Aluminum, -40 to 239°F (-40 to 110°C); NEMA 3R |
| Sensing Tube Dimensions: | 7.20" (182.88 mm) x 0.840" (21.34 mm) |
| Tube Material: | Slotted PVC without filter |
| Product Dimensions (L x W x D): | See drawings on back of data sheet |
| Product Weight: | A/RHx-TT-D-4X Series: 0.58 lbs. (0.263 kg) |
| Agency Approvals: | RoHS2, WEEE |

Note¹: A Transmitter is calibrated at 71°F (22°C) Nominal | **Note²:** Temperature Drift is referenced to 71°F nominal calibration temperature

DIMENSIONAL DRAWING

| | | |
|---------------------------|-------------------|-----------------|
| D-4X [NEMA 4X] | | |
| D-BB [NEMA 3R] | | |
| Front View | Right View | Top View |

CUSTOM ORDERING

| Model # Example: A/ RH2 TT1K D-4X 20 -200°F | | MODEL # | | | | |
|---|--|----------------|-----------|-----------|-----------|-----------|
| A. | B. | | C. | D. | E. | F. |
| A. Sensor Series No Selection Required | A/ → | | | | | A/ |
| B. Accuracy Select One (1) | RH1 = +/-1% (Specify a 20% Range between 20 to 90% RH) RH2 = +/-2% RH3 = +/-3% RH5 = +/-5% | | | | | |
| C. Model Series Select One (1) | TT100 = 100 Ohms TTM100 = Matched 100 Ohms (3 Point RH & Temperature NIST) TT1K = 1K Ohms TTM1K = Matched 1K Ohms (3 Point RH & Temperature NIST) | | | | | |
| D. Configuration Select One (1) | D-4X = Duct (NEMA 4X Enclosure) D-BB = Duct (NEMA 3R Enclosure) | | | | | |
| E. Transmitter Output Select One (1) | 4 = 4 to 20 mA 1 = 1 to 5 VDC* 2 = 2 to 10 VDC* | | | | | |
| F. Calibrated Span | Specify Span in °F or °C (Best Accuracy in 100°F Increments) | | | | | |

Note: A Temperature Transmitter Output of 1-5 VDC or 2-10 VDC would have a RH Output of 0-5 VDC or 0-10 VDC

ACCESSORIES ORDERING (NIST)

| Model # | Description |
|----------|--|
| -5PTNIST | TTM Calibration Certificate (5 Point NIST) |

Note: For TTM100 or TTM1K part numbers, the default NIST is 3 points | 5 points may be specified by using "-5PTNIST" at the end of any TTM part number.



RH OUTSIDE AIR

Relative Humidity, Outside Air

The ACI Relative Humidity Outside Air utilizes a thermoset polymer capacitive sensing element with factory applied hydrophobic filter to deliver a proportional analog current or voltage output signal. The hydrophobic filter provides added resistance to moisture, dust, and other chemicals for greater long term reliability. The RH Outside Air transmitter features integral DIP switches for field selection of the proper output signal and supply voltage to meet your applications requirements. Each unit also contains 0%, 50%, and 100% test options to verify that the transmitter is both working and wired properly. Field calibration also can be performed by using the increment and decrement calibration DIP switches without the need to replace the sensing element. These enhancements provide increased flexibility and outstanding

long-term reliability. Outside Air configurations feature a weatherproof Euro style enclosure with gasketed cover and conformally coated circuit boards for added moisture and chemical resistance. Three point NIST Calibration Certificates are available.

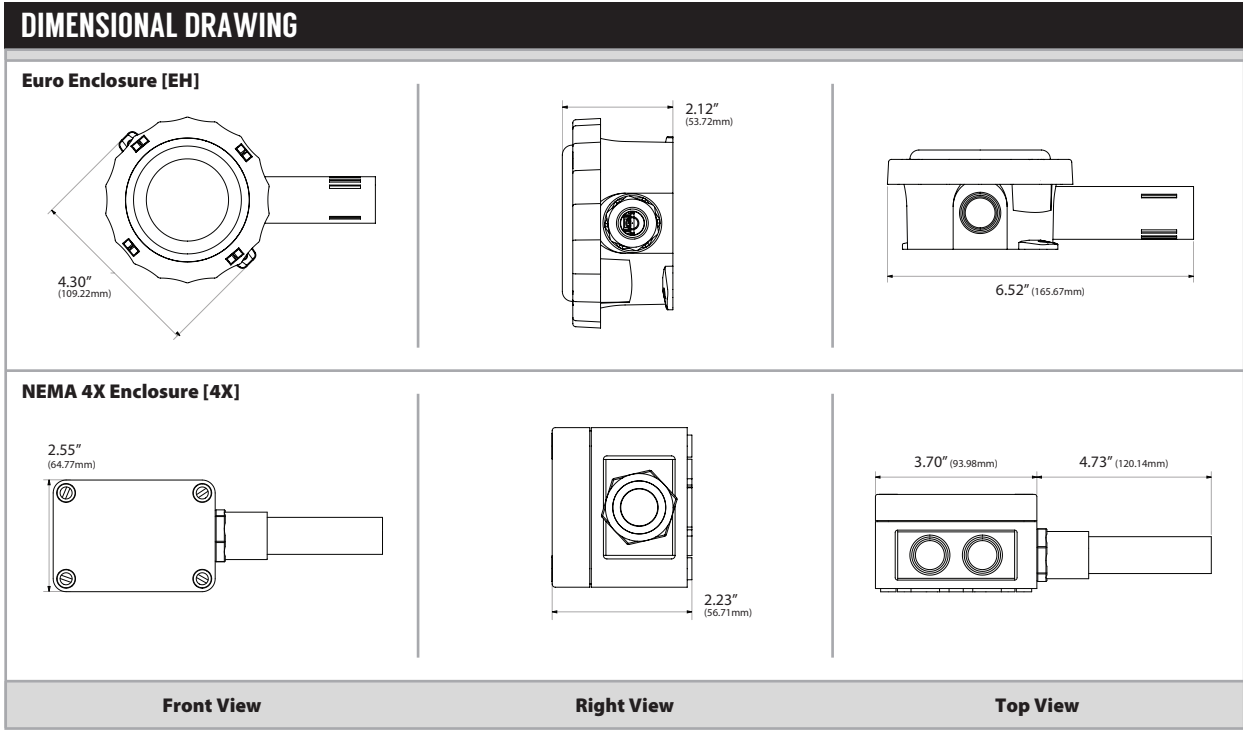
Applications: Monitor Outdoor Air Humidity, Economizer Control, Psychrometric calculations such as Enthalpy and Dew point, Wash down Applications

The ACI RH Outside Air is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|--|--|
| RH Supply Voltage (Reverse Polarity Protected): | 4-20 mA: 250 Ohm Load: 15 - 40 VDC / 18 - 28 VAC 500 Ohm Load: 18 - 40 VDC / 18 - 28 VAC 0-5 VDC: 12 - 40 VDC / 18 - 28 VAC 0-10 VDC: 18 - 40 VDC / 18 - 28 VAC |
| RH Supply Current (VA): | Voltage Output: 8 mA maximum (0.32 VA) Current Output: 24 mA maximum (0.83 VA) |
| RH Output Load Resistance: | 4-20 mA: 700 Ohms maximum 0-5 VDC or 0-10 VDC: 4K Ohms Minimum |
| RH Output Signal: | 2-wire: 4 - 20 mA (Factory Default) 3-wire: 0-5 or 0-10 VDC & 4 - 20 mA (Field Selectable) |
| RH Accuracy @ 77°F (25°C): | +/- 1% over 20% RH Range between 20 to 90% +/- 2%, 3%, or 5% from 10 to 95% |
| RH Measurement Range: | 0-100% |
| Operating RH Range: | 0 to 95% RH, non-condensing (Conformally Coated PCB's) |
| Operating Temperature Range: | -40 to 140°F (-40 to 60°C) |
| Storage Temperature Range: | -40 to 149°F (-40 to 65°C) |
| RH Stability Repeatability Sensitivity: | Less than 2% drift / 5 years 0.5% RH 0.1% RH |
| RH Response Time (T63): | 20 Seconds Typical |
| RH Sensor Type: | Capacitive with Hydrophobic Filter |
| RH Transmitter Stabilization Time: | 30 Minutes (Recommended time before doing accuracy verification) |
| RH Connections Wire Size: | Screw Terminal Blocks (Polarity Sensitive) 16 (1.31 mm ²) to 26 AWG (0.129 mm ²) |
| RH Terminal Block Torque Rating: | 4.43 to 5.31 lb-in (0.5 to 0.6 Nm) |
| RH NIST Test Points: | Default Test Points: 3 Points (20%, 50% & 80%) 1% NIST Test Points: 5 Points within selected 20% Range (ie. 30%-50% are 30, 35, 40, 45 & 50) |
| Enclosure Specifications (Material, Flammability, Temperature, NEMA/IP Rating): | "-EH" Enclosure: ABS Plastic; UL94-V0; -40 to 140°F (-40 to 60°C) "-4X" Enclosure: Polystyrene Plastic; UL94-V2; -40 to 158°F (-40 to 70°C); NEMA 4X (IP 66) |
| Sensing Tube Dimensions (Length x Diameter): | "-EH" Models: 3.00" (76.20 mm) x 1.125" (28.75 mm) "-4X" Models: 4.73" (120.14 mm) x 0.845" (21.46mm) |
| Product Dimensions (L x W x D): | See drawings on back of data sheet |
| Product Weight: | A/RHx-O Series: 0.59 lbs. (0.27 kg) A/RHx-O-4X Series: 0.45 lbs. (0.204 kg) |
| Agency Approvals: | CE, RoHS2, WEEE |





STANDARD ORDERING

Model # Example: **A/RH1-O** -OR- **122535**

| Model # | Item # | Description |
|------------------------|--------|---|
| A/RH1-O | 122535 | RH Outside Air, +/- 1%, 4-20 mA Output (default), 0-5 VDC or 0-10 VDC (selectable), Euro Enclosure |
| A/RH1-O-NIST | 148185 | RH Outside Air, +/- 1%, 4-20 mA Output (default), 0-5 VDC or 0-10 VDC (selectable), Euro Enclosure, NIST Certificate |
| A/RH2-O | 122701 | RH Outside Air, +/- 2%, 4-20 mA Output (default), 0-5 VDC or 0-10 VDC (selectable), Euro Enclosure |
| A/RH2-O-4X | 122704 | RH Outside Air, +/- 2%, 4-20 mA Output (default), 0-5 VDC or 0-10 VDC (selectable), NEMA 4X Enclosure |
| A/RH2-O-NIST | 148187 | RH Outside Air, +/- 2%, 4-20 mA Output (default), 0-5 VDC or 0-10 VDC (selectable), Euro Enclosure, NIST Certificate |
| A/RH2-O-4X-NIST | 148189 | RH Outside Air, +/- 2%, 4-20 mA Output (default), 0-5 VDC or 0-10 VDC (selectable), NEMA 4X Enclosure, NIST Certificate |
| A/RH3-O | 122936 | RH Outside Air, +/- 3%, 4-20 mA Output (default), 0-5 VDC or 0-10 VDC (selectable), Euro Enclosure |
| A/RH3-O-4X | 122940 | RH Outside Air, +/- 3%, 4-20 mA Output (default), 0-5 VDC or 0-10 VDC (selectable), NEMA 4X Enclosure |
| A/RH3-O-NIST | 148188 | RH Outside Air, +/- 3%, 4-20 mA Output (default), 0-5 VDC or 0-10 VDC (selectable), Euro Enclosure, NIST Certificate |
| A/RH3-O-4X-NIST | 148190 | RH Outside Air, +/- 3%, 4-20 mA Output (default), 0-5 VDC or 0-10 VDC (selectable), NEMA 4X Enclosure, NIST Certificate |
| A/RH5-O | 123095 | RH Outside Air, +/- 5%, 4-20 mA Output (default), 0-5 VDC or 0-10 VDC (selectable), Euro Enclosure |

CUSTOM ORDERING

Model # Example: **A/ RH1 O**

| | | MODEL # |
|--|---|-----------|
| A. Sensor Series No Selection Required | A/ | A/ |
| B. Accuracy Select One (1) | RH1 = +/-1% (Specify a 20% Range between 20 to 90% RH) RH2 = +/-2% RH3 = +/-3% RH5 = +/-5% | |
| C. Configuration Select One (1) | O = Outside Air (Euro Enclosure) O-4X = Outside Air (NEMA 4X Enclosure) | |
| D. Output Signal Select One (1) | ---- = 4 to 20 mA (Default) 0 = 0 to 10 VDC (Field Selectable) 0 = 0 to 5 VDC (Field Selectable) | |
| E. NIST (Temperature & RH) Select One (1) | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) | |

Note: Outputs are field selectable between 4-20 mA, 0-5 VDC & 0-10 VDC



RH OUTSIDE AIR

Relative Humidity, Outside Air, Thermistors

The ACI Relative Humidity with Thermistor Outside Air Series utilizes a thermoset polymer capacitive sensing element with factory applied hygroscopic filter to deliver a proportional analog current or voltage output signal. The hygroscopic filter provides added resistance to moisture, dust, and other chemicals for greater long term reliability. The RH Outside Air transmitter features integral DIP switches for field selection of the proper output signal and supply voltage to meet your applications requirements. Each unit also contains 0%, 50%, and 100% test options to verify that the transmitter is both working and wired properly. Field calibration also can be performed by using the increment and decrement calibration DIP switches without the need to replace the sensing element. These enhancements provide increased flexibility and outstanding long-term reliability. Outside Air configurations feature a

weatherproof Euro style enclosure with gasketed cover and conformally coated circuit boards for added moisture and chemical resistance. Three point NIST Calibration Certificates are available.

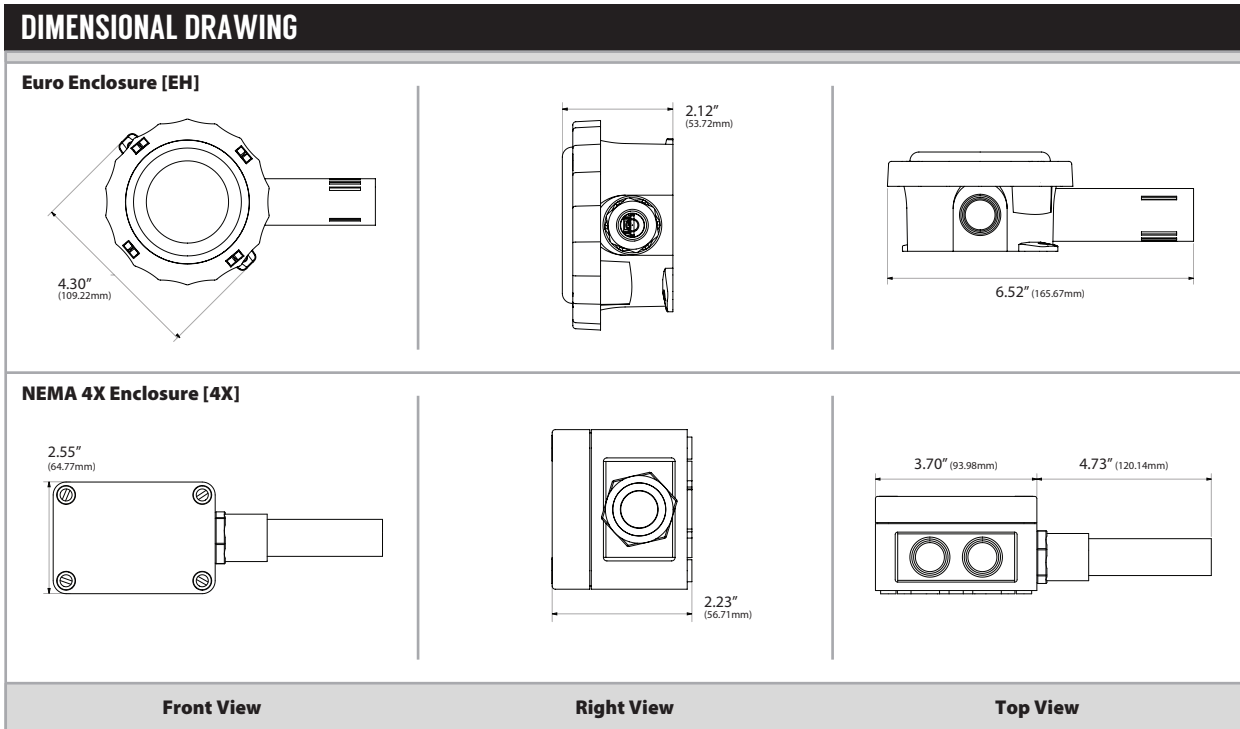
Applications: Monitor Outdoor Air Humidity, Economizer Control, Psychrometric calculations such as Enthalpy and Dew point, Wash down Applications

The ACI RH Thermistor Outside Air is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | | |
|--|--|--|
| RH Supply Voltage (Reverse Polarity Protected): | 4-20 mA: 250 Ohm Load: 15 - 40 VDC / 18 - 28 VAC 500 Ohm Load: 18 - 40 VDC / 18 - 28 VAC | |
| RH Supply Current (VA): | 0-5 VDC: 12 - 40 VDC / 18 - 28 VAC 0-10 VDC: 18 - 40 VDC / 18 - 28 VAC | |
| RH Output Load Resistance: | Voltage Output: 8 mA maximum (0.32 VA) Current Output: 24 mA maximum (0.83 VA) | |
| RH Output Signal: | 4-20 mA: 700 Ohms maximum 0-5 VDC or 0-10 VDC: 4K Ohms Minimum | |
| RH Accuracy @ 77°F (25°C): | 2-wire: 4 - 20 mA (Factory Default) 3-wire: 0-5 or 0-10 VDC and 4 - 20 mA (Field Selectable) | |
| RH Measurement Range: | +/- 1% over 20% RH Range between 20 to 90% +/- 2%, 3%, or 5% from 10 to 95% | |
| Operating RH Range: | 0-100% | |
| Operating Temperature Range: | 0 to 95% RH, non-condensing (Conformally Coated PCB's) | |
| Storage Temperature Range: | -40 to 140°F (-40 to 60°C) | |
| RH Stability Repeatability Sensitivity: | -40 to 149°F (-40 to 65°C) | |
| RH Response Time (T63): | Less than 2% drift / 5 years 0.5% RH 0.1% RH | |
| RH Sensor Type: | 20 Seconds Typical | |
| RH Transmitter Stabilization Time: | Capacitive with Hydrophobic Filter | |
| RH Connections Wire Size: | 30 Minutes (Recommended time before doing accuracy verification) | |
| RH Terminal Block Torque Rating: | Screw Terminal Blocks (Polarity Sensitive) 16 (1.31 mm ²) to 26 AWG (0.129 mm ²) | |
| RH NIST Test Points: | 4.43 to 5.31 lb-in (0.5 to 0.6 Nm) | |
| Nominal Thermistor Resistive Output @ 77°F (25°C) (Lead Wire Colors): | Default Test Points: 3 Points (20%, 50% & 80%) | |
| | 1% NIST Test Points: 5 Points within selected 20% Range (ie. 30%-50% are 30, 35, 40, 45 & 50) | |
| | RHx-1.8K Series: 1.8KΩ (Red/Yellow) | RHx-10KS Series: 10KΩ (White/Blue) |
| | RHx-3K Series: 3KΩ (White/Brown) | RHx-10K-E1 Series: 10KΩ (Gray/Orange) |
| | RHx-AN Series (Type III): 10KΩ (White/White) | RHx-20K Series: 20KΩ (Brown/Blue) |
| | RHx-AN-BC Series: 5.238KΩ (White/Yellow) | RHx-50K Series: 50KΩ nominal (Brown/Yellow) |
| | RHx-CP Series (Type II): 10KΩ (White/Green) | RHx-100KS Series: 100KΩ (Black/Yellow) |
| | RHx-CSI Series: 10KΩ (Green/Yellow) | |
| Thermistor Accuracy 32-158°F (0-70°C): | +/- 0.36°F (0.2°C) except 10K-E1 Series: +/- 0.54°F (0.3°C) | |
| Thermistor Power Dissipation Constant: | 1.8K Series: +/- 0.9°F (0.5°C) @ 77°F (25°C) & +/- 1.8°F (1.0°C) from 32 to 158°F (0 to 70°C) | |
| Thermistor Sensor Response Time (T63): | 3 mW/°C except 1.8K Series: 1 mW/°C; 10K-E1 Series: 2 mW/°C | |
| Lead Wire Length Conductor Size: | 10 Seconds nominal | |
| Insulation Rating: | 14" (35.6 cm) 22 AWG (0.65 mm) | |
| Enclosure Specifications (Material, Flammability, Temperature, NEMA/IP Rating): | Etched Teflon (PTFE) Colored Leads Mil Spec 16878/4 Type E | |
| Sensing Tube Dimensions (Length x Diameter): | "-EH" Enclosure: ABS Plastic; UL94-V0; -40 to 140°F (-40 to 60°C) | |
| | "-4X" Enclosure: Polystyrene Plastic; UL94-V2; -40 to 158°F (-40 to 70°C); NEMA 4X (IP 66) | |
| | "-EH" Models: 3.00" (76.20 mm) x 1.125" (28.75 mm) | |
| | "-4X" Models: 4.73" (120.14 mm) x 0.845" (21.46mm) | |
| Product Dimensions (L x W x D): | See drawings on back of data sheet | |
| Product Weight: | A/RHx-xx-O Series: 0.59 lbs. (0.27 kg) A/RHx-xx-O-4X Series: 0.45 lbs. (0.204 kg) | |
| Agency Approvals: | CE, RoHS2, WEEE | |





| CUSTOM ORDERING | | Model # Example: A/ RH2 CP O NIST | MODEL # |
|---|---|--|---------|
| | | A. B. C. D. E. F. | |
| A. Sensor Series <i>No Selection Required</i> | A/ → | | A/ |
| B. Accuracy <i>Select One (1)</i> | RH1 = +/-1% (Specify a 20% Range between 20 to 90% RH) RH2 = +/-2% RH3 = +/-3% RH5 = +/-5% | | |
| C. Temperature Sensor <i>Select One (1)</i> | 1.8K 3K 10KS AN (Type III) AN-BC CP (Type II) CSI 10K-E1 20K 50K 100KS | | |
| D. Configuration <i>Select One (1)</i> | O = Outside Air (Euro Enclosure) O-4X = Outside Air (NEMA 4X Enclosure) | | |
| E. Output Signal <i>Select One (1)</i> | ---- = 4 to 20 mA (Default) 0 to 10 VDC (Field Selectable) 0 to 5 VDC (Field Selectable) | | |
| F. NIST (Temperature & RH) <i>Select One (1)</i> | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) | | |

Note: Outputs are field selectable between 4-20 mA, 0-5 VDC & 0-10 VDC





RH OUTSIDE AIR

Relative Humidity, Outside Air, Platinum RTDs

The ACI Relative Humidity with Platinum RTD Outside Air Series utilizes a thermoset polymer capacitive sensing element with factory applied hygroscopic filter to deliver a proportional analog current or voltage output signal. The hygroscopic filter provides added resistance to moisture, dust, and other chemicals for greater long term reliability. The RH Outside Air transmitter features integral DIP switches for field selection of the proper output signal and supply voltage to meet your applications requirements. Each unit also contains 0%, 50%, and 100% test options to verify that the transmitter is both working and wired properly. Field calibration also can be performed by using the increment and decrement calibration DIP switches without the need to replace the sensing element. These enhancements provide increased flexibility and outstanding long-term reliability. Outside Air configurations feature a weatherproof Euro style enclosure with gasketed cover and conformally coated circuit boards for added moisture and chemical resistance. Three point NIST Calibration Certificates are available.

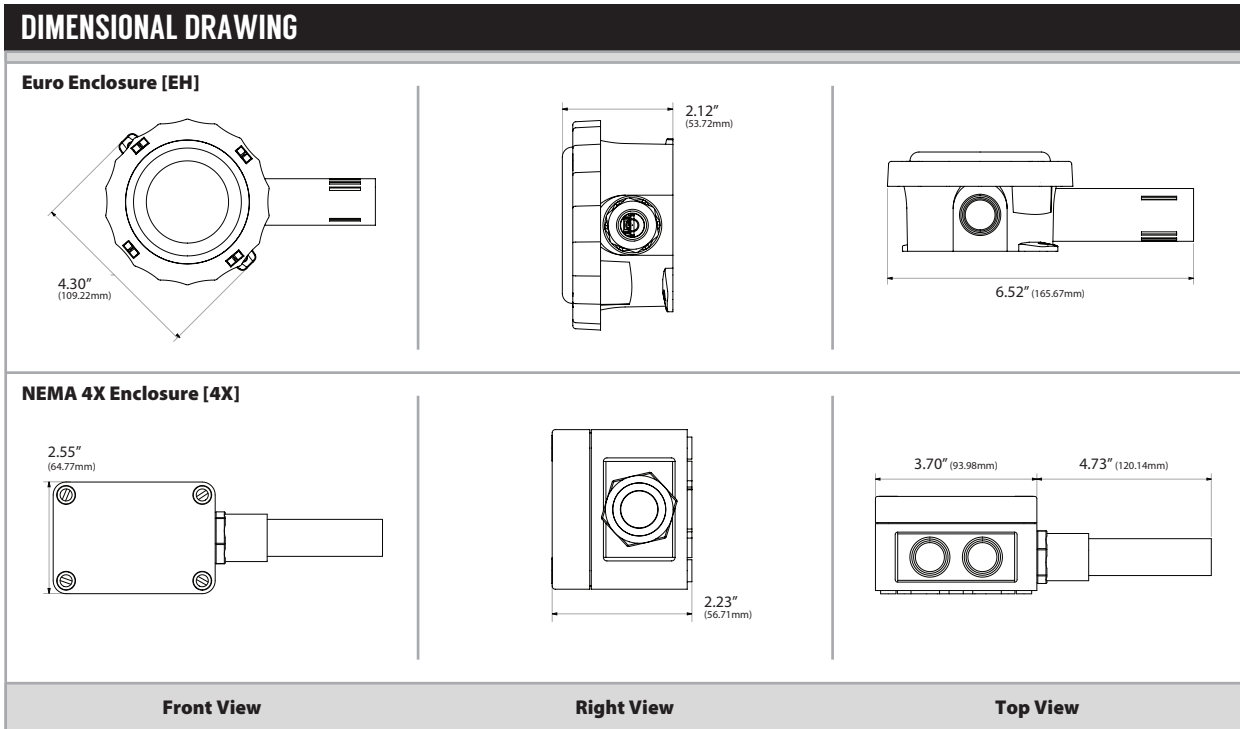
Applications: Monitor Outdoor Air Humidity, Economizer Control, Psychrometric calculations such as Enthalpy and Dew point, Wash down Applications

The ACI RH Platinum RTDs Outside Air is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|--|--|
| RH Supply Voltage (Reverse Polarity Protected): | 4-20 mA: 250 Ohm Load: 15 - 40 VDC / 18 - 28 VAC 500 Ohm Load: 18 - 40 VDC / 18 - 28 VAC |
| RH Supply Current (VA): | 0-5 VDC: 12 - 40 VDC / 18 - 28 VAC 0-10 VDC: 18 - 40 VDC / 18 - 28 VAC |
| RH Output Load Resistance: | Voltage Output: 8 mA maximum (0.32 VA) Current Output: 24 mA maximum (0.83 VA) |
| RH Output Signal: | 4-20 mA: 700 Ohms maximum 0-5 VDC or 0-10 VDC: 4K Ohms Minimum |
| RH Accuracy @ 77°F (25°C): | 2-wire: 4 - 20 mA (Factory Default) 3-wire: 0-5 or 0-10 VDC & 4 - 20 mA (Field Selectable) |
| RH Measurement Range: | +/- 1% over 20% RH Range between 20 to 90% +/- 2%, 3%, or 5% from 10 to 95% |
| Operating RH Range: | 0-100% |
| Operating Temperature Range: | 0 to 95% RH, non-condensing (Conformally Coated PCB's) |
| Storage Temperature Range: | -40 to 140°F (-40 to 60°C) |
| RH Stability Repeatability Sensitivity: | -40 to 149°F (-40 to 65°C) |
| RH Response Time (T63): | Less than 2% drift / 5 years 0.5% RH 0.1% RH |
| RH Sensor Type: | 20 Seconds Typical |
| RH Transmitter Stabilization Time: | Capacitive with Hydrophobic Filter |
| RH Connections Wire Size: | 30 Minutes (Recommended time before doing accuracy verification) |
| RH Terminal Block Torque Rating: | Screw Terminal Blocks (Polarity Sensitive) 16 (1.31 mm ²) to 26 AWG (0.129 mm ²) |
| RH NIST Test Points: | 4.43 to 5.31 lb-in (0.5 to 0.6 Nm) |
| Platinum RTD (PTC) Number Wires (Wire Colors): | Default Test Points: 3 Points (20%, 50% & 80%) 1% NIST Test Points: 5 Points within selected 20% Range (ie. 30%-50% are 30, 35, 40, 45 & 50) |
| Platinum RTD Output @ 32°F (0°C): | RHx-100-2W Series: (Brown/Brown) & RHx-1K-2W Series: (Black/Black) RHx-100-3W Series: (Brown/Brown/Black) & RHx-1K-3W Series: (Black/Black/White) |
| Platinum RTD Tolerance Class: | RHx-100-xW-O Series: 100 Ohms nominal RHx-1K-xW-O Series: 1000 Ohms nominal |
| Platinum RTD Din Standard: | +/- 0.06% Class A Tolerance Formula: +/-°C = (0.15°C + (0.002 * t)) |
| Temperature Coefficient: | DIN EN 60751 (IEC 751) |
| Platinum RTD Stability: | 3850 ppm/°C |
| Lead Wire Length Conductor Size: | +/- 0.03% after 1000 Hours @ 572°F (300°C) |
| Insulation Rating: | 14" (35.6 cm) 22 AWG (0.65 mm) |
| Enclosure Specifications (Material, Flammability, Temperature, NEMA/IP Rating): | Etched Teflon (PTFE) Colored Leads Mil Spec 16878/4 Type E |
| Sensing Tube Dimensions (Length x Diameter): | "-EH" Enclosure: ABS Plastic; UL94-V0; -40 to 140°F (-40 to 60°C) "-4X" Enclosure: Polystyrene Plastic; UL94-V2; -40 to 158°F (-40 to 70°C); NEMA 4X (IP 66) |
| Product Dimensions (L x W x D): | "-EH" Models: 3.00" (76.20 mm) x 1.12" (28.75 mm) "-4X" Models: 4.73" (120.14 mm) x 0.84" (21.46 mm) |
| Product Weight: | See drawings on back of data sheet |
| Agency Approvals: | A/RHx-xx-xW-O Series: 0.59 lbs. (0.27 kg) A/RHx-xx-xW-O-4X Series: 0.45 lbs. (0.204 kg) CE, RoHS2, WEEE |





| CUSTOM ORDERING | | Model # Example: A/ RH2 100 2W O NIST | MODEL # |
|---|---|--|---------|
| | | A. B. C. D. E. F. G. | |
| A. Sensor Series <i>No Selection Required</i> | A/ → | | A/ |
| B. Accuracy <i>Select One (1)</i> | RH1 = +/-1% (Specify a 20% Range between 20 to 90% RH) RH2 = +/-2% RH3 = +/-3% RH5 = +/-5% | | |
| C. Model Series <i>Select One (1)</i> | 100 = 100 Ohm Platinum RTD 1K = 1K Ohm Platinum RTD | | |
| D. Number of Wires <i>Select One (1)</i> | 2W = Two Wires 3W = Three Wires | | |
| E. Configuration <i>Select One (1)</i> | O = Outside Air (Euro Enclosure) O-4X = Outside Air (NEMA 4X Enclosure) | | |
| F. Output Signal <i>Select One (1)</i> | --- = 4 to 20 mA (Default) 0 to 10 VDC (Field Selectable) 0 to 5 VDC (Field Selectable) | | |
| G. NIST (Temperature & RH) <i>Select One (1)</i> | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) | | |

Note: Outputs are field selectable between 4-20 mA, 0-5 VDC & 0-10 VDC





RH OUTSIDE AIR

Relative Humidity, Outside Air, Nickel RTD

The ACI Relative Humidity with Nickel RTD Outside Air Series utilizes a thermoset polymer capacitive sensing element with factory applied hygroscopic filter to deliver a proportional analog current or voltage output signal. The hygroscopic filter provides added resistance to moisture, dust, and other chemicals for greater long term reliability. The RH Outside Air transmitter features integral DIP switches for field selection of the proper output signal and supply voltage to meet your applications requirements. Each unit also contains 0%, 50%, and 100% test options to verify that the transmitter is both working and wired properly. Field calibration also can be performed by using the increment and decrement calibration DIP switches without the need to replace the sensing element. These enhancements provide

increased flexibility and outstanding long-term reliability. Outside Air configurations feature a weatherproof Euro style enclosure with gasketed cover and conformally coated circuit boards for added moisture and chemical resistance. Three point NIST Calibration Certificates are available.

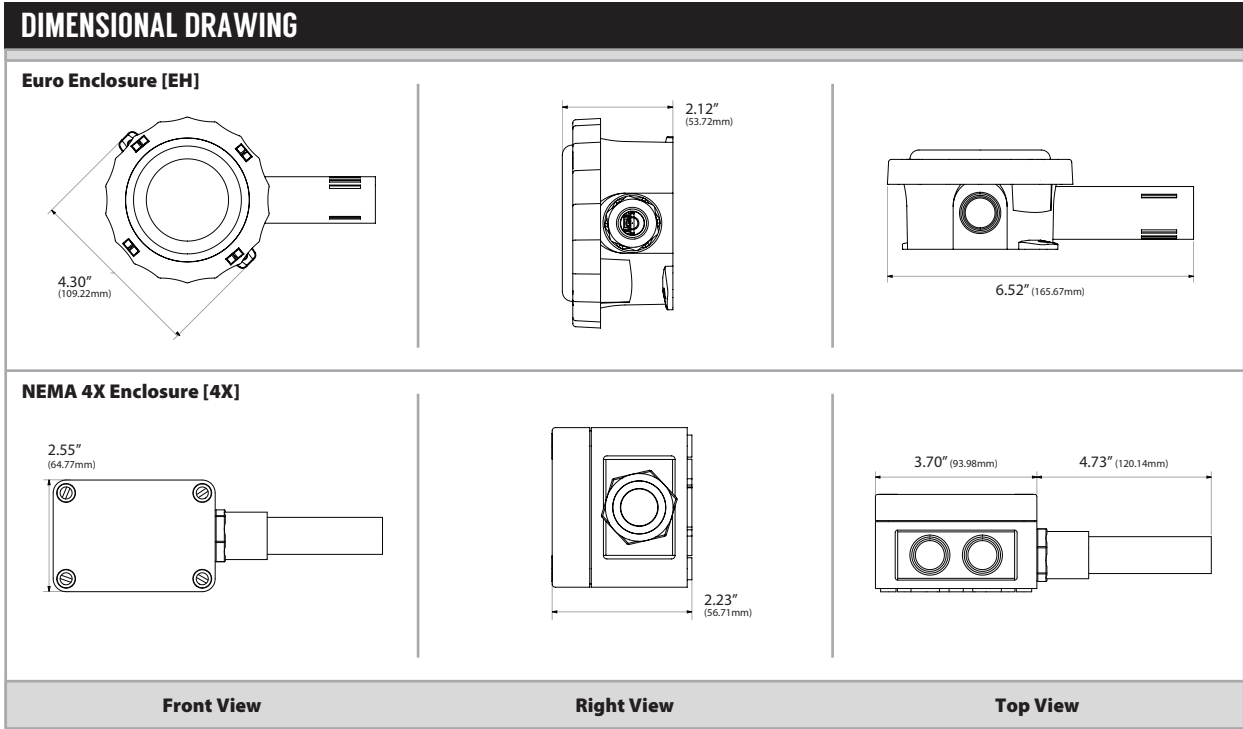
Applications: Monitor Outdoor Air Humidity, Economizer Control, Psychrometric calculations such as Enthalpy and Dew point, Wash down Applications

The ACI RH Nickel RTD Outside Air is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|--|---|
| RH Supply Voltage | 4-20 mA: 250 Ohm Load: 15 - 40 VDC / 18 - 28 VAC 500 Ohm Load: 18 - 40 VDC / 18 - 28 VAC |
| (Reverse Polarity Protected): | 0-5 VDC: 12 - 40 VDC / 18 - 28 VAC 0-10 VDC: 18 - 40 VDC / 18 - 28 VAC |
| RH Supply Current (VA): | Voltage Output: 8 mA maximum (0.32 VA) Current Output: 24 mA maximum (0.83 VA) |
| RH Output Load Resistance: | 4-20 mA: 700 Ohms maximum 0-5 VDC or 0-10 VDC: 4K Ohms Minimum |
| RH Output Signal: | 2-wire: 4 - 20 mA (Factory Default) 3-wire: 0-5 or 0-10 VDC and 4 - 20 mA (Field Selectable) |
| RH Accuracy @ 77°F (25°C): | +/- 1% over 20% RH Range between 20 to 90% +/- 2%, 3%, or 5% from 10 to 95% |
| RH Measurement Range: | 0-100% |
| Operating RH Range: | 0 to 95% RH, non-condensing (Conformally Coated PCB's) |
| Operating Temperature Range: | -40 to 140°F (-40 to 60°C) |
| Storage Temperature Range: | -40 to 149°F (-40 to 65°C) |
| RH Stability Repeatability Sensitivity: | Less than 2% drift / 5 years 0.5% RH 0.1% RH |
| RH Response Time (T63): | 20 Seconds Typical |
| RH Sensor Type: | Capacitive with Hydrophobic Filter |
| RH Transmitter Stabilization Time: | 30 Minutes (Recommended time before doing accuracy verification) |
| RH Connections Wire Size: | Screw Terminal Blocks (Polarity Sensitive) 16 (1.31 mm ²) to 26 AWG (0.129 mm ²) |
| RH Terminal Block Torque Rating: | 4.43 to 5.31 lb-in (0.5 to 0.6 Nm) |
| RH NIST Test Points: | Default Test Points: 3 Points (20%, 50% & 80%) 1% NIST Test Points: 5 Points within selected 20% Range (ie. 30%-50% are 30, 35, 40, 45 & 50) |
| Nickel RTD (PTC) Output @ 70°F (21.1°C) | RHx-1K-NI-O Series: 1000 Ohms nominal (1K-Nickel RTD) Red/Red |
| (Wire Colors): | |
| Nickel RTD Sensor Accuracy: | 32°F (0°C): +/-0.72°F (0.4°F); 70°F (21.1°C): +/-0.34°F (0.17°C); 130°F (54.4°C): +/-1.00°F (0.56°C) |
| Nickel Din Standard: | Din 43760 |
| Temperature Coefficient (0-100°C): | 6370 ppm/°C |
| Nickel RTD Stability: | +/-0.05% after 1000 Hours @ 302°F (150°C) |
| Lead Wire Length Conductor Size: | 14" (35.6 cm) 22 AWG (0.65 mm) |
| Insulation Rating: | Etched Teflon (PTFE) Colored Leads Mil Spec 16878/4 Type E |
| Enclosure Specifications (Material, Flammability, Temperature, NEMA/IP Rating): | "-EH" Enclosure: ABS Plastic; UL94-V0; -40 to 140°F (-40 to 60°C) "-4X" Enclosure: Polystyrene Plastic; UL94-V2; -40 to 158°F (-40 to 70°C); NEMA 4X (IP 66) |
| Sensing Tube Dimensions (Length x Diameter): | "-EH" Models: 3.00" (76.20 mm) x 1.125" (28.75 mm) "-4X" Models: 4.73" (120.14 mm) x 0.845" (21.46mm) |
| Product Dimensions (L x W x D): | See drawings on back of data sheet |
| Product Weight: | A/RHx-1K-NI-O Series: 0.59 lbs. (0.27 kg) A/RHx-1K-NI-O-4X Series: 0.45 lbs. (0.204 kg) |
| Agency Approvals: | CE, RoHS2, WEEE |





| CUSTOM ORDERING | | Model # Example: A/ RH2 1K-NI O NIST | MODEL # |
|---|---|---|---------|
| | | A. B. C. D. E. F. | |
| A. Sensor Series <i>No Selection Required</i> | A/ —————→ | | A/ |
| B. Accuracy <i>Select One (1)</i> | RH1 = +/-1% (Specify a 20% Range between 20 to 90% RH) RH2 = +/-2% RH3 = +/-3% RH5 = +/-5% | | |
| C. Temperature Sensor <i>No Selection Required</i> | 1K-NI —————→ | | 1K-NI |
| D. Configuration <i>Select One (1)</i> | O = Outside Air (Euro Enclosure) O-4X = Outside Air (NEMA 4X Enclosure) | | |
| E. Output Signal <i>Select One (1)</i> | ---- = 4 to 20 mA (Default) 0 to 10 VDC (Field Selectable) 0 to 5 VDC (Field Selectable) | | |
| F. NIST (Temperature & RH) <i>Select One (1)</i> | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) | | |

Note: Outputs are field selectable between 4-20 mA, 0-5 VDC & 0-10 VDC



RH OUTSIDE AIR

Relative Humidity, Outside Air, Balco RTD

The ACI Relative Humidity with Balco RTD Outside Air Series utilizes a thermoset polymer capacitive sensing element with factory applied hygroscopic filter to deliver a proportional analog current or voltage output signal. The hygroscopic filter provides added resistance to moisture, dust, and other chemicals for greater long term reliability. The RH Outside Air transmitter features integral DIP switches for field selection of the proper output signal and supply voltage to meet your applications requirements. Each unit also contains 0%, 50%, and 100% test options to verify that the transmitter is both working and wired properly. Field calibration also can be performed by using the increment and decrement calibration DIP switches without the need to replace the sensing element. These enhancements provide

increased flexibility and outstanding long-term reliability. Outside Air configurations feature a weatherproof Euro style enclosure with gasketed cover and conformally coated circuit boards for added moisture and chemical resistance. Three point NIST Calibration Certificates are available.

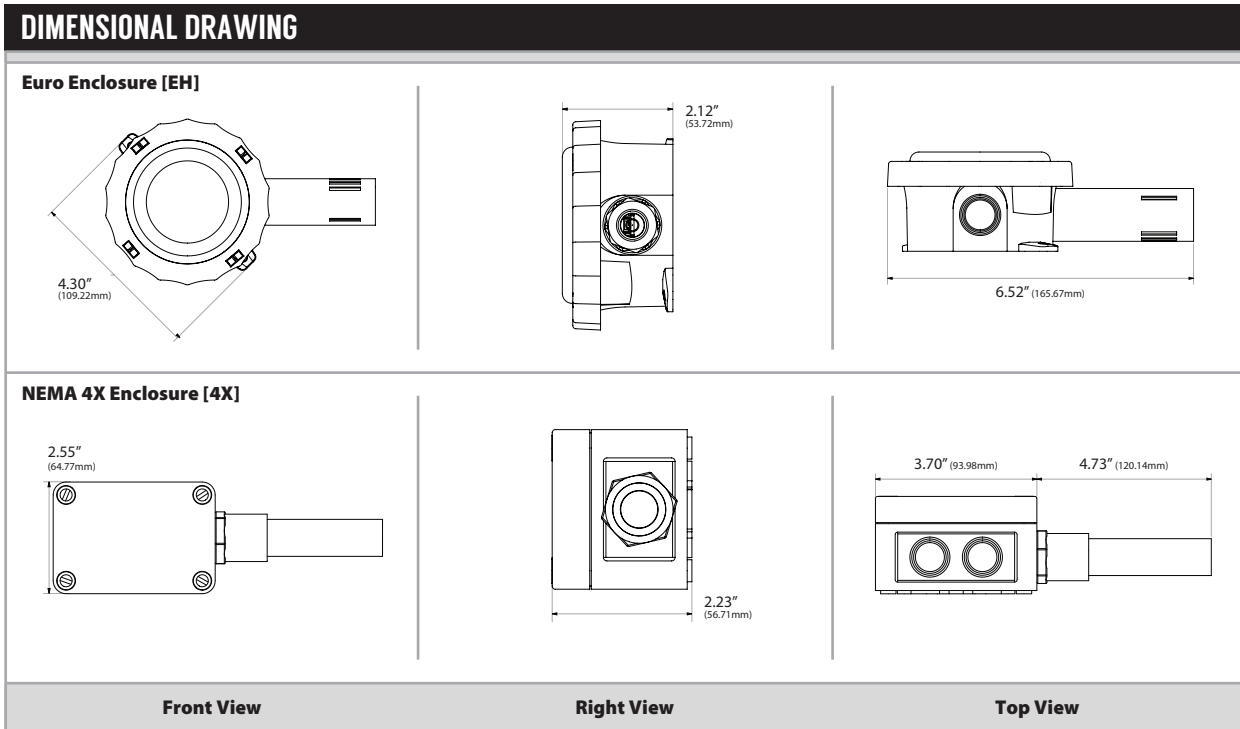
Applications: Monitor Outdoor Air Humidity, Economizer Control, Psychrometric calculations such as Enthalpy and Dew point, Wash down Applications

The ACI RH Balco RTD Outside Air is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|--|---|
| RH Supply Voltage | 4-20 mA: 250 Ohm Load: 15 - 40 VDC / 18 - 28 VAC 500 Ohm Load: 18 - 40 VDC / 18 - 28 VAC |
| (Reverse Polarity Protected): | 0-5 VDC: 12 - 40 VDC / 18 - 28 VAC 0-10 VDC: 18 - 40 VDC / 18 - 28 VAC |
| RH Supply Current (VA): | Voltage Output: 8 mA maximum (0.32 VA) Current Output: 24 mA maximum (0.83 VA) |
| RH Output Load Resistance: | 4-20 mA: 700 Ohms maximum 0-5 VDC or 0-10 VDC: 4K Ohms Minimum |
| RH Output Signal: | 2-wire: 4 - 20 mA (Factory Default) 3-wire: 0-5 or 0-10 VDC and 4 - 20 mA (Field Selectable) |
| RH Accuracy @ 77°F (25°C): | +/- 1% over 20% RH Range between 20 to 90% +/- 2%, 3%, or 5% from 10 to 95% |
| RH Measurement Range: | 0-100% |
| Operating RH Range: | 0 to 95% RH, non-condensing (Conformally Coated PCB's) |
| Operating Temperature Range: | -40 to 140°F (-40 to 60°C) |
| Storage Temperature Range: | -40 to 149°F (-40 to 65°C) |
| RH Stability Repeatability Sensitivity: | Less than 2% drift / 5 years 0.5% RH 0.1% RH |
| RH Response Time (T63): | 20 Seconds Typical |
| RH Sensor Type: | Capacitive with Hydrophobic Filter |
| Humidity Transmitter Stabilization Time: | 30 Minutes (Recommended time before doing accuracy verification) |
| Humidity Connections Wire Size: | Screw Terminal Blocks (Polarity Sensitive) 16 (1.31 mm ²) to 26 AWG (0.129 mm ²) |
| Humidity Terminal Block Torque Rating: | 4.43 to 5.31 lb-in (0.5 to 0.6 Nm) |
| Humidity NIST Test Points: | Default Test Points: 3 Points (20%, 50% & 80%) 1% NIST Test Points: 5 Points within selected 20% Range (ie. 30%-50% are 30, 35, 40, 45 & 50) |
| Balco RTD Output @ 70°F (21.1°C) (Wire Colors): | RHx-BALCO-O Series: 1000 Ohms nominal (Balco RTD) Orange/Yellow |
| Balco RTD Sensor Accuracy 70°F (21.1°C): | +/- 1.0% |
| Balco RTD Temperature Coefficient (0-100°C): | 4618 ppm/°C |
| Balco RTD Stability: | +/-0.05% after 1000 Hours @ 302°F (150°C) |
| Temperature Sensor Response Time (T63): | 10 Seconds nominal |
| Lead Wire Length Conductor Size: | 14" (35.6 cm) 22 AWG (0.65 mm) |
| Insulation Rating: | Etched Teflon (PTFE) Colored Leads Mil Spec 16878/4 Type E |
| Enclosure Specifications (Material, Flammability, Temperature, NEMA/IP Rating): | "-EH" Enclosure: ABS Plastic; UL94-V0; -40 to 140°F (-40 to 60°C) "-4X" Enclosure: Polystyrene Plastic; UL94-V2; -40 to 158°F (-40 to 70°C); NEMA 4X (IP 66) |
| Sensing Tube Dimensions (Length x Diameter): | "-EH" Models: 3.00" (76.20 mm) x 1.125" (28.75 mm) "-4X" Models: 4.73" (120.14 mm) x 0.845" (21.46mm) |
| Product Dimensions (L x W x D): | See drawings on back of data sheet |
| Product Weight: | A/RHx-BALCO-O Series: 0.59 lbs. (0.27 kg) A/RHx-BALCO-O-4X Series: 0.45 lbs. (0.204 kg) |
| Agency Approvals: | CE, RoHS2, WEEE |





| CUSTOM ORDERING | | Model # Example: A/ RH2 BALCO O NIST | MODEL # |
|---|---|---|---------|
| | | A. B. C. D. E. F. | |
| A. Sensor Series <i>No Selection Required</i> | A/ | | A/ |
| B. Accuracy <i>Select One (1)</i> | RH1 = +/-1% (Specify a 20% Range between 20 to 90% RH) RH2 = +/-2% RH3 = +/-3% RH5 = +/-5% | | |
| C. Temperature Sensor <i>No Selection Required</i> | BALCO | | BALCO |
| D. Configuration <i>Select One (1)</i> | O = Outside Air (Euro Enclosure) O-4X = Outside Air (NEMA 4X Enclosure) | | |
| E. Output Signal <i>Select One (1)</i> | ---- = 4 to 20 mA (Default) 0 to 10 VDC (Field Selectable) 0 to 5 VDC (Field Selectable) | | |
| F. NIST (Temperature & RH) <i>Select One (1)</i> | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) | | |

Note: Outputs are field selectable between 4-20 mA, 0-5 VDC & 0-10 VDC





RH TT OUTSIDE AIR

Relative Humidity (RH), Temperature Transmitter (TT)

The ACI Relative Humidity with Temperature Transmitter Outside Air Series utilizes a thermoset polymer capacitive sensing element with a factory applied hydrophobic filter to deliver a proportional analog current or voltage output signal. The hydrophobic filter provides added resistance to moisture, dust, and other chemicals for greater long term reliability. The RH Outside Air transmitter features integral DIP switches for field selection of the proper output signal and supply voltage to meet your applications requirements. Each unit also contains 0%, 50%, and 100% test options to verify that the transmitter is both working and wired properly. Field calibration can be performed by using the increment and decrement calibration DIP switches without the need to replace the sensing element. These enhancements provide increased flexibility and outstanding long-term reliability. The temperature transmitter can be used as either a two-wire 4 to 20 mA proportional output or as a 3-Wire voltage output transmitter that

includes a 100 Ohm or 1K Ohm Class A, Platinum RTD. All RH-TT Series Outside Air transmitters are mounted in a IP66/NEMA 4X enclosure with a 4.5" polycarbonate tube to protect the sensing elements from dust, rain, and snow. These units should be installed under an eave or protective shield on the north side of the building out of direct sunlight. The RH transmitter is conformally coated for added protection from moisture and other contaminants. NIST Calibration Certificates (Temperature and RH) are included for all TTM RH part series.

Applications: Monitoring Outdoor Temperature and Humidity, Humidification, Dehumidification, Roof Top Units, Air Handlers, Enthalpy and Dew Point Control Calculations, Process Control, Wash Down, Warehouse and NIST Certified Applications

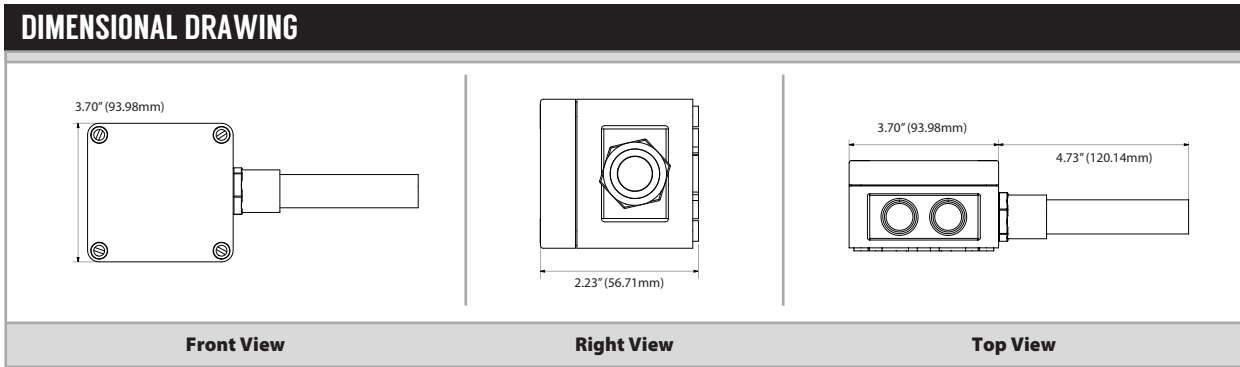
The ACI RH TT Outside Air is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|--|--|
| RH Supply Voltage (Reverse Polarity Protected): | 4-20 mA: 250 Ohm Load: 15 - 40 VDC / 18 - 28 VAC 500 Ohm Load: 18 - 40 VDC / 18 - 28 VAC |
| RH Supply Current (VA): | 0-5 VDC: 12 - 40 VDC / 18 - 28 VAC 0-10 VDC: 18 - 40 VDC / 18 - 28 VAC |
| RH Output Load Resistance: | Voltage Output: 8 mA maximum (0.32 VA) Current Output: 24 mA maximum (0.83 VA) |
| RH Output Signal: | 4-20 mA: 700 Ohms maximum 0-5 VDC or 0-10 VDC: 4K Ohms Minimum |
| RH Accuracy @ 77°F (25°C): | 2-wire: 4 - 20 mA (Factory Default) 3-wire: 0-5 or 0-10 VDC and 4 - 20 mA (Field Selectable) |
| RH Measurement Range: | +/- 1% over 20% RH Range between 20 to 90% +/- 2%, 3%, or 5% from 10 to 95% |
| Operating RH Range: | 0-100% |
| Operating Temperature Range: | 0 to 95% RH, non-condensing (Conformally Coated PCB's) |
| Storage Temperature Range: | -40 to 140°F (-40 to 60°C) |
| RH Stability Repeatability Sensitivity: | -40 to 149°F (-40 to 65°C) |
| RH Response Time (T63): | Less than 2% drift / 5 years 0.5% RH 0.1% RH |
| RH Sensor Type: | 20 Seconds Typical |
| RH Transmitter Stabilization Time: | Capacitive with Hydrophobic Filter |
| RH Connections Wire Size: | 30 Minutes (Recommended time before doing accuracy verification) |
| RH Terminal Block Torque Rating: | Screw Terminal Blocks (Polarity Sensitive) 16 (1.31 mm ²) to 26 AWG (0.129 mm ²) |
| RH NIST Test Points: | 4.43 to 5.31 lb-in (0.5 to 0.6 Nm) |
| TT Supply Voltage Supply Current: | Default Test Points: 3 Points (20%, 50% & 80%) |
| TT Maximum Load Resistance: | 1% NIST Test Points: 5 Points within selected 20% Range (ie. 30%-50% are 30, 35, 40, 45 & 50) |
| TT Output Signals: | +8.5 to 32 VDC (Reverse Polarity Protected) 25 mA minimum |
| TT Calibrated Accuracy Linearity ¹: | 250 Ohm Load: +13.5 to 32 VDC 500 Ohm Load: +18.5 to 32 VDC |
| TT Temperature Drift ²: | (Terminal Voltage - 8.5 V) 0.020 A |
| TTM100/TTM1K Certification Points: | Current Output: 4-20 mA (2-Wire Loop Powered) |
| TT Warm Up Time Warm Up Drift: | Voltage Output: 1-5 VDC or 2-10 VDC (3-Wires) |
| Operating TT Temperature Range: | Temperature Spans < 500°F (260°C): +/- 0.2% Temperature Spans > 500°F (260°C): +/- 0.5% |
| Operating TT RH Range: | Temperature Spans < 100°F (38°C): +/- 0.04%/°F Temperature Spans > 100°F (38°C): +/- 0.02%/°F |
| Platinum RTD (PTC) Number Wires Wire Colors: | 3 Point NIST: 20%, 50%, 80% of span 5 Point NIST: 20%, 35%, 50%, 65%, 80% of span |
| Platinum RTD Sensor Output @ 32°F (0°C): | 10 Minutes +/- 0.1% |
| Platinum RTD Tolerance Class Accuracy: | -40 to 185°F (-40 to 85°C) |
| Platinum RTD Sensor Stability: | 0 to 90% RH, non-condensing |
| Platinum RTD Response Time (63% Step Change): | Two A/TT100/TTM100 Series: Brown/Brown A/TT1K/TTM1K Series: Black/Black |
| Enclosure Specifications (Material, Flammability, Temperature, NEMA/IP Rating): | A/TT100/TTM100 Series: 100 Ohms Nominal A/TT1K/TTM1K Series: 1000 Ohms Nominal |
| Sensing Tube Dimensions Tube Material: | +/- 0.06% Class A Tolerance Formula: +/- °C = (0.15°C + (0.002 * t)) |
| Product Dimensions (L x W x D): | where t is the absolute value of Temperature above or below 0°C in °C |
| Product Weight: | +/-0.03% after 1000 Hours @ 572°F (300°C) |
| Agency Approvals: | 8 Seconds nominal |
| | Enclosure: Polystyrene Plastic; UL94-V2; -40 to 158°F (-40 to 70°C); NEMA 4X (IP 66) |

Note 1: A Transmitter is calibrated at 71°F (22°C) Nominal | **Note 2:** Temperature Drift is referenced to 71°F nominal calibration temperature





| CUSTOM ORDERING | | Model # Example: A/ RH2 TT100 O-4X 1 20-120°F | MODEL # |
|--|--|--|---------|
| | | A. B. C. D. E. F. | |
| A. Sensor Series <i>No Selection Required</i> | A/ | | A/ |
| B. Accuracy <i>Select One (1)</i> | RH1 = +/-1% (Specify a 20% Range between 20 to 90% RH) RH2 = +/-2% RH3 = +/-3% RH5 = +/-5% | | |
| C. Model Series <i>Select One (1)</i> | TT100 = 100 Ohms TTM100 = Matched 100 Ohms (3 Point RH & Temperature NIST) TT1K = 1K Ohms TTM1K = Matched 1K Ohms (3 Point RH & Temperature NIST) | | |
| D. Configuration <i>No Selection Required</i> | O-4X = Outside Air (NEMA 4X Enclosure) | | O-4X |
| E. Transmitter Output <i>Select One (1)</i> | 4 = 4 to 20 mA 1 = 1 to 5 VDC* 2 = 2 to 10 VDC* | | |
| F. Calibrated Span | Specify Span in °F or °C (Best Accuracy in 100°F Increments) | | |

Note*: A Temperature Transmitter Output of 1-5 VDC or 2-10 VDC would have a RH Output of 0-5 VDC or 0-10 VDC

| ACCESSORIES ORDERING (NIST) | | Model # Example: NIST RH CERT |
|-----------------------------|---|-------------------------------|
| Model # | Description | |
| NIST RH TTM CERT - 5PT. | TTM Temperature and RH Calibration Certificate (5 Point NIST) | |

Note: When ordering NIST certificates, please add an additional line item under the corresponding A/RHx-TTMxx-O Model Number





RH WALL PLATE

Relative Humidity, Wall Plate

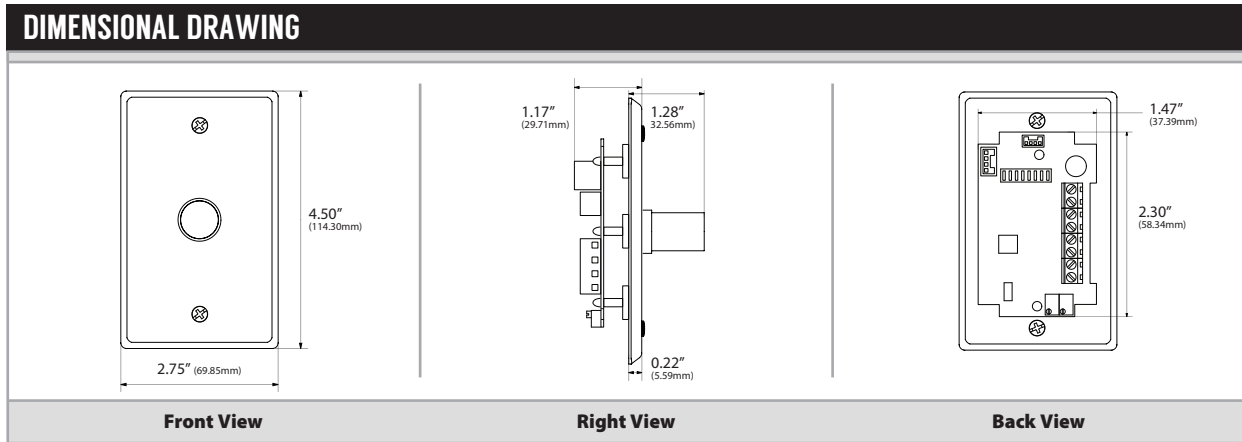
The ACI Relative Humidity Stainless Plate utilizes a thermoset polymer capacitive sensing element with a factory applied hygroscopic filter to deliver a proportional analog voltage output signal. The hygroscopic filter provides added resistance to moisture, dust, and other chemicals for greater long term reliability. The RH Stainless Plate transmitter features integral DIP switches for field selection of the proper output signal and supply voltage to meet your applications requirements. Each unit also contains 0%, 50%, and 100% test options to verify that the transmitter is both working and properly installed. Field calibration can be performed by using the increment and decrement calibration DIP switches without the need to replace the sensing element. These enhancements provide increased flexibility and outstanding long-term reliability. All RH Stainless Plate transmitters come standard with an attractive brushed finish stainless steel, single gang wall mounting plate and are designed to mount over a single gang junction box in the wall. The PCBs are conformally coated for added protection from moisture and other contaminants. A temporary plastic sensor cover is included to provide protection for the RH sensor from chemicals used in wash down applications. Three point NIST Calibration Certificates are available.

Applications: Pharmaceutical, Hospitals, Operating Rooms, Vivariums, Clean Rooms, Process Control, Wash Down Environments & Stability Chambers

The ACI RH Wall Plate is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

| PRODUCT SPECIFICATIONS | |
|--|--|
| RH Supply Voltage | 0-5 VDC: 12 - 40 VDC / 18 - 28 VAC 0-10 VDC: 18 - 40 VDC / 18 - 28 VAC |
| (Reverse Polarity Protected): | |
| RH Supply Current (VA): | 8 mA maximum (0.32 VA) |
| RH Output Load Resistance: | 4K Ohms Minimum |
| RH Output Signal: | 3-wire: 0-5 or 0-10 VDC |
| RH Accuracy @ 77°F (25°C): | +/- 2%, 3%, or 5% from 10 to 95% |
| RH Measurement Range: | 0-100% |
| Operating RH Range: | 0 to 95% RH, non-condensing (Conformally Coated PCB's) |
| Operating Temperature Range: | -40 to 140°F (-40 to 60°C) |
| Storage Temperature Range: | -40 to 149°F (-40 to 65°C) |
| RH Stability Repeatability Sensitivity: | Less than 2% drift / 5 years 0.5% RH 0.1% RH |
| RH Response Time (T63): | 20 Seconds Typical |
| RH Sensor Type: | Capacitive with Hydrophobic Filter |
| RH Transmitter Stabilization Time: | 30 Minutes (Recommended time before doing accuracy verification) |
| RH Connections Wire Size: | Screw Terminal Blocks (Polarity Sensitive) 16 (1.31 mm ²) to 26 AWG (0.129 mm ²) |
| RH Terminal Block Torque Rating: | 4.43 to 5.31 lb-in (0.5 to 0.6 Nm) |
| RH NIST Test Points: | Default Test Points: 3 Points (20%, 50% & 80%) |
| Wall Plate Material: | 430 Stainless Steel (Brushed Stainless Steel Finish) |
| Foam Material Foam Thickness: | Cross-linked LPDE (White) 0.25" (6.35 mm) |
| Foam Flammability Rating: | FMVSS-302 |
| Sintered Filter Material: | 304 Series Stainless Steel |
| Product Dimensions (L x W x D): | 4.51" (114.56 mm) x 2.76" (70.10 mm) x 1.25" (31.75 mm) |
| Product Weight: | 0.235 lbs. (0.107 kg) |
| Agency Approvals: | CE, RoHS2, WEEE |





STANDARD ORDERING

Model # Example: **A/RH2-SP-05 -OR- 138922**

| Model # | Item # | Description |
|--------------------------|--------|---|
| A/RH2-SP-05 | 138922 | RH Stainless Plate, +/- 2%, 0-5 VDC Output (default), 0-10 VDC (selectable) |
| A/RH2-SP-05-NIST | 148201 | RH Stainless Plate, +/- 2%, 0-5 VDC Output (default), 0-10 VDC (selectable), NIST Certificate |
| A/RH2-SP-010 | 137895 | RH Stainless Plate, +/- 2%, 0-10 VDC Output (default), 0-5 VDC (selectable) |
| A/RH2-SP-010-NIST | 148202 | RH Stainless Plate, +/- 2%, 0-10 VDC Output (default), 0-5 VDC (selectable), NIST Certificate |
| A/RH3-SP-05 | 132739 | RH Stainless Plate, +/- 3%, 0-5 VDC Output (default), 0-10 VDC (selectable) |
| A/RH3-SP-05-NIST | 148203 | RH Stainless Plate, +/- 3%, 0-5 VDC Output (default), 0-10 VDC (selectable), NIST Certificate |
| A/RH3-SP-010 | 138166 | RH Stainless Plate, +/- 3%, 0-10 VDC Output (default), 0-5 VDC (selectable) |
| A/RH3-SP-010-NIST | 148204 | RH Stainless Plate, +/- 3%, 0-10 VDC Output (default), 0-5 VDC (selectable), NIST Certificate |

CUSTOM ORDERING

Model # Example: **A/ RH2 SP 010**
A. B. C. D.

| Option | Description | MODEL # |
|--|--|-----------|
| A. Sensor Series <i>No Selection Required</i> | A/ _____ → | A/ |
| B. Accuracy <i>Select One (1)</i> | RH2 = +/-2% RH3 = +/-3% RH5 = +/-5% | |
| C. Configuration <i>No Selection Required</i> | SP = Stainless Plate _____ → | SP |
| D. Output Signal <i>Select One (1)</i> | 010 = 0 to 10 VDC 05 = 0 to 5 VDC | |

Note: Outputs are field selectable between 0-5 VDC & 0-10 VDC

ACCESSORIES ORDERING

Model # Example: **A/SINTERED FILTER -OR- 143433**

| Model # | Item # | Description |
|----------------------------|--------|--|
| A/SINTERED FILTER | 143433 | 3/8" Sintered Filter for RH Duct/Stainless Plate/Remote Probes |
| A/1" VINYL PULL CAP | 143462 | 1" EZ Vinyl Filter Cover for RH Stainless Plates & Remote Probes |





RH WALL PLATE

Relative Humidity, Wall Plate, Thermistor

The ACI Relative Humidity with Thermistor Wall Plate Series utilizes a thermoset polymer capacitive sensing element with a factory applied hygroscopic filter to deliver a proportional analog voltage output signal. The hygroscopic filter provides added resistance to moisture, dust, and other chemicals for greater long term reliability. The RH Stainless Plate transmitter features integral DIP switches for field selection of the proper output signal and supply voltage to meet your applications requirements. Each unit also contains 0%, 50%, and 100% test options to verify that the transmitter is both working and properly installed. Field calibration can be

performed by using the increment and decrement calibration DIP switches without the need to replace the sensing element. These enhancements provide increased flexibility and outstanding long-term reliability. All RH Stainless Plate transmitters come standard with an attractive brushed finish stainless steel, single gang wall mounting plate and are designed to mount over a single gang junction box in the wall. The PCBs are conformally coated for added protection from moisture and other contaminants. A temporary plastic sensor cover is included to provide protection for the RH sensor from chemicals used in wash down applications. Three point NIST Calibration Certificates are available.

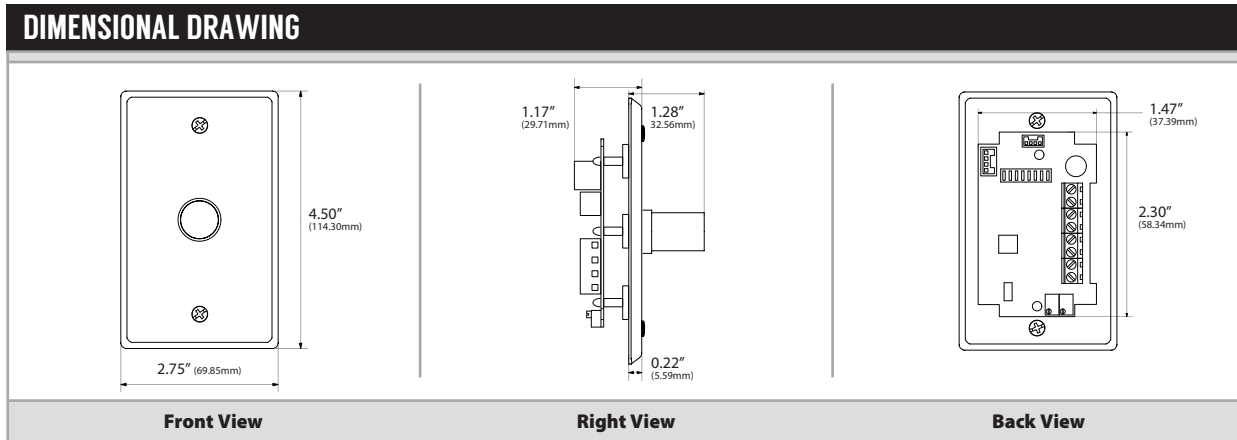
Applications: Pharmaceutical, Hospitals, Operating Rooms, Vivariums, Clean Rooms, Process Control, Wash Down Environments & Stability Chambers

The ACI RH Thermistor Wall Plate is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | | |
|---|---|--|
| RH Supply Voltage | 0-5 VDC: 12 - 40 VDC / 18 - 28 VAC | |
| (Reverse Polarity Protected): | 0-10 VDC: 18 - 40 VDC / 18 - 28 VAC | |
| RH Supply Current (VA): | 8 mA maximum (0.32 VA) | |
| RH Output Load Resistance: | 4K Ohms Minimum | |
| RH Output Signal: | 3-wire: 0-5 or 0-10 VDC | |
| RH Accuracy @ 77°F (25°C): | +/- 2%, 3%, or 5% from 10 to 95% | |
| RH Measurement Range: | 0-100% | |
| Operating RH Range: | 0 to 95% RH, non-condensing (Conformally Coated PCB's) | |
| Operating Temperature Range: | -40 to 140°F (-40 to 60°C) | |
| Storage Temperature Range: | -40 to 149°F (-40 to 65°C) | |
| RH Stability Repeatability Sensitivity: | Less than 2% drift / 5 years 0.5% RH 0.1% RH | |
| RH Response Time (T63): | 20 Seconds Typical | |
| RH Sensor Type: | Capacitive with Hydrophobic Filter | |
| RH Transmitter Stabilization Time: | 30 Minutes (Recommended time before doing accuracy verification) | |
| RH Connections Wire Size: | Screw Terminal Blocks (Polarity Sensitive) 16 (1.31 mm ²) to 26 AWG (0.129 mm ²) | |
| RH Terminal Block Torque Rating: | 4.43 to 5.31 lb-in (0.5 to 0.6 Nm) | |
| RH NIST Test Points: | Default Test Points: 3 Points (20%, 50% & 80%) | |
| Nominal Thermistor Resistive Output @ 77°F (25°C) (Lead Wire Colors), Non-Linear NTC (Negative Temperature Coefficient): | RHx-1.8K Series: 1.8KΩ (Red/Yellow) RHx-3K Series: 3KΩ (White/Brown) RHx-AN Series (Type III): 10KΩ (White/White) RHx-AN-BC Series: 5.238KΩ (White/Yellow) RHx-CP Series (Type II): 10KΩ (White/Green) RHx-CSI Series: 10KΩ (Green/Yellow) | RHx-10KS Series: 10KΩ (White/Blue) RHx-10K-E1 Series: 10KΩ (Gray/Orange) RHx-20K Series: 20KΩ (Brown/Blue) RHx-50K Series: 50KΩ (Brown/Yellow) RHx-100KS Series: 100KΩ (Black/Yellow) |
| Thermistor Accuracy 32-158°F (0-70°C): | +/- 0.36°F (0.2°C) except 10K-E1 Series: +/- 0.54°F (0.3°C) 1.8K Series: +/- 0.9°F (0.5°C) @ 77°F (25°C) & +/- 1.8°F (1.0°C) from 32 to 158°F (0 to 70°C) | |
| Thermistor Power Dissipation Constant: | 3 mW/°C except 1.8K Series: 1 mW/°C; 10K-E1 Series: 2 mW/°C | |
| Thermistor Sensor Response Time (T63): | 10 Seconds nominal | |
| Lead Wire Length Conductor Size: | 14" (35.6 cm) 22 AWG (0.65 mm) | |
| Insulation Rating: | Etched Teflon (PTFE) Colored Leads Mil Spec 16878/4 Type E | |
| Wall Plate Material: | 430 Stainless Steel (Brushed Stainless Steel Finish) | |
| Foam Material Foam Thickness: | Cross-linked LPDE (White) 0.25" (6.35 mm) | |
| Foam Flammability Rating: | FMVSS-302 | |
| Sintered Filter Material: | 304 Series Stainless Steel | |
| Product Dimensions (L x W x D): | 4.51" (114.56 mm) x 2.76" (70.10 mm) x 1.25" (31.75 mm) | |
| Product Weight: | 0.235 lbs. (0.107 kg) | |
| Agency Approvals: | CE, RoHS2, WEEE | |





| CUSTOM ORDERING | | Model # Example: A/ RH2 1.8K SP 010 NIST | MODEL # |
|---|--|--|---------|
| | | A. B. C. D. E. F. | |
| A. Sensor Series <i>No Selection Required</i> | A/ | | A/ |
| B. Accuracy <i>Select One (1)</i> | RH2 = +/-2% RH3 = +/-3% RH5 = +/-5% | | |
| C. Temperature Sensor <i>Select One (1)</i> | 1.8K 3K 10KS AN (Type III) AN-BC CP (Type II) CSI 10K-E1 20K 50K 100KS | | |
| D. Configuration <i>No Selection Required</i> | SP Stainless Wall Plate | | SP |
| E. Output Signal <i>Select One (1)</i> | 010 = 0 to 10 VDC 05 = 0 to 5 VDC | | |
| F. NIST (Temperature & RH) <i>Select One (1)</i> | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) | | |

Note: Outputs are field selectable between 0-5 VDC & 0-10 VDC

| ACCESSORIES ORDERING | | Model # Example: A/SINTERED FILTER -OR- 143433 |
|----------------------|--------|--|
| Model # | Item # | Description |
| A/SINTERED FILTER | 143433 | 3/8" Sintered Filter for RH Duct/Stainless Plate/Remote Probes |
| A/1" VINYL PULL CAP | 143462 | 1" EZ Vinyl Filter Cover for RH Stainless Plates & Remote Probes |





RH WALL PLATE

Relative Humidity, Wall Plate, Platinum RTD



The ACI Relative Humidity with Platinum RTD Wall Plate Series utilizes a thermoset polymer capacitive sensing element with a factory applied hygroscopic filter to deliver a proportional analog voltage output signal. The hygroscopic filter provides added resistance to moisture, dust, and other chemicals for greater long term reliability. The RH Stainless Plate transmitter features integral DIP switches for field selection of the proper output signal and supply voltage to meet your applications requirements. Each unit also contains 0%, 50%, and 100% test options to verify that the transmitter is both working and properly installed. Field calibration can be performed

by using the increment and decrement calibration DIP switches without the need to replace the sensing element. These enhancements provide increased flexibility and outstanding long-term reliability. All RH Stainless Plate transmitters come standard with an attractive brushed finish stainless steel, single gang wall mounting plate and are designed to mount over a single gang junction box in the wall. The PCBs are conformally coated for added protection from moisture and other contaminants. A temporary plastic sensor cover is included to provide protection for the RH sensor from chemicals used in wash down applications. Three point NIST Calibration Certificates are available.

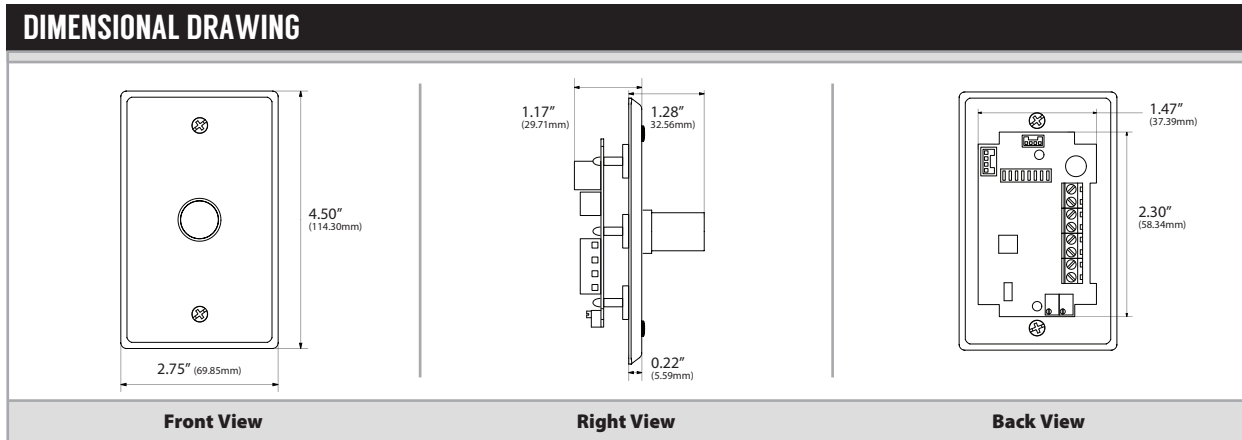
Applications: Pharmaceutical, Hospitals, Operating Rooms, Vivariums, Clean Rooms, Process Control, Wash Down Environments & Stability Chambers

The ACI RH Platinum RTD Wall Plate is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|--|--|
| RH Supply Voltage | 0-5 VDC: 12 - 40 VDC / 18 - 28 VAC |
| (Reverse Polarity Protected): | 0-10 VDC: 18 - 40 VDC / 18 - 28 VAC |
| RH Supply Current (VA): | 8 mA maximum (0.32 VA) |
| RH Output Load Resistance: | 4K Ohms Minimum |
| RH Output Signal: | 3-wire: 0-5 or 0-10 VDC |
| RH Accuracy @ 77°F (25°C): | +/- 2%, 3%, or 5% from 10 to 95% |
| RH Measurement Range: | 0-100% |
| Operating RH Range: | 0 to 95% RH, non-condensing (Conformally Coated PCB's) |
| Operating Temperature Range: | -40 to 140°F (-40 to 60°C) |
| Storage Temperature Range: | -40 to 149°F (-40 to 65°C) |
| RH Stability Repeatability Sensitivity: | Less than 2% drift / 5 years 0.5% RH 0.1% RH |
| RH Response Time (T63): | 20 Seconds Typical |
| RH Sensor Type: | Capacitive with Hydrophobic Filter |
| RH Transmitter Stabilization Time: | 30 Minutes (Recommended time before doing accuracy verification) |
| RH Connections Wire Size: | Screw Terminal Blocks (Polarity Sensitive) 16 (1.31 mm ²) to 26 AWG (0.129 mm ²) |
| RH Terminal Block Torque Rating: | 4.43 to 5.31 lb-in (0.5 to 0.6 Nm) |
| RH NIST Test Points: | Default Test Points: 3 Points (20%, 50% & 80%) |
| Platinum RTD (PTC) Number Wires | RHx-100-2W Series: (Brown/Brown) & RHx-2W-1K Series: (Black/Black) |
| (Wire Colors): | RHx-100-3W Series: (Brown/Brown/Black) & RHx-3W-1K Series: (Black/Black/White) |
| Platinum RTD Output @ 32°F (0°C): | RHx-100-xW-SP Series: 100 Ohms nominal RHx-1K-xW-SP Series: 1000 Ohms nominal |
| Platinum RTD Tolerance Class: | +/-0.06% Class A Tolerance Formula: +/-°C = (0.15°C + (0.002 * t)) |
| Platinum RTD Din Standard: | DIN EN 60751 (IEC 751) |
| Temperature Coefficient: | 3850 ppm/ °C |
| Platinum RTD Stability: | +/-0.03% after 1000 Hours @ 572°F (300°C) |
| Lead Wire Length Conductor Size: | 14" (35.6 cm) 22 AWG (0.65 mm) |
| Insulation Rating: | Etched Teflon (PTFE) Colored Leads Mil Spec 16878/4 Type E |
| Wall Plate Material: | 430 Stainless Steel (Brushed Stainless Steel Finish) |
| Foam Material Foam Thickness: | Cross-linked LPDE (White) 0.25" (6.35 mm) |
| Foam Flammability Rating: | FMVSS-302 |
| Sintered Filter Material: | 304 Series Stainless Steel |
| Product Dimensions (L x W x D): | 4.51" (114.56 mm) x 2.76" (70.10 mm) x 1.25" (31.75 mm) |
| Product Weight: | 0.235 lbs. (0.107 kg) |
| Agency Approvals: | CE, RoHS2, WEEE |





| CUSTOM ORDERING | | Model # Example: A/ RH2 100 2W SP 05 NIST | MODEL # |
|---|---|---|---------|
| | | A. B. C. D. E. F. G. | |
| A. Sensor Series <i>No Selection Required</i> | A/ | | A/ |
| B. Accuracy <i>Select One (1)</i> | RH2 = +/-2% RH3 = +/-3% RH5 = +/-5% | | |
| C. Model Series <i>Select One (1)</i> | 100 = 100 Ohm Platinum RTD 1K = 1K Ohm Platinum RTD | | |
| D. Number of Wires <i>Select One (1)</i> | 2W = Two Wires 3W = Three Wires | | |
| E. Configuration <i>No Selection Required</i> | SP = Stainless Wall Plate | | SP |
| F. Output Signal <i>Select One (1)</i> | 010 = 0 to 10 VDC 05 = 0 to 5 VDC | | |
| G. NIST (Temperature & RH) <i>Select One (1)</i> | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) | | |

Note: Outputs are field selectable between 0-5 VDC & 0-10 VDC

| ACCESSORIES ORDERING | | Model # Example: A/SINTERED FILTER -OR- 143433 |
|----------------------|--------|--|
| Model # | Item # | Description |
| A/SINTERED FILTER | 143433 | 3/8" Sintered Filter for RH Duct/Stainless Plate/Remote Probes |
| A/1" VINYL PULL CAP | 143462 | 1" EZ Vinyl Filter Cover for RH Stainless Plates & Remote Probes |





RH WALL PLATE

Relative Humidity, Wall Plate, Nickel RTD

The ACI Relative Humidity with Nickel RTD Wall Plate Series utilizes a thermoset polymer capacitive sensing element with a factory applied hygroscopic filter to deliver a proportional analog voltage output signal. The hygroscopic filter provides added resistance to moisture, dust, and other chemicals for greater long term reliability. The RH Stainless Plate transmitter features integral DIP switches for field selection of the proper output signal and supply voltage to meet your applications requirements. Each unit also contains 0%, 50%, and 100% test options

to verify that the transmitter is both working and properly installed. Field calibration can be performed by using the increment and decrement calibration DIP switches without the need to replace the sensing element. These enhancements provide increased flexibility and outstanding long-term reliability. All RH Stainless Plate transmitters come standard with an attractive brushed finish stainless steel, single gang wall mounting plate and are designed to mount over a single gang junction box in the wall. The PCBs are conformally coated for added protection from moisture and other contaminants. A temporary plastic sensor cover is included to provide protection for the RH sensor from chemicals used in wash down applications. Three point NIST Calibration Certificates are available.

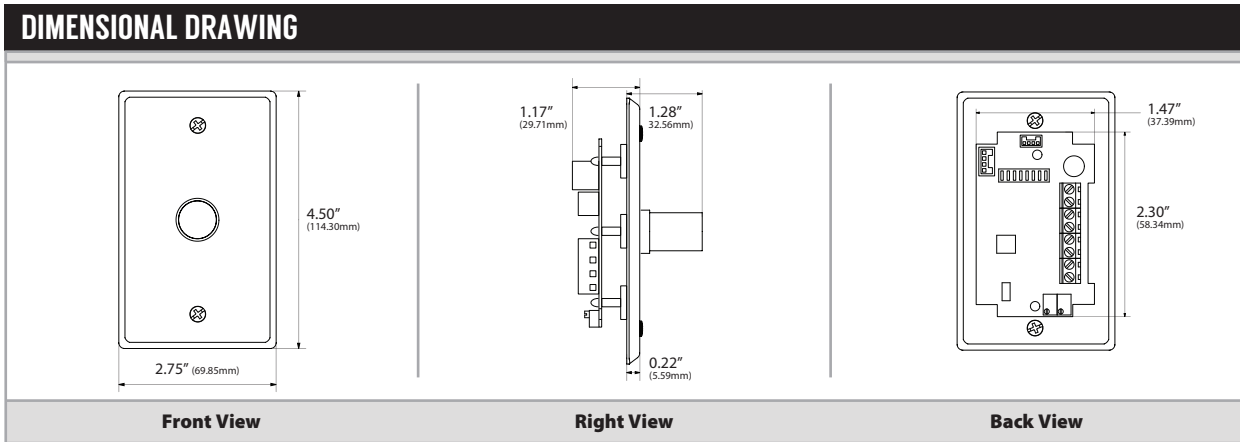
Applications: Pharmaceutical, Hospitals, Operating Rooms, Vivariums, Clean Rooms, Process Control, Wash Down Environments & Stability Chambers

The ACI RH Nickel RTD Wall Plate is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|--|---|
| RH Supply Voltage | 0-5 VDC: 12 - 40 VDC / 18 - 28 VAC |
| (Reverse Polarity Protected): | 0-10 VDC: 18 - 40 VDC / 18 - 28 VAC |
| RH Supply Current (VA): | 8 mA maximum (0.32 VA) |
| RH Output Load Resistance: | 4K Ohms Minimum |
| RH Output Signal: | 3-wire: 0-5 or 0-10 VDC |
| RH Accuracy @ 77°F (25°C): | +/- 2%, 3%, or 5% from 10 to 95% |
| RH Measurement Range: | 0-100% |
| Operating RH Range: | 0 to 95% RH, non-condensing (Conformally Coated PCB's) |
| Operating Temperature Range: | -40 to 140°F (-40 to 60°C) |
| Storage Temperature Range: | -40 to 149°F (-40 to 65°C) |
| RH Stability Repeatability Sensitivity: | Less than 2% drift / 5 years 0.5% RH 0.1% RH |
| RH Response Time (T63): | 20 Seconds Typical |
| RH Sensor Type: | Capacitive with Hydrophobic Filter |
| RH Transmitter Stabilization Time: | 30 Minutes (Recommended time before doing accuracy verification) |
| RH Connections Wire Size: | Screw Terminal Blocks (Polarity Sensitive) 16 (1.31 mm ²) to 26 AWG (0.129 mm ²) |
| RH Terminal Block Torque Rating: | 4.43 to 5.31 lb-in (0.5 to 0.6 Nm) |
| RH NIST Test Points: | Default Test Points: 3 Points (20%, 50% & 80%) |
| Nickel RTD (PTC) Output @ 70°F (21.1°C) | RHx-1K-NI-SP Series: 1000 Ohms nominal (1K-Nickel RTD) Red/Red |
| (Wire Colors): | |
| Nickel RTD Sensor Accuracy: | 32°F (0°C): +/-0.72°F (0.4°F) 70°F (21.1°C): +/-0.34°F (0.17°C) 130°F (54.4°C): +/-1.00°F (0.56°C) |
| Nickel Din Standard: | Din 43760 |
| Temperature Coefficient (0-100°C): | 6370 ppm/°C |
| Nickel RTD Stability: | +/-0.05% after 1000 Hours @ 302°F (150°C) |
| Lead Wire Length Conductor Size: | 14" (35.6 cm) 22 AWG (0.65 mm) |
| Insulation Rating: | Etched Teflon (PTFE) Colored Leads Mil Spec 16878/4 Type E |
| Wall Plate Material: | 430 Stainless Steel (Brushed Stainless Steel Finish) |
| Foam Material Foam Thickness: | Cross-linked LPDE (White) 0.25" (6.35 mm) |
| Foam Flammability Rating: | FMVSS-302 |
| Sintered Filter Material: | 304 Series Stainless Steel |
| Product Dimensions (L x W x D): | 4.51" (114.56 mm) x 2.76" (70.10 mm) x 1.25" (31.75 mm) |
| Product Weight: | 0.235 lbs. (0.107 kg) |
| Agency Approvals: | CE, RoHS2, WEEE |





| CUSTOM ORDERING | | Model # Example: A/ RH2 1K-NI SP 05 NIST | MODEL # |
|---|---|--|---------|
| | | A. B. C. D. E. F. | |
| A. Sensor Series <i>No Selection Required</i> | A/ | → | A/ |
| B. Accuracy <i>Select One (1)</i> | RH2 = +/-2% RH3 = +/-3% RH5 = +/-5% | | |
| C. Temperature Sensor <i>No Selection Required</i> | 1K-NI | → | 1K-NI |
| D. Configuration <i>No Selection Required</i> | SP Stainless Wall Plate | → | SP |
| E. Output Signal <i>Select One (1)</i> | 010 = 0 to 10 VDC 05 = 0 to 5 VDC | | |
| F. NIST (Temperature & RH) <i>Select One (1)</i> | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) | | |

Note: Outputs are field selectable between 0-5 VDC & 0-10 VDC

| ACCESSORIES ORDERING | | | Model # Example: A/SINTERED FILTER -OR- 143433 |
|----------------------|--------|--|--|
| Model # | Item # | Description | |
| A/SINTERED FILTER | 143433 | 3/8" Sintered Filter for RH Duct/Stainless Plate/Remote Probes | |
| A/1" VINYL PULL CAP | 143462 | 1" EZ Vinyl Filter Cover for RH Stainless Plates & Remote Probes | |





RH WALL PLATE

Relative Humidity, Wall Plate, Balco RTD



The ACI Relative Humidity with Balco RTD Wall Plate Series utilizes a thermoset polymer capacitive sensing element with a factory applied hygroscopic filter to deliver a proportional voltage output signal. The hygroscopic filter provides added resistance to moisture, dust, and other chemicals for greater long term reliability. The RH Stainless Plate transmitter features integral DIP switches for field selection of the proper output signal and supply voltage to meet your applications requirements. Each unit also contains 0%, 50%, and 100% test options to verify that the transmitter is both working and properly installed. Field calibration can be

performed by using the increment and decrement calibration DIP switches without the need to replace the sensing element. These enhancements provide increased flexibility and outstanding long-term reliability. All RH Stainless Plate transmitters come standard with an attractive brushed finish stainless steel, single gang wall mounting plate and are designed to mount over a single gang junction box in the wall. The PCBs are conformally coated for added protection from moisture and other contaminants. A temporary plastic sensor cover is included to provide protection for the RH sensor from chemicals used in wash down applications. Three point NIST Calibration Certificates are available.

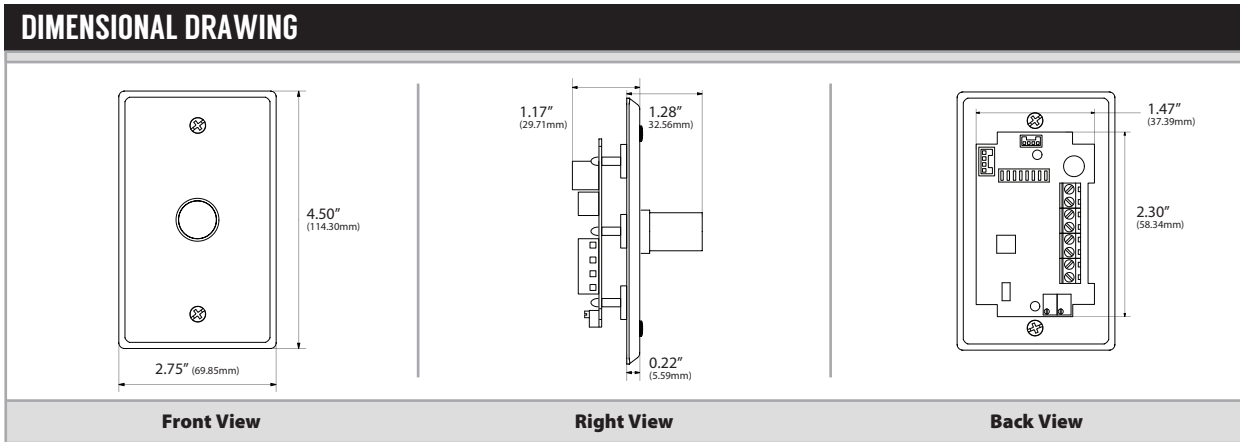
Applications: Pharmaceutical, Hospitals, Operating Rooms, Vivariums, Clean Rooms, Process Control, Wash Down Environments & Stability Chambers

The ACI RH Balco RTD Wall Plate is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|--|--|
| RH Supply Voltage | 0-5 VDC: 12 - 40 VDC / 18 - 28 VAC 0-10 VDC: 18 - 40 VDC / 18 - 28 VAC |
| (Reverse Polarity Protected): | |
| RH Supply Current (VA): | 8 mA maximum (0.32 VA) |
| RH Output Load Resistance: | 4K Ohms Minimum |
| RH Output Signal: | 3-wire: 0-5 or 0-10 VDC |
| RH Accuracy @ 77°F (25°C): | +/- 2%, 3%, or 5% from 10 to 95% |
| RH Measurement Range: | 0-100% |
| Operating RH Range: | 0 to 95% RH, non-condensing (Conformally Coated PCB's) |
| Operating Temperature Range: | -40 to 140°F (-40 to 60°C) |
| Storage Temperature Range: | -40 to 149°F (-40 to 65°C) |
| RH Stability Repeatability Sensitivity: | Less than 2% drift / 5 years 0.5% RH 0.1% RH |
| RH Response Time (T63) | 20 Seconds Typical |
| RH Sensor Type: | Capacitive with Hydrophobic Filter |
| RH Transmitter Stabilization Time: | 30 Minutes (Recommended time before doing accuracy verification) |
| RH Connections Wire Size: | Screw Terminal Blocks (Polarity Sensitive) 16 (1.31 mm ²) to 26 AWG (0.129 mm ²) |
| RH Terminal Block Torque Rating: | 4.43 to 5.31 lb-in (0.5 to 0.6 Nm) |
| RH NIST Test Points: | Default Test Points: 3 Points (20%, 50% & 80%) |
| Balco RTD Output @ 70°F (21.1°C) (Wire Colors): | 1000 Ohms nominal (Balco RTD) Orange/Yellow |
| Balco RTD Sensor Accuracy 70°F (21.1°C): | +/- 1.0% |
| Balco RTD Temperature Coefficient (0-100°C): | 4618 ppm/°C |
| Balco RTD Stability: | +/-0.05% after 1000 Hours @ 302°F (150°C) |
| Temperature Sensor Response Time (T63): | 10 Seconds nominal |
| Lead Wire Length Conductor Size: | 14" (35.6 cm) 22 AWG (0.65 mm) |
| Insulation Rating: | Etched Teflon (PTFE) Colored Leads Mil Spec 16878/4 Type E |
| Wall Plate Material: | 430 Stainless Steel (Brushed Stainless Steel Finish) |
| Foam Material Foam Thickness: | Cross-linked LPDE (White) 0.25" (6.35 mm) |
| Foam Flammability Rating: | FMVSS-302 |
| Sintered Filter Material: | 304 Series Stainless Steel |
| Product Dimensions (L x W x D): | 4.51" (114.56 mm) x 2.76" (70.10 mm) x 1.25" (31.75 mm) |
| Product Weight: | 0.235 lbs. (0.107 kg) |
| Agency Approvals: | CE, RoHS2, WEEE |





| CUSTOM ORDERING | | Model # Example: A/ RH2 BALCO SP 05 NIST | MODEL # |
|---|---|--|---------|
| | | A. B. C. D. E. F. | |
| A. Sensor Series <i>No Selection Required</i> | A/ | → | A/ |
| B. Accuracy <i>Select One (1)</i> | RH2 = +/-2% RH3 = +/-3% RH5 = +/-5% | | |
| C. Temperature Sensor <i>No Selection Required</i> | BALCO | → | BALCO |
| D. Configuration <i>No Selection Required</i> | SP Stainless Wall Plate | → | SP |
| E. Output Signal <i>Select One (1)</i> | 010 = 0 to 10 VDC 05 = 0 to 5 VDC | | |
| F. NIST (Temperature & RH) <i>Select One (1)</i> | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) | | |

Note: Outputs are field selectable between 0-5 VDC & 0-10 VDC

| ACCESSORIES ORDERING | | | Model # Example: A/SINTERED FILTER -OR- 143433 |
|----------------------|--------|--|--|
| Model # | Item # | Description | |
| A/SINTERED FILTER | 143433 | 3/8" Sintered Filter for RH Duct/Stainless Plate/Remote Probes | |
| A/1" VINYL PULL CAP | 143462 | 1" EZ Vinyl Filter Cover for RH Stainless Plates & Remote Probes | |





RH REMOTE PROBES



Relative Humidity (RH), Remote Probe

The ACI Relative Humidity Remote Probe utilizes a thermoset polymer capacitive sensing element with a hydrophobic filter to deliver a proportional relative humidity analog output. The remote probe wiring harness comes in lengths of 3, 6, 10, or 20 feet to provide mounting flexibility for your remote sensing applications. Single point field calibration can be done on the humidity transmitter, by using the increment and decrement dip switches. Each toggle of the increment and decrement switches will allow for a $\pm 0.5\%$ RH increase or decrease. Calibration of the RH transmitters electronics can also be done using both the Zero and Span potentiometers depending on whether it is a current or voltage output device. All models feature conformally coated circuit boards to improve the reliability of the product in both high moisture and mildly corrosive atmospheres. A vinyl cap is provided to

place over the sintered filter in wash down applications to protect the sensing element from getting moisture sprayed directly on the sensor. Three point NIST Calibration Certificates are available.

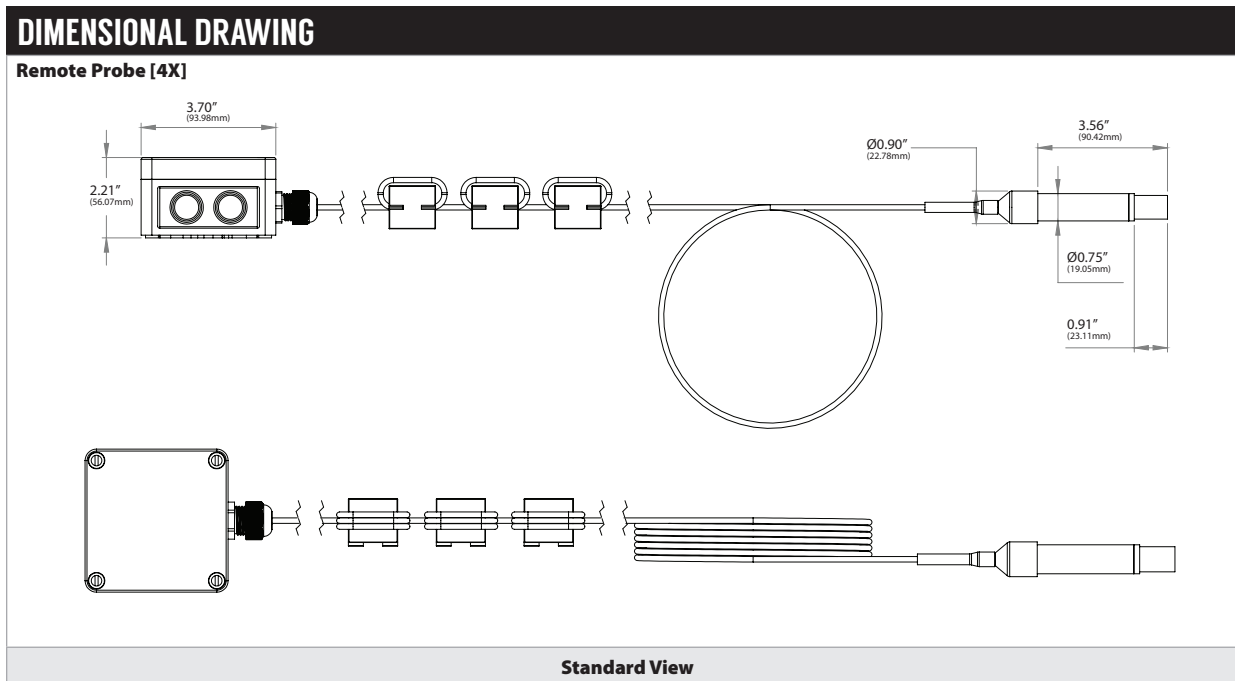
Applications: Clean Rooms, Process Control, Environmental Chambers, Stability Chambers, Pharmaceutical Labs, Remote Sensing Applications

The ACI RH Remote Probes are covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, workaci.com.

PRODUCT SPECIFICATIONS

| | |
|---|--|
| Humidity Supply Voltage (Reverse Polarity Protected): | 4-20 mA: 250 Ohm Load: 15 - 40 VDC / 18 - 28 VAC 500 Ohm Load: 18 - 40 VDC / 18 - 28 VAC 0-5 VDC: 12 - 40 VDC / 18 - 28 VAC 0-10 VDC: 18 - 40 VDC / 18 - 28 VAC |
| RH Supply Current (VA): | Voltage Output: 8 mA maximum (0.32 VA) Current Output: 24 mA maximum (0.83 VA) |
| RH Output Load Resistance: | 4-20 mA: 700 Ohms maximum 0-5 VDC or 0-10 VDC: 4K Ohms minimum |
| RH Output Signal: | 2-wire: 4 - 20 mA (Factory Default) 3-wire: 0-5 or 0-10 VDC and 4 - 20 mA (Field Selectable) |
| RH Accuracy @ 77°F (25°C): | +/- 2%, or +/- 3% from 10 to 95% RH |
| RH Measurement Range: | 0-100% |
| Operating RH Range: | 0 to 95% RH, non-condensing (Conformally Coated PCB's) |
| Operating Temperature Range: | -13 to 140°F (-25 to 60°C) |
| Storage Temperature Range: | -13 to 149°F (-25 to 65°C) |
| RH Stability Repeatability Sensitivity: | Less than 2% drift / 5 years 0.5% RH 0.1% RH |
| RH Response Time (T63): | 20 Seconds Typical |
| RH Sensor Type: | Capacitive with Hydrophobic Filter |
| RH Transmitter Stabilization Time: | 30 Minutes (Recommended time before doing accuracy verification) |
| RH Connections Wire Size: | Screw Terminal Blocks (Polarity Sensitive) 16 (1.31 mm ²) to 26 AWG (0.129 mm ²) |
| RH Terminal Block Torque Rating: | 4.43 to 5.31 lb-in (0.5 to 0.6 Nm) |
| RH NIST Test Points: | Default Test Points: 3 Points (20%, 50% & 80%) |
| Sensor Lead Length: | 3.0' (0.914 m), 6.0' (1.829 m), 10.0' (3.048 m), 20.0' (6.096 m) |
| Cable Operating Temperature Range: | 32 to 167°F (0 to 75°C) |
| Minimum Cable Bend Radius: | 1.92" (48.77 mm) or 10x the Cable Diameter |
| Cable Ratings Cable Jacket Material: | UL(CMP, CL3P, FPLP); CSA (CMP, FT6), Plenum Rated Polyvinyl Chloride (PVC) |
| Enclosure Specifications (Material, Flammability, Temperature, NEMA/IP Ratings): | "-EH" Enclosure: ABS Plastic; UL94-V0; -40 to 140°F (-40 to 60°C) |
| Sensing Tube Material | 304 Series Stainless Steel |
| Filter Material: | 304 Series Stainless Steel |
| Enclosure Dimensions: | "-EH" Enclosure (Diameter x Depth): 4.30" (19.05 mm) x 2.12" (53.85 mm) |
| Probe Dimensions (Length x Diameter): | 5.12" (130.10 mm) x 0.750" (19.05 mm) |
| Product Weight: | A/RHx-RP2-EH Series: 1.20 lbs. (0.545 kg) |
| Agency Approvals: | CE, RoHS2, WEEE |





STANDARD ORDERING

Model # Example: **A/RH3-RP2-20'-EH** -OR- **137064**

| Model # | Item # | Description |
|-----------------------|--------|--|
| A/RH3-RP2-3'-EH | 144798 | RH Remote Probe, 3 ft Cable, Euro Enclosure, 4-20 mA Output (default), 0-5 VDC or 0-10 VDC (selectable) |
| A/RH3-RP2-3'-EH-NIST | 148196 | RH Remote Probe, 3 ft Cable, Euro Enclosure, 4-20 mA Output (default), 0-5 VDC or 0-10 VDC (selectable), NIST Certificate |
| A/RH2-RP2-6'-EH | 126625 | RH Remote Probe, 6 ft Cable, Euro Enclosure, 4-20 mA Output (default), 0-5 VDC or 0-10 VDC (selectable) |
| A/RH2-RP2-6'-EH-NIST | 148197 | RH Remote Probe, 6 ft Cable, Euro Enclosure, 4-20 mA Output (default), 0-5 VDC or 0-10 VDC (selectable), NIST Certificate |
| A/RH2-RP2-10'-EH | 125968 | RH Remote Probe, 10 ft Cable, Euro Enclosure, 4-20 mA Output (default), 0-5 VDC or 0-10 VDC (selectable) |
| A/RH2-RP2-10'-EH-NIST | 148198 | RH Remote Probe, 10 ft Cable, Euro Enclosure, 4-20 mA Output (default), 0-5 VDC or 0-10 VDC (selectable), NIST Certificate |
| A/RH2-RP2-20'-EH | 125969 | RH Remote Probe, 20 ft Cable, Euro Enclosure, 4-20 mA Output (default), 0-5 VDC or 0-10 VDC (selectable) |
| A/RH2-RP2-20'-EH-NIST | 148199 | RH Remote Probe, 20 ft Cable, Euro Enclosure, 4-20 mA Output (default), 0-5 VDC or 0-10 VDC (selectable), NIST Certificate |
| A/RH3-RP2-20'-EH | 137064 | RH Remote Probe, 20 ft Cable, Euro Enclosure, 4-20 mA Output (default), 0-5 VDC or 0-10 VDC (selectable) |
| A/RH3-RP2-20'-EH-NIST | 148200 | RH Remote Probe, 20 ft Cable, Euro Enclosure, 4-20 mA Output (default), 0-5 VDC or 0-10 VDC (selectable), NIST Certificate |

CUSTOM ORDERING

Model # Example: **A/** **RH1** **RP2-6'** **EH** **----**

| | | MODEL # |
|--|--|---------|
| A. Sensor Series No Selection Required | A/ | A/ |
| B. Accuracy Select One (1) | RH2 = +/-2% RH3 = +/-3% | |
| C. Configuration Select One (1) | RP2-3' = 3' Cable RP2-6' = 6' Cable RP2-10' = 10' Cable RP2-20' = 20' Cable | |
| D. Enclosure No Selection Required | EH = Euro Enclosure | EH |
| E. Output Signal* Select One (1) | ---- = 4 to 20 mA (Default) 0 to 10 VDC (Field Selectable) 0 to 5 VDC (Field Selectable) | |
| F. NIST (Temperature & RH) Select One (1) | Specify Span in °F or °C (Best Accuracy in 100°F Increments) | |

Note: Outputs are field selectable between 4-20 mA, 0-5 VDC & 0-10 VDC



| ACCESSORIES ORDERING | | | Model # Example: A/SINTERED FILTER -OR- 143433 |
|-----------------------------|---------------|--|--|
| Model # | Item # | Description | |
| A/SINTERED FILTER | 143433 | 3/8" Sintered Filter for RH Duct/Stainless Plate/Remote Probes | |
| A/1" VINYL PULL CAP | 143462 | 1" EZ Vinyl Filter Cover for RH Stainless Plates & Remote Probes | |





RH TT REMOTE PROBE

Relative Humidity (RH), Temperature Transmitter (TT)

The ACI Relative Humidity with Temperature Transmitter Series Remote Probe utilizes a thermoset polymer capacitive sensing element with a hydrophobic filter to deliver a proportional relative humidity analog output and can also be configured with any resistive temperature sensor such as a thermistor or RTD. The remote probe wiring harness comes in lengths of 3, 6, 10, or 20 feet to provide mounting flexibility for your remote sensing applications. Single point field calibration can be done on the humidity transmitter, by using the increment and decrement dip switches. Each toggle of the increment and decrement switches will allow for a $\pm 0.5\%$ RH increase or decrease. Calibration of the RH transmitters electronics can also be done using both the Zero and Span potentiometers depending on whether it is a current or voltage output device. All models feature conformally coated circuit boards to improve the reliability of the product in both high moisture and mildly corrosive

atmospheres. The standard enclosure is an IP66/NEMA 4X rated moisture and corrosion resistant enclosure. A vinyl cap is provided to place over the sintered filter in applications in wash down applications to protect the sensing element from getting moisture sprayed directly on the sensor. NIST Calibration Certificates (Temperature and RH) are included for all TTM RH part series.

Applications: Clean Rooms, Process Control, Environmental Chambers, Stability Chambers, Pharmaceutical Labs, Remote Sensing Applications

The ACI RH TT Remote Probes are covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, workaci.com.

PRODUCT SPECIFICATIONS

| | |
|---|--|
| RH Supply Voltage (Reverse Polarity Protected): | 4-20 mA: 250 Ohm Load: 15 - 40 VDC / 18 - 28 VAC 500 Ohm Load: 18 - 40 VDC / 18 - 28 VAC 0-5 VDC: 12 - 40 VDC / 18 - 28 VAC 0-10 VDC: 18 - 40 VDC / 18 - 28 VAC |
| RH Supply Current (VA): | Voltage Output: 8 mA maximum (0.32 VA) Current Output: 24 mA maximum (0.83 VA) |
| RH Output Load Resistance: | 4-20 mA: 700 Ohms maximum 0-5 VDC or 0-10 VDC: 4K Ohms minimum |
| RH Output Signal: | 2-wire: 4 - 20 mA (Factory Default) 3-wire: 0-5 or 0-10 VDC & 4 - 20 mA (Field Selectable) |
| RH Accuracy @ 77°F (25°C): | +/- 2%, or +/- 3% from 10 to 95% RH |
| RH Measurement Range: | 0-100% |
| Operating RH Range: | 0 to 95% RH, non-condensing (Conformally Coated PCB's) |
| Operating Temperature Range: | -40 to 140°F (-40 to 60°C) |
| Storage Temperature Range: | -40 to 149°F (-40 to 65°C) |
| RH Stability Repeatability Sensitivity: | Less than 2% drift / 5 years 0.5% RH 0.1% RH |
| RH Response Time (T63): | 20 Seconds Typical |
| RH Sensor Type: | Capacitive with Hydrophobic Filter |
| RH Transmitter Stabilization Time: | 30 Minutes (Recommended time before doing accuracy verification) |
| RH Connections Wire Size: | Screw Terminal Blocks (Polarity Sensitive) 16 (1.31 mm ²) to 26 AWG (0.129 mm ²) |
| RH Terminal Block Torque Rating: | 4.43 to 5.31 lb-in (0.5 to 0.6 Nm) |
| RH NIST Test Points: | Default Test Points: 3 Points (20%, 50% & 80%) 1% NIST Test Points: 5 Points within selected 20% Range (ie. 30%-50% are 30, 35, 40, 45 & 50) |
| TT Supply Voltage Supply Current: | +8.5 to 32 VDC (Reverse Polarity Protected) 25 mA minimum 250 Ohm Load: +13.5 to 32 VDC 500 Ohm Load: +18.5 to 32 VDC |
| TT Maximum Load Resistance: | (Terminal Voltage - 8.5 V) 0.020 A |
| TT Output Signals: | Current Output: 4-20 mA (2-Wire Loop Powered) Voltage Output: 1-5 VDC or 2-10 VDC (3-Wires) |
| TT Calibrated Accuracy Linearity ¹: | Temperature Spans < 500°F (260°C): +/- 0.2% Temperature Spans > 500°F (260°C): +/- 0.5% |
| TT Temperature Drift ²: | Temperature Spans < 100°F (38°C): +/- 0.04%/°F Temperature Spans > 100°F (38°C): +/- 0.02%/°F |
| TTM1K Certification Points: | 3 Point NIST: 20%, 50%, 80% of span 5 Point NIST: 20%, 35%, 50%, 65%, 80% of span |
| TT Warm Up Time Warm Up Drift: | 10 Minutes +/- 0.1% |
| Transmitter Operating Temperature/RH Range: | -40 to 185°F (-40 to 85°C) 0 to 90% RH, non-condensing |
| Platinum RTD (PTC) Number Wires Wire Colors: | Two A/TTM1K Series: Black/Black |
| Platinum RTD Sensor Output @ 32°F (0°C): | A/TTM1K Series: 1000 Ohms Nominal |
| Platinum RTD Tolerance Class Accuracy: | +/- 0.06% Class A Tolerance Formula: +/- °C = (0.15°C + (0.002 * t)) where t is the absolute value of Temperature above or below 0°C in °C |
| Platinum RTD Sensor Stability: | +/- 0.03% after 1000 Hours @ 572°F (300°C) |
| Platinum RTD Response Time (63% Step Change): | 8 Seconds nominal |





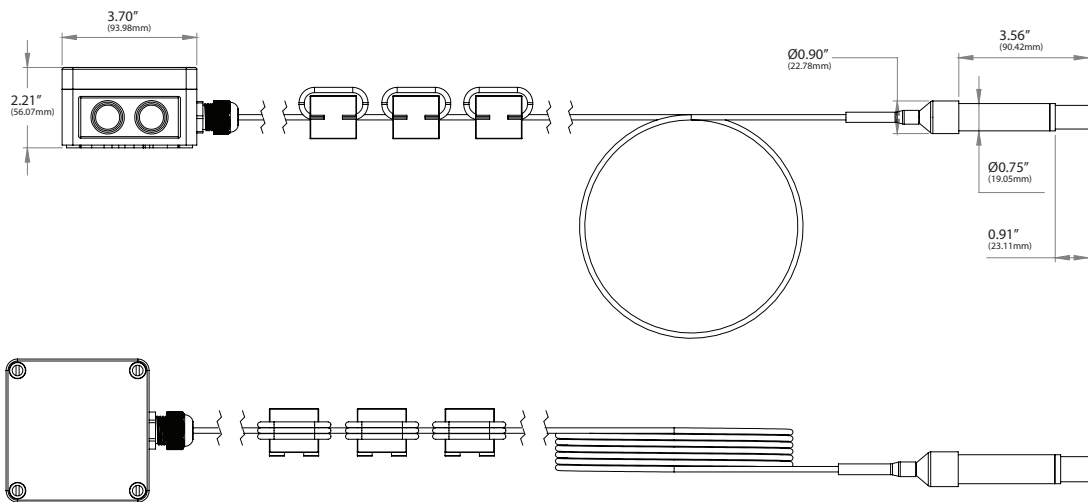
PRODUCT SPECIFICATIONS

| | |
|---|--|
| Sensor Lead Length: | 3.0' (0.914 m), 6.0' (1.829 m), 10.0' (3.048 m), 20.0' (6.096 m) |
| Cable Operating Temperature Range: | 32 to 167°F (0 to 75°C) |
| Minimum Cable Bend Radius: | 1.92" (48.77 mm) or 10x the Cable Diameter |
| Cable Ratings Cable Jacket Material: | UL(CMP, CL3P, FPLP); CSA (CMP, FT6), Plenum Rated Polyvinyl Chloride (PVC) |
| Enclosure Specifications (Material, Flammability, Temperature, NEMA/IP Ratings): | "-4X" Enclosure: Polystyrene Plastic; UL94-V2; -40 to 158°F (-40 to 70°C); NEMA 4X (IP 66) |
| Sensing Tube Material Filter Material: | 304 Series Stainless Steel 304 Series Stainless Steel |
| Enclosure Dimensions (L x W x D): | See drawings on back of data sheet |
| Product Weight: | A/RHx-TTM1K-RP2-4X Series: 1.25 lbs (0.566 kg) |
| Agency Approvals: | RoHS2, WEEE |

Note¹: A Transmitter is calibrated at 71°F (22°C) Nominal | **Note²:** Temperature Drift is referenced to 71°F nominal calibration temperature

DIMENSIONAL DRAWING

Remote Probe [4X]



Standard View

CUSTOM ORDERING

| Model # Example: | | A/ | RH2 | TTM1K | RP2-6' | 4X | 1 | 50-150°F | MODEL # |
|---|---|----|-----|-------|--------|----|----|----------|---------|
| | | A. | B. | C. | D. | E. | F. | G. | |
| A. Sensor Series No Selection Required | A/ | → | | | | | | | A/ |
| B. Accuracy Select One (1) | RH2 = +/-2% RH3 = +/-3% | → | | | | | | | |
| C. Model Series No Selection Required | TTM1K = Matched 1K Ohms (3 Point RH & Temperature NIST) | → | | | | | | | TTM1K |
| D. Configuration Select One (1) | RP2-3' = 3' Cable RP2-6' = 6' Cable RP2-10' = 10' Cable RP2-20' = 20' Cable | → | | | | | | | |
| E. Enclosure No Selection Required | 4X = NEMA 4X Enclosure | → | | | | | | | 4X |
| F. Transmitter Output Select One (1) | 4 = 4 to 20 mA 1 = 1 to 5 VDC* 2 = 2 to 10 VDC* | → | | | | | | | |
| G. Calibrated Span | Specify Span in °F or °C (Best Accuracy in 100°F Increments) | → | | | | | | | |

Note: A Temperature Transmitter Output of 1-5 VDC or 2-10 VDC would have a RH Output of 0-5 VDC or 0-10 VDC



| ACCESSORIES ORDERING | | |
|----------------------|--------|--|
| Model # | Item # | Description |
| A/SINTERED FILTER | 143433 | 3/8" Sintered Filter for RH Duct/Stainless Plate/Remote Probes |
| A/1" VINYL PULL CAP | 143462 | 1" EZ Vinyl Filter Cover for RH Stainless Plates & Remote Probes |

Model # Example: **A/SINTERED FILTER** -OR- **143433**

| ACCESSORIES ORDERING (NIST) | |
|-----------------------------|--|
| Model # | Description |
| -5PTNIST | TTM Calibration Certificate (5 Point NIST) |

Note: For TTM100 or TTM1K part numbers, the default NIST is 3 points | 5 points may be specified by using "-5PTNIST" at the end of any TTM part number.





SUN SHIELD

Weather Proof, Relative Humidity

The ACI Sun Shield is a reliable solution for protecting relative humidity sensors when mounted in a location where an overhang or shade is unavailable. It consists of nine (9) molded, white plastic plates which are used to reduce the thermal effect of the sun and increasing the air flow between the plates. The Sun Shield also provides an added level of protection for the sensors from rain and snow. The Sun Shield is available with our +/-2% RH transmitter and has field selectable outputs of 4-20mA, 0-5VDC and 0-10VDC. Three point NIST Calibration Certificates are available.

Applications: Outdoor Humidity

The ACI RH Sun Shield is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

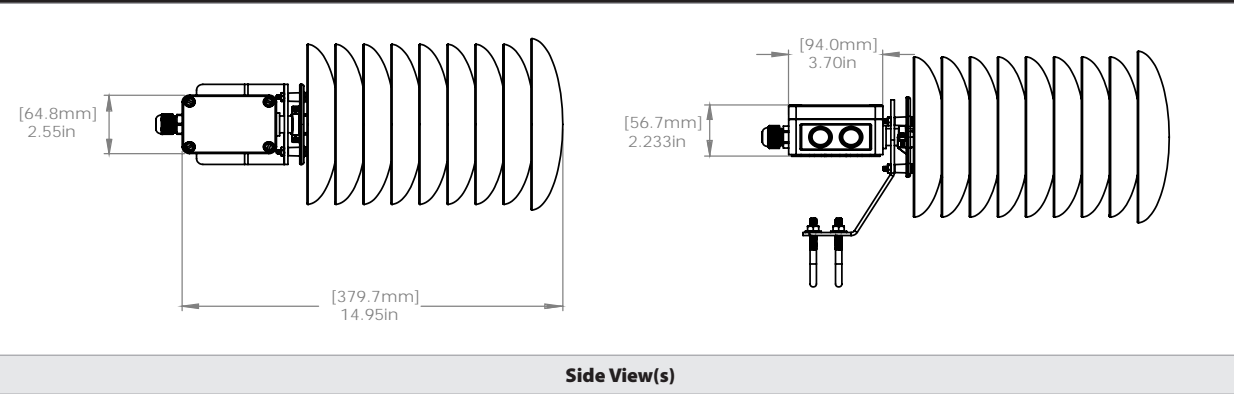
PRODUCT SPECIFICATIONS

| | |
|---|---|
| RH Supply Voltage | 4-20 mA: 250 Ohm Load: 15 - 40 VDC / 18 - 28 VAC 500 Ohm Load: 18 - 40 VDC / 18 - 28 VAC |
| (Reverse Polarity Protected): | 0-5 VDC: 12 - 40 VDC / 18 - 28 VAC 0-10 VDC: 18 - 40 VDC / 18 - 28 VAC |
| RH Supply Current (VA): | Voltage Output: 8 mA maximum (0.32 VA) Current Output: 24 mA maximum (0.83 VA) |
| RH Output Load Resistance: | 4-20 mA: 700 Ohms maximum 0-5 VDC or 0-10 VDC: 4K Ohms Minimum |
| RH Output Signal: | 2-wire: 4 - 20 mA (Factory Default) 3-wire: 0-5 or 0-10 VDC and 4 - 20 mA (Field Selectable) |
| RH Accuracy @ 77°F (25°C): | +/- 2% from 10 to 95% |
| RH Measurement Range: | 0-100% |
| Operating RH Range: | 0 to 95% RH, non-condensing (Conformally Coated PCB's) |
| Operating Temperature Range: | -40 to 140°F (-40 to 60°C) |
| Storage Temperature Range: | -40 to 149°F (-40 to 65°C) |
| RH Stability Repeatability Sensitivity: | Less than 2% drift / 5 years 0.5% RH 0.1% RH |
| RH Response Time (T63): | 20 Seconds Typical |
| RH Sensor Type: | Capacitive with Hydrophobic Filter |
| RH Transmitter Stabilization Time: | 30 Minutes (Recommended time before doing accuracy verification) |
| RH Connections: | Screw Terminal Blocks (Polarity Sensitive) |
| Wire Size: | 16 (1.31 mm ²) to 26 AWG (0.129 mm ²) |
| RH Terminal Block Torque Rating: | 4.43 to 5.31 lb-in (0.5 to 0.6 Nm) |
| RH NIST Test Points: | Default Test Points: 3 Points (20%, 50% & 80%) 1% NIST Test Points: 5 Points within selected 20% Range (ie. 30%-50% are 30, 35, 40, 45 & 50) |
| Enclosure Specifications (Material, Flammability, "4X" Enclosure): | Polystyrene Plastic; UL94-V2; -40 to 158°F (-40 to 70°C); NEMA 4X (IP 66) |
| Temperature, NEMA/IP Rating): | |
| Sensing Tube Dimensions (Length x Diameter): | 6.83" (173.48 mm) x 0.740" (18.80mm) |
| Product Dimensions (L x W x D): | 14.95" (379.7 mm) x 7.50" (190.50 mm) |
| Product Weight: | 4.16 lbs(1.89 kg) |
| Agency Approvals: | CE, RoHS2, WEEE |





DIMENSIONAL DRAWING



Side View(s)

CUSTOM ORDERING

Model # Example: A/ RH2 O-SUN NIST
A. B. C. D. E.

MODEL #

| | | |
|---|--|--------------|
| A. Sensor Series <i>No Selection Required</i> | A/ _____ → | A/ |
| B. Model Series <i>No Selection Required</i> | RH2 = +/-2% _____ → | RH2 |
| C. Configuration <i>No Selection Required</i> | O-SUN = Outside Sun Shield (NEMA 4X) _____ → | O-SUN |
| D. Output Signal <i>Select One (1)</i> | ---- = 4 to 20 mA (Default) 0 to 10 VDC (Field Selectable) 0 to 5 VDC (Field Selectable) | |
| E. NIST (Temperature & RH) <i>Select One (1)</i> | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) | |

Note: Outputs are field selectable between 4-20 mA, 0-5 VDC & 0-10 VDC





SUN SHIELD

Weather Proof, Relative Humidity, Thermistor

The ACI Sun Shield is a reliable solution for protecting both the temperature and relative humidity sensors when mounted in a location where an overhang or shade is unavailable. It consists of nine (9) molded, white plastic plates which are used to reduce the thermal effect of the sun and increasing the air flow between the plates. The Sun Shield also provides an added level of protection for the sensors from rain and snow. The Sun Shield is available with our +/-2% RH transmitter, any of our standard thermistors, and has field selectable outputs of 4-20mA, 0-5VDC and 0-10VDC. Three point NIST Calibration Certificates are available.

Applications: Outdoor Humidity and Temperature Monitoring

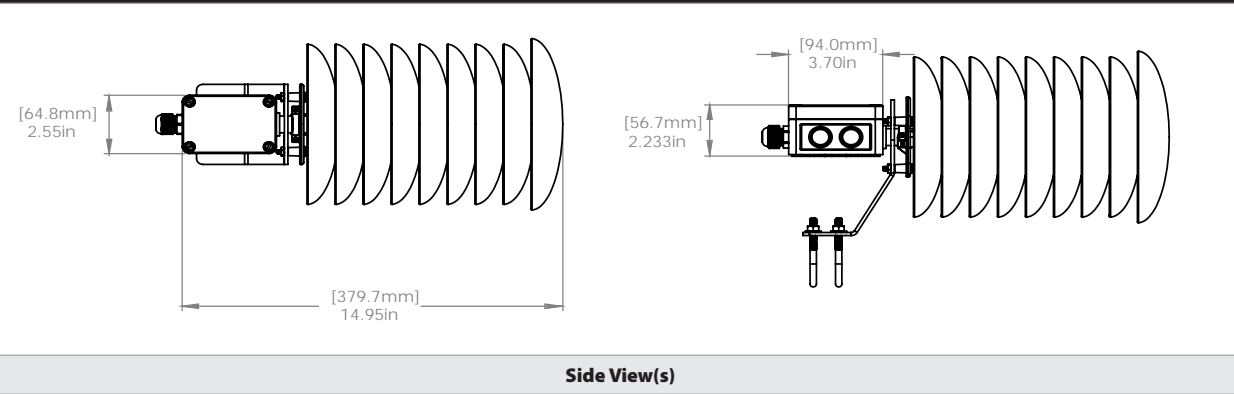
The ACI RH Thermistor Sun Shield is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

| PRODUCT SPECIFICATIONS | | | | | | | | | | | |
|--|---|--|--|---|---|---|--|---|--|--|---|
| RH Supply Voltage | 4-20 mA: 250 Ohm Load: 15 - 40 VDC / 18 - 28 VAC 500 Ohm Load: 18 - 40 VDC / 18 - 28 VAC | | | | | | | | | | |
| (Reverse Polarity Protected): | 0-5 VDC: 12 - 40 VDC / 18 - 28 VAC 0-10 VDC: 18 - 40 VDC / 18 - 28 VAC | | | | | | | | | | |
| RH Supply Current (VA): | Voltage Output: 8 mA maximum (0.32 VA) Current Output: 24 mA maximum (0.83 VA) | | | | | | | | | | |
| RH Output Load Resistance: | 4-20 mA: 700 Ohms maximum 0-5 VDC or 0-10 VDC: 4K Ohms Minimum | | | | | | | | | | |
| RH Output Signal: | 2-wire: 4 - 20 mA (Factory Default) 3-wire: 0-5 or 0-10 VDC and 4 - 20 mA (Field Selectable) | | | | | | | | | | |
| RH Accuracy @ 77°F (25°C): | +/- 2% from 10 to 95% | | | | | | | | | | |
| RH Measurement Range: | 0-100% | | | | | | | | | | |
| Operating RH Range: | 0 to 95% RH, non-condensing (Conformally Coated PCB's) | | | | | | | | | | |
| Operating Temperature Range: | -40 to 140°F (-40 to 60°C) | | | | | | | | | | |
| Storage Temperature Range: | -40 to 149°F (-40 to 65°C) | | | | | | | | | | |
| RH Stability Repeatability Sensitivity: | Less than 2% drift / 5 years 0.5% RH 0.1% RH | | | | | | | | | | |
| RH Response Time (T63): | 20 Seconds Typical | | | | | | | | | | |
| RH Sensor Type: | Capacitive with Hydrophobic Filter | | | | | | | | | | |
| RH Transmitter Stabilization Time: | 30 Minutes (Recommended time before doing accuracy verification) | | | | | | | | | | |
| RH Connections: | Screw Terminal Blocks (Polarity Sensitive) | | | | | | | | | | |
| Wire Size: | 16 (1.31 mm ²) to 26 AWG (0.129 mm ²) | | | | | | | | | | |
| RH Terminal Block Torque Rating: | 4.43 to 5.31 lb-in (0.5 to 0.6 Nm) | | | | | | | | | | |
| RH NIST Test Points: | Default Test Points: 3 Points (20%, 50% & 80%) 1% NIST Test Points: 5 Points within selected 20% Range (ie. 30%-50% are 30, 35, 40, 45 & 50) | | | | | | | | | | |
| Nominal Thermistor Resistive Output @ 77°F (25°C) (Lead Wire Colors) Non-Linear NTC (Negative Temperature Coefficient): | <table border="0"> <tr> <td>RHx-1.8K Series: 1.8KΩ (Red/Yellow)</td> <td>RHx-CSI Series: 10KΩ (Green/Yellow)</td> </tr> <tr> <td>RHx-3K Series: 3KΩ (White/Brown)</td> <td>RHx-10KS Series: 10KΩ (White/Blue)</td> </tr> <tr> <td>RHx-AN Series (Type III): 10KΩ (White/White)</td> <td>RHx-10K-E1 Series: 10KΩ (Gray/Orange)</td> </tr> <tr> <td>RHx-AN-BC Series: 5.238KΩ (White/Yellow)</td> <td>RHx-20K Series: 20KΩ (Brown/Blue)</td> </tr> <tr> <td>RHx-CP Series (Type II): 10KΩ (White/Green)</td> <td>RHx-100KS Series: 100KΩ (Black/Yellow)</td> </tr> </table> | RHx-1.8K Series: 1.8KΩ (Red/Yellow) | RHx-CSI Series: 10KΩ (Green/Yellow) | RHx-3K Series: 3KΩ (White/Brown) | RHx-10KS Series: 10KΩ (White/Blue) | RHx-AN Series (Type III): 10KΩ (White/White) | RHx-10K-E1 Series: 10KΩ (Gray/Orange) | RHx-AN-BC Series: 5.238KΩ (White/Yellow) | RHx-20K Series: 20KΩ (Brown/Blue) | RHx-CP Series (Type II): 10KΩ (White/Green) | RHx-100KS Series: 100KΩ (Black/Yellow) |
| RHx-1.8K Series: 1.8KΩ (Red/Yellow) | RHx-CSI Series: 10KΩ (Green/Yellow) | | | | | | | | | | |
| RHx-3K Series: 3KΩ (White/Brown) | RHx-10KS Series: 10KΩ (White/Blue) | | | | | | | | | | |
| RHx-AN Series (Type III): 10KΩ (White/White) | RHx-10K-E1 Series: 10KΩ (Gray/Orange) | | | | | | | | | | |
| RHx-AN-BC Series: 5.238KΩ (White/Yellow) | RHx-20K Series: 20KΩ (Brown/Blue) | | | | | | | | | | |
| RHx-CP Series (Type II): 10KΩ (White/Green) | RHx-100KS Series: 100KΩ (Black/Yellow) | | | | | | | | | | |
| Thermistor Accuracy 32-158°F (0-70°C): | +/- 0.36°F (0.2°C) except 10K-E1 Series: +/- 0.54°F (0.3°C) 1.8K Series: +/- 0.9°F (0.5°C) @ 77°F (25°C) & +/- 1.8°F (1.0°C) from 32 to 158°F (0 to 70°C) | | | | | | | | | | |
| Thermistor Power Dissipation Constant: | 3 mW/°C except 1.8K Series: 1 mW/°C; 10K-E1 Series: 2 mW/°C | | | | | | | | | | |
| Thermistor Sensor Response Time (T63): | 10 Seconds nominal | | | | | | | | | | |
| Lead Wire Length Conductor Size: | 14" (35.6 cm) 22 AWG (0.65 mm) | | | | | | | | | | |
| Insulation Rating: | Etched Teflon (PTFE) Colored Leads Mil Spec 16878/4 Type E | | | | | | | | | | |
| Enclosure Specifications (Material, Flammability, Temperature, NEMA/IP Rating): | "4X" Enclosure: Polystyrene Plastic; UL94-V2; -40 to 158°F (-40 to 70°C); NEMA 4X (IP 66) | | | | | | | | | | |
| Sensing Tube Dimensions (Length x Diameter): | 6.83" (173.48 mm) x 0.740" (18.80mm) | | | | | | | | | | |
| Product Dimensions (L x W x D): | 14.95" (379.7 mm) x 7.50" (190.50 mm) | | | | | | | | | | |
| Product Weight: | 4.16 lbs(1.89 kg) | | | | | | | | | | |
| Agency Approvals: | CE, RoHS2, WEEE | | | | | | | | | | |





DIMENSIONAL DRAWING



Side View(s)

CUSTOM ORDERING

Model # Example: A/ RH2 AN O-SUN NIST
A. B. C. D. E. F.

MODEL #

| | | |
|---|--|--------------|
| A. Sensor Series <i>No Selection Required</i> | A/ _____ → | A/ |
| B. Accuracy <i>No Selection Required</i> | RH2 = +/-2% _____ → | RH2 |
| C. Temperature Sensor <i>Select One (1)</i> | 1.8K 3K 10KS 10K-E1 AN (Type III) AN-BC CP (Type II) CSI 20K 100KS | |
| D. Configuration <i>No Selection Required</i> | O-SUN = Outside Sun Shield (NEMA 4X) _____ → | O-SUN |
| E. Output Signal <i>Select One (1)</i> | ---- = 4 to 20 mA (Default) 0 to 10 VDC (Field Selectable) 0 to 5 VDC (Field Selectable) | |
| F. NIST (Temperature & RH) <i>Select One (1)</i> | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) | |

Note: Outputs are field selectable between 4-20 mA, 0-5 VDC & 0-10 VDC





SUN SHIELD

Weather Proof, Relative Humidity, Platinum RTD

The ACI Sun Shield is a reliable solution for protecting both the temperature and relative humidity sensors when mounted in a location where an overhang or shade is unavailable. It consists of nine (9) molded, white plastic plates which are used to reduce the thermal effect of the sun and increasing the air flow between the plates. The Sun Shield also provides an added level of protection for the sensors from rain and snow. The Sun Shield is available with our +/-2% RH transmitter, a 100 or 1K ohm standard Platinum RTD, and has field selectable outputs of 4-20mA, 0-5VDC and 0-10VDC. Three point NIST Calibration Certificates are available.

Applications: Outdoor Humidity and Temperature Monitoring

The ACI RH Platinum RTDs Sun Shield is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

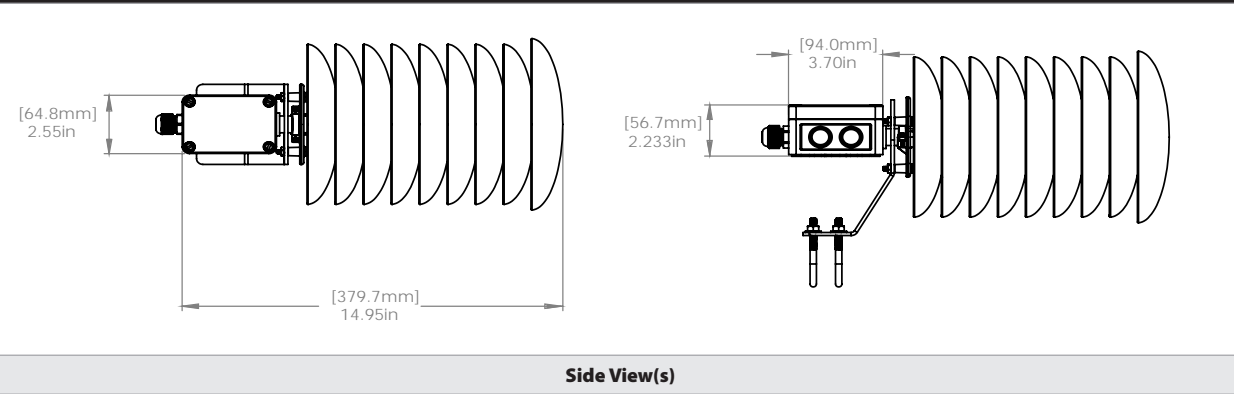
PRODUCT SPECIFICATIONS

| | |
|--|--|
| RH Supply Voltage | 4-20 mA: 250 Ohm Load: 15 - 40 VDC / 18 - 28 VAC 500 Ohm Load: 18 - 40 VDC / 18 - 28 VAC |
| (Reverse Polarity Protected): | 0-5 VDC: 12 - 40 VDC / 18 - 28 VAC 0-10 VDC: 18 - 40 VDC / 18 - 28 VAC |
| RH Supply Current (VA): | Voltage Output: 8 mA maximum (0.32 VA) Current Output: 24 mA maximum (0.83 VA) |
| RH Output Load Resistance: | 4-20 mA: 700 Ohms maximum 0-5 VDC or 0-10 VDC: 4K Ohms Minimum |
| RH Output Signal: | 2-wire: 4 - 20 mA (Factory Default) 3-wire: 0-5 or 0-10 VDC and 4 - 20 mA (Field Selectable) |
| RH Accuracy @ 77°F (25°C): | +/- 2% from 10 to 95% |
| RH Measurement Range: | 0-100% |
| Operating RH Range: | 0 to 95% RH, non-condensing (Conformally Coated PCB's) |
| Operating Temperature Range: | -40 to 140°F (-40 to 60°C) |
| Storage Temperature Range: | -40 to 149°F (-40 to 65°C) |
| RH Stability Repeatability Sensitivity: | Less than 2% drift / 5 years 0.5% RH 0.1% RH |
| RH Response Time (T63): | 20 Seconds Typical |
| RH Sensor Type: | Capacitive with Hydrophobic Filter |
| RH Transmitter Stabilization Time: | 30 Minutes (Recommended time before doing accuracy verification) |
| RH Connections: | Screw Terminal Blocks (Polarity Sensitive) |
| Wire Size: | 16 (1.31 mm ²) to 26 AWG (0.129 mm ²) |
| RH Terminal Block Torque Rating: | 4.43 to 5.31 lb-in (0.5 to 0.6 Nm) |
| RH NIST Test Points: | Default Test Points: 3 Points (20%, 50% & 80%) 1% NIST Test Points: 5 Points within selected 20% Range (ie. 30%-50% are 30, 35, 40, 45 & 50) |
| Platinum RTD (PTC) Number Wires (Wire Colors): | RHx-100-2W Series: (Brown/Brown) & RHx-2W-1K Series: (Black/Black) RHx-100-3W Series: (Brown/Brown/Black) & RHx-3W-1K Series: (Black/Black/White) |
| Platinum RTD Output @ 32°F (0°C): | RHx-100-xW-O-SUN Series: 100 Ohms nominal RHx-1K-xW-O-SUN Series: 1000 Ohms nominal (x = # of wires) |
| Platinum RTD Tolerance Class: | +/-0.06% Class A Tolerance Formula: +/-°C = (0.15°C + (0.002 * t)) |
| Platinum RTD Din Standard: | DIN EN 60751 (IEC 751) |
| Temperature Coefficient: | 3850 ppm/°C |
| Platinum RTD Stability: | +/-0.03% after 1000 Hours @ 572°F (300°C) |
| Lead Wire Length Conductor Size: | 14" (35.6 cm) 22 AWG (0.65 mm) |
| Insulation Rating: | Etched Teflon (PTFE) Colored Leads Mil Spec 16878/4 Type E |
| Enclosure Specifications (Material, Flammability, Temperature, NEMA/IP Rating): | "-4X" Enclosure: Polystyrene Plastic; UL94-V2; -40 to 158°F (-40 to 70°C); NEMA 4X (IP 66) |
| Sensing Tube Dimensions (Length x Diameter): | 6.83" (173.48 mm) x 0.740" (18.80mm) |
| Product Dimensions (L x W x D): | 14.95" (379.7 mm) x 7.50" (190.50 mm) |
| Product Weight: | 4.16 lbs(1.89 kg) |
| Agency Approvals: | CE, RoHS2, WEEE |





DIMENSIONAL DRAWING



Side View(s)

| CUSTOM ORDERING | | Model # Example: A/ RH2 1K 2W O-SUN NIST | MODEL # |
|---|--|--|--------------|
| | | A. B. C. D. E. F. G. | |
| A. Sensor Series <i>No Selection Required</i> | A/ _____ | | A/ |
| B. Accuracy <i>No Selection Required</i> | RH2 = +/-2% _____ | | RH2 |
| C. Model Series <i>Select One (1)</i> | 100 = 100 Ohm Platinum RTD 1K = 1K Ohm Platinum RTD | | |
| D. Number of Wires <i>Select One (1)</i> | 2W = Two Wires 3W = Three Wires | | |
| E. Configuration <i>No Selection Required</i> | O-SUN = Outside Sun Shield (NEMA 4X) _____ | | O-SUN |
| F. Output Signal <i>Select One (1)</i> | ---- = 4 to 20 mA (Default) 0 to 10 VDC (Field Selectable) 0 to 5 VDC (Field Selectable) | | |
| G. NIST (Temperature & RH) <i>Select One (1)</i> | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) | | |

Note: Outputs are field selectable between 4-20 mA, 0-5 VDC & 0-10 VDC





SUN SHIELD

Weather Proof, Relative Humidity, Nickel RTD

The ACI Sun Shield is a reliable solution for protecting both the temperature and relative humidity sensors when mounted in a location where an overhang or shade is unavailable. It consists of nine (9) molded, white plastic plates which are used to reduce the thermal effect of the sun and increasing the air flow between the plates. The Sun Shield also provides an added level of protection for the sensors from rain and snow. The Sun Shield is available with our +/-2% RH transmitter, a standard Nickel RTD, and has field selectable outputs of 4-20mA, 0-5VDC and 0-10VDC. Three point NIST Calibration Certificates are available.

Applications: Outdoor Humidity and Temperature Monitoring

The ACI RH Nickel RTD Sun Shield is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

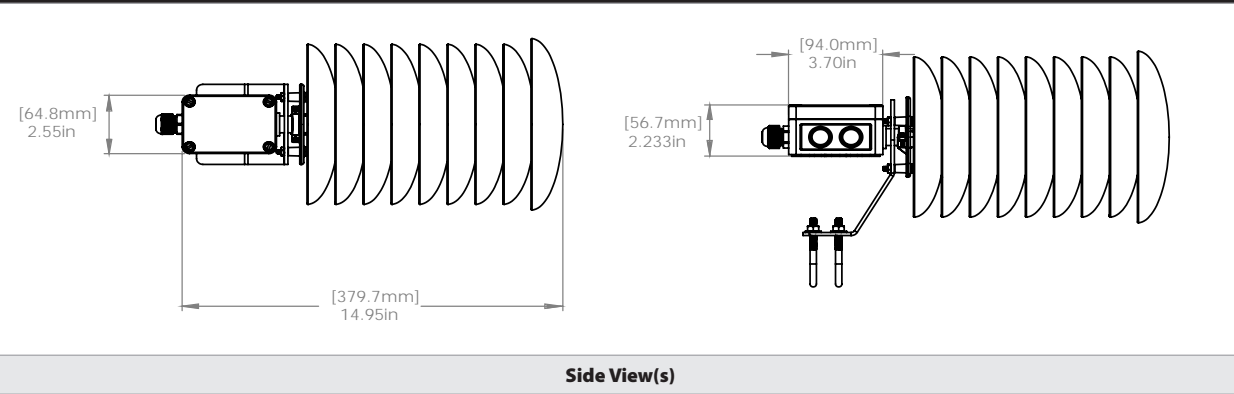
PRODUCT SPECIFICATIONS

| | |
|--|---|
| RH Supply Voltage | 4-20 mA: 250 Ohm Load: 15 - 40 VDC / 18 - 28 VAC 500 Ohm Load: 18 - 40 VDC / 18 - 28 VAC |
| (Reverse Polarity Protected): | 0-5 VDC: 12 - 40 VDC / 18 - 28 VAC 0-10 VDC: 18 - 40 VDC / 18 - 28 VAC |
| RH Supply Current (VA): | Voltage Output: 8 mA maximum (0.32 VA) Current Output: 24 mA maximum (0.83 VA) |
| RH Output Load Resistance: | 4-20 mA: 700 Ohms maximum 0-5 VDC or 0-10 VDC: 4K Ohms Minimum |
| RH Output Signal: | 2-wire: 4 - 20 mA (Factory Default) 3-wire: 0-5 or 0-10 VDC and 4 - 20 mA (Field Selectable) |
| RH Accuracy @ 77°F (25°C): | +/- 2% from 10 to 95% |
| RH Measurement Range: | 0-100% |
| Operating RH Range: | 0 to 95% RH, non-condensing (Conformally Coated PCB's) |
| Operating Temperature Range: | -40 to 140°F (-40 to 60°C) |
| Storage Temperature Range: | -40 to 149°F (-40 to 65°C) |
| RH Stability Repeatability Sensitivity: | Less than 2% drift / 5 years 0.5% RH 0.1% RH |
| RH Response Time (T63): | 20 Seconds Typical |
| RH Sensor Type: | Capacitive with Hydrophobic Filter |
| RH Transmitter Stabilization Time: | 30 Minutes (Recommended time before doing accuracy verification) |
| RH Connections: | Screw Terminal Blocks (Polarity Sensitive) |
| Wire Size: | 16 (1.31 mm ²) to 26 AWG (0.129 mm ²) |
| RH Terminal Block Torque Rating: | 4.43 to 5.31 lb-in (0.5 to 0.6 Nm) |
| RH NIST Test Points: | Default Test Points: 3 Points (20%, 50% & 80%) 1% NIST Test Points: 5 Points within selected 20% Range (ie. 30%-50% are 30, 35, 40, 45 & 50) |
| Nickel RTD (PTC) Output @ 70°F (21.1°C) | 1000 Ohms nominal (1K-Nickel RTD) Red/Red |
| (Wire Colors): | |
| Nickel RTD Sensor Accuracy: | 32°F (0°C): +/-0.72°F (0.4°F); 70°F (21.1°C): +/-0.34°F (0.17°C); 130°F (54.4°C): +/-1.00°F (0.56°C) |
| Nickel Din Standard | Din 43760 |
| Temperature Coefficient (0-100°C): | 6370 ppm/°C |
| Nickel RTD Stability: | +/-0.05% after 1000 Hours @ 302°F (150°C) |
| Lead Wire Length Conductor Size: | 14" (35.6 cm) 22 AWG (0.65 mm) |
| Insulation Rating: | Etched Teflon (PTFE) Colored Leads Mil Spec 16878/4 Type E |
| Enclosure Specifications (Material, Flammability, "4X" Enclosure: | Polystyrene Plastic; UL94-V2; -40 to 158°F (-40 to 70°C); NEMA 4X (IP 66) |
| Temperature, NEMA/IP Rating): | |
| Sensing Tube Dimensions (Length x Diameter): | 6.83" (173.48 mm) x 0.740" (18.80mm) |
| Product Dimensions (L x W x D): | 14.95" (379.7 mm) x 7.50" (190.50 mm) |
| Product Weight: | 4.16 lbs(1.89 kg) |
| Agency Approvals: | CE, RoHS2, WEEE |





DIMENSIONAL DRAWING



Side View(s)

CUSTOM ORDERING

Model # Example: A/ RH2 1K-NI O-SUN NIST
A. B. C. D. E. F.

MODEL #

| | | |
|---|--|--------------|
| A. Sensor Series <i>No Selection Required</i> | A/ _____ → | A/ |
| B. Accuracy <i>No Selection Required</i> | RH2 = +/-2% _____ → | RH2 |
| C. Temperature Sensor <i>No Selection Required</i> | 1K-NI _____ → | 1K-NI |
| D. Configuration <i>No Selection Required</i> | O-SUN = Outside Sun Shield (NEMA 4X) _____ → | O-SUN |
| E. Output Signal <i>Select One (1)</i> | ---- = 4 to 20 mA (Default) 0 to 10 VDC (Field Selectable) 0 to 5 VDC (Field Selectable) | |
| F. NIST (Temperature & RH) <i>Select One (1)</i> | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) | |

Note: Outputs are field selectable between 4-20 mA, 0-5 VDC & 0-10 VDC





SUN SHIELD

Weather Proof, Relative Humidity, Balco RTD

The ACI Sun Shield is a reliable solution for protecting both the temperature and relative humidity sensors when mounted in a location where an overhang or shade is unavailable. It consists of nine (9) molded, white plastic plates which are used to reduce the thermal effect of the sun and increasing the air flow between the plates. The Sun Shield also provides an added level of protection for the sensors from rain and snow. The Sun Shield is available with our +/-2% RH transmitter, a standard Balco RTD, and has field selectable outputs of 4-20mA, 0-5VDC and 0-10VDC. Three point NIST Calibration Certificates are available.

Applications: Outdoor Humidity and Temperature Monitoring

The ACI RH Balco RTD Sun Shield is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

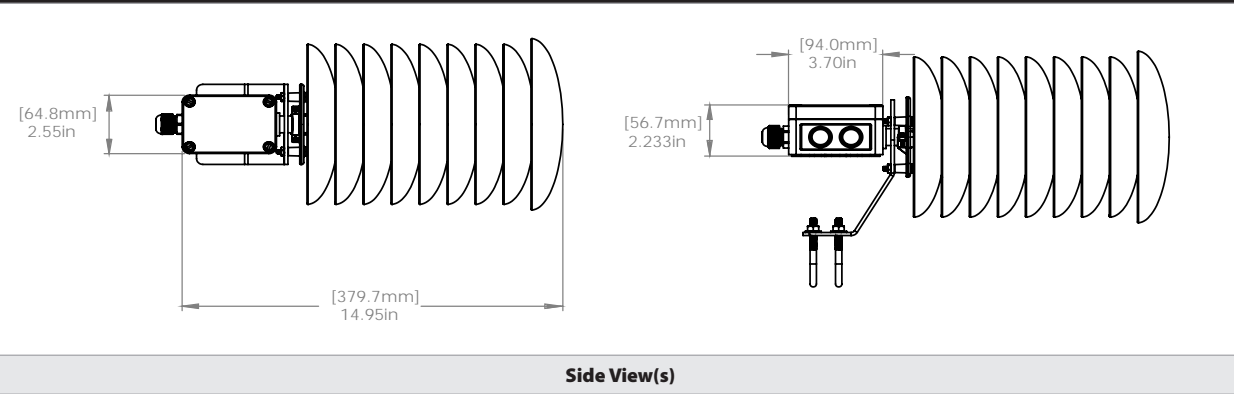
PRODUCT SPECIFICATIONS

| | |
|---|---|
| RH Supply Voltage | 4-20 mA: 250 Ohm Load: 15 - 40 VDC / 18 - 28 VAC 500 Ohm Load: 18 - 40 VDC / 18 - 28 VAC |
| (Reverse Polarity Protected): | 0-5 VDC: 12 - 40 VDC / 18 - 28 VAC 0-10 VDC: 18 - 40 VDC / 18 - 28 VAC |
| RH Supply Current (VA): | Voltage Output: 8 mA maximum (0.32 VA) Current Output: 24 mA maximum (0.83 VA) |
| RH Output Load Resistance: | 4-20 mA: 700 Ohms maximum 0-5 VDC or 0-10 VDC: 4K Ohms Minimum |
| RH Output Signal: | 2-wire: 4 - 20 mA (Factory Default) 3-wire: 0-5 or 0-10 VDC and 4 - 20 mA (Field Selectable) |
| RH Accuracy @ 77°F (25°C): | +/- 2% from 10 to 95% |
| RH Measurement Range: | 0-100% |
| Operating RH Range: | 0 to 95% RH, non-condensing (Conformally Coated PCB's) |
| Operating Temperature Range: | -40 to 140°F (-40 to 60°C) |
| Storage Temperature Range: | -40 to 149°F (-40 to 65°C) |
| RH Stability Repeatability Sensitivity: | Less than 2% drift / 5 years 0.5% RH 0.1% RH |
| RH Response Time (T63): | 20 Seconds Typical |
| RH Sensor Type: | Capacitive with Hydrophobic Filter |
| RH Transmitter Stabilization Time: | 30 Minutes (Recommended time before doing accuracy verification) |
| RH Connections: | Screw Terminal Blocks (Polarity Sensitive) |
| Wire Size: | 16 (1.31 mm ²) to 26 AWG (0.129 mm ²) |
| RH Terminal Block Torque Rating: | 4.43 to 5.31 lb-in (0.5 to 0.6 Nm) |
| RH NIST Test Points: | Default Test Points: 3 Points (20%, 50% & 80%) 1% NIST Test Points: 5 Points within selected 20% Range (ie. 30%-50% are 30, 35, 40, 45 & 50) |
| Balco RTD Output @ 70°F (21.1°C) (Wire Colors): | 1000 Ohms nominal (Balco RTD) Orange/Yellow |
| Balco RTD Sensor Accuracy 70°F (21.1°C): | +/- 1.0% |
| Balco RTD Temperature Coefficient (0-100°C): | 4618 ppm/°C |
| Balco RTD Stability: | +/-0.05% after 1000 Hours @ 302°F (150°C) |
| Temperature Sensor Response Time (T63): | 10 Seconds nominal |
| Lead Wire Length Conductor Size: | 14" (35.6 cm) 22 AWG (0.65 mm) |
| Insulation Rating: | Etched Teflon (PTFE) Colored Leads Mil Spec 16878/4 Type E |
| Enclosure Specifications (Material, Flammability, "4X" Enclosure): | Polystyrene Plastic; UL94-V2; -40 to 158°F (-40 to 70°C); NEMA 4X (IP 66) |
| Temperature, NEMA/IP Rating): | |
| Sensing Tube Dimensions (Length x Diameter): | 6.83" (173.48 mm) x 0.740" (18.80mm) |
| Product Dimensions (L x W x D): | 14.95" (379.7 mm) x 7.50" (190.50 mm) |
| Product Weight: | 4.16 lbs(1.89 kg) |
| Agency Approvals: | CE, RoHS2, WEEE |





DIMENSIONAL DRAWING



| CUSTOM ORDERING | | Model # Example: A/ RH2 BALCO O-SUN NIST | MODEL # |
|---|--|---|--------------|
| | | A. B. C. D. E. F. | |
| A. Sensor Series <i>No Selection Required</i> | A/ _____ | | A/ |
| B. Accuracy <i>No Selection Required</i> | RH2 = +/-2% _____ | | RH2 |
| C. Temperature Sensor <i>No Selection Required</i> | BALCO _____ | | BALCO |
| D. Configuration <i>No Selection Required</i> | O-SUN = Outside Sun Shield (NEMA 4X) _____ | | O-SUN |
| E. Output Signal <i>Select One (1)</i> | ---- = 4 to 20 mA (Default) 0 to 10 VDC (Field Selectable) 0 to 5 VDC (Field Selectable) | | |
| F. NIST (Temperature & RH) <i>Select One (1)</i> | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) | | |

Note: Outputs are field selectable between 4-20 mA, 0-5 VDC & 0-10 VDC





SUN SHIELD

Weather Proof, Relative Humidity, Transmitter

The ACI Sun Shield is a reliable solution for protecting both the temperature and relative humidity sensors when mounted in a location where an overhang or shade is unavailable. It consists of nine (9) molded, white plastic plates which are used to reduce the thermal effect of the sun and increasing the air flow between the plates. The Sun Shield also provides an added level of protection for the sensors from rain and snow. The Sun Shield is available with our +/-2% RH transmitter and our TT100 or TT1K Series 4-20 mA output temperature transmitters. NIST Calibration Certificates (RH only) are available.

Applications: Outdoor Humidity and Temperature Monitoring

The ACI RH TT Sun Shield is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, workaci.com.

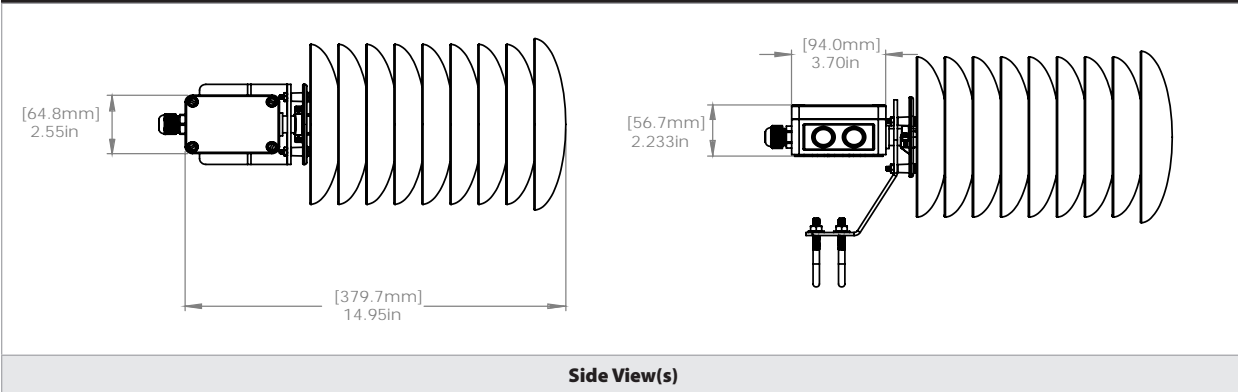
PRODUCT SPECIFICATIONS

| | |
|--|--|
| RH Supply Voltage (Reverse Polarity Protected): | 4-20 mA: 250 Ohm Load: 15 - 40 VDC / 18 - 28 VAC 500 Ohm Load: 18 - 40 VDC / 18 - 28 VAC 0-5 VDC: 12 - 40 VDC / 18 - 28 VAC 0-10 VDC: 18 - 40 VDC / 18 - 28 VAC |
| RH Supply Current (VA): | Voltage Output: 8 mA maximum (0.32 VA) Current Output: 24 mA maximum (0.83 VA) |
| RH Output Load Resistance: | 4-20 mA: 700 Ohms maximum 0-5 VDC or 0-10 VDC: 4K Ohms Minimum |
| RH Output Signal: | 2-wire: 4 - 20 mA (Factory Default) 3-wire: 0-5 or 0-10 VDC & 4 - 20 mA (Field Selectable) |
| RH Accuracy @ 77°F (25°C): | +/- 2% from 10 to 95% |
| RH Measurement Range: | 0-100% |
| Operating RH Range: | 0 to 95% RH, non-condensing (Conformally Coated PCB's) |
| Operating Temperature Range: | -40 to 140°F (-40 to 60°C) |
| Storage Temperature Range: | -40 to 149°F (-40 to 65°C) |
| RH Stability Repeatability Sensitivity: | Less than 2% drift / 5 years 0.5% RH 0.1% RH |
| RH Response Time (T63): | 20 Seconds Typical |
| RH Sensor Type: | Capacitive with Hydrophobic Filter |
| RH Transmitter Stabilization Time: | 30 Minutes (Recommended time before doing accuracy verification) |
| RH Connections: | Screw Terminal Blocks (Polarity Sensitive) |
| Wire Size: | 16 (1.31 mm ²) to 26 AWG (0.129 mm ²) |
| RH Terminal Block Torque Rating: | 4.43 to 5.31 lb-in (0.5 to 0.6 Nm) |
| RH NIST Test Points: | Default Test Points: 3 Points (20%, 50% & 80%) |
| TT Supply Voltage Supply Current: | +8.5 to 32 VDC (Reverse Polarity Protected) 25 mA minimum 250 Ohm Load: +13.5 to 32 VDC 500 Ohm Load: +18.5 to 32 VDC |
| TT Maximum Load Resistance: | (Terminal Voltage - 8.5 V) 0.020 A |
| TT Output Signals: | Current Output: 4-20 mA (2-Wire Loop Powered) Voltage Output: 1-5 VDC or 2-10 VDC (3-Wires) |
| TT Calibrated Accuracy Linearity ¹: | Temperature Spans < 500°F (260°C): +/- 0.2% Temperature Spans > 500°F (260°C): +/- 0.5% |
| TT Temperature Drift ²: | Temperature Spans < 100°F (38°C): +/- 0.04%/°F Temperature Spans > 100°F (38°C): +/- 0.02%/°F |
| TT Warm Up Time Warm Up Drift: | 10 Minutes +/- 0.1% |
| TT Operating Temperature Range: | -40 to 185°F (-40 to 85°C) |
| RH Range: | 0 to 100% RH |
| Platinum RTD (PTC) Number Wires Wire Colors: | Two A/TT100 Series: Brown/Brown A/TT1K Series: Black/Black |
| Platinum RTD Sensor Output @ 32°F (0°C): | A/TT100 Series: 100 Ohms Nominal A/TT1K Series: 1000 Ohms Nominal |
| Platinum RTD Tolerance Class Accuracy: | +/- 0.06% Class A Tolerance Formula: +/- °C = (0.15°C + (0.002 * t)) where t is the absolute value of Temperature above or below 0°C in °C |
| Platinum RTD Sensor Stability: | +/- 0.03% after 1000 Hours @ 572°F (300°C) |
| Platinum RTD Response Time (63% Step Change): | 8 Seconds nominal |
| Enclosure Specifications (Material, Flammability, Temperature, NEMA/IP Rating): | "-4X" Enclosure: Polystyrene Plastic; UL94-V2; -40 to 158°F (-40 to 70°C); NEMA 4X (IP 66) |
| Sensing Tube Dimensions (Length x Diameter): | 6.83" (173.48 mm) x 0.740" (18.80mm) |
| Product Dimensions (L x W x D): | 14.95" (379.7 mm) x 7.50" (190.50 mm) |
| Product Weight: | 4.16 lbs(1.89 kg) |
| Agency Approvals: | RoHS2, WEEE |





DIMENSIONAL DRAWING



Side View(s)

CUSTOM ORDERING

Model # Example: **A/** **RH2** **TT1K** **O-SUN** **2** **0-100°F**

MODEL #

| | A. Sensor Series No Selection Required | B. Accuracy No Selection Required | C. Temperature Sensor Select One (1) | D. Configuration Select One (1) | E. TT Output Signal Select One (1) | F. Calibrated Span | G. NIST (RH Only) Select One(1) | |
|--|---|--|---|--|---|--|---|-------|
| | A/ | RH2 = +/-2% | TT100 = 100 Ohms TT1K = 1K Ohms | O-SUN = Outside Sun Shield (NEMA 4X) | --- = 4 to 20 mA (Default) 1 = 1 to 5 VDC* 2 = 2 to 10 VDC* | Specify Span in °F or °C (Best Accuracy in 100°F Increments) | ---- = No NIST Certificate NIST = NIST Certificate (3 Points) | A/ |
| | | | | | | | | RH2 |
| | | | | | | | | O-SUN |
| | | | | | | | | |
| | | | | | | | | |

Note*: A Temperature Transmitter Output of 1-5 VDC or 2-10 VDC would have a RH Output of 0-5 VDC or 0-10 VDC



ENTHALPY

Indoor/Outdoor Monitoring Controllers

The A/ENT-CTRL and A/DIFF-ENT are enthalpy controllers used to monitor indoor and outdoor temperature and humidity before converting them into a relay output with the 24 VAC/VDC supply voltage sourced through the relay contacts when reaching its internal trip points. The supply voltage to the A/ENT-CTRL or A/DIFF-ENT is common to both the N/O or N/C contacts of the 10A Form C relay. The A/ENT-CTRL-F1C's version includes a dry contact closure or switch instead of sourcing the supply voltage through the relay contacts.

The A/ENT converts a capacitive type humidity sensor into a linear 2-wire, 4 to 20 mA loop powered output or it can be used in conjunction with the A/DIFF-ENT to determine whether

your indoor or outdoor Enthalpy is greater. The A/ENT can be used with your Economizer control to monitor the indoor or outdoor Enthalpy over a range of 0 to 50 BTU's. Each unit in this series features a conformally coated circuit board and field selectable elevation adjustments.

Applications: Economizers, OEM's

The ACI Enthalpy Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|---|---|
| Supply Voltage: | +24 to 36 VDC or 24 VAC +/- 10% (A/ENT-CTRL & A/DIFF-ENT) +24 to 36 VDC (A/ENT) |
| Supply Current: | 70 mA max (A/ENT-CTRL & A/DIFF-ENT), 25 mA maximum (A/ENT) |
| External Input (A/DIFF-ENT Only): | 4-20 mA (0 to 50 BTU's) from A/ENT |
| Enthalpy Measurement: | 0-50 BTU's (A/ENT) |
| Range Output/Contact Rating: | 4-20 mA (A/ENT) 10A @ 250 VAC (A/ENT-CTRL & A/DIFF-ENT) |
| Relay Deadband: | 1 BTU or 0.5°F (0.27°C) |
| Enthalpy Accuracy: | +/- 1 BTU @77°F (25°C) |
| Long-term Stability: | Less than 2% RH Drift/5 years |
| Sensitivity: | 0.1% RH |
| Repeatability: | 0.5% RH |
| Operating RH Range: | 0 to 95% RH (non-condensing) |
| Operating Temperature Range: | -40°F to 140°F (-40°C to 60°C) |
| Standard Elevation: | 1000' above sea level (standard) |
| Product Dimensions (All Enthalpy Types): | (H) 3.36" (85.22mm) x (W) 4.25" (107.95mm) x (D) 1.36" (34.47mm) |
| Product Weight: | 0.35 lbs (0.159 kg) |





DIMENSIONAL DRAWING

| | | |
|--|-------------------|-----------------|
| <p>A/ENT-CTRL, A/ENT-CTRL-F1C</p> | | |
| <p>A/DIFF-ENT</p> | | |
| <p>A/ENT</p> | | |
| Front View | Right View | Top View |

| STANDARD ORDERING | | | Model # Example: A/ENT-CTRL-F1C -OR- 122441 |
|-----------------------|--------|---|---|
| Model # | Item # | Description | |
| A/DIFF-ENT* | 122426 | Differential Enthalpy Changeover Control, Indoor vs Outdoor, 24 VAC Form 1C Relay Contact | |
| A/ENT-CTRL | 122440 | Outdoor Enthalpy/Temperature Changeover Control, 24 VAC Form 1C Relay Contact | |
| A/ENT-CTRL-F1C | 122441 | Outdoor Enthalpy/Temperature Changeover Control, Form 1C Dry Contact Relay | |
| A/ENT* | 122439 | Enthalpy Transmitter, 0 to 50 BTU, 4 to 20 mA Loop Powered | |

Note*: A/DIFF-ENT should be ordered in conjunction with the A/ENT

| CUSTOM ORDERING | | Model # Example: A/ ENT | MODEL # |
|--|--|--------------------------------|----------------|
| | | A. B. C. D. E. | |
| A. Sensor Series <i>No Selection Required</i> | A/ → | | A/ |
| B. Accuracy <i>Select One (1)</i> | DIFF-ENT = Differential Enthalpy Control ENT-CTRL = Outdoor Enthalpy/Temperature Changeover Control ENT-CTRL-F1C = Outdoor Enthalpy/Temperature Changeover Control ENT = Enthalpy Transmitter, 0 to 50 BTU, 4 to 20 mA Loop Powered | | |
| C. Elevation <i>No Selection Required</i> | ---- = 0-2K ft Above Sea Level (Default) → | | |
| D. Curve <i>No Selection Required</i> | ---- = 28 BTU/lb 75°F (Default) → | | |
| E. Slope <i>No Selection Required</i> | ---- = Direct Acting / Positive Slope (Default) → | | |

Note: See product instructions for additional field selections (elevations, curves, slopes)





DLP (CONFIGURABLE OPTIONS)

Differential Low Pressure (Uni/Bi-Directional)

The DLP Series is based on a piezoresistive, silicon sensing element which senses Differential Pressure and provides an analog output. The hinged cover on the DLP can be easily opened using the integrated locking tab on the side of the enclosure. This allows for easy access to the zero function and field selectable ranges and outputs. The DLP Series also includes an optional, five digit LCD for installation and monitoring support. Field selectable analog outputs include 0-5 and 0-10 VDC, or 4-20 mA which correlate to a uni or bi-directional pressure range from 0-0.1" up to 0-40" of water column, depending on your model selection. Each unit must be ordered with the specific pressure range needed to meet desired application requirements. Options include a Pitot Tube or Din Rail Clip.

Applications: Building and Duct Static Pressure, Filter Monitoring, Air Flow Measurement, and Process Control

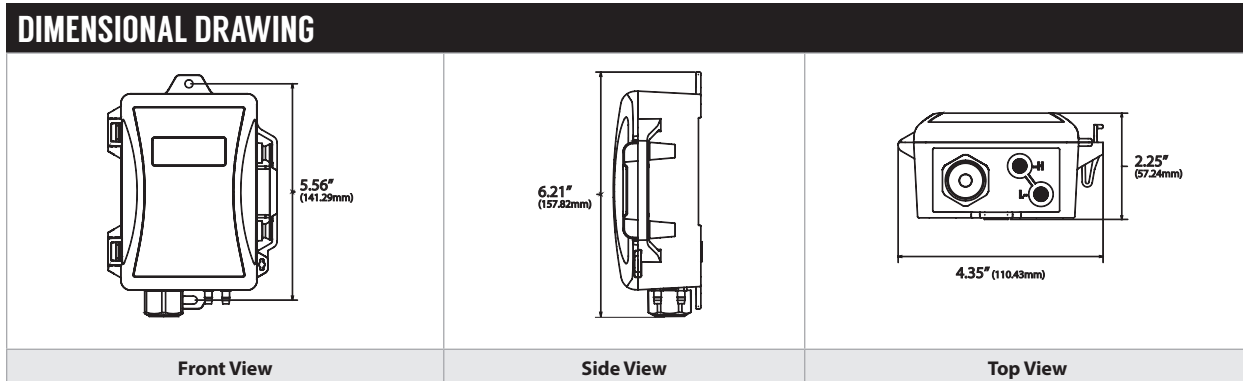
The DLP Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's web site, workaci.com.

PRODUCT SPECIFICATIONS

| | |
|---|---|
| Supply Voltage: | 4-20 mA Output: 16-36 VDC (250 Ohm Load max.) / 22-36 VDC (500 Ohm Load max.) / 24 VAC (+/-10%) 50/60 Hz |
| Supply Current: | 0-5 VDC / 0-10 VDC Output: 15-36 VDC into > 5K Ohm Load / 24 VAC (+/- 10%), 50/60 Hz 4-20 mA Output: 24 mA (0.83 VA) 0-5 VDC / 0-10 VDC Outputs: 6 mA maximum (0.18 VA) |
| Output Signals: | 4-20 mA: 2-wire Loop Powered (output limited to 20.5 mA maximum) 4-20 mA: 3-Wire, VAC Powered (output limited to 20.5 mA maximum) 0-5 VDC or 0-10 VDC: 3-Wire, VAC or VDC Powered (output limited to 5.25 & 10.25 VDC) |
| Response Time (0-100% FSO): | 4 seconds |
| Output Update Rate: | 0.5 second intervals |
| Pressure Range: | Specify Single Range (See "Ordering" on Reverse Side) |
| Accuracy¹: | Specify: +/-0.25% FSO (except for 0.1"(25Pa) range) +/-0.5% FSO |
| Zero Function: | Pushbutton Zero Function |
| Thermal Effects²: | ±0.067% FSO / °F (0.12% FSO / °C) |
| Proof Pressure: | ≤ 1" wc (250 Pa): 270 inWC (67.2 kPa) for 1 inWC (249.8 Pa) range ≥ 1" wc (250 Pa) ≤ 10" wc (2500 Pa): 350 inWC (87.12 kPa) for 10 inWC (2490.8 Pa) range ≥ 10" (2500 Pa) ≤ 40" wc (10K Pa): 562 inWC (140 kPa) for 40 inWC (9963.6 Pa) range |
| Burst Pressure: | ≤ 1" wc (250 Pa): 415 inWC (103.3 kPa) for 1 inWC (249.8 Pa) range ≥ 1" wc (250 Pa) ≤ 10" wc (2500 Pa): 550 inWC (136.9 kPa) for 10 inWC (2490.8 Pa) range ≥ 10" *2500 Pa) ≤ 40" wc (10K Pa): 1004.7 inWC (250 kPa) for 40 inWC (9963.6 Pa) range |
| Operating Temperature Range: | -4 to 185°F (-20 to 85°C) |
| Compensated Temperature Range: | 32 to 122°F (0 to 50°C) |
| Storage Temperature Range: | -22 to 185°F (-30 to 85°C) |
| Operating Humidity: | 10 to 95% RH, non-condensing |
| Media Types: | Intended for use with non-corrosive, non-ionic gases, such as air and other dry gases |
| Enclosure Material Flammability Rating: | Flame Retardant Polycarbonate; UL94-5VA |
| Wiring Connections: | Finger Pushbutton (Spring) Terminal Blocks; accepts 16-24 AWG wires |
| Conduit Knockouts: | Watertight Cordgrip Installed (1/2" NPT Conduit fittings accepted when Cordgrip removed) |
| Pressure Fitting Material: | Nickel Plated Brass |
| Tubing Size Accepted: | 1/4" O.D. x 0.170" I.D. Poly Tubing |
| NIST Certification: | 3 Point NIST Test Points: 10%, 50%, & 90% FSO 5 Point NIST Test Points: 10%, 30%, 50%, 70%, & 90% FSO |
| Approvals: | CE, RoHS2, WEEE, Reach |
| Product Weight (No Pitot Tube / Din Rail): | Non-LCD Display Version: 0.53 lbs (0.240 kg) LCD Display Version: 0.58 lbs (0.263 kg) |
| Product Weight (With Pitot Tube & Din Rail): | Non-LCD Display Version: 0.80 lbs (0.363 kg) LCD Display Version: 0.85 lbs (0.385 kg) |

Note¹: Accuracy includes Linearity, Hysteresis and Repeatability @ 71°F (21.5°C) | **Note²:** Shift is relative to 71°F (21.5°C)





| CUSTOM ORDERING | | Model # Example: A/DLP 001 W B D B 1 A 3P S | | | | | | | | | | MODEL # |
|--|--|--|--|---|--|---|----|----|----|----|----|---------|
| | | A. | B. | C. | D. | E. | F. | G. | H. | I. | J. | |
| A. Sensor Series <i>No Selection Required</i> | A/DLP | | | | | | | | | | | A/DLP |
| B. Differential Pressure Range <i>Select One (1)</i> | D10 (0.10)** D25 (0.25) D50 (0.50) 001 (1) 002 (2) | 2D5 (2.5) 003 (3) 004 (4) 005 (5) 010 (10) | 015 (15) 020 (20) 025 (25)** 030 (30) 040 (40) | 050 (50)* 100 (100)* 125 (125)* 250 (250)* 300 (300)* | 500 (500)* 750 (750)* 1K0 (1,000)* 1K2 (1,250)* 1K6 (1,600)* | 2K5 (2,500)* 3K2 (3,200)* 5K0 (5,000)* 7K5 (7,500)* 10K (10,000)* | | | | | | |
| C. Units <i>Select One (1)</i> | W = Water Column P = Pascal | | | | | | | | | | | |
| D. Bi/Uni Directional <i>Select One (1)</i> | U = Uni-Directional (i.e. 0 to 1" wc) B = Bi-Directional (i.e. -1 to +1" wc) | | | | | | | | | | | |
| E. Display <i>Select One (1)</i> | N = No LCD Display D = With LCD Display | | | | | | | | | | | |
| F. Accuracy <i>Select One (1)</i> | A = +/- 0.5% B = +/- 0.25% | | | | | | | | | | | |
| G. Pitot Tube/Din Rail <i>Select One (1)</i> | 0 = No Pitot Tube/Din Rail 1 = Pitot Tube 2 = Din Rail 3 = Pitot Tube & Din Rail | | | | | | | | | | | |
| H. Analog Output <i>Select One (1)</i> | A = 4 to 20 mA B = 0-5 VDC C = 0-10 VDC | | | | | | | | | | | |
| I. NIST <i>Select One (1)</i> | 0P = None 3P = 3 Point NIST 5P = 5 Point NIST | | | | | | | | | | | |
| J. Enclosure <i>No Selection Required</i> | S = Standard Enclosure | | | | | | | | | | S | |

Note*: Pascal Ranges Only | Note**: "025" range is available in either wc or Pa ranges | Note***: 0.10"WC and 025 Pa accuracy is +/- 0.50% only (Use "A" for Accuracy Selection)

| STANDARD ORDERING | | | Model # Example: A/DRC-DLP -OR- 140999 |
|-------------------|--------|---|--|
| Model # | Item # | Description | |
| A/PT-DLP | 140998 | Pitot Tube, DLP Duct Static Size: 7" (6.75" Insertion) Material: Aluminum | |
| A/DRC-DLP | 140999 | Din Rail Clip, DLP Size: 35 mm | |

Note*: Other compatible products include ACI's Pick up Port (A/PUP) Series, Medical Grade Tubing Kit (A/10'), Transformer Series (A/LE) and DC Power Supply(A/PS24-24V-S)





| ACCESSORIES ORDERING PITOT TUBES | | | | Model # Example: A/PT 5.2 -OR- 130141 |
|------------------------------------|--------|---|------------------|---|
| Model # | Item # | Description | Insertion Length | Number of Sensing Points |
| PT 3" | 130140 | 3.0" Pitot Tube with Foam Gasket | 3.0" (7.6 cm) | 1 Set |
| PT 5.2" | 130141 | 5.2" Pitot Tube with Foam Gasket | 5.2" (13.2 cm) | 2 Sets |
| PT 7.5" | 130142 | 7.5" Pitot Tube with Foam Gasket | 7.5" (19.1 cm) | 3 Sets |
| PT 9.7" | 130143 | 9.7" Pitot Tube with Foam Gasket | 9.7" (24.6 cm) | 4 Sets |
| SPT - 3.5" | 102957 | 3.5" Aluminum Duct Static (Flat Tip) Pitot Tube | 3.5" (88.9 mm) | 1 Point |
| SPT - 8.0" | 108976 | 8.0" Aluminum Duct Static (Flat Tip) Pitot Tube | 8.0" (203.2 mm) | 1 Point |
| VPT | 103010 | 4.0" Aluminum Velocity (Pointed Tip) Pitot Tube | 4" (101.6 mm) | 1 Point |
| VPT - 8" | 125008 | 8.0" Aluminum Velocity (Pointed Tip) Pitot Tube | 8" (203.2 mm) | 1 Point |

| ACCESSORIES ORDERING PICK UP PORTS | | | | Model # Example: A/SP-PUP -OR- 125585 |
|--------------------------------------|--------|--|-------------------------|---|
| Model # | Item # | Description | Color | |
| A/SP-PUP | 125585 | Pickup Port, Wall Mounted Stainless Plate | Brushed Stainless Steel | |
| A/R-PUP | 125584 | Pickup Port, Wall Mounted Plastic Enclosure | Beige | |
| A/R2-PUP | 132711 | Pickup Port, Wall Mounted Plastic Enclosure | White | |
| A/O-PUP-H | 132892 | Pickup Port, Horizontal Mount, Outdoor Weatherproof Euro Enclosure | Light Gray | |
| A/O-PUP-V | 132891 | Pickup Port, Vertical Mount, Outdoor Weatherproof Euro Enclosure | Light Gray | |





DLP (+/- 0.50% ACCURACY)

Differential Low Pressure (Uni/Bi-Directional)

The DLP Series is based on a piezoresistive, silicon sensing element which senses Differential Pressure and provides an analog output. The hinged cover on the DLP can be easily opened using the integrated locking tab on the side of the enclosure. This allows for easy access to the zero function and field selectable ranges and outputs. The DLP Series also includes an optional, five digit LCD for installation and monitoring support. Field selectable analog outputs include 0-5 and 0-10 VDC, or 4-20 mA which correlate to a uni or bi-directional pressure range from 0-0.1" up to 0-40" of water column, depending on your model selection. Each unit has up to 8 field selectable, uni or bi-directional ranges. Options include a Pitot Tube or Din Rail Clip.

Applications: Building and Duct Static Pressure, Filter Monitoring, Air Flow Measurement, and Process Control

The DLP Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's web site, workaci.com.

PRODUCT SPECIFICATIONS

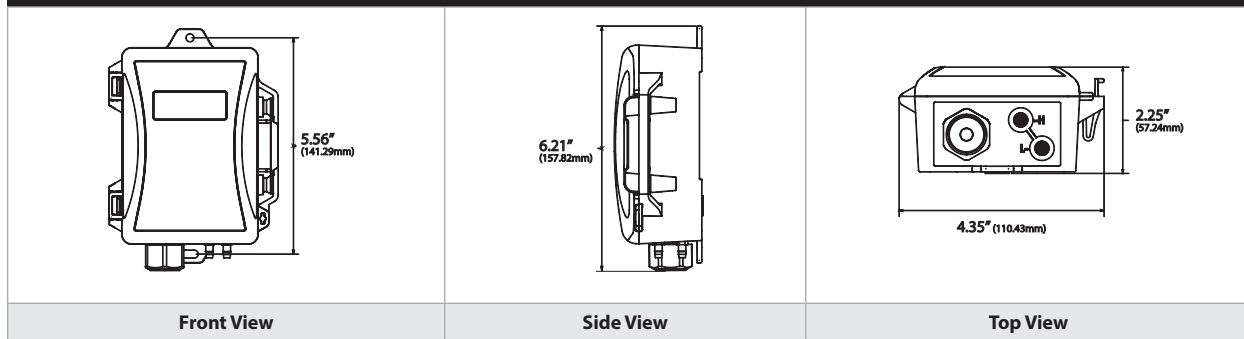
| | |
|---|--|
| Supply Voltage: | 4-20 mA Output: 16-36 VDC (250 Ohm Load max.) / 22-36 VDC (500 Ohm Load max.) / 24 VAC (+/-10%) 50/60 Hz 0-5 VDC / 0-10 VDC Output: 15-36 VDC >5K Ohm Load / 24 VAC (+/- 10%) 50/60 Hz |
| Supply Current: | 4-20 mA Output: 24 mA (0.83 VA) 0-5 VDC / 0-10 VDC Outputs: 6 mA maximum (0.18 VA) |
| Output Signals: | 4-20 mA: 2-wire Loop Powered (output limited to 20.5 mA maximum) 4-20 mA: 3-Wire, VAC Powered (output limited to 20.5 mA maximum) 0-5 VDC or 0-10 VDC: 3-Wire, VAC or VDC Powered (output limited to 5.25 & 10.25 VDC) |
| Response Time (0-100% FSO): | 4 seconds |
| Output Update Rate: | 0.5 second intervals |
| Pressure Range: | See Product Ordering Grid (next page); Field Selectable Uni and Bi-Directional Ranges |
| Accuracy¹: | ±0.50% FSO |
| Zero Function: | Pushbutton Zero Function |
| Thermal Effects²: | ±0.067% FSO / °F (0.12% FSO / °C) |
| Proof Pressure Burst Pressure: | A/DLP-001: Proof: 270 inWC (67.2 kPa) Burst: 415 inWC (103.3 kPa) for 1 inWC (249.8 Pa) A/DLP-010: Proof: 350 inWC (87.12 kPa) Burst: 550 inWC (136.9 kPa) for 10 inWC (2490.8 Pa) A/DLP-040: Proof: 562 inWC (140 kPa) Burst: 1004.7 inWC (250 kPa) for 40 inWC (9963.6 Pa) |
| Operating Temperature Range: | -4 to 185°F (-20 to 85°C) |
| Compensated Temperature Range: | 32 to 122°F (0 to 50°C) |
| Storage Temperature Range: | -22 to 185°F (-30 to 85°C) |
| Operating Humidity: | 10 to 95% RH, non-condensing |
| Media Types: | Intended for use with non-corrosive, non-ionic gases, such as air and other dry gases |
| Enclosure Material Flammability Rating: | Flame Retardant Polycarbonate; UL94-5VA |
| Wiring Connections: | Finger Pushbutton (Spring) Terminal Blocks; accepts 16-24 AWG wires |
| Conduit Knockouts: | Watertight Cordgrip Installed (1/2" NPT Conduit fittings accepted when Cordgrip removed) |
| Pressure Fitting Material: | Nickel Plated Brass |
| Tubing Size Accepted: | 1/4" O.D. x 0.170" I.D. Poly Tubing |
| Approvals: | CE, RoHS2, WEEE, Reach |
| Product Weight (No Pitot Tube / Din Rail): | Non-LCD Display Version: 0.53 lbs (0.240 kg) LCD Display Version: 0.58 lbs (0.263 kg) |
| Product Weight (With Pitot Tube & Din Rail): | Non-LCD Display Version: 0.80 lbs (0.363 kg) LCD Display Version: 0.85 lbs (0.385 kg) |

Note¹: Accuracy includes Linearity, Hysteresis and Repeatability @ 71°F (21.5°C) | **Note²:** Shift is relative to 71°F (21.5°C)





DIMENSIONAL DRAWING



STANDARD ORDERING

Model # Example: **A** / **DLP** - **001** **WU** **U** **N** **A** **0** -OR- **140769**

| Model # | Item # | Ranges (Default in Bold) | Outputs (Default in Bold) | LCD* | PT* | DRC* |
|---------------------|--------|--|------------------------------------|------|-----|------|
| A/DLP-001-W-U-N-A-0 | 140769 | 0-0.1", 0.2", 0.5", 1" ±0.1", ±0.2", ±0.5", ±1" | 4-20 mA , 0-5 VDC, 0-10 VDC | | | |
| A/DLP-001-W-U-D-A-0 | 140773 | 0-0.1", 0.2", 0.5", 1" ±0.1", ±0.2", ±0.5", ±1" | 4-20 mA , 0-5 VDC, 0-10 VDC | ⊙ | | |
| A/DLP-010-W-U-N-A-0 | 140774 | 0-1", 2", 5", 10" ±1", ±2", ±5", ±10" | 4-20 mA , 0-5 VDC, 0-10 VDC | | | |
| A/DLP-010-W-U-D-A-0 | 140776 | 0-1", 2", 5", 10" ±1", ±2", ±5", ±10" | 4-20 mA , 0-5 VDC, 0-10 VDC | ⊙ | | |
| A/DLP-040-W-U-N-A-0 | 140777 | 0-10", 20", 30", 40" ±10", ±20", ±30", ±40" | 4-20 mA , 0-5 VDC, 0-10 VDC | | | |
| A/DLP-040-W-U-D-A-0 | 140778 | 0-10", 20", 30", 40" ±10", ±20", ±30", ±40" | 4-20 mA , 0-5 VDC, 0-10 VDC | ⊙ | | |
| A/DLP-001-W-U-N-A-3 | 141072 | 0-0.1", 0.2", 0.5", 1" ±0.1", ±0.2", ±0.5", ±1" | 4-20 mA , 0-5 VDC, 0-10 VDC | | ⊙ | ⊙ |
| A/DLP-001-W-U-D-A-3 | 141073 | 0-0.1", 0.2", 0.5", 1" ±0.1", ±0.2", ±0.5", ±1" | 4-20 mA , 0-5 VDC, 0-10 VDC | ⊙ | ⊙ | ⊙ |
| A/DLP-010-W-U-N-A-3 | 141074 | 0-1", 2", 5", 10" ±1", ±2", ±5", ±10" | 4-20 mA , 0-5 VDC, 0-10 VDC | | ⊙ | ⊙ |
| A/DLP-010-W-U-D-A-3 | 141075 | 0-1", 2", 5", 10" ±1", ±2", ±5", ±10" | 4-20 mA , 0-5 VDC, 0-10 VDC | ⊙ | ⊙ | ⊙ |
| A/DLP-040-W-U-N-A-3 | 141076 | 0-10", 20", 30", 40" ±10", ±20", ±30", ±40" | 4-20 mA , 0-5 VDC, 0-10 VDC | | ⊙ | ⊙ |
| A/DLP-040-W-U-D-A-3 | 141077 | 0-10", 20", 30", 40" ±10", ±20", ±30", ±40" | 4-20 mA , 0-5 VDC, 0-10 VDC | ⊙ | ⊙ | ⊙ |

LCD* (Display Included) | PT* (Pitot Tube Included) | DRC* (Din Rail Clip Included)

STANDARD ORDERING

Model # Example: **A/DRC-DLP** -OR- **140999**

| Model # | Item # | Description |
|-----------|--------|---|
| A/PT-DLP | 140998 | Pitot Tube, DLP Duct Static Size: 7" (6.75" Insertion) Material: Aluminum |
| A/DRC-DLP | 140999 | Din Rail Clip, DLP Size: 35 mm |

Note*: Other compatible products include ACI's Pick up Port (A/PUP) Series, Medical Grade Tubing Kit (A/10'), Transformer Series (A/LE) and DC Power Supply(A/PS24-24V-S)

ACCESSORIES ORDERING | PITOT TUBES

Model # Example: **A/PT 5.2** -OR- **130141**

| Model # | Item # | Description | Insertion Length | Number of Sensing Points |
|------------|--------|---|------------------|--------------------------|
| PT 3" | 130140 | 3.0" Pitot Tube with Foam Gasket | 3.0" (7.6 cm) | 1 Set |
| PT 5.2" | 130141 | 5.2" Pitot Tube with Foam Gasket | 5.2" (13.2 cm) | 2 Sets |
| PT 7.5" | 130142 | 7.5" Pitot Tube with Foam Gasket | 7.5" (19.1 cm) | 3 Sets |
| PT 9.7" | 130143 | 9.7" Pitot Tube with Foam Gasket | 9.7" (24.6 cm) | 4 Sets |
| SPT - 3.5" | 102957 | 3.5" Aluminum Duct Static (Flat Tip) Pitot Tube | 3.5" (88.9 mm) | 1 Point |
| SPT - 8.0" | 108976 | 8.0" Aluminum Duct Static (Flat Tip) Pitot Tube | 8.0" (203.2 mm) | 1 Point |
| VPT | 103010 | 4.0" Aluminum Velocity (Pointed Tip) Pitot Tube | 4" (101.6 mm) | 1 Point |
| VPT - 8" | 125008 | 8.0" Aluminum Velocity (Pointed Tip) Pitot Tube | 8" (203.2 mm) | 1 Point |





| ACCESSORIES ORDERING PICK UP PORTS | | | Model # Example: A/SP-PUP -OR- 125585 |
|--------------------------------------|--------|--|---|
| Model # | Item # | Description | Color |
| A/SP-PUP | 125585 | Pickup Port, Wall Mounted Stainless Plate | Brushed Stainless Steel |
| A/R-PUP | 125584 | Pickup Port, Wall Mounted Plastic Enclosure | Beige |
| A/R2-PUP | 132711 | Pickup Port, Wall Mounted Plastic Enclosure | White |
| A/O-PUP-H | 132892 | Pickup Port, Horizontal Mount, Outdoor Weatherproof Euro Enclosure | Light Gray |
| A/O-PUP-V | 132891 | Pickup Port, Vertical Mount, Outdoor Weatherproof Euro Enclosure | Light Gray |





MLP2

Miniature Low Pressure Transmitter

The MLP2 Series Low Differential Pressure transmitters are designed for use in OEM or high density panel mounting applications. Key installation features include an integral 35 mm DIN rail mounting foot, vertically orientated wiring and pressure connections, and a pushbutton zero function conveniently located on the front cover. The MLP2 offers two options for DIN Rail mounting; rear and side mount. The rear DIN rail mount is integrated into the enclosure. The side mount adapter is included with the package, and can easily be attached. The side mount offers a much thinner profile for higher density panels. The MLP2 incorporates a high accuracy, piezoresistive, silicon sensing element which senses differential pressure and provides a linear 4 to 20 mA or DC voltage output equal to the specified pressure range. This technology reduces warmup shift while also reducing the effect of package stress for increased long term

stability. In addition, the unit contains a de-pluggable terminal block that can be removed for ease of installation. This unit must be ordered with a single uni or bi-directional pressure range and output signal from +/- 0.1" of water column to a maximum pressure of +/- 40" of water column depending on your application. All MLP2 Series pressure transmitters are calibrated using NIST Certified equipment. Optional 3 or 5 point NIST Certificates are available and must be specified when placing your order.

Applications: Building and Duct Static Pressure, Filter Monitoring, Air Flow Measurement, Process Control, Roof Top Units, Air Handlers, Clean Rooms, Isolation Rooms, Data Centers

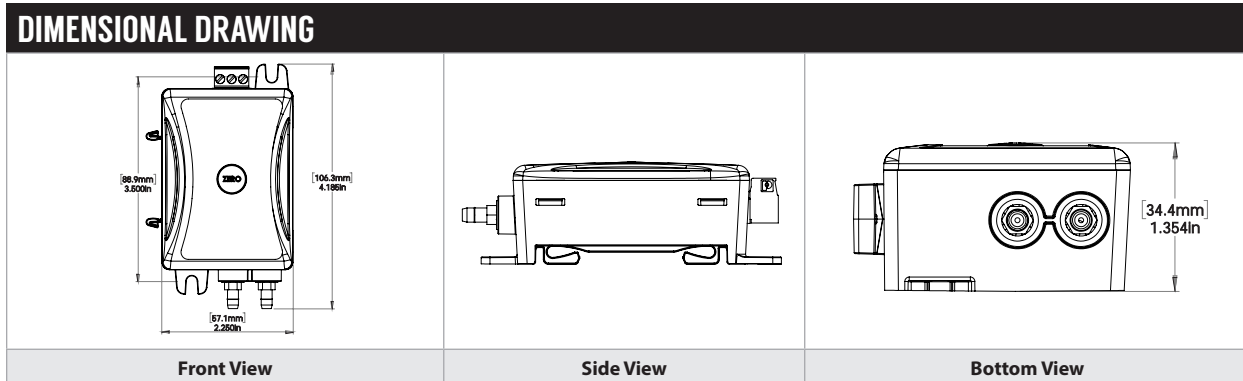
The MLP2 Series Low Differential Pressure Transmitters are covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's web site, workaci.com.

PRODUCT SPECIFICATIONS

| | |
|--|---|
| Supply Voltage: | 4-20 mA Output: 16-36 VDC (250 Ohm Load max.) / 21-36 VDC (500 Ohm Load max.) / 24VAC(+/-10%) 50/60 Hz 0-5 VDC Output: 12-36 VDC / 24 VAC (+/- 10%) 50/60 Hz 0-10 VDC Output: 16-36 VDC / 24 VAC (+/- 10%) 50/60 Hz |
| Supply Current mA (Power Consumption): | 4-20 mA Output: 23 mA minimum (0.83 VA) VDC Output Signals: 5 mA maximum (0.18 VA) |
| Output Signals: | 4-20 mA: 2-wire Loop Powered (output limited to 20.5 mA maximum) 4-20 mA: 3-Wire, VAC Powered (output limited to 20.5 mA maximum) 0-5 VDC or 0-10 VDC: 3-Wire, VAC or VDC Powered (output limited to 5.25 & 10.25 VDC) |
| Pressure Ranges: | See Ordering Information on back of Product Data Sheet (Must Specify when ordering) |
| Accuracy¹: | +/- 0.5% FSO (Default) +/- 0.25% (Optional) for all ranges except 0.1" and +/- 0.1" wc |
| Sensor Compensated Temperature Range: | 32 to 122°F (0 to 50°C) |
| Thermal Effects²: | +/- 0.056% FSO/°F (+/- 0.10% FSO/°C) |
| Warm Up Time: | 15 Minutes |
| Response Time (T95): | 4 seconds |
| Output Update Rate: | 500 ms |
| Zero Function: | Pushbutton Zero Function (Recommended after 15 minutes warm up) |
| Proof Pressure Burst Pressure: | Ranges < 1" wc (248.84 kPa): Proof: 270" wc (67.2 kPa) Burst: 415" wc (103.3 kPa) Ranges > 1" wc (0.2488 kPa) to < 10" wc (2.488 kPa): Proof: 350" wc (87.12 kPa) Burst: 550" wc (136.9 kPa) Ranges > 10" wc (2.488 kPa) to < 40" wc (995.3.6 kPa): Proof: 562" wc (140 kPa) Burst: 1004.7" wc (250 kPa) |
| Operating Temperature Humidity: | 32 to 185°F (0 to 85°C) 10 to 95% RH, non-condensing |
| Storage Temperature Humidity: | -40 to 176°F (-40 to 80°C) 10 to 95% RH, non-condensing |
| Media Types: | Intended for use with non-corrosive, non-ionic gases, such as air and other dry gases |
| Enclosure Material Flammability Rating: | Polycarbonate UL 94 V-0 |
| Enclosure Temperature Rating: | -40 to 248°F (-40 to 120°C) |
| DIN Rail Mounting: | 35 mm (U.S. Patent No. 7,416,421) |
| Wiring Connections Wire Size: | 3 Position de-pluggable screw terminal block 14 AWG (1.628 mm ²) to 24 AWG (0.5105 mm ²) |
| Terminal Block Torque Rating: | 4.43 to 5.31 in.-lbs. (0.5 to 0.6 Nm) |
| Pressure Fitting Material: | Brass |
| Tubing Size Accepted: | 0.250" (6.35 mm) O.D. x 0.170" (4.318 mm) I.D. Push-On Flexible Poly Tubing 3 Point NIST Test Points: 10%, 50%, & 90% of FSO 5 Point NIST Test Points: 10%, 30%, 50%, 70%, and 90% of FSO |
| NIST Certification: | |
| Product Dimensions (L x W x D): | 4.210" (106.94 mm) x 2.085" (52.96 mm) x 1.340" (34.04 mm) |
| Product Weight: | 0.17 lbs. (0.078 kg) |
| Approvals: | CE, RoHS2, WEEE, Reach, UKCA |

Note¹: Accuracy includes Hysteresis, Linearity, and Repeatability at 71°F (21.5°C) Typical | **Note²:** Shift is relative to 77°F (25°C)





| CUSTOM ORDERING | | Model # Example: A/ MLP2 D25 W B B A 5P | | | | | MODEL # | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---------------------|----------------------|------------------|---------------------|-------------------|-------------------|--------------------|-------------------|---------------------|-------------------|-------------------|---------------------------------|-------------------|---------------------|-------------------|-------------------|--------------------|-------------------|---------------------|-------------------|--------------------|--------------------|---------------------|----------------------|--|--|--|--|--|--|
| | | A. | B. | C. | D. | E. | F. | G. | H. | | | | | | | | | | | | | | | | | | | | | | | |
| A. Sensor Series No Selection Required | A/ | → | | | | | | | | A/ | | | | | | | | | | | | | | | | | | | | | | |
| B. Pressure Series No Selection Required | MLP2 = Miniature Low Pressure Transmitter | → | | | | | | | | MLP2 | | | | | | | | | | | | | | | | | | | | | | |
| C. Pressure Ranges Select One (1) <i>Note*</i> : Shaded Pressure Ranges are for Pascal Units Only | <table border="0"> <tr> <td>D10** = 0.10</td> <td>2D5 = 2.50</td> <td>015 = 15.00</td> <td>050 = 50*</td> <td>1K6 = 1,600*</td> </tr> <tr> <td>D25 = 0.25</td> <td>003 = 3.00</td> <td>020 = 20.00</td> <td>100 = 100*</td> <td>2K5 = 2,500*</td> </tr> <tr> <td>D50 = 0.50</td> <td>004 = 4.00</td> <td>025 = 25.00¹</td> <td>300 = 300*</td> <td>3K2 = 3,200*</td> </tr> <tr> <td>001 = 1.00</td> <td>005 = 5.00</td> <td>030 = 30.00</td> <td>500 = 500*</td> <td>5K0 = 5,000*</td> </tr> <tr> <td>002 = 2.00</td> <td>010 = 10.00</td> <td>040 = 40.00</td> <td>1K0 = 1,000*</td> <td>10K = 10,000*</td> </tr> </table> | D10** = 0.10 | 2D5 = 2.50 | 015 = 15.00 | 050 = 50* | 1K6 = 1,600* | D25 = 0.25 | 003 = 3.00 | 020 = 20.00 | 100 = 100* | 2K5 = 2,500* | D50 = 0.50 | 004 = 4.00 | 025 = 25.00 ¹ | 300 = 300* | 3K2 = 3,200* | 001 = 1.00 | 005 = 5.00 | 030 = 30.00 | 500 = 500* | 5K0 = 5,000* | 002 = 2.00 | 010 = 10.00 | 040 = 40.00 | 1K0 = 1,000* | 10K = 10,000* | | | | | | |
| D10** = 0.10 | 2D5 = 2.50 | 015 = 15.00 | 050 = 50* | 1K6 = 1,600* | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| D25 = 0.25 | 003 = 3.00 | 020 = 20.00 | 100 = 100* | 2K5 = 2,500* | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| D50 = 0.50 | 004 = 4.00 | 025 = 25.00 ¹ | 300 = 300* | 3K2 = 3,200* | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 001 = 1.00 | 005 = 5.00 | 030 = 30.00 | 500 = 500* | 5K0 = 5,000* | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 002 = 2.00 | 010 = 10.00 | 040 = 40.00 | 1K0 = 1,000* | 10K = 10,000* | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| D. Units of Pressure Select One (1) | W = Inches of Water Column P = Pascals | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| E. Bi/Uni Directional Range Select One (1) | U = Uni-Directional (ie. 0 to 1" wc) B = Bi-Directional (ie. -1 to +1" wc) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| F. Accuracy Select One (1) | A = +/- 0.5% FSO B = +/- 0.25% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| G. Output Signal Select One (1) | A = 4 to 20 mA B = 0 to 5 VDC C = 0 to 10 VDC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H. NIST Certification Select One (1) | OP = No NIST Certificate 3P = 3 Point NIST Certificate 5P = 5 Point NIST Certificate | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

*Note**: Pascal Ranges Only | *Note¹*: The "025" Range can be ordered in either Inches of Water Column (W) or Pascal (P) | *Note***: 0.10" WC and 025 Pa accuracy is +/- 0.50% only (Use "A" for Accuracy Selection)

| ACCESSORIES ORDERING PITOT TUBES | | Model # Example: A/PT 5.2 -OR- 130141 | | |
|------------------------------------|--------|--|------------------|--------------------------|
| Model # | Item # | Description | Insertion Length | Number of Sensing Points |
| PT 3" | 130140 | 3.0" Pitot Tube with Foam Gasket | 3.0" (7.6 cm) | 1 Set |
| PT 5.2" | 130141 | 5.2" Pitot Tube with Foam Gasket | 5.2" (13.2 cm) | 2 Sets |
| PT 7.5" | 130142 | 7.5" Pitot Tube with Foam Gasket | 7.5" (19.1 cm) | 3 Sets |
| PT 9.7" | 130143 | 9.7" Pitot Tube with Foam Gasket | 9.7" (24.6 cm) | 4 Sets |
| SPT - 3.5" | 102957 | 3.5" Aluminum Duct Static (Flat Tip) Pitot Tube | 3.5" (88.9 mm) | 1 Point |
| SPT - 8.0" | 108976 | 8.0" Aluminum Duct Static (Flat Tip) Pitot Tube | 8.0" (203.2 mm) | 1 Point |
| VPT | 103010 | 4.0" Aluminum Velocity (Pointed Tip) Pitot Tube | 4" (101.6 mm) | 1 Point |
| VPT - 8" | 125008 | 8.0" Aluminum Velocity (Pointed Tip) Pitot Tube | 8" (203.2 mm) | 1 Point |





| ACCESSORIES ORDERING PICK UP PORTS | | Model # Example: A/SP-PUP -OR- 125585 | |
|--------------------------------------|--------|--|-------------------------|
| Model # | Item # | Description | Color |
| A/SP-PUP | 125585 | Pickup Port, Wall Mounted Stainless Plate | Brushed Stainless Steel |
| A/R-PUP | 125584 | Pickup Port, Wall Mounted Plastic Enclosure | Beige |
| A/R2-PUP | 132711 | Pickup Port, Wall Mounted Plastic Enclosure | White |
| A/O-PUP-H | 132892 | Pickup Port, Horizontal Mount, Outdoor Weatherproof Euro Enclosure | Light Gray |
| A/O-PUP-V | 132891 | Pickup Port, Vertical Mount, Outdoor Weatherproof Euro Enclosure | Light Gray |

| ACCESSORIES ORDERING TUBING KIT | | Model # Example: A/10'TUBE -OR- 126606 | |
|-----------------------------------|--------|--|-------|
| Model # | Item # | Description | Color |
| A/10'TUBE | 126606 | 10' Medical Tubing Kit, 1/8" ID x 1/4" OD | Clear |
| A/20'TUBE | 132226 | 20' Medical Tubing Kit, 1/8" ID x 1/4" OD | Clear |
| A/100'TUBE | 136018 | 100' Medical Tubing Kit, 1/8" ID x 1/4" OD | Clear |





WPR2

Wet to Wet Transmitter

The ACI WPR2 Series Remote Wet to Wet Differential Pressure Transmitter is designed to reduce installation time and provide mounting flexibility, often eliminating the need for additional plumbing and manifolds. The WPR2 can be ordered with standard CMP rated PVC cable or with a metal clad cable. The metal clad cable provides end to end protection of the cables with flexible metal conduit, durable and resistant to abrasions and cuts, with corrosion resistant 304 stainless steel construction. The WPR2 accurately measures wet media pressures in a variety of applications. Commonly used for monitoring pumps, these devices are also ideal for measuring pressure across filters, heat exchangers and compressors. The dual remote sensors feature a ceramic capacitive sensing element with a stainless steel diaphragm that's compatible with liquid, gases, and refrigerants suitable with 304L stainless steel. The pressure transducers are

1/4"-18 NPT male (304 stainless steel) fittings. The WPR2's enclosure opens conveniently to allow it to be reconfigured between three additional ranges (see order grid) and outputs of 4 to 20 mA, 0 to 5 VDC, or 0 to 10 VDC (default). The different configurations in this series can measure both uni or bi-directional pressure ranges as low as 3 psi and as high as 300 psi, depending on the unit. The WPR2 also features a push button auto zero function for remote calibration. The LCD option will display pressure values for both the High and Low side pressures, a differential pressure value, "OVR" for values over the specified range, "ERROR" for differential pressures out of range, and "ZERO" when the auto-zero is in process.

Note: Order the model based upon line pressure, and not differential pressure.

Applications: Monitoring Pumps, Compressors, Filters, Heat Exchangers, Flow

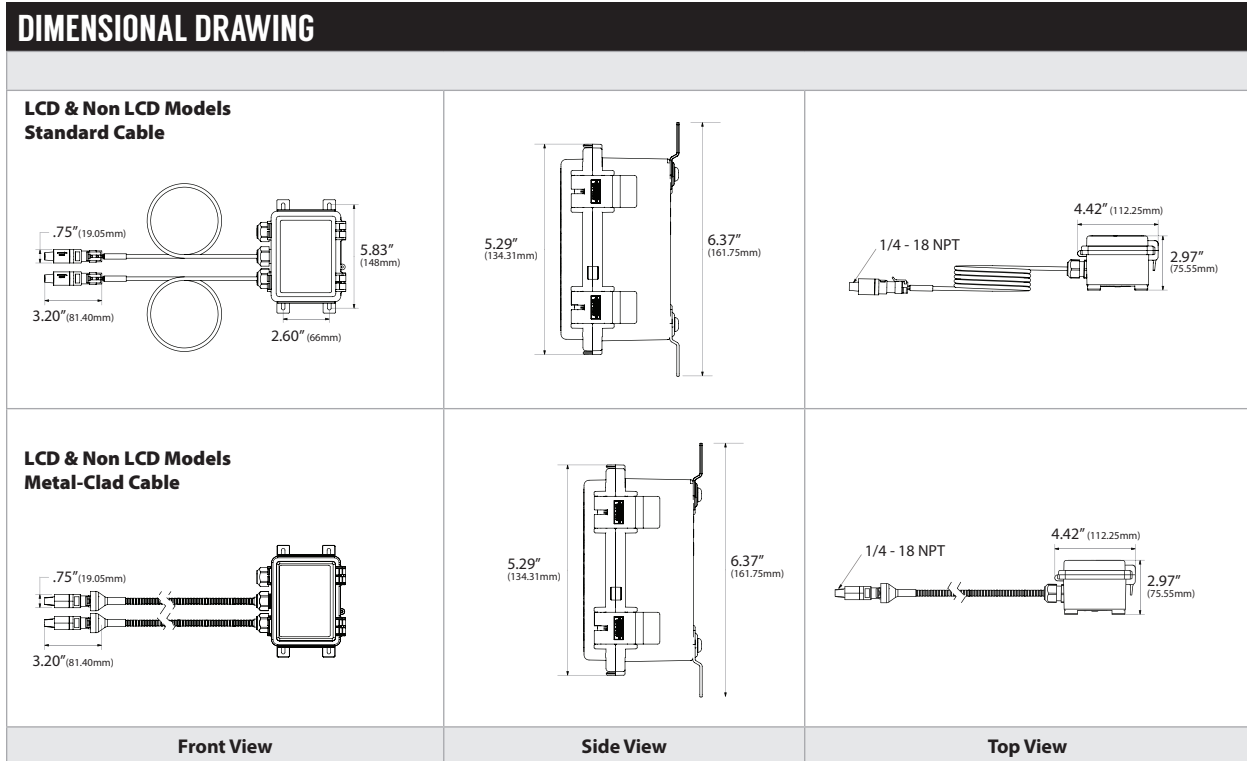
The WPR2 Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's web site, workaci.com.

PRODUCT SPECIFICATIONS

| | |
|---|--|
| Supply Voltage: | 4-20 mA Output: 18-36 VDC (250 Ohm Load max.) / 20-36 VDC (500 Ohm Load max.) / 24 VAC (+/-10%) 50/60 Hz 0-5 VDC / 0-10 VDC Output: 16-36 VDC / 24 VAC (+/- 10%) 50/60 Hz |
| Supply Current: | 4-20 mA Output: 24 mA minimum 0-5 VDC / 0-10 VDC Outputs: 6 mA minimum |
| Output Signals: | 2-wire: Linear 4-20 mA DC Current (Field Selectable) 3-wire: 0-5 VDC; 0-10 VDC (Default) & 4-20 mA (Field Selectable) |
| Response Time (0-100% FSO): | 8 seconds |
| Output Update Rate: | 1 second |
| Output Load Resistance: | 4 to 20 mA: 500 ohms maximum 0-5 VDC / 0-10 VDC: 5K ohms minimum |
| Field Selectable Ranges: | See "Ordering Grid" on back of product data sheet |
| Warm Up Time: | 15 minutes (wait 15 minutes before zeroing) |
| Accuracy¹ (Three Highest Ranges): | ±1.0% FSO |
| Accuracy¹ (Lowest Range²): | ±1.5% FSO |
| Thermal Effects³: | ±2.0% FSO from 32-140°F (0-60°C) |
| Operating Temperature: | Transducer: -40 to 257°F (-40 to 125°C) Electronics/Housing/Cables: 32-167°F (0-75°C) |
| Compensated Temperature Range: | 32 to 140°F (0 to 60°C) |
| Storage Temperature: | -13 to 176°F (-25 to 80°C) |
| Operating Humidity: | 10 to 90% RH, non-condensing |
| Proof Pressure: | WPR2-30: 60 PSI WPR2-100: 200 PSI WPR2-300: 600 PSI |
| Burst Pressure: | WPR2-30: 300 PSI WPR2-100: 1000 PSI WPR2-300: 3000 PSI |
| Media Types: | Any gas or liquid compatible w/ 304L or 316L Stainless Steel |
| Process Fitting Material: | 304 SS |
| Process Fitting Size: | 1/4" - 18 NPT Male; Pressure Snubber included for light oils/water |
| Recommend Torque Specification: | 150 lbs-in (16.95 Nm) |
| Transducer Cable Rating Connector Type: | Type CMP - Plenum Rated (UL Standard 444), NEC Article 800 IP65 at the sensors Packard Connector |
| Metal Clad Rating: | Continuously interlocked Type 304 Stainless Steel core |
| Enclosure Material Flammability Rating: | Flame Retardant PC PBT Alloy UL94V-0 |
| Enclosure Rating: | NEMA 4X/IP66 |
| Approvals: | CE, RoHS2, WEEE, Reach |
| Product Dimensions (L x W x D): | 5.30" x 5.07" x 3.00" (13.46 cm x 12.88 cm x 7.62 cm) |
| Product Weight: | A/WPR2 (0-xxx psid)-10': 2.1 lbs (0.953 kg) A/WPR2(0-xxx psid)-10'-LCD: 2.2 lbs (0.998 kg) A/WPR2 (0-xxx psid)-20': 2.4 lbs (1.09 kg) A/WPR2 (0-xxx psid)-20'-LCD: 2.5 lbs (1.138 kg) A/WPR2 (0-xxx psid)-40': 3 lbs (1.363 kg) A/WPR2 (0-xxx psid)-40'-LCD: 3.1 lbs (1.41 kg) |

Note¹: Accuracy includes Linearity, Hysteresis and Repeatability @ 71°F (21.5°C) | **Note²:** See the ordering grid on the back of that data sheet for selectable ranges | **Note³:** Shift Relative to 71°F (21.5°C)







| STANDARD ORDERING | | | | | | | | | | |
|---|--------|---|---|---------------|-------------|-------------|-------------|--------|--------|---|
| Model # Example: A/WPR2-30-10-LCD -OR- 139367 | | | | | | | | | | |
| Model # | Item # | Ranges* | Outputs* (Default in Bold) | Armored Cable | 10' Harness | 20' Harness | 40' Harness | No LCD | w/ LCD | |
| A/WPR2-30-10 | 139365 | Uni-Directional: 0-30, 0-15, 0-7.5 and 0-3 psid Bi-Directional: +/-30, +/-15, +/-7.5 and +/-3 psid | 4-20 mA, 0-5 VDC, 0-10 VDC (Default) | | . | | | . | | |
| A/WPR2-30-M10 | 147357 | | | . | . | | | . | | |
| A/WPR2-30-10-LCD | 139367 | | | | . | | | | . | |
| A/WPR2-30-M10-LCD | 147358 | | | . | . | | | | . | |
| A/WPR2-30-20 | 139366 | | | | | | | . | . | |
| A/WPR2-30-M20 | 147359 | | | . | . | | | . | . | |
| A/WPR2-30-20-LCD | 139368 | | | | | | | . | | . |
| A/WPR2-30-M20-LCD | 147360 | | | . | . | | | . | | . |
| A/WPR2-30-40 | 147370 | | | | | | | | . | . |
| A/WPR2-30-40-LCD | 146111 | | | | | | | | . | . |
| A/WPR2-100-10 | 138180 | Uni-Directional: 0-100, 0-50, 0-25 and 0-10 psid Bi-Directional: +/-100, +/-50, +/-25 and +/-10 psid | 4-20 mA, 0-5 VDC, 0-10 VDC (Default) | | . | | | . | | |
| A/WPR2-100-M10 | 147346 | | | . | . | | | . | | |
| A/WPR2-100-10-LCD | 138014 | | | | . | | | | . | |
| A/WPR2-100-M10-LCD | 147347 | | | . | . | | | . | . | |
| A/WPR2-100-20 | 138189 | | | | | | | . | . | |
| A/WPR2-100-M20 | 147348 | | | . | . | | | . | . | |
| A/WPR2-100-20-LCD | 138105 | | | | | | | . | | . |
| A/WPR2-100-M20-LCD | 147349 | | | . | . | | | . | | . |
| A/WPR2-100-40 | 141010 | | | | | | | | . | . |
| A/WPR2-100-40-LCD | 144521 | | | | | | | | . | . |
| A/WPR2-300-10 | 138190 | Uni-Directional: 0-300, 0-150, 0-75 and 0-30 psid Bi-Directional: +/-300, +/-150, +/-75 and +/-30 psid | 4-20 mA, 0-5 VDC, 0-10 VDC (Default) | | . | | | . | | |
| A/WPR2-300-M10 | 147352 | | | . | . | | | . | | |
| A/WPR2-300-10-LCD | 138041 | | | | . | | | | . | |
| A/WPR2-300-M10-LCD | 147353 | | | . | . | | | . | . | |
| A/WPR2-300-20 | 138191 | | | | | | | . | . | |
| A/WPR2-300-M20 | 147354 | | | . | . | | | . | . | |
| A/WPR2-300-20-LCD | 138106 | | | | | | | . | | . |
| A/WPR2-300-M20-LCD | 147355 | | | . | . | | | . | | . |
| A/WPR2-300-40 | 147363 | | | | | | | | . | . |
| A/WPR2-300-40-LCD | 146690 | | | | | | | | . | . |

Note*: WPR2 model selection is based on the maximum line pressure. EX: If your maximum line pressure is below 100 PSI, and above 30 PSI, then order the WPR2-100





GP SERIES

Gage Pressure Transducer (Air, Gases & Liquids)



The GP Series is designed to provide excellent accuracy and reliability in commercial, industrial, and process control applications where performance is critical. The bulk micro-machined transducer features a stainless steel diaphragm with welded construction that contains no O-rings, which makes them compatible with any gas or liquid compatible with 304L stainless steel. Some of the compatible gases and liquids include refrigerants, glycol, motor oil, diesel, hydraulic fluid, brake fluid, water, waste water, Hydrogen, Nitrogen and air. The GP Series transducers can also be ordered in an optional NEMA 4 rated, weatherproof metal enclosure (See on-line GP-NEMA 4 data sheet). Accessory items such as pressure snubbers and pigtail syphons are available to protect the transducers from line pressure surges (pulsations) or

extreme operating temperatures. This series features packard connectors and separate harnesses allowing for installation flexibility.

Applications: Refrigeration, Fuel Cells, Pumps, Hydraulics, Compressors, Robotics, Pneumatics, Agriculture, Spraying Systems, Process Control, Flow, Hydrogen Storage, Steam Lines, Boilers, Chillers

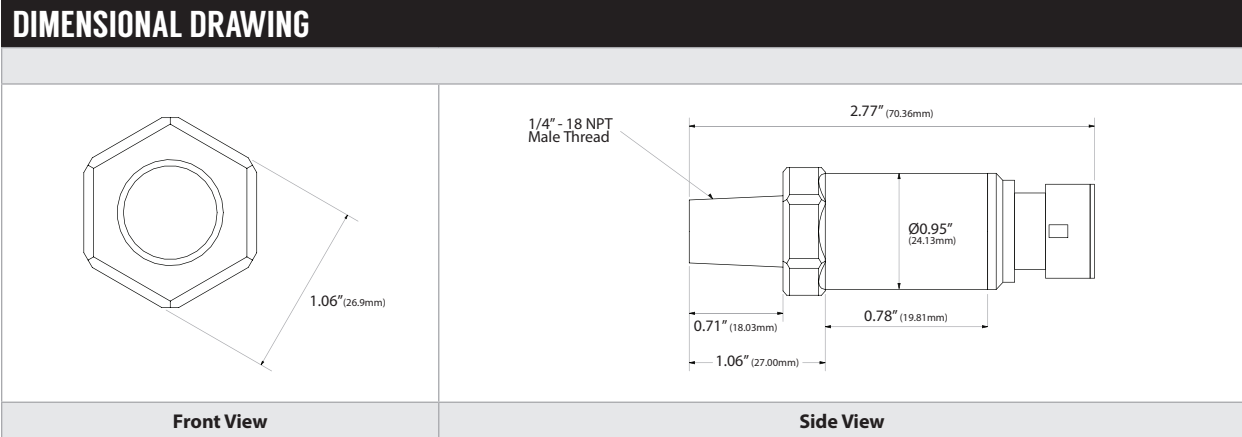
The GP Series is covered by ACI's Two (2) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, workaci.com.

PRODUCT SPECIFICATIONS

| | |
|---|---|
| Supply Voltage: | 250 Ohm Load: +14.5 to 30 VDC 500 Ohm Load: +20 to 30 VDC |
| Reverse Polarity Protection: | +/- 16 V over 5 minutes |
| Maximum Load Resistance: | 800 Ohms @ 24 VDC Formula: (Supply VDC - 8 VDC) / 0.020A |
| Supply Current: | 25 mA minimum |
| Output Signal: | 4 to 20 mA (2-Wire, Loop Powered) |
| Response Time: | < 1 ms |
| Pressure Range: | See "Ordering Grid" on back of data sheet |
| Accuracy @ 22°C (71.6°F)¹: | +/-1.5% FS |
| Stability: | ≤ +/- 0.25% of span/year |
| Proof Pressure | 2x FS |
| Burst Pressure: | 3x FS |
| Thermal Shock: | 50 Cycles (105°C to -40°C, 0.5 hr soaks @ Temp. (10s Transfer)) |
| Vibration (100 to 2000Hz, 20g Sinusoidal, 3 Axes): | 10 Hours |
| Operating Temperature Range: | -40 to 257°F (-40 to 125°C) |
| Storage Temperature Range: | -40 to 176°F (-40 to 80°C) |
| Operating Humidity Range: | 0 to 95% RH, non-condensing |
| Media Type: | Any gas or liquid compatible with 304L Stainless Steel |
| Transducer Housing Material: | Stainless Steel |
| Process Fitting Material Thread Size: | 304L Stainless Steel 1/4"-18 NPT |
| Recommended Torque Specification: | 150 lbs-in (16.95 Nm) |
| Wiring Connections: | Packard Connector (Cables ordered separately per "Ordering Grid" on back of data sheet) |
| Approvals: | RoHS2, WEEE, ISO 9001 |
| EMC Compatibility: | 150 V/m |
| Product Dimensions (Length x Diameter): | 2.77"(70.36mm) x 0.95 (24.13mm) |
| Product Weight: | A/GP Series Transducer: 0.30 lbs. (0.13 kg) A/GP 2' Harness: 0.09 lbs. (0.04 kg) A/GP 6' Harness: 0.20 lbs. (0.09 kg) A/GP 10' Harness: 0.32 lbs. (0.14 kg) A/GP 20' Harness: 0.62 lbs. (0.28 kg) A/GP 30' Harness: 0.92 lbs. (0.41 kg) A/GP 40' Harness: 1.22 lbs. (0.55 kg) |

Note¹: Accuracy includes Hysteresis, Repeatability and Non-linearity (BFSL) | **Note²:** Additional error over temperature range | **Note³:** Sealed Gage pressure transducers are not vented to atmosphere, but are calibrated to have 0.5 VDC, 1 VDC or 4 mA at +14.5 PSIG





STANDARD ORDERING

Model # Example: **GP(0-300G)-20-P** -OR- **135749**

| Model # | Item # | Description | Gage | Sealed Gage | Packard Connector | Harness Required |
|-----------------|--------|--|------|-------------|-------------------|------------------|
| GP(0-15G)-20-P | 135751 | 0-15 psig (103 kPa), 1/4" NPT, Packard | • | | • | • |
| GP(0-30G)-20-P | 143160 | 0-30 psig (207 kPa), 1/4" NPT, Packard | • | | • | • |
| GP(0-50G)-20-P | 143161 | 0-50 psig (345 kPa), 1/4" NPT, Packard | • | | • | • |
| GP(0-100G)-20-P | 135747 | 0-100 psig (689 kPa), 1/4" NPT, Packard | • | | • | • |
| GP(0-200G)-20-P | 135748 | 0-200 psig (1379 kPa), 1/4" NPT, Packard | • | | • | • |
| GP(0-300G)-20-P | 135749 | 0-300 psig (2069 kPa), 1/4" NPT, Packard | • | | • | • |
| GP(0-500S)-20-P | 135750 | 0-500 psig (3447 kPa), 1/4" NPT, Packard | | • | • | • |

ACCESSORIES ORDERING

Model # Example: **A/GP 30' HARNESS** -OR- **135703**

| Model # | Item # | Description |
|------------------|--------|---|
| A/GP 2' Harness | 142606 | A/GP 2' (0.610 m) Packard Wire Harness, Plenum Rated |
| A/GP 6' Harness | 135614 | A/GP 6' (1.83 m) Packard Wire Harness, Plenum Rated |
| A/GP 10' Harness | 116601 | A/GP 10' (3.05 m) Packard Wire Harness, Plenum Rated |
| A/GP 20' Harness | 135613 | A/GP 20' (6.10 m) Packard Wire Harness, Plenum Rated |
| A/GP 30' Harness | 135703 | A/GP 30' (9.14 m) Packard Wire Harness, Plenum Rated |
| A/GP 40' Harness | 136995 | A/GP 40' (12.19 m) Packard Wire Harness, Plenum Rated |
| A/0.25" SNUB A/G | 137105 | 1/4" NPT Stainless Steel Snubber for Air/Gas |
| A/0.25" SNUB WTR | 137104 | 1/4" NPT Stainless Steel Snubber for Water/Light Oils |
| A/GP M10'HARNESS | 147878 | A/GP 10' (3.05m) Harness, Metal Clad |
| A/GP M20'HARNESS | 147881 | A/GP 20' (6.1m) Harness, Metal Clad |

Note: The A/GP Harness must be ordered separately when ordering transducers with Packard Connector

ADDITIONAL ACCESSORIES ORDERING

Item # Example: **100307**

| Item # | Description |
|--------|--|
| 100307 | 249 Ohm, 1/4W, +/- 1% Tolerance, 50 PPM Resistor (Only Needed to Convert to 1-5 VDC) |
| 100306 | 249 Ohm, 1/4W, +/- 0.1% Tolerance, 50 PPM Resistor (Recommended for Best Accuracy) (Only Needed to Convert to 1-5 VDC) |
| 100469 | 499 Ohm, 1W, +/- 1% Tolerance, 50 PPM Resistor (Only Needed to Convert to 2-10 VDC) |





GP NEMA 4

Gage Pressure with NEMA 4 Enclosure

The GP-NEMA 4 Series is designed to provide excellent accuracy and reliability in commercial, industrial, and process control applications where high performance and a NEMA 4 weatherproof enclosure is required. The bulk micro-machined transducer features a stainless steel diaphragm with welded construction that contains no O-rings, which makes them compatible with any gas or liquid compatible with 304L stainless steel. Some of the compatible gases and liquids include refrigerants, glycol, motor oil, diesel, hydraulic fluid, brake fluid, water, waste water, Hydrogen, Nitrogen and air. The GP-NEMA 4 Series transducers include an optional NEMA 4 rated, weatherproof aluminum enclosure and an optional NIST Calibration Certificate. Accessory items such as pressure snubbers and pigtail syphons are available to protect the transducers from

line pressure surges and extreme operating temperatures. For more information regarding the temperature and pressure ratings of the Pigtail Syphons, please see the Pigtail Syphon data sheet.

Applications: Refrigeration, Fuel Cells, Pumps, Hydraulics, Compressors, Robotics, Pneumatics, Agriculture, Spraying Systems, Process Control, Flow, Hydrogen Storage, Chiller, Water & Boilers

The GP-NEMA 4 Series is covered by ACI's Two (2) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, workaci.com.

PRODUCT SPECIFICATIONS

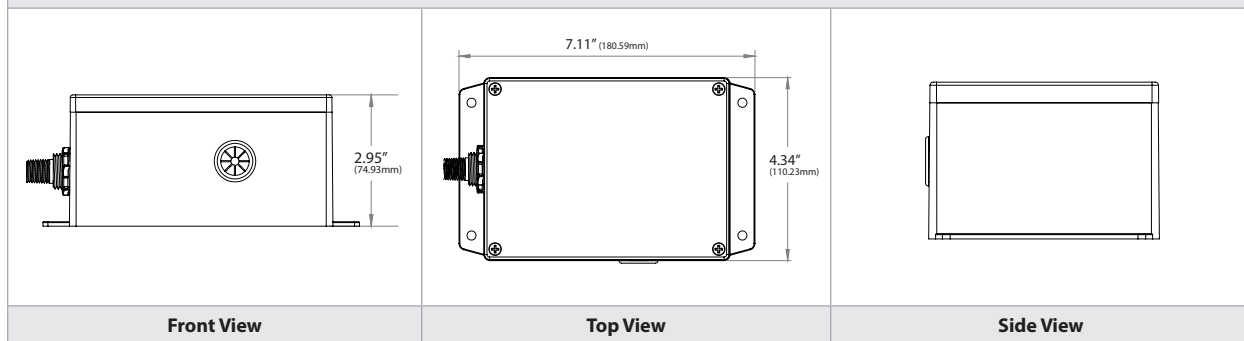
| | |
|--|---|
| Supply Voltage: | +13 to 30 VDC (250 Ohm Load); +18 to 30 VDC (500 Ohm Load) |
| Reverse Polarity Protection: | +/- 16 V over 5 minutes |
| Maximum Load Resistance: | 800 Ohms @ 24 VDC Formula: (Supply VDC – 8 VDC) / 0.020A |
| Supply Current: | 25 mA |
| Output Signal: | 4 to 20 mA (2-Wire, Loop Powered) |
| Response Time: | < 1 ms |
| Pressure Range: | See "Ordering Grid" on back of data sheet |
| Accuracy @ 22°C (71.6°F)¹: | 15 to 60 psig: < +/- 1.0% FS 75 to 300 psig: < +/- 0.5% FS 500 psis: < +/- 0.5% FS |
| Thermal Error (-40 to 105°C)²: | 15 to 60 psig: < +/- 1.0 FS 75 to 300 psig: < +/- 0.5% FS 500 psis: < +/- 0.5% FS |
| Stability (250 Hours @ 225°F (125°C): | +/- 0.03% FS @ 0 psig; +/- 0.12% FS @ 1000 psig |
| Thermal Shock: | 300 Cycles 105°C to -40°C, 0.5 hr soaks @ Temperature (2s Transfer) |
| Proof Pressure: | 15 to 300 psig: 3x Full Scale 500 psis: 3x Full Scale |
| Burst Pressure: | 15 to 300 psig: 3x Full Scale 500 psis: 3x Full Scale |
| Vibration (100 to 2000 Hz, 20g Sinusoidal, 3 Axes): | 144 Hours |
| Operating Temperature Range: | Transducer: -40 to 257°F (-40 to 125°C) NEMA Enclosure: -40 to 176°F (-40 to 80°C) |
| Storage Temperature Range: | -40 to 176°F (-40 to 80°C) |
| Operating Humidity Range: | 0 to 95% RH, non-condensing |
| Media Types: | Any gas or liquid compatible with 304L Stainless Steel |
| Transducer Housing Material: | Stainless Steel |
| GP NEMA Enclosure Material: | Aluminum (Natural Color) with Silicone Gasket |
| GP NEMA 4 Enclosure Ratings: | NEMA 4, 4X, 6, 6P, 12 and 13 (Compare to IP68) |
| Process Fitting Material: | 304L Stainless Steel |
| Thread Size: | 1/4"-18 MNPT |
| Recommend Torque Specification: | 150 lb-in (16.95 Nm) Nominal |
| Wiring Connections: | Packard Connector (Cables ordered separately per "Ordering Grid" on back of data sheet) |
| NIST Certificate: | Ordered Separately (See "Ordering Grid" on back of data sheet) |
| Approvals: | RoHS2, WEEE, ISO 9001, Made in USA |
| EMC Compatibility: | 150 V/m |
| Product Dimensions: | Transducer (L x OD): 2.60" (66.60 mm) x 0.87" (22.20 mm) NEMA Enclosure (L x W x D): 7.11" (180.5 mm) x 4.34" (110.3 mm) x 2.95" (75 mm) |
| Product Weights: | A/GP-NEMA 4 Series: 0.34 lbs. (0.15 kg) A/GP 2' Harness: 0.06 lbs. (0.03 kg) A/GP 6' Harness: 0.20 lbs. (0.09 kg) A/GP 10' Harness: 0.32 lbs. (0.14 kg) A/GP 20' Harness: 0.62 lbs. (0.28 kg) A/GP 30' Harness: 0.92 lbs. (0.41 kg) |

Note¹: Accuracy includes Hysteresis, Repeatability, Temperature Effect and Non-linearity (BFSL) | **Note²:** Additional error over temperature range | **Note³:** Sealed Gage pressure transducers are not vented to atmosphere, but are calibrated to have 4 mA at 14.5 PSIG to resemble a standard gauge pressure transducer output





DIMENSIONAL DRAWING



STANDARD ORDERING

Model # Example: **A/GP(0-15G)-20-P-N4** -OR- **142607**

| Model # | Item # | Description | Gage | Sealed Gage | Packard Connector | Harness Required |
|--------------------------|--------|--|------|-------------|-------------------|------------------|
| A/GP(0-15G)-20-P-N4 *** | 142607 | Gage Pressure, 0-15 psig (103 kPa), NEMA 4 | • | | • | • |
| A/GP(0-30G)-20-P-N4 *** | 142608 | Gage Pressure, 0-30 psig (207 kPa), NEMA 4 | • | | • | • |
| A/GP(0-50G)-20-P-N4 *** | 142609 | Gage Pressure, 0-50 psig (345 kPa), NEMA 4 | • | | • | • |
| A/GP(0-100G)-20-P-N4 *** | 142610 | Gage Pressure, 0-100 psig (689 kPa), NEMA 4 | • | | • | • |
| A/GP(0-200G)-20-P-N4 *** | 142611 | Gage Pressure, 0-200 psig (1379 kPa), NEMA 4 | • | | • | • |
| A/GP(0-300G)-20-P-N4 *** | 142612 | Gage Pressure, 0-300 psig (2069 kPa), NEMA 4 | • | | • | • |
| A/GP(0-500S)-20-P-N4 *** | 142613 | Gage Pressure, 0-500 psis (3447 kPa), NEMA 4 | | • | • | • |

ACCESSORIES ORDERING

Model # Example: **A/GP 30' HARNESS** -OR- **135703**

| Model # | Item # | Description |
|-----------------|--------|--|
| A/GP 2'HARNESS | 142606 | A/GP 2' (.61m) Packard Wire Harness, Plenum Rated |
| A/GP 6'HARNESS | 135614 | A/GP 6' (1.83m) Packard Wire Harness, Plenum Rated |
| A/GP 10'HARNESS | 116601 | A/GP 10' (3.05m) Packard Wire Harness, Plenum Rated |
| A/GP 20'HARNESS | 135613 | A/GP 20' (6.10m) Packard Wire Harness, Plenum Rated |
| A/GP 30'HARNESS | 135703 | A/GP 30' (9.14m) Packard Wire Harness, Plenum Rated |
| A/GP 40'HARNESS | 136995 | A/GP 40' (12.19m) Packard Wire Harness, Plenum Rated |
| A/0.25"SNUB A/G | 137105 | ¼" NPT Stainless Steel Snubber for Air/Gas |
| A/0.25"SNUB WTR | 137104 | ¼" NPT Stainless Steel Snubber for Water/Light Oils |
| GP NIST* | 142927 | GP NIST Calibration Certificate |

Note*: The A/GP Harness and GP NIST must be ordered separately when ordering transducers with Packard Connector or any of the Gage Pressure transmitters with a NIST Calibration Certificate



P51 SERIES

Gage Pressure Transducer (Air, Gases & Liquids)



The P51 Series is designed to provide excellent accuracy and reliability in commercial, industrial, and process control applications where performance is critical. The bulk micro-machined transducer features a stainless steel diaphragm with welded construction that contains no O-rings, which makes them compatible with any gas or liquid compatible with 304L or 316L stainless steel. The P51 Series transducers include optional 1/4" NPT, 1/8" NPT or a 7/16-20 Female Schrader fitting. Some of the compatible gases and liquids include refrigerants, glycol, motor oil, diesel, hydraulic fluid, brake fluid, water, waste water, Hydrogen, Nitrogen and air. The P51 Series transducers can also be ordered with an optional NIST Calibration Certificate and it must be ordered separately when ordering the transducers for an additional cost. Accessory items such as pressure snubbers and pigtail syphons are available to protect the transducers from line pressure surges (pulsations) or extreme operating temperatures. For more information regarding the

temperature and pressure ratings of the pigtail syphons, please see the Pigtail Syphon data sheet. A minimum order quantity of 10 units may apply depending on current inventory levels.

Applications: Refrigeration, Fuel Cells, Pumps, Hydraulics, Compressors, Robotics, Pneumatics, Agriculture, Spraying Systems, Process Control, Flow, Hydrogen Storage, Steam Lines, Boilers, Chillers, Water Systems

The P51 Series Pressure transducers are covered by ACI's Two (2) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, workaci.com.

PRODUCT SPECIFICATIONS

| | | |
|---|---|--|
| Supply Voltage: | 0.5 to 4.5 VDC Output Only: 5.00 VDC +/- 0.500 VDC 4 to 20 mA and 1 to 5 VDC Outputs Only: +8 to 30 VDC (No Load) 4-20 mA Output: 250 Ohm Load: +13 to 30 VDC 500 Ohm Load: +18 to 30 VDC | |
| Reverse Polarity Protection: | 4-20 mA and 1 to 5 VDC Outputs only: +/- 16 V over 5 minutes | |
| Overvoltage Protection Option: | 0.5 to 4.5 Volt Output ("4.50V" option only): +/- 16V over 5 minutes | |
| Output Load Impedance: | 4-20 mA Output: 800 Ohms maximum @ 24 VDC Formula: (Supply VDC - 8 VDC) / 0.020A 0.5 to 4.5 VDC and 1-5 VDC Output Signals: 15K Ohms minimum | |
| Supply Current: | 4 to 20 mA: 25 mA minimum 0.5 to 4.5 VDC: < 3 mA 1 to 5 VDC: < 5 mA | |
| Output Signals: | 4 to 20 mA (2-Wire, Loop Powered); 0.5 to 4.5 VDC (3-Wires); 1 to 5 VDC (3-Wires) | |
| Response Time: | < 1 ms | |
| Pressure Range: | See "Ordering Grid" on back of data sheet | |
| Accuracy @ 22°C (71.6°F)¹: | 15 to 60 PSIG/PSIA: < +/- 1.0% FS 75 to 300 PSIG/PSIA: < +/- 0.5% FS 500 to 750 PSIA 3: < +/- 0.5% FS 1000 to 5000 PSIA 3: < +/- 1% FS 15 to 200 PSIA: < +/- 0.5% FS 300 to 750 PSIA: < +/- 0.5% FS 1000 to 3000 PSIA: < +/- 1% FS | |
| Thermal Error (-40 to 105°C)²: | 15 to 60 PSIG/PSIA: < +/- 1.0% FS 75 to 300 PSIG/PSIA: < +/- 0.5% FS 500 to 750 PSIA: < +/- 0.5% FS 1000 to 3000 PSIA: < +/- 1% FS 15 to 200 PSIA: < +/- 0.5% FS 300 to 750 PSIA: < +/- 0.5% FS 1000 to 3000 PSIA: < +/- 1% FS | |
| Stability (250 Hours @ 225°F (125°C)): | +/- 0.03% FS @ 0 PSIG; +/- 0.12% FS @ 1000 PSIG | |
| Proof Pressure Burst Pressure: | Proof Pressure: 3 to 15 PSI: 3X FS 16 to 3000 PSI (0.5-4.5V, 1-5V): 2X FS 16 to 3000 PSI (4-20mA): 3X FS | Burst Pressure: 3 to 15 PSIA/PSIA: 3X FS 3 to 300 PSIG: 3X FS 16 to 3000 PSIA/PSIA: 10x FS/15,000 PSI <i>(Whichever is less)</i> |
| Thermal Shock: | 300 Cycles (105°C to -40°C, 0.5 hour soaks @ Temperature (2s Transfer)) | |
| Vibration (100 to 2000Hz, 20g Sinusoidal, 3 Axes): | 144 Hours | |
| Operating Storage Temperature Range: | -40 to 257°F (-40 to 125°C) -40 to 176°F (-40 to 80°C) | |
| Operating Humidity Range: | 0 to 95% RH, non-condensing | |
| Media Type: | Any gas or liquid compatible with 304L or 316L Stainless Steel | |
| Transducer Housing Material: | Stainless Steel | |
| Process Fitting Material Thread Size: | 304L or 316L Stainless Steel See Ordering Grid for more details | |
| Recommended Torque Specification: | All Ports except "U" and "Y": 150 lbs-in (16.95 Nm); Ports "U" and "Y": 120 lbs-in (13.56 Nm) | |
| Wiring Connections: | Packard Connector (Cables ordered separately per "Ordering Grid" on back of data sheet) "-I24" (24" Lead Length): PVC Jacketed Cable 18 (0.823 mm ²) or 24 AWG (0.2047 mm ²) "-MD" Din 43650: Hirschman® Connector with 90° Mating Connector | |
| NIST Certificate: | Ordered Separately (See "Ordering Grid" on back of data sheet) | |
| Approvals: | RoHS2, WEEE, ISO 9001 | |
| EMC Compatibility: | 150 V/m | |
| Product Dimensions (Length x Diameter): | 2.60" (66.6 mm) x 0.875" (22.23 mm) | |





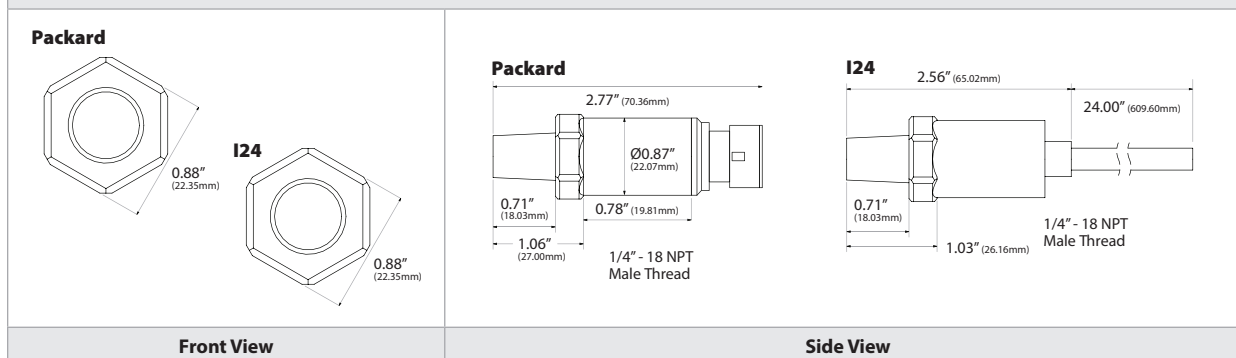
PRODUCT SPECIFICATIONS

Product Weight:

P51 Series Transducers: 0.32 lbs. (0.145 kg)
A/GP 2'Harness: 0.09 lbs. (0.040 kg) | **A/GP 6'Harness:** 0.20 lbs. (0.091 kg)
A/GP 10'Harness: 0.32 lbs. (0.145 kg) | **A/GP 20'Harness:** 0.62 lbs. (0.282 kg)
A/GP 30'Harness: 0.92 lbs. (0.417 kg) | **A/GP 40'Harness:** 1.22 lbs. (0.554 kg)

Note 1: Accuracy includes Hysteresis, Repeatability, and Non-linearity (BFSL) | **Note 2:** Additional error over temperature range | **Note 3:** Sealed Gage pressure transducers are not vented to atmosphere, but are calibrated to have 0.5 VDC, 1 VDC or 4 mA at +14.5 PSIG

DIMENSIONAL DRAWING



CUSTOM ORDERING

Model # Example: **P51** **100** **A** **B** **124** **20mA** **000** **000**

MODEL #

| | | |
|--|--|------------|
| A. Sensor Series <i>No Selection Required</i> | P51 | P51 |
| B. Full Scale Pressure Range <i>Select One (1)</i> | 3 = 3 PSI (20.684 kPa) 75 = 75 PSI (517.107 kPa) 750 = 750 PSI (5.171 MPa) 5 = 5 PSI (34.474 kPa) 100 = 100 PSI (689.476 kPa) 1000 = 1000 PSI (6.895 MPa) 10 = 10 PSI (68.948 kPa) 200 = 200 PSI (1.379 MPa) 1500 = 1500 PSI (10.342 MPa) 15 = 15 PSI (103.421 kPa) 300 = 300 PSI (2.068 MPa) 2000 = 2000 PSI (13.790 MPa) 50 = 50 PSI (344.738 kPa) 500 = 500 PSI (3.447 MPa) 3000 = 3000 PSI (20.684 MPa) | |
| C. Pressure Units <i>Select One (1)</i> | G = Gage Pressure (Ranges from: 3-300 PSIG) S = Sealed Gage Pressure (Ranges from: 15 to 3000 PSIS) A = Absolute Pressure (Ranges from: 15 to 3000 PSIA)** | |
| D. Port/Fitting Configurations <i>Select One (1)</i> | A = 1/4"-18 NPT Thread, 304L SS, 7/8" Hex B = 1/8"-27 NPT Thread, 304L SS, 7/8" Hex U = 7/16"-20-2B Female (1/4" Flare Female Schrader w/ Depressor) Fitting, 304L SS, 5/8" Hex UB = 1/8"-27 NPT Thread 304L SS, 7/8" Hex (Use only with 3 to 10 PSI Pressure Ranges) UC = 1/4"-18 NPT Thread 6.0 ID, 304L SS, 7/8" Hex (Use only with 3 to 10 PSI Pressure Ranges) Z = 1/4"-18 NPT Thread, 316L SS, 7/8" Hex W = 1/8"-27 NPT Thread, 316L SS, 7/8" Hex Y = 7/16"-20-2B Female (1/4" Flare Female Schrader with Depressor) Fitting, 316L SS, 5/8" Hex | |
| E. Connector/Lead Style <i>Select One (1)</i> | I24 = 24" PVC Cable MD = Din 43650 micro mini with 90° Right Angle Mating Connector P = Packard Connector (3 Pin) (Requires an A/GP Cable Harness below) | |
| F. Output Signal <i>Select One (1)</i> | 4.5V = 0.5 to 4.5 VDC (5V Input Only) 4.50V = 0.5 to 4.5 VDC with Over Voltage Protection 5V = 1 to 5 VDC 20mA = 4 to 20 mA | |
| G. Factory Supplies <i>No Selection Required</i> | 000 = Default | 000 |
| H. Factory Supplied <i>No Selection Required</i> | 000 = Default | 000 |

Note:** Calibration is as follows: Absolute transducers are calibrated to have 0.5VDC, 1VDC, or 4mA respectively at 0PSIA (-14.7PSI)





ACCESSORIES ORDERING

| Model # | Item # | Description |
|------------------|--------|---|
| A/GP 2' Harness | 142606 | A/GP 2' (0.610 m) Packard Wire Harness, Plenum Rated |
| A/GP 6' Harness | 135614 | A/GP 6' (1.83 m) Packard Wire Harness, Plenum Rated |
| A/GP 10' Harness | 116601 | A/GP 10' (3.05 m) Packard Wire Harness, Plenum Rated |
| A/GP 20' Harness | 135613 | A/GP 20' (6.10 m) Packard Wire Harness, Plenum Rated |
| A/GP 30' Harness | 135703 | A/GP 30' (9.14 m) Packard Wire Harness, Plenum Rated |
| A/GP 40' Harness | 136995 | A/GP 40' (12.19 m) Packard Wire Harness, Plenum Rated |
| A/0.25" SNUB A/G | 137105 | ¼" NPT Stainless Steel Snubber for Air/Gas |
| A/0.25" SNUB WTR | 137104 | ¼" NPT Stainless Steel Snubber for Water/Light Oils |
| GP NIST*** | 142927 | GP NIST Calibration Certificate |

Note*:** The A/GP Harness and GP NIST must be ordered separately when ordering transducers with Packard Connector or any of the Gage Pressure transmitters with a NIST Calibration Certificate

ADDITIONAL ACCESSORIES ORDERING

| Item # | Description |
|--------|--|
| 100307 | 249 Ohm, 1/4W, +/- 1% Tolerance, 50 PPM Resistor (Only Needed to Convert to 1-5 VDC) |
| 100306 | 249 Ohm, 1/4W, +/- 0.1% Tolerance, 50 PPM Resistor (Recommended for Best Accuracy) (Only Needed to Convert to 1-5 VDC) |
| 100469 | 499 Ohm, 1W, +/- 1% Tolerance, 50 PPM Resistor (Only Needed to Convert to 2-10 VDC) |





SYPHONS

Gage Pressure Transducer

The A/SYPHON Series has been designed to provide protection for the Gage and Wet to Wet Differential Pressure transmitters from damage in boiler applications where the operating temperature of the steam being monitored is higher than the maximum operating temperature of the pressure transducer. Three different bend configurations of 90°, 180°, and 270° are available to allow the mounting of the pressure transducer vertically away from the main pipe. When mounting the pigtail syphons, make sure that the syphon is fully exposed to the ambient air and not covered by any pipe insulation. The Pigtail Syphons feature a stainless steel construction with 1/4" Male NPT pipe threads and are compatible with a wide range of gases and liquids.

The A/SYPHON Series is covered by ACI's Two (2) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

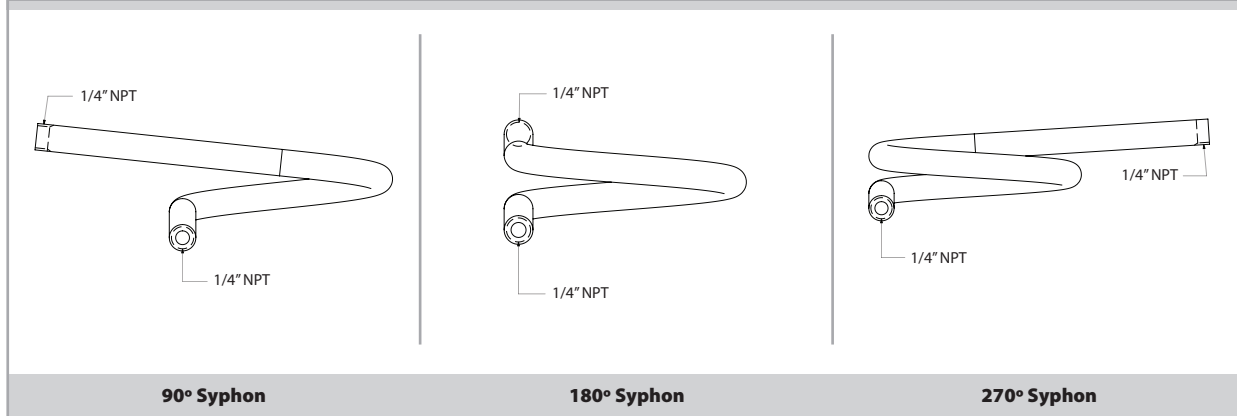
PRODUCT SPECIFICATIONS

| | |
|------------------------------------|---|
| Material Type | Welded 316 Series Stainless Steel |
| Pipe Schedule | Schedule 40 or Schedule 80; See ordering grid below |
| Thread Size | 1/4" Male NPT x 1/4" Male NPT |
| Operating Temperature Range | See temperature vs pressure table below |
| Operating Pressure Range | See temperature vs pressure table below |
| Bend Configurations | 90°, 180°, or 270° |
| Agency Approvals | ASME Boiler and Pressure Vessel Code 1995, MIL-I Certified (Military equivalent of ISO 9000), RoHS2 Compliant, WEEE, Reach |
| Manufacturing Location | Made in the USA |
| Product Weights | A/SYPHON-90: 0.40 lbs (0.181 kg) A/SYPHON-90-H: 0.50 lbs (0.227 kg) A/SYPHON-180: 0.40 lbs (0.181 kg) A/SYPHON-180-H: 0.60 lbs (0.272 kg) A/SYPHON-270: 0.50 lbs (0.227 kg) A/SYPHON-270-H: 0.70 lbs (0.318 kg) |





DIMENSIONAL DRAWING



OPERATING TEMPERATURE, OPERATING PRESSURE

| Temp (°F) | Temp (°C) | 316 SS Schedule 40 (PSI max) | 316 SS Schedule 80 (PSI max) | Notes |
|-----------|--------------|------------------------------|------------------------------|--|
| 20 to 100 | -6.7 to 37.7 | 1192 | 2580 | 1) Pressure/Temperature ratings are established on the basis of calculation in accordance with the ASME Boiler and Pressure Vessel Code, 1996 edition, 1995 Addenda, Section 1, Paragraph PG27. It is the end users responsibility to ensure that all components used in Pressure retaining service are adequately designed for the anticipated conditions. |
| 200 | 93.2 | 1117 | 2419 | |
| 300 | 148.7 | 991 | 2145 | |
| 400 | 204.2 | 909 | 1967 | |
| 500 | 259.7 | 842 | 1822 | |
| 600 | 315.2 | 797 | 1725 | |
| 650 | 342 | 782 | 1693 | |
| 700 | 370.7 | 767 | 1661 | |
| 750 | 398.5 | 752 | 1629 | |
| 800 | 426.2 | 737 | 1596 | |
| 850 | 453 | 737 | 1596 | |
| 900 | 481.7 | 730 | 1580 | |
| 950 | 509.5 | 722 | 1564 | |
| 1000 | 537.2 | 715 | 1548 | |
| 1050 | 564 | 708 | 1532 | |
| 1100 | 592.7 | 705 | 1541 | |
| 1150 | 620.5 | 632 | 1406 | |
| 1200 | 648.2 | 480 | 1068 | |
| 1250 | 676 | 358 | 796 | |
| 1300 | 703.7 | 267 | 593 | |
| 1350 | 731.5 | 198 | 441 | |
| 1400 | 759.2 | 145 | 322 | |
| 1450 | 786 | 114 | 254 | |
| 1500 | 814.7 | 84 | 186 | |
| | | | | 2) No Allowance has been provided for corrosion. |

ORDERING

Model # Example: **A/SYPHON-90 -OR- 137245**

| Model # | Item # | Description | Pipe Schedule | 90° Bend | 180° Bend | 270° Bend |
|-----------------------|--------|---|---------------|----------|-----------|-----------|
| A/SYPHON-90 | 137245 | ¼" MNPT Syphon, 90°, Schedule 40, 316 SS | Schedule 40 | ● | | |
| A/SYPHON-90-H | 137246 | ¼" MNPT Syphon, 90°, Schedule 80, 316 SS | Schedule 80 | ● | | |
| A/SYPHON-180 | 137247 | ¼" MNPT Syphon, 180°, Schedule 40, 316 SS | Schedule 40 | | ● | |
| A/SYPHON-180-H | 142091 | ¼" MNPT Syphon, 180°, Schedule 80, 316 SS | Schedule 80 | | ● | |
| A/SYPHON-270 | 143945 | ¼" MNPT Syphon, 270°, Schedule 40, 316 SS | Schedule 40 | | | ● |
| A/SYPHON-270-H | 137250 | ¼" MNPT Syphon, 270°, Schedule 80, 316 SS | Schedule 80 | | | ● |

Revision C000001 | Rev 1.0





SNUBBER SERIES

Surge Protection for Gauges & Transducers



The ACI Snubber Series should be used to protect pressure gages, transducers and other control instruments by reducing flow and dampening shock due to water hammer and other fluctuating pressure effects. The porous filter design is suitable for use with air, gases, and other low viscosity fluids that are compatible with 316 Series Stainless Steel. When installing the snubber, make sure to install the snubber such that the fluid or air/gas flow is only applied to the snubber in the direction of the arrow.

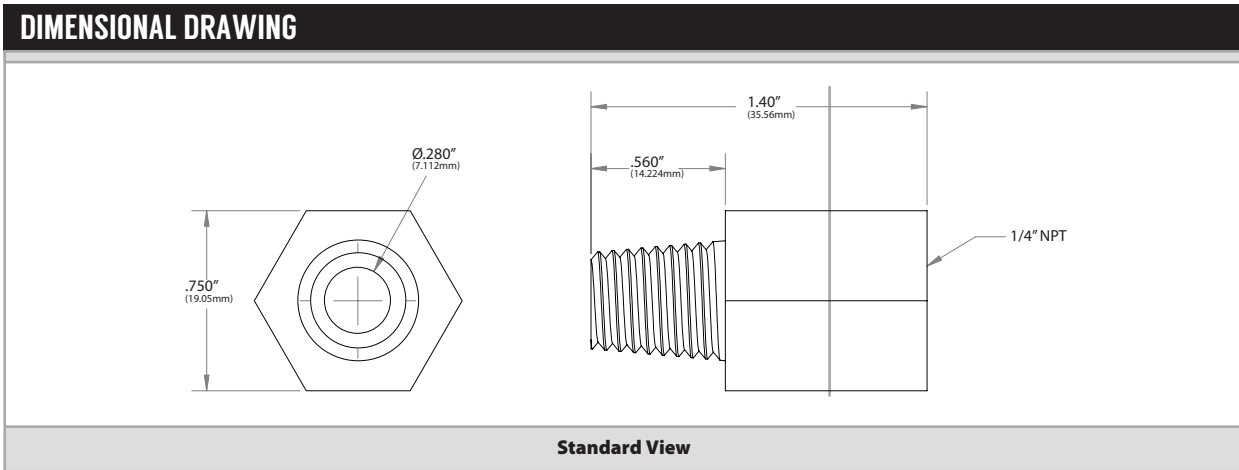
Applications: Fire, Centrifugal, Reciprocating and Boiler Feed Pumps, Compressors, Chillers, Pressure Switches, Hydraulic Presses, Hydraulic Systems, Waste Water, Fluid Power Systems, Orifice Meters, Manifolds, Petro Chemical Industry

The Snubber Series is covered by ACI's Two (2) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|------------------------------|---|
| Material Type: | 316 Stainless Steel |
| Male / Female Thread: | 1/4" NPT |
| Filter Size: | Air / Gases: 7 Microns Water / Fluids: 20 Microns |
| Maximum Temperature: | 1000°F (537°C) |
| Maximum Pressure: | 5000 PSI (344 Bar) |
| Overall Length: | 1.376" |
| Hex Length: | 0.812" |
| Hex Size: | 3/4" |





STANDARD ORDERING Model # Example: **A/0.25" SNUB A/G -OR- 137105**

| Model # | Item # | Product Description |
|----------------------------|--------|-----------------------|
| A/0.25" SNUBBER A/G | 137105 | Air / Gas Snubber |
| A/0.25" SNUBBER WTR | 137104 | Water / Fluid Snubber |





DBL

Differential Pressure Switches (Plastic)

The DBL Series Differential Pressure Switches are general purpose pressure switches designed for both HVAC and Energy Management applications. These pressure switches can be used to sense positive, negative, or differential air pressures when used in conjunction with an DBZ-06, A/SPT or A/VPT Series sampling tube. The NEMA 3 (IP54) rated weather proof plastic enclosure contains an On/Off, single stage micro switch and two pressure chambers separated by a silicone diaphragm. The enclosure also contains a ½" conduit knockout and guards against accidental contact with the live switch terminal screws as well as the factory calibrated linear set point adjusting knob. The set point can be adjusted without comparing to a field gauge, manometer or magnehelic.

Applications: Monitoring Filter Blockage, Proof of Flow, Prove Excessive or Insufficient Flow, Alarms and Control

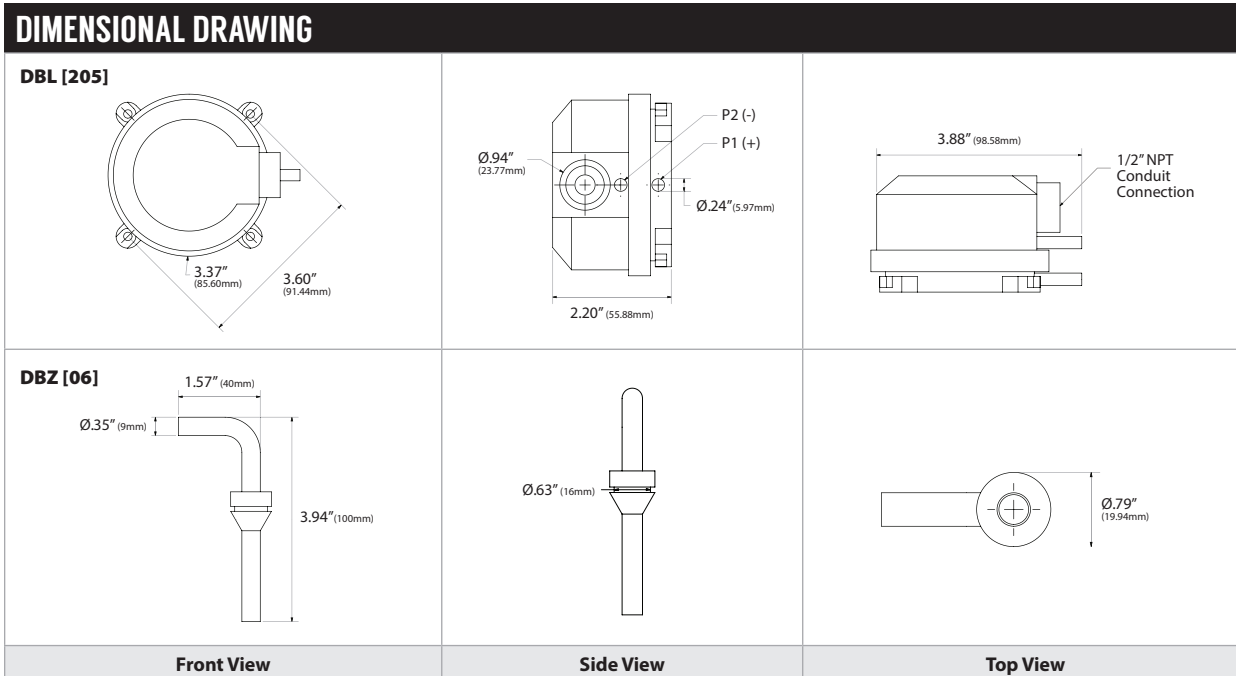
The DBL Series is covered by ACI's Two (2) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's web site, workaci.com.

PRODUCT SPECIFICATIONS

| | |
|---|---|
| Input Pressure Range: | See ordering on reverse side |
| Adjustable Set Point Range: | See ordering grid below (Internal Linear Scaled knob) |
| Adjustable Set Point Switching Differential: | Factory Default: +/- 15% of Trip / Set Point; See ordering grid below for adjustable switching differential range |
| Contact (Load) Rating: | 250 VAC maximum, 1.5A Resistive (0.4A Inductive) |
| Contact Arrangement: | SPDT (Form 1C) w/ Automatic Reset |
| Measured Media: | Air and other non-combustible, non-aggressive gases |
| Diaphragm Material: | Silicone |
| Maximum Operating Pressure: | 40" wc (10 kPa) |
| Life Expectancy: | 1,000,000 cycles |
| Operating Storage Temperature Range: | -4 to 185°F (-20 to 85°C) |
| Mounting Direction: | Any vertical plane |
| Enclosure Material: | Base = PA6.6 / Cover = Polystyrene (Transparent) |
| Enclosure Rating: | NEMA 3 (IP54) |
| Sample Line Connections: | Accepts 3/16" ID (8mm) Push on plastic/poly tubing |
| Electrical Connections: | Spade (Maximum 16 AWG (1.5 mm2)) |
| Conduit Opening: | Accepts ½" NPT Conduit |
| Agency Approvals: | CE, ISO 9001, RoHS2, WEEE |
| Dimensions (Diameter x Height): | 4.00" x 2.30" (100 x 58 mm) |
| Weight: | DBL Series: 0.40 lbs (0.20 kg) DBZ-06: 0.16 lbs (0.072 kg) |

Note: For more information regarding the SPT and VPT Pitot Tubes, see their respective data sheets





STANDARD ORDERING

Model # Example: **DBL-205L** -OR- **105934**

| Model # | Item # | Ranges Inches wc (Adjustable Set Point) | Adjustable Switching Differential Inches wc | Contact Form |
|-----------------|--------|---|---|--------------|
| DBL-205L | 105934 | 0.08 to 0.8" wc | 0.04 to 0.08" wc | SPDT |
| DBL-205B | 102423 | 0.20 to 2.0" wc | 0.08 to 0.16" wc | SPDT |
| DBL-205D | 102424 | 0.80 to 4.0" wc | 0.40 to 0.80" wc | SPDT |
| DBL-205E | 106255 | 2.0 to 10.0" wc | 0.60 to 1.20" wc | SPDT |

ACCESSORIES ORDERING | PICK UP PORTS

Model # Example: **DBZ-06** -OR- **106657**

| Model # | Item # | Description |
|---------------|--------|---|
| DBZ-06 | 106657 | Duct Mounting Kit – Contains two metal right angle Pitot Tubes, two grommets and 6.5' (2.0m) tubing |

Note*: Other compatible products include ACI's Pick up Port (A/PUP) Series, Medical Grade Tubing Kit (A/10'), Transformer Series (A/LE) and DC Power Supplies (A/PS24-24V-S)



AFS

Differential Pressure Switches (Metal)

The AFS Series Differential Pressure Switches are general purpose proving switches designed for both HVAC and Energy Management applications. These pressure switches can be used to sense positive, negative, or differential air pressures when used in conjunction with an A/SPT or A/VPT Series sampling tube. The plated housing contains a diaphragm, calibration spring and single snap-acting contact closure with either a manual or automatic reset switch depending on the model. The enclosure cover contains a 1/2" conduit knockout and guards against accidental contact with the live switch terminal screws as well as the set point adjusting screw.

Applications: Monitoring Filter Blockage, Proof of Flow, Prove Excessive or Insufficient Flow, Alarms and Control

The AFS Series is covered by ACI's Two (2) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, workaci.com.

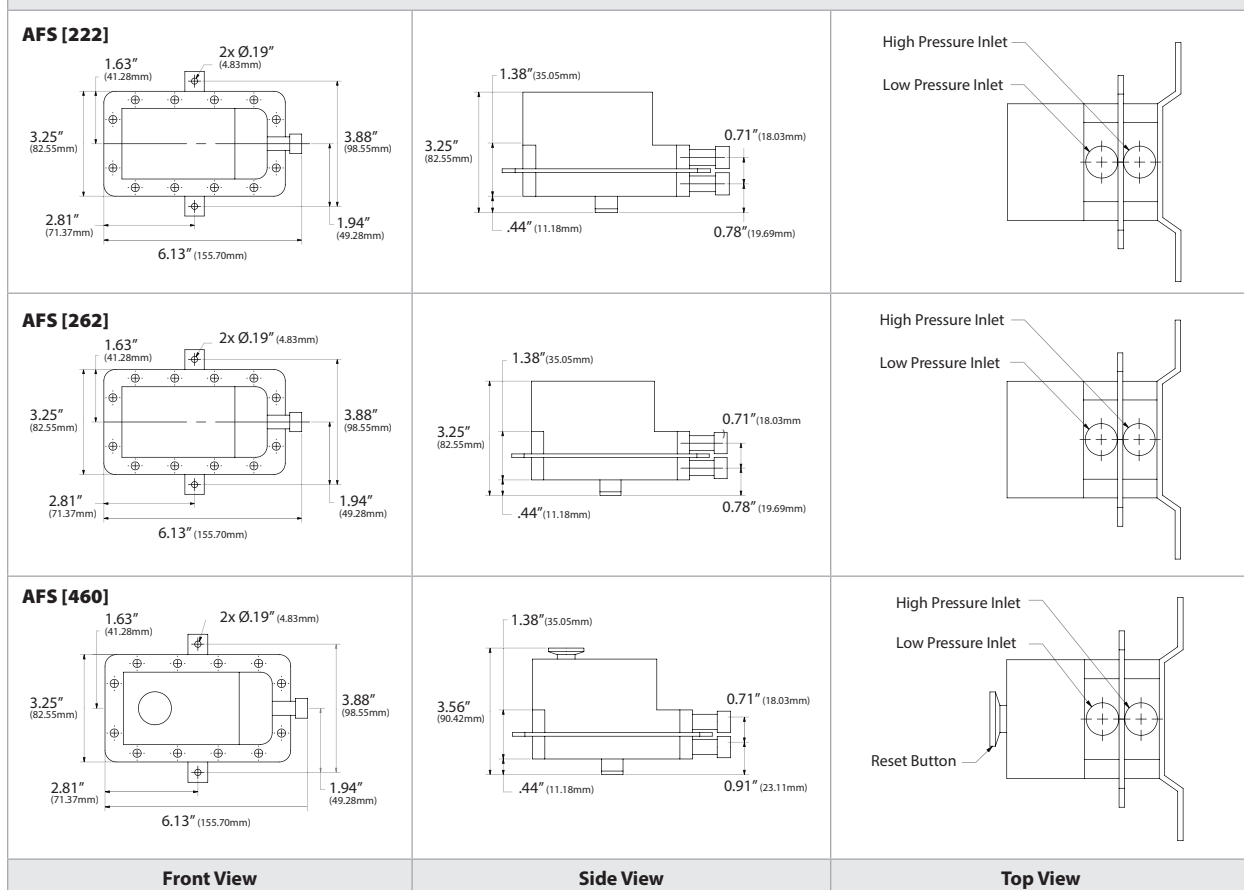
PRODUCT SPECIFICATIONS

| | |
|--|---|
| Input Pressure Range: | AFS-222: 0.05 +/- 0.02" to 12" wc AFS-262: 0.05 +/- 0.02" to 2.0" wc AFS-460: 0.40 +/- 0.06" to 12.0" wc |
| Set Point Range: | AFS-222: 0.05 +/- 0.02" to 12.0" wc AFS-262: 0.07" to 2.0" wc AFS-460: 0.40 +/- 0.06" to 12" wc |
| Field Adjustable "Operate" Range: | AFS-222: 0.07 to 12.0" wc AFS-262: 0.07" to 2" wc AFS-460: 0.46" to 12" wc |
| Field Adjustable "Release" Range: | AFS-222: 0.04 to 11.2" wc AFS-262: 0.04" to 1.9" wc AFS-460: 0.46" w.c. to 11.2" w.c. |
| Approximate Switching Differential: | Progressive, increasing from 0.02 +/- 0.01" wc @ minimum set point to 0.8" wc @ maximum set point |
| Contact (Load) Rating: | AFS-222/AFS262: 300 VA pilot duty @ 115 to 277 VAC, 60 Hz; 15A non-inductive to 277 VAC, 60 Hz AFS-460: 15A @ 125, 250, or 277 VAC / 1/2A @ 125 VDC, 1/4A @ 250 VDC / 1/4 hp @ 125 VAC, 1/2 hp @ 250 VDC AFS-460-137: 8A @ 250 VAC |
| Contact Arrangement: | AFS-222/AFS-262: SPDT w/ Automatic Reset AFS-460: SPST-NC w/ Manual Reset AFS-460-137: DPDP w/ Manual Reset |
| Measured Media: | AFS-222/AFS-262: Air or combustion by-products that will not degrade silicone AFS-460: Air |
| Maximum Pressure: | 0.5 PSI (0.03 Bar) |
| Life Expectancy: | AFS-222/AFS-262: 100,000 cycles minimum @ 1/2 psi (0.03 Bar) max pressure / cycle & max load AFS-460: 6,000 cycles minimum @ 1/2 psi (0.03 Bar) max pressure / cycle & max load |
| Operating Temperature Range: | -40 to 180°F (-40 to 82°C) |
| Operating Humidity Range: | 10 to 95% RH, non-condensing |
| Mounting Direction: | Any vertical plane |
| Enclosure Material: | Galvanized Steel |
| Sample Line Connections: | Accepts 1/4" OD rigid or semi-rigid metallic tubing using integral compression fitting, ferrule and nut "-112 Option": Includes two barbed fittings that accepts 1/4" flexible plastic tubing |
| Electrical Connections: | Screw type terminal with cup washers |
| Conduit Opening: | Accepts 1/2" Conduit (7/8" (22.3 mm) opening) |
| Dimensions (H x W x D): | 6.25" x 4.46" x 3.18" (158.8 mm x 113.3 mm x 80.8 mm) |
| Weight: | 1.2 lbs (0.544 kg) |
| Agency Approvals: | UL, CUL, FM, CSA, CE, ISO 9001: 2008 |





DIMENSIONAL DRAWING



| STANDARD ORDERING | | | | | | | Model # Example: AFS-222 -OR- 101788 |
|--------------------|--------|------------------|---------------|-------------|---------------------|----------------|---|
| Model # | Item # | Pressure Range | Contact Style | Reset Style | Compression Fitting | Barbed Fitting | |
| AFS-222 | 101788 | 0.05 to 12.0" wc | SPDT | Auto | ☉ | | |
| AFS-222-112 | 108816 | 0.05 to 12.0" wc | SPDT | Auto | | ☉ | |
| AFS-262 | 101789 | 0.05 to 2.0" wc | SPDT | Auto | ☉ | | |
| AFS-262-112 | 118041 | 0.05 to 2.0" wc | SPDT | Auto | | ☉ | |
| AFS-460 | 101791 | 0.40 to 12.0" wc | SPST-N/C | Manual | ☉ | | |
| AFS-460-112 | 129657 | 0.40 to 12.0" wc | SPST-N/C | Manual | | ☉ | |
| AFS-460-137 | 105782 | 0.60 to 12.0" wc | DPDT | Manual | ☉ | | |



PT

Pitot Tubes (Plastic)

ACI carries a full line of differential, static, and velocity (flow) pitot tubes. The PT Series is designed to sense air flow velocity in VAV and other small ducts found in many of today's HVAC Systems. When selecting the proper PT series Pitot Tube, you want to make sure that the insertion length of the pitot tube is long enough to reach the midpoint of the duct and at least 10 straight duct diameters upstream and downstream for best results. Note that the Pitot Tube should also be mounted such that the arrow on the pitot tube is facing in the direction of the air flow. And that the tube is kept free of dirt and debris. A foam pad is adhered to mounting plate to seal the installation opening and to reduce vibrations.

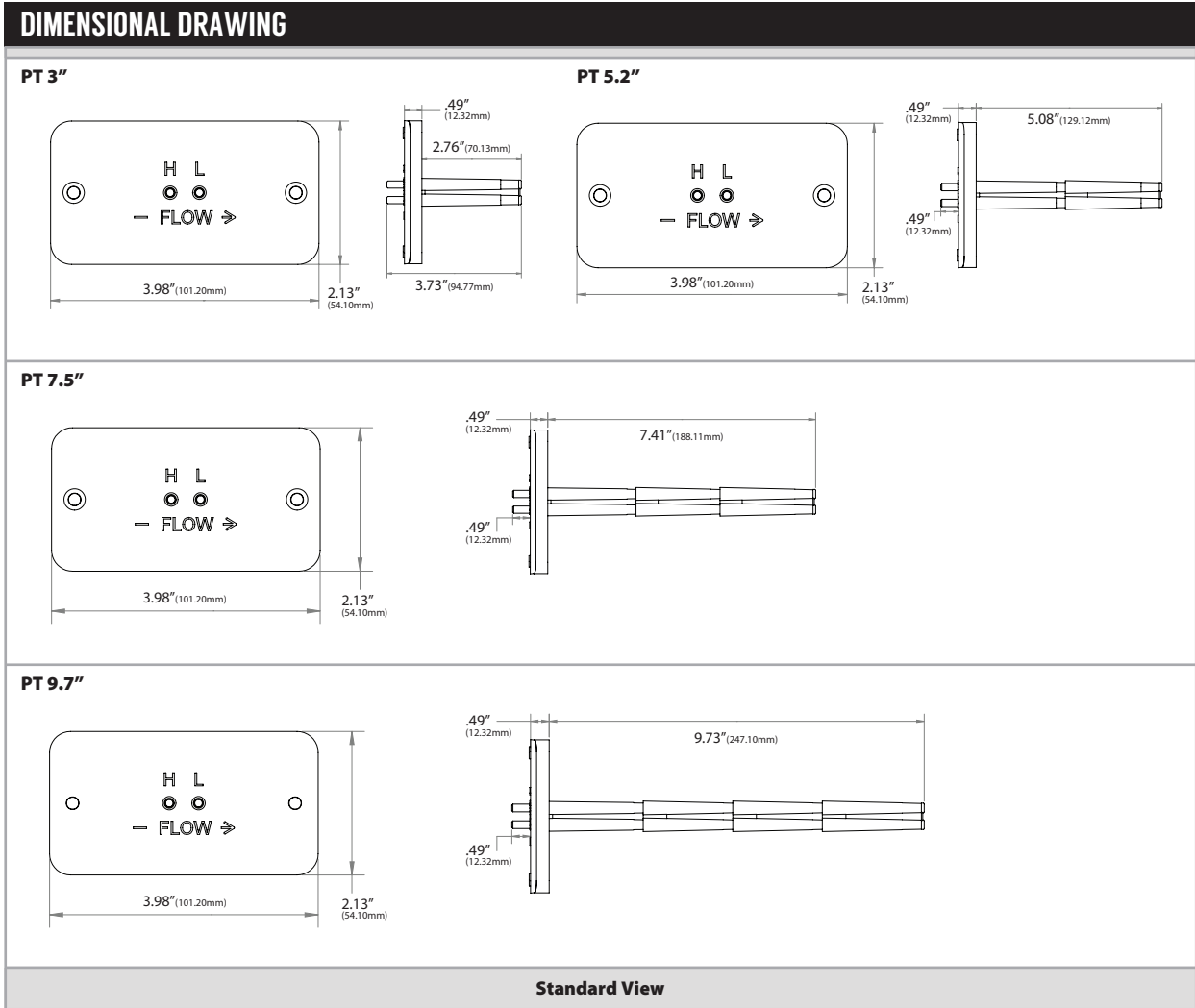
Applications: Used to monitor fan operation and true air flow with varying amounts of static pressure in non-critical applications.

The PT Series is covered by ACI's Two (2) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|---|---|
| Tubing Connections: | 3/16" OD (4.8 mm) connection for 1/4" (6.4 mm) OD Poly Tubing |
| Sensing (Insertion) Length # Sensing Points: | See ordering grid below |
| Recommended Duct Size: | 4" (10.2 cm) to 18" (45.7 cm) |
| Recommended Air Flow: | 200 FPM (60.96 MPM) minimum to 3000 FPM (914.4 MPM) maximum |
| Operating Temperature Range: | 40 to 120°F (4 to 49°C) |
| Storage Temperature Range: | -40 to 185°F (-40 to 85°C) |
| Operating Humidity Range: | 0 to 90% RH non-condensing |
| Material Type: | ABS |
| Material Flammability Rating | UL-94 HB |
| Product Dimensions (W x H x L) Weight: | <p>PT 3": 4.00" (10.2 cm) x 2.1" (5.3 cm) x 3.6" (9.1 cm) / 0.06 lbs (0.03 kg)</p> <p>PT 5.2": 4.00" (10.2 cm) x 2.1" (5.3 cm) x 6.0" (15.2 cm) / 0.07 lbs (0.032 kg)</p> <p>PT 7.5": 4.00" (10.2 cm) x 2.1" (5.3 cm) x 8.3" (21.1 cm) / 0.075 lbs (0.034 kg)</p> <p>PT 9.7": 4.00" (10.2 cm) x 2.1" (5.3 cm) x 10.6" (26.9 cm) / 0.086 lbs (0.04 kg)</p> |
| Approvals: | RoHS2, WEEE, Reach |





STANDARD ORDERING

Model # Example: **PT 5.2"** -OR- **130141**

| Model # | Item # | Description | Insertion Length | Sensing Points | Duct Size |
|----------------|--------|----------------------------------|------------------|----------------|---------------------------|
| PT 3" | 130140 | 3.0" Pitot Tube with Foam Gasket | 3.0" (7.6 cm) | 1 Set | 4 - 6" (10.2 - 15.2 cm) |
| PT 5.2" | 130141 | 5.2" Pitot Tube with Foam Gasket | 5.2" (13.2 cm) | 2 Sets | 6 - 8" (15.2 - 20.3 cm) |
| PT 7.5" | 130142 | 7.5" Pitot Tube with Foam Gasket | 7.5" (19.1 cm) | 3 Sets | 8 - 10" (20.3 - 25.4 cm) |
| PT 9.7" | 130143 | 9.7" Pitot Tube with Foam Gasket | 9.7" (24.6 cm) | 4 Sets | 10 - 18" (25.4 - 45.7 cm) |





SPT Static Pitot Tubes (Aluminum)

The SPT is an Aluminum Static Pressure (Aspiration) probe used to monitor the static pressure in an HVAC duct or equipment application. The static pressure probe should be mounted approximately 5 to 8 duct diameters downstream from elbows, obstructions, or large change in duct area to reduce the amount of turbulence that will affect your readings.

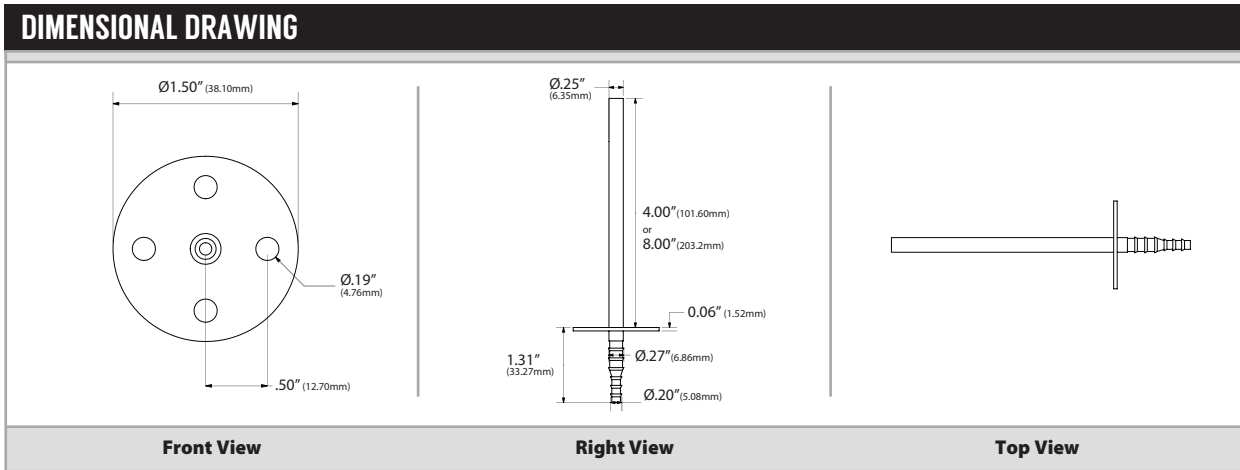
Applications: Used to monitor fan operation, filter blockage, or reduced air flow with little or no static pressure in non-critical applications

The SPT Series is covered by ACI's Two (2) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|---|---|
| Tubing Connection Tubing Size: | 45° Barbed Type (6 Places), accepts 1/8" through 1/4" ID flexible plastic tubing |
| Probe Insertion Length & Sensing Points: | SPT-3.5" : (88.9 mm) Single Point SPT-8.0" : 8" (203.2 mm) Single Point |
| Tube Mounting Direction: | Tip opens parallel to the air stream |
| Static Tube Mounting Angle: | Perpendicular to the duct (90 Degrees +/- 3 Degrees) |
| Mounting Flange (Diameter): | 1.50" (38.1 mm) |
| Measurement Probe Hole Size (Diameter): | 1/4" (6.35mm) |
| Mounting Holes (Diameter): | 3/16" (4.76 mm) |
| Material: | Aluminum |
| Storage & Operating Temperature Range: | -40 to 185°F (-40 to 85°C) |
| Operating Humidity Range: | 0 to 90% RH non-condensing |
| Weight: | SPT-3.5" : 0.022 lbs (10g) SPT-8.0" : 0.034 lbs (15.4g) |
| Agency Approvals: | RoHS2, WEEE, Reach |





STANDARD ORDERING

Model # Example: **A/SPT-8''** -OR- **108976**

| Model # | Item # | Insertion Length | Sensing Points |
|------------------|--------|------------------|----------------|
| SPT-3.5'' | 102957 | 4" (101.6 mm) | 1 |
| SPT-8.0'' | 108976 | 8" (203.2 mm) | 1 |

ACCESSORIES ORDERING

Model # Example: **A/10'TUBE** -OR- **126606**

| Model # | Item # | Description | Color |
|--------------------|--------|--|-------|
| A/10' TUBE | 126606 | 10' Medical Tubing Kit, 1/8" ID x 1/4" OD | Clear |
| A/20' TUBE | 132226 | 20' Medical Tubing Kit, 1/8" ID x 1/4" OD | Clear |
| A/100' TUBE | 136018 | 100' Medical Tubing Kit, 1/8" ID x 1/4" OD | Clear |





VPT

Velocity Pitot Tubes (Aluminum)

The VPT Series is an Aluminum Velocity Pressure or flow (Impact) probe used to sample the air flow in HVAC duct or equipment applications. The VPT should be mounted approximately 5 to 8 duct diameters downstream from elbows, obstructions, or large change in duct area to reduce the amount of turbulence that will affect your readings.

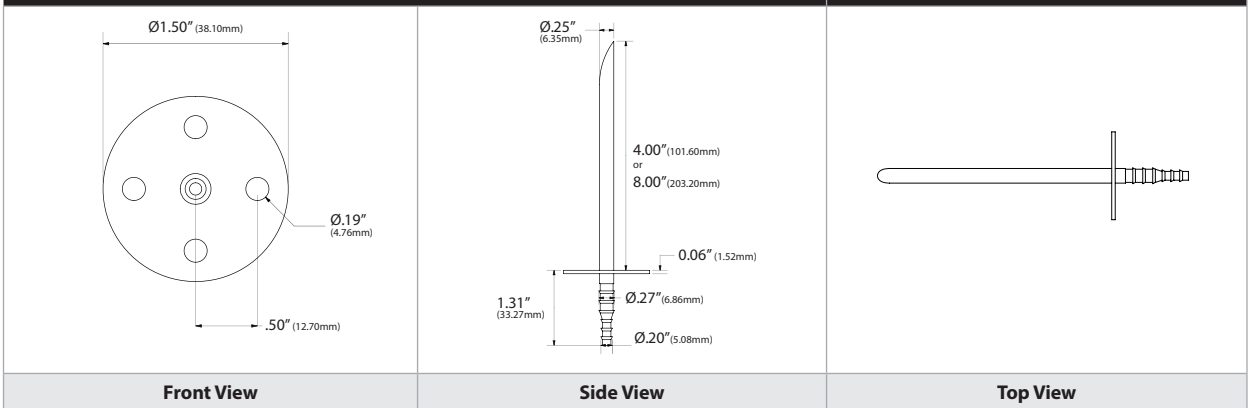
Applications: Used to monitor fan operation and true air flow with varying amounts of static pressure in non-critical applications.

The VPT Series is covered by ACI's Two (2) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, workaci.com.

PRODUCT SPECIFICATIONS

| | |
|---|---|
| Tubing Connection Tubing Size: | 45° Barbed Type (6 Places), accepts 1/8" through 1/4" ID flexible plastic tubing |
| Probe Insertion Length & Sensing Points: | VPT: 4" (101.6 mm) Single Point VPT-8": 8" (203.2 mm) Single Point |
| Tube Mounting Direction: | Tip opens directly into the air stream (Mounting arrow on Probe) |
| Impact Tube Mounting Angle: | Parallel to air stream (+/- 7 Degrees) |
| Mounting Flange (Diameter): | 1.50" (38.1 mm) |
| Measurement Probe Hole Size (Diameter): | 1/4" (6.35 mm) |
| Mounting Holes (Diameter): | 3/16" (4.76 mm) |
| Material: | Aluminum |
| Storage & Operating Temperature Range: | -40 to 185°F (-40°C to 85°C) |
| Operating Humidity Range: | 0 to 90% RH (non-condensing) |
| Weight: | VPT: 0.022 lbs (10g) VPT-8": 0.034 lbs (15.4g) |
| Agency Approvals: | RoHS2, WEEE, Reach |

DIMENSIONAL DRAWING



STANDARD ORDERING

| Model # | Item # | Description | Sensing Points |
|------------|--------|---|----------------|
| VPT | 103010 | 4" (101.6 mm) | 1 |
| VPT-8" | 125008 | 8" (203.2 mm) | 1 |
| VPT KIT 4" | 135399 | 4" VPT (2) with Tubing (0.17" ID X 0.25" OD, 10' (2)) | 2 |
| VPT KIT 8" | 150921 | 8" VPT (2) with Tubing (0.17" ID X 0.25" OD, 10' (2)) | 2 |





PICK UP PORTS

Room

The ACI Room Pickup Ports are designed to be used in conjunction with any low differential pressure transmitter (see ACI DLP or MLP Series) to provide an aesthetically pleasing building static reference point (pressure). They are offered in two different room enclosure options. When used in conjunction with a low differential pressure transmitter, the pickup ports provide excellent accuracy and reliability. ACI also offers 10', 20' and 100' Medical tubing kits made of an FDA approved Food/Medical Grade PVC tubing kit. For best results, make sure that the tubing is free of dirt, duct and condensation and that you keep the tubing run as short as possible in order to provide best response time. For more information regarding the Medical Grade Tubing kit, please see the specific data sheet for the Medical Grade tubing kit.

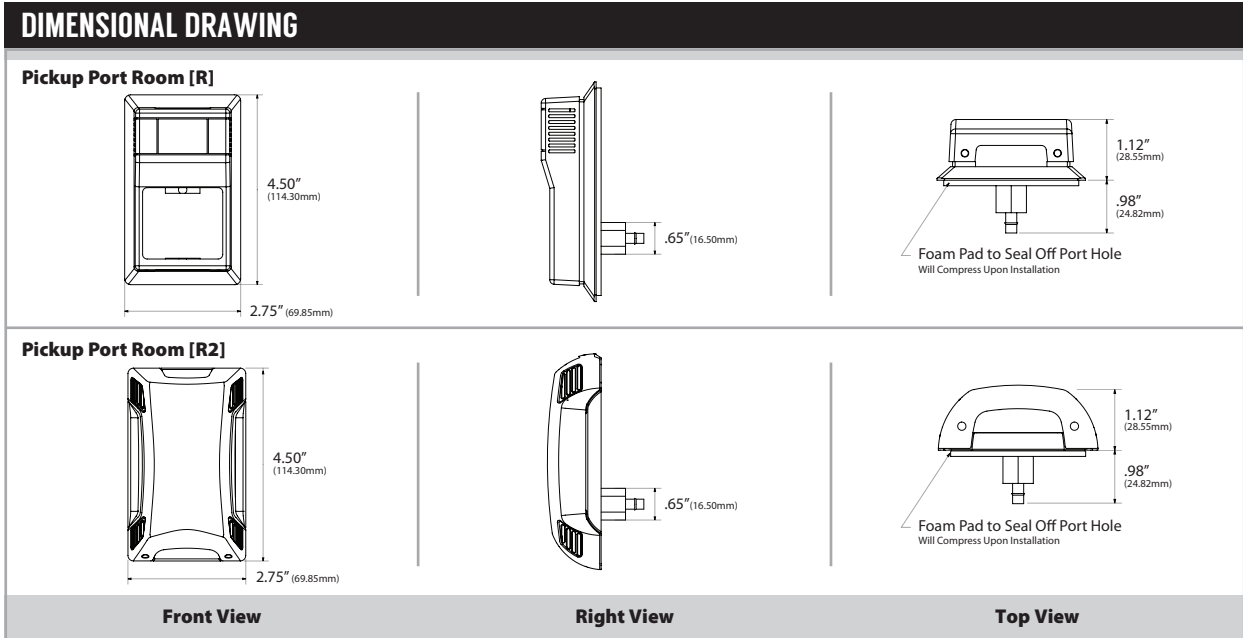
Applications: Monitoring Indoor Building Static Pressure in Commercial/Office Buildings, Clean Rooms, Isolation Rooms, Hospitals, Laboratories, Schools, etc.

The Pick Up Port Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|--|--|
| Tubing Connections: | Barbed fitting accepts 3/16" ID flexible Poly tubing |
| Maximum Operating Pressure: | Filter: 150 psi (10.3 bar) Medical Tubing (A/10' Tube, A/20' Tube, A/100' Tube): 65 psi maximum at 73°F (23°C) |
| Operating Temperature Range: | 35° to 140°F (2° to 60°C) |
| Storage Temperature Range: | -40° to 140°F (-40° to 60°C) |
| Enclosure Material Flammability Rating: | ABS UL-94 HB |
| Enclosure Color: | A/R2-PUP: White A/R-PUP: Beige |
| Foam Material Flammability Rating: | Cross-Linked Polyethylene FMUSS-302 |
| Filter Material: | Nickel Plated Brass |
| Product Dimensions (L x W x D) Weight: | A/R2-PUP: 4.50" (11.4 cm) x 2.75" (6.99 cm) x 1.12" (2.84 cm) 0.20 lbs (0.09 kg) A/R-PUP: 4.51" (11.5 cm) x 2.75" (6.99 cm) x 1.14" (2.90 cm) 0.16 lbs (0.073 kg) |
| Agency Approvals: | RoHS2, WEEE, Reach |





STANDARD ORDERING

Model # Example: **A/R2-PUP** -OR- **132711**

| Model # | Item # | Description | Color |
|-----------------|--------|---------------------------|-------|
| A/R-PUP | 125584 | Pickup Port, Wall Mounted | Beige |
| A/R2-PUP | 132711 | Pickup Port, Wall Mounted | White |

ACCESSORIES ORDERING

Model # Example: **A/100'TUBE** -OR- **136018**

| Model # | Item # | Description | Color |
|--------------------|--------|--|-------|
| A/10' TUBE | 126606 | 10' Medical Tubing Kit, 1/8" ID x 1/4" OD | Clear |
| A/20' TUBE | 132226 | 20' Medical Tubing Kit, 1/8" ID x 1/4" OD | Clear |
| A/100' TUBE | 136018 | 100' Medical Tubing Kit, 1/8" ID x 1/4" OD | Clear |





PICKUP PORTS

Outside Air (Horizontal & Vertical)

The ACI Outdoor Pickup Ports are designed to be used in conjunction with any low differential pressure transmitter (see ACI DLP or MLP Series) to provide a weatherproof outdoor reference point for monitoring building static pressure. The A/O-PUP-H is designed to be horizontally mounted with the tube in parallel with the ground or roof. The A/O-PUP-V is designed to be vertically mounted with the tube pointed downwards towards the ground or roof. When used in conjunction with a low differential pressure transmitter the pickup ports provide excellent accuracy and reliability. ACI also offers 10', 20' and 100' Medical tubing kits made of an FDA approved Food/Medical Grade PVC tubing kit. For best results, make sure that the tubing is free of dirt, dust and condensation and that you keep the tubing run as short as possible to provide best response time. For more information regarding the Medical Grade Tubing kit, please see the specific data sheet for the Medical Grade tubing kit.

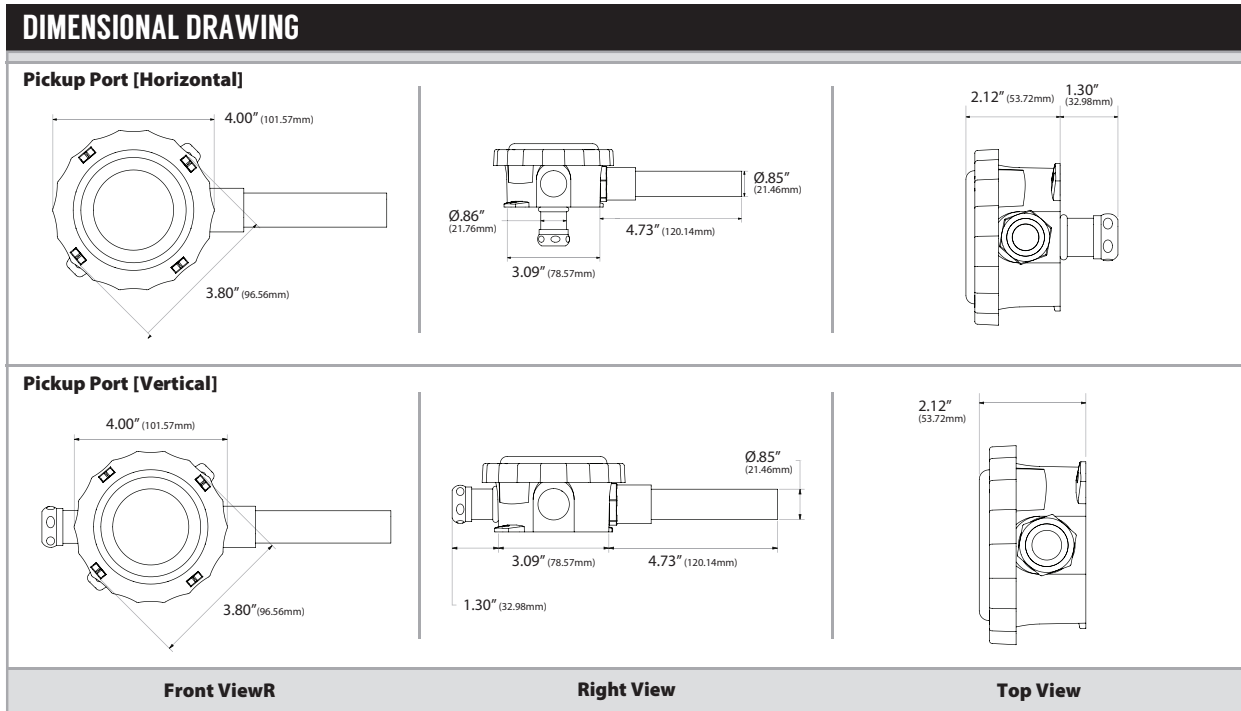
Applications: Indoor/Outdoor Weatherproof Pickup Port for Building Static Pressure

The Pick Up Port Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's web site, workaci.com.

PRODUCT SPECIFICATIONS

| | |
|--|--|
| Tubing Connections: | Barbed fitting accepts 3/16" ID flexible Poly tubing |
| Maximum Operating Pressure: | Filter: 150 psi (10.3 bar) |
| Operating Temperature Range: | Medical Tubing (A/10' Tube, A/100' Tube): 65 psi maximum at 73°F (23°C) |
| Storage Temperature Range: | -22° to 185°F (-30° to 85°C) |
| Enclosure Material Flammability Rating: | -40° to 185°F (-40° to 85°C) |
| Enclosure Color: | ASA/PC with UV Protectant UL 94-V0 |
| Filter Material: | Light Gray |
| Product Dimensions (L x OD x H) Weight: | Nickel Plated Brass |
| Agency Approvals: | 9.03" (11.4 cm) x 4.30" (6.99 cm) x 2.29" (5.82 cm) 0.60 lbs (0.272 kg) |
| | RoHS2, WEEE, Reach |





STANDARD ORDERING

Model # Example: **A/O-PUP-H** -OR- **132892**

| Model # | Item # | Description | Color |
|------------------|--------|--|------------|
| A/O-PUP-H | 132892 | Pickup Port, Horizontal Mount, Outdoor | Light Gray |
| A/O-PUP-V | 132891 | Pickup Port, Vertical Mount, Outdoor | Light Gray |

ACCESSORIES ORDERING

Model # Example: **A/100'TUBE** -OR- **136018**

| Model # | Item # | Description | Color |
|------------|--------|---|-------|
| A/10' TUBE | 126606 | 10' Medical Tubing Kit, 1/8" ID x 1/4"OD | Clear |
| A/20' TUBE | 132226 | 20' Medical Tubing Kit, 1/8" ID x 1/4"OD | Clear |
| A/100'TUBE | 136018 | 100' Medical Tubing Kit, 1/8" ID x 1/4"OD | Clear |





PICK UP PORTS

Stainless Wall Plates



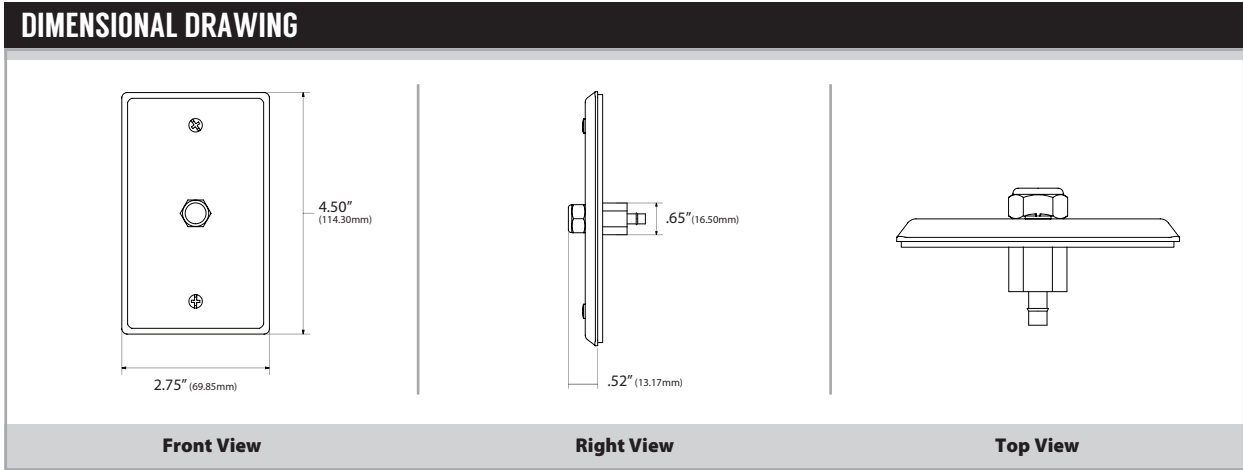
The wall mounted stainless plate pickup ports are designed to be used in conjunction with any low differential pressure transmitter (see ACI DLP or MLP Series) to provide an aesthetically pleasing building static reference point (pressure). When used in conjunction with a low differential pressure transmitter, the pickup ports provide excellent accuracy and reliability. ACI also offers 10', 20' and 100' Medical tubing kits made of an FDA approved Food/Medical Grade Flexible PVC tubing kit. For best results, make sure that the tubing is free of dirt, dust and condensation and that you keep the tubing run as short as possible to provide the best response time. For more information regarding the Medical Grade Tubing kit, please see the specific data sheet for the Medical Grade tubing kit.

Applications: Monitoring Indoor Building Static Pressure in Commercial/Office Buildings, Clean Rooms, Isolation Rooms, Hospitals, Laboratories, Schools, etc.

The Pick Up Port Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

| PRODUCT SPECIFICATIONS | |
|---|---|
| Tubing Connections: | Barbed fitting accepts 3/16" ID flexible Poly tubing |
| Maximum Operating Pressure: | Filter: 150 psi (10.3 bar) Medical Tubing (A/10' Tube, A/20' Tube, A/100' Tube): 65 psi maximum at 73°F (23°C) |
| Operating Temperature Range: | -40° to 150°F (-40° to 66°C) |
| Storage Temperature Range: | -40° to 160°F (-40° to 71°C) |
| Wall Plate Material: | 302 Series Stainless Steel |
| Wall Plate Color Finish: | Silver (Metallic) Brushed Stainless Steel |
| Foam Material Flammability Rating: | Cross-Linked Polyethylene FMUSS-302 |
| Filter Material: | Nickel Plated Brass |
| Product Dimensions (L x W x D) Weight: | A/SP-PUP: 4.51" (11.5 cm) x 2.76" (7.00 cm) x 0.190" (0.48 cm) 0.16 lbs (0.073 kg) |
| Agency Approvals: | RoHS2, WEEE, Reach |





STANDARD ORDERING Model # Example: **A/SP-PUP** -OR- **125585**

| Model # | Item # | Description | Color |
|-----------------|--------|---|-----------------|
| A/SP-PUP | 125585 | Pickup Port, Wall Mounted Stainless Plate | Silver/Metallic |

ACCESSORIES ORDERING Model # Example: **A/100'TUBE** -OR- **136018**

| Model # | Item # | Description | Color |
|--------------------|--------|--|-------|
| A/10' TUBE | 126606 | 10' Medical Tubing Kit, 1/8" ID x 1/4" OD | Clear |
| A/20' TUBE | 132226 | 20' Medical Tubing Kit, 1/8" ID x 1/4" OD | Clear |
| A/100' TUBE | 136018 | 100' Medical Tubing Kit, 1/8" ID x 1/4" OD | Clear |





MEDICAL GRADE TUBING

ACI offers a 1/4" diameter, flexible push-on medical grade tubing kit to be used in conjunction with the MLP2, DLP, DBL and PUP Series pressure transmitters, switches and all pickup ports. The standard lengths of 10 Feet, 20 Feet, and 100 Feet are available and can be used with any 3/16" diameter barbed or non-barbed style fittings.

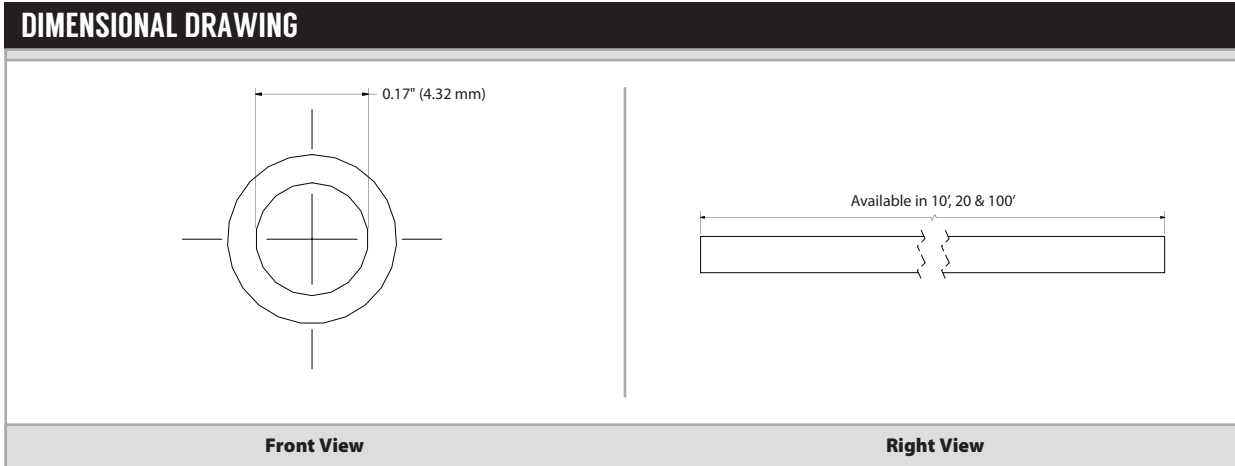
Applications: Indoor/Outdoor Weatherproof Pickup Port for Building Static Pressure Applications

The Pick Up Port Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|---|---|
| Fitting Size Accepted: | 3/16" (4.76 mm) |
| Maximum Operating Pressure: | 39 psi maximum @ 70°F (21.1°C) |
| Operating Temperature Range: | 35° to 122°F (2° to 50°C) |
| Brittleness Temperature: | -47.2°F (-44°C) |
| Storage Temperature Range: | 0 to 122°F (32° to 50°C) |
| Enclosure Material Flammability Rating: | Medical Grade Flexible PVC Self Extinguishing |
| Tubing Color: | Clear |
| Product Dimensions (ID x OD x L) Weight: | <p>A/10' Tube: 0.17" (4.32 mm) x 1/4" (6.35 mm) x 10' (3.05 m) / 0.30 lbs (0.136 kg)</p> <p>A/20' Tube: 0.17" (4.32 mm) x 1/4" (6.35 mm) x 20' (6.10 m) / 0.50 lbs (0.226 kg)</p> <p>A/100' Tube: 0.17" (4.32 mm) x 1/4" (6.35 mm) x 100' (30.5 m) / 2.3 lbs (1.05 kg)</p> |
| Agency Approvals: | Complies with relevant section Title 21 of the Code of Fed. Reg., RoHS2, WEEE, Reach |





STANDARD ORDERING Model # Example: **A/10'TUBE** -OR- **126606**

| Model # | Item # | Description | Color |
|--------------------|--------|---|-------|
| A/10' TUBE | 126606 | 10' Medical Tubing Kit, 0.17" ID x 1/4" OD | Clear |
| A/20' TUBE | 132226 | 20' Medical Tubing Kit, 0.17" ID x 1/4" OD | Clear |
| A/100' TUBE | 136018 | 100' Medical Tubing Kit, 0.17" ID x 1/4" OD | Clear |





FIXED "STATUS" SWITCHES

CS2, CSX2, SCS2 & SCSX2 Series

The ACI Fixed "Status" Current switches are designed for use in any AC current monitoring application in which you are looking for a "Go/No Go" or On/Off status for a particular piece of equipment. The current switches should be installed on the line side of the power to the motor, pump, compressor or other equipment. The current switches are available in both solid and split-core versions which also includes a Patented 35 mm Din Rail mounting foot for easy installation in panel mount applications. The solid-core versions are a great choice for new installations or OEM applications in which cost sensitivity, lower trip points and environmental issues may be of concern. The split-core version of the current switches work great in retrofit applications and for use in service vehicles since one part will work in most applications and can be installed without disconnecting any wires. The fixed current status switches can also be used

to determine the run time of your equipment and basic load trending applications where you want to know when your piece of equipment runs and for how long it runs for when logging the contact closures on your building management system or PLC.

Applications: Pump Status, Fan Status, Compressors, Motor Status, Ovens, Industrial Equipment, Lighting Status and Usage, Electrical Load Status, Local Alarms (Strobes and Audible Alarms)

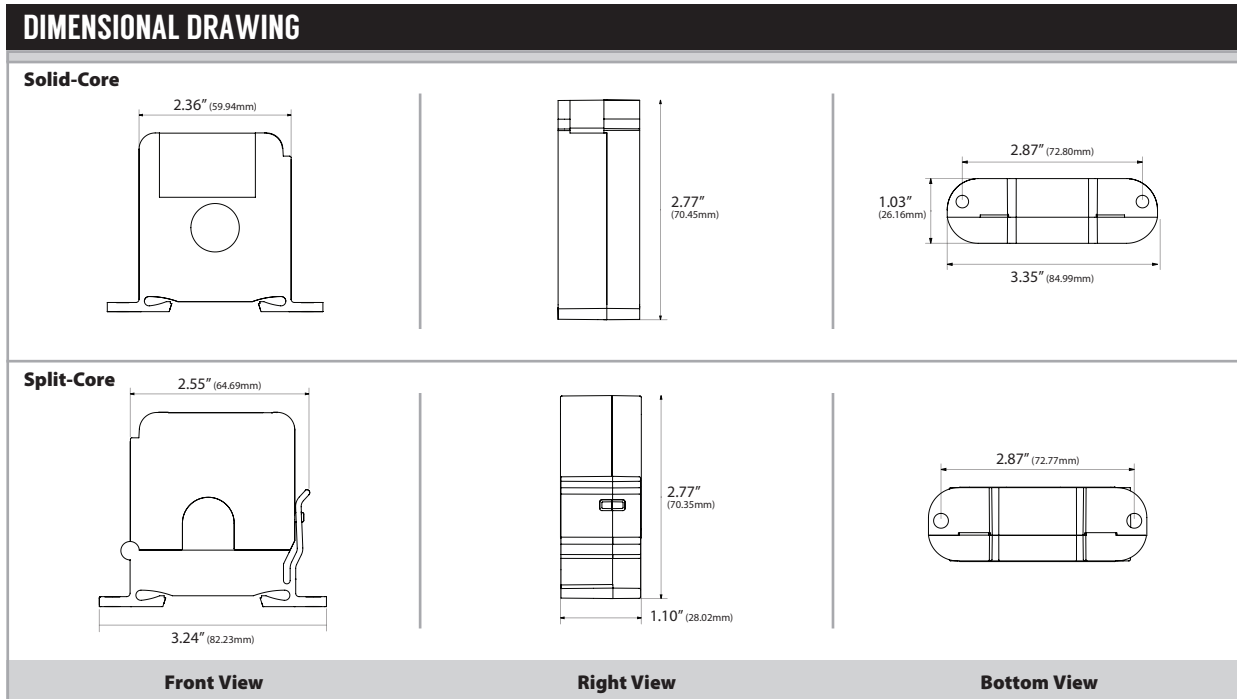
The Fixed Current Switches are covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|---|--|
| Monitored Current Type: | AC Current |
| Maximum AC Voltage: | 600 VAC |
| Operating Frequency Range: | 40 to 1 kHz |
| Core Style: | Solid-Core and Split-Core Versions available (See Ordering Grid) |
| Sensor Power: | Induced from the Monitored Conductor |
| Amperage Range: | See Ordering Grid |
| Isolation Voltage: | 2200 VAC |
| Trip Point Style Trip Point: | Fixed Trip Point See Ordering Grid |
| Contact Type: | Normally-Open "N/O" or Normally-Closed "N/C" (See ordering Grid) |
| "Status" Contact Rating: | 0.2A @ 200 VAC/VDC |
| "Status" Contact "On" Resistance "Off" Resistance: | < 10 Ohms (tripped) > 1 Meg Ohms (Open) |
| Response Time: | See Response Time Table on back of data sheet |
| Status LED Indication 1: | Red LED (Monitored current is above Trip Point) |
| Aperture Size: | 0.75" (19.05 mm) |
| Din Rail Size: | 35 mm (U.S. Patent No. 7,416,421) |
| Operating Temperature Range: | 5 to 104°F (-15 to 40°C) |
| Operating Humidity Range: | 0 to 95%, non-condensing |
| Recommended Storage Temperature RH Range: | 41 to 95°F (5 to 35°C) 40% to 85% RH, non-condensing |
| Enclosure Material Flammability Rating: | PC/ABS (Polycarbonate/ABS Blend) UL94-V0 |
| Wiring Connections: | 2 Position Screw Terminal Block (Not Polarity Sensitive) |
| Wire Size: | 16 to 22 AWG (1.31 mm ² to 0.33 mm ²) Copper Wires only |
| Terminal Block Torque Rating: | 4.43 to 5.31 in-lbs. (0.5 to 0.6 Nm) |
| Minimum Mounting Distance: | 1" (2.6 cm) between current switch (Relays, Contactors, Transformers) |
| Agency Approvals: | UL/CUL US Listed (UL 508) Ind. Control Equipment (File # E309723), CE, RoHS2, WEEE |
| Product Weight: | A/CS2 and A/CSX2: 0.216 lbs. (0.099kg) A/SCS2 and A/SCSX2: 0.270 lbs. (0.123 kg) A/SCS2-L: 0.280 lbs. (0.127 kg) |
| Product Dimensions (L x W x H): | Solid Core Versions: 2.760" (70.11 mm) x 3.343" (84.92 mm) x 1.050" (26.67 mm) Split Core Versions: 2.780" (70.51 mm) x 3.238" (82.25 mm) x 1.120" (28.45 mm) |

Note¹: The LED should not be used to determine if current is present. At low currents the LED may not be visible





RESPONSE TIME

Green Boxes: response time at specified current above trip point | Red Boxes: response time below specified trip point where sensors may trip

| Model # | 0.15 Amps | 0.20 Amps | 0.25 Amps | 0.50 Amps | 0.75 Amps | 1.0 Amp | 1.20 Amps | 1.50 Amps | 10 Amps | 20 Amps |
|----------|-----------|-----------|-----------|-----------|-----------|---------|-----------|-----------|---------|---------|
| A/CS2 | 156mS | 100mS | 84mS | ---- | ---- | 32mS | ---- | ---- | 26mS | 24mS |
| A/CSX2 | ---- | 189mS | 134mS | ---- | ---- | 48mS | ---- | ---- | 42mS | 41mS |
| A/SCS2 | ---- | ---- | ---- | 484mS | ---- | 72mS | ---- | 45mS | 26mS | 20mS |
| A/SCSX2 | ---- | ---- | ---- | ---- | ---- | 194mS | 102mS | 102mS | 42mS | 42mS |
| A/SCS2-L | ---- | 224mS | 144mS | 65mS | 47mS | 39mS | ---- | ---- | 25mS | 22mS |

Note: ---- = unit was not tested (below minimum trip point or for that range)

STANDARD ORDERING

Model # Example: A/SCSX2 -OR- 142357

| Model # | Item # | Trip Point Type | N/O | N/C | Solid-Core | Split-Core | Amp Range | Trip Point | Contact Rating |
|----------|--------|------------------|-----|-----|------------|------------|-----------|---------------|--------------------|
| A/CS2 | 142340 | Fixed Trip Point | • | | • | | 0 to 250A | 0.25A or less | 0.2A @ 200 VAC/VDC |
| A/CSX2 | 142359 | Fixed Trip Point | | • | • | | 0 to 250A | 0.25A or less | 0.2A @ 200 VAC/VDC |
| A/SCS2 | 142358 | Fixed Trip Point | • | | | • | 0 to 250A | 1.5A or less | 0.2A @ 200 VAC/VDC |
| A/SCSX2 | 142357 | Fixed Trip Point | | • | | • | 0 to 250A | 1.5A or less | 0.2A @ 200 VAC/VDC |
| A/SCS2-L | 142356 | Fixed Trip Point | • | | | • | 0 to 250A | 0.5A or less | 0.2A @ 200 VAC/VDC |

The Fixed Current Switches are not intended to be used in Life / Safety Applications or in Hazardous / Classified Locations

Revision C0000001 | Rev 1.0





MINI FIXED STATUS

MCS & MSCS Series



The Miniature Fixed Current Status™ Switches are designed for use in any AC current monitoring application in which you are looking for a fixed trip point to monitor the “Go/No Go” (On/Off) “Status” for a particular piece of equipment. The fixed current switches should be installed on the line side of the power to the motor, pump, compressor or other equipment. All of the miniature current switches are available in both solid and split-core versions in a smaller enclosure style than that of the A/CS2 and A/SCS2 Series fixed current switches rated for higher operating currents. The solid-core versions are a great choice for new installations or OEM applications in which cost sensitivity, lower trip points and environmental issues may be of concern. The split-core version of the current switches work great in retrofit applications and for use in service vehicles since one part will work in most applications and can be installed

without disconnecting any wires. Fixed status switches can also be used to determine the run time of your equipment when logging the contact closures on your building management system or PLC.

Applications: On/Off “Status” Indication, Local Alarms such as Strobes/Audible Alarms, Pumps, Fans, Compressors, Lighting Status and Usage Information, Ovens, Process Control, Industrial Equipment, OEM Opportunities

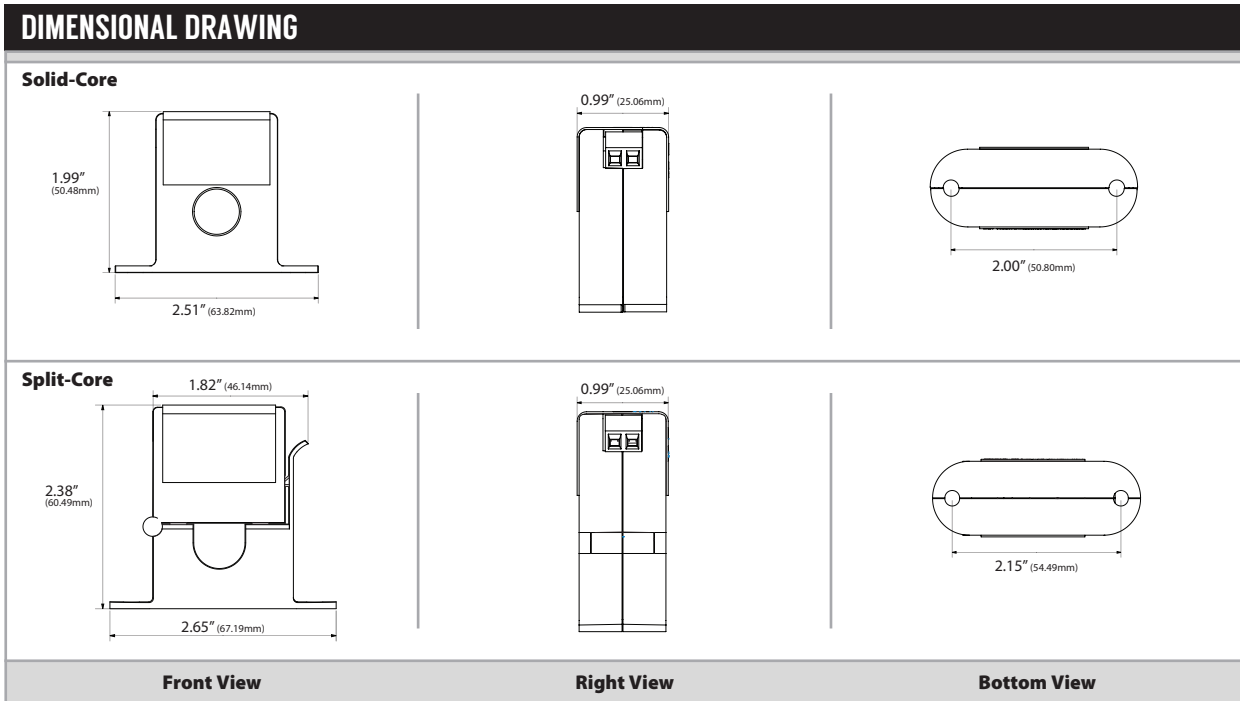
The Miniature Fixed Current “Status” Switches are covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|---|---|
| Monitored Current Type: | AC Current |
| Maximum AC Voltage: | 600 VAC |
| Operating Frequency Range: | 50/60 Hz |
| Core Style: | Solid-Core and Split-Core Versions available (See Ordering Grid) |
| Sensor Power: | Induced from the Monitored Conductor (Insulated Conductors only) |
| Amperage Range: | See Ordering Grid |
| Isolation Voltage: | 2200 VAC |
| Trip Point Style | Fixed Trip Point |
| Contact Type: | Normally-Open “N/O” |
| “Status” Contact Rating: | 0.5A Continuous @ 36 VAC/VDC |
| “Status” Contact “On” Resistance “Off” Resistance: | < 0.5 Ohms (tripped) > 1 Meg Ohms (Open) |
| Response Time: | A/MCS: < 50 mS typical A/MSCS: < 40 mS typical |
| Aperture Size (Diameter): | 0.53” (13.46 mm) |
| Operating Temperature Range: | -22 to 140°F (-30 to 60°C) |
| Operating Humidity Range: | 0 to 95%, non-condensing |
| Recommended Storage Temperature RH Range: | 41 to 95°F (5 to 35°C) 40 to 85% RH, non-condensing |
| Enclosure Material Flammability Rating: | PC/ABS (Polycarbonate/ABS Blend) UL94-V0 |
| Wiring Connections: | 2 Position Screw Terminal Block (Not Polarity Sensitive) |
| Wire Size: | 16 to 22 AWG (1.31 mm ² to 0.33 mm ²) Copper Wires only |
| Terminal Block Torque Rating: | 4.43 to 5.31 in.-lbs. (0.5 to 0.6 Nm) |
| Minimum Mounting Distance: | 1” (2.6 cm) between current switch (Relays, Contactors, Transformers) |
| Agency Approvals: | UL/CUL US Listed (UL 916) Energy Management Equipment (File # E334792), CE, RoHS2, WEEE |
| Product Weight: | A/MCS: 0.15 lbs. (0.068 kg) A/MSCS: 0.20 lbs. (0.091 kg) |
| Product Dimensions (L x W x H): | A/MCS (Solid-Core): 2.510” (63.82 mm) x 0.940” (23.94 mm) x 2.000” (50.80 mm) A/MSCS (Split-Core): 2.650” (67.19 mm) x 0.940” (23.94 mm) x 2.380” (60.49 mm) |

Note: Maximum wire length not to exceed 98.4 Feet (30 meters) in order to meet the CE Requirements





STANDARD ORDERING

Model # Example: **A/MCS** -OR- **117852**

| Model # | Item # | Trip Point Type | N/O | Solid-Core | Split-Core | Amp Range | Trip Point | Contact Rating |
|---------------|--------|------------------|-----|------------|------------|-----------|---------------|------------------|
| A/MCS | 117852 | Fixed Trip Point | • | • | | 0 to 150A | 0.20A or less | 0.5A @ 36VAC/VDC |
| A/MSCS | 117853 | Fixed Trip Point | • | | • | 0 to 150A | 0.55A or less | 0.5A @ 36VAC/VDC |

Note: The Miniature Fixed Current Switches are not intended to be used in Life / Safety Applications or in Hazardous / Classified Locations





ADJUSTABLE SWITCHES

ACS2, ACSX2, ASCS2 & ASCSX2 Series



The Adjustable Current Switches are designed for use in any AC current monitoring application in which you are looking to monitor a particular piece of equipment for equipment failure, preventative maintenance, status, and electrical load status. The current switches should be installed on the line side of the power to the electrical equipment. The current switches are available in both solid and split-core versions which also includes a Patented 35 mm Din Rail mounting foot for easy installation in panel mount applications. The solid-core versions are a great choice for new installations or OEM applications in which cost sensitivity, lower trip points and environmental issues may be of concern. The split-core version of the current switches work great in retrofit applications and for use on service technicians vehicles since one part will work in most applications and can be easily installed without disconnecting any wires. The adjustable

current switches can be used to determine the run time of your equipment as well as basic load trending applications where you want to know when how long your piece of equipment runs when logging the contact closures on your building management system or PLC.

Applications: Overload Conditions, Underload Conditions, Normal Operating Conditions, Broken Belts, Belt Slippage, Locked Rotors, Equipment Failure, Fans, Pumps, Compressors, Motors, Ovens, Industrial Equipment, Lighting Status and Usage, Electrical Load Status, Local Alarms (Strobes and Audible Alarms), Preventative Maintenance Scheduling

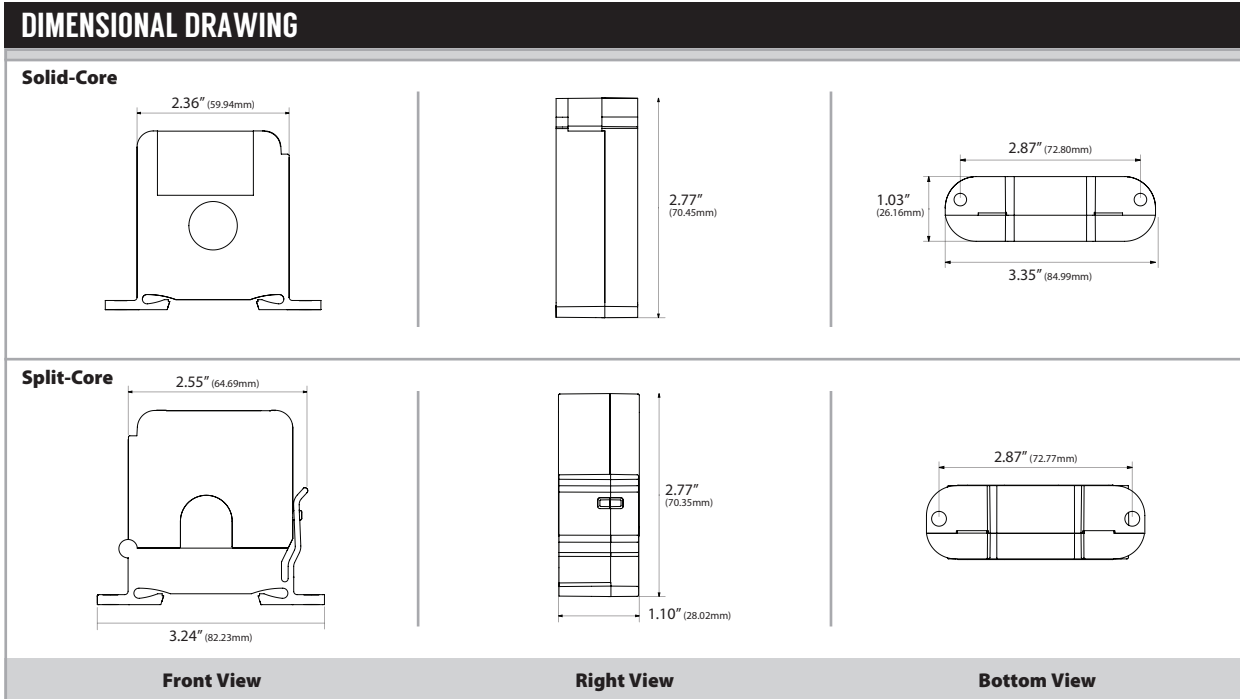
The Adjustable Current Switches are covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|---|--|
| Monitored Current Type: | AC Current |
| Maximum AC Voltage: | 600 VAC |
| Operating Frequency Range: | 40 to 1 kHz |
| Core Style: | Solid-Core and Split-Core Versions available (See Ordering Grid) |
| Sensor Power: | Induced from the Monitored Conductor |
| Amperage Range: | See Ordering Grid |
| Isolation Voltage: | 2200 VAC |
| Trip Point Style Trip Point: | Adjustable Trip Point See Ordering Grid |
| Hysteresis: | 10% of trip point, typical |
| Contact Type: | Normally-Open "N/O" or Normally-Closed "N/C" (See ordering Grid) |
| "Status" Contact Rating: | 0.2A @ 200 VAC/VDC |
| "Status" Contact "On" Resistance "Off" Resistance: | < 10 Ohms (tripped) > 1 Meg Ohms (Open) |
| Response Time: | See Response Time Table on back of data sheet |
| Status LED Indication 1: | Red LED (Current above Trip Point) Blue LED (Current Below Trip Point) |
| Aperture Size: | 0.75" (19.05 mm) |
| Din Rail Size: | 35 mm (U.S. Patent No. 7,416,421) |
| Operating Temperature Range: | 5 to 104°F (-15 to 40°C) |
| Operating Humidity Range: | 0 to 95%, non-condensing |
| Recommended Storage Temperature RH Range: | 41 to 95°F (5 to 35°C) 40% to 85% RH, non-condensing |
| Enclosure Material Flammability Rating: | PC/ABS (Polycarbonate/ABS Blend) UL94-V0 |
| Wiring Connections: | 2 Position, Screw Terminal Block (Not Polarity Sensitive) |
| Wire Size: | 16 to 22 AWG (1.31 mm ² to 0.33 mm ²) Copper Wires only |
| Terminal Block Torque Rating: | 4.43 to 5.31 in-lbs. (0.5 to 0.6 Nm) |
| Minimum Mounting Distance: | 1" (2.6 cm minimum) between current switch (Relays, Contactors, Transformers) |
| Agency Approvals: | UL/CUL US Listed (UL 508) Ind. Control Equipment (File # E309723), CE, RoHS2, WEEE |
| Product Weight: | A/ACS2 and A/ACSX2: 0.216 lbs. (0.097 kg) A/ASCS2: 0.270 lbs. (0.123 kg) A/ASCSX2: 0.266 lbs. (0.121 kg) A/ASCS2-L: 0.280 lbs. (0.127 kg) |
| Product Dimensions (L x W x H): | Solid Core Versions: 2.760" (70.11 mm) x 3.343" (84.92 mm) x 1.050" (26.67 mm) Split Core Versions: 2.780" (70.51 mm) x 3.238" (82.25 mm) x 1.120" (28.45 mm) |

Note1: The LED should not be used to determine if current is present. At low currents the LED may not be visible





RESPONSE TIME

| Model # | 0.50 Amps | 0.60 Amps | 0.75 Amps | 1.0 Amp | 1.50 Amps | 10 Amps | 20 Amps |
|------------------|-----------|-----------|-----------|---------|-----------|---------|---------|
| A/ACS2 | 221mS | ---- | 144mS | 109mS | ---- | 63mS | 59mS |
| A/ACSX2 | 260mS | ---- | 169mS | 130mS | ---- | 82mS | 74mS |
| A/ASCS2 | ---- | ---- | ---- | ---- | 248mS | 68mS | 65mS |
| A/ASCSX-2 | ---- | ---- | ---- | ---- | 344mS | 92mS | 86mS |
| A/ASCS2-L | ---- | 400mS | 270mS | 183mS | ---- | 62mS | 60mS |

Note*: ---- unit was not tested (below minimum trip point or for that range)

STANDARD ORDERING

Model # Example: **A/ACS2** -OR- **142355**

| Model # | Item # | Trip Point Type | N/O | N/C | Solid-Core | Split-Core | Amp Range | Trip Point | Contact Rating |
|------------------|--------|-----------------|-----|-----|------------|------------|-----------|-------------|--------------------|
| A/ACS2 | 142355 | Adjustable | • | | • | | 0 to 250A | 0.5 to 220A | 0.2A @ 200 VAC/VDC |
| A/ACSX2 | 142354 | Adjustable | | • | • | | 0 to 250A | 0.5 to 220A | 0.2A @ 200 VAC/VDC |
| A/ASCS2 | 142353 | Adjustable | • | | | • | 0 to 250A | 1.5 to 220A | 0.2A @ 200 VAC/VDC |
| A/ASCS2-L | 142352 | Adjustable | • | | | • | 0 to 250A | 0.6 to 180A | 0.2A @ 200 VAC/VDC |
| A/ASCSX2 | 142370 | Adjustable | | • | | • | 0 to 250A | 1.5 to 220A | 0.2A @ 200 VAC/VDC |

The Adjustable Current Switches are not intended to be used in Life / Safety Applications or in Hazardous / Classified Locations

Revision C000001 | Rev 1.0





MINI ADJUSTABLE SWITCHES

MCS-A & MSCS-A Series



The Miniature Adjustable Current switches are designed for use in any AC current monitoring application in which you are looking for an adjustable current switch to monitor normal operating conditions, equipment failure or preventative maintenance scheduling for a particular piece of equipment. The adjustable current switches should be installed on the line side of the power to the motor, pump, compressor or other equipment. The miniature adjustable current switches are available in both solid and split-core versions in a smaller enclosure style than that of the A/ACS2 and A/ASCS2 Series adjustable current switches. The solid-core versions are a great choice for new installations or OEM applications in which cost sensitivity, lower trip points and environmental issues may be of concern. The split-core version of the current switches work great in retrofit applications and for use in service vehicles

since one part will work in most applications and can be installed without disconnecting any wires. The adjustable current status switches can also be used to determine the run time of your equipment where you want to know when your piece of equipment runs and for how long it runs when logging the contact closures on your building management system or PLC.

Applications: Overload Conditions, Under Load Conditions, Normal Load Conditions, Broken Belts, Belt Slippage, Locked Rotors, Electrical Failure, Load Status, Local Alarms such as Strobes/Audible Alarms, Pumps, Fans, Compressors, Lighting Status and Usage Information, Ovens, Process Control, Industrial Equipment, Equipment Maintenance, OEM

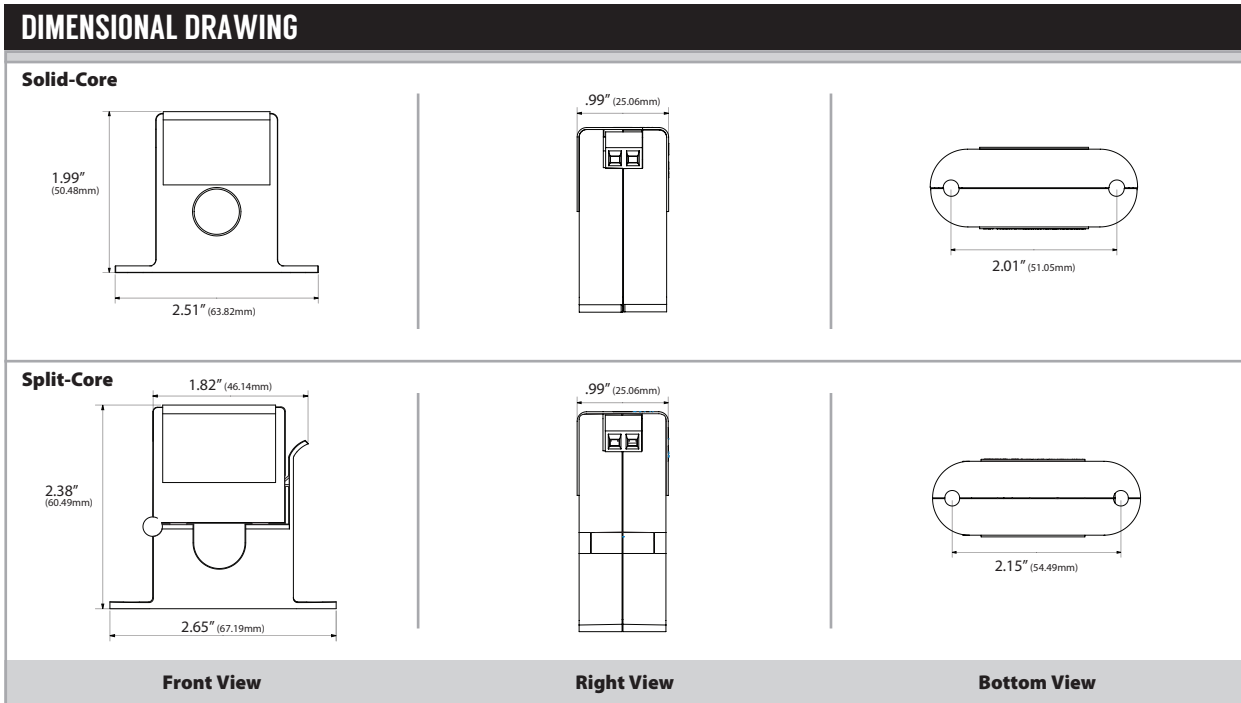
The Miniature Adjustable Current Switches are covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|--|---|
| Monitored Current Type: | AC Current |
| Maximum AC Voltage: | 600 VAC |
| Operating Frequency Range: | 50/60 Hz |
| Core Style: | Solid-Core and Split-Core Versions available (See Ordering Grid) |
| Sensor Power: | Induced from the Monitored Conductor (Insulated Conductors only) |
| Amperage Range: | See Ordering Grid |
| Isolation Voltage: | 2200 VAC |
| Trip Point Style Adjustable Trip Point Range: | Adjustable Trip Point See Ordering Grid |
| Hysteresis: | 10% Trip Point, typical |
| Contact Type: | Normally-Open "N/O" |
| Contact Rating: | 1A Continuous @ 36 VAC/VDC |
| Contact "On" Resistance "Off" Resistance: | < 0.5 Ohms (tripped) > 1 Meg Ohms (Open) |
| Response Time: | A/MCS-A: < 90 mS, typical A/MSCS-A: < 45 mS typical |
| Status LED Indication 1: | Red LED (Current above trip point) Blue LED (Current below trip point) |
| Aperture Size (Diameter): | 0.53" (13.46 mm) |
| Operating Temperature Range: | -22 to 140°F (-30 to 60°C) |
| Operating Humidity Range: | 0 to 95%, non-condensing |
| Recommended Storage Temperature RH Range: | 41 to 95°F (5 to 35°C) 40% to 85% RH, non-condensing |
| Enclosure Material Flammability Rating: | PC/ABS (Polycarbonate/ABS Blend) UL94-V0 |
| Wiring Connections: | 2 Position Screw Terminal Block (Not Polarity Sensitive) |
| Wire Size: | 16 to 22 AWG (1.31 mm ² to 0.33 mm ²) Copper Wires only |
| Terminal Block Torque Rating: | 4.43 to 5.31 in.-lbs. (0.5 to 0.6 Nm) |
| Minimum Mounting Distance: | 1" (2.6 cm) between current switch (Relays, Contactors, Transformers) |
| Agency Approvals 2: | UL/CUL US Listed (UL 916) Energy Management Equipment (File # E334792), CE, RoHS2, WEEE |
| Product Weight: | A/MCS-A: 0.15 lbs. (0.068 kg) A/MSCS-A: 0.20 lbs. (0.091 kg) |
| Product Dimensions (L x W x H): | A/MCS-A (Solid-Core): 2.510" (63.82 mm) x 0.940" (23.94 mm) x 2.000" (50.80 mm) A/MSCS-A (Split-Core): 2.650" (67.19 mm) x 0.940" (23.94 mm) x 2.380" (60.49 mm) |

Note 1: The LED should not be used to determine if current is present. At low currents the LED may not be visible | **Note 2:** Maximum wire length not to exceed 98.4 Feet (30 meters) in order to meet the CE Requirements





STANDARD ORDERING

Model # Example: **A/MCS-A** -OR- **117854**

| Model # | Item # | Trip Point Type | N/O | Solid-Core | Split-Core | Amp Range | Trip Point | Contact Rating |
|-----------------|--------|-----------------|-----|------------|------------|--------------|--------------|-----------------|
| A/MCS-A | 117854 | Adjustable | • | • | | 0.32 to 150A | 0.32 to 150A | 1A @ 36 VAC/VDC |
| A/MSCS-A | 117855 | Adjustable | • | | • | 0.70 to 150A | 0.70 to 150A | 1A @ 36 VAC/VDC |

Note: The Miniature Adjustable Current Switches are not intended to be used in Life / Safety Applications or in Hazardous / Classified Locations

Revision C0000001 | Rev 1.0





ECM

ECMCS Current Switch

ACI ECMCS split-core current switches are designed for use in electronically commutated motor (ECM) applications in which you are looking for status for a particular piece of equipment. ECMs have a unique operating profile that includes a small standby current when the motor is powered but not actively spinning compared to no current draw of traditional PSC motors.

The ECMCS switches do not require external power, since the power for the current switch is induced from the conductor being monitored. ACI's ECMCS switch has an adjustable trip level to set the desired trip level for proper motor status indication in most ECM applications. ACI offers a calibration tool that will help assist the installation process by implementing a visual indication of the state of the output switch to the installer.

The ECM current switch can be secured to the monitored cable using a cable tie and the integrated cable tie anchor feature of the housing. The ECMCS switch also comes with an attachable mounting foot that allows the unit to be mounted in any position using one Tek screw or snapped directly on a 35mm DIN rail.

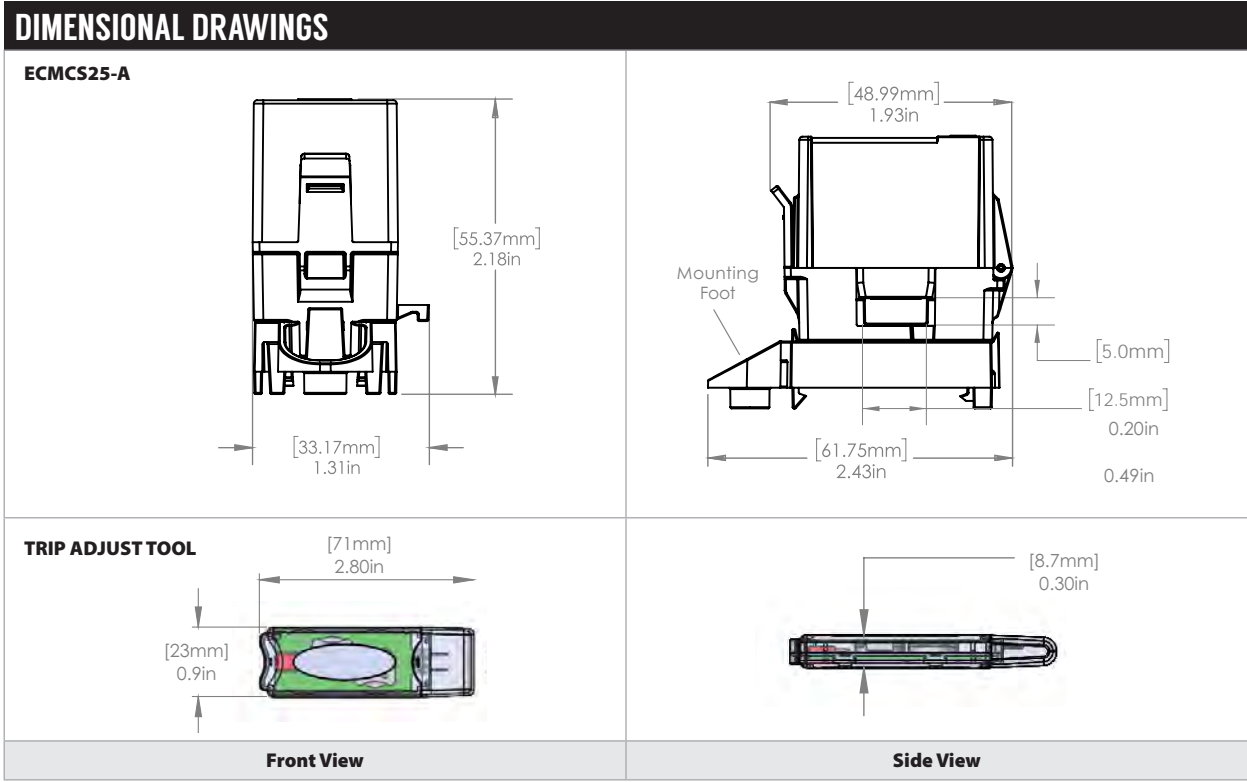
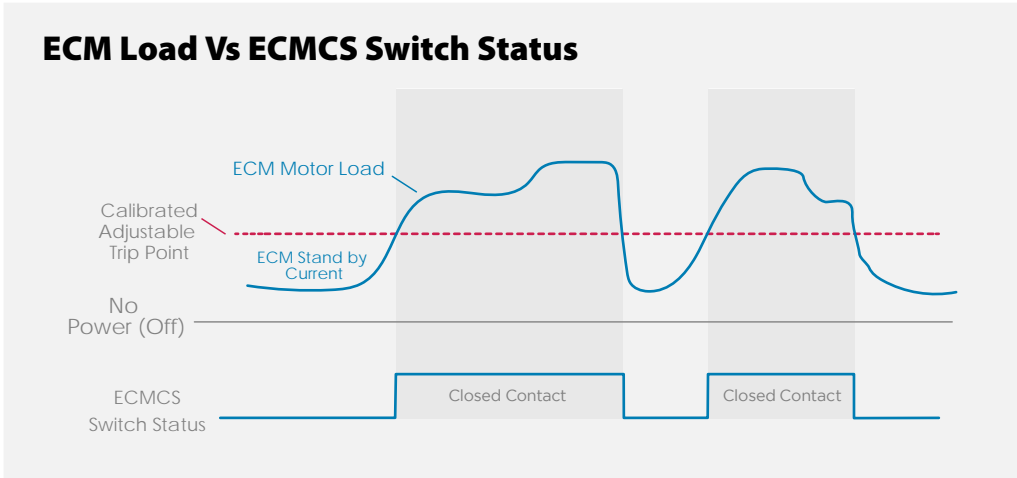
Note: The ECM switch is not intended to monitor status in VFD motor applications.

Applications: Pump Status, Fan Status, Compressors, Air Handlers, Residential Furnaces, Motor Status

The ECMCS are covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's web site, workaci.com.

PRODUCT SPECIFICATIONS

| | |
|--|--|
| Monitored Current Type: | AC Current |
| Maximum AC Voltage: | 600 VAC |
| Operating Frequency Range: | 50/60 Hz |
| Core Style: | Split-Core |
| Sensor Power: | Induced from the Monitored Conductor (Use Insulated Conductors only) |
| Amperage Range: | 0 to 25 A |
| Insulation Class: | 600 VAC |
| Trip Point Style Adjustable Trip Point Range: | Adjustable Trip Point 0.075 A to 0.50 A |
| Hysteresis: | 10% of Trip Level Current, Typical |
| Contact Type: | Normally-Open "N/O" |
| Contact Rating: | 100 mA Continuous @ 30 VAC/VDC |
| Contact "On" Resistance "Off" Resistance: | < 10 Ohms (when tripped) > 1 Meg Ohms (Open) |
| Response Time: | < 5 Seconds Typical |
| Aperture Size (Diameter) Wire Size: | 0.20"(5.0mm) x 0.49"(12.5mm) Fits 10 AWG to 14 AWG THHN Insulated Wire |
| DIN Rail Size: | 35 mm |
| Operating Temperature Range: | 32°F to 140°F (0°C to 60°C) |
| Operating Humidity Range: | 10 to 90%, non-condensing |
| Recommended Storage Temperature RH Range: | 41 to 95°F (5 to 35°C) 40% to 85% RH, non-condensing |
| Enclosure Material Flammability Rating: | PC/ABS (Polycarbonate/ABS Blend) UL94-V0 |
| Wiring Connections: | 2 Position Screw Terminal Block (Not Polarity Sensitive) |
| Wire Size: | 16 to 22 AWG (1.31 mm ² to 0.33 mm ²) Copper Wires Only |
| Terminal Block Torque Rating: | 4.43 to 5.31 in-lbs. (0.5 to 0.6 Nm) |
| Minimum Mounting Distance: | 1" (2.6 cm) between current switch & other magnetic devices (Relays, Contactors, Transformers) |
| Agency Approvals: | UL/CUL US Listed (UL 916) Energy Management Equipment (File # E334792), CE, UKCA, RoHS, WEEE, CAN ICES-3 / NMB-3 |
| Product Weight: | 0.14 lbs. (0.065 kg) |
| Product Dimensions (L x W x H): | 1.93" (48.99 mm) x 1.31" (33.17 mm) x 2.18" (55.37 mm) |



STANDARD ORDERING

| Model # | Item # | Trip Point Style | Trip Point | Contact Rating |
|-----------|--------|------------------|---------------|-------------------|
| ECMCS25-A | 149979 | Adjustable | 0.075 to 0.5A | 0.1A @ 30 VAC/VDC |

Note: The ECM Adjustable Current Switches are not intended to be used in Life / Safety Applications or in Hazardous / Classified locations (environments).

ACCESSORIES ORDERING

| Model # | Item # | Description |
|------------------|--------|--|
| TRIP ADJUST TOOL | 149977 | ECM Calibration Tool, Visual Indication of Output Status |



4-20 MA OUTPUT

CTA2, SCTA2, CTA2-RMS & SCTA2-RMS Series



The 4-20 mA Output Analog Current Sensors are designed for use in any AC current monitoring application in which you are looking to monitor a particular piece of equipment. The "Average" style current sensors should be used in applications where the Sinusoidal waveform has no distortion or noise on the conductor being monitored. Applications may include monitoring a resistive type load such as an incandescent light bulb, heating element as well as any single speed linear load. Note that the "True RMS" sensors are able to be used in all applications since the "True RMS" current sensors provide the best overall accuracy and should be used in applications which includes Variable Frequency Drives, Switching Power Supplies, Computers and Data Centers, Electronic Ballasts, SCR's, and Variable Speed Loads. For currents monitored above 250 Amps, the CTA2-5 and SCTA2-5 are ideal for use with a step down Ratio:5A Output CT (Current Transformer) in stepping down current in a monitored conductor to a proportional 0 to 5A output signal. The current sensors

are available in both solid and split-core versions which also includes a Patented (Pat. No. US 7,416,421) 35 mm Din Rail mounting foot for easy installation in panel mount applications. The solid-core versions are a great choice for new installations or OEM applications in which cost sensitivity, lower trip points and environmental issues like dust and moisture may be of concern. The split-core version of the current sensors work great in retrofit applications and for use on service technicians vehicles since one or two parts will work in most applications and can be easily installed without disconnecting any wires.

Applications: Load Trending, Basic Power Monitoring, Electronic Ballasts, Computers/Data Centers, Industrial, Variable Speed Loads, Pumps, Compressors, Fans, Preventative Maintenance, LEED, Project Justification (ROI) Process Control, Solid State Environments (SCR's)

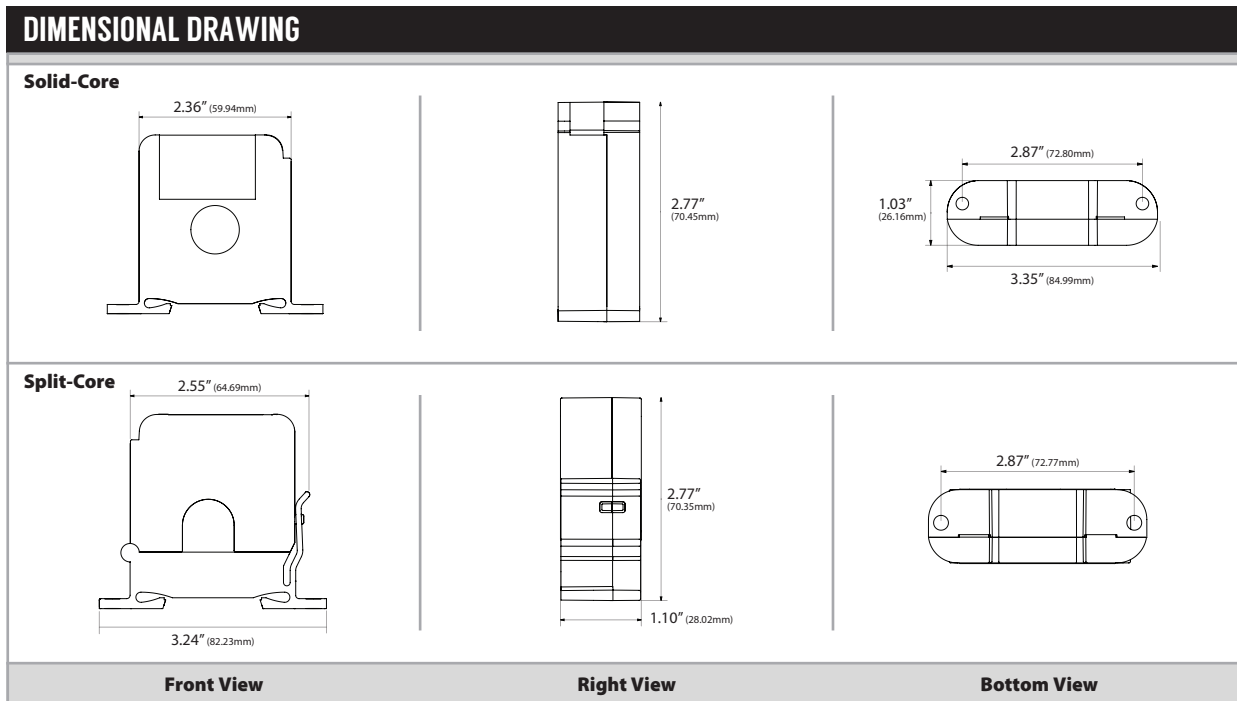
The 4-20 mA Output Current Sensors are covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|--|--|
| Monitored Current Type: | AC Current |
| Maximum AC Voltage: | 600 VAC |
| Isolation Voltage: | 2200 VAC |
| Operating Frequency Range *: | A/CTA2 & A/SCTA2 Series: 40 to 1KHz A/CTA2-50-RMS & A/SCTA2-50 RMS: 15 to 100 Hz A/CTA2-250-RMS (0-100A Range): 15 to 100 Hz A/CTA2-250-RMS (0-200/250A Ranges): 30 to 100 Hz |
| Core Style: | Solid-Core and Split-Core Versions available (See Ordering Grid) |
| Supply Voltage: | +8.5 to 30 VDC (Reverse Polarity Protected) 250 Ohm Load (1-5 VDC): +13.5 to 30 VDC 500 Ohm Load (2-10 VDC): +18.5 to 30 VDC |
| Maximum Load Resistance @ 24 VDC: | 775 Ohms (Formula: (24 VDC - 8.5 VDC) / 0.020A) |
| Supply Current: | 25 mA minimum |
| Sensor Amperage Range: | See Ordering Grid (Field Selectable) |
| Output Signal Maximum Output Signal: | 4 to 20 mA (2-Wire, Loop Powered) Limited to 25 mA |
| Accuracy *: | All Models: +/- 1% of Selected Range except A/SCTA2-50-RMS: +/- 2% from 15 to 20 Hz +/- 1% from 20 to 100 Hz |
| Response Time: | A/CTA2-xxx and A/SCTA2-XXX: < 600 mS (Rise and Fall Time) A/CTA2-xxx-RMS & A/SCTA2-50-RMS: 600 mS (Rise Time) and 2800 mS (Fall Time) |
| Aperture Size: | 0.75" (19.05 mm) |
| Din Rail Size: | 35 mm (U.S. Patent No. 7,416,421) |
| Operating Temperature Range: | 5 to 104°F (-15 to 40°C) |
| Operating Humidity Range: | 0 to 95%, non-condensing |
| Storage Temperature RH Range: | 41 to 95°F (5 to 35°C) 40% to 85% RH, non-condensing |
| Enclosure Material Flammability Rating: | PC/ABS (Polycarbonate/ABS Blend) UL94-V0 |
| Wiring Connections: | 2 Position, Screw Terminal Block (Polarity Sensitive) |
| Wire Recommendations: | 2 Conductor (Shielded Cable) |
| Wire Size: | 18 to 24 AWG (0.823 mm ² to 0.205 mm ²) Copper Wires only |
| Terminal Block Torque Rating: | 4.43 to 5.31 in-lbs. (0.5 to 0.6 Nm) |
| Minimum Mounting Distance: | 1" (2.6 cm) between current sensor & other magnetic devices (Relays, Contactors, Transformers) |
| Agency Approvals: | CE (-RMS Versions): CE to IEC 61326-1: 2012 Class A, UL/CUL US Listed (UL 508) Ind. Control Equipment (File # E309723), RoHS2, WEEE |
| Product Weight: | A/CTA2-xxx: 0.260 lbs. (0.118 kg) A/SCTA2-xxx: 0.274 lbs. (0.124 kg) A/CTA2-xxx-RMS: 0.190 lbs. (0.087 kg) A/SCTA2-xxx-RMS: 0.190 lbs. (0.087 kg) |
| Product Dimensions: | Solid Core Versions: 2.760" (70.11 mm) x 3.343" (84.92 mm) x 1.050" (26.67 mm) Split Core Versions: 2.780" (70.51 mm) x 3.238" (82.25 mm) x 1.120" (28.45 mm) |

Note*: All current output sensors are calibrated at an ambient room temperature of 71°F (21.5°C) | **Note*:** Only the 0 to 100 Amp range in the A/CTA2-250-RMS will meet accuracy specifications from 15 to 100 Hz





STANDARD ORDERING

Model # Example: **A/CTA2-5** -OR- **142379**

| Model # | Item # | Selectable Ranges | Measurement | AC Waveform | Solid-Core | Split-Core | Output Signal |
|-----------------------|--------|--------------------|-------------|-----------------------------|------------|------------|---------------|
| A/CTA2-5 | 142379 | 0 to 5A | Average | Pure Sinusoidal | • | | 4 to 20 mA |
| A/CTA2-50 | 142378 | 0 to 10/20/50A | Average | Pure Sinusoidal | • | | 4 to 20 mA |
| A/CTA2-250 | 142377 | 0 to 100/200/250A | Average | Pure Sinusoidal | • | | 4 to 20 mA |
| A/SCTA2-5 | 142376 | 0 to 5A | Average | Pure Sinusoidal | | • | 4 to 20 mA |
| A/SCTA2-50 | 142375 | 0 to 10/20/50A | Average | Pure Sinusoidal | | • | 4 to 20 mA |
| A/SCTA2-200 | 142374 | 0 to 100/150/200A | Average | Pure Sinusoidal | | • | 4 to 20 mA |
| A/CTA2-50-RMS | 142373 | 0 to 10/20/50A | True RMS | Distorted & Pure Sinusoidal | • | | 4 to 20 mA |
| A/CTA2-250-RMS | 142372 | 0 to 100*/200/250A | True RMS | Distorted & Pure Sinusoidal | • | | 4 to 20 mA |
| A/SCTA2-50-RMS | 142371 | 0 to 10/20/50A | True RMS | Distorted & Pure Sinusoidal | | • | 4 to 20 mA |

Note*: Only the 100 Amp Range will meet the accuracies over the operating frequency range of 15 to 100 Hz (See Specification Table)

ACCESSORIES ORDERING

Item # Example: **100307**

| Item # | Description |
|--------|--|
| 100307 | 249 Ohm, 1/4W, +/- 1% Tolerance, 50 PPM Resistor (Only Needed to Convert to 1-5 VDC) |
| 100306 | 249 Ohm, 1/4W, +/- 0.1% Tolerance, 50 PPM Resistor (Recommended for Best Accuracy) (Only Needed to Convert to 1-5 VDC) |
| 100469 | 499 Ohm, 1W, +/- 1% Tolerance, 50 PPM Resistor (Only Needed to Convert to 2-10 VDC) |

The 4-20 mA Output Current Sensors are not intended to be used in Life / Safety Applications or in Hazardous / Classified Locations





VOLTAGE OUTPUT

CTE2, SCTE2, CTV2 & SCTV2 Series



The Voltage Output Analog Current Sensors are designed for use in any AC current monitoring application in which you are looking to monitor a particular piece of equipment for proper operation. All voltage output current sensors use an "Average" current measuring method and should be used in applications where a pure Sinusoidal AC waveform that has very little or no distortion/noise on the conductor being monitored. Applications may include monitoring a resistive type load such as an incandescent light bulb or heating element as well as any single speed linear load. Voltage Output current sensors are available in both solid and split-core versions which also includes a Patented 35 mm Din Rail mounting foot for easy installation in panel mount applications. The solid-core versions are a great choice for new installations or OEM applications in which cost sensitivity, lower trip points and environmental issues like dust and moisture may be of concern. The split-core version of the current sensors work great in

retrofit applications and for use on service technicians vehicles since one or two parts will work in most applications and can be easily installed without disconnecting any wires. For best results, the voltage output current sensors should not be used in applications with switching power supplies or variable speed drives due to the limited operating frequency range. In applications where variable speed drives or waveforms include distortion/noise, ACI recommends the use of the A/CTA2-RMS or A/SCTA2-RMS Series sensors where you need to supply 24 VDC power to the current sensors with a 4-20 mA signal. A 249 Ohm or 499 Ohm 1 Watt resistor can be used to convert the 4-20 mA signal into a useable 1-5 or 2-10 VDC output signal at your building management system or PLC.

Applications: Load Trending, Single Speed Loads, Pumps, Compressors, Fans, Preventative Maintenance, LEED, Project Justification (Calculating ROI), Process Control

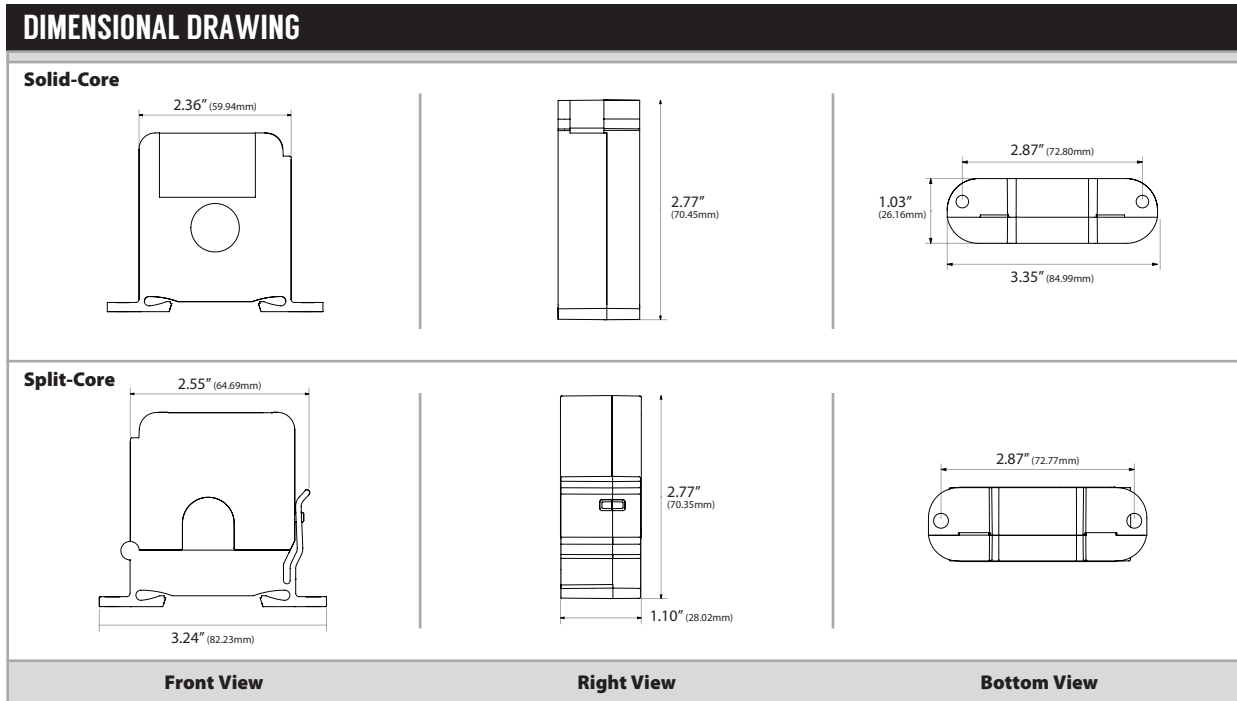
The Voltage Output Current Sensors are covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|--|--|
| Monitored Current Type: | AC Current |
| Maximum AC Voltage: | 600 VAC |
| Isolation Voltage: | 2200 VAC |
| Operating Frequency Range: | 50 to 600 Hz |
| Core Style: | Solid-Core and Split-Core Versions available (See Ordering Grid) |
| Supply Voltage: | Induced from the Monitored Conductor (Insulated Conductors only) |
| Sensor Amperage Range: | See Ordering Grid (Field Selectable) |
| Output Signal Number of Wires: | A/CTE2 & A/SCTE2 Series: 0 to 5 VDC A/CTV2 & A/SCTV2 Series: 0 to 10 VDC 2-Wires |
| Accuracy 1: | A/CTE2 & A/SCTE2 Series: (0-10A Range Only): +/- 1% from 5-100% of Selected Range A/CTE2 & A/SCTE2 Series: (All Other Ranges): +/- 1% from 2-100% of Selected Range A/CTV2: +/- 1% from 5-100% of Selected Range A/SCTV2 Series: (0 to 10A Range Only): +/- 2% from 5 to 100% of Selected Range A/SCTV2 Series: (All Other Ranges): +/- 1% from 5 to 100% of Selected Range |
| Response Time: | < 300 mS (Rise and Fall Times) |
| Aperture Size: | 0.75" (19.05 mm) |
| Din Rail Size: | 35 mm (U.S. Patent No. 7,416,421) |
| Operating Temperature Range: | 5 to 104°F (-15 to 40°C) |
| Operating Humidity Range: | 0 to 95%, non-condensing |
| Recommended Storage Temperature RH Range: | 41 to 95°F (5 to 35°C) 40% to 85% RH, non-condensing |
| Enclosure Material Flammability Rating: | PC/ABS (Polycarbonate/ABS Blend) UL94-V0 |
| Wiring Connections: | 2 Position, Screw Terminal Block (Polarity Sensitive) |
| Wire Recommendations: | 2 Conductor (Shielded Cable) |
| Wire Size: | 18 to 24 AWG (0.823 mm ² to 0.205 mm ²) Copper Wires only |
| Terminal Block Torque Rating: | 4.43 to 5.31 in-lbs. (0.5 to 0.6 Nm) |
| Minimum Mounting Distance: | 1" (2.6 cm) between current sensor & other magnetic devices (Relays, Contactors, Transformers) |
| Agency Approvals: | UL/CUL US Listed (UL 508) Ind. Control Equipment (File # E309723), CE, RoHS2, WEEE |
| Product Weight: | A/CTE2-xxx & A/CTV2-xxx Series: 0.194 lbs. (0.088 kg) A/SCTE2-xxx & A/SCTV2-xxx Series: 0.274 lbs. (0.125 kg) |
| Product Dimensions (L x W x H): | Solid Core Versions: 2.760" (70.11 mm) x 3.343" (84.92 mm) x 1.050" (26.67 mm) Split Core Versions: 2.780" (70.51 mm) x 3.238" (82.25 mm) x 1.120" (28.45 mm) |

Note 1: All current output sensors are calibrated at an ambient room temperature of 71°F (21.5°C)





| STANDARD ORDERING | | | | | | | |
|--------------------|--------|-------------------|-------------|-----------------|------------|------------|---------------|
| Model # | Item # | Selectable Ranges | Measurement | AC Waveform | Solid-Core | Split-Core | Output Signal |
| A/CTE2-50 | 142389 | 0 to 10/20/50A | Average | Pure Sinusoidal | • | | 0 to 5 VDC |
| A/CTE2-150 | 142388 | 0 to 50/100/150A | Average | Pure Sinusoidal | • | | 0 to 5 VDC |
| A/SCTE2-50 | 142385 | 0 to 10/20/50A | Average | Pure Sinusoidal | | • | 0 to 5 VDC |
| A/SCTE2-150 | 142384 | 0 to 50/100/150A | Average | Pure Sinusoidal | | • | 0 to 5 VDC |
| A/SCTE2-250 | 142383 | 0 to 100/200/250A | Average | Pure Sinusoidal | | • | 0 to 5 VDC |
| A/CTV2-50 | 142387 | 0 to 10/20/50A | Average | Pure Sinusoidal | • | | 0 to 10 VDC |
| A/CTV2-150 | 142386 | 0 to 50/100/150A | Average | Pure Sinusoidal | • | | 0 to 10 VDC |
| A/SCTV2-50 | 142382 | 0 to 10/20/50A | Average | Pure Sinusoidal | | • | 0 to 10 VDC |
| A/SCTV2-150 | 142381 | 0 to 50/100/150A | Average | Pure Sinusoidal | | • | 0 to 10 VDC |
| A/SCTV2-250 | 142380 | 0 to 100/200/250A | Average | Pure Sinusoidal | | • | 0 to 10 VDC |

Model # Example: **A/CTE2-50** -OR- **142389**

The Voltage Output Current Sensors are not intended to be used in Life / Safety Applications or in Hazardous / Classified Locations





KW320

4 Channel Power Meter, 0.1 Class, Multiple Communication Protocols

The KW320 meter combines high performance with ease of integration to provide a power and energy monitoring solution with 400 metering parameters. The KW320 series multifunction digital power meter is designed using modern MCU and DSP technology and its tamper-proof design is approved for revenue applications. It integrates three-phase energy measuring and displaying, energy accumulating, power quality analysis, malfunction alarming, data logging and network communication. The meter measures bidirectional, four quadrants kWh and kvarh. It provides maximum/minimum records for power usage and power demand parameters. All power and energy parameters can be viewed remotely via Accuvue Utility Software to monitor various parameters. The meter comes standard to be mounted in a 4" Round or an IEC 92mm DIN Square

form or has the flexibility to be mounted to 35mm DIN rail with the AXM-DIN adapter (See Accessories Ordering). In addition, the KW320 also has an optional upgrade that includes a NEMA 4X panel enclosure, pre-wired and labeled terminal for CT's, terminal blocks for voltage input, and industrial grade fuses. The KW320-P1-D-W-PC optional upgrade is an all-in-one Plug n' play Pre-Wired Panel Enclosure that provides a perfect solution for retrofit projects where metering space is not pre-designed in an electrical distribution panel. The meter supports user selectable RS-485 serial Modbus-RTU, BACNet™ MS/TP, multiple Ethernet communication protocols, and Wi-Fi connection allows seamless integration with data acquisition systems. This product provides demand measurement of Current, Active Power, Reactive Power and Apparent Power – see table 1 for all parameters monitored and metered. It also provides demand forecasting as well as the peak demand. The KW320 series meter can record the time and event regarding important parameter events such as the run time of the meter and alarm functions. The KW320 meter will accept both 333mV and Rogowski coil CT inputs (Input Field Selectable). Meters come standard with a four channel CT input to accurately measure neutral current. CTs are sold separately as shown on the ACI Split-Core, Solid-Core and Rogowski Current Transformer product data sheets.

Applications: Tenant Billing, Data Centers, Sub-Metering Electrical Panel, Equipment Load Monitoring, Industrial Applications, Predicted Maintenance, Renewable Energy, Overhead Cost Reduction, "NET ZERO" Buildings, LEED Buildings, Green Buildings, and Refrigeration

The KW320 Power Meters are covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's web site, workaci.com.

PRODUCT SPECIFICATIONS

| | |
|---|---|
| Service Type: | Single Phase, 3 Phase – Four Wire (WYE), Three Phase – Three Wire (Delta) |
| Power: | 100 - 415VAC, 50/60Hz, 100 - 300VDC on terminals L and N |
| Burden: | 5W |
| Withstand: | 3250VAC, 50/60Hz for 1 minute |
| Power Supply Wiring: | AWG22-16 (0.6-1.5mm ²) |
| AC Fuse Protection: | External 1A/250VAC Fuse (Recommended) |
| Rated Voltage: | 100-400VAC Line to Neutral (L-N) or 100-690VAC Line to Line (L-L) RMS for three phase or 100-400VAC RMS for single phase |
| Number of CT Inputs: | 4 (L1, L2, L3, and Neutral) |
| Revenue Grade Accuracy: | Active Energy - Class 0.1s (According to IEC 62053-22) and Class 0.1s (According to ANSI C12.20) Reactive Energy - Class 2 (According to IEC 62053-23) – See Table 2 for parameter accuracy, resolution, and range |
| Voltage Channels: | 400 Volts AC (L-N), 690 VAC (L-L), 45Hz - 65Hz, 300Hz - 500Hz |
| Withstand Voltage: | 1500VAC Continuous, 2500VAC, 50/60Hz for 1 Minute |
| Input Impedance: | 2M ohm per Phase |
| Pickup Voltage: | 10VAC |
| Current Channels: | 4 Channels, 0.400 VAC max, 333 mV CTs or 0 to 6000 Amps with Rogowski Coils (Field Selectable) |
| Maximum Current Input: | 120% of current sensor rating (mV CTs) to maintain accuracy. Up to 6000 Amps w/ Rogowski Coils |
| Harmonic Resolution: | 63rd Harmonic (50Hz or 60Hz type) or 15th Harmonic (400Hz type) |
| Measurement Type: | Real-time, True RMS measurement of instantaneous Voltage, Current, Power, Frequency, Harmonics, Phase Angle, Demand, Unbalance Factor, Running Time, and Power Factor |
| Line Frequency: | 50/60 Hz |
| Measurement Data Parameters: | See Table 1 |
| Real Time Parameter Update Rate: | <20 ms |
| Accumulated Parameter Update Rate: | 1 Sec |
| LCD Display: | Multiple Display Modes (Important Parameter's, All Parameter's, Settings Display Modes) |





PRODUCT SPECIFICATIONS (Continued)

| | |
|--|--|
| Communication Protocols: | Serial RS-485: Modbus RTU and BACnet MS/TP Ethernet: BACnet™ Over IP, IEC 61850, Modbus®-TCP, HTTP/HTTPs Webserver, SMTP Email, SNMP, HTTP/HTTPs Push, FTP Post, sFTP Server, WiFi |
| Maximum Distance: | 1200 meters (3,937 Feet) with data range of 100K bits/second or less |
| Termination Resistor: | 120 Ohm to 300 Ohm 1/4W Resistor <i>(Not Included); (Installed at end of RS-485 Comm Bus)</i> |
| Supported Baud Rates: | BACnet MS/TP Protocol: 9600, 19200, 38400, 76800 Baud Rate (38400 BACnet Default) Modbus RTU Protocol: 1200, 2400, 4800, 9600, 19200, 38400 Baud Rate (19200 Modbus Default) |
| Max Station: | 127 MS/TP Masters (MAC Addresses is 0 to 127) |
| BACnet Device Instance Number: | 1 <i>(Default); Field adjustable from 1 to 4194302</i> |
| Modbus Data Bits / Parity / Stop Bit | 8 / None, Even, Odd / 2, 1 |
| Datalogging Storage: | 8 GB |
| Enclosure Material / Flammability Rating: | Polycarbonate / UL 94V-0 |
| Operating Temperature Range: | -13 to 158°F (-25 to 70°C) |
| Storage Temperature Range: | -40 to 185°F (-40 to 85°C) |
| Operating / Storage Humidity Range: | 5 to 95%, non-condensing |
| Wiring Connections: | Screw Connections |
| Wire Size: | 14-22 AWG (2.5 to 0.34 mm ²) |
| Mounting: | ANSI C39.1 (4" Round) or an IEC 92mm DIN (Square) form. |
| Utility Software: | Acuview Utility Software, Windows Based; <i>(USB-RS485 converter is required to connect to computer)</i> |
| Agency Approvals: | BTL Certified, CE, RoHS2, cULus Listed (File # E359521) |
| Standard Compliance: | Measurement Standard: IEC 62053-22; ANSI C12.20 Environmental Standard: IEC 60068-2 Safety Standard: IEC 61010-1, UL 61010-1, IEC 61557-12 EMC Standard: IEC 61000-4/-2-3-4-5-6-8-11, CISPR 22, IEC 61000-3-2, IEC 61000-6-2/4 Outlines Standard: DIN 43700, ANSI C39.1 |
| Face Dimensions (L x W x H): | 3.80" (96 mm) x 3.80" (96 mm) x 1.99" (50.7 mm) |
| Power Meter Weight: | 0.77 lbs. (350g) |
| KW320 Panel Upgrade (Optional) | |
| NEMA Rating: | NEMA 4X |
| Enclosure Material: | Polycarbonate |
| Fuse: | 600 VAC/1A |
| Wiring: | Two pluggable pre-cut holes to feed wiring, fused terminal blocks for voltage connections pre-installed, color-coded and labelled |
| Flammability Rating: | 94-V0 |
| Enclosure Dimensions (L x W x H): | 7.88" (200 mm) x 11.81" (300 mm) x 7.34" (186.5 mm) |
| Enclosure Product Weight: | 8 lbs. (3.63 kg) |

Note 1: A power supply can be an independent power supply and a fuse (typical 1A/250Vac) is suggested to be used when connecting the power supply to the meter.



TABLE # 1

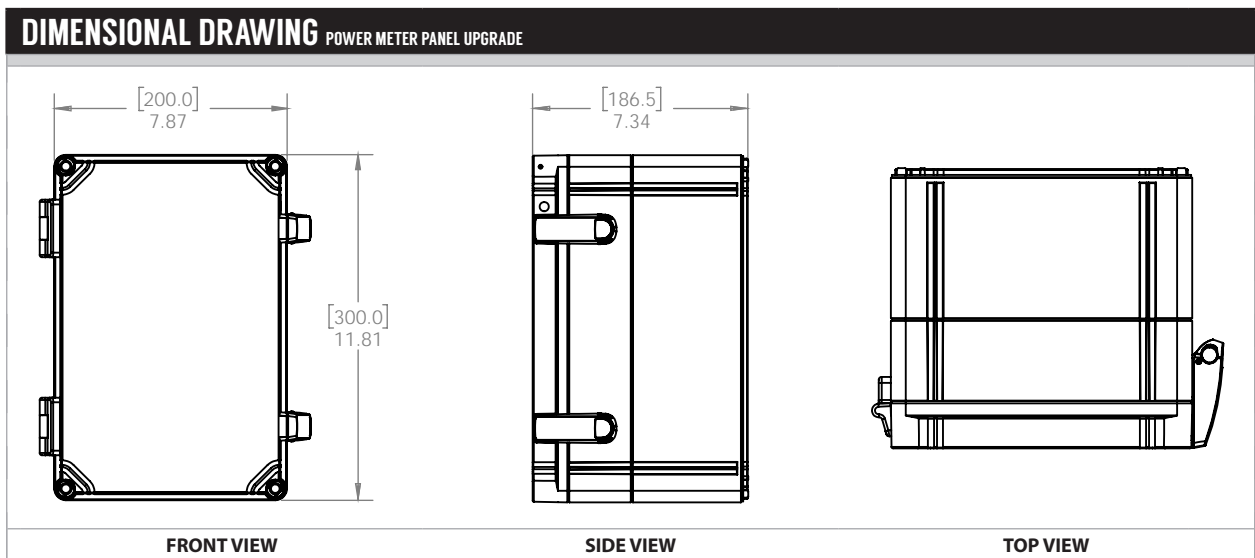
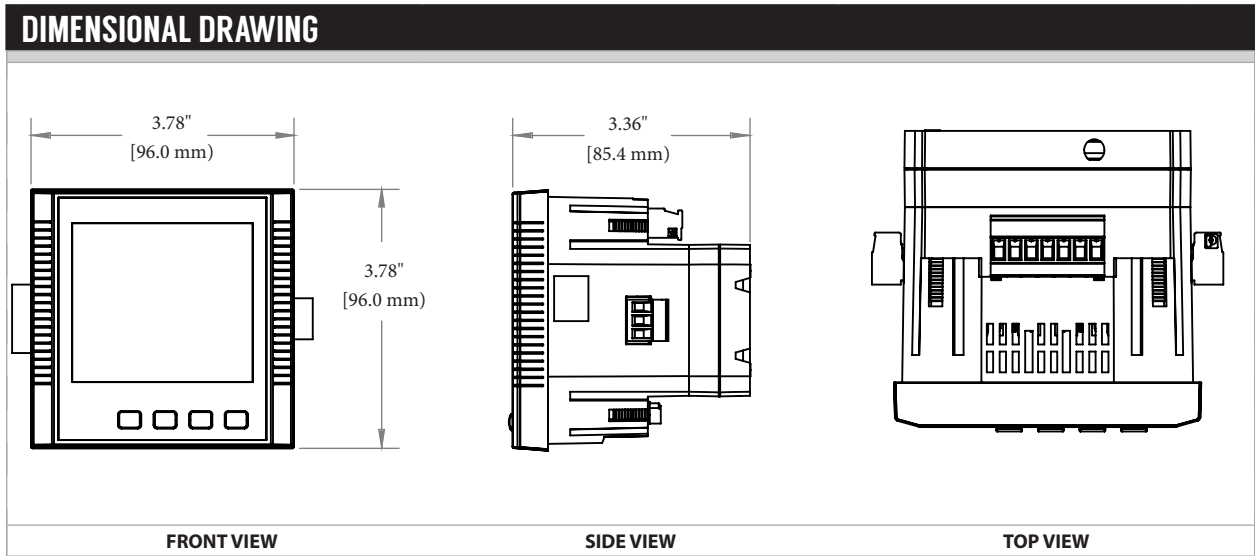
| CATEGORY | | ITEM | Parameters | |
|----------------------------|----------------------------|--|---|--|
| Metering | Real time metering | Phase Voltage | V1, V2, V3, Vlnavg | |
| | | Line Voltage | V12, V23, V31, Vllavg | |
| | | Current | I1, I2, I3, In, Iavg | |
| | | Power | P1, P2, P3, Psum | |
| | | Reactive Power | Q1, Q2, Q3, Qsum | |
| | | Apparent Power | S1, S2, S3, Ssum | |
| | | Power Factor | PF1, PF2, PF3, PF | |
| | | Frequency | F | |
| | | Load Features | Load Features | |
| | | Four Quadrant Powers | Four Quadrant Powers | |
| | Energy & demand | Energy | Ep_imp, Ep_exp, Ep_total, Ep_net, Epa_imp, Epa_exp, Epb_imp, Epb_exp, Epc_imp, Epc_exp | |
| | | Reactive Energy | Eq_imp, Eq_exp, Eq_total, Eq_net, Eqa_imp, Eqa_exp, Eqb_imp, Eqb_exp, Eqc_imp, Eqc_exp | |
| | | Apparent Energy | Es, Esa, Esb, Esc | |
| | | Demand | Dmd_P, Dmd_Q, Dmd_S, Dmd_I1, Dmd_I2, Dmd_I3 | |
| Monitoring | Power quality | Voltage Unbalance Factor | U_unbl | |
| | | Current Unbalance Factor | I_unbl | |
| | | Voltage THD | THD_V1, THD_V2, THD_V3, THD_Vavg | |
| | | Current THD | THD_I1, THD_I2, THD_I, THD_Iavg | |
| | | Individual Harmonics | Harmonics 2nd to 63rd (50H or 60Hz) Harmonics 2nd to 15th (400Hz) | |
| | | Voltage Crest Factor | Crest Factor | |
| | | TIF | THFF | |
| | Statistics | MAX with Time Stamp MIN with Time Stamp | Each phase of V & I; Total of P, Q, S, PF & F; Demand of I1, I2, I3, P, Q&S; Each phase THD of V & I; Unbalance factor of V & I | |
| | Others | Alarm | Over/Under Limit Alarm | V, I, P, Q, S, PF, V_THD & I_THD Each Phase and Total or Average; Unbalance Factor of V & I; Load Type; Analog Input of Each Channel; Demand of I1, I2, I3, P, Q&S; Reverse phase sequence; DI1~DI28 |
| | | Power quality event logging (KW320Q model only) | Sag/Dips, Swell | Voltage |
| Onboard memory size | | Memory | 8GB on all 4 models | |
| Communication | | RS485 Port, Half Duplex, Optical Isolated | Modbus®-RTU Protocol | |
| Time | | Real Time Clock | Year, Month, Date, Hour, Minute, Second | |





TABLE #2

| METERING | | | | |
|-----------------------|-----------|----------|------------|---|
| Parameters | | Accuracy | Resolution | Range |
| Voltage | | 0.1% | 0.1V | 10V~1000kV |
| Current | | 0.1% | 0.001A | 5mA~50000A |
| Power | | 0.1% | 1W | -9999MW~9999MW |
| Reactive Power | | 0.1% | 1var | -9999Mvar~9999Mvar |
| Apparent Power | | 0.1% | 1VA | 0~9999MVA |
| Power Demand | | 0.1% | 1W | -9999MW~9999MW |
| Reactive Power Demand | | 0.1% | 1var | -9999Mvar~9999Mvar |
| Apparent Power Demand | | 0.1% | 1VA | 0~9999MVA |
| Power Factor | | 0.1% | 0.001 | -1.000~1.000 |
| Frequency | | 0.001% | 0.001Hz | 45.00~65.00Hz (50 or 60Hz type) 300.00Hz~500.00Hz (400Hz type) |
| Energy | Primary | 0.1% | 0.1kWh | 0-99999999.9kWh |
| | Secondary | 0.1% | 0.001kWh | 0-999999.999kWh |
| Reactive Energy | Primary | 0.1% | 0.1kvarh | 0-99999999.9kvarh |
| | Secondary | 0.1% | 0.001kvarh | 0-999999.999kvarh |
| Apparent Energy | Primary | 0.1% | 0.1kVAh | 0-99999999.9kVAh |
| | Secondary | 0.1% | 0.001kVAh | 0-999999.999kVAh |
| Harmonics | | 1.0% | 0.1% | |
| Phase Angle | | 2.0% | 0.1° | 0.0°~359.9° |
| Unbalance Factor | | 2.0% | 0.1% | 0.0%~100.0% |
| Running Time | | | 0.01h | 0~9999999.99h |





| STANDARD ORDERING | | | | | | |
|-------------------|--------|-------------|---------------------|------------|---------------|------------------|
| Model # | Item # | mV CT Input | Rogowski Coil Input | Meter Only | Panel Upgrade | Waveform Capture |
| KW320-P1-D-W-XX | 150984 | • | • | • | | |
| KW320-P1-D-W-PC | 150985 | • | • | | • | |
| KW320Q-P1-D-W-XX | 150986 | • | • | • | | • |
| KW320Q-P1-D-W-PC | 150987 | • | • | | • | • |

| ACCESSORIES ORDERING | | |
|----------------------|--------|---|
| Model # | Item # | Description |
| AXM-DIN | 148248 | KW320 DIN Rail Adapter |
| USB-RS485 | 148243 | RS485 to USB Converter |
| AK-03 | 150827 | Three Fuse Pack; Inline Fuse Kit; 600V, 2A; Slow Blow |



KW320B

3 Channel Power Meter, 0.2 Class Accuracy, BACnet IP Only

The KW320B meter combines high performance with ease of integration via BACnet-IP (BTL-Listed) to provide a power and energy monitoring solution. Over 100 metering parameters can be monitored in real-time from a built-in web interface and encryption ensures that communication is secure. The mobile-friendly web interface allows users to remotely monitor and configure meter on mobile devices. KW320B meters support all electrical system configurations from single phase to three phase and their tamper-proof design is approved for revenue applications (ANSI C12.20 Class 0.2 and IEC 62053-22 0.2s). The meter comes standard to be mounted in a 4" Round or an IEC 92mm DIN Square form or has the flexibility to be mounted to 35mm DIN rail with the AXM-DIN adapter (See Accessories Ordering). This product provides demand measurement of Current, Active Power, Reactive Power and Apparent Power – see table 1 for all parameters

monitored and metered. Current input options are compatible with any ACI 333mV or Flexible Rogowski Coil CT. Meters come standard with a three channel CT input to accurately measure neutral current. CTs are sold separately as shown on the ACI Split-Core, Solid-Core and Rogowski Current Transformer product data sheets.

Applications: Tenant Billing, Data Centers, Sub-Metering Electrical Panel, Equipment Load Monitoring, Industrial Applications, Predictive Maintenance, Renewable Energy, Overhead Cost Reduction, "NET ZERO" Buildings, LEED Buildings, Green Buildings, and Refrigeration

The KW320B Power Meters are covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's web site, workaci.com.

PRODUCT SPECIFICATIONS

| | |
|--|---|
| Service Type: | Single Phase, 3 Phase – Four Wire (WYE), Three Phase – Three Wire (Delta) |
| Power¹: | 100 - 415Vac, 50/60Hz, 100 - 300Vdc on terminals L and N |
| Burden: | 5W |
| Withstand: | 3250Vac, 50/60Hz for 1 minute |
| Power Supply Wiring: | AWG22-16 (0.6-1.5mm ²) |
| AC Fuse Protection: | External 1A/250VAC Fuse (Recommended) |
| Rated Voltage: | 100-400VAC Line to Neutral (L-N) or 100-690VAC Line to Line (L-L) RMS for three phase or 100-400VAC RMS for single phase; 100-300 VDC |
| Number of CT Inputs: | 3 |
| Revenue Grade Accuracy: | Active Energy: Class 0.2s (According to IEC 62053-22) and Class 0.2s (According to ANSI C12.20) Reactive Energy: Class 2 (According to IEC 62053-23) – See Table 2 for parameter accuracy, resolution, and range |
| Voltage Channels: | 400 Volts AC (L-N), 690 VAC (L-L), 45Hz - 65Hz, 300Hz - 500Hz |
| Withstand Voltage: | 1500Vac Continuous, 2500Vac, 50/60Hz for 1 Minute |
| Input Impedance: | 2M ohm per Phase |
| Pickup Voltage: | 10VAC |
| Current Channels: | 3 Channels, 0.525 VAC max, 333 mV CT's or 0 to 6000 Amps with Rogowski Coils |
| Maximum Current Input: | 150% of current sensor rating (mV CT's) to maintain accuracy. Up to 6000 Amps w/ Rogowski Coils |
| Harmonic Resolution: | 63rd Harmonic (50Hz or 60Hz type) or 15th Harmonic (400Hz type) |
| Measurement Type: | Real-time, True RMS measurement of instantaneous Voltage, Current, Power, Frequency, Harmonics, Phase Angle, Demand, Unbalance Factor, Running Time, and Power Factor |
| Line Frequency: | 50/60 Hz |
| Measurement Data Parameters: | See Table 1 |
| Real Time Parameter Update Rate: | 100 mS |
| Accumulated Parameter Update Rate: | 1 Sec |
| LCD Display: | Multiple Display Modes (Important Parameter's, All Parameter's, Settings Display Modes) |
| Communication Protocol: | Ethernet: BACnet Over IP Only |
| Enclosure Material / Flammability Rating: | Polycarbonate / UL 94V-0 |
| Operating Temperature Range: | -13 to 158oF (-25 to 70oC) |
| Storage Temperature Range: | -40 to 185oF (-40 to 85oC) |
| Operating / Storage Humidity Range: | 5 to 95%, non-condensing |
| Wiring Connections: | Screw Connections |
| Wire Size: | 14-22 AWG (2.5 to 0.34 mm ²) |
| Mounting: | ANSI C39.1 (4" Round) or an IEC 92mm DIN (Square) form. |
| Utility Software: | Acuview Utility Software, Windows Based; |
| Agency Approvals: | BTL Certified, CE, RoHS2, cULus Listed (File # E359521) |





PRODUCT SPECIFICATIONS

| | |
|-------------------------------------|--|
| Standard Compliance: | Measurement Standard: IEC 62053-22; ANSI C12.20 |
| | Environmental Standard: IEC 60068-2 |
| | Safety Standard: IEC 61010-1, UL 61010-1, IEC 61557-12 |
| | EMC Standard: IEC 61000-4/-2-3-4-5-6-8-11, CISPR 22, IEC 61000-3-2, IEC 61000-6-2/4 |
| | Outlines Standard: DIN 43700, ANSI C39.1 |
| Face Dimensions (L x W x H): | 3.80" (96 mm) x 3.80" (96 mm) x 1.99" (50.7 mm) |
| Power Meter Weight: | 0.77 lbs. (350g) |

Note 1: A power supply can be an independent power supply and a fuse (typical 1A/250Vac) is suggested to be used when connecting the power supply to the meter.

TABLE # 1

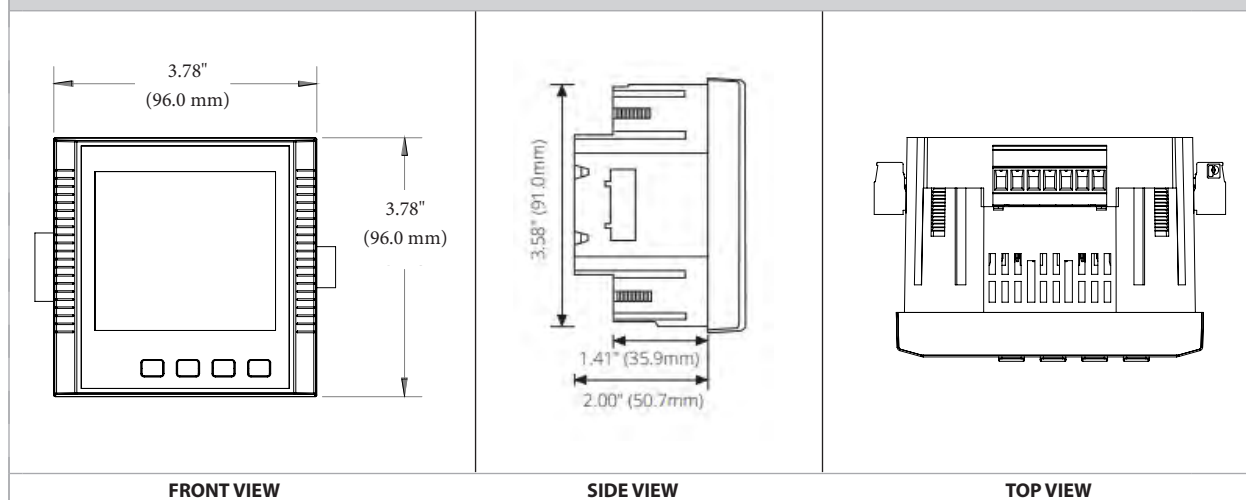
| CATEGORY | | ITEM | Parameters | |
|-----------------|----------------------------|----------------------|--|--------|
| Metering | Real time metering | Phase Voltage | V1, V2, V3, Vlnavg | |
| | | Line Voltage | V12, V23, V31, Vllavg | |
| | | Current | I1, I2, I3, In, Iavg | |
| | | Power | P1, P2, P3, Psum | |
| | | Reactive Power | Q1, Q2, Q3, Qsum | |
| | | Apparent Power | S1, S2, S3, Ssum | |
| | | Power Factor | PF1, PF2, PF3, PF | |
| | | Frequency | F | |
| | Energy & demand | Energy | Ep_imp, Ep_exp, Ep_total, Ep_net, Epa_imp, Epa_exp, Epb_imp, Epb_exp, Epc_imp, Epc_exp | |
| | | Reactive Energy | Eq_imp, Eq_exp, Eq_total, Eq_net, Eq_a_imp, Eq_a_exp, Eq_b_imp, Eq_b_exp, Eq_c_imp, Eq_c_exp | |
| | | Apparent Energy | Es, Esa, Esb, Esc | |
| | | Demand | Dmd_P, Dmd_Q, Dmd_S, Dmd_I1, Dmd_I2, Dmd_I3 | |
| | Monitoring | Power quality | Voltage Unbalance Factor | U_unbl |
| | | | Current Unbalance Factor | I_unbl |
| Voltage THD | | | THD_V1, THD_V2, THD_V3, THD_Vavg | |
| Current THD | | | THD_I1, THD_I2, THD_I, THD_Iavg | |



TABLE #2

| METERING | | | | |
|-----------------------|-----------|----------|------------|---|
| Parameters | | Accuracy | Resolution | Range |
| Voltage | | 0.2% | 0.1V | 10V~1000kV |
| Current | | 0.2% | 0.001A | 5mA~50000A |
| Power | | 0.2% | 1W | -9999MW~9999MW |
| Reactive Power | | 0.2% | 1var | -9999Mvar~9999Mvar |
| Apparent Power | | 0.2% | 1VA | 0~9999MVA |
| Power Demand | | 0.2% | 1W | -9999MW~9999MW |
| Reactive Power Demand | | 0.2% | 1var | -9999Mvar~9999Mvar |
| Apparent Power Demand | | 0.2% | 1VA | 0~9999MVA |
| Power Factor | | 0.2% | 0.001 | -1.000~1.000 |
| Frequency | | 0.02% | 0.01Hz | 45.00~65.00Hz (50 or 60Hz type) 300.00Hz~500.00Hz (400Hz type) |
| Energy | Primary | 0.2% | 0.1kWh | 0-99999999.9kWh |
| | Secondary | 0.2% | 0.001kWh | 0-999999.999kWh |
| Reactive Energy | Primary | 0.2% | 0.1kvarh | 0-99999999.9kvarh |
| | Secondary | 0.2% | 0.001kvarh | 0-999999.999kvarh |
| Apparent Energy | Primary | 0.2% | 0.1kVAh | 0-99999999.9kVAh |
| | Secondary | 0.2% | 0.001kVAh | 0-999999.999kVAh |

DIMENSIONAL DRAWING





STANDARD ORDERING

| Model # | Item # | Description |
|-------------------|--------|--|
| KW320B-P1-D-IP-SC | 149480 | 3 Circuit, Ethernet BACnet IP Only, 0.2 Class Accuracy, Power Meter 333mV CT Input, Panel Mount |
| KW320B-P1-D-IP-RC | 149481 | 3 Circuit, Ethernet BACnet IP Only, 0.2 Class Accuracy, Power Meter Rogowski Coil Input, Panel Mount |

ACCESSORIES ORDERING

| Model # | Item # | Description |
|---------|--------|---|
| AXM-DIN | 148248 | KW320 DIN Rail Adapter |
| AK-03 | 150827 | Three Fuse Pack; Inline Fuse Kit; 600V, 2A; Slow Blow |



KW350

3 Channel Power Meter, 0.5 Class Accuracy, Serial Communication Protocols

The KW350 meter combines high performance with ease of integration to provide a cost-effective power and energy monitoring solution. The meter comes standard to be mounted DIN rail mounted but is also available in a panel upgrade version that comes with NEMA 4X panel enclosure, pre-wired and labeled terminal for CT's, terminal blocks for voltage input, and industrial grade fuses (see ordering grid). The meter can monitor both uni-directional and bi-directional current and features a built-in LCD display designed to simplify setup and local reading of all measurements of meter data. The user interface enables access to configure the meter set-up options. Many of the advanced meter functions connect with the Utility Software which requires an RS-485 to USB converter to connect to a PC or laptop - See Accessory Ordering

Grid. The meter supports user selectable Modbus-RTU and BACnet MS/TP communication protocols, and pulse output communication which allows seamless integration with data acquisition systems. Meters also feature a built-in relay that can be used to trigger an alarm. The KW350 provides demand measurement of Current, Active Power, Reactive Power and Apparent Power. It also provides demand forecasting as well as the peak demand. Meters can record the time and event regarding important parameter events such as the run time of the meter and alarm functions. The Auto Phase-check function automatically checks for common wiring mistakes, such as current transformer direction, voltage, and current phase alignment. The tamper-proof design is approved for revenue applications. Model selection is determined by which style of current transformer is required- 333mV or Rogowski coil (see ordering grid). Current Transformers are sold separately as shown on the Hinged, Split Core, Solid Core, or Rogowski Coils CT product data sheets.

Applications: Sub-Metering Electrical Panel, Equipment Load Monitoring, Industrial Applications, Predicted Maintenance, Renewable Energy, Overhead Cost Reduction, "NET ZERO" Buildings, LEED Buildings, Green Buildings, and Refrigeration

The KW350 Power Meters are covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's web site, workaci.com.

PRODUCT SPECIFICATIONS

| | |
|--|---|
| Service Type: | Single Phase, 3 Phase – Four Wire (WYE), Three Phase – Three Wire (Delta) |
| Power: | 100 - 415Vac, 50/60Hz, 100 - 300Vdc on terminals L and N. |
| Power Consumption: | <2W or 10VA |
| AC Fuse Protection: | External 1A/600VAC Fuse |
| Rated Voltage: | 100-400VAC Line to Neutral (L-N) or 100-690VAC Line to Line (L-L) |
| Number of CT Inputs: | 3 |
| Revenue Grade Accuracy: | IEC 62053-22 0.5s Class / ANSI C12.20 0.5 Class |
| Voltage Channels: | 400 Volts AC (L-N), 690 VAC (L-L), 50/60 Hz |
| Current Channels: | 3 Channels, 0.4 VAC max, 333 mV CT's or 0 to 6000 Amps with Rogowski Coils |
| Maximum Current Input: | 150% of current sensor rating (mV CT's) to maintain accuracy. Up to 6000 Amps w/ Rogowski Coils |
| Measurement Type: | Real-time, True RMS measurement of instantaneous Voltage, Current, Power, Frequency and Power Factor |
| Line Frequency: | 50/60 Hz |
| Measurement Data Parameters: | See Table 1 |
| Meter Sampling Rate: | 3.84kHz @ 60 Hz; 3.2kHz @ 50 Hz |
| Real Time Parameter Update Rate: | 200 mS |
| Accumulated Parameter Update Rate: | 1 Sec |
| LCD Display: | 3 Display Modes (Important Parameter's, All Parameter's, Settings Display Modes) |
| Energy Pulse Output: | Two-wire pulse train, Isolation Voltage 2500 VAC, 5~60 VDC Load Voltage, 10 mA Max Load Current, Pulse Width 20~100ms, Pulse Constant 1~60,000 |
| Energy Pulse Power Supply: | External 24 VDC Power Supply (Required) Note: 1K Ohm External Current Limiting Resistor (Recommended) |
| Communication Protocols: | Serial RS-485 Modbus RTU (SunSpec IEEE-754 Single Precision Floating Point Format) or BACnet MS/TP |
| Maximum Distance: | 1200 meters (3,937 Feet) with data range of 100K bits/second or less |
| Termination Resistor: | 120 Ohm to 300 Ohm 1/4W Resistor (Not Included); (Installed at end of RS-485 Comm Bus) |
| Supported Baud Rates: | BACnet MS/TP Protocol: 9600, 19200, 38400, 76800, 115200 Baud Rate (38400 BACnet Default) Modbus RTU Protocol: 1200, 2400, 4800, 9600, 19200, 38400, 115200 Baud Rate (19200 Modbus Default) |
| Max Station: | 127 MS/TP Masters (MAC Addresses is 0 to 127) |
| BACnet Device Instance Number: | 1 (Default); Field adjustable from 1 to 4194303 |
| Modbus Data Bits / Parity / Stop Bit | 8 None, Even, Odd 2, 1 |
| Enclosure Material / Flammability Rating: | Polycarbonate UL 94V-0 |
| Operating Temperature Range: | -13 to 158°F (-25 to 70°C) |
| Storage Temperature Range: | -40 to 185°F (-40 to 85°C) |





PRODUCT SPECIFICATIONS

| | | |
|---|---|---|
| Operating / Storage Humidity Range: | 5 to 95%, non-condensing | |
| Wiring Connections: | Screw Connections | |
| Wire Size: | 14-22 AWG (2.5 to 0.34 mm ²) | |
| Relay Output | | |
| Load Voltage: | 250VAC, 30VDC | |
| Max Load Current: | 5A (Resistant Load) | |
| Isolation Voltage: | 2000VAC (1 min) | |
| Action Time (MAX): | 10 milliseconds | |
| Mechanical Life: | 20,000,000 cycles | |
| Electrical Life: | Above 50,000 cycles (5A, 250VAC Resistant Load) | |
| Mounting: | IEC 35mm DIN Rail (Standard) | |
| Utility Software: | AcuRev 1310 Utility Software, Windows Based; (USB-RS485 converter is required to connect to computer) | |
| Security: | Password Protected to access Settings. Sealed and Tamper Proof Cover. | |
| Agency Approvals: | BTL Certified, CE, UKCA, RoHS2, cULus Listed (File # E359521) | |
| Product Dimensions (L x W x H): | 4.25" (108 mm) x 3.54" (90 mm) x 2.46" (62.5 mm) | |
| Power Meter Weight: | 0.82 lbs. (0.372 kg) | |
| Ingress Protection (EN 60529): | IP67 | |
| Electrical Insulation: | Totally Insulated | |
| Halogen free (DIN/VDE 0472, Part 815): | 0 | |
| UV Resistance and Flammability Rating: | UL 508 | |
| Glow Wire Test (IEC 695-2-1) °C: | 960 | |
| KW350-ENC Enclosure Only (Accessory): | NEMA Rating: | UL Type 4, 4X, 6, 6P, 12 and 13 |
| | Dimensions (L x W x H): | 8.24" (209.3 mm) x 8.24" (209.3 mm) x 4.96" (126 mm) |
| | Enclosure Product Weight: | 3.8 lbs. (1.724 kg) |
| KW350 Panel Upgrage (Optional): | NEMA Rating | NEMA 4X |
| | Enclosure Material: | Polycarbonate |
| | Fuse: | 600 VAC/2A |
| | Wiring: | DIN rail mounted pre-labeled terminal blocks for voltage and CT connections pre-installed |
| | Dimensions (L x W x H): | 11.81" (300 mm) x 11.81" (300 mm) x 7.01" (178 mm) |
| | Enclosure Product Weight: | 8 lbs. (3.63 kg) |

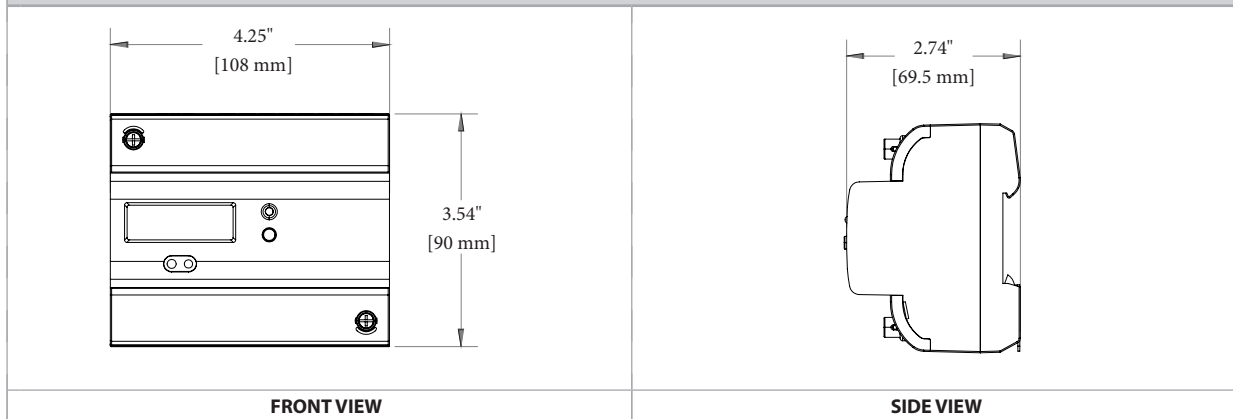
Note 1: A power supply can be an independent power supply and a fuse (typical 1A/600 Vac) is suggested to be used when connecting the power supply to the meter

TABLE 1

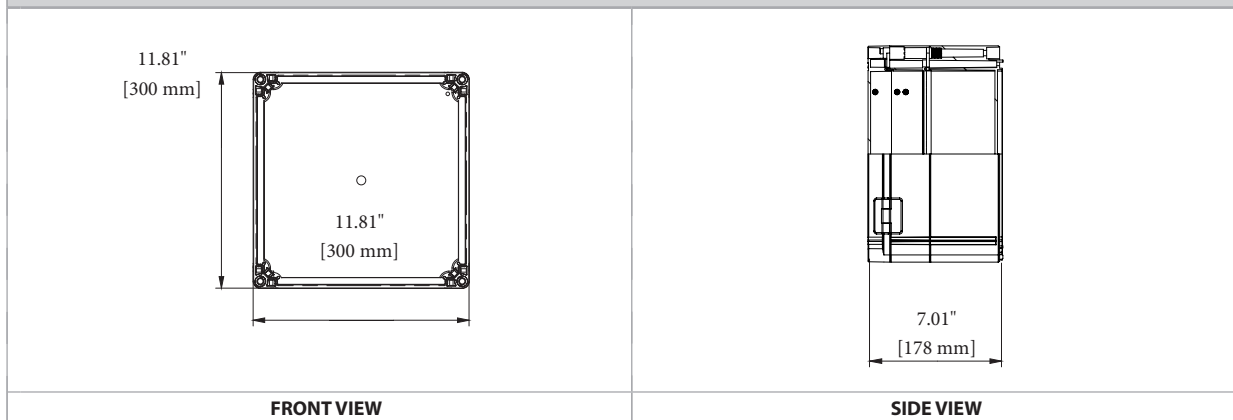
| Parameter | Accuracy | Resolution | Range |
|-----------------|----------|------------|---------------|
| Active Energy | 0.5% | 1Wh | 0-999999999 |
| Reactive Energy | 0.5% | 1varh | 0-999999999 |
| Apparent Energy | 0.5% | 1VAh | 0-999999999 |
| Voltage | 0.5% | 0.1V | 10V-1000KV |
| Current | 0.5% | 0.001A | 5mA-50000A |
| Active Power | 0.5% | 1W | -99-99MW |
| Reactive Power | 0.5% | 1var | -99-99Mvar |
| Apparent Power | 0.5% | 1VA | -99-99MVA |
| Power Factor | 0.5% | 0.001 | -1.00-1.000 |
| Frequency | 0.2% | 0.01Hz | 50/60 |
| Power Demand | 0.5% | 1W/var/VA | 99MW/Mvar/MVA |
| Current Demand | 0.5% | 0.001A | 5mA-50000A |



DIMENSIONAL DRAWING



DIMENSIONAL DRAWING POWER METER PANEL UPGRADE



STANDARD ORDERING

| Model # | Item # | Description |
|--------------------|--------|---|
| KW350-P1-D-S-RC | 148238 | 3 Circuit, 0.5 Class Accuracy, Power Meter Rogowski Coil Input w/LCD |
| KW350-P1-D-S-SC | 148233 | 3 Circuit, 0.5 Class Accuracy, Power Meter 333mV CT Input w/LCD |
| KW350-P1-D-S-RC-PC | 148972 | Panel Upgrade, same as KW350-P1-D-S-RC installed in NEMA 4X Enclosure w/ labeled and prewired supply voltage and CT connections |
| KW350-P1-D-S-SC-PC | 148973 | Panel Upgrade, same as KW350-P1-D-S-SC installed in NEMA 4X Enclosure w/ labeled and prewired supply voltage and CT connections |

ACCESSORIES ORDERING

| Model # | Item # | Description |
|-----------|--------|--|
| KW350-ENC | 148240 | NEMA 4X/IP66 Wall Mount Enclosure, includes: Din Rail Mounting Hardware, Swing Panel Kit, Tamper Proof Locking Options |
| USB-RS485 | 148243 | RS485 to USB Converter |
| AK-03 | 150827 | Three Fuse Pack; Inline Fuse Kit; 600V, 2A; Slow Blow |



KW1850

18 Channel Power Meter, 0.5 Class Accuracy

The KW1850 Series meters combine high performance with ease of integration to provide an energy measurement and monitoring solution. The meter comes standard to be DIN rail mounted but is also available in a panel upgrade version that comes with NEMA 4X panel enclosure, pre-wired and labeled terminal blocks for voltage input, and industrial grade fuses (see ordering grid). The meter supports unidirectional monitoring up to 18 CT inputs or 6 three-phase circuits simultaneously for multi-point energy measurement. The compact design is suited for high density applications to be used in conjunction with commercial, industrial, and residential multi-tenant energy management systems. Key functions include multi-tariff time-of-use (TOU), billing mode feature, and power quality analysis- see table 1 for additional measurement functions and parameters. The meter has either 8MB (KW1850-P1-D-S) or 8GB (KW1850-P1-D-W) memory for

data logging, recording system events, and over/under limit alarming information that can be retrieved via a serial connection or remotely by Ethernet, depending on the model selected. The KW1850 Series incorporates Snap On CT technology which reduces polarity errors, installation time, and eliminate CT wiring configuration. For CT connection, the CTs are terminated and plugged directly into the meter using the provided connectors. The meter features a built-in LCD display and a five button keypad designed to simplify setup and provide local readings of all measurements of meter data. Many of the advanced meter functions are accessed via the Accuview Software which requires an RS-485 to USB converter for the KW1850-P1-D-S to connect to a PC or laptop, or the KW1850-P1-D-W which utilizes either Ethernet or Wi-Fi. The meter supports multiple user-selectable communication protocols, pulse output communication, 18 digital inputs, 6 digital outputs, and 2 alarm relays which allows seamless integration with data acquisition systems. The tamper-proof design is approved for revenue applications. The KW1850 Series is compatible with multiple Current Transformer input options, however, 333mV CT or Flexible Rogowski Coil CTs should not be intermixed within a specific meter.

Current Transformers are sold separately as shown on the Hinged, Split Core, Solid Core, or Rogowski Coils CT product data sheets.

Applications: Multi Point Sub-Metering Electrical Panel for Tenant Billing, Equipment Load Monitoring, Power Quality Monitoring, Data Centers, Industrial Applications, Predicted Maintenance, Renewable Energy, Overhead Cost Reduction, "NET ZERO", LEED, Green Buildings and Refrigeration

The KW1850 Power Meters are covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's web site, workaci.com.

PRODUCT SPECIFICATIONS

| | |
|--|--|
| Service Type: | Single Phase, 3 Phase – Four Wire (WYE), Three Phase – Three Wire (Delta) |
| Power Supply¹: | 100 - 415Vac, 50/60Hz, 100 - 300Vdc on terminals L and N |
| Power Consumption: | 5W |
| Rated Voltage: | 100-400VAC Line to Neutral (L-N) or 100-690VAC Line to Line (L-L) RMS for three phase or 100-400VAC RMS for single phase |
| Input Impedance: | 2MΩ/Phase |
| PT Burden: | <0.2VA |
| Number of CT Inputs: | 18 |
| Acceptable CT Inputs: | 333mV or Rogowski Coil (cannot mix CT's) |
| Accuracy: | ANSI C 12.20 class 0.5; IEC62053-22 Class 0.5s - See Table 2 for parameter accuracy, resolution, and range |
| AC Protection: | 1A/250VAC External Fuse (not provided) |
| Measurement Type: | Real-time, True RMS measurement of instantaneous Voltage, Current, Power, Frequency, Harmonics, Phase Angle, Demand, Unbalance Factor, Running Time, and Power Factor |
| Line Frequency: | 45/65Hz |
| Digital Inputs / Type: | 18 Digital Inputs for Water and Gas Metering Pulse Counting / Dry Node |
| Input Current (MAX): | 2mA |
| Input Voltage: | 15-30VDC |
| Pulse Frequency (MAX): | 100Hz, 50% Duty Cycle |
| SOE Resolution: | 2ms |
| Auxiliary Power Output: | 15VDC, 1W |
| Relay Output | |
| Load Voltage: | 250VAC, 30VDC |
| Max Load Current: | 3A (Resistant Load) |
| Isolation Voltage: | 4000VAC (1 min) |
| Action Time (MAX): | 10 milliseconds |
| Mechanical Life: | >5,000,000 cycles, typical |
| Conduction Impedance (MAX): | 100mΩ |
| Measurement Data Parameters: | Energy, time of Use, Power Demand, Current Demand, Real Time Metering, Power Quality, Time, Alarming, Data Logging – See Table 1 complete list of Functions and Parameters |
| Multi-Tariff Time of Use (TOU): | 4 tariffs (sharp, peak, normal, valley), 14 schedules, 14 segments, weekends and 10-year holiday settings |





| PRODUCT SPECIFICATIONS <i>(Continued)</i> | |
|--|---|
| Over/Limit Alarms: | Ten limit alarms configured for peak demand, current, or power quality |
| Display: | LCD Graphic Display with Backlight High-resolution Display |
| Pulse Output: | Two-wire pulse train, Isolation Voltage 2500VAC, 0-30 VDC Load Voltage, 10mA Max Load Current, Pulse Width 20~100ms (80ms Default), Pulse Constant 1~60,000 (50000 Default) IMP/kWh |
| Hardware: | RS-485 Serial, Dual Ethernet (KW1850-P1-D-W Only), Wireless Network Card (KW1850-P1-D-W Only) |
| Memory Capacity: | 8GB or 8MB (based on model selection) onboard memory for data-logging and historical trend analysis |
| Supported Protocols: | KW1850-P1-D-S: Modbus RTU and BACnet MS/TP via RS485 KW1850-P1-D-W: Modbus TCP, BACnet IP, SNMP, SNTp, WiFi, WPA, WPA2, HTTP/HTTPS, FTP, SMTP, NTP, SNMP MQTT, RSTP, IPV6 |
| Maximum Distance: | 1200 meters (3,937 Feet) with data range of 100K bits/second or less |
| Supported Modbus Baud Rates: | 1200 to 115200 Baud Rate (19200 Modbus Default) |
| Data Bits / Parity / Stop Bit | 8 / None (default), Even, Odd / 2, 1 (default) |
| Modbus Address Range: | 1 to 247 (The default is 1) |
| Operating Temperature Range: | -13 to 158°F (-25 to 70°C) |
| Storage Temperature Range: | -40 to 185°F (-40 to 85°C) |
| Operating / Storage Humidity Range: | 5 to 95%, non-condensing |
| Enclosure Material / Flammability Rating: | Polycarbonate / 94-V0 |
| Wire Size: | 16-22 AWG (1.5 to 0.6 mm ²) |
| Mounting: | IEC 35mm DIN Standard |
| Software: | Accuview Utility Software, Windows Based. USB-RS485 converter is required to connect to computer for KW1850-P1-D-S only. |
| Security: | Password Protected to access Settings. Sealed and Tamper Proof Cover. |
| Agency Approvals: | BTL Certified, CE, RoHS2, cULus Listed (File # E359521) |
| Product Dimensions (L x W x H): | 6.38" (162 mm) x 3.74" (95 mm) x 2.64" (67 mm) |
| KW1850 Panel Upgrade (Optional): | |
| NEMA Rating: | NEMA 4X / IP66 Enclosure |
| Material: | Polycarbonate |
| Fuse: | 600 VAC/2A |
| Wiring: | DIN rail mounted pre-labeled terminal blocks for voltage connection pre-installed |
| Flammability Rating: | UL 746C 5-inch flame test |
| Certifications: | UL 508A, EN62208 |
| Dimensions (L x W x H): | 11.81" (300 mm) x 11.81" (300 mm) x 7.01" (178 mm) |
| Enclosure Product Weight: | 8 lbs. (3.63 kg) |

Note 1: A fuse or small-sized circuit breaker is mandatory. A power supply can be an independent power supply and a fuse (typical 1A/250Vac) is suggested to be used when connecting the power supply to the meter. If a circuit breaker is utilized, it must be CE certified and comply with IEC 947 standard. An isolated transformer or EMC filter should be used in the auxiliary power supply loop if there is a power quality issue in the power supply.



| TABLE # 1 | | | | |
|--------------------|---|-----------------------------------|---------------|---------------|
| Function | | Parameters | KW1850-P1-D-S | KW1850-P1-D-W |
| Energy | Active Energy | Ep | • | • |
| | Reactive Energy | Eq | • | • |
| | Apparent Energy | Es | • | • |
| Time Of Use | 4 Tariffs, 14 Schedules | TOU | • | • |
| Power Demand | Active Power Demand | Demand_P | • | • |
| | Reactive Power Demand | Demand_Q | • | • |
| | Apparent Power Demand | Demand_S | • | • |
| | Peak Power Demand | Demand_P_max | • | • |
| Current Demand | Current Demand | Total and each circuit | • | • |
| | Peak Current Demand | Total and each circuit | • | • |
| Real Time Metering | Phase Voltage | V1,V2,V3 | • | • |
| | Line Voltage | V12,V23,V31 | • | • |
| | Current | Total and each circuit | • | • |
| | Power | Total and each circuit | • | • |
| | Reactive Power | Total and each circuit | • | • |
| | Apparent Power | Total and each circuit | • | • |
| | Power Factor | Total and each circuit | • | • |
| | Frequency | F | • | • |
| Power Quality | Total Harmonic Distortion | THD* | • | • |
| | Individual Harmonics | 2nd ~ 31st (Voltage and Current)* | • | • |
| | Current K Factor | KF | • | • |
| | Voltage Crest Factor | CF | • | • |
| | Voltage Unbalance | U_unbl | • | • |
| | Current Unbalance | I_unbl | • | • |
| Time | Real Time Clock (Year, Month, Date, Hour, Minute, Second) | | • | • |
| Alarming | Over/Under Limit Alarming | | • | • |
| Data Logging | 8MB Memory | | • | • |
| | 8GB Memory | | | • |
| | RS485 Modbus®-RTU | | • | • |
| | Ethernet Modbus®-TCP, HTTP, BACnet-IP, SMTP, SNMP, SNMP | | | • |
| | WiFi | | | • |
| I/O Option | 18 Digital Inputs with 15Vdc power supply | | • | • |
| | 6 Digital Outputs, Second Pulse, Demand Cycle | | • | • |
| | 2 Relay Outputs | | • | • |
| Display | LCD | | • | • |



TABLE #2

| MEASURE | | | |
|-----------------------|-----------------------------|------------|-------------------|
| Parameters | Accuracy | Resolution | Range |
| Active Energy | 0.5s | 0.1kWh | 0~99999999.9kWh |
| Reactive Energy | 1% | 0.1kvarh | 0~99999999.9kvarh |
| Apparent Energy | 1% | 0.1kVAh | 0~99999999.9kVAh |
| Voltage | 0.5% | 0.1V | 10~400V |
| Current | 0.5% | 0.001A | 5mA~10,000A |
| Real Power | 0.5% | 0.1W | 4000.0kW |
| Reactive Power | 0.5% | 0.1var | 4000.0kvar |
| Apparent Power | 0.5% | 0.1VA | 4000.0kVA |
| Power Factor | 0.5% | 0.001 | -1.000~1.000 |
| Frequency | 0.2% | 0.01Hz | 45~65Hz |
| Real Power Demand | 0.5% | 0.1W | 4000.0kW |
| Reactive Power Demand | 0.5% | 0.1var | 4000.0kvar |
| Apparent Power Demand | 0.5% | 0.1VA | 4000.0kVA |
| Current Demand | 0.5% | 0.001A | 5mA~10,000A |
| Unbalance | 2% | 0.01% | 0~300% |
| Harmonics | 2% | 0.01% | 0~100% |
| Meter Running Time | | 0.01hour | 0~999999.9h |
| Temperature Drift | less than 100ppm/°C(0-50°C) | | |

STANDARD ORDERING

| Model # | Item # | Description |
|------------------|--------|--|
| KW1850-P1-D-S | 148259 | 18 Circuit, 0.5 Class Accuracy, Power Meter w/LCD, and serial RS-485 Modbus RTU and BACnet MS/TP Only |
| KW1850-P1-D-W | 148258 | 18 Circuit, 0.5 Class Accuracy, Power Meter w/LCD, Serial and Ethernet Communication protocols, and Wi-Fi enabled |
| KW1850-P1-D-S-PC | 151201 | Panel Upgrade, same as KW1850-P1-D-S installed in NEMA 4X Enclosure w/ labeled and prewired supply voltage connections |
| KW1850-P1-D-W-PC | 151202 | Panel Upgrade, same as KW1850-P1-D-W installed in NEMA 4X Enclosure w/ labeled and prewired supply voltage connections |

ACCESSORIES ORDERING

| Model # | Item # | Description |
|------------|--------|---|
| KW1850-ENC | 148260 | NEMA 4X/IP66 Wall Mount Enclosure with Steel Mounting Plate - DIN Rail not Provided |
| SO-SP1 | 148261 | Snap On CT Replacement Connector Kit (Package of 20) |
| USB-RS485 | 148243 | RS485 to USB Converter to connect KW1850-P1-D-S to PC |
| AK-03 | 150827 | Three Fuse Pack; Inline Fuse Kit; 600V, 2A; Slow Blow |





CONTROL TRANSFORMERS

Multitap Primary: 24 VAC Secondary

The LE Series control transformers are designed to provide a stable, clean and reliable 24 VAC power source. Many different styles and VA output ranges are available. Mounting configurations are available with 1/2" conduit hubs and mounting feet. Single and multiple primary input transformers are available in ranges from 40 to 150 VA. A manual reset circuit breaker pushbutton is used in some of the models. The LE Series also incorporates a Class F, 150 insulation system and they are UL, CUL and CSA approved.

A transformer with a hub style "2TF" has a threaded flange hub for both the primary and the secondary. A transformer with a hub style "1TF, 150" has a threaded flange on the primary and a side opening on the secondary end bell for the wires. Single hub transformers that have both the primary and secondary wires exiting the same hub will only show one hub style.

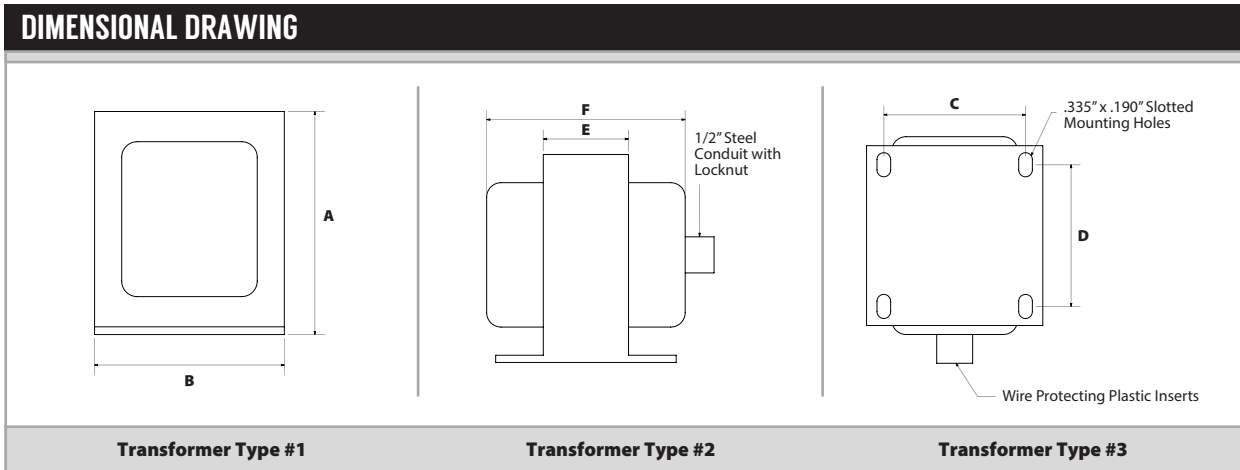
Applications: Temperature Control, Fire Alarm, Security, Energy Management, Lighting Control Systems and Building Automation Systems

The LE Transformers are covered by ACI's Two (2) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|----------------------------------|---|
| Input Voltage: | 24 to 480 VAC - See Ordering Grid on Back of Data Sheet |
| Output Voltage: | 24 or 120 VAC - See Ordering Grid on Back of Data Sheet |
| VA Output Ranges: | 20 to 150 VA - See Ordering Grid on Back of Data Sheet |
| Frequency: | 50/60 Hz |
| Overload Protection: | Manual Reset Circuit Breaker or Thermal Cutout - See Ordering Grid on Back of Data Sheet |
| Mounting: | Slotted Foot Mounts and 1/2" Threaded Flange Hub(s) - See Ordering Grid on Back of Data Sheet |
| Connections: | UL 1015 Insulated 18AWG Lead Wires, 8" Long, 0.375" ends Stripped and Tinned |
| Insulation System: | UL 1446 Recognized Component Class B Insulation System PG125 (130C, 266F) |
| Operating Temperature: | 14°F to 104°F (-10°C to 40°C) |
| Operating Humidity Range: | 45 to 85%, Non-Condensing |
| Product Dimensions: | See Ordering Grid on Back of Data Sheet |
| Product Weights: | See Ordering Grid on Back of Data Sheet |
| Agency Approvals: | UL 1585 / UL 5085-1 / UL 5085-3 Listed for USA & Canada Class 2, Class 3 Transformer |





DIMENSIONAL DRAWING TABLE

| Model # | A | B | C | D | E | F |
|---------|------------------|------------------|------------------|------------------|------------------|-------------------|
| LE105 | 2.88" (73.15 mm) | 2.19" (55.63 mm) | 1.97" (50.04 mm) | 1.97" (50.04 mm) | 1.18" (29.98 mm) | 2.75" (69.85 mm) |
| LE11145 | 2.60" (66.04 mm) | 1.90" (48.26 mm) | 1.70" (43.18 mm) | 1.52" (38.60 mm) | 1.00" (25.40 mm) | 2.32" (58.93 mm) |
| LE11300 | 2.88" (73.15 mm) | 2.19" (55.63 mm) | 1.75" (44.45 mm) | 1.97" (50.04 mm) | 1.18" (29.98 mm) | 2.73" (69.34 mm) |
| LE117 | 2.90" (73.66 mm) | 2.19" (55.63 mm) | 1.75" (44.45 mm) | 2.00" (50.80 mm) | 1.25" (31.75 mm) | 2.82" (71.63 mm) |
| LE11711 | 3.06" (77.72 mm) | 2.51" (63.75 mm) | 2.00" (50.80 mm) | 1.92" (48.77 mm) | 1.27" (32.26 mm) | 3.45" (87.63 mm) |
| LE1175 | 2.92" (74.17 mm) | 2.19" (55.63 mm) | 1.75" (44.45 mm) | 2.03" (51.56 mm) | 1.26" (32.00 mm) | 2.82" (71.63 mm) |
| LE118 | 3.06" (77.72 mm) | 2.51" (63.75 mm) | 2.00" (50.80 mm) | 2.31" (58.67 mm) | 1.67" (42.42 mm) | 3.90" (99.06 mm) |
| LE119 | 3.06" (77.72 mm) | 2.52" (64.00 mm) | 2.00" (50.80 mm) | 2.31" (58.67 mm) | 1.67" (42.42 mm) | 3.87" (98.30 mm) |
| LE120 | 3.06" (77.72 mm) | 2.50" (63.75 mm) | 2.02" (51.31 mm) | 2.55" (64.77 mm) | 1.88" (44.75 mm) | 4.05" (102.87 mm) |
| LE121 | 3.06" (77.72 mm) | 2.52" (64.00 mm) | 2.00" (50.80 mm) | 2.51" (63.75 mm) | 1.88" (44.75 mm) | 4.05" (102.87 mm) |
| LE124 | 3.30" (83.82 mm) | 3.80" (96.52 mm) | 3.23" (82.04 mm) | 2.47" (62.74 mm) | 1.37" (37.80 mm) | 3.47" (88.14 mm) |
| LE1501 | 3.04" (77.22 mm) | 2.52" (64.00 mm) | 2.03" (51.56 mm) | 2.31" (58.67 mm) | 1.67" (42.42 mm) | 3.87" (98.30 mm) |
| LE15013 | 3.06" (77.72 mm) | 2.50" (63.50 mm) | 2.03" (51.56 mm) | 2.35" (59.69 mm) | 1.67" (42.42 mm) | 3.91" (99.30 mm) |
| LE15337 | 2.98" (75.69 mm) | 2.19" (55.63 mm) | 1.76" (44.70 mm) | 1.97" (50.04 mm) | 1.19" (30.23 mm) | 2.72" (69.09 mm) |
| LE15550 | 3.03" (76.96 mm) | 2.52" (64.00 mm) | 2.03" (51.56 mm) | 2.26" (57.40 mm) | 1.67" (42.42 mm) | 3.91" (99.30 mm) |
| LE160 | 3.06" (77.72 mm) | 2.52" (64.00 mm) | 2.00" (50.80 mm) | 1.91" (48.50 mm) | 1.26" (32.00 mm) | 3.48" (88.14 mm) |
| LE1655 | 3.07" (77.98 mm) | 2.52" (64.00 mm) | 2.00" (50.80 mm) | 1.85" (46.99 mm) | 1.26" (32.00 mm) | 3.45" (87.63 mm) |
| LE170 | 3.06" (77.72 mm) | 2.52" (64.00 mm) | 2.00" (50.80 mm) | 2.59" (65.79 mm) | 2.06" (52.32 mm) | 4.25" (107.95 mm) |
| LE1755 | 3.00" (76.20 mm) | 2.52" (64.00 mm) | 2.00" (50.80 mm) | 2.70" (68.58 mm) | 2.06" (52.32 mm) | 4.25" (107.95 mm) |
| LE50000 | 3.07" (77.98 mm) | 2.50" (63.50 mm) | 2.00" (50.80 mm) | 2.03" (51.56 mm) | 1.26" (32.00 mm) | 3.45" (87.63 mm) |
| LE50423 | 3.07" (77.98 mm) | 2.50" (63.50 mm) | 2.03" (51.56 mm) | 2.69" (68.33 mm) | 2.06" (52.32 mm) | 4.25" (107.95 mm) |





| STANDARD ORDERING | | | | | | | | |
|------------------------------------|--------|-----------------------|-------------------------|-----------|-----------|--------------|---------------|-------|
| Model # Example: LE105 -OR- 102553 | | | | | | | | |
| Model # | Item # | Primary Voltage (VAC) | Secondary Voltage (VAC) | VA Rating | Hub Style | Manual Reset | Approvals | Class |
| LE105 | 102553 | 24 | 24 | 40 | 1TF | NO | UL Recognized | 2 |
| LE11145 | 109130 | 120 | 24 | 20 | 1TF | NO | UL Recognized | 2 |
| LE11300 | 109747 | 120 | 24 | 40 | 1TF | NO | UL Listed | 2 |
| LE117 | 102555 | 120 | 24 | 50 | 1TF | NO | UL Listed | 2 |
| LE11711 | 110250 | 120 | 24 | 50 | 1TF | YES | UL Listed | 2 |
| LE1175 | 102556 | 120 | 24 | 50 | 2TF | NO | UL Listed | 2 |
| LE118 | 102557 | 120 | 24 | 75 | 2TF | YES | UL Listed | 2 |
| LE119 | 102558 | 120 | 24 | 75 | 1TF | YES | UL Listed | 2 |
| LE120 | 102559 | 120 | 24 | 96 | 2TF | YES | UL Listed | 2 |
| LE121 | 102560 | 120 | 24 | 96 | 1TF | YES | UL Listed | 2 |
| LE124 | 102561 | 120 | 24 | 150 | 1TF | YES | UL Recognized | GP |
| LE1501 | 102562 | 120/208/240/480 | 24 | 75 | 1TF / 1SO | YES | UL Listed | 2 |
| LE15013 | 106215 | 120/208/240/480 | 24 | 75 | 2TF | YES | UL Listed | 2 |
| LE15337 | 106565 | 120/208/240 | 24 | 40 | 2TF | NO | UL Listed | 2 |
| LE15550 | 137445 | 120/208/240/480 | 24 | 75 | 1TF | YES | UL Listed | 2 |
| LE160 | 102563 | 120/240/277/480 | 24 | 50 | 2TF | YES | UL Listed | 2 |
| LE1655 | 107769 | 120/240/277/480 | 24 | 50 | 1TF | YES | UL Listed | 2 |
| LE170 | 102564 | 120/240/277/480 | 24 | 96 | 2TF | YES | UL Listed | 2 |
| LE1755 | 107770 | 120/240/277/480 | 24 | 96 | 1TF | YES | UL Listed | 2 |
| LE50000 | 110245 | 120/208/240/277 | 24 | 50 | 1TF | YES | UL Listed | 2 |
| LE50423 | 143947 | 208/240/277/480 | 120 | 96 | 1TF | YES | UL Listed | 2 |

| ACCESSORIES ORDERING | | |
|--------------------------------------|--------|---|
| Model # Example: A/PS1.5 -OR- 122486 | | |
| Model # | Item # | Description |
| A/PS24-24V-S | 144322 | 24 VDC Power Supply Converts 24 VAC into 24 VDC |





ACUCT SPLIT CORE

Standard Accuracy



The Split-Core Current Transformers are designed to convert an AC operating current into a low voltage AC millivolt signal for use with microprocessor-based circuits that require maximum accuracy and precision. These compact and light-weight split-core current transformers are designed for installation on branch circuits within the electrical panel. The Split-Core CT Series is ideal for easy installation without disconnecting cables. Split-Core CTs come standard un-terminated stripped and tinned lead wires for easy connection to any of the Single or 3 Phase ACI power meter. CT models listed here are compatible with the ACI KW350-P1-D-S-SC, KW320-P1-D-W-SC-XX, KW320-P1-D-W-SC-PC, KW1850-P1-D-W, and KW1850-P1-D-S Power Meters where typical power measurements are required. For best accuracy, CTs should be selected based upon the size of the conductors being monitored by selecting the proper window size and referencing the expected maximum and minimum currents for the targeted application. The

acceptable Measurement Current Range is referenced in the ordering grid table. Please contact ACI for more information regarding the Split-Core Current Transformers.

Applications: Energy and Demand Metering, Load Surveys, LEED/Green Projects, ROI / Project Justification.

The Split Core mV Output Current Transformers are covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's web site, workaci.com.

PRODUCT SPECIFICATIONS

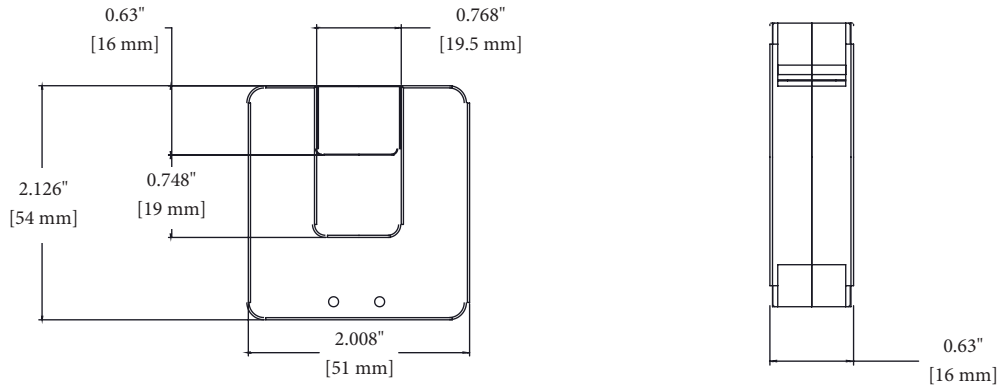
| | |
|---|--|
| Monitored Current Type: | AC Current |
| Maximum Working Voltage: | 600 VAC, Category III |
| Core Style: | Split-Core (non-hinged) |
| Rated Output: | 333mV @ 50/100/200/300/400/600/800/1000 Amps (see ordering grid) |
| Operating Frequency Range: | 50/60Hz |
| Withstand Voltage: | 3,000VAC |
| Sender Amperage Range: | See Ordering Grid |
| Accuracy¹: | 0.5% from 10-120% of Rated Current, IEC 60044-1 |
| Operating Temperature Range: | 5 to 140°F (-15 to 60°C) |
| Storage Temperature Range: | -40 to 185°F (-40 to 85°C) |
| Operating/Storage Humidity Range: | 5 to 95%, non-condensing |
| Maximum Elevation: | 9,842 ft (3 Kilometers) |
| Case Material/Flammability Rating: | Epoxy Encapsulated/UL94V-0 |
| Wiring Connections: | Stripped and Tinned Lead Wires |
| Lead Wire Colors: | White: Positive (+) Black: Negative (-) Bare-Shield (Polarity Sensitive) |
| Wire Size: | 22 AWG (0.34 mm ²), 600V Rated VW-1, 105°C White/Brown Twisted Pair (UL 1015) |
| Lead Length: | 8.20' (2.5m) or 32.80' (10m) See Ordering Grid |
| Agency Approvals: | ULR, CE, & RoHS2 Compliant |
| Product Weight: | AcuCT-075 Series: 0.2lbs (0.09kg) AcuCT-125 Series: 0.3lbs (0.14kg) AcuCT-200 Series: 0.4lbs (0.18kg) |
| Product Dimensions (L x W x H): | AcuCT-075 Series: 2.00" (50.80 mm) x 2.09" (53.30 mm) x 0.669" (17.00 mm) AcuCT-125 Series: 3.25" (82.50 mm) x 3.35" (85.10 mm) x 1.02" (26.00 mm) AcuCT-200 Series: 4.76" (121.00 mm) x 5.00" (127.00 mm) x 1.18" (30.00 mm) |

Note 1: For maximum performance, make sure the core contacts are wiped clean and free of debris.

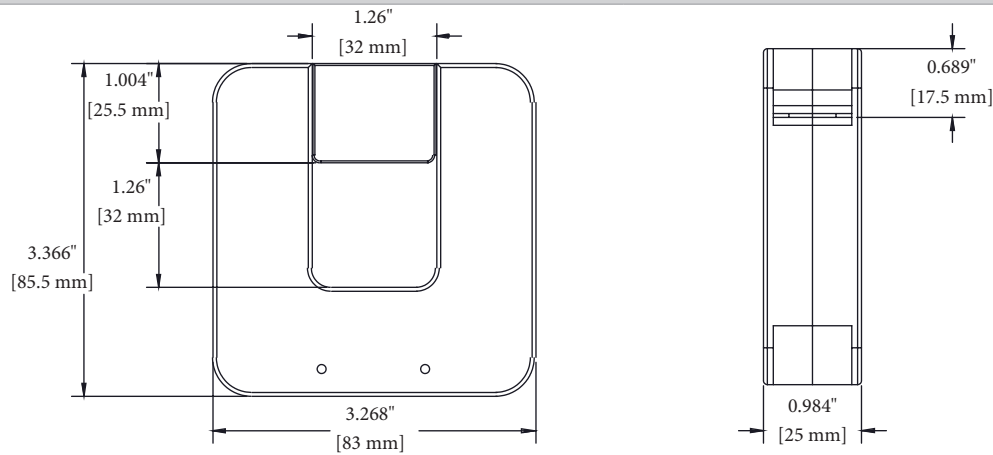


DIMENSIONAL DRAWING

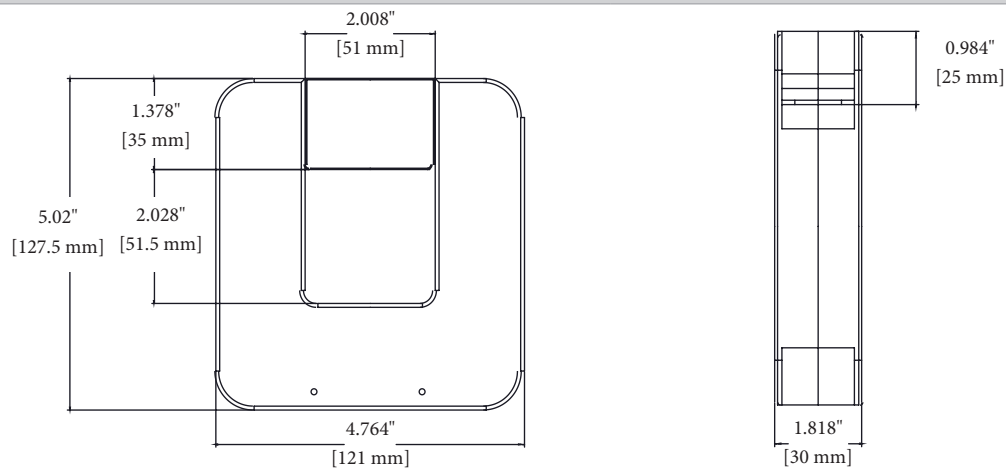
AcuCT-075



AcuCT-125



AcuCT-200



FRONT VIEW

SIDE VIEW



ORDERING INFORMATION

| Model # | Item # | Rated Current | Window Size | Output Signal (At Rated Current) | Lead Length |
|-----------------------|--------|---------------|------------------|-------------------------------------|-------------|
| AcuCT-075-50-333 | 148170 | 50A | 0.75" (19.05 mm) | 333 mV @ 50A | 8 ft (2.5m) |
| AcuCT-075-100-333 | 148171 | 100A | 0.75" (19.05 mm) | 333 mV @ 100A | 8 ft (2.5m) |
| AcuCT-125-200-333 | 148173 | 200A | 1.25" (31.75 mm) | 333 mV @ 200A | 8 ft (2.5m) |
| AcuCT-125-300-333 | 148174 | 300A | 1.25" (31.75 mm) | 333 mV @ 300A | 8 ft (2.5m) |
| AcuCT-125-400-333-10M | 148175 | 400A | 1.25" (31.75 mm) | 333 mV @ 400A | 32 ft (10m) |
| AcuCT-125-400-333 | 148176 | 400A | 1.25" (31.75 mm) | 333 mV @ 400A | 8 ft (2.5m) |
| AcuCT-125-600-333 | 148177 | 600A | 1.25" (31.75 mm) | 333 mV @ 600A | 8 ft (2.5m) |
| AcuCT-200-600-333 | 148192 | 600A | 2.00" (50.80 mm) | 333 mV @ 600A | 8 ft (2.5m) |
| AcuCT-200-800-333 | 148193 | 800A | 2.00" (50.80 mm) | 333 mV @ 800A | 8 ft (2.5m) |
| AcuCT-200-1000-333 | 148208 | 1000A | 2.00" (50.80 mm) | 333 mV @ 1000A | 8 ft (2.5m) |







ACUCT HINGED SPLIT-CORE

Standard Accuracy

The Hinged Split-Core Current Transformers are designed to convert an AC operating current into a low voltage AC millivolt signal for use with microprocessor-based circuits that require maximum accuracy and precision. These ultra-compact and light-weight hinged split-core current transformers are designed for installation on branch circuits within the electrical panel. The Hinged Split-Core CT Series is ideal for easy installation without disconnecting cables. Hinged Split-Core CTs come standard unterminated stripped and tinned lead wires for easy connection to any of the Single or 3 Phase ACI power meter. CT models listed here are compatible with the ACI KW350-P1-D-S-SC, KW320-P1-D-W-SC-XX, KW320-P1-D-W-SC-PC, KW1850-P1-D-W, and KW1850-P1-D-S Power Meters where typical power measurements are required. For best

accuracy, CTs should be selected based upon the size of the conductors being monitored by selecting the proper window size and referencing the expected maximum and minimum currents for the targeted application. The acceptable Measurement Current Range is referenced in the ordering grid table. Please contact ACI for more information regarding the Hinged Split-Core Current Transformers.

Applications: Retro Fitting Sub-Metering Electrical Panel, Equipment Load Monitoring, Industrial Applications, Predicted Maintenance, Renewable Energy, Overhead Cost Reduction, "NET ZERO" Buildings, LEED Buildings, Green Buildings, and Refrigeration

The Hinged Split Core mV Output Current Transformers are covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's web site, workaci.com.

PRODUCT SPECIFICATIONS

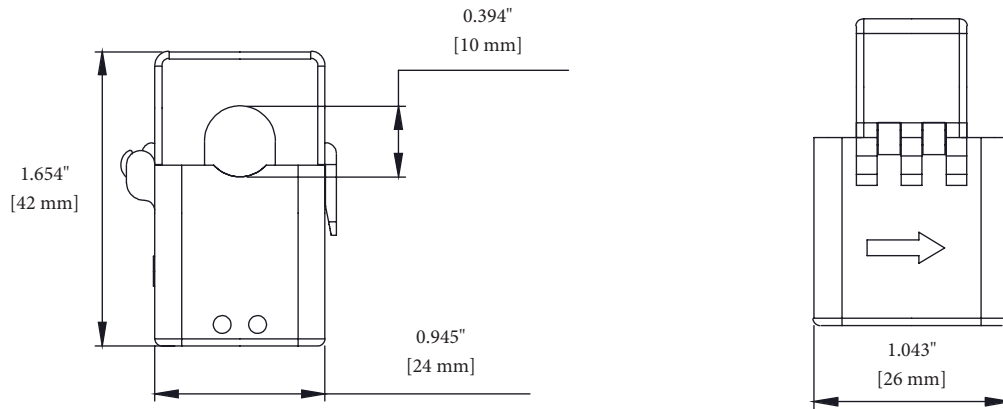
| | |
|---|--|
| Monitored Current Type: | AC Current |
| Maximum Working Voltage: | 600 VAC, Category III |
| Core Style: | Hinged Split-Core |
| Rated Output: | 333mV @ 20/30/40/50/60/100/200 Amps (see ordering grid) |
| Operating Frequency Range: | 50/60Hz |
| Sender Amperage Range: | See Ordering Grid |
| Accuracy¹: | 0.5% from 10-120% of Rated Current |
| Operating Temperature Range: | 5 to 140°F (-15 to 60°C) |
| Storage Temperature Range: | -40 to 185°F (-40 to 85°C) |
| Operating/Storage Humidity Range: | 5 to 95%, non-condensing |
| Maximum Elevation: | 9,842 ft (3 Kilometers) |
| Case Material/Flammability Rating: | Black Nylon/UL94V-0 |
| Wiring Connections: | Stripped and Tinned Lead Wires |
| Lead Wire Colors: | White: Positive (+) Black: Negative (-) |
| Wire Size: | 22 AWG (0.14 mm ²), 600V Rated VW-1, 105°C Black/Brown Twisted Pair (UL 1015) |
| Lead Length: | 8.20' (2.5m) or 32.80' (10m) See Ordering Grid |
| Agency Approvals: | ULR, CE, & RoHS2 Compliant |
| Product Weight: | AcuCT-H040 Series: 0.2lbs (0.09kg) AcuCT-H100 Series: 0.4lbs (0.18kg) |
| Product Dimensions (L x W x H): | AcuCT-H040 Series: 1.64" (41.66 mm) x 1.16" (29.47 mm) x 1.04" (26.42 mm) AcuCT-H100 Series: 2.76" (70.11 mm) x 2.00" (50.80 mm) x 1.52" (38.61 mm) |

Note 1: For maximum performance, make sure the core contacts are wiped clean and free of debris.

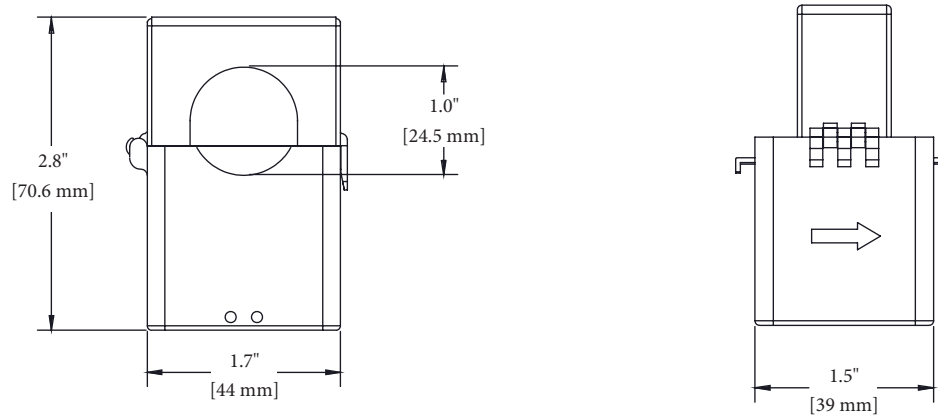


DIMENSIONAL DRAWING

AcuCT-H040



AcuCT-H100



FRONT VIEW

SIDE VIEW

ORDERING INFORMATION

| Model # | Item # | Rated Current | Window Size | Output Signal (At Rated Current) | Lead Length |
|------------------------|--------|---------------|-----------------|-------------------------------------|-------------|
| AcuCT-H040-20:333 | 148158 | 20A | 0.4" (10.2 mm) | 333 mV @ 20A | 8 ft (2.5m) |
| AcuCT-H040-20:333-10M | 148159 | 20A | 0.4" (10.2 mm) | 333 mV @ 20A | 32 ft (10m) |
| AcuCT-H040-30:333 | 148160 | 30A | 0.4" (10.2 mm) | 333 mV @ 40A | 8 ft (2.5m) |
| AcuCT-H040-40:333 | 148161 | 40A | 0.4" (10.2 mm) | 333 mV @ 40A | 8 ft (2.5m) |
| AcuCT-H040-50:333-10M | 148163 | 50A | 0.4" (10.2 mm) | 333 mV @ 50A | 32 ft (10m) |
| AcuCT-H040-50:333 | 148164 | 50A | 0.4" (10.2 mm) | 333 mV @ 50A | 8 ft (2.5m) |
| AcuCT-H040-60:333 | 148165 | 60A | 0.4" (10.2 mm) | 333 mV @ 60A | 8 ft (2.5m) |
| AcuCT-H100-100:333 | 148166 | 100A | 1.00" (25.4 mm) | 333 mV @ 100A | 8 ft (2.5m) |
| AcuCT-H100-100:333-10M | 148167 | 100A | 1.00" (25.4 mm) | 333 mV @ 100A | 32 ft (20m) |
| AcuCT-H100-200:333 | 148168 | 200A | 1.00" (25.4 mm) | 333 mV @ 200A | 8 ft (2.5m) |
| AcuCT-H100-200:333-10M | 148169 | 200A | 1.00" (25.4 mm) | 333 mV @ 200A | 32 ft (10m) |



ROGOWSKI COIL

Standard Accuracy



The Rogowski Coil Current Transformers are designed to convert an AC operating current into a low voltage AC millivolt signal for use with microprocessor-based circuits that require the highest accuracy and precision. The Flexible Rogowski Coil is designed to use where regular solid or split core current transformers cannot fit and are ideal for power quality monitoring, such as harmonics. Advantages include high accuracy, wide measurement and frequency range, and no additional integrator or power supply is needed. Rogowski coils come standard unterminated stripped and tinned lead wires for easy connection to any of the Single or 3 Phase ACI power meter. Rogowski Coil models listed here are compatible with the ACI KW350-P1-D-S-RC, KW320-P1-D-W-RC-XX, KW320-P1-D-W-RC-PC, KW1850-P1-D-W, and KW1850-P1-D-S Power Meters where typical power measurements are required. For best accuracy, the coils should be selected based upon the size of the conductors being monitored by selecting the proper window size and referencing

the expected maximum and minimum currents for the targeted application. The acceptable Measurement Current Range and Window Size are referenced in the ordering grid table. Please contact ACI for more information regarding the Rogowski Coil Current Transformers.

Applications: Tennant Billing, Energy and Demand Metering, Load Surveys, LEED/Green Projects, ROI / Project Justification

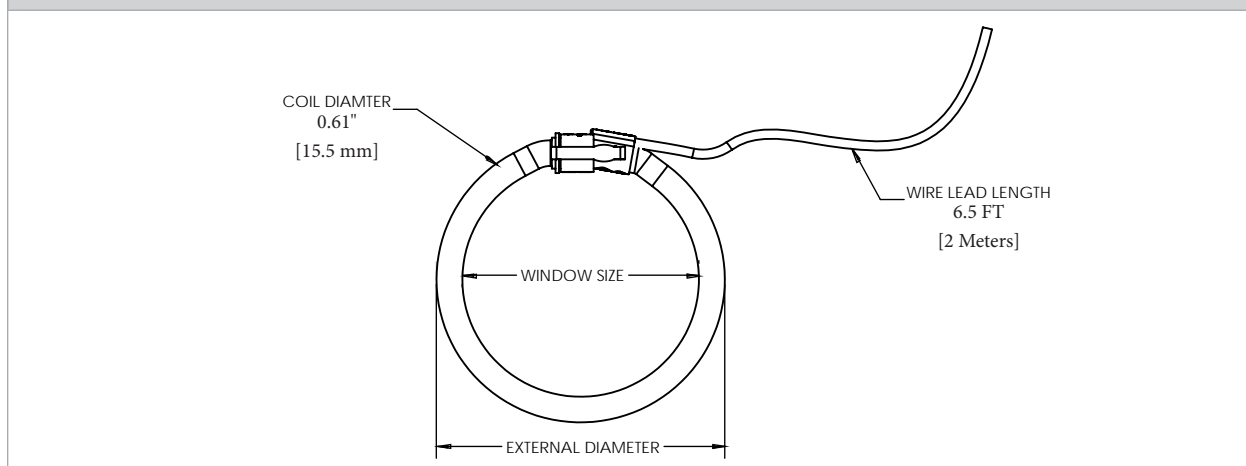
The Rogowski Coil mV Output Current Transformers are covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's web site, workaci.com.

| PRODUCT SPECIFICATIONS | |
|---|--|
| Monitored Current Type: | AC Current |
| Input Range: | 5 to 5000A |
| Core Style: | Flexible Rope Styles Form Factor |
| Dielectric Strength: | 7400Vac @ 50/60Hz for 1 minute |
| Operating Frequency Range: | 20 Hz to 5 kHz |
| Withstand Voltage: | 5,000VAC |
| Sensor Amperage Range: | See Ordering Grid |
| Accuracy: | 0.5% From 10 to 120% of Rated Current |
| Polarity: | Arrow towards load (current flow direction) |
| Temperature Drift: | +/- 0.07% |
| Operating Temperature Range: | -4 to 158°F (-20 to 70°C) |
| Storage Temperature Range: | -40 to 185°F (-40 to 85°C) |
| Operating/Storage Humidity Range: | 5 to 95%, non-condensing |
| Maximum Elevation: | 9,842 ft (3 Kilometers) |
| Case Material/Flammability Rating: | Orange thermoplastic rubber, flame retardant UL 94 V-0 rated |
| Over Voltage Category: | 1000V CAT III, 600V CATIV |
| Wiring Connections: | Stripped and Tinned Lead Wires |
| | White: Positive (+) |
| Lead Wire Colors: | Brown: Negative (-) |
| | Bare-Shield |
| Lead Wire Size: | 26AWG |
| Cable Size: | 1000V UL STYLE 20940; External diameter 5mm; Wires 2x 26AWG |
| Lead Length: | 6.5 ft (15.5mm) |
| Coil Diameter: | 0.61" (15.5mm) |
| Agency Approvals: | URL, CE and RoSH2 Compliant |
| Product Weight: | RCT16 - 0.2lbs (0.09kg) RCT24 - 0.4lbs (0.18kg) RCT36 - 0.6lbs (0.27kg) RCT47 - 1.0lbs (0.45kg) |





DIMENSIONAL DRAWING



DIMENSIONAL MEASUREMENTS

| Dimensions | RCT16 | RCT24 | RCT36 | RCT47 |
|-------------------|-------------------|-----------------|-----------------|------------------|
| Window Size | 4.17" (106 mm) | 7.01" (178 mm) | 10.67" (271 mm) | 14.53" (369 mm) |
| Coil Length | 15.75" (400 mm) | 23.62" (600 mm) | 35.43" (900 mm) | 47.24" (1200 mm) |
| External Diameter | 5.63" (143 mm) | 8.13" (207 mm) | 11.89" (302 mm) | 15.66" (398 mm) |
| Coil Diameter | 0.61" (15.5 mm) | | | |
| Wire Lead Length | 6.5 FT (2 Meters) | | | |

ORDERING INFORMATION

| Model # | Item # | Output/1000A @ 50Hz | Output/1000A @ 60Hz | Range Calibrated To ¹ |
|------------|--------|---------------------|---------------------|----------------------------------|
| RCT16-1000 | 148147 | 100mV | 120mV | 5 to 1200A |
| RCT16-2500 | 148148 | 40mV | 48mV | 12.5 to 3000A |
| RCT24-1000 | 148149 | 100mV | 120mV | 5 to 1200A |
| RCT24-2500 | 148151 | 40mV | 48mV | 12.5 to 3000A |
| RCT24-5000 | 148152 | 20mV | 24mV | 25 to 6000A |
| RCT36-1000 | 148153 | 100mV | 120mV | 5 to 1200A |
| RCT36-2500 | 148154 | 40mV | 48mV | 12.5 to 3000A |
| RCT36-5000 | 148155 | 20mV | 24mV | 25 to 6000A |
| RCT47-2500 | 148156 | 40mV | 48mV | 12.5 to 3000A |
| RCT47-5000 | 148157 | 20mV | 24mV | 25 to 6000A |

Note¹: The range is when connecting to KW320, KW350 and KW1850.



S77 SOLID CORE

High Accuracy, Measurement Canada Approved



The Solid-Core S77 High Accuracy Current Transformers are designed to convert an AC operating current into a low voltage AC millivolt signal for use with microprocessor-based circuits. These compact and light-weight solid-core current transformers are designed for installation on branch circuits for meter installations that require exceptionally accurate signal transformation. The S77 current transformer has been approved by Measurement Canada to be used in metering applications for installations used for billing purposes. CTs come standard unterminated stripped and tinned lead wires for easy connection to any of the Single or 3 Phase ACI power meter. CT models listed here are compatible with the ACI KW350-P1-D-S-SC, KW320-P1-D-W-SC-XX, KW320-P1-D-W-SC-PC, KW1850-P1-D-W, and KW1850-P1-D-S Power Meters where typical power measurements are required. For best accuracy, CTs should be selected based upon the expected maximum and minimum currents for the targeted application. The acceptable Measurement

Current Range is referenced in the ordering grid table. Please contact ACI for more information regarding Solid-Core S77 High Accuracy Current Transformers.

The Solid Core S77 High Accuracy mV Output Current Transformers are covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's web site, www.workaci.com.

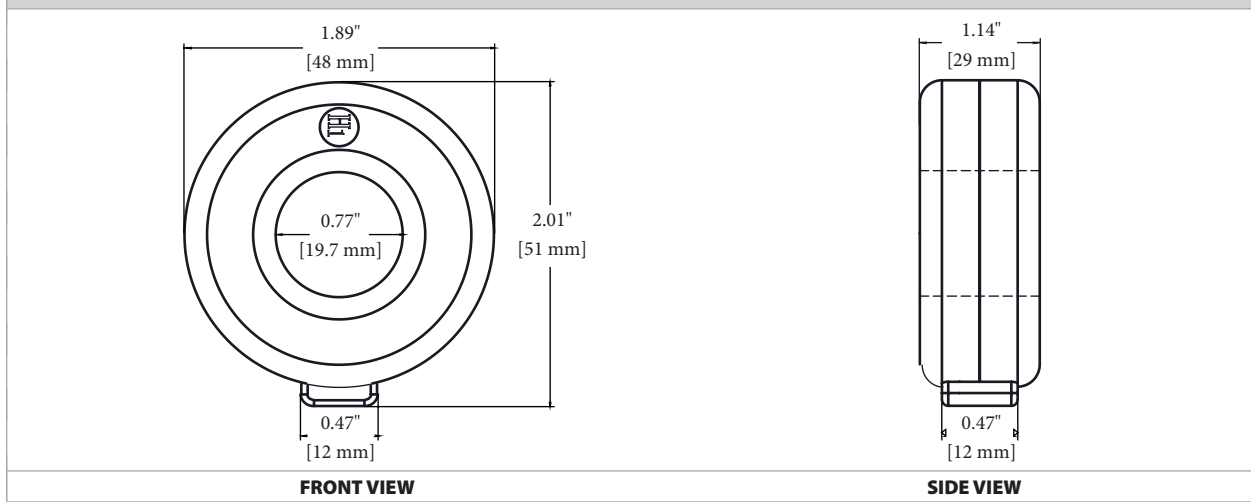
PRODUCT SPECIFICATIONS

| | |
|---|--|
| Monitored Current Type: | AC Current |
| Maximum Working Voltage: | 600 VAC, Category III |
| Core Style: | Solid-Core |
| Rated Output: | 333mV @ 5/20/50/100 Amps (See Ordering Grid) |
| Operating Frequency Range: | 50/60 Hz |
| Withstand Voltage: | 3,000VAC |
| Accuracy: | 0.15% Class IEC 60044-1 |
| Burden: | B0.005 |
| Impulse Insulation (BIL): | 10kV |
| Insulation Resistance: | 50 MΩ |
| Operating Temperature Range: | 5 to 140°F (-15 to 60°C) |
| Storage Temperature Range: | -40 to 185°F (-40 to 85°C) |
| Operating/Storage Humidity Range: | 5 to 95%, non-condensing |
| Maximum Elevation: | 9,842 ft (3 Kilometers) |
| Case Material/Flammability Rating: | Plastic Encapsulated/UL 94V-0 |
| Wiring Connections: | Stripped and Tinned Lead Wires |
| Lead Wire Colors: | White: Positive (+) Black: Negative (-) |
| Wire Size | 18 AWG (0.75 mm ²), UL 1015 |
| Lead Length: | 1' (0.30m) |
| Agency Approvals: | UL2808, 61010-2, CSA 22.2, CE and RoHS Compliant |
| Product Weight: | 0.2lbs (0.09kg) |
| Product Dimensions (D x W) | 2.00" (51.00 mm) x 0.75" (19.00 mm) |





DIMENSIONAL DRAWING



STANDARD ORDERING

| Model # | Item # | Rated Current | Window Size | Output Signal (At Rated Current) |
|-------------------|--------|---------------|------------------|----------------------------------|
| AcuCT-S77-200-333 | 148210 | 200A | 0.77" (19.70 mm) | 333.mV @ 200A |
| AcuCT-S77-100-333 | 148212 | 100A | 0.77" (19.70 mm) | 333 mV @ 100A |



ACUCT REVENUE GRADE

Split-Core, High Accuracy



The Revenue Grade High Accuracy Split-Core Current Transformers are designed to convert an AC operating current into a low voltage AC millivolt signal for use with microprocessor-based circuits that require maximum accuracy and precision. These compact and light-weight split-core current transformers are designed for installation on branch circuits within the electrical panel. The current transformer features a sturdy latch that locks the split-core CT in place using a press-open mechanism for quick installations without disconnecting cables. Split-Core CTs come standard unterminated stripped and tinned lead wires for easy connection to any of the Single or 3 Phase ACI power meter. CT models listed here are compatible with the ACI KW350-P1-D-S-SC, KW320-P1-D-W-SC-XX, KW320-P1-D-W-SC-PC, KW1850-P1-D-W, and KW1850-P1-D-S Power Meters where typical power measurements are required. For best accuracy, CTs should be selected based upon the size of the conductors being monitored by selecting the proper window

size and referencing the expected maximum and minimum currents for the targeted application. The acceptable Measurement Current Range is referenced in the ordering grid table. Please contact ACI for more information regarding the Split-Core Current Transformers.

Applications: Tenant Billing, Energy and Demand Metering, Load Surveys, LEED/Green Projects, ROI / Project Justification

The Split Core High Accuracy mV Output Current Transformers are covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's web site, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|---|---|
| Monitored Current Type: | AC Current |
| Maximum Working Voltage: | 600 VAC, Category III |
| Core Style: | Hinged Split-Core |
| Rated Output: | 333mV @ 50/100/150/200/250/300/400/600/800/1000/2000/4000 Amps (see ordering grid) |
| Operating Frequency Range: | 50/60 Hz |
| Withstand Voltage: | 5,000VAC |
| Sensor Amperage Range: | See Ordering Grid |
| Accuracy1: | 0.5s Class IEC 60044-1 |
| Operating Temperature Range: | 5 to 149°F (-15 to 60°C) |
| Storage Temperature Range: | -40 to 185°F (-40 to 85°C) |
| Operating / Storage Humidity Range: | 5 to 95%, non-condensing |
| Maximum Elevation: | 9,842 ft (3 Kilometers) |
| Case Material / Flammability Rating: | Square Pressed / UL 94V-0 |
| Wiring Connections: | Stripped and Tinned Lead Wires |
| Lead Wire Colors: | White = Positive (+) Black = Negative (-) |
| Wire Size: | 22 AWG (0.32 mm ²), UL 1015 |
| Lead Length: | 8 ft (2.5m) |
| Agency Approvals: | UL2808, 61010-1 and CSA 22.2 |
| Product Weight: | AcuCT-075R - 0.4lbs (0.18kg) AcuCT-100R - 0.4lbs (0.18kg) AcuCT-125R - 0.4lbs (0.18kg) AcuCT-200R - 1.2lbs (0.54kg) AcuCT-3135R - 3.0lbs (1.36kg) AcuCT-4161R - 5.8lbs (2.63kg) AcuCT-5170R - 6.3lbs (2.85kg) |
| Product Dimensions (L x W x H): | AcuCT-075R - 2.3" (58.00 mm) x 2.3" (58.00 mm) x 0.9" (22.00 mm) AcuCT-100R - 2.6" (65.00 mm) x 2.6" (65.00 mm) x 0.9" (22.00 mm) AcuCT-125R - 3.2" (82.00 mm) x 3.2" (82.00 mm) x 0.9" (22.00 mm) AcuCT-200R - 4.4" (111.00 mm) x 4.4" (111.00 mm) x 1.25" (32.00 mm) AcuCT-3135R - 5.7" (144.00 mm) x 6.1" (154.00 mm) x 1.25" (32.00 mm) AcuCT-4161R - 7.3" (185.00 mm) x 9.3" (235.00 mm) x 1.8" (45.00 mm) AcuCT-5170R - 8.3" (210.00 mm) x 10.2" (260.00 mm) x 1.8" (45.00 mm) |





STANDARD ORDERING

| Model # | Item # | Rated Current | Window Size | Output Signal (At Rated Current) |
|----------------------|--------|---------------|-----------------------------------|-------------------------------------|
| AcuCT-075R-50-333 | 148213 | 50A | 0.75" (19.05 mm) | 333 mV @ 50A |
| AcuCT-075R-100-333 | 148214 | 100A | 0.75" (19.05 mm) | 333 mV @ 100A |
| AcuCT-075R-150-333 | 148215 | 150A | 0.75" (19.05 mm) | 333 mV @ 150A |
| AcuCT-100R-100-333 | 148216 | 100A | 0.75" (19.70 mm) | 333 mV @ 100A |
| AcuCT-100R-200-333 | 148217 | 200A | 1.00" (25.40 mm) | 333 mV @ 200A |
| AcuCT-100R-250-333 | 148218 | 250A | 1.00" (25.40 mm) | 333 mV @ 250A |
| AcuCT-125R-100-333 | 148220 | 100A | 1.25" (31.75 mm) | 333 mV @ 100A |
| AcuCT-125R-200-333 | 148221 | 200A | 1.25" (31.75 mm) | 333 mV @ 200A |
| AcuCT-125R-300-333 | 148219 | 300A | 1.25" (31.75 mm) | 333 mV @ 300A |
| AcuCT-125R-400-333 | 148222 | 400A | 1.25" (31.75 mm) | 333 mV @ 400A |
| AcuCT-200R-400-333 | 148223 | 400A | 2.00" (50.80 mm) | 333 mV @ 400A |
| AcuCT-200R-600-333 | 148224 | 600A | 2.00" (50.80 mm) | 333 mV @ 600A |
| AcuCT-200R-800-333 | 148225 | 800A | 2.00" (50.80 mm) | 333 mV @ 800A |
| AcuCT-200R-1000-333 | 148226 | 1000A | 2.00" (50.80 mm) | 333 mV @ 1000A |
| AcuCT-3135R-1000-333 | 148234 | 1000A | 3.1" (78.74mm) X 3.5" (88.90mm) | 333 mV @ 1000A |
| AcuCT-4161R-2000-333 | 148236 | 2000A | 4.1" (104.14mm) X 6.1" (154.94mm) | 333 mV @ 2000A |
| AcuCT-5170R-4000-333 | 148237 | 4000A | 5.1" (129.54mm) X 7.0" (177.80mm) | 333 mV @ 4000A |







COMMAND RELAY

CR Series



The Command Relay Series brings control (start/stop) functionality to your load trending and fan/pump/motor status monitoring and control applications. Each unit has a Form 1C - SPDT relay which provides both a Normally-Open "N/O" and a Normally-Closed "N/C" contact in a single device. The patented 35mm Din-Rail mounting flange will allow you to use the A/CR Series with any ACI current sensor or switch that incorporates the 35 mm din rail mounting flange. The stacking feature allows you to reduce the required panel space, since up to two devices may be stacked together during installation and saves cost since two devices can be installed as a single component. An added benefit of the A/CR Series command relays separate from the current sensor or switch is that it allows you to mix and match any command relay model with any current sensor or switch model reducing the number of SKU's needed. All of

the command relays can also be used in panel mount applications in place of a typical general purpose relay, since they have been tested to meet the UL 508 Industrial Equipment requirements. Please contact ACI for more information regarding the Command Relays or to discuss your application in further detail.

Applications: Start/Stop/Status, Motors, Pumps, Fans, Compressors, Din Rail Mountable Control Relay, Industrial Equipment

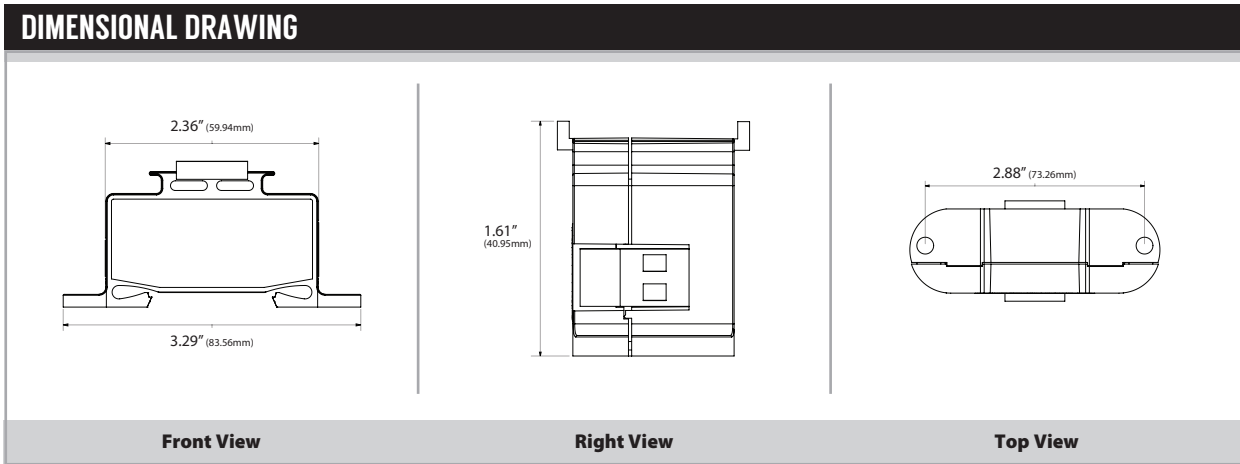
The Command Relays are covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|--|--|
| Relay Type: | Electromechanical Relay |
| Nominal Relay Coil Voltage Rated Current: | A/CR-DC-5A: 23 to 31.2 VDC, 17 mA @ 24 VDC, 60 Hz A/CR-DC-12A: 20 to 31.2 VDC, 17 mA @ 24 VDC, 60 Hz A/CR-12DC-12A: 10 to 15.6 VDC, 33.33 mA @ 12 VDC, 60 Hz A/CR-24AC-10A: 16 to 26.4 VAC, 28.30 mA @ 24 VAC, 60 Hz or 31.30 mA @ 24 VAC, 50 Hz A/CR-115AC-8A: 80 to 132 VAC, 5.35 mA @ 115 VAC, 60 Hz or 5.85 mA @ 115 VAC, 50 Hz A/CR-230AC-8A: 165 to 264 VAC, 2.76 mA @ 230 VAC, 60 Hz or 3.00 mA @ 230 VAC, 50 Hz |
| Contact Form: | Form 1C (SPDT Contact) |
| Relay Contact Rating: | See Ordering Grid on Back of Data Sheet |
| Maximum Contact Switching Voltage: | See Ordering Grid on Back of Data Sheet |
| Maximum Contact Switching Current: | See Ordering Grid on Back of Data Sheet |
| Status LED Indication *: | Red LED "On": Relay Energized "COM to N/O" Red LED "Off": Relay De-Energized "Com to N/C" |
| Electrical Life (Relay): | > 30,000 Cycles, typical |
| Mechanical Life (Relay): | > 10,000,000 Cycles, typical |
| Din Rail Size: | 35 mm (U.S. Patent No. 7,416,421) |
| Operating Temperature Range: | 5 to 104°F (-15 to 40°C) |
| Operating Humidity Range: | 0 to 95%, non-condensing |
| Storage Temperature Humidity Range: | 32 to 104°F (0 to 40°C) 20% to 85% RH, non-condensing |
| Enclosure Material Flammability Rating: | PC/ABS (Polycarbonate/ABS Blend) UL94-V0 |
| Wiring Connections: | Screw Terminal Blocks |
| Conductor Size: | Relay Coil: 18 to 24 AWG (2.5 mm ² to 0.20 mm ²) Copper Wires only Relay Contacts: 12 to 16 AWG (4.0 mm ² to 0.20 mm ²) Copper Wires only |
| Terminal Block Torque Rating: | 4.43 to 5.31 in-lbs. (0.5 to 0.6 Nm) |
| Agency Approvals: | UL/CUL US Listed (UL 508) Ind. Control Equipment (File # E179139), CE, RoHS2, WEEE |
| Product Weight: | A/CR-DC-5A: 0.135 lbs. (0.061 kg) A/CR-12DC-12A & A/CR-24AC-10A: 0.150 lbs. (0.068 kg) A/CR-DC-12A, A/CR-115AC-8A & A/CR-230AC-8A: 0.145 lbs. (0.066 kg) |
| Product Dimensions (L x W x H): | 3.283" (83.39 mm) x 1.305" (33.15 mm) x 1.565" (39.75 mm) |

Note: The LED should not be used to determine if current is present





| STANDARD ORDERING | | | | | | Model # Example: A/CR-DC-5A -OR- 126773 |
|----------------------|--------|-------------------|--|---------------------|---------------------|--|
| Model # | Item # | Nom. Coil Voltage | Contact Rating | Max. Switch Voltage | Max. Switch Current | |
| A/CR-DC-5A | 126773 | 24 VDC | 5A @ 250 VAC* 5A @ 125 VAC** 5A @ 30 VDC** ¼ HP, 120/250/277 VAC | 250 VAC, 30 VDC | 5A (N/O) / 3A (N/C) | |
| A/CR-DC-12A | 128210 | 24 VDC | 12A @ 250 VAC* 12A @ 250 VAC** 12A @ 30 VDC** 1 HP, 120/240/480 VAC (N/O) ½ HP, 120/240/480 VAC (N/C) | 250 VAC, 30 VDC | 12 Amps | |
| A/CR-12DC-12A | 129176 | 12 VDC | 12A @ 250 VAC* 12A @ 250 VAC** 12A @ 30 VDC** 1 HP, 120/240/480 VAC (N/O) ½ HP, 120/240/480 VAC (N/C) | 250 VAC, 30 VDC | 12 Amps | |
| A/CR-24AC-10A | 128214 | 24 VAC | 10A @ 250 VAC* 10A @ 250 VAC** 10A @ 30 VDC** 1 HP, 120/240/480 VAC (N/O) ½ HP, 120/240/480 VAC (N/C) | 250 VAC, 30 VDC | 10 Amps | |
| A/CR-115AC-8A | 128215 | 115 VAC | 8A @ 250 VAC* 8A @ 250 VAC** 8A @ 30 VDC* 1 HP, 120/240/480 VAC (N/O) ½ HP, 120/240/480 VAC (N/C) | 250 VAC, 30 VDC | 8 Amps | |
| A/CR-230AC-8A | 128216 | 230 VAC | 8A @ 250 VAC* 8A @ 250 VAC** 8A @ 30 VDC** 1 HP, 120/240/480 VAC (N/O) ½ HP, 120/240/480 VAC (N/C) | 250 VAC, 30 VDC | 8 Amps | |

Note*: General Use | **Note**:** Resistive

Command Relays are not intended to be used in either Life / Safety Applications or Hazardous / Classified Locations

Revision C000001 | Rev 1.0





PAM SERIES

Multi-Voltage Control Relays

The PAM Relays are encapsulated multi-voltage devices with “flying” leads that offer versatile, reliable performance in a convenient package. The PAM-1 and PAM-2 both have a red LED which indicates when the relay coil is energized. The PAM Relays are packaged with a self-tapping screw and a piece of double sided tape for easy installation almost anywhere. The relays are also packaged with wire-nuts to aid installation. PAM Relays are ideal for applications where remote relays are required for fire alarm control or status feedback. They are only suitable for use within UL864 applications and installed in accordance with NFPA 70[®] and NFPA 72[®]. The PAM series of relay including the PAM-1 are marked for DRY INDOOR USE and are not intended or listed for use in any Marine or SIL rated applications which void the parameters of a dry indoor installation.

Applications: Temperature Control, Fire Alarm, Security, Energy Management, Lighting Control Systems and Building Automation Systems

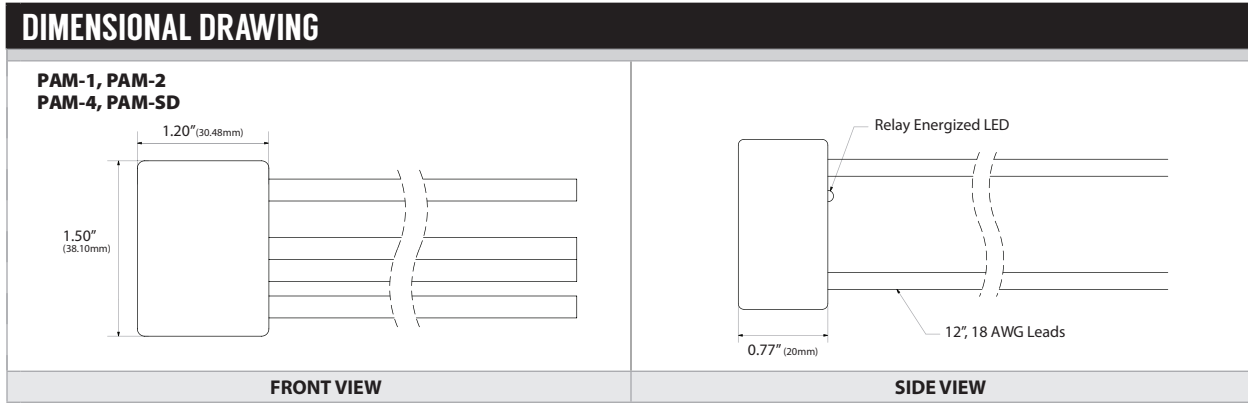
The PAM Relays are covered by ACI's Two (2) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's web site, workaci.com.

PRODUCT SPECIFICATIONS

| | |
|--|--|
| Relay Type: | Electromechanical Relay |
| Nominal Relay Coil Voltage (Rated Current): | PAM-1: 24 VDC (20 mA), 24 VAC (50 mA), 120 VAC (50 mA) PAM-2: 12 VDC (20 mA), 24 VDC (20 mA) PAM-4: 12-40 VDC (20 mA) PAM-SD: 20-32 VDC (15 mA – 25 mA) |
| Contact Form: | Form 1C (SPDT Contact) |
| Maximum Contact Switching Voltage: | 120 VAC / 24 VDC |
| Maximum Contact Switching Current: | See Ordering Grid on Back of Data Sheet |
| Relay Pull-In Time: | PAM-1: <1 Second (24 VDC, 24 VAC, 120 VAC) PAM-2: <1 Second (12 / 24 VDC) PAM-4: <1 Second (12 VDC), <3 Second (24 VDC), <1.5 Second (32 VDC) PAM-SD: <1 Second (24-32 VDC) |
| Status LED Indication: | See Ordering Grid on Back of Data Sheet Red LED “On”: (Relay Energized “COM to N/O”) Red LED “Off”: (Relay De-Energized “Com to N/C”) |
| Electrical Life (Relay): | > 100,000 Cycles, typical |
| Mechanical Life (Relay): | > 10,000,000 Cycles, typical |
| Wire Lead Length Size: | 12" 18AWG |
| Operating Temperature Range: | 32 to 120°F (0 to 49°C) |
| Operating Humidity Range: | 0 to 100%, condensing |
| Construction: | 100% potted (sealed) with flying leads |
| Mounting: | Pre-drilled mounting screw hole and self tapping screw provided Double sided tape provided |
| Agency Approvals: | UL: U0XX/7.S3403* UL: UUKL** MEA: 73-92-E Vol. 21 CSFM: 7300-1004:101 |
| Product Weight: | 0.16 lbs (0.073 kg) |
| Product Dimensions: | (L) 1.50" (38 mm) x (W) 1.20" (31 mm) x (H) 0.77" (20 mm) |

Note*: U0XX = Control Unit Accessories, System | 7 = Certified for Canada | Note**: UUKL (UL864) = Smoke Control System Equipment System





STANDARD ORDERING

Model # Example: **PAM-SD** -OR- **106643**

| Model # | Item # | Nom. Coil Voltage | Contact Form | Max. Contact Rating | LED Indicator | Wire Leads |
|---------------|--------|---------------------------|------------------------|---|---------------|--|
| PAM-1 | 106640 | 24 VDC 24VAC 120VAC | Form 1C (SPDT Contact) | 250 μ @ 5 VDC (PF* = 0.35) 7A @ 24 VDC (PF* = 0.35) 10A @ 120 VAC | Yes | 6 "flying" leads 12" / 18 AWG Wire-nuts provided |
| PAM-2 | 106642 | 12-24 VDC | Form 1C (SPDT Contact) | 250 μ @ 5 VDC (PF* = 0.35) 7A @ 24 VDC (PF* = 0.35) 7A @ 120 VAC (PF* = 0.35) | Yes | 6 "flying" leads 12" / 18 AWG Wire-nuts provided |
| PAM-4 | 106641 | 12-40 VDC | Form 1C (SPDT Contact) | 250 μ @ 5 VDC 7A @ 24 VDC 7A @ 120 VAC | No | 5 "flying" leads 12" / 18 AWG Wire-nuts provided |
| PAM-SD | 106643 | 20-32 VDC | Form 1C (SPDT Contact) | 250 μ @ 5 VDC (PF* = 0.35) 7A @ 24 VDC (PF* = 0.35) 7A @ 120 VAC (PF* = 0.35) | No | 7 "flying" leads 12" / 18 AWG Wire-nuts provided |

PF = Power Factor | **Note***: PAM Relays are not intended to be used in either Life / Safety Applications or Hazardous / Classified Locations



CO ROOM

Carbon Monoxide Room Sensor

The CO Room Series monitors carbon monoxide (CO) levels and is designed for the continuous monitoring of vehicle exhaust in non-hazardous areas. This series uses a wide spectrum, long life electrochemical sensor to measure the amount of carbon monoxide in the environment. It is offered with an operating range of 0 to 125 ppm. Room CO transmitters are offered in a standard NEMA 1 rated ABS Polycarbonate plastic enclosure. Other options include an LCD display with (2) SPDT Form 1C relays and a buzzer. Refer to all applicable Federal, State, Provincial and Local Health and Safety laws and regulations before using these products. CO-R is not compatible with the Q4C-II or Q-controllers.

Applications: Parking Garages, Arenas, Kitchens, Laundry Rooms, Warehouses, Loading Docks, Service Garages, School Bus Parking Areas

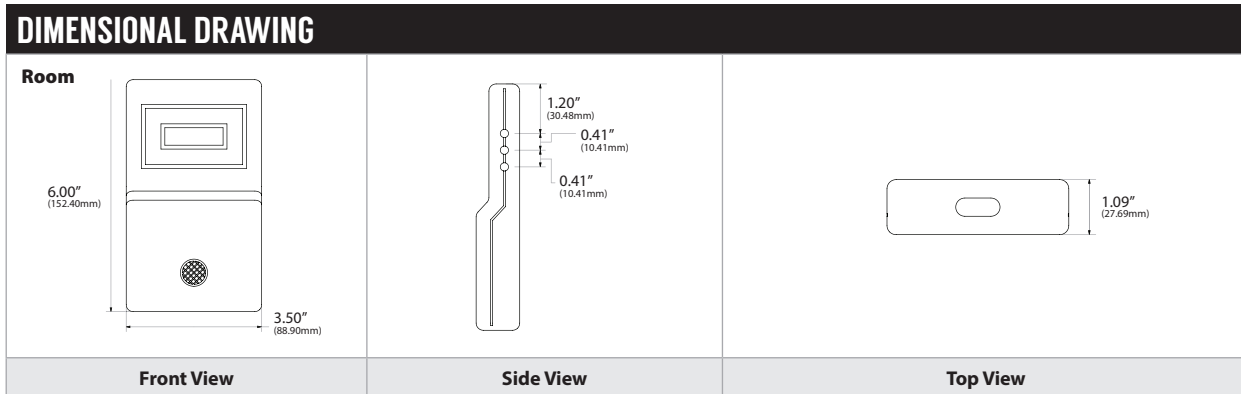
The CO Room Series Gas Transmitters are covered by ACI's Two (2) Year Limited Warranty against defects in material and workmanship from the date of shipment with the exception of the Sensor Modules (Electrochemical/Toxic: Six Months and Catalytic/Combustible: One Year). The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, workaci.com.

PRODUCT SPECIFICATIONS

| | |
|---------------------------------------|---|
| Supply Voltage: | 24 VAC +/- 10% Floating; 24 VAC +/- 10%, One side Grounded; 24 VDC |
| Supply Current: | 100 mA nominal 250 mA maximum |
| Power Usage: | 6.6 Watts maximum |
| Operating Temperature: | -4°F to 104°F (-20°C to 40°C) |
| Operating Humidity: | 15 to 90% RH Continuous, non-condensing; 0 to 99% RH Intermittent, non-condensing |
| Accuracy: | +/- 2.5% of Reading |
| Repeatability: | +/- 1% of Reading |
| Operating Pressure: | Atmospheric +/- 10% |
| Response Time: | Less than 60 Seconds for 90% of step change |
| Sensor Type: | Electrochemical |
| Sensor Life: | ~ 5 years under Normal Conditions |
| Factory Set: | 0 – 125 ppm / 0 – 250 ppm Field Adjustable |
| Coverage Area: | 7500 sq. ft; 49' Radius |
| Indicators: | Alphanumeric, 2 line X 8 digit LCD / (2) Red LED's for Relay Status |
| Mounting Height: | 4' to 6' above the floor |
| Analog Outputs: | 4-20 mA or 2-10V Jumper Selectable |
| Relay & Buzzer (Optional): | Two SPDT Form C, Dry Contact, 1A @ 30 VDC/0.5A @ 125 VAC (Resistive Load), Buzzer Rating 85 dB @ one foot |
| Relay Life Expectancy: | 200,000 cycles minimum with 1A @ 30 VDC |
| Time Delays: | Actuation / De-Actuation: 0 to 60 Minutes in 5 minute Increments |
| Storage: | 32° to 68°F (0°C to 20°C) |
| Shelf Life: | 6 Months |
| Enclosure: | Room: Polycarbonate/ABS Blend, UL94V-0 |
| Terminal Blocks: | Fixed, Power wiring: 16 to 26 AWG (0.2 to 1.00 mm ²) Shielded Twisted Pair |
| Terminal Block Torque Rating: | 0.37 ft-lbs (0.5n-3m) Nominal |
| RS-485 Wiring: | Beldon 9841 or equal |
| Product Dimensions: | Room: (H) 6.00" (152.4 mm) x (W) 3.5" (88.9 mm) x (D) 1.09" (27.87 mm) |
| Product Weight: | Room: 0.62 lbs (281.2 g) |

Note: Sensors and system should be scheduled to be tested for accuracy and functionality every 6 months for toxic, and every 3 months for combustible | Recalibrate or replace sensor boards if necessary | When installed @ > 3000' above sea level, the gas transmitters must be verified for accuracy & re-calibrated as needed after installation





STANDARD ORDERING

Model # Example: **CO-R** -OR- **102151**

| Model # | Item # | Description |
|------------------|--------|---|
| CO-R | 102151 | CO Room Mount, Standard Room Enclosure |
| CO-R-RB-D | 107556 | CO Room Mount with Display, Relay, Buzzer, Standard Enclosure |

ACCESSORIES ORDERING

Model # Example: **83830-020-000** -OR- **127649**

| Model # | Item # | Description |
|------------------------|--------|--------------------------------|
| 83830-020-000 | 127649 | Calibration Adapter |
| 6300-0041 | 134187 | Replacement CO Sensing Element |
| CUSTOM CAL KIT* | 148426 | Gas Cal Kit |

Note*: Refer to GAS CAL KIT data sheet for specific's



CO DUCT

Carbon Monoxide Duct Sensor

The CO Duct Series monitors carbon monoxide (CO) levels and is designed for the continuous monitoring of vehicle exhaust in non-hazardous areas. This series uses a wide spectrum, long life electrochemical sensor to measure the amount of carbon monoxide in the environment. It is offered with an operating range of 0 to 125 ppm. Duct CO transmitters are offered in a standard NEMA 1 rated ABS Polycarbonate plastic enclosure. Other options include an LCD display with (2) SPDT Form 1C relays and a buzzer. Refer to all applicable Federal, State, Provincial and Local Health and Safety laws and regulations before using these products. CO-D is not compatible with the Q4C-II or Q-Controllers.

Applications: Parking Garages, Arenas, Kitchens, Laundry Rooms, Warehouses, Loading Docks, Service Garages, School Bus Parking Areas

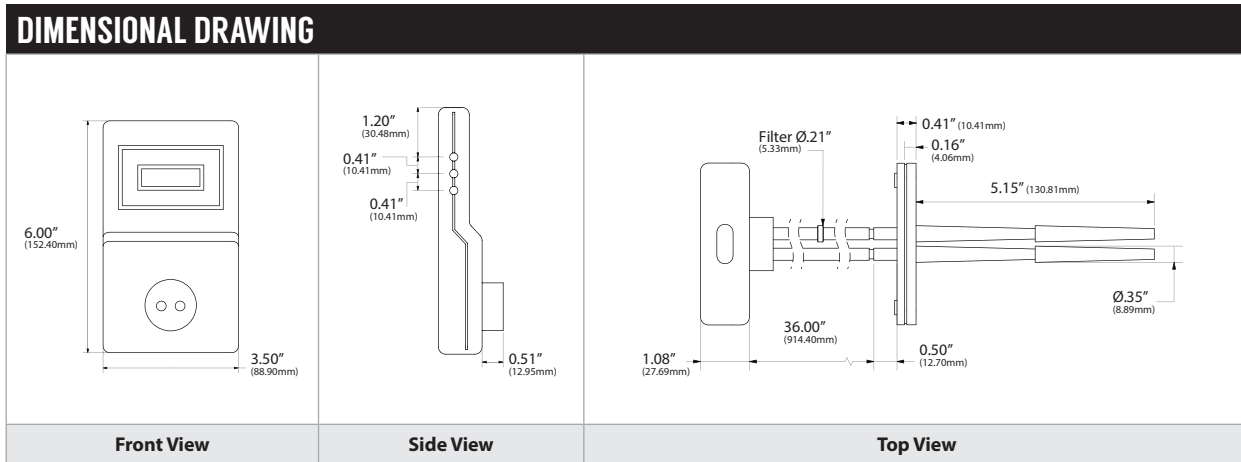
The CO Duct Series Gas Transmitters are covered by ACI's Two (2) Year Limited Warranty against defects in material and workmanship from the date of shipment with the exception of the Sensor Modules (Electrochemical/Toxic: Six Months and Catalytic/Combustible: One Year). The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, workaci.com.

PRODUCT SPECIFICATIONS

| | |
|---------------------------------------|---|
| Supply Voltage: | 24 VAC +/- 10% Floating; 24 VAC +/- 10%, One side Grounded; 24 VDC |
| Supply Current: | 100 mA nominal 250 mA maximum |
| Power Usage: | 6.6 Watts maximum |
| Operating Temperature: | -4°F to 104°F (-20°C to 40°C) |
| Operating Humidity: | 15 to 90% RH Continuous, non-condensing; 0 to 99% RH Intermittent, non-condensing |
| Accuracy: | +/- 2.5% of Reading |
| Repeatability: | +/- 1% of Reading |
| Operating Pressure: | 1 Atmosphere (14.7 psi) +/- 10% |
| Response Time: | Less than 60 Seconds for 90% of step change |
| Sensor Type: | Electrochemical |
| Sensor Life: | ~ 5 years under Normal Conditions |
| Factory Set: | 0 – 125 ppm / 0 – 250 ppm Field Adjustable |
| Indicators: | Alphanumeric – 2 line X 8 digit LCD / (2) Red LED's for Relay Status |
| Analog Outputs: | 4-20 mA or 2-10V Jumper Selectable |
| Relay & Buzzer (Optional): | Two SPDT Form C, Dry Contact, 1A @ 30 VDC/0.5A @ 125 VAC (Resistive Load), Buzzer Rating 85 dB @ one foot |
| Relay Life Expectancy: | 200,000 cycles minimum with 1A @ 30 VDC |
| Time Delays: | Actuation / De-Actuation: 0 to 60 Minutes in 5 minute Increments |
| Storage: | 32° to 68°F (0°C to 20°C) |
| Shelf Life: | 6 Months from date of purchase |
| Duct Kit Tubing Material: | Vinyl |
| Duct Kit Tubing Length: | 18" |
| Duct Kit In-Line Filter: | 5 micron |
| Duct Kit Pitot Tube: | 3 5/32", Polycarbonate/ABS Blend / UL94V |
| Enclosure: | Polycarbonate/ABS Blend, UL94V-0 |
| Terminal Blocks: | Fixed, Power wiring: 16 to 26 AWG (0.2 to 1.00 mm ²) Shielded Twisted Pair |
| Terminal Block Torque Rating: | 0.37 ft-lbs (0.5n-3m) Nominal |
| RS-485 Wiring: | Beldon 9841 or equal |
| Product Dimensions: | (H) 6.00" (152.4 mm) x (W) 3.5" (88.9 mm) x (D) 1.6" (40.6 mm) |
| Product Weight: | 1.00 lbs (0.45 kg) |

Note: Sensors and system should be scheduled to be tested for accuracy and functionality every 6 months for toxic, and every 3 months for combustible | Recalibrate or replace sensor boards if necessary | When installed @ > 3000' above sea level, the gas transmitters must be verified for accuracy & re-calibrated as needed after installation





STANDARD ORDERING

| Model # | Item # | Description |
|-----------|--------|---|
| CO-D | 102147 | CO Duct Mount, Standard Enclosure |
| CO-D-RB-D | 107557 | CO Duct Mount with Display, Relay, Buzzer, Standard Enclosure |

ACCESSORIES ORDERING

| Model # | Item # | Description |
|-----------------|--------|--------------------------------|
| 83830-020-000 | 127649 | Calibration Adapter |
| 6300-0041 | 134187 | Replacement CO Sensing Element |
| CUSTOM CAL KIT* | 148426 | Gas Cal Kit |

Note*: Refer to GAS CAL KIT data sheet for specific's



NO2 ROOM

Nitrogen Dioxide Room Sensor

The NO2 Room Series monitors nitrogen dioxide (NO2) levels and is designed for the continuous monitoring of vehicle exhaust in non-hazardous areas. This series uses a wide spectrum, electrochemical sensor to measure the amount of nitrogen dioxide in the environment. It is offered with an operating range of 0 to 6 ppm. ACI's NO2 Room transmitter is offered in a standard NEMA 1 rated ABS Polycarbonate plastic enclosure. Other options include an LCD display with (2) SPDT Form 1C relays and a buzzer. Refer to all applicable Federal, State, Provincial and Local Health and Safety laws and regulations before using these products. NO2-R is not compatible with the Q4C-II or Q-controllers.

Applications: Parking Garages, Arenas, Warehouses, Loading Docks, Service Garages, School Bus Parking Areas

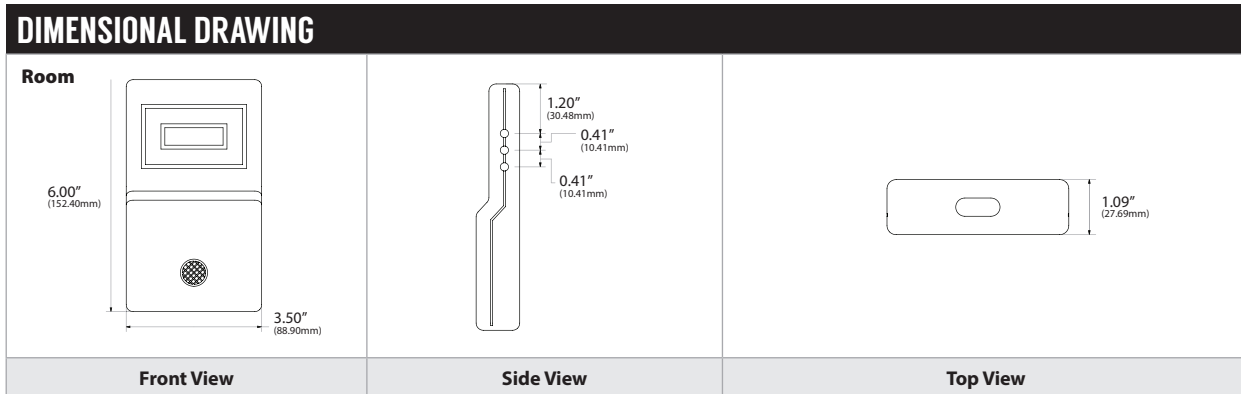
The NO2 Room Series Gas Transmitters are covered by ACI's Two (2) Year Limited Warranty against defects in material and workmanship from the date of shipment with the exception of the Sensor Modules (Electrochemical/Toxic: Six Months and Catalytic/Combustible: One Year). The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, workaci.com.

PRODUCT SPECIFICATIONS

| | |
|---------------------------------------|---|
| Supply Voltage: | 24 VAC +/- 10% Floating; 24 VAC +/- 10%, One side Grounded; 24 VDC |
| Supply Current: | 100 mA nominal 250 mA maximum |
| Power Usage: | 6.6 Watts maximum |
| Operating Temperature: | -4°F to 104°F (-20°C to 40°C) |
| Operating Humidity: | 15 to 90% RH Continuous, non-condensing; 0 to 99% RH Intermittent, non-condensing |
| Accuracy: | +/- 2.5% of Reading |
| Repeatability: | +/- 1% of Reading |
| Operating Pressure: | Atmospheric +/- 10% |
| Response Time: | Less than 60 Seconds for 90% of step change |
| Sensor Type: | Electrochemical |
| Sensor Life: | 2-3 years under Normal Conditions |
| Factory Set Range: | 0 to 6 ppm 0 to 10 ppm Field Adjustable |
| Coverage Area: | 7500 sq. ft; 49' Radius |
| Indicators: | Alphanumeric, 2 line x 8 digit LCD / (2) Red LED's for Relay Status |
| Mounting Height: | 6 to 18" above the floor |
| Analog Outputs: | Analog 4-20 mA or 2-10V Jumper Selectable |
| Relay & Buzzer (Optional): | Two SPDT Form C, Dry Contact, 1A @ 30 VDC/0.5A @ 125 VAC (Resistive Load), Buzzer Rating 85 dB @ one foot |
| Relay Life Expectancy: | 200,000 cycles minimum with 1A @ 30 VDC |
| Time Delays: | Actuation / De-Actuation: 0 to 60 Minutes in 5 minute Increments |
| Storage: | 32° to 68°F (0°C to 20°C) |
| Unit Shelf Life: | 6 months from date of purchase |
| Enclosures: | Room: Polycarbonate/ABS Blend |
| Terminal Blocks: | Power wiring: 16 to 26 AWG (0.2 to 1.00 mm ²) Shielded Twisted Pair |
| Terminal Block Torque Rating: | 0.37 ft-lbs (0.5n-3m) Nominal |
| Communication Wiring: | Beldon 9841 or equal |
| Product Dimensions: | Room: (H) 6.00" (152.4 mm) x (W) 3.5" (88.9 mm) x (D) 1.09" (27.87 mm) |
| Product Weight: | Room: 0.62 lbs (281.2 g) |

Note: Sensors and system should be scheduled to be tested for accuracy and functionality every 6 months for toxic, and every 3 months for combustible | Recalibrate or replace sensor boards if necessary | When installed @ > 3000' above sea level, the gas transmitters must be verified for accuracy & re-calibrated as needed after installation





STANDARD ORDERING

Model # Example: **NO2-R-4X** -OR- **111575**

| Model # | Item # | Description |
|-------------------|--------|---|
| NO2-R | 102593 | NO2 Room Mount, Standard Room Enclosure |
| NO2-R-RB-D | 108397 | NO2 Room Mount with Display, Relays (2 x SPDT), Buzzer, Standard Room Enclosure |

ACCESSORIES ORDERING

Model # Example: **83830-020-000** -OR- **127649**

| Model # | Item # | Description |
|------------------------|--------|---------------------------------|
| 83830-020-000 | 127649 | Calibration Adapter |
| 6300-0035 | 128873 | Replacement NO2 Sensing Element |
| CUSTOM CAL KIT* | 148426 | Gas Cal Kit |

Note*: Refer to GAS CAL KIT data sheet for specific's



NO2 DUCT

Nitrogen Dioxide Duct Sensor

The NO2 Duct Series monitors nitrogen dioxide (NO2) levels and is designed for the continuous monitoring of vehicle exhaust in non-hazardous areas. This series uses a wide spectrum electrochemical sensor to measure the amount of nitrogen dioxide in the environment. It is offered with an operating range of 0 to 6 ppm. The Duct NO2 transmitter is offered in a standard NEMA 1 rated ABS Polycarbonate plastic enclosure. Other options include an LCD display with (2) SPDT Form 1C relays and a buzzer. Refer to all applicable Federal, State, Provincial and Local Health and Safety laws and regulations before using these products. NO2-D is not compatible with the Q4C-II or Q-Controllers.

Applications: Parking Garages, Arenas, Warehouses, Loading Docks, Service Garages, School Bus Parking Areas

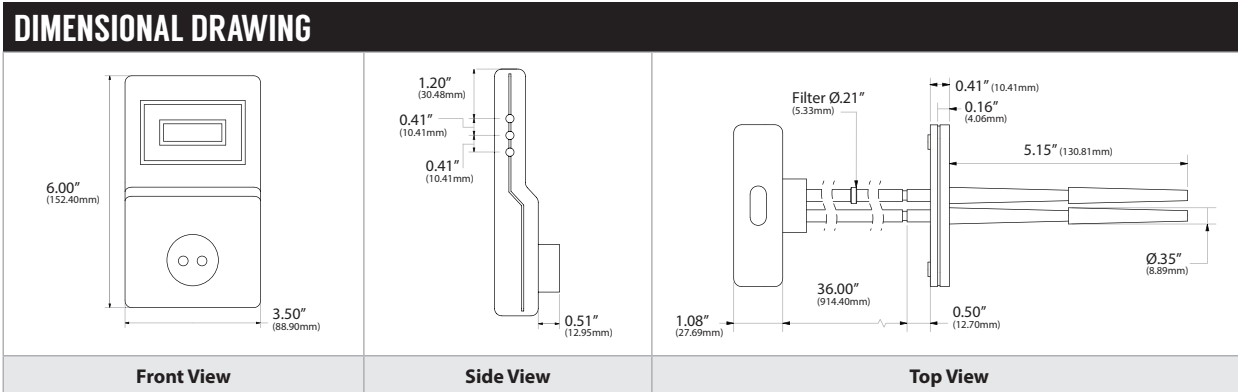
The NO2 Duct Series Gas Transmitters are covered by ACI's Two (2) Year Limited Warranty against defects in material and workmanship from the date of shipment with the exception of the Sensor Modules (Electrochemical/Toxic: Six Months and Catalytic/Combustible: One Year). The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, workaci.com.

PRODUCT SPECIFICATIONS

| | |
|--|---|
| Supply Voltage: | 24 VAC +/- 10% Floating; 24 VAC +/- 10%, One side Grounded; 24 VDC |
| Supply Current: | 100 mA nominal 250 mA maximum |
| Power Usage: | 6.6 Watts maximum |
| Operating Temperature: | -4°F to 104°F (-20°C to 40°C) |
| Operating Humidity: | 15 to 90% RH Continuous, non-condensing; 0 to 99% RH Intermittent, non-condensing |
| Accuracy: | +/- 2.5% of Reading |
| Repeatability: | +/- 1% of Reading |
| Operating Pressure: | Atmospheric +/- 10% |
| Response Time: | Less than 60 Seconds for 90% of step change |
| Sensor Type: | Electrochemical |
| Sensor Life: | 2-3 years under Normal Conditions |
| Factory Set Range: | 0 to 6 ppm 0 to 10 ppm Field Adjustable |
| Indicators: | Alphanumeric, 2 line X 8 digit LCD / (2) Red LED's for Relay Status |
| Analog Outputs: | 4-20 mA or 2-10V Jumper Selectable |
| Relay & Buzzer (Optional): | Two SPDT Form C, Dry Contact, 1A @ 30 VDC/0.5A @ 125 VAC (Resistive Load), Buzzer Rating 85 dB @ one foot |
| Relay Life Expectancy: | 200,000 cycles minimum with 1A @ 30VDC |
| Time Delays: | Actuation / De-Actuation: 0 to 60 Minutes in 5 minute Increments |
| Storage: | 32°F to 68°F |
| Unit Shelf Life: | 6 months from date of purchase |
| Duct Kit Tubing Material: | Vinyl |
| Duct Kit Tubing Length: | 18" |
| Duct Kit In-Line Filter: | 5 micron |
| Duct Kit Pitot Tube: | 3 5/32", Polycarbonate/ABS Blend / UL94V |
| Enclosure: | Polycarbonate/ABS Blend, Fire Retardant |
| Terminal Blocks: | Power wiring: 16 to 26 AWG (0.2 to 1.00 mm ²) Shielded Twisted Pair |
| Terminal Block Torque Rating: | 0.37 ft-lbs (0.5n-3m) Nominal |
| Communication Wiring: | Beldon 9841 or equal |
| Equipment Needed For Calibration: | 0.5 lpm Regulator, zero & span gas (supplied by local vendor) Calibration adapter (Part # 83830-020-000) |
| Replacement NO2 Sensor: | Part# 6300-0035 |
| Product Dimensions: | (H) 6.00" (152.4 mm) x (W) 3.5" (88.9 mm) x (D) 1.6" (40.6 mm) |
| Product Weights: | 1.00 lbs (0.45 kg) |

Note: Sensors and system should be scheduled to be tested for accuracy and functionality every 6 months for toxic, and every 3 months for combustible | Recalibrate or replace sensor boards if necessary | When installed @ > 3000' above sea level, the gas transmitters must be verified for accuracy & re-calibrated as needed after installation





STANDARD ORDERING

Model # Example: **NO2-D-RB-D** -OR- **113012**

| Model # | Item # | Description |
|-------------------|--------|---|
| NO2-D | 109680 | NO2 Duct Mount, Standard Enclosure |
| NO2-D-RB-D | 113012 | NO2 Duct Mount with Display, Relays (2x SPDT), Buzzer, Standard Enclosure |

ACCESSORIES ORDERING

Model # Example: **83830-020-000** -OR- **127649**

| Model # | Item # | Description |
|------------------------|--------|--------------------------------|
| 83830-020-000 | 127649 | Calibration Adapter |
| 6300-0035 | 128873 | Repacement NO2 Sensing Element |
| CUSTOM CAL KIT* | 148426 | Gas Cal Kit |

Note*: Refer to GAS CAL KIT data sheet for specific's



Q5/B5 SERIES

Toxic/Combustible Gas Transmitter

The B5/Q5 Toxic/Combustible Gas Detectors use various sensing technologies to detect a wide assortment of gases. These units are housed in a NEMA 4X rated plastic enclosure that will meet the most stringent applications. All models feature an internal clock, LCD Display for displaying gas concentrations and setup, LED Status Indication, integral buzzer with three user configurable relays and a number of different communication protocols for use with one of our gas controllers or your building management system. Factory calibrated sensor module replacements are available and are easily replaced in the field by removing two screws on the previous module. All units should be checked for proper functionality and calibration once the replacement sensor module is reinstalled and has had a chance to warm up. A user selectable password can be used to protect the system integrity. The Q5 can be used as a standalone gas detector or in conjunction with the Q4C, M-Controller or Q-Controllers using the proprietary RS-485 Optomux communication protocol. The

B5 uses BACnet™ MSTP (RS485) protocol to communicate directly with a BAS. ACI also offers a full line of horns and strobes that can be used with the Gas detectors or building management system to alert building occupants of an alarm condition. Refer to all applicable Federal, State, Provincial and Local Health and Safety laws and regulations before using these products. The Q5/B5-GENL can be ordered to monitor specific combustible gases such as Gasoline, Ethanol, Diesel or Jet fuel. Contact ACI for specific gases.

Applications: Mechanical Rooms, Warehouses, Refrigeration Plants, Industrial Plants, Process Monitoring, Leak Detection, Parking Garages, Auto/Truck Maintenance Facilities, Oil and Gas Industry

The Q5/B5 Series Gas Transmitters are covered by ACI's Two (2) Year Limited Warranty against defects in material and workmanship from the date of shipment with the exception of the Sensor Modules (Electrochemical/Toxic: Six Months and Catalytic/Combustible: One Year). The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, workaci.com.

PRODUCT SPECIFICATIONS

| | |
|--|--|
| Supply Voltage (Q5): | VDC Supply Voltage: 24 VDC nominal (+18 to 30 VDC) VAC Supply Voltage: 24 VAC nominal (+15 to 24 VAC) (AC Power must not be grounded) |
| Supply Voltage (B5): | VDC Supply Voltage: 24 VDC nominal (+18 to 30 VDC) VAC Supply Voltage: 24 VAC nominal (+15 to 24 VAC) (AC Power can be grounded or non-grounded) |
| Fuse Protection: | 0.750A Polyswitch: (Resets after fault is cleared & power to circuit is removed) |
| Supply Current Power Consumption: | 0.3A maximum 8.4 VA |
| Analog Output Signals (Q5 Only): | Analog: 4-20 mA, 1 to 5 VDC or 2 to 10 VDC (All Analog Output Signals require 4-Wires) |
| Maximum Load Impedance: | 4-20 mA Output: 600 Ohms maximum 1-5 VDC or 2-10 VDC: 3000 Ohms minimum |
| Communication Protocols: | Q5 Communication Protocols: RS-485 Modbus RTU/OptoMux (Proprietary QEL Controller Protocol) B5 Communication Protocols: RS-485 Serial BACnet MS/TP (Master and Slave - Default: Master) |
| Communication Baud Rates (Q5): | 1200, 2400, 4800, 9600, 14400, 19200, 28800, 38400, 57600, 76800 Bits/Second (Default: 4800) |
| B5 Communication Baud Rates (B5): | 9600, 19200, 38400, 76800 Bits/Second (Default: 38400) |
| Factory Calibration Range: | See Gas Sensor Selection & Specification Table on back of data sheet |
| Display: | LCD Graphic Display with backlight (Displays: TWA, STEL and Concentration) |
| Keypad: | Three Capacitive Touch sensing keys |
| Relays Contact Type Relay Contact Ratings: | Three SPDT (Form C) Dry Contacts 1.0A max. @ 30 VDC or 0.3A max. @ 125 VAC (Resistive Loads) |
| Relay Life Expectancy: | Mechanical: 50,000,000 operations minimum @ 36,000 operations/hour Electrical: 200,000 operations minimum @ rated load |
| Status LEDs: | Two Green LEDs (Tx/Rx Communication Status): Three LEDs (Relays 1, 2 & 3) |
| Buzzer: | 80 dB at 3.94" (10 cm), 2700 Hz (3 Programmable Tones) |
| Warm Up Time: | 24 Hours (Allow 24 hours before calibrating sensor after installation) |
| Sensor Type: | See Sensor Technology Type in Table on back of data sheet |
| Gas Types: | Combustible, Toxic Gases/Oxygen Sensor & Infrared |
| Coverage Area Mounting Height: | See Gas Sensor Selection & Specification Table on back of data sheet |
| Life Expectancy: | Electrochemical (Toxic): 2 to 3 Years, typical Oxygen/Hydrogen (Toxic): 18 months, typical Catalytic (Combustible): 3 to 5 Years, typical CO: 7 Years, typical |
| Unit Shelf Life: | Electrochemical (Toxic): 6 months from the date of purchase Catalytic (Combustible): 1 year from date of purchase |
| Replacement Sensor Modules: | See additional on-line Product Literature or Contact ACI Catalytic (Combustible): Accuracy & Bump test every 3 months or as required by Code |
| Recommended Maintenance: | Electrochemical (Toxic): Accuracy & Bump test every 6 months or as required by Code Oxygen/Hydrogen (Toxic): Calibrate every 3 months |
| Enclosure Specifications (Material Type, Flammability, NEMA/IP Rating): | Plastic Enclosure; Polycarbonate Lexan; UL94 V-0, NEMA 4, 4X, 12 and 13 (IP66) |
| Enclosure Knockouts: | 3/4" Knockouts (accepts 1/2" Conduit Fittings) |



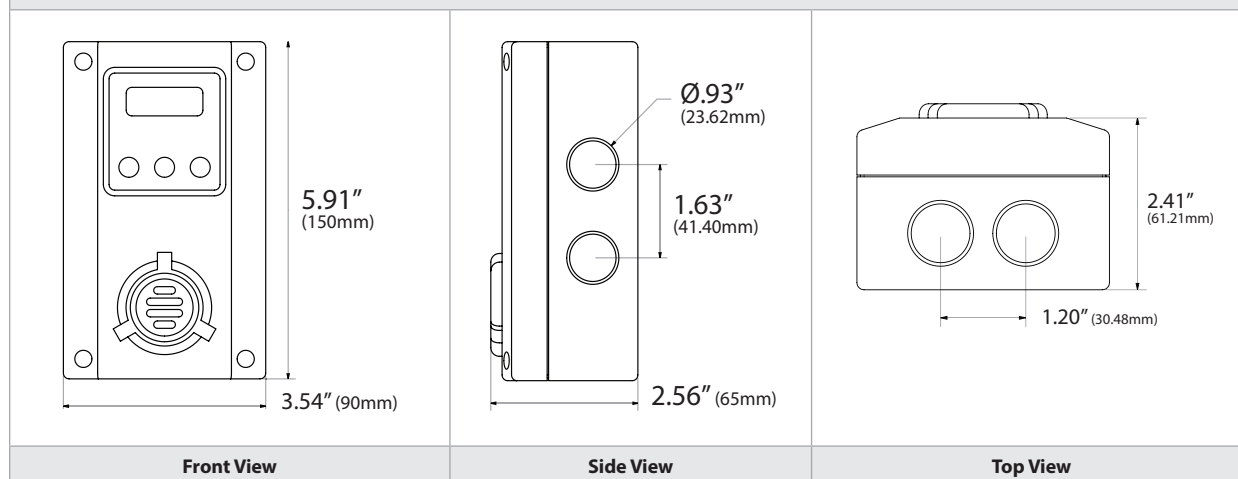


PRODUCT SPECIFICATIONS

| | |
|--|---|
| Operating Temperature Humidity: | See Sensor Selection & Specification Table on back of data sheet 5 to 95% RH, non-condensing |
| Operating Atmospheric Pressure¹: | 14.696 psi (1.0132 bar) +/- 10% |
| Recommended Storage Temperature/ Humidity: | 32 to 68°F (0 to 20°C) 5 to 95% RH, non-condensing |
| Wiring Connections Wire Size: | De-pluggable Screw Terminal Blocks 16 to 24 AWG (0.2047 to 1.301 mm) Shielded Twisted Pair |
| Communications Cable: | Belden 9841 or Equivalent, 120 Ohms Input Impedance |
| Terminal Block Torque Rating: | 0.37 ft-lb (0.502 Nm) Nominal |
| Approvals: | RoHS, cETLus Listed, Safety requirement for Electrical Equipment for Measurement, Control & Laboratory Use Part 1: CAN/CSA-22.2 No. 61010-1 Third Edition, Dated May 11, 2012; General Requirements UL 61010-1 Third Edition, Dated May 11 2012 Q5C-CO & B5C-CO only: UL 2075 Gas & Vapor Detectors & Sensors (ETL Control# 4010204) |
| Product Weight: | 1.00 lbs. (0454 kg) |
| Product Dimensions (L x W x H): | 5.91" (150 mm) x 3.54" (90 mm) x 2.56" (65 mm) |

Note1: When installed @ > 3000' above sea level, the gas transmitters must be verified for accuracy & re-calibrated as needed after installation

DIMENSIONAL DRAWING





SENSOR SELECTION AND SPECIFICATION

| Gas Type | Gas Span Code | Combustible | Toxic | 100% LEL ¹ in % By Vol. | Measurement Range | Operating Temp °F (°C) | Square Feet ft ² (m ²) | Radius ft (m) | Mounting Height |
|---------------------------|---------------|-------------|----------|------------------------------------|-------------------|------------------------|---|---------------|-------------------|
| Acetone | CH3CO-100L | • | | 2.6% | 0-100% LEL | 14 to 122 (-10 to 50) | 5000 (464.5) | 40 (12.2) | Low ² |
| Ammonia | NH3-100P | | • | N/A | 0-100 PPM | -22 to 122 (-30 to 50) | 7500 (696.7) | 49 (14.9) | High ² |
| Ammonia | NH3-1000P | | • | N/A | 0-1000 PPM | -22 to 122 (-30 to 50) | 7500 (696.7) | 49 (14.9) | High ² |
| Arsine | ASH3-1P | | • | N/A | 0-1 PPM | -4 to 104 (-20 to 40) | 5000 (464.5) | 40 (12.2) | Low ² |
| Benzene | C6H6-100L | • | | 1.3% | 0-100% LEL | 14 to 122 (-10 to 50) | 5000 (464.5) | 40 (12.2) | Low ² |
| Iso-Butane | C4H10-100L | • | | 1.8% | 0-100% LEL | 14 to 122 (-10 to 50) | 5000 (464.5) | 40 (12.2) | Low ² |
| Butanol, n-Butane | BUTAN-100L | • | | 1.9% | 0-100% LEL | 14 to 122 (-10 to 50) | 5000 (464.5) | 40 (12.2) | Low ² |
| Carbon Dioxide | CO2-5000P | Infrared | Infrared | N/A | 0-5000 PPM | -4 to 122 (-20 to 50) | 7500 (696.7) | 49 (14.9) | Mid ² |
| Carbon Dioxide | CO2-5V | Infrared | Infrared | N/A | 0-5% by Vol | -4 to 122 (-20 to 50) | 7500 (696.7) | 49 (14.9) | Mid ² |
| Carbon Dioxide | CO2-20V | Infrared | Infrared | N/A | 0-20% by Vol | -4 to 122 (-20 to 50) | 7500 (696.7) | 49 (14.9) | Mid ² |
| Carbon Dioxide | CO2-100V | Infrared | Infrared | N/A | 0-100% by Vol | -4 to 122 (-20 to 50) | 7500 (696.7) | 49 (14.9) | Mid ² |
| Carbon Monoxide | CO-250P | | • | N/A | 0-250 PPM | -4 to 122 (-20 to 50) | 7500 (696.7) | 49 (14.9) | Mid ² |
| Carbon Monoxide | CO-1000P | | • | N/A | 0-1000 PPM | -4 to 122 (-20 to 50) | 7500 (696.7) | 49 (14.9) | Mid ² |
| Chlorine | CL2-5P | | • | N/A | 0-5 PPM | -4 to 122 (-20 to 50) | 5000 (464.5) | 40 (12.2) | Low ² |
| Chlorine Dioxide | CLO2-2P | | • | N/A | 0-2 PPM | -4 to 122 (-20 to 50) | 5000 (464.5) | 40 (12.2) | Low ² |
| Diborane | B2H6-2P | | • | N/A | 0-2 PPM | -4 to 104 (-20 to 40) | 5000 (464.5) | 40 (12.2) | Mid ² |
| Ethylene | C2H4-100L | • | | 2.7% | 0-100% LEL | 14 to 122 (-10 to 50) | 5000 (464.5) | 40 (12.2) | Mid ² |
| Ethylene Oxide | ETO-20P | | • | N/A | 0-20 PPM | -4 to 122 (-20 to 50) | 5000 (464.5) | 40 (12.2) | Low ² |
| Germane | GEH4-2P | | • | N/A | 0-2 PPM | -4 to 104 (-20 to 40) | 5000 (464.5) | 40 (12.2) | Low ² |
| Hydrogen | H2-1000P | | • | N/A | 0-1000 PPM | -4 to 122 (-20 to 50) | 7500 (696.7) | 49 (14.9) | High ² |
| Hydrogen | H2-2000P | | • | N/A | 0-2000 PPM | -4 to 122 (-20 to 50) | 7500 (696.7) | 49 (14.9) | High ² |
| Hydrogen | H2-100L | • | | 4.0% | 0-100% LEL | 14 to 122 (-10 to 50) | 7500 (696.7) | 49 (14.9) | High ² |
| Hydrogen Bromide | HBR-30P | | • | N/A | 0-30 PPM | -4 to 104 (-20 to 40) | 5000 (464.5) | 40 (12.2) | Low ² |
| Hydrogen Chloride | HCL-30P | | • | N/A | 0-30 PPM | -4 to 122 (-20 to 50) | 5000 (464.5) | 40 (12.2) | Mid ² |
| Hydrogen Cyanide | HCN-50P | | • | N/A | 0-50 PPM | -4 to 122 (-20 to 50) | 5000 (464.5) | 40 (12.2) | Mid ² |
| Hydrogen Sulphide | H2S-25P | | • | N/A | 0-25 PPM | -4 to 122 (-20 to 50) | 5000 (464.5) | 40 (12.2) | Low ² |
| Hydrogen Sulphide | H2S-100P | | • | N/A | 0-100 PPM | 14 to 122 (-10 to 50) | 5000 (464.5) | 40 (12.2) | Low ² |
| Methane | CH4-100L | • | | 5.0% | 0-100% LEL | 14 to 122 (-10 to 50) | 7500 (696.7) | 49 (14.9) | High ² |
| Methanol | CH3OH-100L | • | | 6.7% | 0-100% LEL | 14 to 122 (-10 to 50) | 5000 (464.5) | 40 (12.2) | Low ² |
| Nitric Oxide | NO-100P | | • | N/A | 0-100 PPM | -4 to 122 (-20 to 50) | 7500 (696.7) | 49 (14.9) | Mid ² |
| Nitrogen Dioxide | NO2-10P | | • | N/A | 0-10 PPM | -4 to 122 (-20 to 50) | 7500 (696.7) | 49 (14.9) | Low ² |
| Oxygen ³ | O2-25V | | • | N/A | 0-25% by Vol | -22 to 122 (-30 to 50) | 7500 (696.7) | 49 (14.9) | Mid ² |
| Ozone | O3-1P | | • | N/A | 0-1 PPM | -4 to 122 (-20 to 50) | 5000 (464.5) | 40 (12.2) | High ² |
| Iso-Pentane | C5H12-100L | • | | 1.4% | 0-100% LEL | 14 to 122 (-10 to 50) | 5000 (464.5) | 40 (12.2) | Low ² |
| Phosphine | PH3-1P | | • | N/A | 0-1 PPM | -4 to 104 (-20 to 40) | 5000 (464.5) | 40 (12.2) | Low ² |
| Phosphine | PH3-5P | | • | N/A | 0-5 PPM | -4 to 104 (-20 to 40) | 5000 (464.5) | 40 (12.2) | Low ² |
| Propane | C3H8-100L | • | | 2.1% | 0-100% LEL | 14 to 122 (-10 to 50) | 7500 (696.7) | 49 (14.9) | Low ² |
| Silane | SiH4-50P | | • | N/A | 0-50 PPM | -4 to 104 (-20 to 40) | 5000 (464.5) | 40 (12.2) | Mid ² |
| Sulphur Dioxide | SO2-6P | | • | N/A | 0-6 PPM | -4 to 122 (-20 to 50) | 5000 (464.5) | 40 (12.2) | Low ² |
| Combustibles ¹ | GENL-100L | • | | Specify Gas | 0-100% LEL | -40 to 122 (-40 to 50) | 5000 (464.5) | 40 (12.2) | Gas Dependent |

Acetaldehyde, Benzene, Carbon Disulfide, Dioxane, Ethane, Ethanol, Ethylbenzene, Gasoline, Heptane, Hexane, Ipa, Jet Fuel, Kerosene, Naphtha, Styrene, Toluene, Voc's, Xylenes, Acetylene, Diesel, Pentane, Ethyl Acetate, Propylene

Note 1: Lower Explosive Limit (LEL) | **Note 2:** Low = 0.5 to 1.5' (0.15 to 0.46m) above floor | Mid = 4.0 to 6.0' (1.20 to 1.83m) above floor | High = 0.5 to 1.5' (0.15 to 0.46m) below ceiling | **Note 3:** Oxygen sensors monitor oxygen depletion caused by numerous gases including: Nitrous Oxide, Helium, Nitrogen, Sulfur hexafluoride, Argon, Xenon, Neon.





| STANDARD ORDERING | | MODEL # |
|---|---|----------|
| A. Sensor Series <i>Select One (1)</i> | Q5 = Toxic/Combustible Gas Transmitter Series with Analog/Relay/Communicating Output Signals and Display (All gasses except CO) Q5C = Carbon Monoxide Toxic Gas Transmitter (Certified to meet UL 2075 Requirements for Carbon Monoxide (CO) only) B5 = Toxic/Combustible MS/TP BACnet™ Gas Detection Transmitter with Relays and LCD Display (All gases except CO) B5C = Carbon Monoxide MS/TP BACnet™ Toxic Gas Transmitter (Certified to meet UL 2075 Requirements for Carbon Monoxide (CO) only) | |
| B. Gas Span Code | Enter a "Gas Span Code" from the Sensor Selection & Specification Table | |
| C. Enclosure <i>No Selection Required</i> | O = Standard Wall Mount Enclosure → | O |
| D. Revision <i>No Selection Required</i> | X = Factory Provided → | X |
| E. For GENL Sensors | Enter a "Gas Span Code" from the Sensor Selection & Specification Table (See Combustibles) | |

| STANDARD ORDERING | | |
|-------------------|--------|---|
| Model # | Item # | Description |
| Q5C-CO-250P-O-X | 141036 | CO, 0-250 ppm, UL2075 Certified |
| B5C-CO-250P-O-X | 140654 | BACnet™ CO, 0-250 ppm, UL2075 Certified |

| ACCESSORIES ORDERING Q5, B5 | | |
|-------------------------------|--------|---|
| Model # | Item # | Description |
| GAS CAL KIT | 148426 | Cal Kit includes Carry Case, 0.5lpm regulator, C10 to CGA-600 adapter, tubing |
| 85930-006-000 | 128901 | Calibration Adapter for Q5/B5, Q6/B6 |
| 85930-007-000 | 130812 | Sensor Splash Guard Kit for Q5/B5, Q6/B6 |
| 85930-040-000 | 131510 | Duct Mount Kit (Adapter, Tubing, Pitot Tubes) for Q5/B5, Q6/B6 |
| GSG-1 | 141059 | Gas Sensor Protective Guard (White) |

Note: See GAS CAL KIT Data Sheet if required

| ACCESSORIES ORDERING HORN STROBE | | |
|------------------------------------|--------|------------------------------------|
| Model # | Item # | Description |
| FSIG-SLM500A | 136476 | Streamline Horn and Strobe (Amber) |
| FSIG-SLM500B | 142976 | Streamline Horn and Strobe (Blue) |
| FSIG-SLM500C | 150028 | Streamline Horn and Strobe (Clear) |
| FSIG-SLM500G | 143013 | Streamline Horn and Strobe (Green) |
| FSIG-SLM500R | 143132 | Streamline Horn and Strobe (Red) |

| ACCESSORIES ORDERING MOUNTING BASE | | |
|--------------------------------------|--------|--|
| Model # | Item # | Description |
| FSIG-SLMBD-012-024GY | 142977 | Deep Base for FSIG-SLM500 Series; Gray |
| FSIG-SLMBW-012-024GY | 136477 | Wall Mount Base for FSIG-SLM500 Series; Gray |

Note: See Strobe & Alarm Data Sheet if required



Q6/B6 SERIES

Toxic/Combustible Gas Transmitter

The Q6/B6 Toxic/Combustible Gas Detectors use various sensing technologies to detect a wide assortment of gases. These units are housed in a NEMA 4X rated plastic enclosure that will meet a wide variety of applications. The combo unit consists of a main unit (Carbon Monoxide only) with an LCD, LED status indication, 3 user configurable relays and a remote sensing unit (various gas types available) for installation at high or low elevations based on the density of the gas being detected. The main and remote unit gas concentrations levels are both displayed on the main unit's LCD. This series also features a sensor module that can be easily replaced by removing a couple of screws and unplugging the existing module before inserting the new factory calibrated sensing module. All units should be verified for proper functionality and calibration once the replacement sensor module has been reinstalled. A user selectable password can be used to protect the system integrity. The Q6 can be used as a standalone gas detector or in conjunction

with one of our Q4C, M-Controller or Q-Controllers using the proprietary RS-485 Optomux communication protocol. ACI also offers a full line of horns and strobes that can be used with the gas detectors or building management system to alert building occupants of an alarm condition.

It is your responsibility to ensure that the Q6/B6 Series will meet all of your applicable Federal, State, Provincial and Local Health and Safety laws and regulations before using these products.

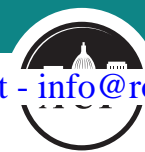
Applications: Mechanical Rooms, Warehouses, Refrigeration Plants, Industrial Plants, Process Monitoring, Leak Detection, Parking Garages, Auto/Truck Maintenance Facilities, Oil and Gas Industry

The Q6/B6 Series Gas Transmitters are covered by ACI's Two (2) Year Limited Warranty against defects in material and workmanship from the date of shipment with the exception of the Sensor Modules (Electrochemical/Toxic: Six Months and Catalytic/Combustible: One Year). The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|---|--|
| Supply Voltage: | VDC Supply Voltage: 24 VDC nominal (+18 to 30 VDC) VAC Supply Voltage: 24 VAC nominal (+15 to 24 VAC) (AC Power must not be grounded) |
| Fuse Protection: | 0.750A Polyswitch; (Resets after fault is cleared & power to circuit is removed) |
| Supply Current Power Consumption: | 0.3A maximum 8.4 VA |
| Communication Protocols: | Q6 Communication Protocols: RS-485 Modbus RTU/OptoMux (Proprietary QEL Controller Protocol) B6 Communication Protocols: RS-485 Serial BACnet™ MS/TP (Master and Slave; Default: Master) |
| Q6 Communication Baud Rates: | 1200, 2400, 4800, 9600, 14400, 19200, 28800, 38400, 57600, 76800 Bits/Second (Default: 4800) |
| B6 Communication Baud Rates: | 9600, 19200, 38400, 76800 Bits/Second (Default: 38400) |
| Factory Calibration Range: | See Gas Sensor Selection & Specification Table on back of data sheet |
| Display: | LCD Graphic Display with backlight (Displays: TWA, STEL and Concentration) |
| Keypad: | Three Capacitive Touch sensing keys |
| Relays Contact Type Relay Contact Ratings: | Three SPDT (Form C) Dry Contacts 1.0A max. @ 30 VDC or 0.3A max. @ 125 VAC (Resistive Loads) |
| Relay Life Expectancy: | Mechanical: 50,000,000 operations minimum @ 36,000 operations/hour Electrical: 200,000 operations minimum @ rated load |
| Status LEDs: | Two Green LEDs (Tx/Rx Communication Status); Three Red LEDs (Relays 1, 2 & 3) |
| Buzzer: | 80 dB at 3.94 (10 cm), 2700 Hz (3 Programmable Tones) |
| Warm Up Time: | 24 Hours (Allow 24 hours before calibrating sensor after installation) |
| Sensor Type: | Main: Carbon Monoxide (CO) Remote: See Gas Sensor Selection & Specification Table on back of data sheet |
| Gas Types: | Combustible, Toxic Gases/Oxygen Sensor & Infrared |
| Coverage Area Mounting Height: | See Gas Sensor Selection & Specification Table on back of data sheet |
| Life Expectancy: | Electrochemical (Toxic): 2 to 3 Years, typical Oxygen/Hydrogen (Toxic): 18 months, typical Catalytic (Combustible): 3 years, typical CO: 7 years, typical |
| Unit Shelf Life: | Electrochemical (Toxic): 6 months from date of purchase Catalytic (Combustible): 1 year from date of purchase |
| Replacement Sensor Modules: | See additional on-line Product Literature or Contact ACI |
| Recommended Maintenance: | Catalytic (Combustible): Accuracy & Bump test every 3 months or as required by Code Electrochemical (Toxic): Accuracy & Bump test every 6 months or as required by Code Oxygen/Hydrogen (Toxic): Calibrate every 3 months |



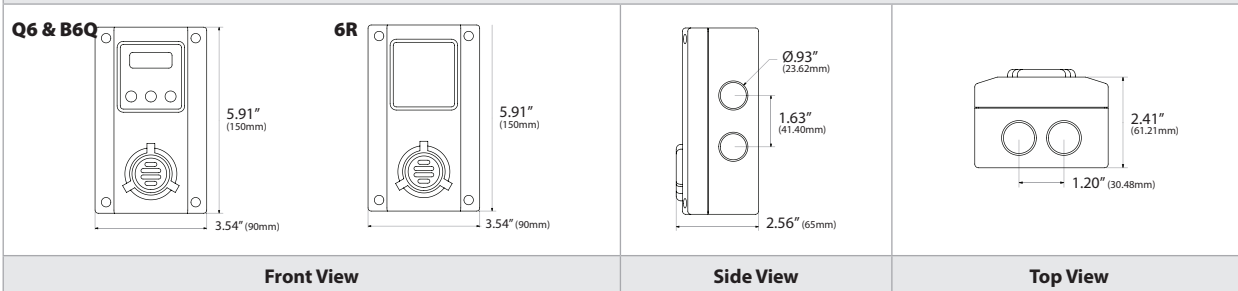


PRODUCT SPECIFICATIONS

| | |
|--|--|
| Enclosure Specifications (Material Type, Flammability, NEMA/IP Rating): | Plastic Enclosure; Polycarbonate Lexan; UL94 V-0, NEMA 4, 4X, 12 and 13 (IP66) |
| Enclosure Knockouts: | 3/4 ³ Knockouts (accepts 1/2" Conduit Fittings) |
| Operating Temperature Humidity: | See Sensor Selection & Specification Table on back of data sheet 5 to 95% RH, non-condensing |
| Operating Atmospheric Pressure¹: | 14.696 psi (1.0132 bar) +/- 10% |
| Recommended Storage Temperature/ Humidity: | 32 to 68°F (0 to 20°C) 5 to 95% RH, non-condensing |
| Wiring Connections Wire Size: | De-pluggable Screw Terminal Blocks 16 to 24 AWG (0.2047 to 1.301 mm) Shielded Twisted Pair |
| Communications Cable: | Belden 9841 or Equivalent, 120 Ohms Input Impedance |
| Terminal Block Torque Rating: | 0.37 ft-lb (0.502 Nm) Nominal |

Note¹: When installed @ >3000' above sea level, the gas transmitters must be verified for accuracy & re-calibrated as needed after installation

DIMENSIONAL DRAWING





SENSOR SELECTION AND SPECIFICATION

| Gas Type | Gas Span Code | Combustible | Toxic | 100% LEL ¹ in % By Vol. | Measurment Range | Operating Temp °F (°C) | Square Feet ft ² (m ²) | Radius ft (m) | Mounting Height |
|---------------------------|---------------|-------------|----------|------------------------------------|------------------|------------------------|---|---------------|-------------------|
| Acetone | CH3CO-100L | • | | 2.6% | 0-100% LEL | 14 to 122 (-10 to 50) | 5000 (464.5) | 40 (12.2) | Low ² |
| Ammonia | NH3-100P | | • | N/A | 0-100 PPM | -22 to 122 (-30 to 50) | 7500 (696.7) | 49 (14.9) | High ² |
| Ammonia | NH3-1000P | | • | N/A | 0-1000 PPM | -22 to 122 (-30 to 50) | 7500 (696.7) | 49 (14.9) | High ² |
| Arsine | ASH3-1P | | • | N/A | 0-1 PPM | -4 to 104 (-20 to 40) | 5000 (464.5) | 40 (12.2) | Low ² |
| Benzene | C6H6-100L | • | | 1.3% | 0-100% LEL | 14 to 122 (-10 to 50) | 5000 (464.5) | 40 (12.2) | Low ² |
| Iso-Butane | C4H10-100L | • | | 1.8% | 0-100% LEL | 14 to 122 (-10 to 50) | 5000 (464.5) | 40 (12.2) | Low ² |
| Butanol, n-Butane | BUTAN-100L | • | | 1.9% | 0-100% LEL | 14 to 122 (-10 to 50) | 5000 (464.5) | 40 (12.2) | Low ² |
| Carbon Dioxide | CO2-5000P | Infrared | Infrared | N/A | 0-5000 PPM | -4 to 122 (-20 to 50) | 7500 (696.7) | 49 (14.9) | Mid ² |
| Carbon Dioxide | CO2-5V | Infrared | Infrared | N/A | 0-5% by Vol | -4 to 122 (-20 to 50) | 7500 (696.7) | 49 (14.9) | Mid ² |
| Carbon Dioxide | CO2-20V | Infrared | Infrared | N/A | 0-20% by Vol | -4 to 122 (-20 to 50) | 7500 (696.7) | 49 (14.9) | Mid ² |
| Carbon Dioxide | CO2-100V | Infrared | Infrared | N/A | 0-100% by Vol | -4 to 122 (-20 to 50) | 7500 (696.7) | 49 (14.9) | Mid ² |
| Carbon Monoxide | CO-250P | | • | N/A | 0-250 PPM | -4 to 122 (-20 to 50) | 7500 (696.7) | 49 (14.9) | Mid ² |
| Carbon Monoxide | CO-1000P | | • | N/A | 0-1000 PPM | -4 to 122 (-20 to 50) | 7500 (696.7) | 49 (14.9) | Mid ² |
| Chlorine | CL2-5P | | • | N/A | 0-5 PPM | -4 to 122 (-20 to 50) | 5000 (464.5) | 40 (12.2) | Low ² |
| Chlorine Dioxide | CLO2-2P | | • | N/A | 0-2 PPM | -4 to 122 (-20 to 50) | 5000 (464.5) | 40 (12.2) | Low ² |
| Diborane | B2H6-2P | | • | N/A | 0-2 PPM | -4 to 104 (-20 to 40) | 5000 (464.5) | 40 (12.2) | Mid ² |
| Ehtylene | C2H4-100L | • | | 2.7% | 0-100% LEL | 14 to 122 (-10 to 50) | 5000 (464.5) | 40 (12.2) | Mid ² |
| Ethylene Oxide | ETO-20P | | • | N/A | 0-20 PPM | -4 to 122 (-20 to 50) | 5000 (464.5) | 40 (12.2) | Low ² |
| Germane | GEH4-2P | | • | N/A | 0-2 PPM | -4 to 104 (-20 to 40) | 5000 (464.5) | 40 (12.2) | Low ² |
| Hydrogen | H2-1000P | | • | N/A | 0-1000 PPM | -4 to 122 (-20 to 50) | 7500 (696.7) | 49 (14.9) | High ² |
| Hydrogen | H2-2000P | | • | N/A | 0-2000 PPM | -4 to 122 (-20 to 50) | 7500 (696.7) | 49 (14.9) | High ² |
| Hydrogen | H2-100L | • | | 4.0% | 0-100% LEL | 14 to 122 (-10 to 50) | 7500 (696.7) | 49 (14.9) | High ² |
| Hydrogen Bromide | HBR-30P | | • | N/A | 0-30 PPM | -4 to 104 (-20 to 40) | 5000 (464.5) | 40 (12.2) | Low ² |
| Hydrogen Chloride | HCL-30P | | • | N/A | 0-30 PPM | -4 to 122 (-20 to 50) | 5000 (464.5) | 40 (12.2) | Mid ² |
| Hydrogen Cyanide | HCN-50P | | • | N/A | 0-50 PPM | -4 to 122 (-20 to 50) | 5000 (464.5) | 40 (12.2) | Mid ² |
| Hydrogen Sulphide | H2S-25P | | • | N/A | 0-25 PPM | -4 to 122 (-20 to 50) | 5000 (464.5) | 40 (12.2) | Low ² |
| Hydrogen Sulphide | H2S-100P | | • | N/A | 0-100 PPM | 14 to 122 (-10 to 50) | 5000 (464.5) | 40 (12.2) | Low ² |
| Methane | CH4-100L | • | | 5.0% | 0-100% LEL | 14 to 122 (-10 to 50) | 7500 (696.7) | 49 (14.9) | High ² |
| Methanol | CH3OH-100L | • | | 6.7% | 0-100% LEL | 14 to 122 (-10 to 50) | 5000 (464.5) | 40 (12.2) | Low ² |
| Nitric Oxide | NO-100P | | • | N/A | 0-100 PPM | -4 to 122 (-20 to 50) | 7500 (696.7) | 49 (14.9) | Mid ² |
| Nitrogen Dioxide | NO2-10P | | • | N/A | 0-10 PPM | -4 to 122 (-20 to 50) | 7500 (696.7) | 49 (14.9) | Low ² |
| Oxygen ³ | O2-25V | | • | N/A | 0-25% by Vol | -22 to 122 (-30 to 50) | 7500 (696.7) | 49 (14.9) | Mid ² |
| Ozone | O3-1P | | • | N/A | 0-1 PPM | -4 to 122 (-20 to 50) | 5000 (464.5) | 40 (12.2) | High ² |
| Iso-Pentane | C5H12-100L | • | | 1.4% | 0-100% LEL | 14 to 122 (-10 to 50) | 5000 (464.5) | 40 (12.2) | Low ² |
| Phosphine | PH3-1P | | • | N/A | 0-1 PPM | -4 to 104 (-20 to 40) | 5000 (464.5) | 40 (12.2) | Low ² |
| Phosphine | PH3-5P | | • | N/A | 0-5 PPM | -4 to 104 (-20 to 40) | 5000 (464.5) | 40 (12.2) | Low ² |
| Propane | C3H8-100L | • | | 2.1% | 0-100% LEL | 14 to 122 (-10 to 50) | 7500 (696.7) | 49 (14.9) | Low ² |
| Silane | SiH4-50P | | • | N/A | 0-50 PPM | -4 to 104 (-20 to 40) | 5000 (464.5) | 40 (12.2) | Mid ² |
| Sulpher Dioxide | SO2-6P | | • | N/A | 0-6 PPM | -4 to 122 (-20 to 50) | 5000 (464.5) | 40 (12.2) | Low ² |
| Combustibles ¹ | GENL-100L | • | | Specify Gas | 0-100% LEL | -40 to 122 (-40 to 50) | 5000 (464.5) | 40 (12.2) | Gas Dependent |

Acetaldehyde, Benzene, Carbon Disulfide, Dioxane, Ethane, Ethanol, Ethylbenze, Gasoline, Heptane, Hexane, Ipa, Jet Fuel, Kerosene, Naphtha, Styrene, Toluene, Voc's, Xylenes, Acetylene, Diesel, Pentane, Ethyl Acetate, Propylene

Note 1: Lower Explosive Limit (LEL) | **Note 2:** Low = 0.5 to 1.5' (0.15 to 0.46m) above floor | Mid = 4.0 to 6.0' (1.20 to 1.83m) above floor | High = 0.5 to 1.5' (0.15 to 0.46m) below ceiling | **Note 3:** Oxygen sensors monitor oxygen depletion caused by numerous gases including: Nitrous Oxide, Helium, Nitrogen, Sulfur hexafluoride, Argon, Xenon, Neon.





| STANDARD ORDERING | | |
|-------------------|--------|---|
| Model # | Item # | Description |
| Q6-CO/NO2-10P | 146117 | Main Unit: CO (0-250 ppm) Remote Unit: NO2 (0-10 ppm) |
| B6-CO/NO2-10P | 146119 | BACnet™ Main Unit: CO (0-250 ppm) Remote Unit: NO2 (0-10 ppm) |

| CUSTOM ORDERING | | MODEL # |
|--|--|---------|
| A. Sensor Series <i>Select One (1)</i> | Q6-CO = Main Unit (CO) B6-CO = BACnet™ Main Unit (CO) | |
| B. Gas Span Code | Enter a "Gas Span Code" from the Sensor Selection & Specification Table | |
| C. For GENL Sensors | Enter a "Gas Span Code" from the Sensor Selection & Specification Table (See Combustibles) | |

| ACCESSORIES ORDERING Q6, B6 | | |
|-------------------------------|--------|--|
| Model # | Item # | Description |
| GAS CAL KIT | 148426 | Cal Kit includes Carry Case, 0.5lpm regulator, C10 to CGA-600 adaptor and tubing |
| 85930-006-000 | 128901 | Calibration Adaptor for Q5/B5, Q6/B6 |
| 85930-007-000 | 130812 | Sensor Splash Gaurd Kit for Q5/B5, Q6/B6 |
| 85930-040-000 | 131510 | Duct Mount Kit (Adaptor, Tubing, Pitot Tubes) for Q5/B5, Q6/B6 |
| GSG-1 | 141059 | Gas Sensor Protective Guard (White) |

Note: See GAS CAL KIT data sheet if required

| ACCESSORIES ORDERING HORN STROBE | | |
|------------------------------------|--------|------------------------------------|
| Model # | Item # | Description |
| FSIG-SLM500A | 136476 | Streamline Horn and Strobe (Amber) |
| FSIG-SLM500B | 142976 | Streamline Horn and Strobe (Blue) |
| FSIG-SLM500G | 143013 | Streamline Horn and Strobe (Green) |
| FSIG-SLM500R | 143132 | Streamline Horn and Strobe (Red) |

| ACCESSORIES ORDERING MOUNTING BASE | | |
|--------------------------------------|--------|--|
| Model # | Item # | Description |
| FSIG-SLMBD-012-024GY | 142977 | Deep Base for FSIG-SLM500 Series; Gray |
| FSIG-SLMBW-012-024GY | 136477 | Wall Mount Base for FSIG-SLM500 Series; Gray |

Note: See Strobe & Alarm Data Sheet if required

| ACCESSORIES ORDERING PROTECTIVE DOME FOR DEEP MOUNTING BASE | | |
|---|--------|--|
| Model # | Item # | Description |
| FSIG-SLMDG2 | 143149 | Optional Protective Dome for Deep Mounting Base and SLM500x Series Horn and Strobe |



CO2 ROOM

Sensor with Temperature, Setpoint & Override

The ACI Carbon Dioxide Room Series (A/CO2-R2) monitors the carbon dioxide (CO2) levels in commercial, school, and office-type environments. The concentration of CO2 is a strong indication of the overall indoor air quality. The A/CO2 Series is based on a single beam, non-dispersive infrared technology and is a cost-efficient solution for measuring carbon dioxide levels for building climate control. In addition, ABC software eliminates the need for manual calibration. Carbon Dioxide concentration is measured up to 2,000 ppm and is converted into proportional analog outputs. The factory default outputs are 0-10 VDC (Output 1) and 4-20 mA (Output 2), whereas 0-5 VDC is field selectable via integral dip switches. Thermistor temperature outputs, along with setpoint and override, are available as options for this configuration as well. Please see the order grid for the available sensor options. The A/CO2-R2 Series provides data which can be used in conjunction with a Building Automation System or Demand Control Ventilation to

decrease energy consumption while creating a healthier indoor climate.

Applications: Schools, Office Buildings, Auditoriums, Gymnasiums, Shopping Malls, Theatres, Demand Control Ventilation & Economizers

The CO2 Room Series are covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's web site, workaci.com.

PRODUCT SPECIFICATIONS

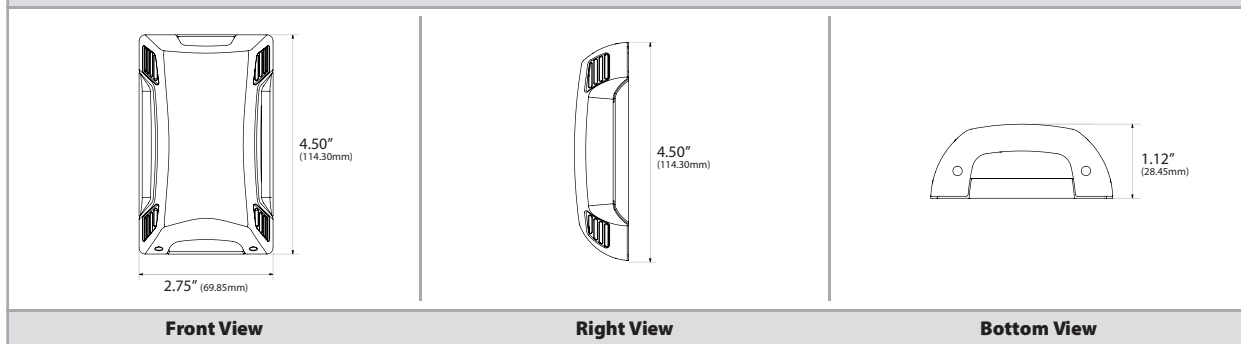
| | |
|--------------------------------------|---|
| Supply Voltage: | 24 VAC +/-20%, 50/60 Hz (half-wave rectifier) 16.5-40 VDC maximum |
| Power Consumption: | 3 VA for 24 VAC, 3W for 24 VDC (peak); <0.9W (average) |
| Sensing Technology: | Single beam infrared sensing technology (NDIR) |
| Sensing Method: | Diffusion |
| Measurement Range Default: | 0 to 2,000 ppm |
| Extended CO2 Ranges: | Up to 10,000 ppm (factory set) |
| CO2 Accuracy¹: | +/- 40 ppm and +/- 3% of reading (@ 15-35°C; 20-70% RH and 101.3 kPa) |
| Extended Range Accuracy: | +/- 30 ppm and +/- 5% of reading |
| CO2 Output Signal: | Output 1: 0-5 VDC or 0-10 VDC (Default) Output 2: 4-20 mA (500 Ohm load maximum) |
| Fail Safe: | Polarity protected |
| Pressure Dependence: | + 1.6% reading per kPa (deviation from standard pressure 101.3 kPa) |
| Response Time: | ≤ 2 minutes, diffusion |
| Warm-Up Time: | < 1 Minute (@ full specs < 15 minutes) |
| Temperature Output Range: | Various (See Ordering Grid) |
| Temperature Accuracy: | +/- 1°F (+/- 0.6°C) |
| Operating Temperature Range: | 32 to 122°F (0 to 50°C) |
| Operating Humidity Range: | 0 to 95%, non-condensing |
| Connections Wire Size: | Screw Terminal Blocks 16 (1.31 mm ²) to 26 (0.129 mm ²) AWG |
| Terminal Block Torque Rating: | 0.5 Nm (minimum); 0.6 Nm (maximum) |
| Enclosure: | ABS, Plastic, White, UL94-HB |
| Sensor Coverage Area: | 7,500 sq. ft maximum |
| Mounting Height: | 4-6 ft |
| Sensor Life²: | > 15 years (typical) |
| Calibration³: | ABC algorithm (Automatic Baseline Correction) |
| Product Dimensions: | (H) 4.50" (114.30 mm) x (W) 2.75" (69.85 mm) x (D) 1.12" (28.45 mm) |
| Product Weight: | 0.230 lbs (0.104 kg) |
| Agency Approvals: | EMC Directive 2014/30/EC RoHS Directive 2011/65/EU |

Note 1: Accuracy is defined after minimum three (3) ABC periods (1 period = 8 days) of continuous operations | **Note 2:** In normal indoor air quality (IAQ) applications | Corrosive environments are excluded | **Note 3:** Building CO2 levels must drop to 400 ppm some time during the week for ABC to work properly | If the building is occupied 24 hours / day, ABC must be turned off





DIMENSIONAL DRAWING



| STANDARD ORDERING | | |
|-------------------|--------|---|
| Model # | Item # | Description |
| A/CO2-R2 | 144220 | CO2 Room (0-5 VDC, 0-10 VDC, 4-20 mA Outputs) |

| CUSTOM ORDERING | | MODEL # |
|---|---|--------------|
| Model # Example: A/CO2 R250 CP A01G 5 <small>A. B. C. D. E.</small> | | A/CO2 |
| A. Sensor Series <i>No Selection Required</i> | A/CO2 → | |
| B. Configuration <i>Select One (1)</i> | R2 = Room R20 = Room with Override* R25 = Room with Set Point R250 = Room with Set Point and Override | |
| C. Temperature Sensor Options <i>Select One (1)</i> | ---- (None) 1.8K 3K AN (Type III) AN-BC CP (Type II) 10K-E1 CSI 20K 100KS | |
| D. Slidepots** <i>Select One (1)</i> | Direct Acting (Range in Ohms) A01 = 0 to 100K A02 = 0 to 20K A03 = 0 to 10K A06 = 4.75K to 24.75K A07 = 10K to 30K A08 = 1K to 11K A09 = 0 to 2K A10 = 0 to 1K A11 = 2.05K to 3.05K A12 = 0 to 400 A16 = 0 to 5K A18 = 10K to 15K A20 = 6.19K to 26.19K A26 = 866 to 1,266 A29 = 7.87K to 27.8K Reverse Acting (Range in Ohms) A04 = 1051.1 to 51.1 A14 = 10K to 0 A24 = 9.5K to 1K | |
| E. Setpoint Indication <i>Select One (1)</i> | G5 = BLUE/RED (R2 Enclosure) | |

Note 1: Override options is Dry Contact (Separate Input) only. Short Sensor is not available by jumpers, only field wiring.

Note 2: Other Setpoint configurations are available. Please contact ACI.

| ACCESSORIES ORDERING | | |
|----------------------|--------|--------------------|
| Model # | Item # | Description |
| A/CUSTOM CAL GAS* | 140970 | Custom Calibration |

Note: Contact ACI's Technical Support for custom calibration ranges



CO2 DUCT Sensor with Conduit Option

The ACI Carbon Dioxide Duct Series (A/CO2-D) monitors the carbon dioxide (CO2) levels in industrial, commercial, school, and office-type environments. The concentration of CO2 is a strong indication of the overall indoor air quality. The A/CO2 Series is based on a single beam, non-dispersive infrared technology and is a cost-efficient solution for measuring carbon dioxide levels for building climate control. In addition, ABC software eliminates the need for manual calibration. Carbon Dioxide concentration is measured up to 2,000 ppm and is converted into proportional analog outputs. The factory default outputs are 0-10 VDC (Output 1) and 4-20 mA (Output 2), whereas 0-5 VDC is field selectable via integral dip switches. The A/CO2-D provides data which can be used in conjunction with a Building Automation System or Demand Control Ventilation to decrease energy consumption while creating a healthier indoor climate.

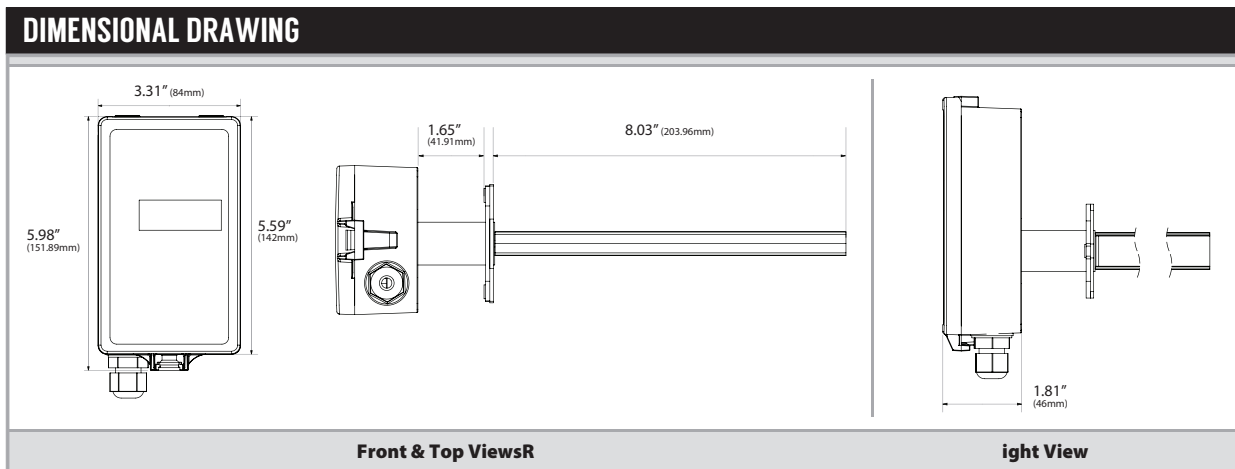
Applications: Schools, Office Buildings, Auditoriums, Gymnasiums, Shopping Malls, Theatres, Demand Control Ventilation & Economizers

The CO2 Duct Series are covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's web site, workaci.com.

PRODUCT SPECIFICATIONS

| | |
|---|---|
| Supply Voltage: | 24 VAC +/-20%, 50/60 Hz (half-wave rectifier) 16.5-40 VDC maximum |
| Power Consumption: | 3 VA for 24 VAC, 3W for 24 VDC (peak); <0.9W (average) |
| Sensing Technology: | Single beam infrared sensing technology (NDIR) |
| Sensing Method: | Diffusion |
| Measurement Range Default: | 0 to 2,000 ppm |
| Extended CO2 Ranges: | Up to 10,000 ppm (factory set) |
| CO2 Accuracy¹: | +/- 40 ppm and +/- 3% of reading (@ 15-35°C; 20-70% RH and 101.3 kPa) |
| Extended Range Accuracy>2000 ppm: | +/- 30 ppm and +/- 5% of reading |
| CO2 Output Signal: | Output 1: 0-5 VDC or 0-10 VDC (Default) Output 2: 4-20 mA (500Ohm load maximum) |
| Fail Safe: | Polarity protected |
| Pressure Dependence: | + 1.6% reading per kPa (deviation from standard pressure 101.3 kPa) |
| Response Time: | ≤ 2 minutes, diffusion |
| Warm-Up Time: | < 1 Minute (@ full specs < 15 minutes) |
| Operating Temperature Range: | 32 to 122°F (0 to 50°C) |
| Operating Humidity Range: | 0 to 95%, non-condensing |
| Connections Wire Size: | Screw Terminal Blocks 16 (1.31 mm ²) to 26 (0.129 mm ²) AWG |
| Terminal Block Torque Rating: | 0.5 Nm (minimum); 0.6 Nm (maximum) |
| Enclosure: | Duct Box: IP65 rated, PC & ABS blend, Flammability Rating UL94V-0 Cover: Makrolon® 6555 plastic, Flammability Rating UL94V-0 Pipe: PC & ABS blend, Flammability Rating UL94V-0 |
| Sensor Life²: | > 15 years (typical) |
| Calibration³: | ABC algorithm (Automatic Baseline Correction) |
| Product Dimensions: | (H) 5.59" (142 mm) x (W) 3.31" (84 mm) x (D) 1.81" (46 mm) |
| Product Weight: | 0.79 lbs (0.36 kg) |
| Agency Approvals: | EMC Directive 2014/30/EC RoHS Directive 2011/65/EU |

Note 1: Accuracy is defined after minimum three (3) ABC periods (1 period = 8 days) of continuous operations | **Note 2:** In normal indoor air quality (IAQ) applications | Corrosive environments are excluded | **Note 3:** Building CO2 levels must drop to 400 ppm same time during the week for ABC to work properly | If the building is occupied 24 hours / day, ABC must be turned off



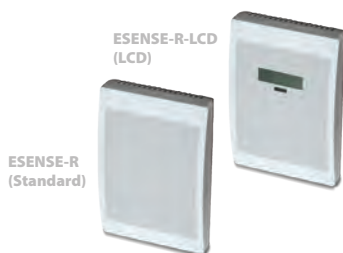
STANDARD ORDERING

| Model # | Item # | Description |
|--------------|--------|---|
| A/CO2-DUCT | 150117 | CO2 Duct (0-5 VDC, 0-10 VDC, 4-20 mA) |
| A/CO2-DUCT-C | 137562 | CO2 Duct with 1/2" Conduit Adapter (0-5 VDC, 0-10 VDC, 4-20 mA) |

ACCESSORIES ORDERING

| Model # | Item # | Description |
|-------------------|--------|--------------------|
| A/CUSTOM CAL GAS* | 140970 | Custom Calibration |

Note: Contact ACI's Technical Support for custom calibration ranges



ESENSE ROOM

CO2 Room Sensor with LCD Display Option

ESENSE Room series monitors the carbon dioxide (CO₂) levels in school and office type environments. The concentration of CO₂ is a good indication of the overall indoor air quality. The ESENSE Series is based on a single beam non-dispersive infrared technology and is a cost-optimized solution for the climate control of buildings and other processes. In addition, ABC software eliminates the need for manual calibration. The ESENSE Series measures the CO₂ concentration in the ambient air up to 2,000 ppm and converts the data into an analog output. This data can be used in conjunction with a Building Automation or Demand Control

Ventilation System to decrease energy consumption while creating a healthier indoor climate.

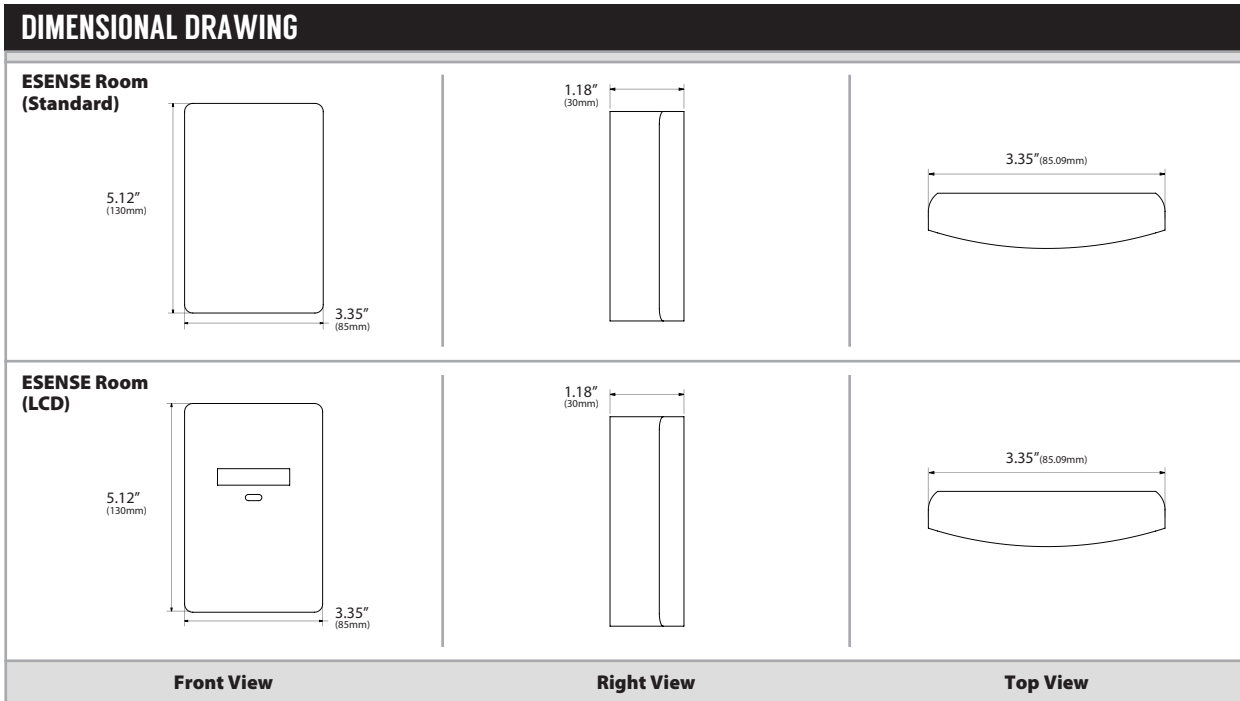
Applications: Schools, Office Buildings, Auditoriums, Gymnasiums, Shopping Malls, Theaters, Demand Control Ventilation & Economizers

The ESENSE Room Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

| PRODUCT SPECIFICATIONS | |
|---|---|
| Supply Voltage: | 24 VAC/VDC ±20%; 50/60Hz (Half-wave rectified) |
| Power Consumption: | <1W |
| Electrical Connections: | 0.00232 in ² (1.5 mm ²) screw terminals |
| Operating Temperature: | 32°F to 122°F (0°C to 50°C) |
| Operating RH: | 0 – 95% RH Non-condensing |
| Warm-Up Time: | 1 minutes (@ full specs 15 minutes) |
| Accuracy¹: | ±30 ppm and ±3% of reading |
| Repeatability: | ±20 ppm ±1% of measured value |
| Annual Zero Drift: | ± 0.3% of measurement range |
| Operating Pressure: | +1.6% per 0.145 psi (1 kPa) deviation from normal pressure (1 Atmosphere = 14.7 psi (1.013 KPa)) |
| Sensing Method: | Single beam Non-dispersive Infrared (NDIR) |
| Sensor Life²: | >15 years |
| Response Time (T1/e): | <10 seconds @ 30 cc/min flow rate, < 3 minutes diffusion time |
| Operating Environment: | Residential, Commercial spaces |
| Sensing Range: | 0 to 2000 ppm |
| Extended CO₂ Ranges: | Up to 10,000 ppm (factory set or SADK Kit required) |
| Extended Range Accuracy >2,000 PPM: | +/- 30 ppm and +/- 5% of reading |
| Coverage Area: | 7500 sq. ft. maximum |
| Mounting Height: | 4-6' off the floor |
| Display (Optional): | 4 digits, 7 segments LCD with ppm indicator |
| Calibration³: | Senseair ABC algorithm (Automatic Baseline Correction) |
| Outputs: | Standard: Out 1: 0-10V for 0 to 2000 ppm Out 2: 2-10V or 4-20mA for 0 to 2000 ppm |
| Storage: | ESENSE-R: -40 to 158°F (-40 to 70°C) ESENSE-R-LCD: -4 to 122°F (-20 to 50°C) |
| Enclosure: | ABS, Flammability Rating UL94V-0 |
| Room Dimensions: | (H) 5.12" (130 mm) x (W) 3.35" (85.1 mm) x (D) 1.18" (30 mm) |
| Product Weight (Standard & LCD): | ESENSE-R: 0.294 lbs (0.133 kg) ESENSE-R-LCD: 0.304 lbs (0.138 kg) |
| Agency Approvals: | EMC Directive 2014/30/EC RoHS Directive 2011/65/EU RoHS 3 Directive 2015/863/EU |

Note 1: Accuracy is defined after minimum three (3) ABC periods (1 period = 8 days) of continuous operations | **Note 2:** In normal Indoor Air Quality (IAQ) applications | Corrosive environments are excluded | Changes can be made using the SADK Calibration Kit and UIP5 software | **Note 3:** Building CO₂ levels must drop to 400 ppm some time during the week for ABC to work properly. If the building is occupied 24 hrs/day, ABC must be turned off





STANDARD ORDERING

Model # Example: **ESENSE-R-S** -OR- **130162**

| Model # | Item # | Description |
|-----------------------|--------|---|
| ESENSE-R | 130079 | CO2 Room Mount, 0-10 VDC, 2-10 VDC or 4-20 mA Output |
| ESENSE-R-LCD | 130158 | CO2 Room Mount with Display, 0-10 VDC, 2-10 VDC or 4-20 mA Output |
| ESENSE-R-5-LCD | 130163 | CO2 Room Mount with Display, 0-5 VDC Output |

ACCESSORIES ORDERING

Model # Example: **A/CUSTOM CAL GAS** -OR- **140970**

| Model # | Item # | Description |
|--------------------------|--------|--------------------------------------|
| A/CUSTOM CAL GAS* | 140970 | Custom Calibration |
| SADK | 130502 | SADK Calibration Kit |
| UIP5 | --- | Free Software Download (Contact ACI) |

Note*: Contact ACI's Technical Support for custom calibration ranges





ESENSE DUCT

CO2 Duct Sensor with LCD

The ESENSE Duct series monitors the carbon dioxide (CO₂) levels in industrial, school, and office type environments. The concentration of CO₂ is a good indication of the overall indoor air quality. The ESENSE Series is based on a single beam non-dispersive infrared technology and is a cost-optimized solution for the climate control of buildings and other processes. In addition, ABC software eliminates the need for manual calibration. The ESENSE Series measures the CO₂ concentration in the ambient air up to 2,000 ppm and converts the data into an analog output. This data can be used in conjunction with a Building Automation or Demand Control Ventilation System to decrease energy consumption while creating a healthier indoor climate.

Applications: Commercial Office Buildings, Hospitals & Schools

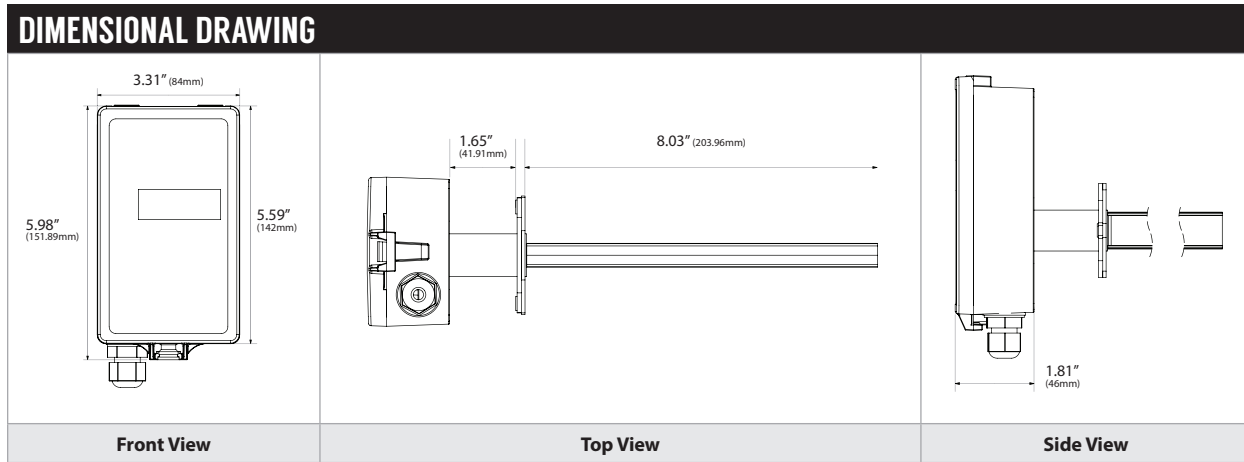
The ESENSE Duct Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's web site, workaci.com.

PRODUCT SPECIFICATIONS

| | |
|---|---|
| Supply Voltage: | 24 VAC/VDC ±20%; 50/60Hz (Half-wave rectified) |
| Power Consumption: | <1W |
| Electrical Connections: | 0.00232 in ² (1.5 mm ²) screw terminals |
| Operating Temperature: | 32°F to 122°F (0°C to 50°C) |
| Operating RH: | 0 – 95% RH Non-condensing |
| Warm-Up Time: | 1 minutes (@ full specs 15 minutes) |
| Accuracy¹: | ±30 ppm and ±3% of reading |
| Repeatability: | ±20 ppm ±1% of measured value |
| Annual Zero Drift: | ± 0.3% of measurement range |
| Operating Pressure: | +1.6% per 0.145 psi (1 kPa) deviation from normal pressure (1 Atmosphere = 14.7 psi (1.013 KPa)) |
| Sensing Method: | Single beam Non-dispersive Infrared (NDIR) |
| Sensor Life²: | >15 years |
| Response Time (T1/e): | <10 seconds @ 30 cc/min flow rate, < 3 minutes diffusion time |
| Operating Environment: | Residential, Commercial and Industrial spaces |
| Sensing Range: | 0 to 2000 ppm |
| Extended CO₂ Ranges: | Up to 10,000 ppm (factory set or SADK Kit required) |
| Extended Range Accuracy >2,000 PPM: | +/- 30 ppm and +/- 5% of reading |
| Display (Optional): | 4 digits, 7 segments LCD with ppm indicator |
| Calibration³: | Senseair ABC algorithm (Automatic Baseline Correction) |
| Output: | Standard: Out 1: 0-10V for 0-2000 ppm Out 2: 2-10V or 4-20 mA for 0-2000 ppm |
| Storage: | -40 to 158°F (-40 to 70°C) Non-display, -4 to 122°F (-20 to 50°C) Display |
| Enclosure: | Duct Box: IP65 rated, PC & ABS blend, Flammability Rating UL94V-0 Cover: Makrolon® 6555 plastic, Flammability Rating UL94V-0 Pipe: PC & ABS blend, Flammability Rating UL94V-0 |
| Room Dimensions: | (H) 5.95" (151.8 mm) x (W) 3.33" (84.6 mm) x (D) 1.85" (47 mm) |
| Product Weight: | 0.80 lbs (0.36 kg) |
| Agency Approvals: | EMC Directive 2014/30/EC RoHS Directive 2011/65/EU RoHS 3 Directive 2015/863/EU |

Note 1: Accuracy is defined after minimum three (3) ABC periods (1 period = 8 days) of continuous operations | **Note 2:** In normal Indoor Air Quality (IAQ) applications | Corrosive environments are excluded | Changes can be made using the SADK Calibration Kit and UIP5 software | **Note 3:** Building CO₂ levels must drop to 400 ppm some time during the week for ABC to work properly. If the building is occupied 24 hrs/day, ABC must be turned off





STANDARD ORDERING

Model # Example: **ESENSE-D-5** -OR- **130166**

| ACI Model # | Item # | Description |
|---------------------|--------|---|
| ESENSE-D | 130164 | CO2 Duct Mount, 0-10 VDC, 2-10 VDC or 4-20 mA Output |
| ESENSE-D-LCD | 130165 | CO2 Duct Mount with Display, 0-10 VDC, 2-10 VDC or 4-20 mA Output |

ACCESSORIES ORDERING

Model # Example: **A/CUSTOM CAL GAS** -OR- **140970**

| ACI Model # | Item # | Description |
|--------------------------|--------|--------------------------------------|
| A/CUSTOM CAL GAS* | 140970 | Custom Calibration |
| SADK | 130502 | SADK Calibration Kit |
| UIP | ---- | Free Software Download (Contact ACI) |

Note*: Contact ACI's Technical Support for custom calibration ranges





ESENSE IP54

CO2 Sensor with LCD & IP54 Rated Enclosure

The ESENSE Duct series monitors the carbon dioxide (CO₂) levels in industrial, school, and office type environments. The concentration of CO₂ is a good indication of the overall indoor air quality. The ESENSE Series is based on a single beam non-dispersive infrared technology and is a cost-optimized solution for the climate control of buildings and other processes. In addition, ABC software eliminates the need for manual calibration. The ESENSE Series measures the CO₂ concentration in the ambient air up to 2,000 ppm and converts the data into an analog output. This data can be used in conjunction with a Building Automation or Demand Control Ventilation System to decrease energy consumption while creating a healthier indoor climate.

Applications: Commercial Office Buildings, Hospitals & Schools

The ESENSE IP54 Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's web site, workaci.com.

PRODUCT SPECIFICATIONS

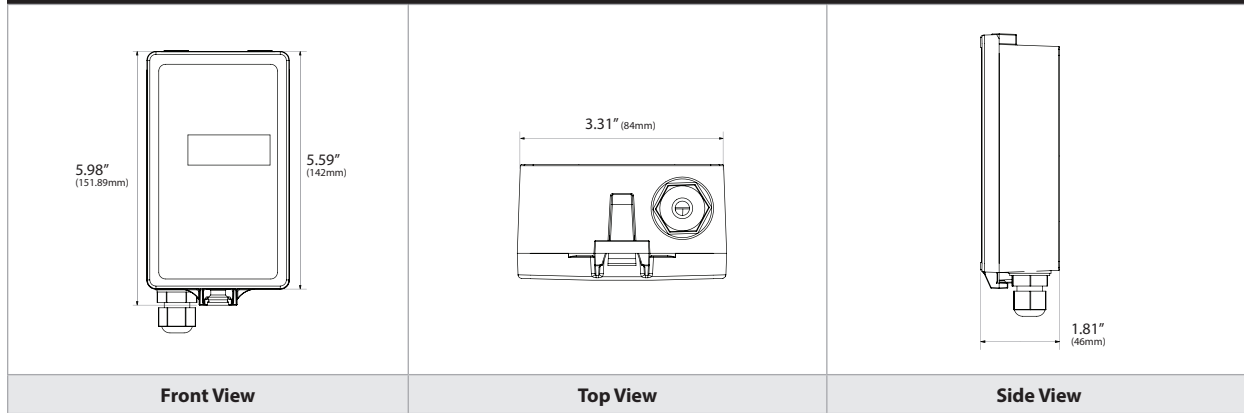
| | |
|---|---|
| Supply Voltage: | 24 VAC/VDC ±20%; 50/60Hz (Half-wave rectified) |
| Power Consumption: | <1W |
| Electrical Connections: | 0.00232 in ² (1.5 mm ²) screw terminals |
| Operating Temperature: | 32°F to 122°F (0°C to 50°C) |
| Operating RH: | 0 – 95% RH Non-condensing |
| Warm-Up Time: | 1 minutes (@ full specs 15 minutes) |
| Accuracy¹: | ±30 ppm and ±3% of reading |
| Repeatability: | ±20 ppm ±1% of measured value |
| Annual Zero Drift: | ± 0.3% of measurement range |
| Operating Pressure: | +1.6% per 0.145 psi (1 kPa) deviation from normal pressure (1 Atmosphere = 14.7 psi (1.013 KPa)) |
| Sensing Method: | Single beam Non-dispersive Infrared (NDIR) |
| Sensor Life²: | >15 years |
| Response Time (T1/e): | <10 seconds @ 30 cc/min flow rate, < 3 minutes diffusion time |
| Operating Environment: | Residential, Commercial and Industrial spaces |
| Sensing Range: | 0 to 2000 ppm |
| Extended CO2 Ranges: | Up to 10,000 ppm (factory set or SADK Kit required) |
| Extended Range Accuracy >2,000 PPM: | +/- 30 ppm and +/- 5% of reading |
| Display (Optional): | 4 digits, 7 segments LCD with ppm indicator |
| Calibration³: | Senseair ABC algorithm (Automatic Baseline Correction) |
| Output: | Standard: Out 1: 0-10V for 0-2000 ppm Out 2: 2-10V or 4-20 mA for 0-2000 ppm |
| Storage: | -40 to 158°F (-40 to 70°C) Non-display, -4 to 122°F (-20 to 50°C) Display |
| Enclosure: | Duct Box: IP65 rated, PC & ABS blend, Flammability Rating UL94V-0 Cover: Makrolon® 6555 plastic, Flammability Rating UL94V-0 Pipe: PC & ABS blend, Flammability Rating UL94V-0 |
| Room Dimensions: | (H) 5.95" (151.8 mm) x (W) 3.33" (84.6 mm) x (D) 1.85" (47 mm) |
| Product Weight: | 0.80 lbs (0.36 kg) |
| Agency Approvals: | EMC Directive 2014/30/EC RoHS Directive 2011/65/EU RoHS 3 Directive 2015/863/EU |

Note 1: Accuracy is defined after minimum three (3) ABC periods (1 period = 8 days) of continuous operations | **Note 2:** In normal Indoor Air Quality (IAQ) applications | Corrosive environments are excluded | Changes can be made using the SADK Calibration Kit and UIP5 software | **Note 3:** Building CO₂ levels must drop to 400 ppm some time during the week for ABC to work properly. If the building is occupied 24 hrs/day, ABC must be turned off





DIMENSIONAL DRAWING



STANDARD ORDERING

| ACI Model # | Item # | Description |
|-----------------|--------|--|
| ESENSE-IP54-LCD | 130169 | CO2 Duct Mount, 0-10 VDC, 2-10 VDC or 4-20 mA Output |

ACCESSORIES ORDERING

| ACI Model # | Item # | Description |
|-------------------|--------|--------------------------------------|
| A/CUSTOM CAL GAS* | 140970 | Custom Calibration |
| SADK | 130502 | SADK Calibration Kit |
| UIP5 | ---- | Free Software Download (Contact ACI) |

Note*: Contact ACI's Technical Support for custom calibration ranges





ESENSE WALL MOUNTS

Industrial (IP54) & In-Duct (IP50) Wall Mounts

The ESENSE-IP54 Industrial Wall Mount transmitters monitor the carbon dioxide (CO2) levels in industrial, school, and office type environments. The concentration of CO2 is a good indication of the overall indoor air quality. The ESENSE Series is based on a single beam non-dispersive infrared technology and is a cost-optimized solution for the climate control of buildings and other processes. In addition, ABC software eliminates the need for manual calibration. The ESENSE Series measures the CO2 concentration in the ambient air up to 2,000 ppm and converts the data into an analog output. This data can be used in conjunction with a Building

Automation or Demand Control Ventilation System to decrease energy consumption while creating a healthier indoor climate. The enclosure is IP54 rated for Industrial applications.

Applications: Schools, Office Buildings, Auditoriums, Gymnasiums, Shopping Malls, Theaters, Demand Control Ventilation & Economizers

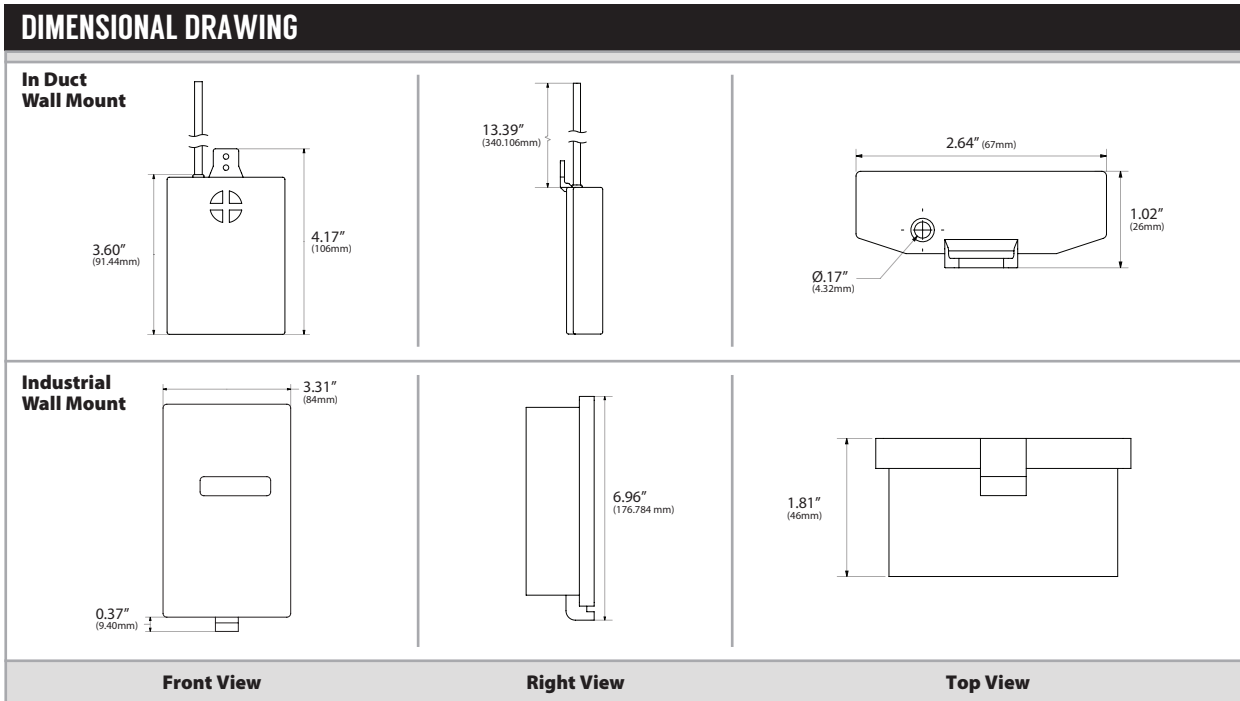
The ESENSE Room IP54 Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|------------------------------------|---|
| Supply Voltage: | 24 VAC/VDC ±20%; 50/60Hz (Half-wave rectified) |
| Power Consumption: | <1W Average |
| Electrical Connections: | Industrial: 0.00232 in ² (1.5 mm ²) screw terminals In-Duct: 13.39" (34 cm) 3-wire pigtail |
| Operating Temperature: | 32°F to 122°F (0°C to 50°C) |
| Operating RH: | 0 – 95% RH Non-condensing |
| Warm-Up Time: | 1 minute (@ full specs 15 minutes) |
| Accuracy¹: | ±30 ppm ±3% of reading |
| Annual Zero Drift: | <±10 ppm |
| Operating Pressure: | +1.6% per 0.145 psi (1 kPa) deviation from normal pressure (1 Atmosphere = 14.7 psi (1.013 KPa)) |
| Sensing Method: | Single beam Non-Dispersive Infrared (NDIR) |
| Sensor Life²: | >15 years |
| Diffusion Time (T1/e): | <3 minutes |
| Operating Environment: | Residential, Commercial and Industrial spaces |
| Sensing Range: | 0 to 2000 ppm |
| Extended CO2 Ranges (IP54): | Up to 10,000 ppm (factory set or SADK Kit required) |
| Extended Range Accuracy: | +/- 30 ppm and +/- 5% of reading |
| Coverage Area: | 7500 sq. ft. maximum |
| Mounting Height: | 4-6' off the floor or in duct |
| Display (Optional): | 4 digits, 7 segments LCD with ppm indicator |
| Calibration²: | Senseair ABC algorithm (Automatic Baseline Correction) |
| Outputs (Industrial): | Out 1: 0-10V for 0-2000 ppm Out 2: 2-10V or 4-20 mA for 0-2000 ppm Out 1: 0-10V only (In-Duct Version) |
| Storage: | -40 to 158°F (-40 to 70°C) Non-display, -4 to 122°F (-20 to 50°C) Display |
| Enclosure: | Industrial: IP54 rated, Box; PC & ABS blend, Flammability Rating UL94V-0 Cover; Makrolon® 6555 plastic, Flammability Rating UL94V-0 In-Duct: IP50 Rated, PC & ABS blend, Flammability Rating UL94V-0 |
| Product Dimensions: | Industrial: (H) 5.95" (151.9 mm) x (W) 3.33" (84.6 mm) x (D) 1.85" (47 mm) In-Duct: (H) 4.17" (106 mm) x (W) 2.64" (67 mm) x (D) 1.02" (26 mm) |
| Agency Approvals: | EMC Directive 2014/30/EC RoHS Directive 2011/65/EU RoHS 3 Directive 2015/863/EU |

Note 1: Accuracy is defined after minimum three (3) ABC periods (1 period = 8 days) of continuous operations | **Note 2:** In normal Indoor Air Quality (IAQ) applications | Corrosive environments are excluded | Changes can be made using the SADK Calibration Kit and UIP5 software | **Note 3:** Building CO2 levels must drop to 400 ppm some time during the week for ABC to work properly. If the building is occupied 24 hrs/day, ABC must be turned off





STANDARD ORDERING

Model # Example: **ESENSE-IP54** -OR- **130168**

| Model # | Item # | Description |
|------------------------|--------|--|
| ESENSE-IP54-LCD | 130169 | CO2 Industrial Wall Mount with Display, 0-10 VDC or 4-20 mA Output |
| ESENSE-IP50 | 130030 | CO2 Industrial In Duct / Wall Mount, 0-10 VDC Output |

ACCESSORIES ORDERING

Model # Example: **A/CUSTOM CAL GAS** -OR- **140970**

| Model # | Item # | Description |
|--------------------------|--------|--------------------------------------|
| A/CUSTOM CAL GAS* | 140970 | Custom Calibration (IP54 only) |
| SADK | 130502 | SADK Calibration Kit |
| UIP5 | ---- | Free Software Download (Contact ACI) |

Note*: Contact ACI's Technical Support for custom calibration ranges





ESENSE OUTDOOR

CO2 Outdoor Sensor

Carbon Dioxide Sensor The ESENSE-OUTDOOR combines excellent performance with a straightforward design to provide an analog output based on 0 to 2,000 ppm of carbon dioxide. The ESENSE-OUTDOOR is complete with a IP65 housing with side ventilation to support the flow of outdoor air. The ESENSE-OUTDOOR includes an in-line thermostat in order that heating of the housing only takes place when the outdoor temperature warrants the use of the energy to maintain an above freezing temperature in the housing. This device can be mounted to a wall, or other supporting structures, using the four corner mounting holes or the top and bottom mounting holes.

Applications: Outdoor or Non-Heated Structures

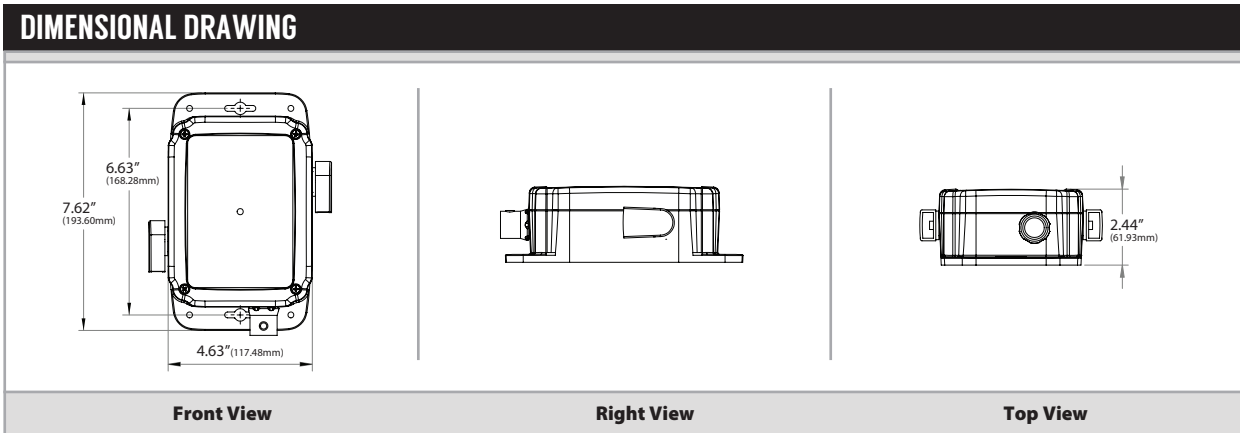
The ESENSE-OUTDOOR Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|---|---|
| Supply Voltage: | 24 VAC/VDC ±20%; 50/60Hz (Half-wave rectified) |
| Power Consumption: | Sensor: <1W Heater: 10W Maximum Total Power: 11W |
| Enclosure Heater: | 24 VAC Turns on @ 39°F (4°C) and below |
| Electrical Connections: | 0.00232 in ² (1.5 mm ²) screw terminals |
| Operating Temperature: | -22°F to 115°F (-30°C to 46°C) |
| Operating RH: | 0 - 95% RH Non-condensing |
| Warm-Up Time: | 1 minute (@ full specs 15 minutes) |
| Accuracy¹: | ±30 ppm and ±3% of reading |
| Repeatability: | ±20 ppm ±1% of measured value |
| Annual Zero Drift: | ± 0.3% of measurement range |
| Operating Pressure: | +1.6% per 0.145 psi (1 kPa) deviation from normal pressure (1 Atmosphere = 14.7 psi (1.013 KPa)) |
| Sensing Method: | Single beam Non-dispersive Infrared (NDIR) |
| Sensor Life²: | >15 years |
| Response Time (T1/e): | <10 seconds @ 30 cc/min flow rate, < 3 minutes diffusion time |
| Operating Environment: | Outdoor or Non-Heated Structures |
| Sensing Range: | 0 to 2000 ppm |
| Extended CO2 Ranges: | Up to 10,000 ppm (factory set or SADK Kit required) |
| Extended Range Accuracy >2,000 PPM: | +/- 30 ppm and +/- 5% of reading |
| Calibration³: | Senseair ABC algorithm (Automatic Baseline Correction) |
| Outputs: | Standard: Out 1: 0-10V for 0 to 2000 ppm Out 2: 2-10V or 4-20mA for 0 to 2000 ppm |
| Storage: | -4 to 122°F (-20 to 50°C) |
| Enclosure: | IP65, Flammability Rating UL94V-0 Poly Carbonate |
| Room Dimensions: | (H) 7.62" (193.55 mm) x (W) 4.63" (117.60 mm) x (D) 2.44" (61.98 mm) |
| Product Weight: | 1.4 lbs (0.64 Kg) |
| Agency Approvals: | EMC Directive 2014/30/EC RoHS Directive 2011/65/EU RoHS 3 Directive 2015/863/EU |

Note 1: Accuracy is defined after minimum three (3) ABC periods (1 period = 8 days) of continuous operations | **Note 2:** In normal Indoor Air Quality (IAQ) applications | Corrosive environments are excluded | Changes can be made using the SADK Calibration Kit and UIP5 software | **Note 3:** Building CO2 levels must drop to 400 ppm some time during the week for ABC to work properly. If the building is occupied 24 hrs/day, ABC must be turned off





STANDARD ORDERING Model # Example: **ESENSE-OUTDOOR** -OR- **135028**

| Model # | Item # | Description |
|-----------------------|--------|--|
| ESENSE-OUTDOOR | 135028 | ESENSE-OUTDOOR / CO2 Heated Outdoor Sensor |

ACCESSORIES ORDERING Model # Example: **A/CUSTOM CAL GAS** -OR- **140970**

| Model # | Item # | Description |
|--------------------------|--------|--------------------------------------|
| A/CUSTOM CAL GAS* | 140970 | Custom Calibration (IP54 only) |
| SADK | 130502 | SADK Calibration Kit |
| UIP5 | --- | Free Software Download (Contact ACI) |

Note*: Contact ACI's Technical Support for custom calibration ranges





ASENSE-R
(Standard)



ASENSE ROOM

CO2 Room Sensor with Relay Option

The ASENSE Room series monitors the carbon dioxide (CO2) levels in commercial, school, and office type environments. The concentration of CO2 is a strong indication of the overall indoor air quality. The ASENSE Series is based on a single beam non-dispersive infrared technology and is a cost-optimized solution for the climate control of buildings and other processes. In addition, ABC software eliminates the need for manual calibration. The ASENSE Series measures the CO2 concentration in the ambient air up to 2,000 ppm and converts the data into an analog output. This data can be used in conjunction with a Building Automation or Demand Control Ventilation System to create a healthier indoor climate. This series features an analog temperature output (32 to 122°F) and come with combined output options of 0-10 VDC and 0

to 20 mA (4 to 20 mA and 2-10 VDC are field selectable via an onboard jumper). A relay option is available for this series as well. The UIP5 software and programming cable offer a configuration/test utility and provide access to the main features of the ASENSE series.

Applications: Commercial Office Buildings, Gymnasiums, Shopping Malls, Auditoriums, Theaters, Hospitals & Schools

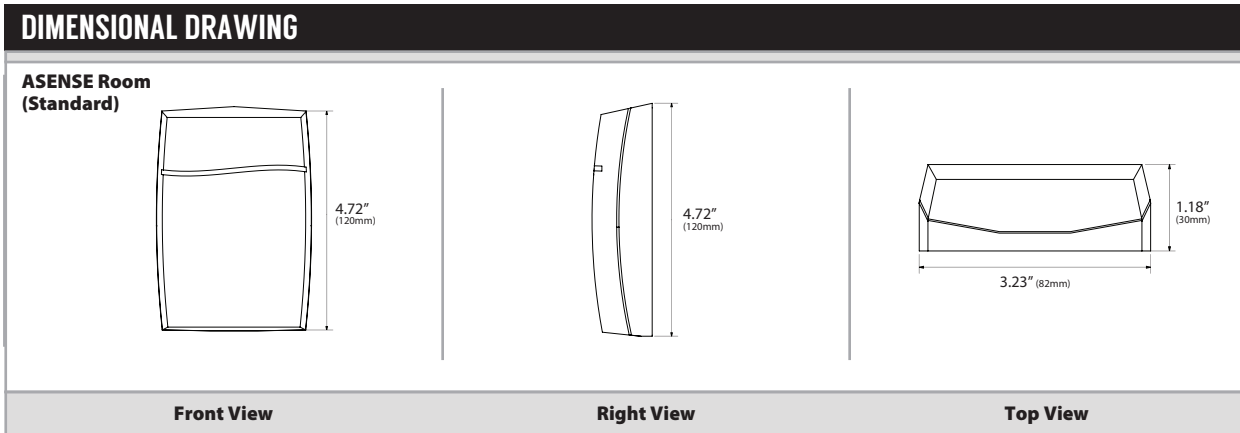
The ASENSE Room Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|--|---|
| Supply Voltage: | 24 VAC/VDC ±20%; 50/60 Hz, 10.5 to 40 VDC maximum (Half-wave rectified) |
| Power Consumption: | <1W |
| Wiring Connections: | 0.00232 in ² (1.5 mm ²) screw terminals |
| Operating Environment: | Residential, commercial and industrial spaces |
| Operating Temperature: | 32°F to 122°F (0°C to 50°C) |
| Operating RH: | 0 to 85% RH Non-condensing |
| Warm-Up Time: | <5 minutes (@ full specs 15 minutes) |
| Accuracy: | CO2¹: ±30 ppm and ±3% of reading Temperature: ±1.8°F (1°C) |
| Repeatability: | ±20 ppm ±1% of measured value |
| Annual Zero Drift: | <± 0.3% of measurement range |
| Operating Pressure: | +1.6% per 0.145 psi (1 kPa) deviation from normal pressure (1 Atmosphere = 14.7 psi (1.013 KPa)) |
| Sensing Method: | Single beam Non-dispersive Infrared (NDIR) |
| Sensor Life ²: | >15 years |
| Response Time (T1/e): | <10 seconds @ 30 cc/minutes flow rate, <3 minutes diffusion time |
| Sensing Range: | CO2: 0 to 2000 ppm Temperature: -4 to 140°F (-20 to 60°C) |
| Extended CO2 Ranges: | Up to 10,000 ppm (factory set or programming cable required) |
| Extended Range Accuracy > 2,000 PPM: | +/- 30 ppm and +/- 5% of reading |
| Coverage Area: | 7500 sq. ft. maximum |
| Mounting Height: | 4-6' off the floor |
| Self-Diagnostics: | Complete function check, yellow LED; LCD error indication (display model only) |
| Display (Optional): | 4 digits, 7 segments LCD with ppm indicator |
| Calibration ³: | Senseair ABC algorithm (Automatic Baseline Correction) |
| Outputs: | Output 1 (CO2): 0/2 to 10V, 0/4 to 20 mA, 0 to 2000 ppm Output 2 (Temperature): 0/2 to 10V, 0/4 to 20 mA, 32 to 122°F (0 to 50°C) Output 3: N.O. or N.C. rated 0.5A @ 125 VAC; 1A @ 24 VDC |
| Relay (Optional): | |
| Relay Trip Point: | 1000 ppm (factory set) |
| Relay Deadband/Hysteresis: | 100 ppm (factory set) |
| Relay Durability: | Mechanical: 5,000,000 operations minimum (at 36,000 operations/hr) Electrical: 100,000 operations minimum (under rated load, at 1,800 operations/hr) |
| Storage: | Standard Versions: -40 to 158°F (-40 to 70°C) LCD Versions: -4 to 122°F (-20 to 50°C) 0 to 85% RH Non-condensing |
| Enclosure: | ABS, Flammability Rating UL94-HB |
| Product Dimensions: | ASENSE-R & ASENSE-R-LCD: (H) 5.12" (130 mm) x (W) 3.35" (85.1 mm) x (D) 1.18" (30 mm) |
| Product Weight: | ASENSE-R: 0.300 lbs (0.136 kg) ASENSE-R-LCD: 0.314 lbs (0.142 kg) |
| Agency Approvals: | EMC Directive 2014/30/EC, RoHS Directive 2011/65/EU & RoHS 3 Directive 2015/863/EU |

Note 1: Accuracy is defined after minimum three (3) ABC periods (1 period = 8 days) of continuous operations | **Note 2:** In normal Indoor Air Quality (IAQ) applications | Corrosive environments are excluded | **Note 3:** Building CO2 levels must drop to 400 ppm some time during the week for ABC to work properly | If the building is occupied 24 hrs/day, ABC must be turned off | Changes can be made using TTL-232R-3V3 cable and UIP5 software





STANDARD ORDERING

Model # Example: **A**SENSE-R-REL -OR- 130529

| Model # | Item # | Description |
|--------------------------|--------|--|
| A SENSE-R | 131189 | CO2 Room, 0-10 VDC or 0-20 mA Output, 4-20mA or 2-10 VDC Field Selectable |
| A SENSE-R-REL | 130529 | CO2 Room, 0-10 VDC or 0-20 mA Output, Relay, 4-20mA or 2-10 VDC Field Selectable |
| A SENSE-R-LCD | 131191 | CO2 Room, with Display, 0-10 VDC or 0-20 mA Output, 4-20mA or 2-10 VDC Field Selectable |
| A SENSE-R-LCD-REL | 130530 | CO2 Room, with Display, 0-10 VDC or 0-20 mA Output, Relay, 4-20mA or 2-10 VDC Field Selectable |

ACCESSORIES ORDERING

Model # Example: **A/CUSTOM CAL GAS** -OR- 140970

| Model # | Item # | Description |
|--------------------------|--------|--------------------------------------|
| A/CUSTOM CAL GAS* | 140970 | Custom Calibration |
| TTL-232R-3V3 | 134207 | Programming Cable |
| UIP5 | ---- | Free Software Download (Contact ACI) |

Note*: Contact ACI's Technical Support for custom calibration ranges





ASENSE DUCT

CO2 Duct Sensor with IP65 Rated Enclosure

The ASENSE Duct series monitors the carbon dioxide (CO₂) levels in industrial, commercial, school, and office type environments. The concentration of CO₂ is a strong indication of the overall indoor air quality. The ASENSE Series is based on a single beam non-dispersive infrared technology and is a cost-optimized solution for the climate control of buildings and other processes. In addition, ABC software eliminates the need for manual calibration. The ASENSE Series measures the CO₂ concentration in the ambient air up to 2,000 ppm and converts the data into an analog output. This data can be used in conjunction with a Building Automation or Demand Control Ventilation System to create a healthier indoor climate. This series features

an analog temperature output (32 to 122°F) and come with combined output options of 0-10 VDC and 0 to 20 mA (4 to 20 mA and 2-10 VDC are field selectable via an onboard jumper) The relay output can directly control dampers and speed regulated fans. The UIP5 software and programming cable offer a configuration/test utility and provide access to the main features of the ASENSE series.

Applications: Commercial Office Buildings, Hospitals & Schools

The ASENSE Duct Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, workaci.com.

PRODUCT SPECIFICATIONS

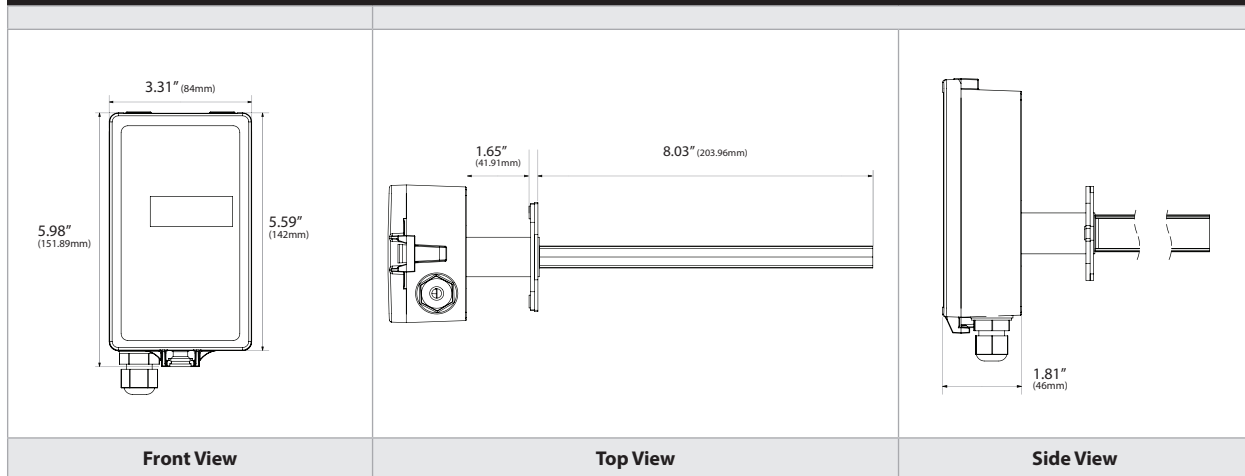
| | |
|---|---|
| Supply Voltage: | 24 VAC/VDC ±20%; 50/60 Hz, 10.5 to 40 VDC maximum (Half-wave rectified) |
| Power Consumption: | <1W |
| Wiring Connections: | 0.00232 in ² (1.5 mm ²) screw terminals |
| Operating Environment: | Residential, commercial, and industrial spaces |
| Operating Temperature: | 32°F to 122°F (0°C to 50°C) |
| Operating RH: | 0 to 85% RH Non-condensing |
| Warm-Up Time: | <5 minutes (@ full specs 15 minutes) |
| Accuracy: | CO₂¹: ±30 ppm and ±3% of reading Temperature: ±1.8°F (1°C) |
| Repeatability: | ±20 ppm ±1% of measured value |
| Annual Zero Drift: | <± 0.3% of measurement range |
| Operating Pressure: | +1.6% per 0.145 psi (1 kPa) deviation from normal pressure (1 Atmosphere = 14.7 psi (1.013 KPa)) |
| Sensing Method: | Single beam Non-dispersive Infrared (NDIR) |
| Sensor Life²: | >15 years |
| Response Time (T1/e): | <10 seconds @ 30 cc / minimum flow rate, <3 minutes diffusion time |
| Sensing Range: | CO₂: 0 to 2000 ppm Temperature: -4 to 140°F (-20 to 60°C) |
| Extended CO₂ Ranges: | 2000 to 10,000 ppm (factory set or programming cable required) |
| Extended Range Accuracy >2,000 PPM: | +/- 30 ppm and +/- 5% of reading |
| Coverage Area: | 7500 sq. ft. maximum |
| Self-Diagnostics: | Complete function check, yellow LED; LCD error indication (display model only) |
| Display: | 4 digits, 7 segments LCD with ppm indicator |
| Calibration³: | Senseair ABC algorithm (Automatic Baseline Correction) |
| Outputs: | Out 1 (CO₂): 0/2 to 10V, 0/4 to 20 mA, 0 to 2000 ppm Out 2 (Temperature): 0/2 to 10V, 0/4 to 20 mA, 32 to 122°F (0 to 50°C) |
| Relay: | Out 3: N.O. or N.C. rated 0.5A @ 125 VAC; 1A @ 24 VDC |
| Relay Trip Point⁴: | 1000 ppm (factory set) |
| Relay Deadband/Hysteresis: | 100 ppm (factory set) |
| Relay Durability: | Mechanical: 5,000,000 operations minimum (at 36,000 operations/hr) Electrical: 100,000 operations minimum (under rated load, at 1,800 operations/hr) |
| Storage: | ASENSE-D-LCD: -4 to 122°F (-20 to 50°C) 0 to 85% RH Non-condensing |
| Enclosure: | Duct Box: PC & ABS blend, Flammability Rating UL94V-0 Cover: Makrolon® 6555 plastic, Flammability Rating UL94V-0 Pipe: PC & ABS blend, Flammability Rating UL94V-0 |
| Product Dimensions: | (H) 5.95" (151.9 mm) x (W) 3.33" (84.6 mm) x (D) 1.85" (47 mm) |
| Product Weight: | 0.812 lbs (0.368 kg) |
| Agency Approvals: | CE, UKCA, RoHS |

Note ¹: Accuracy is defined after minimum three (3) ABC periods (1 period = 8 days) of continuous operations | **Note ²:** In normal Indoor Air Quality (IAQ) applications | Corrosive environments are excluded | **Note 3:** Building CO₂ levels must drop to 400 ppm some time during the week for ABC to work properly | If the building is occupied 24 hrs/day, ABC must be turned off | **Note4:** Changes can be made using TTL-232R-3V3 cable and UIP5 software





DIMENSIONAL DRAWING



STANDARD ORDERING

Model # Example: **A**SENSE-D-LCD -OR- 133507

| Model # | Item # | Description |
|--------------------------|--------|--|
| A SENSE-D-LCD-REL | 130532 | CO ₂ , Duct Mount with Display, Relay, 0-10 VDC or 0-20 mA Output, 4-20 mA or 2-10 VDC Field Selectable |

ACCESSORIES ORDERING

Model # Example: **A**/CUSTOM CAL GAS -OR- 140970

| Model # | Item # | Description |
|---------------------------|--------|--------------------------------------|
| A /CUSTOM CAL GAS* | 140970 | Custom Calibration |
| T TTL-232R-3V3 | 134207 | Programming Cable |
| U IP5 | ---- | Free Software Download (Contact ACI) |

Note*: Contact ACI's Technical Support for custom calibration ranges



ASENSE-GH-LCD

CO2 Sensor for Greenhouses / Indoor Agriculture

The ASENSE-GH is a device that is designed for monitoring carbon dioxide (CO2) and temperature in areas that have higher Carbon Dioxide levels such as greenhouses and breweries. It has a conformally coated PCB and filter equipped housing to protect against dust and high humidity. The ASENSE-GH-LCD uses State-of-the-art non-dispersive infrared (NDIR) technology and has a membrane covered sample chamber that gives a stable and reliable CO2 reading. There are three

(3) outputs on the ASENSE-GH: Output 1 for CO2: 0/2-10V or 0/4-20 mA 0-2000 ppm, Output 2 temperature: 0/2-10V or 0/4-20 mA 0-50°C, and Output 3 is a relay for fan control. An optional RS485 interface for Modbus communication is available.

Applications: Greenhouses, Grow Houses, Breweries, Indoor Agriculture, Mushroom Farms & Horticultural

The ASENSE-GH-LCD Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

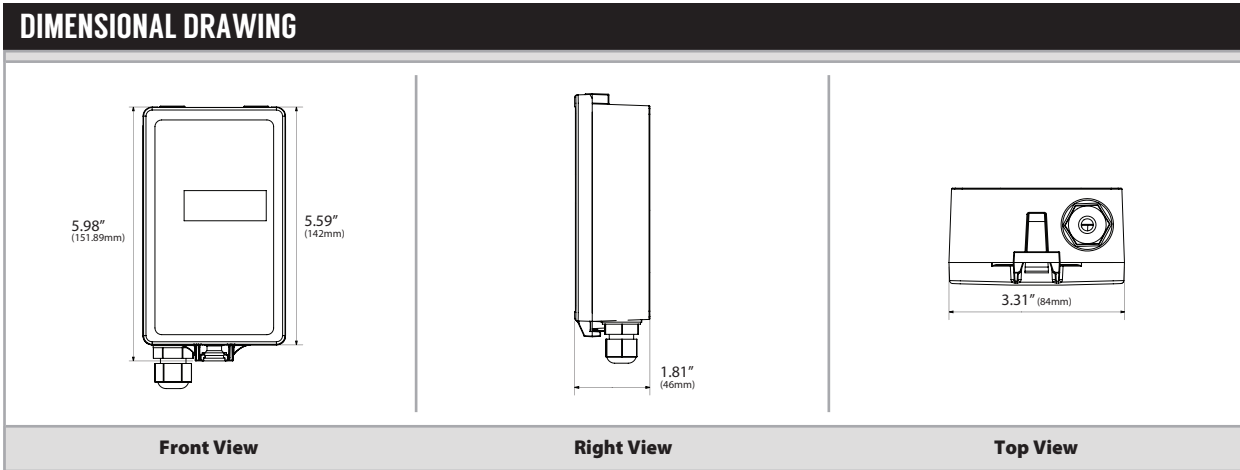
| | |
|--|--|
| Supply Voltage: | 24 VAC/VDC ±20%; 50/60 Hz, 10.5 to 40 VDC maximum (Half-wave rectified) |
| Power Consumption: | <3W Average |
| Electrical Connections: | 0.00232 in ² (1.5 mm ²) screw terminals |
| Operating Temperature: | 32°F to 122°F (0°C to 50°C) |
| Operating RH: | 0 to 85% RH Non-condensing |
| Warm-Up Time: | < 1 minute (@ full specs 15 minutes) |
| Sensing Range; CO2 Temperature: | 0 to 2000 ppm -4° to 140°F (-20° to 50°C) |
| Extended CO2 Ranges: | 2000 to 10,000 ppm (factory set or programming cable required) |
| Accuracy; CO2 Temperature: | ±30 ppm ±3% of reading ±1.8°F (1°C) |
| Extended Range Accuracy: | +/- 30 ppm and +/- 5% of reading |
| Annual Zero Drift: | < +/-10 ppm |
| Operating Pressure: | +1.6% per 0.145 psi (1 kPa) deviation from normal pressure (1 Atmosphere = 14.7 psi (1.013 KPa)) |
| Sensing Method: | Non-dispersive infrared (NDIR) with EQC (Eternal Quality Coating) |
| Sensor Life ¹: | > 15 years |
| Diffusion Time (T1/e): | < 3 minutes |
| Coverage Area: | 7500 sq. ft maximum |
| Mounting Height: | 4-6' off the floor |
| Display: | 4 digits, 7 segments LCD with ppm / °F |
| Status LED Indicators: | Yellow = Maintenance Support Red = Closed Relay |
| Calibration: | Recommended annually |
| Outputs ²: | Out 1 (CO2): 0/2-10V, 0/4-20 mA, 0-2000 ppm Out 2 (Temp): 0/2-10V, 0/4-20 mA, 32° to 122°F / 0° to 50°C Out 3 Relay: N.O.; 1A @ 50 VAC / 24 VDC |
| Protection: | PTC fuse (auto reset) on signal return M, short-circuit safe |
| Output Limits: | MIN & MAX limits may be individually set to all outputs Linear |
| OUT1 & OUT2: | 0/2-10 VDC, ROUT < 100Ω, RLOAD > 5kΩ (0/1-5 VDC optional) 0/4-20 mA, RLOAD < 500Ω |
| D/A Resolution: | 10 bits, 10 mV / 0.016 mA |
| D/A Conversion Accuracy: | Voltage mode: ± 2% of reading ± 50 mV current loop : ± 2% of reading ± 0.3 mA |
| Relay Trip Point ³: | 1000 ppm (factory set) |
| Relay Deadband / Hysteresis: | 100 ppm (factory set) |
| Agency Approvals: | RoHS directive 2011/65/EU, EMC 2004/108/EC, 92/31/EEG including amendments by the CE-marking Directive 93/68/EEC |
| Storage: | -40° to 158°F (-40° to 70°C) Non-display, -4° to 122°F (-20 to 50°C) Display 0 to 85% RH Non-condensing |
| Enclosure: | Box; PC & ABS blend IP65 Rating, Flammability UL94V-0 Cover; Makrolon® 6555 plastic, Flammability rating UL94V-0 |
| Product Dimensions: | (H) 5.95" (151.9 mm) x (W) 3.33" (84.6 mm) x (D) 1.85" (47 mm) |

Note ¹: In normal Indoor Air Quality (IAQ) applications | Corrosive environments are excluded

Note ²: Optional Modbus RS485 communication board available

Note ³: Changes can be made using TTL-232R-3V3 cable and UIP5 software downloaded from Senseair





STANDARD ORDERING Model # Example: **ASENSE-GH-LCD -OR- 144119**

| Model # | Item # | Description |
|----------------------|--------|--|
| ASENSE-GH-LCD | 144119 | ASENSE Greenhouse, CO2, Temperature, Relay, With Display |

ACCESSORIES ORDERING Model # Example: **A/CUSTOM CAL GAS -OR- 140970**

| Model # | Item # | Description |
|--------------------------|--------|--------------------------------------|
| A/CUSTOM CAL GAS* | 140970 | Custom Calibration |
| TTL-232R-3V3 | 134207 | Programming Cable |
| UIP5 | --- | Free Software Download (Contact ACI) |

Note*: Contact ACI's Technical Support for custom calibration ranges





ASENSE IP54

CO2 Sensor with IP54 Rated Enclosure

The ASENSE Duct series monitors the carbon dioxide (CO2) levels in industrial, commercial, school, and office type environments. The concentration of CO2 is a strong indication of the overall indoor air quality. The ASENSE Series is based on a single beam non-dispersive infrared technology and is a cost-optimized solution for the climate control of buildings and other processes. In addition, ABC software eliminates the need for manual calibration. The ASENSE Series measures the CO2 concentration in the ambient air up to 2,000 ppm and converts the data into an analog output. This data can be used in conjunction with a Building Automation or Demand Control Ventilation System to create a healthier indoor climate. This series features an analog temperature output (32 to 122°F) and come with combined output options of 0-10 VDC and 0 to 20 mA (4 to 20 mA and 2-10 VDC are

field selectable via an onboard jumper) or 0-5 VDC for “-5” versions. A relay option is available for this series as well. The UIP5 software and programming cable offer a configuration/test utility and provide access to the main features of the ASENSE series.

Applications: Commercial Office Buildings, Hospitals & Schools

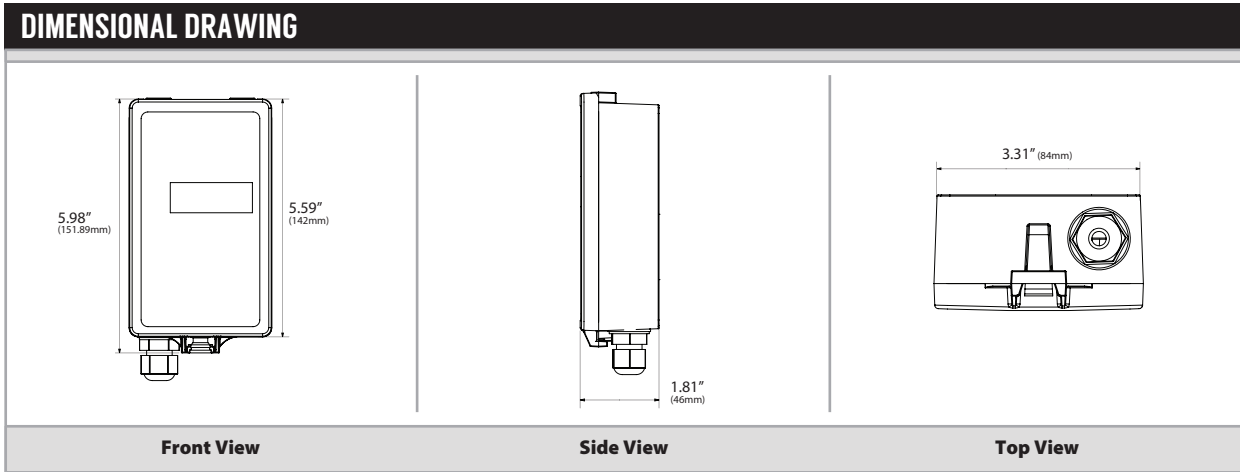
The ASENSE IP54 Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|--------------------------------------|--|
| Supply Voltage: | 24 VAC/VDC ±20%; 50/60 Hz, 10.5 to 40 VDC maximum (Half-wave rectified) |
| Power Consumption: | <1W |
| Wiring Connections: | 0.00232 in ² (1.5 mm ²) screw terminals |
| Operating Environment: | Residential, commercial, and industrial spaces |
| Operating Temperature: | 32°F to 122°F (0°C to 50°C) |
| Operating RH: | 0 to 85% RH Non-condensing |
| Warm-Up Time: | <5 minutes (@ full specs 15 minutes) |
| Accuracy: | CO2¹: ±30 ppm ±3% of reading Temperature: ±1.8°F (1°C) |
| Repeatability: | ±20 ppm ±1% of measured value |
| Annual Zero Drift: | <± 0.3% of measurement range |
| Operating Pressure: | +1.6% per 0.145 psi (1 kPa) deviation from normal pressure (1 Atmosphere = 14.7 psi (1.013 KPa)) |
| Sensing Method: | Single beam Non-dispersive Infrared (NDIR) |
| Sensor Life²: | >15 years |
| Response Time (T1/e): | <10 seconds @ 30 cc / minimum flow rate, <3 minutes diffusion time |
| Sensing Range: | CO2: 0 to 2000 ppm Temperature: -4 to 140°F (-20 to 60°C) |
| Extended CO2 Ranges: | 2000 to 10,000 ppm (factory set or programming cable required) |
| Extended Range Accuracy: | +/- 30 ppm and +/- 5% of reading |
| Coverage Area: | 7500 sq. ft. maximum |
| Self-Diagnostics: | Complete function check, yellow LED; LCD error indication (display model only) |
| Display (Optional): | 4 digits, 7 segments LCD with ppm indicator |
| Calibration³: | Senseair ABC algorithm (Automatic Baseline Correction) |
| Outputs: | Out 1 (CO2): 0/2 to 10V, 0/4 to 20 mA, 0 to 2000 ppm Out 2 (Temperature): 0/2 to 10V, 0/4 to 20 mA, 32 to 122°F (0 to 50°C) “5” Version: 0-5 VAC for 0-2000 ppm |
| Relay (Optional): | Out 3: N.O. or N.C. rated 0.5A @ 125 VAC; 1A @ 24 VDC |
| Relay Trip Point⁴: | 1000 ppm (factory set) |
| Relay Deadband/Hysteresis: | 100 ppm (factory set) |
| Relay Durability: | Mechanical: 5,000,000 operations minimum (at 36,000 operations/hr) Electrical: 100,000 operations minimum (under rated load, at 1,800 operations/hr) |
| Storage: | ASENSE-IP54-LCD-REL: -4 to 122°F (-20 to 50°C) 0 to 85% RH Non-condensing |
| Enclosure: | Duct Box: PC & ABS blend, Flammability Rating UL94V-0 Cover: Makrolon® 6555 plastic, Flammability Rating UL94V-0 |
| Product Dimensions: | (H) 5.95" (151.9 mm) x (W) 3.33" (84.6 mm) x (D) 1.85" (47 mm) |
| Product Weight: | 0.812 lbs (0.368 kg) |
| Agency Approvals: | EMC Directive 2014/30/EC, RoHS Directive 2011/65/EU & RoHS 3 Directive 2015/863/EU |

Note 1: Accuracy is defined after minimum three (3) ABC periods (1 period = 8 days) of continuous operations | **Note 2:** In normal Indoor Air Quality (IAQ) applications | Corrosive environments are excluded | **Note 3:** Building CO2 levels must drop to 400 ppm some time during the week for ABC to work properly | If the building is occupied 24 hrs/day, ABC must be turned off | **Note 4:** Changes can be made using TTL-232R-3V3 cable and UIP5 software





STANDARD ORDERING Model # Example: **ASENSE-IP54-5** -OR- **132732**

| Model # | Item # | Description |
|----------------------------|--------|---------------------------------|
| ASENSE-IP54-LCD-REL | 134678 | ASENSE CO2 IP54 with LCD, Relay |

ACCESSORIES ORDERING Model # Example: **A/CUSTOM CAL GAS** -OR- **140970**

| Model # | Item # | Description |
|--------------------------|--------|--------------------------------------|
| A/CUSTOM CAL GAS* | 140970 | Custom Calibration |
| TTL-232R-3V3 | 134207 | Programming Cable |
| UIP5 | ---- | Free Software Download (Contact ACI) |

Note*: Contact ACI's Technical Support for custom calibration ranges





TSENSE

CO2 Sensor with Temperature, RH & Display

The TSENSE is an advanced and versatile 3 in 1 transmitter designed for installation in air conditioned zones. It measures carbon dioxide, temperature and relative humidity and features analog and relay outputs or communication protocols of BACnet™ or Modbus, depending on the application specifications. The TSENSE-LCD features a touch screen menu and is suitable for use in numerous energy efficiency strategies for commercial office buildings, hospitals, hotels, schools and other facilities. The TSENSE incorporates a NDIR (non-dispersive infrared) technology and complies with ASHRAE 189.1 allowing for a comfortable and healthy environment for the occupants. The TSENSE-LCD can be configured through the touch screen or with the TTI-232R-3V3-AJ programming cable and UIP5 software. **The TSENSE without LCD must use the TTL-232R-3V3-AJ programming cable and UIP5 software to change settings or for BACnet or Modbus communication.**

Applications: Commercial Office Buildings, Hospitals & Schools

The TSENSE Series Gas Transmitters are covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's web site, workaci.com.

PRODUCT SPECIFICATIONS

| | |
|---|--|
| Supply Voltage: | 12 VDC, 24 VAC/VDC, ±20%; (Half-wave rectified) (50-60 Hz) |
| Power Consumption: | <0.35W average non-display, <0.6W display version, <2W maximum |
| Electrical Connections: | 0.00232 in ² (1.5 mm ²) screw terminals |
| Operating Environment: | Residential and Commercial spaces |
| Operating Temperature: | 32°F to 122°F (0°C to 50°C) |
| Operating RH: | 0-95% RH Non-condensing |
| Warm-Up Time: | 1 minute (@ full specs 15 mins) |
| Coverage Area: | 7500 sq. ft. maximum |
| Pressure Dependence: | ±1.6% per 0.145 psi (1 kPa) deviation from normal pressure (1 Atmospher = 14.7 psi (1.013 KPa)) |
| Maintenance Interval: | Maintenance free |
| Mounting Height: | 4-6' off the floor |
| Self-Diagnostics: | Complete function check |
| Display (Optional): | Touch display, configurable color LCD with CO2 (PPM), Temperature (°F or °C), and Humidity (%RH) |
| Storage: | -22°F to 158°F (-30°F to 70°F) |
| Analog Output: | Out 1 (CO2): 0 to 10V, 0 to 2000 ppm Out 2 (Temperature): 0-10V, 32°F to 122°F (0°C to 50°C) Out 3 (RH): 0 to 10V, 0 to 100% RH |
| Analog Output Signal: | Voltage Output: 0 to 10V, R out <100Ω, Load: >5KΩ |
| Analog Output Resolution: | 10-bits, 10mV/steps, , 0.1% steps of full ppm/°C/%RH range |
| CO2 Accuracy¹: | ±50 ppm (@ 1000 ppm, 63°F to 82°F (17°C to 28°C), and Humidity (%RH)) Typical full range ±30 ppm ±3% of reading (CO2) |
| CO2 Sensing Method: | Single beam non-dispersive Infrared (NDIR) |
| CO2 Sensor Life²: | > 15 years (typical) |
| CO2 Sensor Response Time (T1/e): | <3 minute diffusion time |
| CO2 Sensing Range³: | 0 to 2000 ppm (CO2), optional 0 to 3000 ppm |
| Extended Range Accuracy: | Typically < (+/- 30 ppm +/- 20% of measured value) |
| CO2 Repeatability: | ±20 ppm ±1% of measured value |
| CO2 Annual Zero Drift: | ±0.3% of measurement range |
| CO2 Calibration³: | Senseair ABC algorithm (Automatic Baseline Correction) |
| Temperature Range: | 32°F to 122°F (0°C to 50°C) |
| Temperature Accuracy: | ±0.9°F @ 63 to 82°F (±0.5°C @ 17 to 28°C), ±1.8°F @ 32 to 122°F (±1.0°C @ 0 to 50°C) |
| Temperature Repeatability: | ±0.45°F @ 63 to 82°F (±0.25°C @ 17 to 28°C) |
| Temperature Response Time: | <6 minutes (Aire velocity of 0.15m/s) |
| RH Sensor: | Capacitive |
| RH Measurement Range: | 0-100% |
| RH Accuracy: | ±5% @ 20 to 80% RH |
| RH Hysteresis: | ±1% @ 20 to 80% RH |
| RH Annual Drift: | <±0.5% RH |
| RH Repeatability: | ±0.25% RH @ 63 to 82°F (±0.25% RH @ 17 to 28°C) |
| RH Response Time: | <6 minutes (Air velocity of 0.15m/s) |



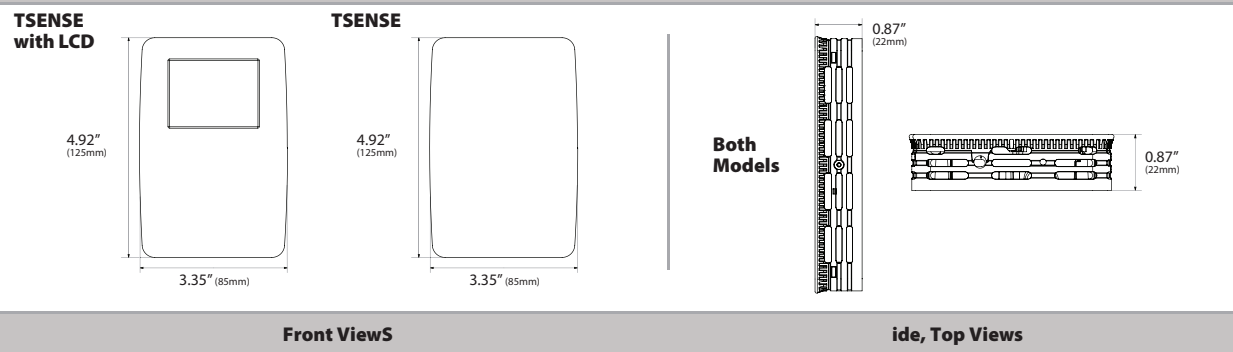


PRODUCT SPECIFICATIONS CONTINUED

| | |
|-------------------------------------|---|
| Relay Trip Point (CO2): | 1000 ppm (factory set) |
| Relay Input Source: | CO2 (Default) / Temp/RH Configurable via Touchscreen or UIP5 Software |
| Relay Deadband / Hysteresis: | 100 ppm (factory set) |
| Relay Type: | Form C, SPDT 1A @ 50 VAC / 24 VDC |
| Relay Durability: | Mechanical: 100,000,000 operations minimum (@ 36,000 operations/hour) Electrical: 100,000 operations minimum for AC (@ 1,800 operations/hour with rated load) 100,000 operations minimum for DC (@ 1,200 operations/hour with rated load) |
| Communication Protocol: | Modbus RTU or BACnet MS/TP |
| Baud Rates: | 9600, 19200, 38400, 57600, 76800, 115200 |
| BACnet MAC Address: | 0 to 127 (Default 104) |
| Enclosure: | Bayblend FR3000 (PC & ABS blend), Flammability rating UL 94V-0 |
| Enclosure Dimensions: | (H) 4.92" (125 mm) x (W) 3.35" (85 mm) x (D) 0.87" (22 mm) |
| Product Weight: | TSENSE: 0.361 lbs (0.166kg) TSENSE-LCD: 0.414 lbs (0.188kg) |
| Agency Approvals: | EMC directive 2004/108/EC, Rohs directive 2011/65/EU, complies with ASHRAE 189.1, Compliant with CA Bill 841 requirements |

Note¹: Accuracy is defined after minimum three (3) ABC periods (1 period = 8 days) of continuous operations | **Note²:** In normal indoor air quality (IAQ) applications | Corrosive environments are excluded | **Note 3:** Building CO2 levels must drop to 400 ppm same time during the week for ABC to work properly | If the building is occupied 24 hours / day, ABC must be turned off | Changes can be made using TTL-232R-3V3 cable and UIP5 software

DIMENSIONAL DRAWING



STANDARD ORDERING

| Model # | Item # | Description |
|------------|--------|---------------------------------------|
| TSENSE-LCD | 135458 | TSENSE Transmitter with LCD |
| TSENSE* | 135459 | TSENSE Transmitter, Standard (No LCD) |

Note*: Must order TTL-232R-3v3-AJ Programming Cable for BACnet™ or MODBUS communication settings

ACCESSORIES ORDERING

| Model # | Item # | Description |
|------------------|--------|--|
| A/Custom CAL Gas | 140970 | Custom Calibration |
| TTL-232R-3V3-AJ | 137011 | USB to Serial Programming Cable, 3.5 mm Audio Jack |
| UIP5 | ---- | Free Software Download (Contact ACI) |



Room



Duct

PM Particulate Matter

“Particulate matter” (PM) is the general term used to describe solid particles and liquid droplets found in the air. The PM series of transmitters are designed to measure Particulates that include smoke, smog, bacteria, fine dust, liquid droplets, and report the total particle concentration of the monitored environment. ACI’s PM series transmitters utilize a laser particulate matter sensor, that is offered in two different measuring ranges. The PM series transmitters operate on a laser scattering principle, utilizing a fan sampling method.

The PM2.5 is designed to detect Particles less than 2.5 µm in diameter. The PM10 is designed to detect Particles less than 10 µm in diameter.

The sensor has good long-term stability with an accuracy 10% reading or 10 µg/m3. The room unit features field selectable outputs, 4-20 mA, 0-10 VDC, and Modbus RTU (RS485), relay, and display.

The sensor has two jumper selectable working modes for monitoring PM. The Normal Mode monitors the environment continuously and Auto Mode reduces the measuring time to extend service life. The sensor is sent default in Auto Mode.

Applications: Monitoring air quality, Air purifiers, WELL Building Standard

The PM Series is covered by ACI’s Two (2) Year Limited Warranty. The warranty can be found in the front of ACI’s Sensors & Transmitters catalog, as well as on ACI’s web site, workaci.com.

PRODUCT SPECIFICATIONS

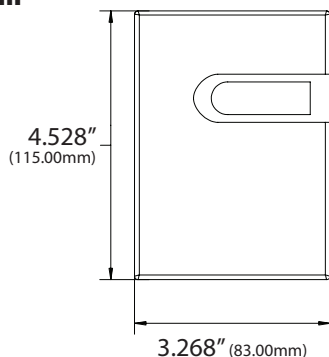
| | |
|--|---|
| Supply Voltage: | 16-28VAC/16-35VDC (Reverse Polarity Protection) |
| Supply Current: | LCD: 50mA Non-LCD: 33mA |
| Sensor Type: | Laser particulate matter sensor |
| Detected Particle Size: | PM2.5: 0.3 ~ 2.5 µm PM10: 0.3 ~ 10 µm |
| Sensing Range: | PM2.5: 0 ~ 500 µg/m ³ PM10: 0 ~ 600 µg/m ³ |
| Accuracy: | +/- 10 µg/m ³ @ 0 ~ 100 µg/m ³ , +/- 10% reading @ 100 ~ 500/600 µg/m ³ @ 25°C/50%RH |
| Resolution: | 1 µg/m ³ |
| Output/Load Resistance: | 4-20 mA: 500 Ohms maximum (Default) 0-10 VDC: 2K Ohms minimum |
| Communication Protocol: | Modbus RTY; EIA RS-485 |
| Relay (Room with LCD Only): | 1 SPDT, N.O. rated 3A @ 30VDC, 3A @ 250VAC |
| Relay Trip Point: | 100 (Factory set), user adjustable |
| Sampling Method: | Fan |
| Response Time: | In continuous service mode, sample time <1s, response time <10s |
| Warm Up Time: | 15 minutes |
| Service Life: | MTBF more than 3 years in continuous service mode, service life up to 8-10 years in auto (intermittent) service mode |
| Connection/Wire Size: | Screw Terminal Blocks/16 AWG (1.31 mm ²) to 22 AWG (0.33 mm ²) |
| Terminal Block Torque Rating: | 0.45 lb-in (0.5 Nm) nominal |
| Operating Temperature Range: | 32 to 122°F (0 to 50°C) |
| Storage Temperature Range: | -30 to 70°F (-34 to 21°C) |
| Operating Humidity Range: | 0 to 95% RH, non-condensing |
| Enclosure Protection: | IP30 (Room) IP65 (Duct) IP30 (Probe) |
| Enclosure Material/UL Flammability: | ABS Plastic/UL94V-0 |
| Weight: | Room: ~200g Duct: ~270g |
| Approval: | CE |



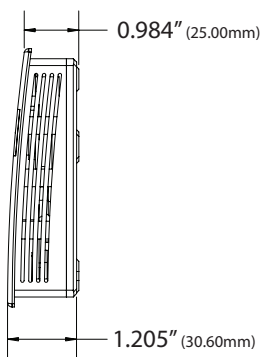


DIMENSIONAL DRAWING

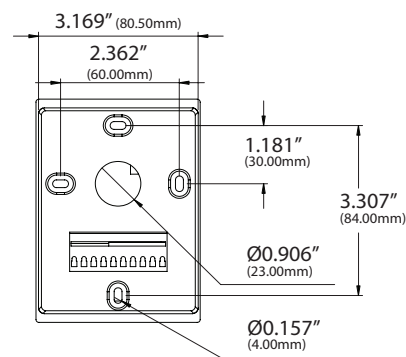
Room



Front View

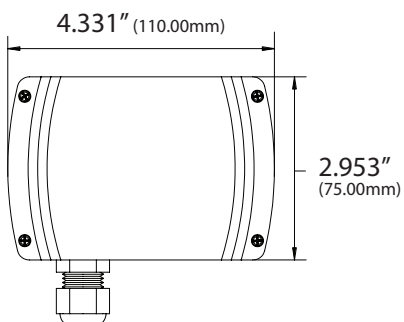


Side View

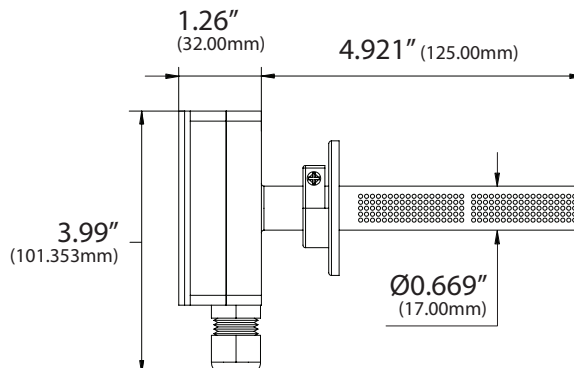


Back View

Duct



Front View



Side View

STANDARD ORDERING

| Configuration | Item # | Detected Partical Size | Description |
|---------------|--------|-------------------------|---|
| PM-R | 147638 | 0.3 ~ 2.5 μm | Room mount, PM2.5, 4-20mA, 0-10V, Modbus RS-485 |
| PM-R-LCD | 147639 | 0.3 ~ 2.5 μm | Room mount, PM2.5, Relay, LCD, Keypad, 4-20mA, 0-10V, Modbus RS-485 |
| PM-D | 147640 | 0.3 ~ 2.5 μm | Duct mount, PM2.5, 4-20mA, 0-10V, Modbus RS-485 |
| PM10-D | 148522 | 0.3 ~ 10 μm | Duct mount, PM10, 4-20mA, 0-10V, Modbus RS-485 |



Room



Duct

VOC

Volatile Organic Compound

VOCs are emitted as gases from certain solids or liquids, such as building materials and furnishings, office equipment, cleansers and disinfectants, etc. These types of contaminants directly affect indoor air quality and occupant comfort. Measuring and communicating VOC levels back to the BAS will help users adjust ventilation to maintain proper IAQ levels. These units utilize a high-performance metal oxide sensor and will output TVOC levels in a range from 0-1000 ppb. All units come equipped with both analog and RS485 Modbus RTU outputs easily interface into existing BAS systems.

Applications: VOC Measurements for IAQ (indoor air quality)

The VOC Series is covered by ACI's Two (2) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's web site, workaci.com.

PRODUCT SPECIFICATIONS

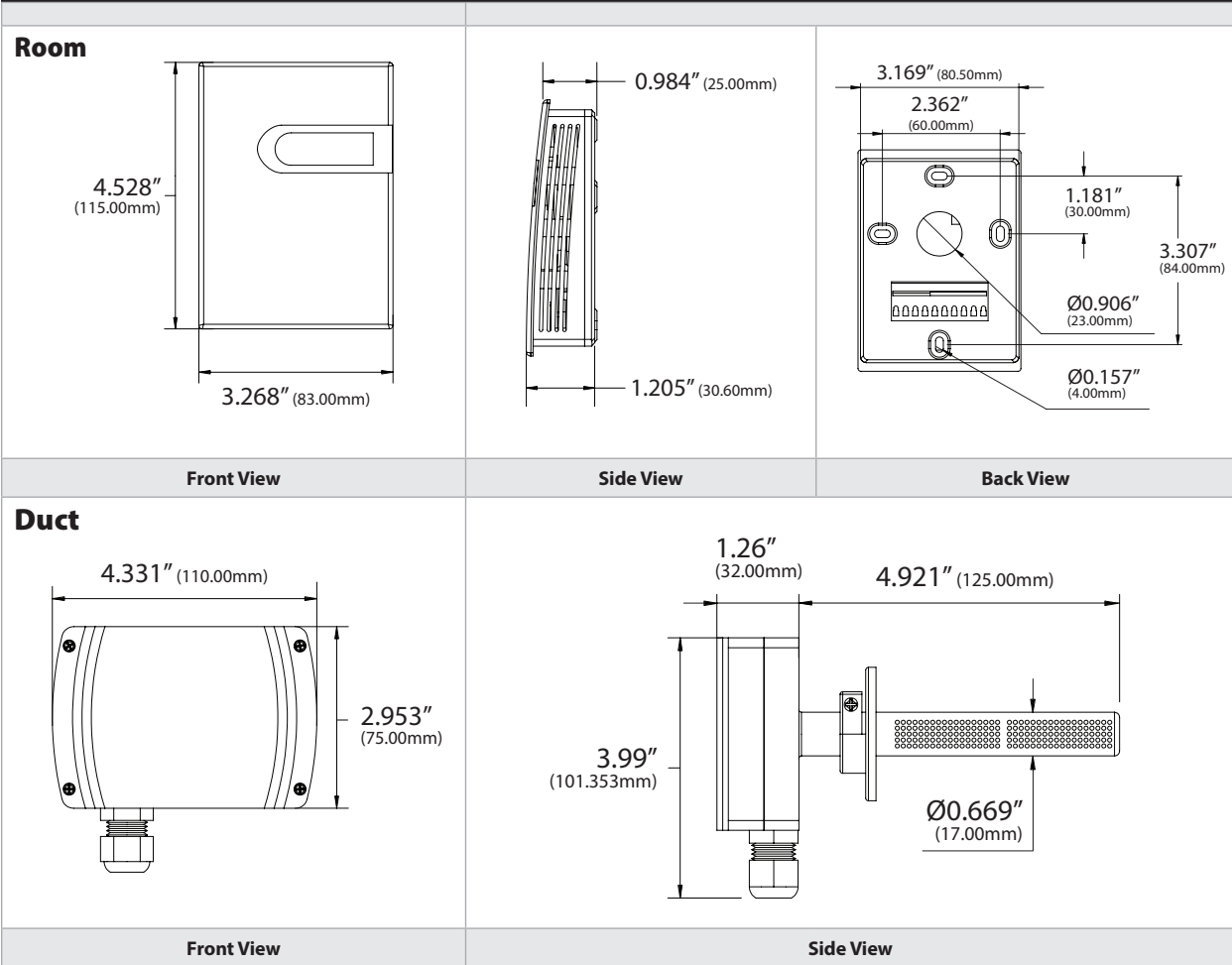
| | |
|--|--|
| Supply Voltage: | 16-28VAC/16-35VDC (Reverse Polarity Protection) |
| Supply Current: | LCD: 50mA Non-LCD: 33mA |
| Sensor Type: | Metal Oxide Semiconductor |
| Sensing Range: | 0-1000 ppb TVOC (Isobutene) |
| Output/Load Resistance: | 4-20 mA: 500 Ohms maximum (Default) 0-10 VDC: 2K Ohms minimum |
| Communication Protocol: | Modbus RTU; EIA RS-485 |
| Relay: | 1 SPDT, N.O. rated 3A @ 30VDC, 3A @ 250VAC |
| Relay Trip Point: | 230 ppb |
| Response Time: | <5 seconds |
| Warm Up Time: | 15 minutes |
| Connection/Wire Size: | Screw Terminal Blocks/16 AWG (1.31 mm ²) to 22 AWG (0.33 mm ²) |
| Terminal Block Torque Rating: | 0.45 lb-in (0.5 Nm) nominal |
| Operating Temperature Range: | 32 to 122°F (0 to 50°C) |
| Storage Temperature Range: | -4 to 140°F (-20 to 60°C) |
| Operating Humidity Range: | 10 to 95% RH, non-condensing |
| Enclosure Protection: | IP30 (Room) IP65 (Duct) IP30 (Probe) |
| Enclosure Material/UL Flammability: | ABS Plastic/UL94V-0 |
| Weight: | Room: ~190g Duct: ~270g |
| Approval: | CE |



RoHS
COMPLIANT



DIMENSIONAL DRAWING



STANDARD ORDERING

| Configuration | Item # | Description |
|---------------|--------|---|
| VOC-R | 147635 | Room Mount, 4-20 mA and 0-10 VDC, Modbus RS-485 |
| VOC-R-LCD | 147636 | Room Mount, Relay, LCD, 4-20 mA and 0-10 VDC, Modbus RS-485 |
| VOC-D | 147637 | Duct Mount, 4-20 mA and 0-10 VDC, Modbus RS-485 |





Q8/B8 SERIES

Combustible Gas Transmitter

The Q8/B8 Series of Explosion Proof Gas Detectors are used in applications that require a rugged enclosure that meets the Class 1 Division 1 requirements. Each unit comes standard with an integral clock, digital display of concentration, relay status, STEL, TWA, and peak daily values of the gas being detected. A three color backlight will flash depending on the level of alarm for operator safety. Setup and calibration is accomplished through non-intrusive magnetic switches that allow for programming of all parameters. A remote sensor option is available for toxic and combustible gases and should be used in applications where the main unit can be mounted at 3 to 6 feet off of the floor with the remote sensor being at the ceiling or floor levels to monitor the gas concentrations depending on the gas being monitored. Sensor types include electrochemical and catalytic bead sensors to meet the demand and performance requirements for particular

industries. The Q8 uses Optomux and Modbus RS-485 protocol, 4-20 mA, 1-5 or 2-10 VDC while the B8 uses BACnet™ MSTP(RS485) protocol to communicate directly with a BAS. The Q8/B8 also has three (3) SPDT Form 1C relays that are user adjustable. Refer to all applicable Federal, State, Provincial and Local Health and Safety laws and regulations before using these products. The Q8/B8-GENL can be ordered to monitor specific combustible gases such as Gasoline, Ethanol, Diesel or Jet fuel. Contact ACI for specific gases.

Applications: Mechanical Rooms, Warehouses, Refrigeration Plants, Industrial Plants, Process Monitoring, Leak Detection, Parking Garages, Auto/Truck Maintenance Facilities, Oil and Gas Industry

The Q8/B8 Series Gas Transmitters are covered by ACI's Two (2) Year Limited Warranty against defects in material and workmanship from the date of shipment with the exception of the Sensor Modules (Electrochemical/Toxic: Six Months and Catalytic/Combustible: One Year). The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, workaci.com.

PRODUCT SPECIFICATIONS

| | |
|---|--|
| Supply Voltage [Q8]: | VDC Supply Voltage: 24 VDC nominal (+18 to 30 VDC) VAC Supply Voltage: 24 VAC nominal (+15 to 24 VAC, AC Power must not be grounded) |
| Supply Voltage [B8]: | VDC Supply Voltage: 24 VDC nominal (+18 to 30 VDC) VAC Supply Voltage: 24 VAC (+15 to 24 VAC, AC power can be grounded or non-grounded) |
| Fuse Protection: | 0.750A Polyswitch; (Automatically resets after fault is cleared & power to circuit is removed) |
| Supply Current Power Consumption: | 0.3A maximum 8.4 VA |
| Analog Output Signals (Q8 Only): | 4-20 mA, 1-5 VDC or 2-10 VDC (4-Wire Power, Power Ground, Output Signal, Output Signal Common) |
| Load Impedance: | 4-20 mA Output: 600 Ohms maximum 1-5 VDC or 2-10 VDC: 3000 Ohms minimum |
| Communication Protocols: | Q8 Communication Protocols: RS-485 Modbus RT/OptoMux (Proprietary QEL Communication) B8 Communication Protocols: RS-485 Serial BACnet™ MS/TP (Master and Slave; Default: Master) |
| Q8 Communication Baud Rates: | 1200, 2400, 4800, 9600, 14400, 19200, 28800, 38400, 57600, 76800 Bits/Second (Default: 4800) |
| B8 Communication Baud Rates: | 9600, 19200, 38400, 76800 Bits/Second (Default: 38400) |
| Factory Calibration Range: | See Gas Sensor Selection & Specification Table on back of data sheet |
| Display: | LCD Graphic Display with backlight (Displays TWA, STEL and PEAK Daily Value) |
| Keypad: | Three (Non-Intrusive) Magnetic Switches |
| Relays Contact Type Relay Contact Ratings: | Three, SPDT (Form 1C) Dry Contact rated 1.0A max. @ 30 VDC or 0.3A max. @ 125 VAC (Resistive Load) |
| Status LEDs: | Two Green LED's (Tx/Rx Communication Status), Three Red LED's (Relays 1, 2 & 3 Status) |
| Factory Calibrated Range: | See Gas Sensor Selection & Specification Table on back of data sheet |
| Sensor Warm-Up Time: | 24 Hours (Allow 24 hours before calibrating sensor after initial installation) |
| Sensor Type: | See Sensor Technology Type in Table on back of Product Data Sheet |
| Gas Type: | Combustible and Toxic Gases/Oxygen Sensor |
| Life Expectancy: | Electrochemical (Toxic): 2 to 3 Years, typical Oxygen/Hydrogen (Toxic): 18 months, typical Catalytic (Combustible): 3 to 5 years, typical |
| Unit Shelf Life: | Electrochemical (Toxic): 6 Months from date of purchase (Must be installed and operational) Catalytic (Combustible): 1 Year from date of purchase (Must be installed and operational) |
| Replacement Sensor: | See User's Manual or Contact ACI |
| Recommended Maintenance: | Catalytic (Combustible): Accuracy & Bump test every 3 months or as required by Code Electrochemical (Toxic): Accuracy & Bump test every 6 months or as required by Code Oxygen/Hydrogen (Toxic): Calibrate every 3 months |
| Enclosure Specifications (Type, Material Type, Flammability, NEMA/IP Rating, Explosion Proof): | Industrial Connection Head; Cast Aluminum Epoxy Coated NEMA 4X (IP66), Division 1 Division 2, ANSI/ISA 12.22.01 Class I, Zone 1, AEx d II C, IP66 Zone 1 CSA E60079-1 Ex d II C, Class I, Zone 1, IP 66 CSA C22.2 No. 30 Class I, Groups A, B, C, D; Class II Groups E, F, G; Class III |



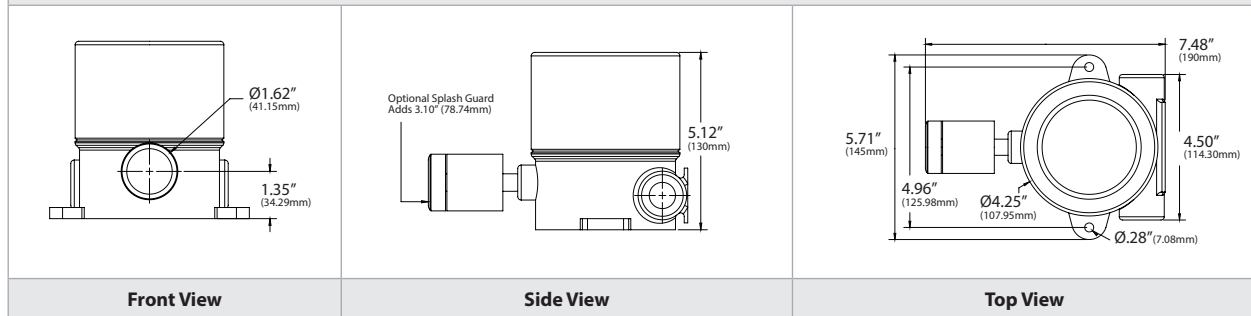


PRODUCT SPECIFICATIONS

| | |
|--|--|
| Conduit Connection: | Two 3/4" NPT Threaded Openings |
| Operating Temperature Humidity: | See Sensor Selection & Specification Table on back of data sheet 5 to 95% RH, non-condensing |
| Operating Atmospheric Pressure¹: | 14.696 psi (1.0132 bar) +/- 10% |
| Recommended Storage Temperature Humidity: | 32 to 68°F (0 to 20°C) 5 to 95% RH, non-condensing |
| Wiring Connections Wire Size: | Depluggable Screw Terminal Blocks 16 to 24 AWG (0.51 to 1.30 mm) Shielded Twisted Pair |
| Communication Cable: | Belden 9841 or Equivalent, 120 Ohms Input Impedance |
| Terminal Block Torque Rating: | 0.37 ft-lb (0.502 Nm) Nominal |
| Coverage Area Mounting Height: | See Gas Sensor Selection & Specification Table on back of data sheet |
| Approvals: | RoHS, CSA-Class 4828-02 inspected to C22.2 No. 30 and No. 142 (CSA File #: 088890_0_000) |
| Product Weight: | 4.35 lbs. (1.973 kg) |
| Product Dimensions (L x W x H): | 7.48" (190 mm) x 5.71" (145 mm) x 5.12" (130 mm) |

Note¹: When installed @ >3000' above sea level, the gas transmitters must be verified for accuracy & re-calibrated as needed after installation

DIMENSIONAL DRAWING





SENSOR SELECTION AND SPECIFICATION

| Gas Type | Gas Span Code | Combustible | Toxic | 100% LEL ¹ in % By Vol. | Measurment Range | Operating Temp °F (°C) | Square Feet ft ² (m ²) | Radius ft (m) | Mounting Height |
|--|---------------|-------------|-------|------------------------------------|------------------|------------------------|---|---------------|-------------------|
| Acetone | CH3CO-100L | • | | 2.6% | 0-100% LEL | 14 to 122 (-10 to 50) | 5000 (464.5) | 40 (12.2) | Low ² |
| Ammonia | NH3-100P | | • | N/A | 0-100 PPM | -22 to 122 (-30 to 50) | 7500 (696.7) | 49 (14.9) | High ² |
| Ammonia | NH3-1000P | | • | N/A | 0-1000 PPM | -22 to 122 (-30 to 50) | 7500 (696.7) | 49 (14.9) | High ² |
| Arsine | ASH3-1P | | • | N/A | 0-1 PPM | -4 to 104 (-20 to 40) | 5000 (464.5) | 40 (12.2) | Low ² |
| Benzene | C6H6-100L | • | | 1.3% | 0-100% LEL | 14 to 122 (-10 to 50) | 5000 (464.5) | 40 (12.2) | Low ² |
| Iso-Butane | C4H10-100L | • | | 1.8% | 0-100% LEL | 14 to 122 (-10 to 50) | 5000 (464.5) | 40 (12.2) | Low ² |
| Butanol, n-Butane | BUTAN-100L | • | | 1.9% | 0-100% LEL | 14 to 122 (-10 to 50) | 5000 (464.5) | 40 (12.2) | Low ² |
| Carbon Monoxide | CO-250P | | • | N/A | 0-250 PPM | -4 to 122 (-20 to 50) | 7500 (696.7) | 49 (14.9) | Mid ² |
| Carbon Monoxide | CO-1000P | | • | N/A | 0-1000 PPM | -4 to 122 (-20 to 50) | 7500 (696.7) | 49 (14.9) | Mid ² |
| Chlorine | CL2-5P | | • | N/A | 0-5 PPM | -4 to 122 (-20 to 50) | 5000 (464.5) | 40 (12.2) | Low ² |
| Chlorine Dioxide | CLO2-2P | | • | N/A | 0-2 PPM | -4 to 122 (-20 to 50) | 5000 (464.5) | 40 (12.2) | Low ² |
| Diborane | B2H6-2P | | • | N/A | 0-2 PPM | -4 to 104 (-20 to 40) | 5000 (464.5) | 40 (12.2) | Mid ² |
| Ethylene | C2H4-100L | • | | 2.7% | 0-100% LEL | 14 to 122 (-10 to 50) | 5000 (464.5) | 40 (12.2) | Mid ² |
| Ethylene Oxide | ETO-20P | | • | N/A | 0-20 PPM | -4 to 122 (-20 to 50) | 5000 (464.5) | 40 (12.2) | Low ² |
| Germane | GEH4-2P | | • | N/A | 0-2 PPM | -4 to 104 (-20 to 40) | 5000 (464.5) | 40 (12.2) | Low ² |
| Hydrogen | H2-1000P | | • | N/A | 0-1000 PPM | -4 to 122 (-20 to 50) | 7500 (696.7) | 49 (14.9) | High ² |
| Hydrogen | H2-2000P | | • | N/A | 0-2000 PPM | -4 to 122 (-20 to 50) | 7500 (696.7) | 49 (14.9) | High ² |
| Hydrogen | H2-100L | • | | 4.0% | 0-100% LEL | 14 to 122 (-10 to 50) | 7500 (696.7) | 49 (14.9) | High ² |
| Hydrogen Bromide | HBR-30P | | • | N/A | 0-30 PPM | -4 to 104 (-20 to 40) | 5000 (464.5) | 40 (12.2) | Low ² |
| Hydrogen Chloride | HCL-30P | | • | N/A | 0-30 PPM | -4 to 122 (-20 to 50) | 5000 (464.5) | 40 (12.2) | Mid ² |
| Hydrogen Cyanide | HCN-50P | | • | N/A | 0-50 PPM | -4 to 122 (-20 to 50) | 5000 (464.5) | 40 (12.2) | Mid ² |
| Hydrogen Sulphide | H2S-25P | | • | N/A | 0-25 PPM | -4 to 122 (-20 to 50) | 5000 (464.5) | 40 (12.2) | Low ² |
| Hydrogen Sulphide | H2S-100P | | • | N/A | 0-100 PPM | 14 to 122 (-10 to 50) | 5000 (464.5) | 40 (12.2) | Low ² |
| Methane | CH4-100L | • | | 5.0% | 0-100% LEL | 14 to 122 (-10 to 50) | 7500 (696.7) | 49 (14.9) | High ² |
| Methanol | CH3OH-100L | • | | 6.7% | 0-100% LEL | 14 to 122 (-10 to 50) | 5000 (464.5) | 40 (12.2) | Low ² |
| Nitric Oxide | NO-100P | | • | N/A | 0-100 PPM | -4 to 122 (-20 to 50) | 7500 (696.7) | 49 (14.9) | Mid ² |
| Nitrogen Dioxide | NO2-10P | | • | N/A | 0-10 PPM | -4 to 122 (-20 to 50) | 7500 (696.7) | 49 (14.9) | Low ² |
| Oxygen ³ | O2-25V | | • | N/A | 0-25% by Vol | -22 to 122 (-30 to 50) | 7500 (696.7) | 49 (14.9) | Mid ² |
| Ozone | O3-1P | | • | N/A | 0-1 PPM | -4 to 122 (-20 to 50) | 5000 (464.5) | 40 (12.2) | High ² |
| Iso-Pentane | C5H12-100L | • | | 1.4% | 0-100% LEL | 14 to 122 (-10 to 50) | 5000 (464.5) | 40 (12.2) | Low ² |
| Phosphine | PH3-1P | | • | N/A | 0-1 PPM | -4 to 104 (-20 to 40) | 5000 (464.5) | 40 (12.2) | Low ² |
| Phosphine | PH3-5P | | • | N/A | 0-5 PPM | -4 to 104 (-20 to 40) | 5000 (464.5) | 40 (12.2) | Low ² |
| Propane | C3H8-100L | • | | 2.1% | 0-100% LEL | 14 to 122 (-10 to 50) | 7500 (696.7) | 49 (14.9) | Low ² |
| Silane | SiH4-50P | | • | N/A | 0-50 PPM | -4 to 104 (-20 to 40) | 5000 (464.5) | 40 (12.2) | Mid ² |
| Sulphur Dioxide | SO2-6P | | • | N/A | 0-6 PPM | -4 to 122 (-20 to 50) | 5000 (464.5) | 40 (12.2) | Low ² |
| Combustibles ¹ | GENL-100L | • | | Specify Gas | 0-100% LEL | -40 to 122 (-40 to 50) | 5000 (464.5) | 40 (12.2) | Gas Dependent |
| Acetaldehyde, Benzene, Carbon Disulfide, Dioxane, Ethane, Ethanol, Ethylbenze, Gasoline, Heptane, Hexane, Ipa, Jet Fuel, Kerosene, Naphtha, Styrene, Toluene, Voc's, Xylenes, Acetylene, Diesel, Pentane, Ethyl Acetate, Propylene | | | | | | | | | |

Note 1: Lower Explosive Limit (LEL) | **Note 2:** Low = 0.5 to 1.5' (0.15 to 0.46m) above floor | Mid = 4.0 to 6.0' (1.20 to 1.83m) above floor | High = 0.5 to 1.5' (0.15 to 0.46m) below ceiling | **Note 3:** Oxygen sensors monitor oxygen depletion caused by numerous gases including: Nitrous Oxide, Helium, Nitrogen, Sulfur hexafluoride, Argon, Xenon, Neon.





| CUSTOM ORDERING | | Model # Example: B8 CO-250P O X | MODEL # |
|--|--|---|----------|
| | | A. B. C. D. E. | |
| A. Sensor Series <i>Select One (1)</i> | Q8 = Toxic/Combustible Gas Transmitter Series with Analog/Relay/Communicating Output Signals and Display B8 = Toxic/Combustible MS/TP BACnet™ Gas Detection Transmitter with Relays and LCD Display | | |
| B. Gas Span Code | Enter a "Gas Span Code" from the Sensor Selection & Specification Table | | |
| C. Enclosure <i>Select One (1)</i> | O = Standard Wall Mount Enclosure R = Remote Mount Sensor | | |
| D. Revision <i>No Selection Required</i> | X = Factory Provided → | | X |
| E. For GENL Sensors | Enter a "Gas Span Code" from the Sensor Selection & Specification Table (See Combustibles) | | |

| ACCESSORIES ORDERING | | |
|----------------------|--------|--|
| Model # | Item # | Description |
| GAS CAL KIT | 148426 | Cal Kit includes Carry Case, 0.5lpm regulator, C10 to CGA-600 adapter and tubing |
| 79030-103 | 126566 | Q8 Combustible Calibration Adapter |
| 6395-0003 | 126254 | Q8 Toxic calibration Adapter/Splash Guard |
| 28030-012-000 | 150947 | Q8 Combustible Splash Guard |

Note: See GAS CAL KIT Data Sheet if required

| ACCESSORIES ORDERING HORN STROBE | | |
|------------------------------------|--------|------------------------------------|
| Model # | Item # | Description |
| FSIG-SLM500A | 136476 | Streamline Horn and Strobe (Amber) |
| FSIG-SLM500B | 142976 | Streamline Horn and Strobe (Blue) |
| FSIG-SLM500C | 150028 | Streamline Horn and Strobe (Clear) |
| FSIG-SLM500G | 143013 | Streamline Horn and Strobe (Green) |
| FSIG-SLM500R | 143132 | Streamline Horn and Strobe (Red) |

| ACCESSORIES ORDERING MOUNTING BASE | | |
|--------------------------------------|--------|--|
| Model # | Item # | Description |
| FSIG-SLMBD-012-024GY | 142977 | Deep Base for FSIG-SLM500 Series; Gray |
| FSIG-SLMBW-012-024GY | 136477 | Wall Mount Base for FSIG-SLM500 Series; Gray |

Note: See Strobe & Alarm Data Sheet if required



QTS-1710 SERIES

Combustible Gas Transmitter

The QTS-1710 Series utilizes a standard pellistor bead technology for the measurement of combustible gases. The sensor is resistant to poisoning substances such as Silicones, Sulphur and Chlorinated compounds. The Sensor is mounted to an explosion-proof housing while the transmitter provides a 3-wire, linear 4 to 20 mA output signal that is proportional to the LEL (Lower Explosive Limit) of the calibrated combustible gas. Test jacks are provided to monitor the transmitter signal without having to interrupt the output signal and Zero and Span adjustments allow for field calibration. Calibration and bump testing should be completed every three months in all combustible or explosive atmospheres. Calibration gases and 0.5

liter/minute gas regulators are not available through ACI. These should be purchased through your local gas supply company or companies such as Portagas® (Praxair®, Inc.) or Mesa Specialty Gases®. See the Q8 Combustible and Toxic Gas transmitter product data sheet for all applications that require a local display, remote sensor and a wider range of gases and output options. Refer to all applicable Federal, State, Provincial and Local Health and Safety laws and regulations before using these products.

Applications: Mechanical Rooms, Warehouses, Refrigeration Plants, Industrial Plants, Process Monitoring, Leak Detection, Parking Garages, Auto/Truck Maintenance Facilities

The QTS-1710 Series Gas Transmitters are covered by ACI's Two (2) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

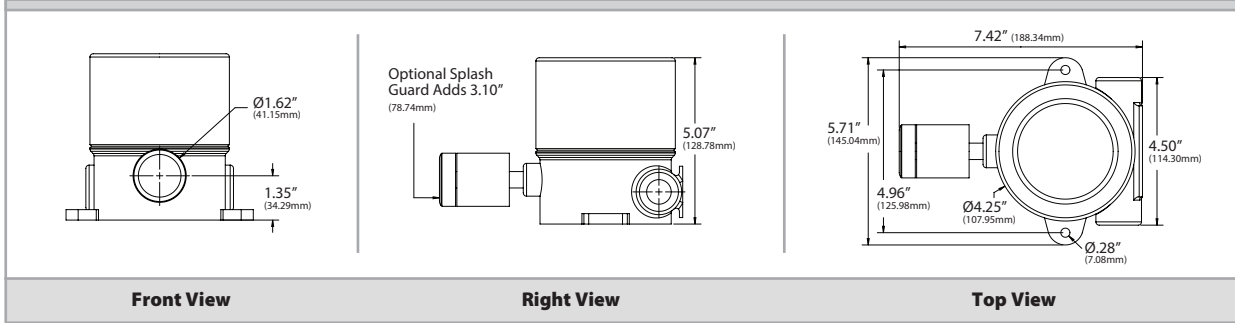
| | |
|---|--|
| Supply Voltage Protection: | 12 to 30 VDC 0.5A Socketed Pico Fuse |
| Supply Current Power Consumption: | 125 mA maximum (80 mA, typical) 3.75 Watts maximum |
| Maximum Load (@ 24 VDC): | 700 Ohms (500 Ohms @ 20 VDC and 200 Ohms @ 12 VDC) |
| Output Signal: | 4-20 mA (3-Wire; Power, Gnd/Com, Signal) |
| Factory Set Range: | See Gas Sensor Selection & Specification Table on back of data sheet |
| Accuracy Repeatability: | +/- 1% LEL Methane +/- 1% LEL Methane |
| Zero Drift: | < 2% of Range / Month at 68°F (20°C) |
| Response Time (T90): | < 30 Seconds, typical (< 10 seconds for 50% Full Scale Step Change) |
| Sensor Warm Up Time | 24 Hours (Allow 24 hours before calibrating sensor after initial installation) |
| Sensor Type: | Dual Element Poison Resistant Catalytic Pellistor Bead |
| Sensor Gas Types: | Hydrocarbon Combustible Gases |
| Sensor Life Expectancy: | 3 to 5 years, typical |
| Unit Shelf Life: | 6 Months from date of purchase (Must be installed and operational) |
| Replacement Sensor: | Contact ACI |
| Recommended Maintenance: | Accuracy & Bump test every 3 months or as required by Code (Replace sensor as needed) |
| Enclosure Specifications (Type, Material Type, Flammability, NEMA/IP Rating, Explosion Proof): | Industrial Connection Head; Cast Aluminum Epoxy Coated; NEMA 4X (IP66) Weatherproof Rating Type 7 & 9 Explosion Proof Class 1 Div. 1, Groups B, C, D also 316 SS Sensor Housing Group A Rated; CSA, FM (Factory Mutual), EX (Explosion Proof), UL listed |
| Operating Temperature: | -40 to 122°F (-40 to 50°C) |
| Operating Humidity: | 0 to 99% RH, non-condensing |
| Operating Atmospheric Pressure ¹: | 14.696 psi (1.0132 bar) +/- 10% |
| Recommended Storage Temperature/Humidity: | 32 to 68°F (0 to 20°C) 15 to 90% RH, Non-Condensing |
| Wiring Connections Wire Size: | Screw Terminal Blocks 16 to 24 AWG (0.51 to 1.30 mm) Shielded Twisted Pair |
| Terminal Block Torque Rating: | 0.37 ft-lb (0.502 Nm) Nominal |
| Coverage Area Mounting Height: | See Gas Sensor Selection & Specification Table on back of data sheet |
| Approvals: | RoHS, CSA-4828-02 inspected to C22.2 No. 30 and C22.2 No. 142 (CSA File #: 088890 0 000) |
| Product Weight: | 5.00 lbs (2.27 kg) |
| Product Dimensions (L x W x H): | Wall Mount Version: 10.70" (271.78 mm) x 5.71" (145.04 mm) x 4.25" (107.95 mm) Duct Mount Version: 7.50" (190.50 mm) x 5.71" (145.04 mm) x 7.50" (190.50 mm) |

Note: When installed @ > 3000' above sea level, the gas transmitters must be verified for accuracy & re-calibrated as needed after installation





DIMENSIONAL DRAWING



SENSOR SELECTION AND SPECIFICATION

COVERAGE AREA

| Gas Type | Symbol | 100% LEL ¹ In % By Volume | Measurement Range | Square Footage | Radius | Mounting Height |
|--------------------|--------|--------------------------------------|-------------------|--|----------------|-----------------|
| Acetylene | C2H2 | 2.5 % | 0 to 100% LEL | 5000 ft ² (464.5 m ²) | 40 ft (12.2 m) | Mid ** |
| Benzene | C6H6 | 1.2 % | 0 to 100% LEL | 5000 ft ² (464.5 m ²) | 40 ft (12.2 m) | Low ** |
| Cyclohexane | C6H12 | 1.3 % | 0 to 100% LEL | 5000 ft ² (464.5 m ²) | 40 ft (12.2 m) | Low ** |
| Ethane | C2H6 | 3.0 % | 0 to 100% LEL | 5000 ft ² (464.5 m ²) | 40 ft (12.2 m) | Low ** |
| Ethanol | C2H6O | 3.3 % | 0 to 100% LEL | 5000 ft ² (464.5 m ²) | 40 ft (12.2 m) | Low ** |
| Gasoline | --- | 1.3 % | 0 to 100% LEL | 5000 ft ² (464.5 m ²) | 40 ft (12.2 m) | Low ** |
| Hexane | C6H14 | 1.1 % | 0 to 100% LEL | 5000 ft ² (464.5 m ²) | 40 ft (12.2 m) | Low ** |
| Hydrogen | H2 | 4.0 % | 0 to 100% LEL | 7500 ft ² (696.7 m ²) | 49 ft (14.9 m) | High ** |
| Iso-Octane | C8H18 | 0.79 % | 0 to 100% LEL | 5000 ft ² (464.5 m ²) | 40 ft (12.2 m) | Low ** |
| Iso-Propyl Alcohol | C3H8O | 2.0 % | 0 to 100% LEL | 5000 ft ² (464.5 m ²) | 40 ft (12.2 m) | Low ** |
| n-Butane | C4H10 | 1.9 % | 0 to 100% LEL | 5000 ft ² (464.5 m ²) | 40 ft (12.2 m) | Low ** |
| n-Octane | C8H18 | 1.0 % | 0 to 100% LEL | 5000 ft ² (464.5 m ²) | 40 ft (12.2 m) | Low ** |
| n-Pentane | C5H12 | 1.5 % | 0 to 100% LEL | 5000 ft ² (464.5 m ²) | 40 ft (12.2 m) | Low ** |
| Methane | CH4 | 5.0 % | 0 to 100% LEL | 7500 ft ² (696.7 m ²) | 49 ft (14.9 m) | High ** |
| Nonane | C9H20 | 0.85 % | 0 to 100% LEL | 5000 ft ² (464.5 m ²) | 40 ft (12.2 m) | Low ** |
| n-Propyl Alcohol | C3H8O | 2.2 % | 0 to 100% LEL | 5000 ft ² (464.5 m ²) | 40 ft (12.2 m) | Low ** |
| Propane | C3H8 | 2.1 % | 0 to 100% LEL | 7500 ft ² (696.7 m ²) | 49 ft (14.9 m) | High ** |

Note¹: Lower Explosive Limit (LEL) | **Note²:** Low = 1.0' (0.31m) above floor | Mid = 4.0 to 6.0' (1.20 to 1.83m) above floor | High = 0.5' to 1.5' (0.15 to 0.46m) below ceiling

CUSTOM ORDERING

Model # Example: **QTS 171 0 1 X S P 0 0 0 0**

MODEL #

| | | |
|---|---|------------|
| A. Sensor Series <i>No Selection Required</i> | QTS → | QTS |
| B. Gas Transmitter <i>No Selection Required</i> | 171 = Combustible Transmitter Series → | 171 |
| C. Configuration <i>Select One (1)</i> | 0 = Methane 2 = Ethane 4 = n-Butane 6 = n-Octane 8 = Gasoline 1 = Acetylene 3 = Propane 5 = n-Pentane 7 = Hydrogen 9 = Other (Please Advise) | |
| D. Factory Supplied <i>No Selection Required</i> | 1 = Factory Provided → | 1 |
| E. Revision <i>No Selection Required</i> | X = Default → | X |
| F. Enclosure <i>No Selection Required</i> | S = Aluminum, Epoxy Coated Weatherproof Industrial NEMA 4X, 7, 9 Enclosure → | S |
| G. Sensor Guard <i>Select One (1)</i> | 0 = No Sensor Splash Guard P = Sensor Splash Guard | |
| H. Factory Supplied <i>No Selection Required</i> | 0 = Default → | 0 |
| I. Factory Supplied <i>No Selection Required</i> | 0 = Default → | 0 |
| J. Factory Supplied <i>No Selection Required</i> | 0 = Default → | 0 |
| K. Calibration/Options <i>Select One (1)</i> | 0 = Default* X = Non-Standard Calibration (Specify) S = Special Options (Contact ACI)* | |

Note²: All transmitters are calibrated using a correlation method with Methane Gas and detection constants as shown. Calibration with actual target gas is available upon special request

ACCESSORIES ORDERING

Model # Example: **79030-103 -OR- 126566**

| Model # | Item # | Description |
|-----------|--------|--|
| 79030-103 | 126566 | QTS-1710 Combustible Calibration Adaptor |





QIRF

Infrared Refrigerant Detector



The QIRF Refrigerant Gas Detectors are the second generation of a proprietary designed gas detector that is easily configured to meet the International Mechanical Code, ASHRAE 15 and B52 requirements. These transmitters are engineered to address the deficiencies inherent with solid-state sensors. Infrared technology facilitates specific gas type refrigerant detection without any cross-sensitive interferences. Standard features include a digital display, three user configurable relays, buzzer, horn/strobe output, NEMA 4X enclosure and non-intrusive calibration. Sensor Housings are thermally controlled at elevated temperatures to eliminate errors due to condensation forming and from temperature fluctuations allowing operations in temperatures from -49 to 149°F (-45 to 65°C). Analog outputs of 4-20 mA and or 2-10 VDC are available along with RS-485 Communications that can be used with a Modbus RTU or proprietary OptoMux communication

protocol for use with any of the standalone gas controller such as the Q4C, M-Controller or Q-Controller. A Zero gas of 20.9% Oxygen with the balance Nitrogen should be used to perform a Zero calibration while a known concentration of any span gas can be used to perform yearly bump testing and calibration. Never use 100% Nitrogen gas to perform a Zero calibration on the QIRF transmitters. Calibration gases and a 0.4 to 0.6 liter/minute flow limiting gas regulator are not available through ACI and should be purchased through your local gas supply company or on-line companies such as Portagas® (Praxair®, Inc.) or Mesa Specialty Gases®. ACI also offers a full line of horns and strobes that can be used with the Gas detectors or building management system to alert building occupants of an alarm condition in order to meet the B-52 or other code requirements. Refer to all applicable Federal, State, Provincial and Local Health and Safety laws and regulations before using these products.

Applications: Mechanical Equipment Rooms, Propellant Filling Stations, Solvent Cleaning Stations, Cold Storage and Transport Facilities, Meat Packing Plants, Super Markets, Convenience Stores, Refrigerant Storage Locations, Chiller Plants, Manufacturing Plants, Pharmaceutical Labs, Other Specialty Applications using Halocarbons

The QIRF Refrigerant Detectors are covered by ACI's Two (2) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's web site, workaci.com.

PRODUCT SPECIFICATIONS

| | |
|---|--|
| Supply Voltage: | VDC Supply Voltage: 24 VDC nominal (+18 to 30 VDC) VAC Supply Voltage: 24 VAC nominal, 50/60 Hz (+15 to 24 VAC, AC Power must not be grounded) |
| Resettable Fuse Protection (Polyswitch): | F1 on Display Board: 1.6 A F2 on Display Board: 50 mA (Resets once fault is cleared & power is removed) |
| Supply Current Power Consumption: | 1.0 A maximum 27 VA |
| Analog Output Signals: | 4-20 mA (4-wires) or 2 to 10 VDC (4-wires) |
| Output Load Impedance: | 4-20 mA Output: 600 Ohms maximum 2-10 VDC Output: 3000 Ohms minimum |
| RS-485 Communication Protocols: | Modbus RTU / OptoMux (Proprietary Gas Controller Protocol for Q4C, M-Con. & Q-Con. only) |
| RS-485 Communication Baud Rates: | 1200, 2400, 4800, 9600, 14400, 19200, 28800, 38400, 57600, 76800 Bits/Second (Default: 4800 BPS) |
| Refrigerant Types: | R11, R12, R22, R23, R32, R114, R116, R123, R134A, R141B, R402A, R404A, R407A, R407B, R407C, R407D, R407E, R407F, R408A, R409A, R410A, R422A, R438A, R448A, R449A, R452A, R453A, R507A, R508B, R513A, R514A, R1233ZD, R1234ZE |
| Factory Calibration Range: | 0 to 1000 ppm for all standard Refrigerants except R123 (0 to 100 ppm); Others available |
| Accuracy Repeatability: | +/-3% of Reading +/-1% of Full Scale |
| Sensor Warm Up Time: | 15 minutes @ 25 C using 24VDC power |
| Sensor Type: | Infrared, Temperature Controlled |
| Response Time (T90): | <30 seconds for 90% step change |
| Display: | 2 x 8 Character Display with backlight |
| Keypad: | Four Magnetic Sensors with Magnetic Tool |
| Relays Contact Type Relay Contact Ratings: | Three SPDT (Form C) Dry Contacts 1.0 max. @ 30 VDC or 0.3A max. @ 125 VAC (Resistive Loads) |
| Relay Life Expectancy: | Mechanical: 50,000,000 operations minimum @ 36,000 operations/hour Electrical: 200,000 operations minimum @ rated load |
| Status LEDs: | Two Green LED's (Tx/Rx Communication Status); Three Red LED's (Relays 1, 2 & 3) |
| Buzzer: | 80 dB at 3.94" (10 cm), 2700 Hz (3 Programmable Tones) |
| Coverage Area Mounting Height: | 7500 ft ² (696.7 m ²) or 49 ft (14.9 m) Radius 6" (15.3 cm) to 18" (45.8 cm) above floor |
| Sensor Life Expectancy: | 14 Years, typical |
| Recommended Maintenance: | Accuracy & Bump Test once per year or as required by Code |
| Enclosure Specifications (Material Type, Flammability, NEMA/IP Rating, Cover Torque Rating): | Plastic Enclosure; Polycarbonate/ABS Blend; UL94 5VA; NEMA 4, 4X 12 & 13(IP66); 2.5 lbs.-in (0.2825 Nm) |
| Enclosure Knockout: | 7/8" Knockout (accepts 1/2" Conduit Fitting); Quantity: 1 |
| Operating Temperature Humidity: | -49 to 149°F (-45 to 65°C) 5 to 95% RH, non-condensing |



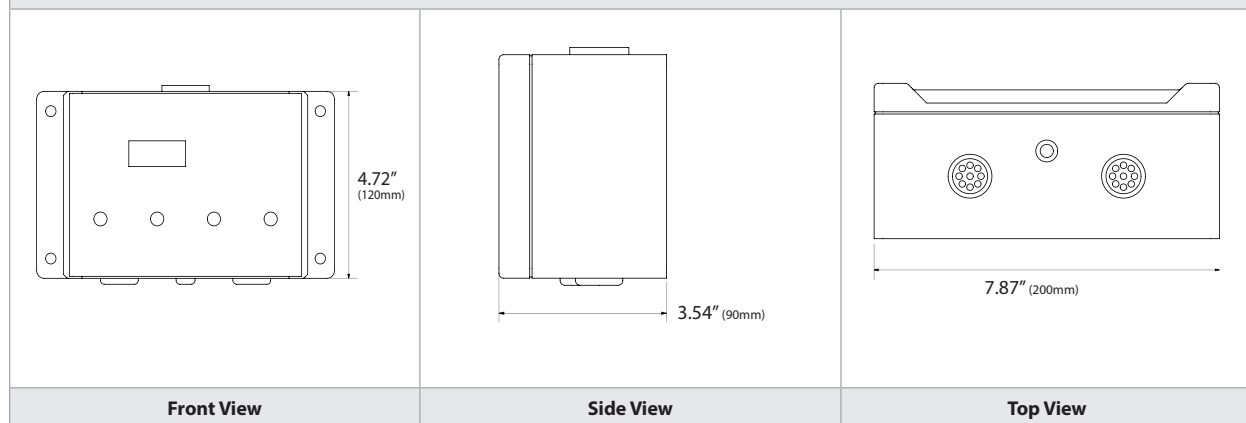


PRODUCT SPECIFICATIONS

| | |
|---|--|
| Operating Atmospheric Pressure¹: | 14.696 psi (1.0132 bar) +/-10% |
| Recommended Storage Temperature/ Humidity: | -49 to 158°F (-45 to 70°C) 5 to 95% RH, non-condensing |
| Wiring Connections Wire Size: | De-pluggable Screw Terminal Blocks 16 to 24 AWG (0.2047 to 1.301 mm) Shielded Twister Pair |
| Communications Cable: | Belden 9841 or Equivalent, 120 Ohms Input Impedance |
| Terminal Block Torque Rating: | 0.37 ft-lb (0.502 Nm) Nominal |
| Approvals: | RoHS |
| Product Weight: | 2.50 lbs (1.134 kg) |
| Product Dimensions (L x W x H): | 7.87" (200 mm) x 4.72" (120 mm) x 3.54" (90 mm) |

Note¹: When installed @ >3000' above sea level, the refrigerant detectors must be verified for accuracy & re-calibrated as needed after installation

DIMENSIONAL DRAWING



| STANDARD ORDERING | | MODEL # |
|---|--|-------------|
| A. Sensor Series <i>No Selection Required</i> | QIRF | QIRF |
| B. Refrigerant Code <i>Select One (1)</i> | Enter a "Refrigerant Code" : R11, R12, R22, R23, R32, R114, R116, R123, R134A, R141B, R402A, R404A, R407A, R407B, R407C, R407D, R407E, R407F, R408A, R409A, R410A, R422A, R438A, R448A, R449A, R452A, R453A, R507A, R508B, R513A, R514A, R1233ZD, R1234ZE | |
| C. Revision <i>No Selection Required</i> | X = Factory Provided | X |
| D. Revision <i>No Selection Required</i> | O = Factory Provided | O |



Q8/B8 SERIES

Combustible Gas Transmitter

The Q8/B8 Series of Explosion Proof Gas Detectors are used in applications that require a rugged enclosure that meets the Class 1 Division 1 requirements. Each unit comes standard with an integral clock, digital display of concentration, relay status, STEL, TWA, and peak daily values of the gas being detected. A three color backlight will flash depending on the level of alarm for operator safety. Setup and calibration is accomplished through non-intrusive magnetic switches that allow for programming of all parameters. A remote sensor option is available for toxic and combustible gases and should be used in applications where the main unit can be mounted at 3 to 6 feet off of the floor with the remote sensor being at the ceiling or floor levels to monitor the gas concentrations depending on the gas being monitored. Sensor types include electrochemical and catalytic bead sensors to meet the demand and performance requirements for particular

industries. The Q8 uses Optomux and Modbus RS-485 protocol, 4-20 mA, 1-5 or 2-10 VDC while the B8 uses BACnet™ MSTP(RS485) protocol to communicate directly with a BAS. The Q8/B8 also has three (3) SPDT Form 1C relays that are user adjustable. Refer to all applicable Federal, State, Provincial and Local Health and Safety laws and regulations before using these products. The Q8/B8-GENL can be ordered to monitor specific combustible gases such as Gasoline, Ethanol, Diesel or Jet fuel. Contact ACI for specific gases.

Applications: Mechanical Rooms, Warehouses, Refrigeration Plants, Industrial Plants, Process Monitoring, Leak Detection, Parking Garages, Auto/Truck Maintenance Facilities, Oil and Gas Industry

The Q8/B8 Series Gas Transmitters are covered by ACI's Two (2) Year Limited Warranty against defects in material and workmanship from the date of shipment with the exception of the Sensor Modules (Electrochemical/Toxic: Six Months and Catalytic/Combustible: One Year). The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, workaci.com.

| PRODUCT SPECIFICATIONS | |
|---|--|
| Supply Voltage [Q8]: | VDC Supply Voltage: 24 VDC nominal (+18 to 30 VDC) VAC Supply Voltage: 24 VAC nominal (+15 to 24 VAC, AC Power must not be grounded) |
| Supply Voltage [B8]: | VDC Supply Voltage: 24 VDC nominal (+18 to 30 VDC) VAC Supply Voltage: 24 VAC (+15 to 24 VAC, AC power can be grounded or non-grounded) |
| Fuse Protection: | 0.750A Polyswitch; (Automatically resets after fault is cleared & power to circuit is removed) |
| Supply Current Power Consumption: | 0.3A maximum 8.4 VA |
| Analog Output Signals (Q8 Only): | 4-20 mA, 1-5 VDC or 2-10 VDC (4-Wire Power, Power Ground, Output Signal, Output Signal Common) |
| Load Impedance: | 4-20 mA Output: 600 Ohms maximum 1-5 VDC or 2-10 VDC: 3000 Ohms minimum |
| Communication Protocols: | Q8 Communication Protocols: RS-485 Modbus RT/OptoMux (Proprietary QEL Communication) B8 Communication Protocols: RS-485 Serial BACnet™ MS/TP (Master and Slave; Default: Master) |
| Q8 Communication Baud Rates: | 1200, 2400, 4800, 9600, 14400, 19200, 28800, 38400, 57600, 76800 Bits/Second (Default: 4800) |
| B8 Communication Baud Rates: | 9600, 19200, 38400, 76800 Bits/Second (Default: 38400) |
| Factory Calibration Range: | See Gas Sensor Selection & Specification Table on back of data sheet |
| Display: | LCD Graphic Display with backlight (Displays TWA, STEL and PEAK Daily Value) |
| Keypad: | Three (Non-Intrusive) Magnetic Switches |
| Relays Contact Type Relay Contact Ratings: | Three, SPDT (Form 1C) Dry Contact rated 1.0A max. @ 30 VDC or 0.3A max. @ 125 VAC (Resistive Load) |
| Status LEDs: | Two Green LED's (Tx/Rx Communication Status), Three Red LED's (Relays 1, 2 & 3 Status) |
| Factory Calibrated Range: | See Gas Sensor Selection & Specification Table on back of data sheet |
| Sensor Warm-Up Time: | 24 Hours (Allow 24 hours before calibrating sensor after initial installation) |
| Sensor Type: | See Sensor Technology Type in Table on back of Product Data Sheet |
| Gas Type: | Combustible and Toxic Gases/Oxygen Sensor |
| Life Expectancy: | Electrochemical (Toxic): 2 to 3 Years, typical Oxygen/Hydrogen (Toxic): 18 months, typical Catalytic (Combustible): 3 to 5 years, typical |
| Unit Shelf Life: | Electrochemical (Toxic): 6 Months from date of purchase (Must be installed and operational) Catalytic (Combustible): 1 Year from date of purchase (Must be installed and operational) |
| Replacement Sensor: | See User's Manual or Contact ACI |
| Recommended Maintenance: | Catalytic (Combustible): Accuracy & Bump test every 3 months or as required by Code Electrochemical (Toxic): Accuracy & Bump test every 6 months or as required by Code Oxygen/Hydrogen (Toxic): Calibrate every 3 months |
| Enclosure Specifications (Type, Material Type, Flammability, NEMA/IP Rating, Explosion Proof): | Industrial Connection Head; Cast Aluminum Epoxy Coated NEMA 4X (IP66), Division 1 Division 2, ANSI/ISA 12.22.01 Class I, Zone 1, AEx d II C, IP66 Zone 1 CSA E60079-1 Ex d II C, Class I, Zone 1, IP 66 CSA C22.2 No. 30 Class I, Groups A, B, C, D; Class II Groups E, F, G; Class III |



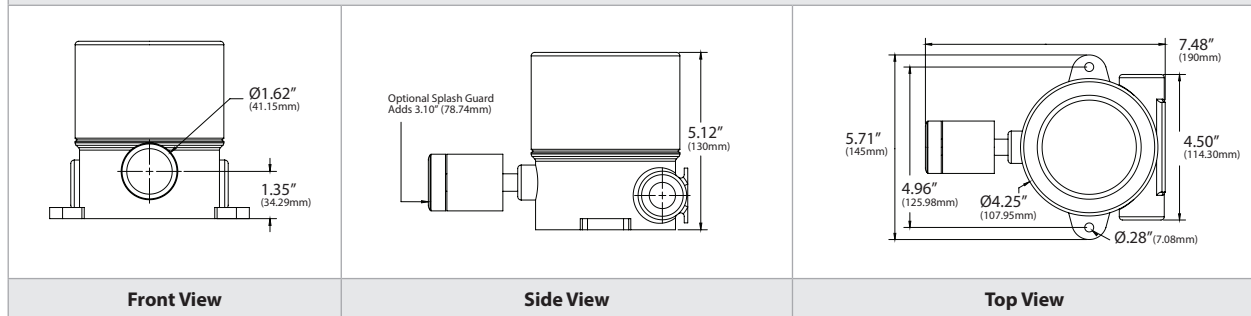


PRODUCT SPECIFICATIONS

| | |
|--|--|
| Conduit Connection: | Two 3/4" NPT Threaded Openings |
| Operating Temperature Humidity: | See Sensor Selection & Specification Table on back of data sheet 5 to 95% RH, non-condensing |
| Operating Atmospheric Pressure¹: | 14.696 psi (1.0132 bar) +/- 10% |
| Recommended Storage Temperature Humidity: | 32 to 68°F (0 to 20°C) 5 to 95% RH, non-condensing |
| Wiring Connections Wire Size: | Depluggable Screw Terminal Blocks 16 to 24 AWG (0.51 to 1.30 mm) Shielded Twisted Pair |
| Communication Cable: | Belden 9841 or Equivalent, 120 Ohms Input Impedance |
| Terminal Block Torque Rating: | 0.37 ft-lb (0.502 Nm) Nominal |
| Coverage Area Mounting Height: | See Gas Sensor Selection & Specification Table on back of data sheet |
| Approvals: | RoHS, CSA-Class 4828-02 inspected to C22.2 No. 30 and No. 142 (CSA File #: 088890_0_000) |
| Product Weight: | 4.35 lbs. (1.973 kg) |
| Product Dimensions (L x W x H): | 7.48" (190 mm) x 5.71" (145 mm) x 5.12" (130 mm) |

Note¹: When installed @ >3000' above sea level, the gas transmitters must be verified for accuracy & re-calibrated as needed after installation

DIMENSIONAL DRAWING



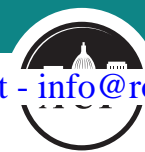


SENSOR SELECTION AND SPECIFICATION

| Gas Type | Gas Span Code | Combustible | Toxic | 100% LEL ¹ in % By Vol. | Measurment Range | Operating Temp °F (°C) | Square Feet ft ² (m ²) | Radius ft (m) | Mounting Height |
|--|---------------|-------------|-------|------------------------------------|------------------|------------------------|---|---------------|-------------------|
| Acetone | CH3CO-100L | • | | 2.6% | 0-100% LEL | 14 to 122 (-10 to 50) | 5000 (464.5) | 40 (12.2) | Low ² |
| Ammonia | NH3-100P | | • | N/A | 0-100 PPM | -22 to 122 (-30 to 50) | 7500 (696.7) | 49 (14.9) | High ² |
| Ammonia | NH3-1000P | | • | N/A | 0-1000 PPM | -22 to 122 (-30 to 50) | 7500 (696.7) | 49 (14.9) | High ² |
| Arsine | ASH3-1P | | • | N/A | 0-1 PPM | -4 to 104 (-20 to 40) | 5000 (464.5) | 40 (12.2) | Low ² |
| Benzene | C6H6-100L | • | | 1.3% | 0-100% LEL | 14 to 122 (-10 to 50) | 5000 (464.5) | 40 (12.2) | Low ² |
| Iso-Butane | C4H10-100L | • | | 1.8% | 0-100% LEL | 14 to 122 (-10 to 50) | 5000 (464.5) | 40 (12.2) | Low ² |
| Butanol, n-Butane | BUTAN-100L | • | | 1.9% | 0-100% LEL | 14 to 122 (-10 to 50) | 5000 (464.5) | 40 (12.2) | Low ² |
| Carbon Monoxide | CO-250P | | • | N/A | 0-250 PPM | -4 to 122 (-20 to 50) | 7500 (696.7) | 49 (14.9) | Mid ² |
| Carbon Monoxide | CO-1000P | | • | N/A | 0-1000 PPM | -4 to 122 (-20 to 50) | 7500 (696.7) | 49 (14.9) | Mid ² |
| Chlorine | CL2-5P | | • | N/A | 0-5 PPM | -4 to 122 (-20 to 50) | 5000 (464.5) | 40 (12.2) | Low ² |
| Chlorine Dioxide | CLO2-2P | | • | N/A | 0-2 PPM | -4 to 122 (-20 to 50) | 5000 (464.5) | 40 (12.2) | Low ² |
| Diborane | B2H6-2P | | • | N/A | 0-2 PPM | -4 to 104 (-20 to 40) | 5000 (464.5) | 40 (12.2) | Mid ² |
| Ethylene | C2H4-100L | • | | 2.7% | 0-100% LEL | 14 to 122 (-10 to 50) | 5000 (464.5) | 40 (12.2) | Mid ² |
| Ethylene Oxide | ETO-20P | | • | N/A | 0-20 PPM | -4 to 122 (-20 to 50) | 5000 (464.5) | 40 (12.2) | Low ² |
| Germane | GEH4-2P | | • | N/A | 0-2 PPM | -4 to 104 (-20 to 40) | 5000 (464.5) | 40 (12.2) | Low ² |
| Hydrogen | H2-1000P | | • | N/A | 0-1000 PPM | -4 to 122 (-20 to 50) | 7500 (696.7) | 49 (14.9) | High ² |
| Hydrogen | H2-2000P | | • | N/A | 0-2000 PPM | -4 to 122 (-20 to 50) | 7500 (696.7) | 49 (14.9) | High ² |
| Hydrogen | H2-100L | • | | 4.0% | 0-100% LEL | 14 to 122 (-10 to 50) | 7500 (696.7) | 49 (14.9) | High ² |
| Hydrogen Bromide | HBR-30P | | • | N/A | 0-30 PPM | -4 to 104 (-20 to 40) | 5000 (464.5) | 40 (12.2) | Low ² |
| Hydrogen Chloride | HCL-30P | | • | N/A | 0-30 PPM | -4 to 122 (-20 to 50) | 5000 (464.5) | 40 (12.2) | Mid ² |
| Hydrogen Cyanide | HCN-50P | | • | N/A | 0-50 PPM | -4 to 122 (-20 to 50) | 5000 (464.5) | 40 (12.2) | Mid ² |
| Hydrogen Sulphide | H2S-25P | | • | N/A | 0-25 PPM | -4 to 122 (-20 to 50) | 5000 (464.5) | 40 (12.2) | Low ² |
| Hydrogen Sulphide | H2S-100P | | • | N/A | 0-100 PPM | 14 to 122 (-10 to 50) | 5000 (464.5) | 40 (12.2) | Low ² |
| Methane | CH4-100L | • | | 5.0% | 0-100% LEL | 14 to 122 (-10 to 50) | 7500 (696.7) | 49 (14.9) | High ² |
| Methanol | CH3OH-100L | • | | 6.7% | 0-100% LEL | 14 to 122 (-10 to 50) | 5000 (464.5) | 40 (12.2) | Low ² |
| Nitric Oxide | NO-100P | | • | N/A | 0-100 PPM | -4 to 122 (-20 to 50) | 7500 (696.7) | 49 (14.9) | Mid ² |
| Nitrogen Dioxide | NO2-10P | | • | N/A | 0-10 PPM | -4 to 122 (-20 to 50) | 7500 (696.7) | 49 (14.9) | Low ² |
| Oxygen ³ | O2-25V | | • | N/A | 0-25% by Vol | -22 to 122 (-30 to 50) | 7500 (696.7) | 49 (14.9) | Mid ² |
| Ozone | O3-1P | | • | N/A | 0-1 PPM | -4 to 122 (-20 to 50) | 5000 (464.5) | 40 (12.2) | High ² |
| Iso-Pentane | C5H12-100L | • | | 1.4% | 0-100% LEL | 14 to 122 (-10 to 50) | 5000 (464.5) | 40 (12.2) | Low ² |
| Phosphine | PH3-1P | | • | N/A | 0-1 PPM | -4 to 104 (-20 to 40) | 5000 (464.5) | 40 (12.2) | Low ² |
| Phosphine | PH3-5P | | • | N/A | 0-5 PPM | -4 to 104 (-20 to 40) | 5000 (464.5) | 40 (12.2) | Low ² |
| Propane | C3H8-100L | • | | 2.1% | 0-100% LEL | 14 to 122 (-10 to 50) | 7500 (696.7) | 49 (14.9) | Low ² |
| Silane | SiH4-50P | | • | N/A | 0-50 PPM | -4 to 104 (-20 to 40) | 5000 (464.5) | 40 (12.2) | Mid ² |
| Sulphur Dioxide | SO2-6P | | • | N/A | 0-6 PPM | -4 to 122 (-20 to 50) | 5000 (464.5) | 40 (12.2) | Low ² |
| Combustibles ¹ | GENL-100L | • | | Specify Gas | 0-100% LEL | -40 to 122 (-40 to 50) | 5000 (464.5) | 40 (12.2) | Gas Dependent |
| Acetaldehyde, Benzene, Carbon Disulfide, Dioxane, Ethane, Ethanol, Ethylbenze, Gasoline, Heptane, Hexane, Ipa, Jet Fuel, Kerosene, Naphtha, Styrene, Toluene, Voc's, Xylenes, Acetylene, Diesel, Pentane, Ethyl Acetate, Propylene | | | | | | | | | |

Note 1: Lower Explosive Limit (LEL) | **Note 2:** Low = 0.5 to 1.5' (0.15 to 0.46m) above floor | Mid = 4.0 to 6.0' (1.20 to 1.83m) above floor | High = 0.5 to 1.5' (0.15 to 0.46m) below ceiling | **Note 3:** Oxygen sensors monitor oxygen depletion caused by numerous gases including: Nitrous Oxide, Helium, Nitrogen, Sulfur hexafluoride, Argon, Xenon, Neon.





| CUSTOM ORDERING | | Model # Example: B8 CO-250P O X | MODEL # |
|--|--|---|----------|
| | | A. B. C. D. E. | |
| A. Sensor Series <i>Select One (1)</i> | Q8 = Toxic/Combustible Gas Transmitter Series with Analog/Relay/Communicating Output Signals and Display B8 = Toxic/Combustible MS/TP BACnet™ Gas Detection Transmitter with Relays and LCD Display | | |
| B. Gas Span Code | Enter a "Gas Span Code" from the Sensor Selection & Specification Table | | |
| C. Enclosure <i>Select One (1)</i> | O = Standard Wall Mount Enclosure R = Remote Mount Sensor | | |
| D. Revision <i>No Selection Required</i> | X = Factory Provided → | | X |
| E. For GENL Sensors | Enter a "Gas Span Code" from the Sensor Selection & Specification Table (See Combustibles) | | |

| ACCESSORIES ORDERING | | |
|----------------------|--------|--|
| Model # | Item # | Description |
| GAS CAL KIT | 148426 | Cal Kit includes Carry Case, 0.5lpm regulator, C10 to CGA-600 adapter and tubing |
| 79030-103 | 126566 | Q8 Combustible Calibration Adapter |
| 6395-0003 | 126254 | Q8 Toxic calibration Adapter/Splash Guard |
| 28030-012-000 | 150947 | Q8 Combustible Splash Guard |

Note: See GAS CAL KIT Data Sheet if required

| ACCESSORIES ORDERING HORN STROBE | | |
|------------------------------------|--------|------------------------------------|
| Model # | Item # | Description |
| FSIG-SLM500A | 136476 | Streamline Horn and Strobe (Amber) |
| FSIG-SLM500B | 142976 | Streamline Horn and Strobe (Blue) |
| FSIG-SLM500C | 150028 | Streamline Horn and Strobe (Clear) |
| FSIG-SLM500G | 143013 | Streamline Horn and Strobe (Green) |
| FSIG-SLM500R | 143132 | Streamline Horn and Strobe (Red) |

| ACCESSORIES ORDERING MOUNTING BASE | | |
|--------------------------------------|--------|--|
| Model # | Item # | Description |
| FSIG-SLMBD-012-024GY | 142977 | Deep Base for FSIG-SLM500 Series; Gray |
| FSIG-SLMBW-012-024GY | 136477 | Wall Mount Base for FSIG-SLM500 Series; Gray |

Note: See Strobe & Alarm Data Sheet if required





Q4C II Controller & Alarm Communicator

The Q4C II is a multi-channel controller display and alarm unit that utilizes digital communications to interface with a maximum of four (4) remote digital transmitter/sensors. This series provides reliable measurement of a wide variety of toxic gases such as CO, NO₂, NH₃, H₂S, SO₂, Refrigerants, and Combustibles. The RS-485 communication is connected via a 4-wire, multidrop daisy chain configuration to reduce the overall installation cost of the system. Alarm setpoints are set through the front keypad or the M-View software (Included) that is downloaded to the Q4C II from a PC or laptop computer. Common relay configurations include voting, averaging, delay on actuation and de-actuation, normally or not-normally energized and latching. The audible alarm has three buzzer settings; continuous, intermittent and double-tap intermittent. The Q4C II has a dedicated 24 VDC transistor output terminal for horn and strobe. Includes four (4) SPDT relays and an RS-485

Modbus output with BACnet IP option available. The Q4C II comes standard with a 128 X 32 backlit display, key pad, software and interface cable. Refer to all applicable Federal, State, Provincial and Local Health and Safety laws and regulations before using these products.

Applications: Underground Parking Garages, Water Treatment Plants, Municipal Service Garages, Aircraft Hangers, Chiller Monitoring, Warehouses, Automobile Dealerships & Battery Charging / Storage

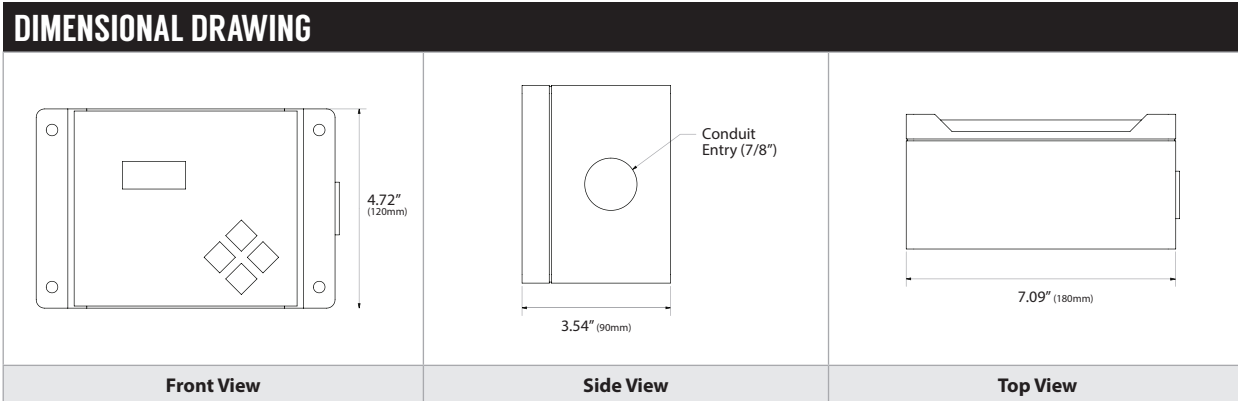
well as on ACI's website, The Q4C Series is covered by ACI's Two (2) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website,

| PRODUCT SPECIFICATIONS | |
|-------------------------------------|---|
| Input Power¹: | 18 – 30VDC, 24 VDC Nominal, 12 – 24VAC, 24VAC Nominal Half-wave or Full wave rectified |
| Current: | 0.75 max (Fuse protected) |
| Enclosure: | IP66 & NEMA 4, 4X, 12 & 13 ratings UL listed 508 listed (File # E65324) |
| Enclosure Material: | ABS Plastic |
| Operating Temperature Range: | Industrial: -20° to +50° C (-4° to 122° F) |
| Operating Humidity Range: | Continuous 5 to 95% RH, non-condensing up to 31 C, decreasing linearly to 80% @ 40C |
| Input Types: | RS-485 digital port for up to 4 QEL transmitter/sensors USB programming port |
| Output Comm Ports: | Modbus RTU (Slave), BACnet IP (Optional) |
| LED Status Lights: | Eight (8) Status LEDs: RS-485 port TX/RX Status LED for Sensor Network RS-485 port TX/RX Status LED for Modbus or BAC-Box 4 Relay Status LEDs |
| Recommended Cable: | Power: Twisted shielded pair Communication: (RS-485) - Belden 9841 or equivalent |
| Panel Controls: | 4X tactile and audible keypad |
| Audio/Visual Indicators: | Two (2) 24VDC transistor ports 250mA max (Fuse protected) each |
| Relay Outputs: | Four (4) SPDT 5A resistive @ 250VAC/30 VDC 3.7A Inductive @ 250VAC/30 VDC |
| Relay Assignment: | Independent, individually set to one or all transmitter/sensors |
| Time Delays: | 0 – 60 Minutes On/Off delays |
| LCD Display: | 128 x 32 LCD Display c/w Backlight |
| Product Dimensions: | 7.09" (180.00 mm) x 4.72" (120.00 mm) x 3.54" (90.00 mm) |
| Product Weight: | 1.87 lbs (4.12 kg) |

Note: Sensors and system should be scheduled to be tested for accuracy and functionality every 6 months for toxic, and every 3 months for combustible | Recalibrate or replace sensor boards if necessary

Note¹: Refer to wiring diagram or contact ACI Technical Support for wiring connections





STANDARD ORDERING

| Model # | Item # | Description |
|-----------------|--------|---|
| Q4C-II-X | 150796 | Controller with M-View Software and Programming Cable |

ACCESSORIES ORDERING

| Model # | Item # | Description |
|----------------------|--------|--|
| 85530-010-000 | 150896 | M-View USB Software |
| M-SWITCH | 127160 | M-Switch for M-Controller / Q4C Controller |
| 5610-0101 | 150897 | USB A to USB B M/M Programming Cable |
| BAC-BOX-0 | 127160 | BACnet IP Output Module |

ACCESSORIES ORDERING | HORN STROBE

| Model # | Item # | Description |
|---------------------|--------|------------------------------------|
| FSIG-SLM500A | 136476 | Streamline Horn and Strobe (Amber) |
| FSIG-SLM500B | 142976 | Streamline Horn and Strobe (Blue) |
| FSIG-SLM500C | 150028 | Streamline Horn and Strobe (Clear) |
| FSIG-SLM500G | 143013 | Streamline Horn and Strobe (Green) |
| FSIG-SLM500R | 143132 | Streamline Horn and Strobe (Red) |

ACCESSORIES ORDERING | MOUNTING BASE

| Model # | Item # | Description |
|-----------------------------|--------|--|
| FSIG-SLMBD-012-024GY | 142977 | Deep Base for FSIG-SLM500 Series; Gray |
| FSIG-SLMBW-012-024GY | 136477 | Wall Mount Base for FSIG-SLM500 Series; Gray |

Note: See Strobe & Alarm Data Sheet if required



M-CONTROLLER

Multi-Channel Analog / Digital Controller

The M-Controller is a multi-channel controller and alarm unit that utilizes both digital and analog communications to interface with a maximum of 32 remote digital transmitter/sensors, and 8 analog transmitter/sensors. Common relay configurations include voting, averaging, delay on actuation and deactuation, normally/not-normally energized and latching. An additional feature includes 24 VDC transistor outputs for a horn and strobe. An RS-422 output responds as a RTU Slave using MODBUS protocol which allows the controller to provide read status information only. The M-Controller can be programmed with the onboard key pad or the M-View Software which is downloaded using the RS-232 interface. Also available is an analog output card that includes eight 4-20 mA analog outputs. Each analog output can be defined in complex fashions allowing

the averaging of several input signals and outputs a linear 4-20 mA signal.

M-Relay modules are designed to allow expandability for control to the M-Controller over an RS-485 communication link, which allows flexibility during installation and wiring. M-Relays operate on 24 VAC/VDC and may be powered via the port power of the M-Controller or directly from a local power source. Each relay module is addressed from 0 to 11 and is defined by a four position dipswitch. The M-Controller has three relays (1, 2, 3) after which the M-Relay can be added and will correspond with 4 through 99. The M-Relay module is available with 2, 4, 6, or 8 relays per module. Refer to all applicable Federal, State, Provincial and Local Health and Safety laws and regulations before using these products.

Applications: Underground Parking Garages, Water Treatment Plants, Municipal Service Garages, Aircraft Hangers, Chiller Monitoring, Warehouses, Automobile Dealerships & Battery Charging / Storage

The M-Controller is covered by ACI's Two (2) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's web site, workaci.com.

PRODUCT SPECIFICATIONS

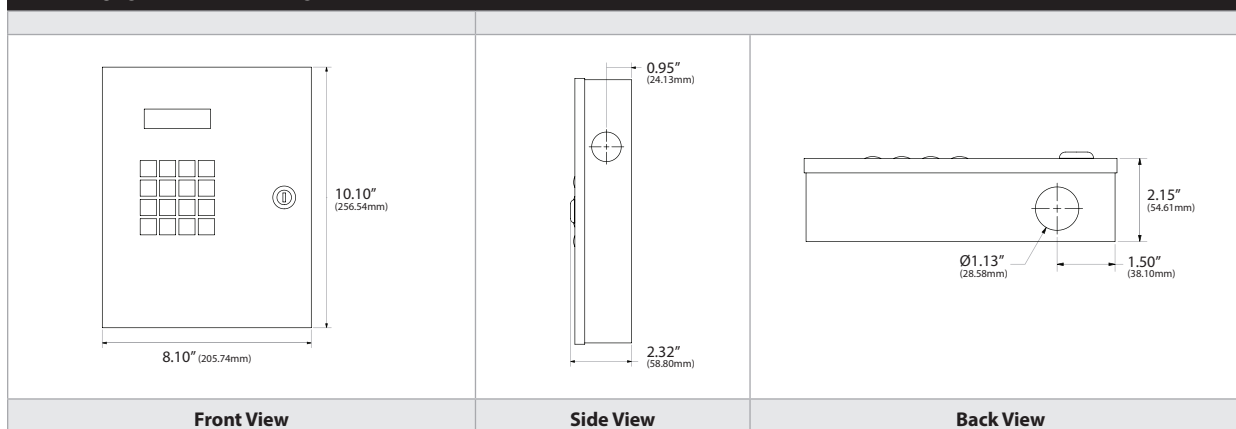
| | |
|--------------------------------------|---|
| Supply Voltage: | 24 VAC +/- 4V Floating; AC must not be grounded 24 VDC +/- 4V |
| Amps: | Controller: 1.0 A Horn & Strobe: 0.6 A Maximum Load per Channel: 2.0 A Maximum Allowed through Controller: 10.0 A |
| Operating Temperature: | -4°F to 122°F (-20°C to 50°C) |
| Operating Humidity: | 5% to 95% RH Continuous non-condensing |
| Programming: | On-board keypad or M-View software (software and RJ-11 to serial cable included) |
| Communication Protocol: | Modbus Slave using Modbus RTU RS-422 port to host computer |
| RJ-11 Telephone Jack: | RS232 interface for uploading or downloading large configuration data bases using M-View Software can be used for Modbus RTU communication with BAS |
| Inputs: | Digital: 4 Parallel RS-485 ports allow up to 32 QEL gas sensors, and up to 99 relays Analog: 8 channels of 4-20 mA inputs with one common |
| Outputs: | Optional 8 analog channels of 4-20 mA signals with one common |
| Indicators: | 5 Red LEDs: 3 Relay status, Hush and Fault |
| Display: | 2 x 16 character display with backlight |
| Keypad: | 4 x 4 tactile & audible keypad |
| On-Board Relays: | Three DPDT Form C, Dry Contact 5.0A resistive 240 VAC, 30 VDC 3.7A inductive 240 VAC, 30 VDC |
| Relay Life Expectancy: | Mechanical: Minimum 5,000,000 |
| Time Delays: | Actuation / De-Actuation: 0 to 60 minutes |
| On-Board Buzzer: | 90 db @ 12" (30 cm), 2700 Hz; 3 Buzzer tones |
| Horn & Strobe: | Two 24 VDC terminals provided 6 Watts each |
| Storage: | 32°F to 68°F (0°C to 20°C) 0 to 99% RH Non-Condensing |
| Enclosure: | Steel, epoxy painted black, NEMA 1 |
| Dimensions: | (H) 10.00" (254 mm) x (W) 8.00" (203 mm) x (D) 2.00" (51 mm) |
| Terminal Blocks: | Fixed, Power Wiring: 16 to 26 AWG (0.2 to 1.00 mm ²) Twisted Pair |
| Terminal Block Torque Rating: | 0.37 ft-lbs (0.5n-3m) Nominal |
| Communication Wiring: | Belden 9841 or equal |
| Shipping Weight: | 5.00 lbs (2268 g) |
| Options: | 'P': Professional version of software for real time monitoring and data logging Horn & Strobe: See workaci.com/accessories/strobe and alarm Analog Output Card: 8 channel analog output with one common, 4-20 mA NEMA 4X Enclosure: Polycarbonate, flammability rating UL94V-0 |
| Agency Approvals: | CSA NRTL/C, C22-205 |

Note: Sensors and system should be scheduled to be tested for accuracy and functionality every 6 months for toxic, and every 3 months for combustible | Recalibrate or replace sensor boards if necessary





DIMENSIONAL DRAWING



STANDARD ORDERING

Model # Example: **M-CONTROLLERX-000** -OR- **125945**

| Model # | Item # | Description |
|--------------------------|--------|---|
| M-CONTROLLERX-000 | 125945 | M-Controller with M-View Software |
| M-CONTROLLERX-00P | 142957 | M-Controller with M-View Software & Real Time Monitoring |
| M-CONTROLLERX-T00 | 128896 | M-Controller with M-View Software, Analog Output Card (Eight (8) 4-20 mA Output Channels) |

ACCESSORIES ORDERING

Model # Example: **M-SWITCH** -OR- **127160**

| Model # | Item # | Description |
|----------------------|--------|--|
| 84330-013-000 | 126147 | M-Controller Programming Cable (Included with M-Controller) |
| 84330-014-000 | 132781 | M-View CD for M-Controller / Q4C Controller |
| 84330-101-00 | 137163 | 8 Channel Analog Output Card |
| 84330-621-000 | 149993 | NEMA 4X Enclosure for M-Controller |
| M-ANNUNCIATOR | 135212 | Annunciator Panel for M-Controller |
| M-RELAY-5X-2 | 125946 | Relay, 2DPDT, 5 Amps for M-Controller |
| M-RELAY-5X-4 | 125947 | Relay, 4DPDT, 5 Amps for M-Controller |
| M-RELAY-5X-6 | 138717 | Relay, 6DPDT, 5 Amps for M-Controller |
| M-RELAY-5X-8 | 125948 | Relay, 8DPDT, 5 Amps for M-Controller |
| M-SWITCH | 127160 | Manual Input Switch for M-Controller / Q4C Controller |
| M-TRANSFORMER | 127162 | Industrial Transformer, closed type, single phase, 120V to 24V, 250VA for M-Controller |

ACCESSORIES ORDERING | HORN STROBE

Model # Example: **FSIG-SLM500A** -OR- **136476**

| Model # | Item # | Description |
|---------------------|--------|------------------------------------|
| FSIG-SLM500A | 136476 | Streamline Horn and Strobe (Amber) |
| FSIG-SLM500B | 142976 | Streamline Horn and Strobe (Blue) |
| FSIG-SLM500G | 143013 | Streamline Horn and Strobe (Green) |
| FSIG-SLM500R | 143132 | Streamline Horn and Strobe (Red) |

ACCESSORIES ORDERING | MOUNTING BASE

Model # Example: **FSIG-SLMBW-012-024GY** -OR- **136477**

| Model # | Item # | Description |
|-----------------------------|--------|--|
| FSIG-SLMBD-012-024GY | 142977 | Deep Base for FSIG-SLM500 Series; Gray |
| FSIG-SLMBW-012-024GY | 136477 | Wall Mount Base for FSIG-SLM500 Series; Gray |

Note: See Strobe & Alarm Data Sheet if required



Q-CONTROLLER

256 Sensor Analog / Digital Controller

The Q-Controller system uses an RS-485 communication protocol that accommodates 128 channels through four digital ports. In addition, there are 128 analog inputs from any 4-20mA device and 128 4-20mA outputs as well. There are also up to 128 binary inputs and 128 binary outputs. The system communicates wirelessly for programming and downloading of data through your smartphone or tablet device. Input/output boxes can be installed anywhere in the RS-485 network for ease of installation of additional sensors. A touch screen graphic display is used for programming. All relevant gas detection data, such as relay status, historical data, location, and addresses of sensors are displayed by scrolling through the display menu. The controller has a scheduler that can

programmed to activate relays and deactivate relays (4, 10 Amp SPDT relays on main board) several times a day based on a frequency of day, weekday or weekend only. It also has an auto configure program that searches for connected devices. The Q-Controller can accept any 4-20 mA signal, making it ideal for monitoring temperature, humidity and other parameters. Several Q-Controllers can be connected to a centralized system that will display gas detection concentrations of an entire facility. Optional remote monitors can be used to observe the concentration of gases prior to entering the space. Refer to all applicable Federal, State, Provincial and Local Health and Safety laws and regulations before using these products.

Applications: Underground Parking Garages, Water Treatment Plants, Municipal Service Garages, Aircraft Hangers, Chiller Monitoring, Warehouses, Automobile Dealerships & Battery Charging / Storage.

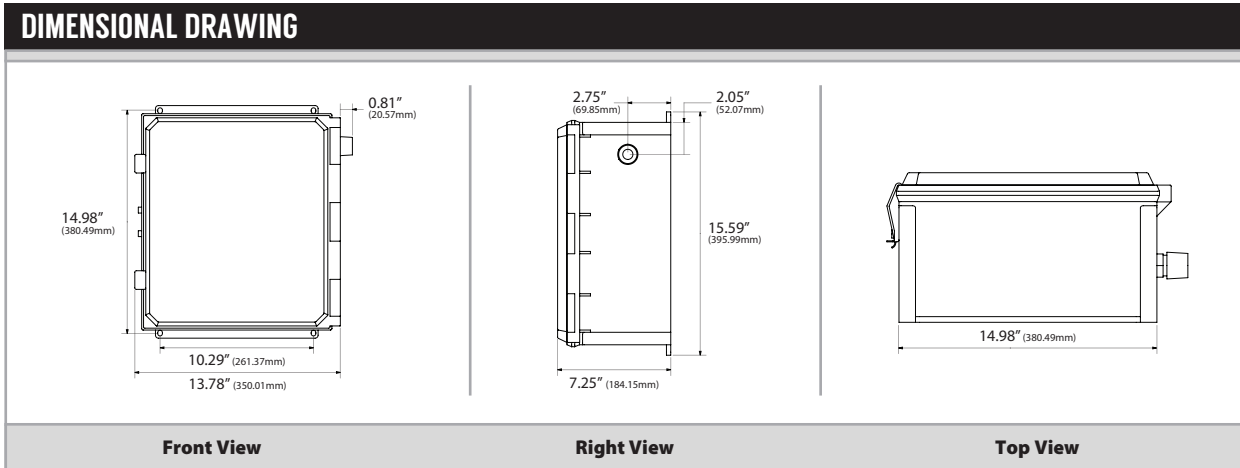
The Q-CONTROLLER covered by ACI's Two (2) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|--------------------------------------|---|
| Supply Voltage 1: | 24 VAC Nominal, 15 to 24 VAC 50/60 Hz 24 VDC Nominal, 18 to 30 VDC |
| Current 2: | Q-Controller: 0.75A maximum (fuse protected) Horn & Strobe: 0.75A maximum (fuse protected) |
| Fuses: | F1, F2 on main board: Polyswitch 750 mA Fuses reset after removing power |
| Operating Temperature: | 32°F to 120°F (-0°C to 49°C) |
| Operating Humidity: | 85% +/- 5% for temperatures up to 86°F (30°C), decreasing Linearly to 50% RH at 104°F (40°C) |
| Altitude: | Up to 6,561 ft (2,000m) |
| Communication Protocol: | Modbus Slave using Modbus RTU RS-485, BACnet IP (using BAC-box) ports to host computer |
| Inputs: | Digital: 4 RS-485 ports for up to 128 QEL sensors Analog: 128 4-20 mA inputs using AI-Box; 8 channels/box, up to 16 boxes |
| Outputs: | Relays: 128 relay inputs using BI-Box, 4 relays/box, up to 31 boxes Analog: 128 4-20 mA outputs using AO-Box; 8 channels/box, up to 16 boxes Relay: 128 outputs using BO-Box; 4 relays/box, up to 31 boxes |
| Indicators: | 15 Status LED's: Power, USB TX/RX status 4 RS-485 port TX/RX status for sensor network 1 RS-485 port TX/RX status for Modbus 1 RS-485 port TX/RX status for BACnet Module BAC-box |
| Display & Keypad: | 7" LCD touchscreen with 800 X 480 resolution |
| On-Board Relays: | 4 pluggable SPDT Form C, Dry Contact, 10A @ 250 VAC, 30 VDC Resistive 7.5A @ 250 VAC, 5A @ 30 VDC Inductive |
| Relay Life Expectancy: | Mechanical: VAC 10,000,000, VDC 20,000,000 @ 300 times/minute |
| Time Delays: | Actuation / De-Actuation: 0 to 9999 seconds Default is 10 seconds |
| On-Board Buzzer: | 100 db @ 4" (10 cm), 3700 Hz continuous |
| Horn & Strobe: | Two (2) 24 VDC Terminals (750 mA maximum) |
| Switch Inputs: | 4 Inputs Can be Q-Switch or any ON-OFF switch |
| Storage: | 32°F to 68°F (0°C to 20°C) 0 to 99% RH Non-Condensing |
| Enclosure: | NEMA 4X, Polycarbonate, Flammability Rating UL94V-V-0 |
| Dimensions: | (H) 16.00" (406 mm) x (W) 12.00" (305 mm) x (D) 6.00" (152 mm) |
| Terminal Blocks: | Removable, Power wiring: 16 to 26 AWG (0.2 to 1.00 mm ²) Twisted Pair |
| Terminal Block Torque Rating: | 0.37 ft-lb (0.5n-3m) Nominal |
| Communication Wiring: | Beldon 9841 or equal |
| Shipping Weight: | 12.0 lbs (5443g) |
| Agency Approvals: | UL2017 |

Note: Sensors and system should be scheduled to be tested for accuracy and functionality every 6 months for toxic, and every 3 months for combustible | Recalibrate or replace sensor boards if necessary | **Note 1:** A switch or circuit breaker must be provided during installation to remove power from the Q-Controller in case of emergency, since the Q-Controller enclosure can be locked to prevent tampering, and the internal power switch is not accessible | **Note 2:** Total actual power depends on the system size and design | The power may be supplied to sensors and modules, or each may have separate power supplies | Each sensor type varies in power requirements





STANDARD ORDERING

Model # Example: **Q-CONTROLLERA-000** -OR- **138070**

| Model # | Item # | Description |
|--------------------------|--------|---|
| Q-CONTROLLERA-000 | 138070 | Q-Controller (256 Sensor Analog / Digital Controller) |

ACCESSORIES ORDERING

Model # Example: **Q-SWITCHA-0** -OR- **138897**

| Model # | Item # | Description |
|--------------------|--------|-----------------------------------|
| AI-BOX-0 | 138071 | 8 channel Analog Input Module |
| BI-BOX-0 | 138899 | 4 channel Relay Input Module |
| AO-BOX-0 | 138900 | 8 channel Analog Output Module |
| BO-BOX-0 | 138072 | 4 channel Relay Output Module |
| IO-BOX-0 | 138898 | DIN Rail Mounting Box for Modules |
| Q-SWITCHA-0 | 138897 | Manual Input Switch |
| BAC-BOX-0 | 127160 | BACnet IP Output Module |

ACCESSORIES ORDERING | HORN STROBE

Model # Example: **FSIG-SLM500A** -OR- **136476**

| Model # | Item # | Description |
|---------------------|--------|------------------------------------|
| FSIG-SLM500A | 136476 | Streamline Horn and Strobe (Amber) |
| FSIG-SLM500B | 142976 | Streamline Horn and Strobe (Blue) |
| FSIG-SLM500G | 143013 | Streamline Horn and Strobe (Green) |
| FSIG-SLM500R | 143132 | Streamline Horn and Strobe (Red) |

ACCESSORIES ORDERING | MOUNTING BASE

Model # Example: **FSIG-SLMBW-012-024GY** -OR- **136477**

| Model # | Item # | Description |
|-----------------------------|--------|--|
| FSIG-SLMBD-012-024GY | 142977 | Deep Base for FSIG-SLM500 Series; Gray |
| FSIG-SLMBW-012-024GY | 136477 | Wall Mount Base for FSIG-SLM500 Series; Gray |

Note: See Strobe & Alarm Data Sheet if required





M-SWITCH, R-SWITCH

Microcontroller Based Switch

The M-Switch is a microcontroller based digital transmitter, which can provide a switch input for M-Controller System and Q4 Controller System to actuate or reset any assigned outputs, such as Relays, Buzzers and Strobe. M-Switch converts Switch Status to gas concentration and communicates with Controller System. It occupies one digital sensor address in the Controller System and works as a manual override switch to turn on a relay at the M-Controller or Q4C. The M-Switch has one switch onboard and contains two terminal blocks for connecting Remote Switches. An R-Switch connected to the Remote Switch Terminal Block, will have the

same function as the M-Switch. If an R-Switch is connected to the Reset Switch Terminal Block, the R-Switch will be used as a reset switch to reset latched switch. the M-Switch and R-Switch not only can provide multi-switch inputs and parallel switch inputs, it also provides a way to bring other devices switch outputs to M-Controller System or Q4 Controller System, such as actuating an M-Relay by customer's emergency switch, a timer/clock status, or actuating a fan by a temperature sensor status, etc. For instance, the M-Switch can be configured as Latched outside a machinery room to be capable of starting, but not stopping ventilation.

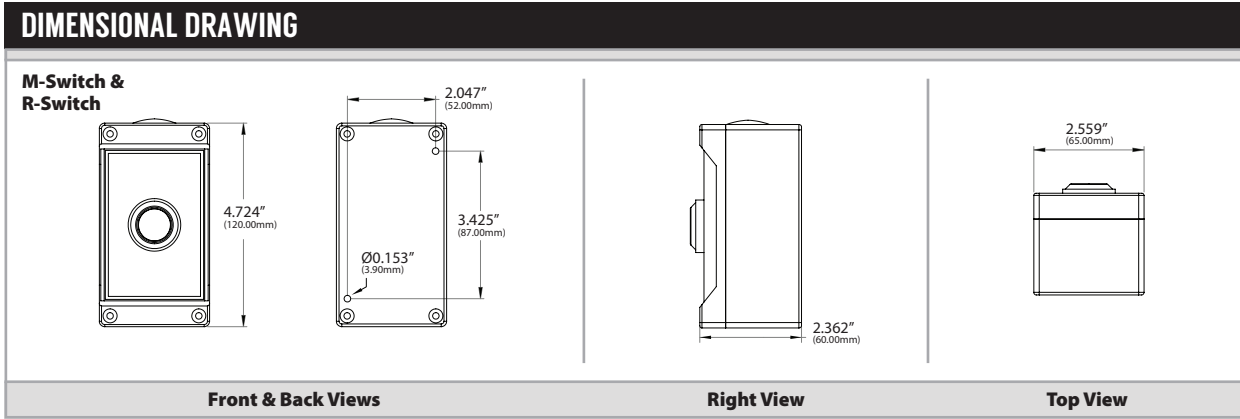
Applications: Testing System Outputs, such as Relays, Strobe, Horn & Fans, or Manual Actuation of the System for M-Controller & Q4 Controllers

The M-Switch and R-Switch are covered by ACI's Two (2) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|--------------------------------------|---|
| Input Voltage: | 24 VDC nominal, range 18 to 30 VDC; 24 VAC nominal, range 15 to 24 VAC 50/60 HZ AC must not be grounded |
| Wiring Connections: | De-Pluggable Screw Terminal Blocks |
| Wire Size: | 16 to 24 AWG (0.2047 to 1.301 mm) Shielded Twisted Pair |
| Terminal Block Torque Rating: | 0.37 ft-lb (0.502 Nm) Nominal |
| Communication Wire: | Belden 9841 or comparable wire |
| Fuse: | F1 Very Fast-Acting Fuse |
| Communication Protocol: | RS-485 with OptoMux protocol for use with M-Controller or Q4 controller systems Output 0 when switch is OFF Output 9999 when switch is ON Fixed Baud rate: 4800 bps |
| End-Of-Line Termination: | Jumper selectable 120Ω (Default OFF) |
| Addressing: | 0 to 31 Dip Switch selectable for M-Controller, 0 to 3 for Q4C |
| Indicators: | Red LED = Switch ON, TX/RX |
| Onboard Switch Style: | Momentary Pushbutton with Splash Cover, Meets IP 65 of IEC60529 Specification |
| Switch Input: | Configurable: Momentary or ON/OFF; Latching or Non-Latching |
| Operating Temperature: | -49 to 149°F (-45 to 65°C) |
| Operating RH: | 5% to 95% non-condensing |
| Storage Temperature: | -49 to 158°F (-45 to 70°C) |
| Storage Humidity: | 5% to 95% non-condensing |
| Enclosure: | IP 66 & NEMA 4, 4X, 12 & 13 Polycarbonate Flammability UL94-5 VA |
| Enclosure Dimensions: | (L) 4.724" (120 mm) x (W) 2.559" (65 mm) x (D) 2.362" (60 mm) |
| Product Weight: | 0.7 lbs (0.318 kg) |





STANDARD ORDERING Model # Example: **M-SWITCH** -OR- **127160**

| Model # | Item # | Description |
|-----------------|--------|---|
| M-SWITCH | 127160 | Microcontroller Based Switch |
| R-SWITCH | 140640 | Extension of an M-Switch, or used to reset a Latched M-Switch in a M-Controller or Q4C Gas System |





STROBE AND ALARMS

Multifunctional LED Beacon/Sounder

The FSIG-SLM500 Series is a multifunctional LED beacon and sounder combination developed with a multiple input technology that allows three separate levels of alarm (alert, pre-alarm, alarm) controllable via independent electric contacts. Channel 1 includes a simulated strobe (triple flash) visual signal only. Channel 2 adds an audible tone, selectable from 32 tones via dip switch, to the simulated strobe effect. Channel 3 includes a steady light and a second, unique tone selectable from 32 different tones, for a total of 64 unique tones. The volume of a selected tone is adjustable (65 dBA to 105 dBA for the highest performing tone). Its enclosure is made from a self-extinguishing polycarbonate material with high impact and UV resistance. The mounting base and strobe/sounder are sold separately. An optional protective wire dome is available for use in applications to protect the horn and strobe from being damaged once installed in your building. Other options may be available upon request. Contact ACI to discuss your application in greater detail or for more

information regarding the strobes and audible alarm series.

Applications: Audible/Visual Alarms for Gas Detection and Alarm Systems, Visual Alarms, Audible Alarms, Equipment Status

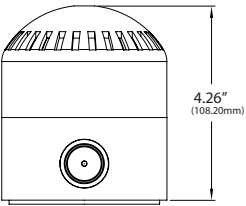
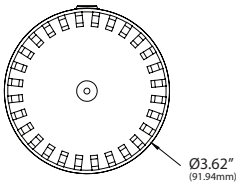
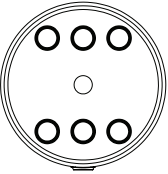
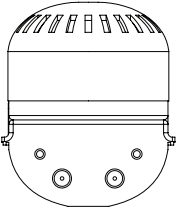
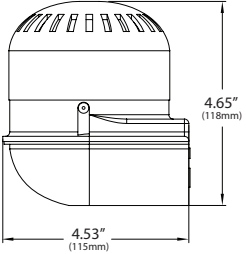
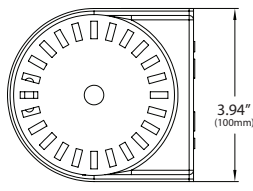
The LED Strobe and Alarm Series is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|---|--|
| Supply Voltage: | 12 to 24 VAC/VDC |
| Maximum Operating Current VA Rating: | 12 VAC/VDC: 380 mA 6 VA 24 VAC/VDC: 460 mA 13 VA |
| Input Types Accepted: | Relay |
| Number of Channels: | Three (3) 1: Visual only 2: Visual and Tone 1 3: Visual and Tone 2 |
| Light Source: | LED Array |
| Strobe Colors: | Amber, Blue, Clear, Green and Red |
| LED Lamp Life: | 50,000 Hours |
| Luminous Intensity: Candelas Lumens | Amber: 65 817, Blue: 60 754, Clear: 300 3771, Green: 100 1257, Red: 80 1006 |
| LED Strobe Flash Rate / Minute: | 85 +/- 10 Flashes (Flash Mode Only) |
| Flash Patterns: | Three (3) Strobe (Default), Fade, and Steady |
| Tones: | 64 options (Dip Switch selectable), three adjustable levels |
| Horn Decibels @ 1 meter (3.28'): | Adjustable from 65 to 105 dB |
| Operating Temperature: | -22 to 131°F (-30 to 55°C) |
| Mounting Base Material: | High Impact and UV Resistant, Self-Extinguishing Polycarbonate |
| Base Color: | Deep Base and Wall Mount: Gray |
| NEMA/IP Rating: | Type 3R (IP65) |
| Product Dimensions: | Strobe (Diameter x H): 3.9" (92 mm) x 2.44" (62 mm) |
| | Deep Base (Diameter x H): 3.62" (92 mm) x 1.81" (46 mm) |
| | Wall Mount Base (L x W x H): 4.52" (115 mm) x 3.93" (100 mm) x 2.04" (61 mm) |
| | Protective Dome (Diameter x H): 5.015" (127 mm) x 4.359" (111 mm) |
| Product Weights: | FSIG-SLM500 Series: 0.485 lbs. (0.22 kg) FSIG-SLMDB-012-024GY: 0.264 lbs. (0.12 kg) |
| | FSIG-SLMBW-012-024GY: 0.419 lbs. (0.19 kg) |
| Agency Approvals: | UL/cUL US (File# E162485), Audible and Visual Appliance Type 3P for Indoor/Outdoor, CE (2014/30/EU (EMC) and 2014/35/EU (Low Voltage), RoHS2 |





| DIMENSIONAL DRAWING | | |
|---|---|---|
| Horn/Strobe Deep Base | | |
|  |  |  |
| Horn/Strobe Wall Mount | | |
|  |  |  |
| Front View | Side View | Top View |

| STANDARD ORDERING HORN STROBE | | | Model # Example: FSIG-SLM500A -OR- 136476 |
|---------------------------------|--------|------------------------------------|---|
| Model # | Item # | Description | |
| FSIG-SLM500A | 136476 | Streamline Horn and Strobe (Amber) | |
| FSIG-SLM500B | 142976 | Streamline Horn and Strobe (Blue) | |
| FSIG-SLM500G | 143013 | Streamline Horn and Strobe (Green) | |
| FSIG-SLM500R | 143132 | Streamline Horn and Strobe (Red) | |
| FSIG-SLM500C | 150028 | Streamline Horn and Strobe (Clear) | |

| STANDARD ORDERING MOUNTING BASE | | | Model # Example: FSIG-SLMBW-012-024GY -OR- 136477 |
|-----------------------------------|--------|--|---|
| Model # | Item # | Description | |
| FSIG-SLMBD-012-024GY | 142977 | Deep Base for FSIG-SLM500 Series; Gray | |
| FSIG-SLMBW-012-024GY | 136477 | Wall Mount Base for FSIG-SLM500 Series; Gray | |

| ACCESSORIES DOME | | | Model # Example: FSIG-SLMDG2 -OR- 143149 |
|--------------------|--------|--|--|
| Model # | Item # | Description | |
| FSIG-SLMDG2 | 143149 | Optional Protective Dome for Deep Mounting Base and SLM500x Series Horn and Strobe | |



LITESTAK

Indoor Stackable Status Indicator

The Litestak® status indicator is an indoor stackable 24VDC lighting option that provides a 360° visual signal. There can be up to five light modules or up to four light modules plus an optional sound module to create a dual purpose audible/visual status indicator. The light modules are available in five lens colors: Amber, Blue, Clear, Green and Red. The clear module or the sound module is always mounted at the top position of a Litestak® unit if used.

Individual light modules may be set to either steady or flash using the optional flasher. The light modules consist of two impact-resistant polycarbonate lens halves that snap apart to provide easy maintenance and interchangeability of colors. The flasher and sound module are sold separately.

The LSB base can be installed on a 3/4-inch NPT pipe mount or surface mounted and the LSBS for low profile surface mounting. The Litestak® stack should be mounted with the base at the bottom.

The Litestak is covered by ACI's Two (2) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's web site, workaci.com.

PRODUCT SPECIFICATIONS

| | |
|---------------------------------|---|
| Supply Voltage: | 24 VDC |
| Operating Current*: | LSL Light Modules: 0.76 amps LHS Piezoelectric Horn: 70mA |
| Input Types: | Relay |
| Lamp Life: | 2,500 Hours |
| Light Source: | Incandescent |
| Light Module Colors: | Amber, Blue, Clear, Green and Red |
| Horn Decibels: | Adjustable, up to 75-77 dBa @ 10' (85-87 dBa @ 1m) |
| Operating Temperature: | 32-120°F (0-49°C) |
| Mounting Base Material: | Polycarbonate |
| Base Color: | Black |
| NEMA IP Rating: | NEMA 1 IP 10 |
| Product Dimensions: | LSB Base, LSL Module, and LSH Piezoelectric Horn (D x H): 3.93" (99.8mm) x 3.25" (82.6mm) LSBS Base (D x H): 3.93" (33.8mm) x 3.25" (82.6mm) |
| Product Shipping Weight: | LSL Light Module: 0.8 lbs (0.4 kg) LBS Base: 1.0 lbs (0.4 kg) LSH Piezoelectric Horn: 0.65 lbs (0.3 kg) |
| Agency Approvals: | UL Listed, CSA Certified |

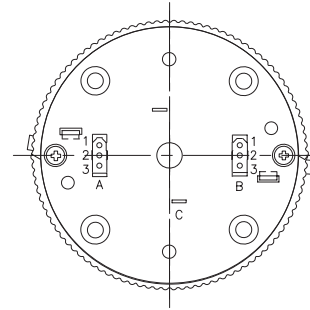
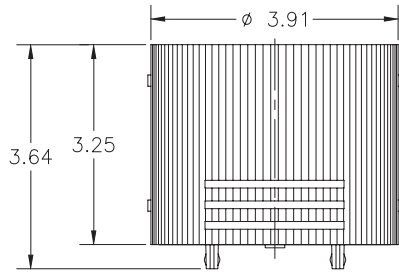
Note*: Operating current listed is for one module. For multiple modules, the current will have to be added together throughout the configuration to get the total operating current.



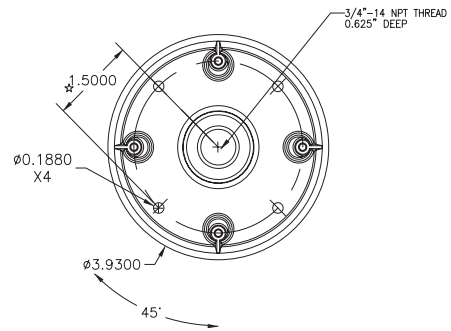
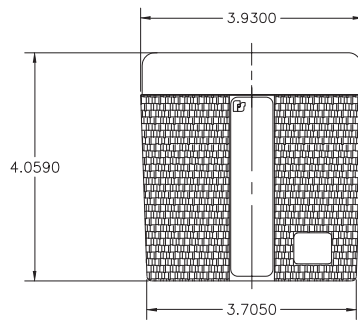


DIMENSIONS

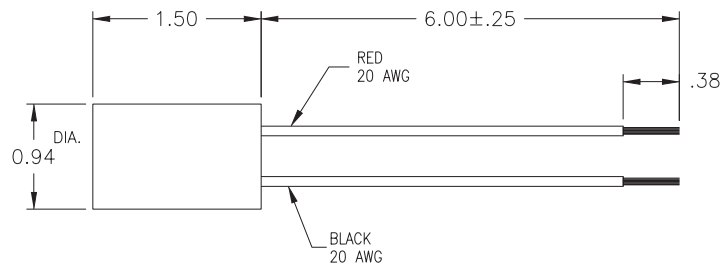
LSL Light Module and LSH Piezoelectric Horn



LSB Base



K8285237A Flasher module





STANDARD ORDERING | LIGHT MODULE

| Model # | Item # | Description |
|---------------|--------|---------------------|
| FSIG-LSL-024A | 148902 | Light Module, Amber |
| FSIG-LSL-024B | 148903 | Light Module, Blue |
| FSIG-LSL-024C | 148904 | Light Module, Clear |
| FSIG-LSL-024G | 148905 | Light Module, Green |
| FSIG-LSL-024R | 148906 | Light Module, Red |

STANDARD ORDERING | MOUNTING BASE

| Model # | Item # | Description |
|------------------|--------|-------------------------------------|
| FSIG-LSB-024-240 | 148898 | Surface mount or 3/4" conduit mount |
| FSIG-LSBS | 148899 | Surface mount base |

ACCESSORIES

| Model # | Item # | Description |
|----------------|--------|--------------------|
| FSIG-K8285237A | 149007 | Flasher Module |
| FSIG-LSH-024 | 149008 | Piezoelectric Horn |





*The calibration adapter, zero and span gases are not included and must be ordered separately

GAS CAL KIT

Gas Calibration Kit

This kit is used for calibration or bump testing of Q5/B5, Q6/B6 series sensors, Q8/B8 series explosion-proof sensors, and the QTS-1700 series explosion proof combustible sensors. The GAS CAL KIT consists of one C10 0.5lpm regulator, one C10 to CGA-600 adapter, ten feet of 1/4" tubing and a carry case. The calibration adapter for series sensors needed is ordered separately. The carry case has spaces for three 17L or 34L cylinder of Zero and Span gas for easy transportation and storage of gas and calibration equipment. The Zero and Span calibration gases are not included with the Gas Cal Kit but can be ordered through ACI and drop shipped to the jobsite.

-A "bump test" (function check) is the application of target gas to a sensor to verify alarms, functionality and alarm response. Bump testing is performed upon system start-up or commissioning of the gas detection system or as routine maintenance throughout the year.

-A "calibration check" is challenging a sensor using a traceable source of known concentration test gas to verify that the response of the sensors is within the manufacturer's acceptable limits. If the calibration check results are not within the acceptable range of $\pm 10\%$ of the value of the gas applied, a full calibration should be performed. Calibration checks should be performed between full calibration.

-A "full calibration" is defined as the adjustment of an instrument's response to match a desired value compared to a known traceable concentration of test gas. Full calibration should be performed on a yearly basis or by building owner. The instructions for calibration can be found in the Q5/B5 user manual.

Gas tips:

Always use fresh calibration gas for calibration, bump testing, and for calibration verification. Do not use gas that is past its expiration date.

Note: Reactive gases such as Nitrogen Dioxide, Ammonia, Hydrogen Sulphide, etc. have a shorter shelf life, normally less than a year, than non-reactive gases. Reactive calibration gases with higher concentration could have longer shelf life than lower concentrations.

Zero gas can be 20.9% Oxygen or 100% Nitrogen.

Span gas is a specific concentration of the target gas that is at least half of the span of the sensor.

Install and remove the regulator and adapter as one unit. Installing the gas cylinder adapter alone will cause the gas in the cylinder to escape.

Bump Testing and Calibration Checks should be on a maintenance schedule to verify functionality.

Full calibration should be scheduled and performed at least once every year.

Recommended calibration of Oxygen/Hydrogen (Toxic) sensors is every three (3) months due to the short life span of the sensing element.

If sensor gives "Cal Error" message after attempted calibration, replace the Smart Sensor board. See Replacement Smart Sensor sheet for replacement part number.

Note: Further information (bump testing/calibration demo videos and a list of replacement sensors) can be found at: www.workaci.com.

STANDARD ORDERING

| Model # | Item # | Description |
|-------------|--------|---|
| GAS CAL KIT | 148426 | Carry Case, 0.5lpm Regulator, C10 to CGA-600 Adapter and Tubing |

CAL ADAPTER ORDERING

| Model # | Item # | Description |
|---------------|--------|---|
| 85930-006-000 | 128901 | Q5/B5, Q6/B6 Calibration Adapter |
| 79030-103 | 126566 | Q8/B8, QTS-1710 Combustible Calibration Adapter |
| 6395-0003 | 126254 | Q8/B8 Toxic Calibration Adapter |
| 83830-020-000 | 127649 | CO-R, NO2-R, M5 Calibration Adapter |

Note: The above adapters are required to connect to the corresponding ACI Gas Sensors.





| CALIBRATION GASES | | | | | |
|-------------------|--------|---|-------------|---------|------------|
| Model # | Item # | Description | Balance | Valve | Shelf Life |
| H107220.9VN | 148988 | 20.9% Oxygen, 34L, Certified | Nitrogen | CGA 600 | 3 years |
| H1066 | 148989 | 100% Nitrogen, 34L, Certified | Air | CGA 600 | 3 years |
| F10675PA | 148986 | 5 ppm Nitrogen Dioxide, A34L, Certified | Air | C-10 | 1 year |
| F106710PA | 148987 | 10 ppm Nitrogen Dioxide, A34L, Certified | Air | C-10 | 1 year |
| H101650PN | 148990 | 50 ppm Carbon Monoxide, 34L, Certified | Nitrogen | CGA 600 | 3 years |
| H1016100PN | 148991 | 100 ppm Carbon Monoxide, 34L, Certified | Nitrogen | CGA 600 | 3 years |
| H104950LA | 148999 | 50% LEL Hydrogen, (2.00%) 34L, Certified | Air | CGA 600 | 3 years |
| H197150LA | 149000 | 50% LEL Methane, (2.50%), 34L, Certified | Air | CGA 600 | 3 years |
| H1971125LA | 149001 | 25% LEL Methane, (1.25%), 34L, Certified | Air | CGA 600 | 3 years |
| H10131000PN | 149003 | 1000 ppm Carbon Dioxide, 34L, Certified | Nitrogen | CGA 600 | 3 years |
| F10795PN | 149087 | 5 ppm Sulfur Dioxide, A34L, Certified | Nitrogen | C-10 | 2 Years |
| 34LS-78A-1000 | 150759 | 1000 ppm R11 Refrigerant, 34L, Certified | Air Balance | CGA 600 | 4 Years |
| 34LS-70A-1000 | 150760 | 1000 ppm, R134a Refrigerant, 34L, Certified | Air Balance | CGA 600 | 4 years |
| H1013750PN | 149140 | 750 ppm Carbon Dioxide, 34L, Certified | Nitrogen | CGA 600 | 3 Years |
| F166050PN | 150168 | 50 ppm Nitric Oxide, 34L, Certified | Nitrogen | C-10 | 1 Year |
| Z10175PN | 150169 | 5 ppm Chlorine, 58L, Certified | Nitrogen | C-10 | 6 Months |
| H197120LA | 150853 | 20% LEL Methane, (1.00%) 34L, Certified | Air | CGA 600 | 3 Years |
| H10491000PA | 150888 | 1000 ppm Hydrogen, 34L, Certified | Air | CGA 600 | 3 Years |

Note: Calibration gases are not covered by the ACI warranty



6N1-ISO

6 Analog / Digital Inputs to 1 Analog Output

The 6N1-ISO series is a microprocessor controlled interface designed to provide maximum flexibility with a minimum of cost.

With a variety of standard inputs, the 6N1-ISO provides the user with the ability to interface several devices to a single analog output. The 6N1-ISO can average two to six inputs, output the highest of two to six inputs, output the lowest of two to six inputs, output the sum of 2 inputs, or output the difference of two inputs. The 6N1-ISO also accepts up to 6 digital inputs(binary sequence) and outputs a proportional analog signal.

The 6N1-ISO-STG is a true staging device. It can be used in retrofit applications of interfacing a two or three stage thermostat to an SCR heater. It will convert 24VAC staged signals to a proportional analog output. The 6N1-ISO-STG offers two different modes. The first mode will check inputs sequentially high(#6) to low(#1), to set output percentage. The output percentage is based on highest input pressed, and ignores others. The other mode will check the total number of inputs, to set an output percentage. The output percentage is based on total number of active inputs.

Input ranges are jumper selectable and all modes and analog outputs are DIP switch selectable. The output signal is optically isolated from the input signals. The power output terminal can be used for power if the inputs are only contact closures.

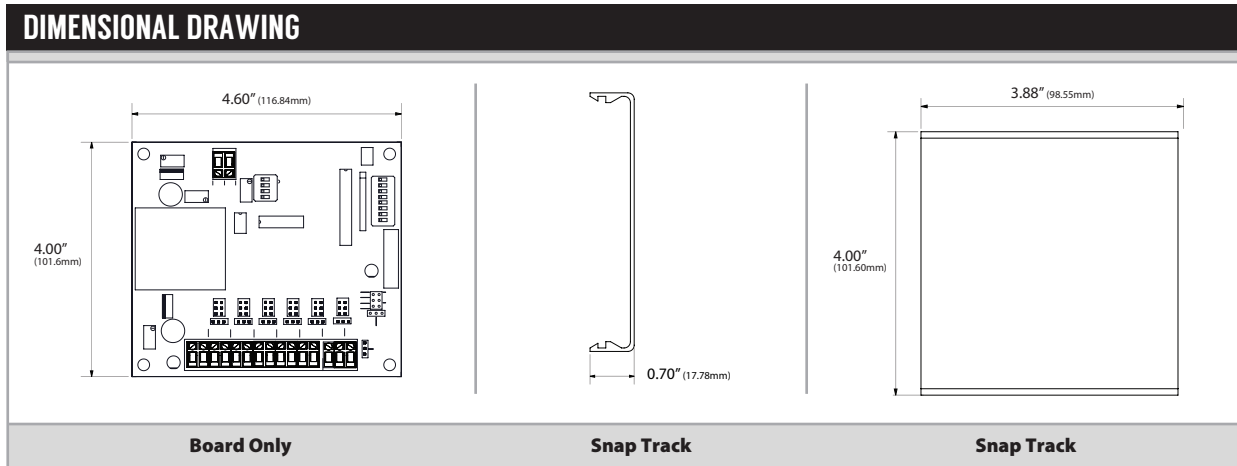
Applications: Coldest Zone Hot Deck Reset, Signal Selector, 3 Stage SCR, Staging

The 6N1-ISO is covered by ACI's Two (2) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|---|--|
| Supply Voltage: | 24 VAC (+/- 10%), 50/60 Hz |
| Supply Current: | 255 mA maximum (6.12VA with a 24 volt power supply) |
| Power Output: | 24 VDC or 15 VDC (Jumper Selectable) |
| Power Output (Supply Current): | 100 mA maximum |
| Input Voltage Signal Range/Input Impedance | 0 to 5 VDC @ 1MΩ, 0 to 10 VDC @ 20,000Ω, 0 to 20 VDC @ 10,000Ω |
| (6N1-ISO): | |
| Input Current Signal Range/Input Impedance | 0-20 mA @ 249Ω |
| (6N1-ISO) | |
| Input Mode (Digital/Binary) (6N1-ISO & 6N1-ISO-STG): | 15 VDC, 24 VDC or 24 VAC +/-10% @ 100,000Ω |
| One Analog Signal Output (@ Impedance): | 0-5 VDC @ 1000Ω 0-10 VDC @ 1000Ω 0-20 VDC @ 1000Ω 0-20 mA @ 500Ω maximum |
| Output Signal Accuracy: | +/- 2% of full scale |
| Resolution (Analog/Binary): | 64 steps of resolution |
| Product Functions(6N1-ISO): | Average, Highest, Lowest, Sum, Difference |
| Product Functions(6N1-ISO-STG): | Stage Control |
| Connections: | 90° Pluggable Screw Terminal Blocks |
| Wire Size: | 16 (1.31 mm ²) to 26 AWG (0.129 mm ²) |
| Terminal Block Torque Rating: | 0.5 Nm (Minimum); 0.6 Nm (Maximum) |
| Operating Temperature Range: | 35 to 120°F (1.7 to 48.9°C) |
| Operating Humidity Range: | 10 to 90% non-condensing |
| Storage Temperature: | -20 to 150°F (-28.9 to 65.5°C) |
| Snaptrack Material: | Polyvinyl Chloride (PVC) |
| Snaptrack Flammability Rating: | UL94 V-0 |
| Product Dimensions: | (L) 4.00" (W) 4.60" (H) 1.00" (101.6 x 116.84 x 25.4 mm) |
| Product Weight: | |





STANDARD ORDERING

Model # Example: **6N1-ISO** -OR- **111750**

| Model # | Item # | Description |
|--------------------|--------|--|
| 6N1-ISO | 111750 | 6 Analog / Digital Inputs to 1 Analog Output (Average, Highest, Lowest, Sum, Difference) |
| 6N1-ISO-STG | 148420 | 6 Digital Inputs to 1 Analog Output, Stage Control (Stage Control) |

ACCESSORIES

Model # Example: **A/DO008** -OR- **142583**

| Model # | Item # | Description |
|-------------------------|--------|--|
| A/DO008 | 142583 | Transient Voltage Suppressor, Bi-directional, 56 VAC/DC, 1500W |
| A/DRC 3.88 X 4.0 | 142622 | DIN Rail Adapter Kit |





AAR

Analog to 2 Relay Outputs

The AAR is controlled by a single analog input signal with two potentiometers controlling each output relay. The two 10 amp output relays can be independently set to fixed or adjustable deadband. "Fixed", the relay will turn "ON" at the level set by the Low pot and will turn "OFF" at a fixed 3% of the input signal below the turn-on level. "Adjustable" allows a flexible range of deadband adjustment using both the High and Low potentiometer. The edge-connector feature allows signal and power connections to be extended to the next board. This allows the installer to wire the first unit, then slide additional units together by plugging into a power, and

signal bus without the need to strip and terminate additional wires. The AAR is field calibratable, however, factory calibration is available upon request for an additional charge. Relay trip points can be factory calibrated, saving installation time and expense.

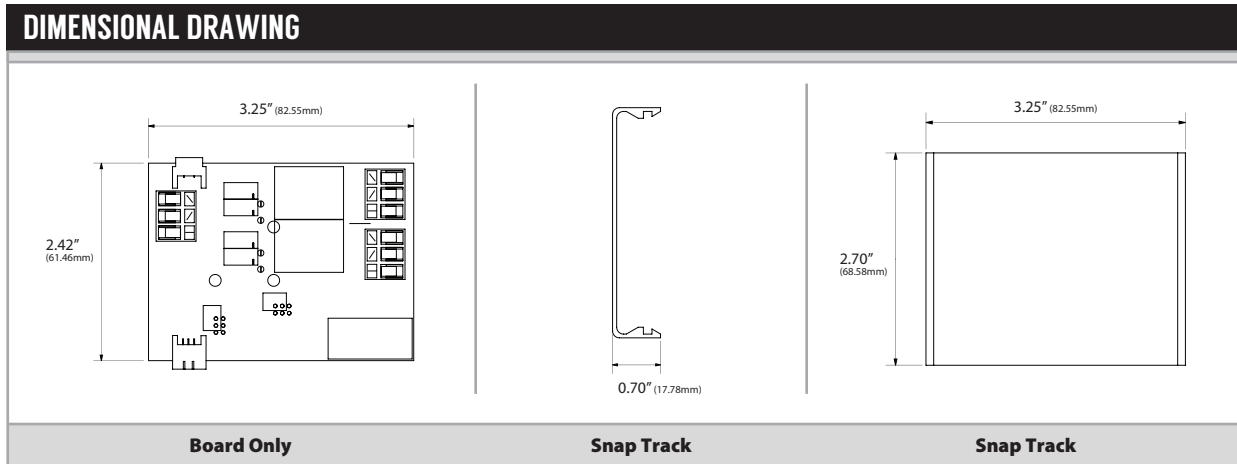
Applications: Level Indication, Digital Output Expansion, Alarms, Staging and Sequencing

The AAR is covered by ACI's Two (2) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|--|--|
| Supply Voltage: | 24 VAC or 24VDC, (+/- 10%), 50/60 Hz |
| Supply Current: | 45 mA maximum |
| Input Voltage Signal Range (@ Impedance): | 0 to 12 VDC @ 1MΩ, 0 to 24 VDC @ 20,000Ω |
| Input Current Signal Range (@ Impedance): | 0-20 mA @ 499Ω |
| Deadband: | Fixed or Adjustable – Jumper Selectable |
| Digital Output Type: | Two SPDT Form "C" Relays |
| Relay Contact Rating: | 10A @ 120 VAC / 24VAC, 5A @ 240VAC |
| Relay Electrical Life: | 100,000 operations minimum |
| Relay Mechanical Life: | 10,000,000 operations |
| Connections: | 90° Pluggable Screw Terminal Blocks |
| Wire Size: | 16 (1.31 mm ²) to 26 AWG (0.129 mm ²) |
| Terminal Block Torque Rating: | 0.5 Nm (Minimum); 0.6 Nm (Maximum) |
| Edge Connector: | Connect six AARs together using one connection, more if power is jumpered to every sixth AAR |
| Operating Temperature Range: | 35 to 120°F (1.7 to 48.9°C) |
| Operating Humidity Range: | 10 to 95% non-condensing |
| Storage Temperature: | -20 to 150°F (-28.9 to 65.5°C) |
| Snaptrack Material: | Polyvinyl Chloride (PVC) |
| Snaptrack Flammability Rating: | UL94 V-0 |
| Product Dimensions: | (L) 3.25" (W) 2.42" (H) 1.00" (82.55 x 61.47 x 25.4 mm) |
| Product Weight: | 0.25 lbs. (0.113 Kg) |
| Agency Approvals: | RoHS2, WEEE |





STANDARD ORDERING

Model # Example: **AAR** -OR- **101785**

| Model # | Item # | Description |
|------------|--------|---------------------------|
| AAR | 101785 | Analog to 2 Relay Outputs |

ACCESSORIES

Model # Example: **A/DO008** -OR- **142583**

| Model # | Item # | Description |
|-------------------------|--------|--|
| A/DO008 | 142583 | Transient Voltage Suppressor, Bi-directional, 56VAC/DC, 1500W |
| A/DRC 2.7 X 3.25 | 142624 | DIN Rail Adapter Kit |
| ENC1 | 102472 | 20 Gauge Metal Enclosure, Designed to Hold Interfaces Products |





AFP

Analog to Floating Point



The AFP allows an analog (voltage or current) signal to control a floating point actuator. It converts an analog signal into two relay contact outputs (one increase/one decrease). The isolated floating point output can be controlled by any one of nine analog input signal ranges (using an offset jumper). Upon power-up, the decrease relay will drive 100% of the chosen timing range to ensure that the output is at its minimum position. On a loss of power, the output relays will be open and no signal will be generated. The actuator will remain at the last commanded position unless it has "spring return". The AFP output rate of change (sixteen ranges, in eight versions) is DIP switch selectable. In **Version 2**, upon power-up, the decrease

relay will drive 200% of the chosen timing range to ensure that the output is at its minimum position. At 2 to 5% or below and 95 to 98% or higher of the input signal, the up or down contact will drive for an additional 100% of the chosen timing range. This assures that the control signal and actuator are in synchronization. In **Version 4**, the relays stay on at minimum and maximum voltage. In **Version 5**, the AFP relays stays on with 5% of maximum or minimum input voltage. There is no overshoot on maximum or minimum input voltage. In **Version 7**, upon power-up, the increase relay will drive 105% of the chosen timing range to ensure that the output is at its maximum.

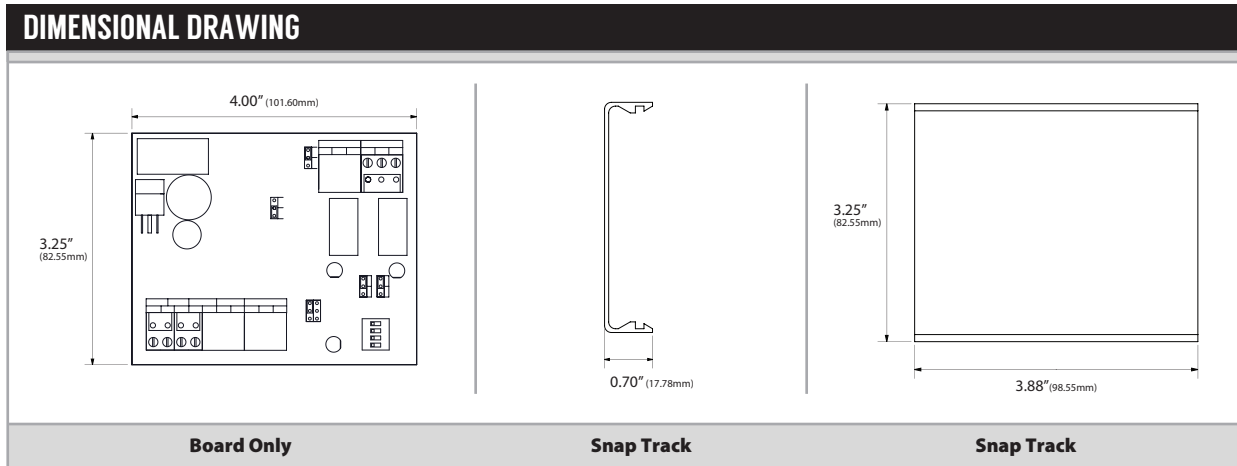
Applications: Electric Actuator Control

The AFP is covered by ACI's Two (2) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|--|---|
| Supply Voltage: | 24 VAC or 24 VDC, (+/- 10%), 50/60 Hz |
| Supply Current: | 105 mA maximum without 24 VDC auxiliary output 190 mA maximum with 24 VDC auxiliary output |
| Input Voltage Signal Range: | 0-5 VDC, 0-10 VDC, 0-15 VDC |
| Input Current Signal Range: | 0-20 mA |
| Analog Voltage Signal Input Range with Offset Jumper: | 1-5 VDC, 2-10 VDC, 3-15 VDC |
| Analog Current Signal Input Range with Offset Jumper: | 4-20 mA |
| Input Impedances (Nominal): | Voltage @ 10,000Ω Nominal / Current @ 250Ω nominal |
| Output (Floating Point): | Two relay contact outputs (Increase / Decrease) |
| Relay Contact Rating: | Dry Contact, Form C, 2A maximum @ 24 VDC |
| Relay Electrical Life: | 100,000 operations minimum |
| Relay Mechanical Life: | 1,000,000 operation |
| Connections: | 90° Pluggable Screw Terminal Blocks |
| Wire Size: | 16 (1.31 mm ²) to 26 AWG (0.129 mm ²) |
| Terminal Block Torque Rating: | 0.5 Nm (Minimum); 0.6 Nm (Maximum) |
| Operating Temperature Range: | 35 to 120°F (1.7 to 48.9°C) |
| Operating Humidity Range: | 10 to 95% non-condensing |
| Storage Temperature: | -20 to 150°F (-28.9 to 65.5°C) |
| Snaptrack Material: | Polyvinyl Chloride (PVC) |
| Snaptrack Flammability Rating: | UL94 V-0 |
| Product Dimensions: | (L) 4.00" (W) 3.25" (H) 1.15" (101.6 x 82.55 x 29.21 mm) |
| Product Weight: | 0.325 lbs. (0.147 Kg) |
| Agency Approvals: | RoHS2, WEEE |





STANDARD ORDERING

Model # Example: **AFP** -OR- **106317**

| Model # | Item # | Firmware Version # | Rate of Change* | Additional Information |
|-----------------------|--------|--------------------|-------------------|--|
| AFP | 106317 | AFP_0101.hex | 30, 60, 90s | --- |
| AFP VERSION #2 | 105626 | AFP_0201.hex | 120, 150, or 180s | Drives actuator down 200% of range (power reapplied) At 2-5% or below & 95-98% or higher (input signal), the up or down contact will drive an additional 100% of chosen timing range |
| AFP VERSION #3 | 129865 | AFP_0301.hex | 14, 16.5, or 19s | --- |
| AFP VERSION #4 | 112382 | AFP_0401.hex | 30, 60 or 90s | Relay stays on at Min. & Max. voltage |
| AFP VERSION #5 | 128283 | AFP_0501.hex | 90, 135 or 180s | Relay stays on with 5% of Max. or Min. input voltage. No overshoot on Max. or Min. input voltage |
| AFP VERSION #6 | 130469 | AFP_0601.hex | 18, 75 or 360s | --- |
| AFP VERSION #7 | 144859 | AFP_0701.hex | 30, 60 or 90s | Drives actuator up 105% of range (power reapplied) |
| AFP VERSION #8 | 144604 | AFP_0801.hex | 46, 240 or 600s | --- |

Note*: Rates of Change unit of measurement = seconds

ACCESSORIES

A/DO008 -OR- 142583

| Model # | Item # | Description |
|--------------------------|--------|--|
| A/DO008 | 142583 | Transient Voltage Suppressor, Bi-directional, 56 VAC/DC, 1500W |
| A/DRC 3.88 X 3.25 | 142621 | DIN Rail Adapter Kit |

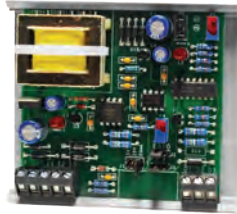




AIM1.1

Analog Input to Optically Isolated Analog Output

The AIM1.1 optically isolates an analog (voltage or current) input signal from its corresponding output signal. The factory calibrated output is linear and proportional (1:1 ratio) to the input signal. The AIM1.1 will accept a 0 to 5 VDC, 0 to 10 VDC, or 0 to 20 mA input span and output any one of those same ranges. It requires one external 24 VAC isolation transformer with floating secondary for power and has an onboard 24 VAC isolation transformer to supply the isolated output.



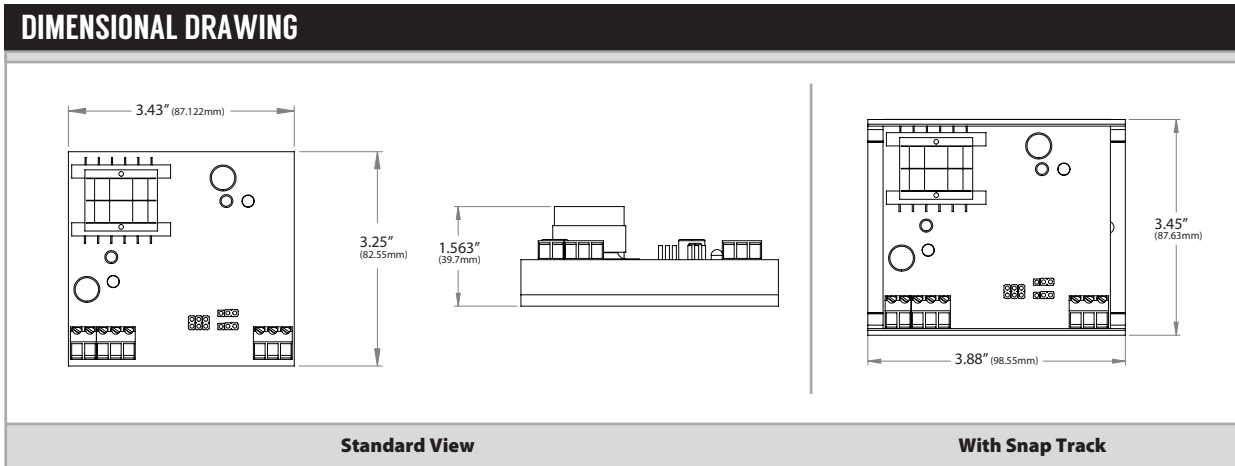
Applications: Grounded Electrical Actuator Isolation, Florescent Light Dimmer Isolation, Ground Loop Isolation, Variable Frequency Motor Drive Isolation, General Analog Signal Input and Output Isolation

The AIM1.1 is covered by ACI's Two (2) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|---|--|
| Supply Voltage: | 24 VAC (+/- 10%), 50/60 Hz |
| Supply Current: | 250 mA Maximum |
| Input Voltage Signal Range (@ Impedance): | 0 to 5 VDC @ 20,000Ω, 0 to 10 VDC @ 20,000Ω |
| Input Current Signal Range (@ Impedance): | 0-20 mA @ 249Ω |
| Output Voltage Signal Range (@ Impedance): | 0 to 5 VDC @ 5,000, 0 to 10 VDC @ 5,000 |
| Output Current Signal Range (@ Impedance): | 0-20 mA (Source or Sink) @ 500Ω (Maximum Load Resistance) |
| Voltage Mode Accuracy: | +/- 1% |
| Current Sink Mode Accuracy: | +/- 2% |
| Current Source Mode Accuracy: | +/- 1% |
| Linearity: | +/- 1% |
| Connections: | 45° Captive screw Terminal Blocks |
| Wire Size: | 12 (3.31 mm ²) to 22 AWG (0.33 mm ²) |
| Terminal Block Torque Rating: | 0.5 Nm (Minimum); 0.6 Nm (Maximum) |
| Operating Temperature Range: | 35 to 120°F (1.7 to 48.9°C) |
| Operating Humidity Range: | 15 to 90% non-condensing |
| Storage Temperature: | -20 to 150°F (-28.9 to 65.5°C) |
| Snaptrack Material: | Polyvinyl Chloride (PVC) |
| Snaptrack Flammability Rating: | UL94 V-0 |
| Product Dimensions: | (L) 3.25" (W) 3.42" (H) 1.50" (82.55 x 86.87 x 38.1 mm) |
| Product Weight: | 0.425 lbs (0.193 kg) |
| Agency Approvals: | RoHS 3 Directive 2015/863/EU, WEEE |





STANDARD ORDERING

Model # Example: **AIM1.1** -OR- **145185**

| Model # | Item # | Description |
|---------------|--------|--|
| AIM1.1 | 145185 | Analog Input to Optically Isolated Analog Output |

Note*: An external 24 VAC isolation transformer is required (see below)

ACCESSORIES

Model # Example: **LE105** -OR- **102553**

| Model # | Item # | Description |
|--------------------------|--------|---|
| LE105 | 102553 | Primary Voltage: 24 VAC, 50/60 Hz Secondary Voltage: 24 VAC (VA: 40) (Hubs: 1) (Manual Reset: TC) |
| A/DRC 3.88 X 3.25 | 142621 | DIN Rail Adapter Kit |





AIM2

Analog Input to Optically Isolated Analog Output

The AIM2 optically isolates an analog (voltage or current) input signal from its corresponding output signal. It will accept any input signal between 0 and 20 VDC, or 0 and 20 mA, and output any signal within those ranges. The AIM2 has preset or adjustable inputs and preset or adjustable outputs that can be either voltage or current. The current signals on the input or output can be either sink or source. The AIM2 requires one external 24 VAC isolation transformer with floating secondary for power. It has an onboard 24 VAC isolation transformer

to supply power to the isolated output. The AIM2 is field calibratable, however, factory calibration is available upon request for an additional charge. This will speed up installation time for the end user.

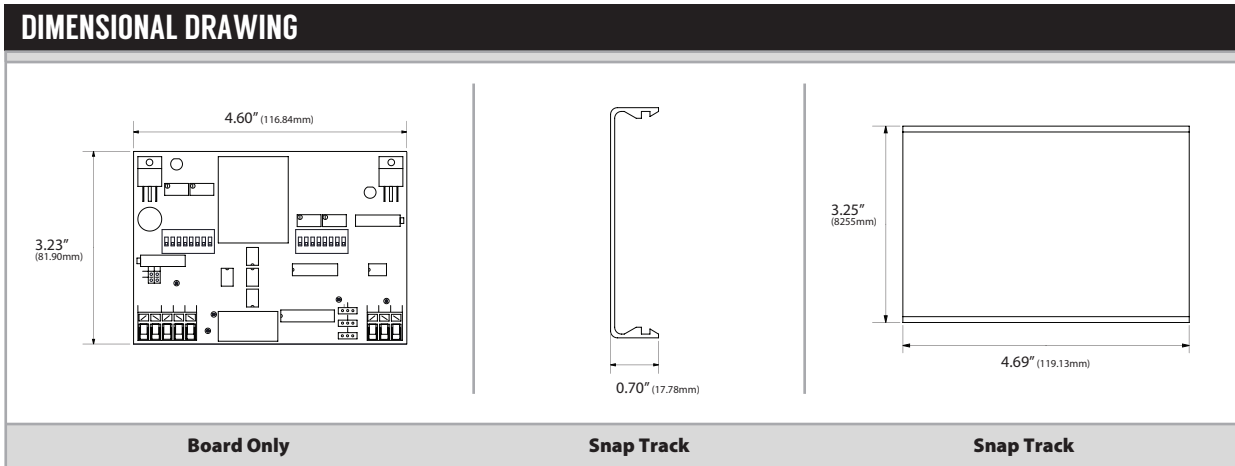
Applications: Grounded Electrical Actuator Isolation, Florescent Light Dimmer Isolation, Ground Loop Isolation, Variable Frequency Motor Drive Isolation, General Analog Signal Input and Output Isolation

The AIM2 is covered by ACI's Two (2) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|---|--|
| Supply Voltage: | 24 VAC (+/- 10%), 50/60 Hz |
| Supply Current: | 200 mA maximum |
| Input Voltage Signal Preset Ranges: | 0-5V, 0-10V, 0-15V, 0-20V, 1-5V, 2-10V, 3-15V, 4-20V, 0-1V |
| Input Current Signal Preset Ranges: | 0-20 mA, 4-20 mA, 0-1 mA |
| Input Signal Adjustable Voltage Span: | 1 VDC (Minimum) to 20 VDC (Maximum) |
| Input Signal Adjustable Voltage Offset: | From 0 to 20 VDC |
| Input Signal Adjustable Current Span: | 4 mA (Minimum) to 20 mA (Maximum) |
| Current Offset: | From 0 to 20 mA |
| Input Voltage Impedance: | 9,500Ω |
| Input Current Impedance: | 250Ω +/-1% |
| Output Voltage Signal Preset Ranges: | 0-5 VDC, 1-5 VDC, 0-10 VDC, 2-10 VDC |
| Output Current Signal Preset Ranges: | 0-20 mA, 4-20 mA |
| Output Signal Adjustable Voltage Span: | 1 VDC (Minimum) to 20 VDC +/- 1 VDC (Maximum) |
| Output Signal Adjustable Voltage Offset: | From 0 to 10 VDC |
| Output Signal Adjustable Current Span: | 0 mA (Minimum) to 20 mA (Maximum) |
| Output Signal Adjustable Current Offset: | From 0 to 20 mA |
| Output Voltage Impedance: | 5,000Ω |
| Output Current Impedance: | 500Ω |
| Accuracy: | +/- 3% |
| Linearity: | +/- 1% |
| Analog Optical Isolation: | 600VAC / 1500 VDC Maximum |
| Connections: | 45° Captive screw Terminal Blocks |
| Wire Size: | 12 (3.31 mm ²) to 22 AWG (0.33 mm ²) |
| Terminal Block Torque Rating: | 0.5 Nm (Minimum); 0.6 Nm (Maximum) |
| Operating Temperature Range: | 35 to 120°F (1.7 to 48.9°C) |
| Operating Humidity Range: | 10 to 95% non-condensing |
| Storage Temperature: | -20 to 150°F (-28.9 to 65.5°C) |
| Snaptrack Material: | Polyvinyl Chloride (PVC) |
| Snaptrack Flammability Rating: | UL94 V-0 |
| Product Dimensions: | (L) 4.60" (W) 3.23" (H) 1.20" (116.84 x 81.90 x 30.48 mm) |
| Product Weight: | 0.525 lbs. (0.238 Kg) |
| Agency Approvals: | RoHS2, WEEE |





STANDARD ORDERING

Model # Example: **AIM2** -OR- **101794**

| Model # | Item # | Description |
|-------------|--------|--|
| AIM2 | 101794 | Analog Input to Optically Isolated Analog Output |

Note*: An external 24 VAC isolation transform is required (see below)

ACCESSORIES

Model # Example: **LE105** -OR- **102553**

| Model # | Item # | Description |
|--------------------------|--------|---|
| LE105 | 102553 | Primary Voltage: 24 VAC, 50/60 Hz Secondary Voltage: 24 VAC (VA: 40) (Hubs: 1) (Manual Reset: TC) |
| A/DRC 4.69 X 3.25 | 142620 | DIN Rail Adapter Kit |





AIM3

Analog Input to Optically Isolated Analog Output

The AIM3 will accept a current or voltage input and deliver a single voltage or sourcing current output. It is designed to accept a feedback signal from a variable speed drive and direct it back to the controller (BAS) for monitoring motor speed. It can be modified for signal isolation between the output of the BAS system and the VFD drive controller as well. Isolation is provided between the power supply, signal input, and signal output circuits. The AIM3 must be powered by 120 VAC.



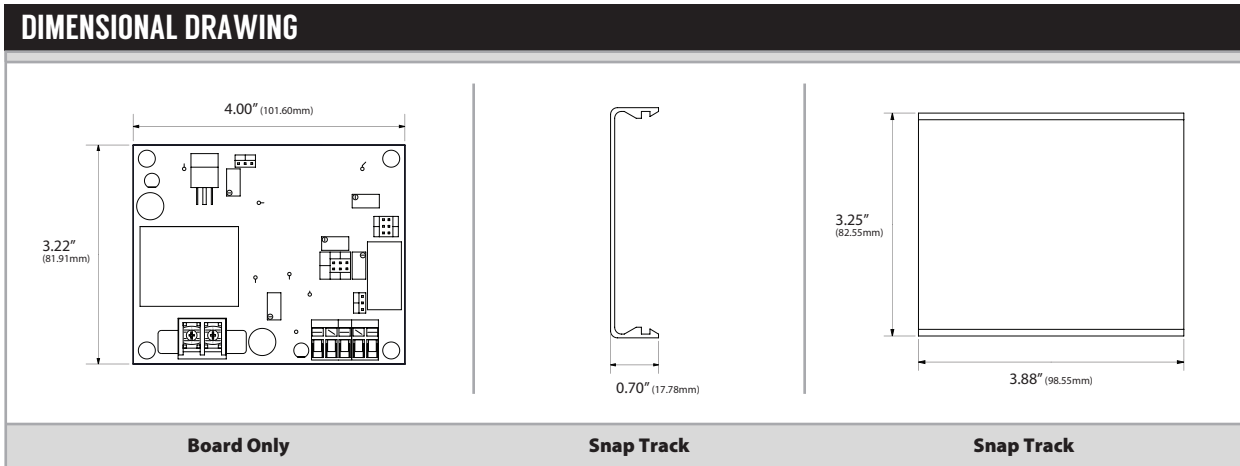
Applications: Grounded Electrical Actuator Isolation, Florescent Light Dimmer Isolation, Ground Loop Isolation, Variable Frequency Motor Drive Isolation, General Analog Signal Input and Output Isolation

The AIM3 is covered by ACI's Two (2) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|---|--|
| Supply Voltage: | 120 VAC (+/- 10%) |
| Supply Current: | 50 mA maximum |
| Input Voltage Signal Preset Ranges (@ Impedance): | 0-5 VDC, 1-5V @ > 5,000,000Ω |
| Input Voltage Signal Preset Ranges (@ Impedance): | 0-10 VDC, 2-10 VDC @ 20,000Ω |
| Input Current Signal Preset Ranges (@ Impedance): | 0-20 mA DC, 4-20 mA DC @ 249Ω |
| Output Voltage Signal Preset Ranges (@ Impedance): | 0-5 VDC, 1-5 VDC @ 500Ω |
| Output Voltage Signal Preset Ranges (@ Impedance): | 0-10 VDC, 2-10 VDC @ 1,000Ω |
| Output Current Signal Preset Ranges (@ Impedance): | 0-20 mA DC, 4-20 mA DC @ 750Ω |
| Output Signal Accuracy (Except 2-10 VDC): | Less than or equal to 1% of output span |
| Output Signal Accuracy (2-10 VDC): | Less than or equal to 1.5% of output span |
| Output Signal (Full Scale Resolution): | 256 steps without offset, 205 steps with offset isolation |
| Isolation: | Capable of withstanding 500 VAC (rms) for a min. of 1 minute from power to input, input to output, and output to power |
| Power Connection: | 45° Tri-Barrier with Rising Clamp Washer Terminal Blocks |
| Wire Size: | 12 (3.31 mm ²) to 22 AWG (0.33 mm ²) |
| Output Signal Connections: | 45° Captive screw Terminal Blocks |
| Wire Size: | 12 (3.31 mm ²) to 22 AWG (0.33 mm ²) |
| Terminal Block Torque Rating: | 0.5 Nm (Minimum); 0.6 Nm (Maximum) |
| Operating Temperature Range: | 35 to 120°F (1.7 to 48.9°C) |
| Operating Humidity Range: | 10 to 95% non-condensing |
| Storage Temperature: | -20 to 150°F (-28.9 to 65.5°C) |
| Snaptrack Material: | Polyvinyl Chloride (PVC) |
| Snaptrack Flammability Rating: | UL94 V-0 |
| Product Dimensions: | (L) 3.22" (W) 4.00" (H) 1.25" (81.92 x 101.6 x 31.75 mm) |
| Product Weight: | 0.525 lbs. (0.238 Kg) |
| Agency Approvals: | RoHS2, WEEE |





STANDARD ORDERING

Model # Example: **AIM3** -OR- **101795**

| Model # | Item # | Description |
|-------------|--------|--|
| AIM3 | 101795 | Analog Input to Optically Isolated Analog Output |

ACCESSORIES

Model # Example: **A/DRC 3.88 X 3.25** -OR- **142621**

| Model # | Item # | Description |
|--------------------------|--------|----------------------|
| A/DRC 3.88 X 3.25 | 142621 | DIN Rail Adapter Kit |





ARM

Analog Current/Voltage Rescaling Module



The ARM is an analog rescaling module which accepts an analog (voltage or current) input signal and rescales it to another voltage or current output signal. The top-adjust trimmer potentiometers can be used to make fine adjustments to output ranges for maximum flexibility. This device can attenuate an input signal to 100%. The ARM also has an adjustable gain and offset. The output gain can be adjusted from 1 to 25 times the input (gain will vary depending on input). The offset of the output can be adjusted anywhere from 0 to +/- 20 VDC.

The ARM also has the ability to reverse an input signal. The ARM has a regulated 20 VDC power supply output to power sensors. The ARM can also accept a resistance input by using voltage divider applications. The ARM is field calibratable, however, factory calibration is available upon request for an additional charge. This will speed up installation time for the end user.

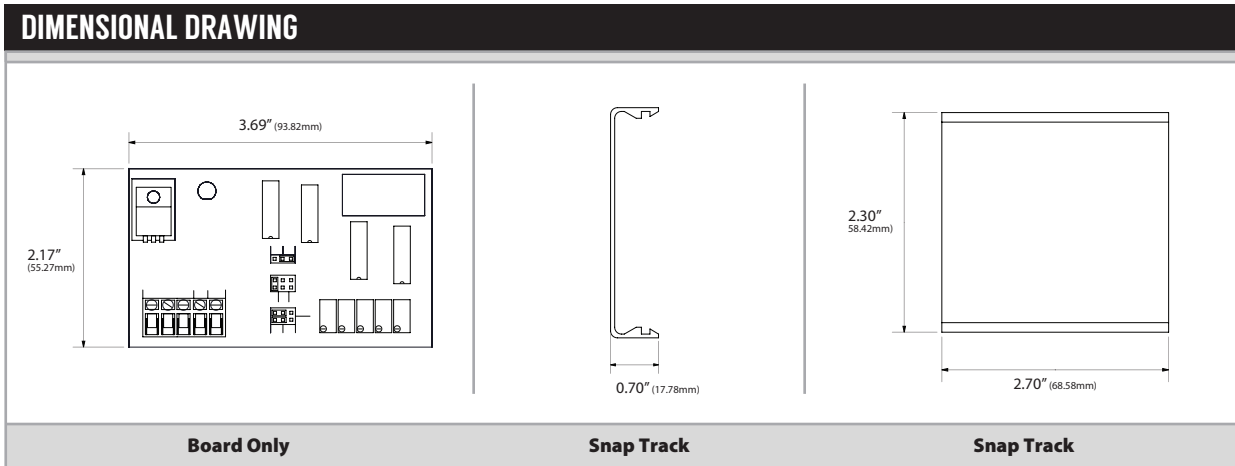
Applications: Resistance to Current or Voltage Conversion, Voltage to Current or Voltage Conversion, Current to Current or Voltage Conversion, Shrink or Expand Sensor Ranges, Increase Analog Input Resolution, Reverse a Signal, Adapt Non-compatible Signals

The ARM is covered by ACI's Two (2) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|--|---|
| Supply Voltage: | 24 VAC or 24 VDC, (+/- 10%), 50/60 Hz |
| Supply Current: | 200 mA maximum |
| Input Voltage Signal Range (@ Impedance): | 0-35 VDC @ 1,000,000Ω |
| Input Current Signal Range (@ Impedance): | 0 to 44 mA @ 250Ω |
| Input Resistance Signal Range: | 0 to 500,000Ω |
| Field Adjustable Ranges: | Multi-turn potentiometers |
| Output Voltage Signal Range: | 0.25 VDC minimum to 20 VDC maximum |
| Output Current Signal Range: | 44 mA maximum, Signal Gain 1 to 25 times (nominal) depending on input value |
| Output Accuracy: | +/- 1% |
| Output Signal Attenuation: | 0 to 100% |
| Output Signal Offset: | 0.25 to 20 VDC |
| Output Signal Inversion (RA): | 20 to 0.25 VDC (nominal) |
| Output Current Load Impedance: | 750Ω @ 20 mA |
| Output Voltage Load Impedance: | 3300Ω @ 20 VDC +/- 10% / 400Ω @ 10 VDC +/- 10% |
| Regulated Power Output: | 20 VDC +/- 10%, 30 mA maximum |
| Connections: | 45° Captive screw Terminal Blocks |
| Wire Size: | 12 (3.31 mm ²) to 22 AWG (0.33 mm ²) |
| Terminal Block Torque Rating: | 0.5 Nm (Minimum); 0.6 Nm (Maximum) |
| Operating Temperature Range: | 35 to 120°F (1.7 to 48.9°C) |
| Operating Humidity Range: | 10 to 95% non-condensing |
| Storage Temperature: | -20 to 150°F (-28.9 to 65.5°C) |
| Snaptrack Material: | Polyvinyl Chloride (PVC) |
| Snaptrack Flammability Rating: | UL94 V-0 |
| Product Dimensions: | (L) 3.69" (W) 2.17" (H) 1.00" (93.73 x 55.12 x 25.54 mm) |
| Product Weight: | 0.200 lbs. (0.0907 Kg) |
| Agency Approvals: | RoHS2, WEEE |





STANDARD ORDERING

Model # Example: **ARM** -OR- **102028**

| Model # | Item # | Description |
|------------|--------|---|
| ARM | 102028 | Analog Current/Voltage Rescaling Module |

SPECIAL CALIBRATION ORDERING

Model # Example: **C/ARM** -OR- **137061**

| Model # | Item # | Description |
|--------------|--------|--------------------------|
| C/ARM | 137061 | Specify Input and Output |

ACCESSORIES

Model # Example: **A/DO008** -OR- **142583**

| Model # | Item # | Description |
|-------------------------|--------|--|
| A/DO008 | 142583 | Transient Voltage Suppressor, Bi-directional, 56VAC/DC, 1500W |
| A/DRC 2.7 X 2.18 | 142626 | DIN Rail Adapter Kit |
| ENC1 | 102472 | 20 Gauge Metal Enclosure, Designed to Hold Interfaces Products |





ARM2

Analog Current/Voltage Rescaling Signal Splitter



The ARM2 will accept a single analog (voltage or current) signal and split that signal into two DC non-isolated current sourcing outputs that can be re-scaled. Its primary application is as a signal splitter. The outputs are always scaled identically and will always track each other. The top-adjust trimmer potentiometers can be used to make fine adjustments to output ranges for maximum flexibility. This device can attenuate an input signal to 100%. The ARM2 also has an adjustable gain and offset. The output gain can be adjusted from 1 to 20 times the input (gain will vary depending on input). The ARM2 also has the ability to reverse an input signal. The

ARM2 has a regulated 23 VDC power supply output to power sensors. The ARM2 can also accept a resistance input by using voltage divider applications. The ARM2 is field calibratable, however, factory calibration is available upon request for an additional charge. This will speed up installation time for the end user.

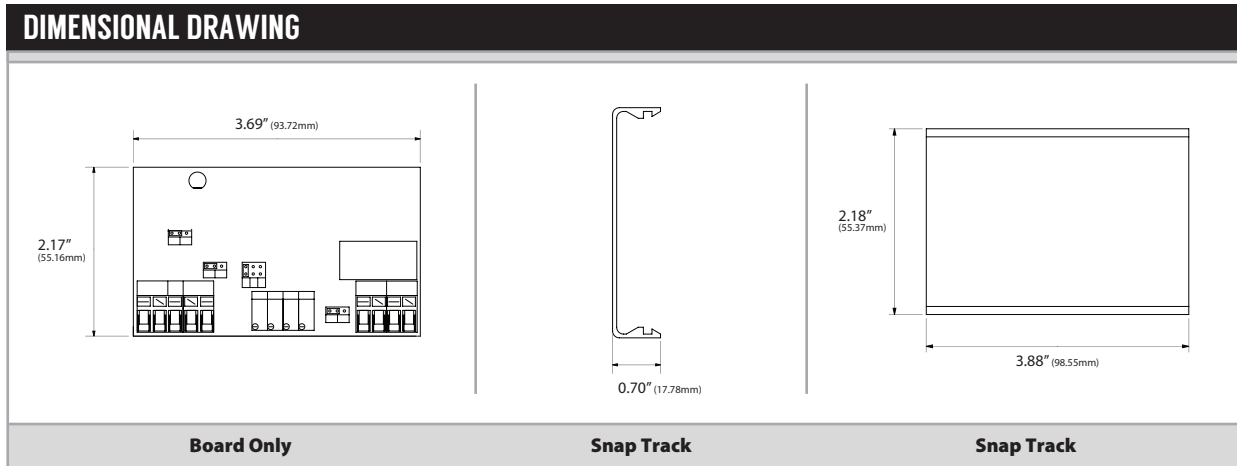
Applications: Signal Loop Monitoring, Resistance to Current Conversion, Voltage to Current Conversion, Current to Current Conversion, Shrink or Expand Sensor Ranges, Increase Analog Input Resolution, Reverse a Signal, Adapt Non-compatible Signals

The ARM2 is covered by ACI's Two (2) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|--|--|
| Supply Voltage: | 22.8 to 30 VDC, 21.6 to 26.4 VAC |
| Supply Current: | 100 mA maximum |
| Input Voltage Signal Range (@ Impedance): | 0-35 VDC @ 1,000,000Ω |
| Input Current Signal Range (@ Impedance): | 0 to 44 mA @ 250Ω |
| Input Resistance Signal Range: | 0 to 500,000Ω |
| Field Adjustable Ranges: | Multi-turn potentiometers |
| Output Current Signal Range: | Signal Gain 1 to 20 times (nominal) depending on input value |
| Signal Output Accuracy: | Less than or equal to 1% of output span over full temperature range when using 1:1 input to output Accuracy is calibration dependent over full temperature range |
| Output Signal Attenuation: | 0 to 100% |
| Output Signal Offset: | 0.25 to 20 VDC |
| Output Signal Inversion (RA): | 20 to 0 mA (nominal) |
| Output Current Load Impedance: | 750Ω @ 20 mA |
| Regulated Power Output: | 23 VDC nominal @ 24 VAC Power Supply, 30 mA maximum |
| Connections: | 45° Captive screw Terminal Blocks |
| Wire Size: | 12 (3.31 mm ²) to 22 AWG (0.33 mm ²) |
| Terminal Block Torque Rating: | 0.5 Nm (Minimum); 0.6 Nm (Maximum) |
| Operating Temperature Range: | 35 to 120°F (1.7 to 48.9°C) |
| Operating Humidity Range: | 10 to 95% non-condensing |
| Storage Temperature: | -20 to 150°F (-28.9 to 65.5°C) |
| Snaptrack Material: | Polyvinyl Chloride (PVC) |
| Snaptrack Flammability Rating: | UL94 V-0 |
| Product Dimensions: | (L) 3.69" (W) 2.17" (H) 1.00" (93.73 x 55.12 x 25.54 mm) |
| Product Weight: | 0.231 lbs. (0.104 Kg) |
| Agency Approvals: | RoHS2, WEEE |





STANDARD ORDERING

Model # Example: **ARM2** -OR- **102029**

| Model # | Item # | Description |
|-------------|--------|--|
| ARM2 | 102029 | Analog Current/Voltage Rescaling Signal Splitter |

SPECIAL CALIBRATION ORDERING

Model # Example: **C/ARM2** -OR- **137062**

| Model # | Item # | Description |
|---------------|--------|--------------------------|
| C/ARM2 | 137062 | Specify Input and Output |

ACCESSORIES

Model # Example: **A/DO008** -OR- **142583**

| Model # | Item # | Description |
|--------------------------|--------|--|
| A/DO008 | 142583 | Transient Voltage Suppressor, Bi-directional, 56VAC/DC, 1500W |
| A/DRC 3.88 X 2.18 | 142623 | DIN Rail Adapter Kit |
| ENC1 | 102472 | 20 Gauge Metal Enclosure, Designed to Hold Interfaces Products |





ASA

Analog Signal Amplifier

The ASA is an analog signal amplifier which accepts an analog (voltage or current) signal and outputs a voltage signal. Several preset input ranges are jumper selectable. It is designed to give a Building Automation System signal output the power (wattage) to control Maxitrol™ Gas Valves normally installed in rooftop units. The top-adjust trimmer potentiometers can be used to make fine adjustments of gain and offset. The output gain can be adjusted anywhere from 1 to 20 times the input on the ASA (gain will vary depending on type of input). By using voltage divider applications, the ASA can also accept a resistance input. The offset of the output can be +/- 0 to

20 VDC. If above 30 watts, derate load current and calculate again ($P_{out} = [(V_{out}/Load) (V_{out})]$ and/or ($P_{out} = (Load Current)(V_{out})$). The ASA is field calibratable, however, factory calibration is available upon request for an additional charge. This will speed up installation time for the end user.

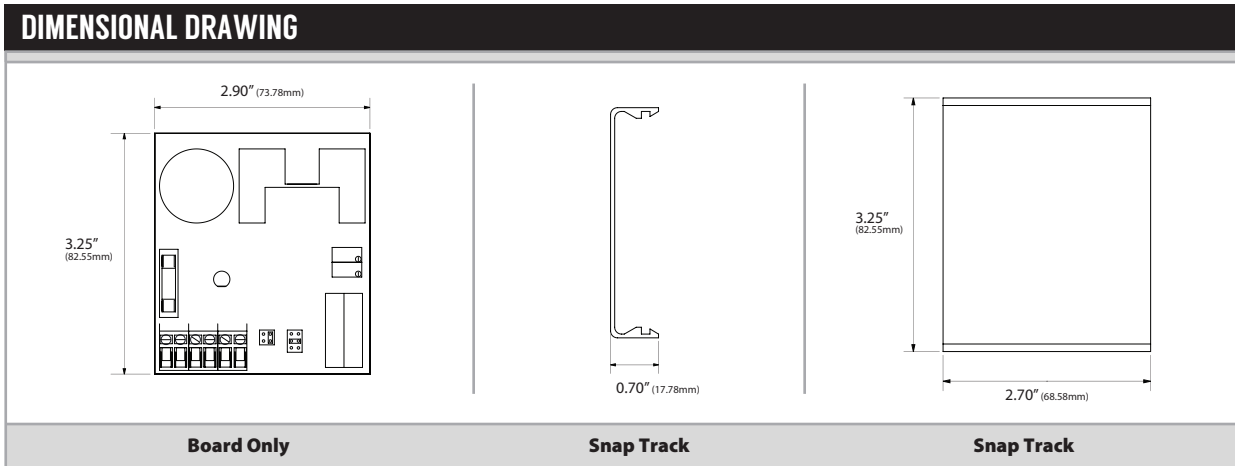
Applications: Provides Sufficient Power to Control Maxitrol™ Gas Valves, Increases Analog Signal Current Rating, Dimming Ballast Control (Sinking Drivers Only), Adapts Non-Compatible Signals, Resistance to Voltage Conversion, Current to Voltage Conversion

The ASA is covered by ACI's Two (2) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|--|--|
| Supply Voltage: | 24 VAC +10%/-5% (0-20 VDC out), 24 VDC +/- 10% (0-18 VDC out) 25-30 VDC (0-20 VDC out) |
| Supply Current: | 50A nominal with no load, 2.05A maximum (Dependent on Load Impedance) |
| Input Voltage Signal Range (@ Impedance): | 0 to 20 VDC @ 200,000Ω |
| Input Current Signal Range (@ Impedance): | 0 to 44 mA @ 250Ω |
| Input Resistance Signal Range: | 0 to 500,000Ω |
| Output Voltage Signal Range: | 0 to 20 VDC |
| Output Voltage Signal Offset: | +/- 0 to 20 VDC |
| Output Voltage Signal Gain: | 1-20 times (output can't exceed 20 VDC) |
| Output Load Impedance: | 10Ω minimum |
| Output Signal Offset (Jumper Selectable): | Zero Offset, Positive Offset, Negative Offset |
| Input-Output Tracking Accuracy: | +/- 2% Full Scale Output |
| Power Range: | 2A or 30 Watts maximum |
| Connections: | 45° Captive screw Terminal Blocks |
| Wire Size: | 12 (3.31 mm ²) to 22 AWG (0.33 mm ²) |
| Terminal Block Torque Rating: | 0.5 Nm (Minimum); 0.6 Nm (Maximum) |
| Operating Temperature Range: | -40 to 150°F (-40 to 65°C) |
| Operating Humidity Range: | 5 to 95% non-condensing |
| Storage Temperature: | -40 to 150°F (-28.9 to 65.5°C) |
| Snaptrack Material: | Polyvinyl Chloride (PVC) |
| Snaptrack Flammability Rating: | UL94 V-0 |
| Product Dimensions: | (L) 3.25" (W) 2.90" (H) 1.57" (82.55 x 73.66 x 39.88 mm) |
| Product Weight: | 0.34 lbs. (0.156 Kg) |
| Agency Approvals: | RoHS2, WEEE |





STANDARD ORDERING

Model # Example: **ASA** -OR- **102030**

| Model # | Item # | Description |
|------------|--------|-------------------------|
| ASA | 102030 | Analog Signal Amplifier |

ACCESSORIES

Model # Example: **A/DO008** -OR- **142583**

| Model # | Item # | Description |
|--------------------------|--------|--|
| A/DO008 | 142583 | Transient Voltage Suppressor, Bi-directional, 56 VAC/DC, 1500W |
| A/DRC 2.70 X 3.25 | 142624 | DIN Rail Adapter Kit |





ATL

Analog Current/Voltage to 4 Adjustable SPDT Relays

The ATL accepts an analog (voltage or current) input signal and controls four relays. Each relay has an adjustable trip point which is set by a multi-turn potentiometer. Each relay is activated when the input signal is equal to, or greater than, the trip point setting. Relays deactivate at trip point less the deadband (3% standard, 10% optional). Common (C), Normally Open (NO), and Normally Closed (NC) terminals are available at each relay. The ATL is field calibratable, however, factory calibration is available upon request for an additional charge. This will speed up installation time for the end user.

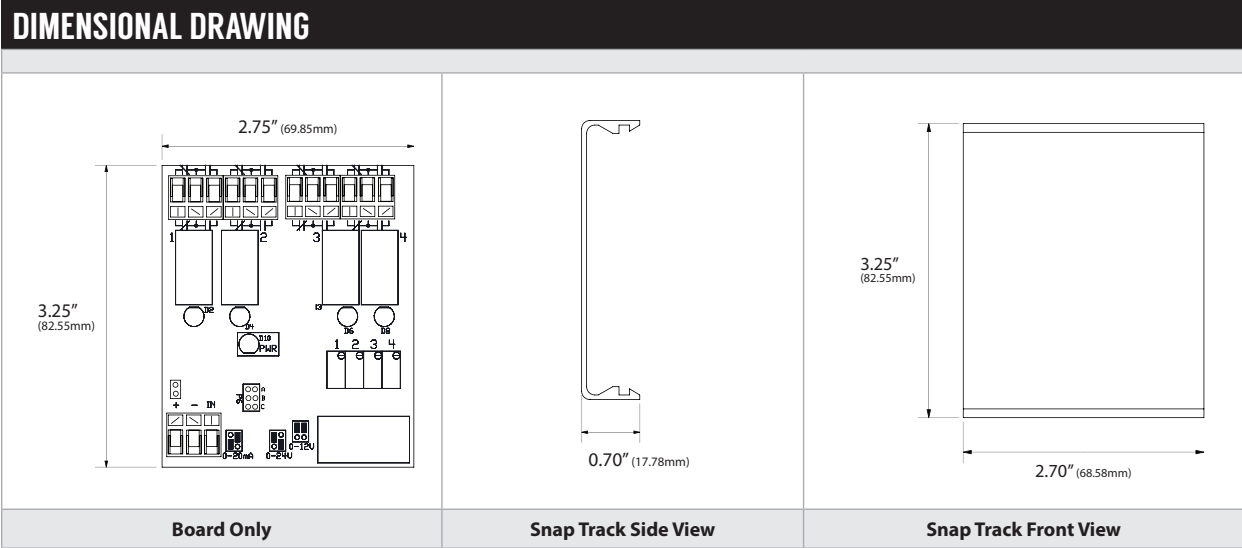
Applications: Level Indication, Digital Output Expansion, Alarms, Staging and Sequencing

The ATL is covered by ACI's Two (2) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's web site, workaci.com.

PRODUCT SPECIFICATIONS

| | |
|--|---|
| Supply Voltage: | 24 VAC (+/- 10%), 50/60 Hz or 22-28 VDC |
| Supply Current: | 180 mA maximum |
| Input Voltage Signal Range (@ Impedance): | 0 to 12 VDC @ 10MΩ, 0 to 24 VDC @ 20,000Ω |
| Input Current Signal Range (@ Impedance): | 0-20 mA @ 500Ω |
| Deadband (0-12 VDC Signal): | 3% Version (Standard): 0.33 VDC 10% Version: 1.0 VDC |
| Deadband (0-24 VDC Signal): | 3% Version (Standard): 0.66 VDC 10% Version: 2.0 VDC |
| Deadband (0-20 mA Signal): | 3% Version (Standard): 0.66 mA 10% Version: 2.0 mA |
| Digital Output Type: | Four SPDT Form "C" Relays |
| Relay Contact Rating: | 2A @ 24 VDC, 0.5A @ 240 VAC |
| Relay Electrical Life: | 100,000 operations @ 1A |
| Relay Mechanical Life: | 10,000,000 operations |
| Connections: | 45° Captive screw Terminal Blocks |
| Wire Size: | 12 (3.31 mm ²) to 22 AWG (0.33 mm ²) |
| Terminal Block Torque Rating: | 0.5 Nm (Minimum); 0.6 Nm (Maximum) |
| Operating Temperature Range: | 35 to 120°F (1.7 to 48.9°C) |
| Operating Humidity Range: | 10 to 95% non-condensing |
| Storage Temperature Range: | -20 to 150°F (-28.9 to 65.5°C) |
| Snaptrack Material: | Polyvinyl Chloride (PVC) |
| Snaptrack Flammability Rating: | UL94 V-0 |
| Product Dimensions: | (L) 2.75" (69.85 mm) x (W) 3.25" (82.55 mm) x (H) 1.00" (25.4 mm) |
| Product Weight: | 0.25 lbs. (0.113 kg) |
| Agency Approvals: | RoHS2, WEEE |





STANDARD ORDERING

Model # Example: -OR-

| Model # | Item # | Description | Deadband |
|------------|--------|--|----------|
| ATL | 105978 | Analog Current/Voltage to 4 Adjustable SPDT Relays | 3% |
| ATL-DB-10% | 129663 | Analog Current/Voltage to 4 Adjustable SPDT Relays | 10% |

ACCESSORIES ORDERING

Model # Example: -OR-

| Model # | Item # | Description |
|------------------|--------|---|
| A/DO008 | 142583 | Transient Voltage Suppressor, Bi-directional, 56VAC/DC, 1500W |
| A/DRC 2.7 X 3.25 | 142624 | DIN Rail Adapter Kit |
| ENC1 | 102472 | 20 Gauge Metal Enclosure, Designed to Hold Interface Products |





DRC

DIN Rail Adapter Kit



The DRC DIN rail adapter kit consists of two flexible plastic DIN rail clips, an adhesive backed foam "stop", and a snaptrack with punched holes. The snaptrack has pre-punched holes to accommodate the DRC clips. The stems on the clips fit into the pre-punched holes in the snaptrack and have flexible locking "wings" to prevent them from backing out once installed. The supplied adhesive backed foam stop is used to prevent movement of the board in the snaptrack. Snap into pre-punched holes in back of snaptrack. It can be installed either direction for vertical or horizontal mounting. DRC and snap track assembly removes easily from DIN rail

with screwdriver or pry tool. DRC can be removed if snap track mounting method changes. Place foam stop on snaptrack under terminal block leads to keep board from moving.

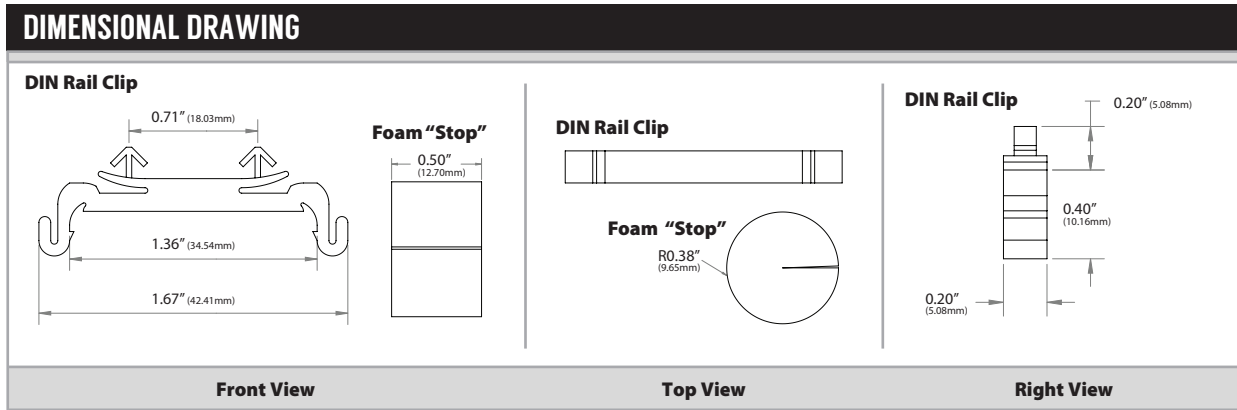
Applications: Allows any Interface product that mounts in snap track to be mounted on DIN rail where required.

The DRC is covered by ACI's Two (2) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|---------------------------------------|--|
| DIN Rail Size: | 35 mm (U.S. Patent No. 7,416,421) |
| Foam Stop Material: | Neoprene/EPDM/SBR Blend |
| Foam Stop Dimensions: | 0.75" Diameter, 0.50" Thickness |
| Agency Approvals: | RoHS2, WEEE |
| Snaptrack Material: | Polyvinyl Chloride (PVC) |
| Snaptrack Flammability Rating: | UL94 V-0 |
| Storage Temperature | 35 to 120°F (1.7 to 48.9°C)/10 to 95% non-condensing |
| Snaptrack Material: | -20 to 150°F (-40 to 65.5°C) |





| STANDARD ORDERING | | | Model # Example: DRC 4.69 X 3.25 -OR- 142620 |
|--------------------------|--------|--|--|
| Model # | Item # | Product Family | Snap Track Dimensions |
| A/DRC 4.69 X 3.25 | 142620 | AIM2, DMUX, DRN3.1, RIM-5 | 4.69" x 3.25" (119.13 x 82.55mm) |
| A/DRC 3.88 X 3.25 | 142621 | AFP, AIM1, AIM3 | 3.88" x 3.25" (98.55 x 82.55mm) |
| A/DRC 3.88 X 4.0 | 142622 | 6N1-ISO, PHOTON4.1 | 3.88" x 4.00" (98.55 x 101.6mm) |
| A/DRC 3.88 X 2.18 | 142623 | ARM2, AUD, LPR, PTA, PTP | 3.88" x 2.18" (98.55 x 55.37mm) |
| A/DRC 2.7 X 3.25 | 142624 | AAR, ASA, ATL, EFP, EPC, EPW, MAO, MDO | 2.70" x 3.25" (68.58 x 82.55mm) |
| A/DRC 2.7 X 2.3 | 142625 | 6DI-1AO, LLS-T, PS1.5 | 2.70" x 2.30" (68.58 x 58.42mm) |
| A/DRC 2.7 X 2.18 | 142626 | ATP, ARM, PTA2, PTS, PXP, RTI, TOB | 2.70" x 2.18" (68.58 x 55.37mm) |
| A/DRC 1.8 X 3.25 | 142627 | LONDUP, SW1 | 1.80" x 3.25" (45.72 x 82.55mm) |





DRN4

PWM/Analog/Floating Point to Resistance Output



The DRN4 is a resistive output motor actuator interface that accepts several types of DDC system signals. The DRN4 output is 0 to 135 ohms. The input signal types are field selectable by an 8-position DIP switch. The floating point input accepts two digital signals, one for increase and the other for decrease. The floating point full scale rate of change is 55 seconds. Some triac input signals require an accessory. The DRN4 is supplied in an enclosure that can be directly mounted to a 1/2 inch knockout on the motor actuator. Color coded wire leads with spade connectors are provided for electrical connections. Some triac inputs require a Triac adapter kit. Johnson Control triac input signal requires a 1,000 ohm 1/2 watt resistor and is included with all DRN4s.

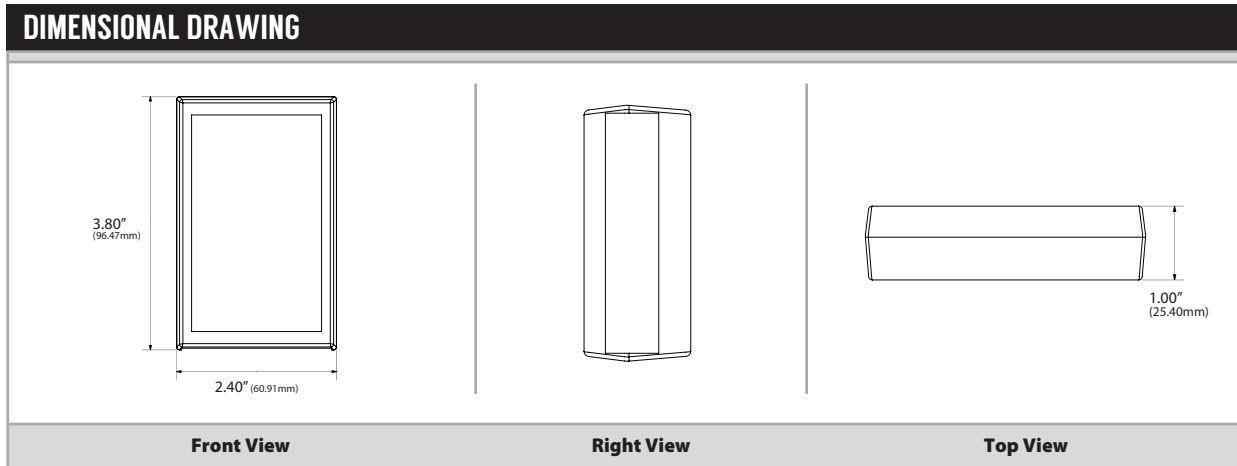
Applications: Electronic potentiometer, Electric Actuator control, Resistive Sensor Simulation, Motor Pot Replacement

The DRN4 is covered by ACI's Two (2) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|---|---|
| Supply Voltage: | 24 VAC or 24 VDC, +/-10% |
| Supply Current: | 130 mA maximum |
| Input Voltage Signal Range (@ Impedance): | 0 to 5 VDC 1 to 5 VDC 0 to 10 VDC 2 to 10 VDC @ 100,000Ω |
| Input Current Signal Range (@ Impedance): | 0-20 mA, 4 to 20 mA @ 250Ω |
| Input Pulse Signal Source: | Relay Contact Closure, Transistor, Triac (Adapter Required) |
| Input Pulse Signal Trigger Level: | 5-24 VDC/VAC |
| Off Time Between Pulses: | 80 milliseconds |
| Pulse Ranges: | See Ordering Grid |
| Floating Point / Tri-State Input Signal Source: | Relay, Contact Closure, Transistor, or Triac (Adapter Required) |
| Floating Point / Tri-State Rates of Change: | 55 seconds for full output span |
| Floating Point / Tri-State Input Signal Trigger Level: | 5-24 VDC/VAC |
| Resistive Output: | 0 to 135Ω (3 watts) |
| Resolution: | 32 steps |
| Digital Output Type: | Form "C" Relays |
| Relay Contact Rating: | 1A @ 30 VDC / 125 VAC |
| Relay Electrical Life: | 100,000 operation @ 1A |
| Relay Mechanical Life: | 10,000,000 operations |
| Connections / Wire Size: | Color coded 18 AWG wire leads with spade connectors |
| Mounting: | Mounts directly to 1/2" knockout on actuator housing |
| Operating Temperature Range: | 35 to 120°F (1.7 to 48.9°C) |
| Operating Humidity Range: | 10 to 95% non-condensing |
| Storage Temperature: | -20 to 150°F (-28.9 to 65.5°C) |
| Snaptrack Material: | Polyvinyl Chloride (PVC) |
| Snaptrack Flammability Rating: | UL94 V-0 |
| Product Dimensions: | (L) 2.40" (W) 3.80" (H) 1.00" (60.96 x 96.52 x 25.4 mm) |
| Product Weight: | 0.43 lbs. (0.196 Kg) |
| Agency Approvals: | RoHS2, WEEE |





STANDARD ORDERING Model # Example: **DRN4** -OR- **127200**

| Model # | Item # | Firmware Version # | Pulse Range (Seconds) |
|------------------------|--------|--------------------|--|
| DRN4 | 127200 | 08000002.OBJ | 0.59 - 2.93s 0.02 - 5.0s 0.1 - 25.5s |
| DRN4 VERSION #2 | 127200 | 08000101.OBJ | 0.023-6.0s (Solidyne) |

ACCESSORIES Model # Example: **A/DO008** -OR- **142583**

| Model # | Item # | Description |
|----------------|--------|--|
| A/DO008 | 142583 | Transient Voltage Suppressor, Bi-directional, 56 VAC/DC, 1500W |
| TRIAC | 130899 | Triac Adapter |





DRN3.1

PWM/Analog/Floating Point to Resistance Output



The DRN3.1 is an interface device that allows microprocessor control of a variable resistance. The DRN3.1's isolated resistor network can be controlled by several different DDC signal types. It directly replaces a variable resistance controller and simulates the action of a slide wire or rotary potentiometer. All connections of the simulated potentiometer, the wiper, and both ends of the resistance range are available on the terminal strip. The DRN3.1 must be ordered with a Resistance Network. The DRN3.1 accepts Analog, Pulse, or Floating Point input signals (including triac) and converts them into a proportional resistive output. The output resistance does not wrap around if the input signal exceeds the highest or lowest selected input value.

Custom resistance ranges are available upon request. The DRN3.1 has on-board fail-back relays that lock out the original resistive signal during operation. However, if the supply power is lost, control of the circuit will revert back to the original controller signal. An easy local override can be made by placing a fixed (or variable) resistor between W and R Fail-safe terminals. Jumper inputs can be specified to have the factory set them. This will speed up installation time for the end user.

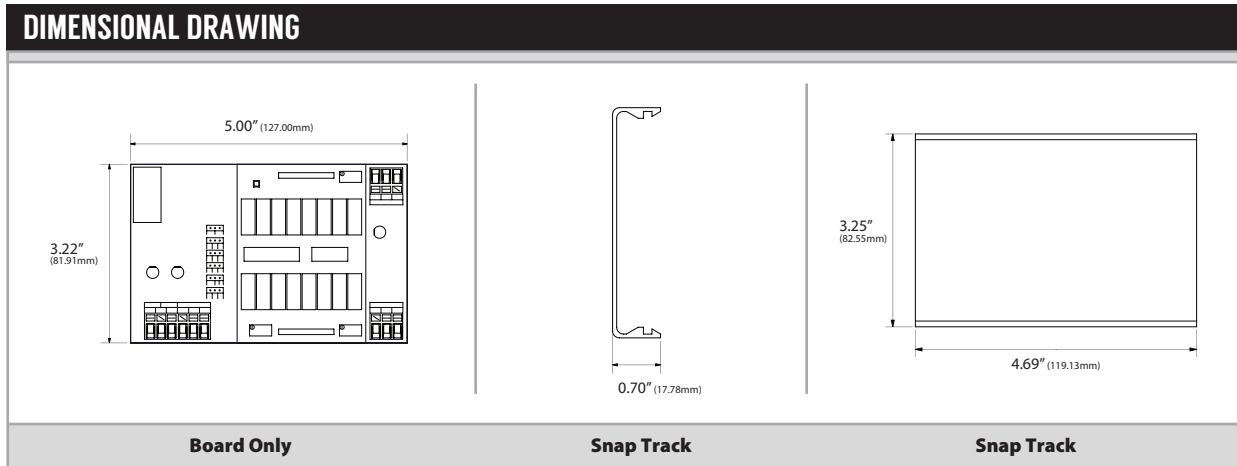
Applications: Electronic Potentiometer, Electric Actuator Control, Resistive Sensor Simulation

The DRN3.1 is covered by ACI's Two (2) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|---|--|
| Supply Voltage: | 24 VAC +/- 10%, 24 VDC +25% / -8% |
| Supply Current: | 250 mA maximum |
| Input Voltage Signal Range (@ Impedance): | 0 to 5 VDC, 1 to 5 VDC, 0 to 10 VDC, 2 to 10 VDC, 0 to 15 VDC, 3 to 15 VDC @ 10,000Ω |
| Input Current Signal Range (@ Impedance): | 0-20 mA, 4 to 20 mA @ 250Ω |
| Input Pulse Signal Source: | Relay Contact Closure, Transistor, Triac |
| Input Pulse Signal Level (@ Impedance): | 7-30 VDC, 10-26.4 VAC @ 750Ω |
| Pulse Ranges: | See Ordering Grid |
| Floating Point / Tri-State Input Rates of Change: | See Ordering Grid |
| Floating Point / Tri-State Input Signal Trigger Level: | 5-24 VDC/VAC |
| Floating Point / Tri-State Impedance: | 750Ω nominal |
| Resistance Output: | See Resistance Network Ordering Grid |
| Digital Output Type: | Form "C" Relays |
| Output Resolution: | 256 Steps (No wrap around) |
| Relay Contact Rating: | 2A @ 24 VDC, 0.5A @ 240 VAC |
| Relay Electrical Life: | 100,000 operation @ 1A |
| Relay Mechanical Life: | 10,000,000 operations |
| Connections: | 45° Captive screw Terminal Blocks |
| Wire Size: | 12 (3.31 mm ²) to 22 AWG (0.33 mm ²) |
| Terminal Block Torque Rating: | 0.5 Nm (Minimum); 0.6 Nm (Maximum) |
| Operating Temperature Range: | 35 to 120°F (1.7 to 48.9°C) |
| Operating Humidity Range: | 10 to 95% non-condensing |
| Storage Temperature: | -20 to 150°F (-28.9 to 65.5°C) |
| Snaptrack Material: | Polyvinyl Chloride (PVC) |
| Snaptrack Flammability Rating: | UL94 V-0 |
| Product Dimensions: | (L) 5.00" (W) 3.23" (H) 1.00" (127.00 x 81.99 x 25.40 mm) |
| Product Weight: | 0.45 lbs. (0.2041 Kg) |
| Agency Approvals: | RoHS2, WEEE |





STANDARD ORDERING

Model # Example: **DRN3.1** -OR- **102469**

| Model # | Item # | Firmware Version # | Pulse Range (Per Increment) | Rates of Change* |
|--------------------------|--------|--------------------|---|-------------------|
| DRN3.1 | 102469 | 0052Y0H.HEX | 0.02-5.0 (0.02s) 0.1-25.5 (0.1s) 0.59-2.93 (0.01s*) | 30, 60, and 90s |
| DRN3.1 VERSION #2 | 129823 | 0054Y0B.HEX | 0.1 to 10.0s or 0.023 to 6.0s* | 45, 120, and 240s |

Note*: Rates of Change unit of measurement = seconds

ACCESSORIES

Model # Example: **A/DO008** -OR- **142583**

| Model # | Item # | Description |
|--------------------------|--------|--|
| A/DO008 | 142583 | Transient Voltage Suppressor, Bi-directional, 56 VAC/DC, 1500W |
| A/DRC 4.69 X 3.25 | 142620 | DIN Rail Adapter Kit |

RESISTOR NETWORKS

Model # Example: **RN (0-135)** -OR- **102895**

| Model # | Item # | Resistance Range (Ω) | Wattage | Tolerance |
|--------------------|--------|-------------------------------|---------|-----------|
| RN (0-135) | 102895 | 0 to 135 | 3W | 5% |
| RN (0-270) | 102896 | 0 to 270 | 3W | 5% |
| RN (0-500) | 102897 | 0 to 500 | 3W | 5% |
| RN (0-1000) | 102894 | 0 to 1K | 0.25W | 5% |
| RN (0-10K) | 105507 | 0 to 10K | 0.25W | 5% |
| RN (0-15K) | 129847 | 0 to 15K | 0.25W | 5% |
| RN (0-20K) | 105330 | 0 to 20K | 0.25W | 5% |

Note*: If you need another resistance range that is not in the table, please call ACI for ranges, inputs, and wattages





EPC

Analog to Pneumatic Output

The EPC Series are electric to pneumatic transducers which convert an analog input signal to a proportional pneumatic output, modulating its control valve(s) to regulate the branch line pressure to the set point determined by the input signal. The EPC series offers four selectable input ranges. Output pressure ranges are jumper shunt selectable and adjustable in all ranges. A feedback signal indicating the resultant branch line pressure is also provided. EPC Series is designed with electrical terminals on one end and pneumatic connections on the other, allowing for maximum convenience in wiring and tubing installation when panel mounted. The EPC is a constant bleed interface with branch exhaust response time determined by the bleed orifice size and pressure differentials. If power fails to the EPC, it will continue to bleed through the bleed orifice until branch pressure is zero psig. The EPC2 incorporates two valves (one controls exhaust), does not bleed air at set point, and has a 2300 scfm supply and exhaust. Its branch exhaust flow and response time are

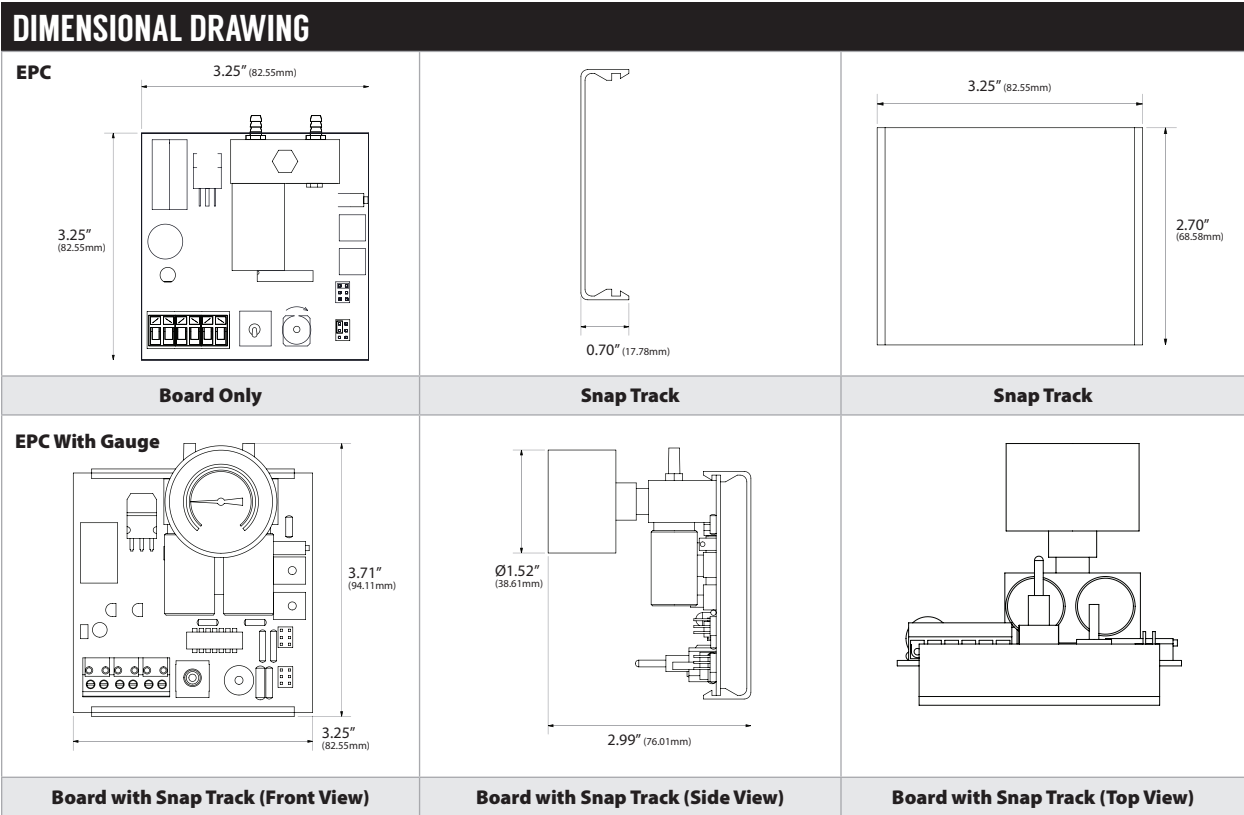
not limited by an internal restrictor and are similar to its load rate. EPC2LG operates as the EPC2, but has an external 5 micron filter, and includes a 0-30 psi gauge. If power fails to the EPC2 or EPC2LG, branch line pressure remains constant if the branch line does not leak air. The EPC2FS shares the same specifications as the EPC2 except its 3-way branch valve will exhaust branch line air upon power failure. Custom calibration is available upon request for an additional charge. This will speed up installation time for the end user.

Applications: 3 Way Mixing Valve Control, Chiller Loading, Pilot Positioner Control, Pneumatic Valve & Damper Actuator Control, Fan Vane Control, DDC Control, Above Ceiling Applications (Mixing & VAV Boxes)

The EPC is covered by ACI's Two (2) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's web site, workaci.com.

| PRODUCT SPECIFICATIONS | |
|---|--|
| Supply Voltage: | 24 VAC (+/- 10%), 50/60 Hz, 24 VDC (+10% / -5%) |
| Supply Current: | 500 mAAC, 200 mADC Maximum |
| Input Signal Source (@ Impedance): | 0-5 VDC @ infinite Ω 0-10 VDC @ infinite Ω 0-15 VDC @ infinite Ω 0-20 mA / 250Ω |
| Feedback Signal Output Range: | 0-5 VDC = Output Span |
| Output Pressure Range: | Field Calibration Possible: 0 to 20 psig (0-138 kPa) maximum |
| Output Pressure Range - Jumper Selectable: | 0-10 psig (0-68.95 kPa), 0-15 psig (0-103.43 kPa) or 0-20 psig (137.9 kPa) |
| Air Supply Pressure: | Maximum 25 psig (172.369 kPa), minimum 22 psig (151.69 kPa) |
| Air Consumption: | See Ordering Grid |
| Output Pressure Accuracy: | 1% room temperature 2% full scale across operating temperature range |
| Manual / Auto Override Switch: | MAN function = output can be varied AUTO function = output is controlled from input signal |
| Manual / Auto Override Feedback Output: | Dry Contacts: 24 VDC/VAC @ 1A maximum, N.O. in AUTO operation (Optional: N.O. in MAN operation) |
| Air Flow: | Supply valves @ 25 psig (172.38 kPa) main/20 psig (137.9 kPa) out, 2300 scfm Branch Line requires 2 in ³ / 33.78 cm ³ (min.) Min. 25 ft of 1/4" O.D. poly branch tubing |
| Filtering: | Furnished with integral-in-barb 80-100 micron filter (Part #PN004) except for EPC2LG which is furnished with external 5 micron in-line filter (PN021) |
| Connections Wire Size: | 90° Pluggable Screw Terminal Blocks 16 (1.31 mm ²) to 26 AWG (0.129 mm ²) |
| Terminal Block Torque Rating: | 0.5 Nm (Minimum); 0.6 Nm (Maximum) |
| Connections Pneumatic Tubing Size-Type: | 1/4" O.D. nominal (1/8" I.D.) polyethylene |
| Pneumatic Fitting: | Removable brass fittings for Main & Branch in machined manifold, Plugged 1/8-27-FNPT gauge port |
| Gauge Pressure Range (Gauge Models): | 0-30 psig (0-200 kPa) |
| Gauge Pressure Accuracy (Gauge Models): | ±2.5% Midscale (±3.5% Full Scale) |
| Operating Temperature Range: | 35 to 120°F (1.7 to 48.9°C) |
| Operating Humidity Range: | 10 to 95% non-condensing |
| Storage Temperature Range: | -20 to 150°F (-28.9 to 65.5°C) |
| Snaptrack Material: | Polyvinyl Chloride (PVC) |
| Snaptrack Flammability Rating: | UL94 V-0 |
| Enclosure Options (Box Options): | Painted steel housing has mounting flange with four holes for sheet metal screws |
| Product Dimensions: | See table on back of product data sheet |
| Product Weight: | EPCG: 0.46 lbs. (0.2069 Kg) EPC2G: 0.70 lbs. (0.3175 Kg) EPC2GFS: 0.68 lbs. (0.309 Kg) EPC2GB: 1 lbs 1 oz. (0.482 Kg) EPC2GFSB: 0.96 lbs. (0.436 Kg) |
| Agency Approvals: | RoHS2, WEEE |





STANDARD ORDERING

Model # Example: EPC -OR- 102475

| Model # | Item # | Supply (Main) | Exhaust (Branch) | Gauge | Additional Information |
|----------|--------|--------------------------|--------------------------|-------|--|
| EPC | 102475 | 2300 SCIM (37.69 Liters) | 41 SCIM (0.6719 Liters) | | 0.007" Bleed Orifice |
| EPCG | 102480 | 2300 SCIM (37.69 Liters) | 41 SCIM (0.6719 Liters) | • | 0.007" Bleed Orifice |
| EPC2 | 102476 | 2300 SCIM (37.69 Liters) | 2300 SCIM (37.69 Liters) | | Maintains Branch Pressure |
| EPC2G | 102478 | 2300 SCIM (37.69 Liters) | 2300 SCIM (37.69 Liters) | • | Maintains Branch Pressure |
| EPC2FS | 102477 | 2300 SCIM (37.69 Liters) | 2300 SCIM (37.69 Liters) | | Exhausts on Power Failure (1600 SCIM) |
| EPC2GFS | 102479 | 2300 SCIM (37.69 Liters) | 2300 SCIM (37.69 Liters) | • | Exhausts on Power Failure (1600 SCIM) |
| EPC2LG | 106325 | 2300 SCIM (37.69 Liters) | 2300 SCIM (37.69 Liters) | • | Maintains Branch Pressure, High Flow |
| EPC2GB | 106326 | 2300 SCIM (37.69 Liters) | 2300 SCIM (37.69 Liters) | • | Enclosed in Steel Housing, Maintains Branch Pressure |
| EPC2GFSB | 106327 | 2300 SCIM (37.69 Liters) | 2300 SCIM (37.69 Liters) | • | Enclosed in Steel Housing, Exhausts on Power Failure (1600 SCIM) |

ACCESSORIES ORDERING

Model # Example: A/DO008 -OR- 142583

| Model # | Item # | Description |
|------------------|--------|---|
| A/DO008 | 142583 | Transient Voltage Suppressor, Bi-directional, 56 VAC/VDC, 1500W |
| A/DRC 2.7 X 3.25 | 142624 | DIN Rail Adapter Kit |
| A/PN002 | 136499 | 10-32 X 1/8" ID, Barb Fitting |
| A/PN004 | 110831 | 80-100 Micron Filter Media in Barb Fitting |
| A/PN021 | 112219 | In Line 10 Micron Filter, Installs in-between air supply and main barb connection |
| A/PN028 | 128307 | Replacement Gauge |



MAO

Manual Analog Override Switch, Alarm

The MAO installs between a controller and an actuator to provide adjustable analog manual override when needed. In normal operation, two (2) analog signals route from the controller through the MAO to each actuator. Flip the override switch from automatic to manual on either MAO output and vary the analog signal independently. Each output can have a different span and can be analog current or voltage. When a switch is in manual position, an alarm output contact is made or broken (optional) to indicate override is in effect.

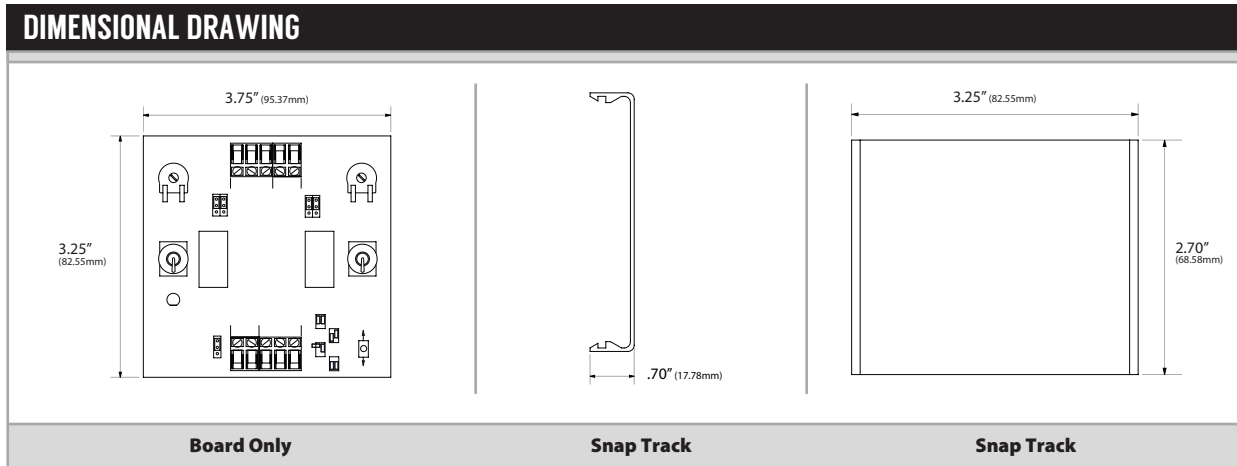
Applications: Temporary Override if Controller Malfunctions, Checkout of Actuator & Linkage Operation, Alarm Feedback During Override

The MAO is covered by ACI's Two (2) Year Limited Warranty, which is located in the front of ACI's Sensors & Transmitters catalog or can be found on ACI's website, which is: www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|--|--|
| Supply Voltage: | 24 VAC or 24 VDC, +/- 10% |
| Supply Current: | 100 mA maximum |
| Alarm Output (Feedback): | N.O. in auto, N.C. in manual (optional: N.C. in auto, N.O. in manual) |
| Optional Resistive Alarm Output: | 3 Watts or 2A maximum (state resistance value when ordering) |
| Alarm Output Current Rating: | 2A maximum |
| Override Analog Input Voltage Range: | 0-24 VDC (Manual Mode) |
| Override Analog Input Current: | 2A maximum (Manual Mode) |
| Override Analog Input (Selectable) Range (@ Impedance): | 0-5 VDC @ 250Ω minimum 0-10 VDC @ 500Ω minimum 0-15 VDC @ 750Ω minimum 0-20 mA @ 750Ω maximum |
| Accuracy: | +/- 4% of maximum output |
| Override Analog Output Voltage Range: | 0-24 VDC |
| Override Analog Output Current: | 2A maximum or same as override input (Auto Mode) |
| Operating Temperature Range: | 35 to 120°F (1.7 to 48.9°C) |
| Operating Humidity Range: | 10 to 95% non condensing |
| Connections: | 45° Captive Screw Terminal Blocks |
| Wire Size: | 16 (1.31 mm ²) to 26 AWG (0.129 mm ²) |
| Terminal Block Torque Rating: | 0.5 Nm (Minimum); 0.6 Nm (Maximum) |
| Storage Temperature: | 0 to 150°F (-17.8 to 65.5°C) |
| Snaptrack Material: | Polyvinyl Chloride (PVC) |
| Snaptrack Flammability Rating: | UL94 V-0 |
| Product Dimensions: | (L) 3.75" (W) 3.25" (H) 1.25" (95.25 x 82.55 x 31.75 mm) |
| Product Weight: | 0.29 lbs. (0.131 Kg) |
| Agency Approvals: | RoHS2, WEEE |





STANDARD ORDERING

Model # Example: **MAO** -OR- **102588**

| Model # | Item # | Description |
|------------|--------|--------------------------------------|
| MAO | 102588 | Manual Analog Override Switch, Alarm |

ACCESSORIES

Model # Example: **A/DO008** -OR- **142583**

| Model # | Item # | Description |
|-------------------------|--------|--|
| A/DO008 | 142583 | Transient Voltage Suppressor, Bi-directional, 56 VAC/DC, 1500W |
| A/DRC 2.7 X 3.25 | 142624 | DIN Rail Adapter Kit |





PXP

Analog to Pneumatic Output



The PXP*.3 is an electric to pneumatic transducer which converts an analog electrical input signal to a proportional pneumatic output. The PXP*.3 will automatically modulate its control valve(s) to regulate the branch line pressure to the selected set point as determined by the input signal. The PXP*.3 offers four selectable input ranges which convert to a 0 to 15 psig modulating output (See EPC product for 0 to 20 psig outputs). A 0-5 VDC feedback signal indicating the resultant branch line pressure is also provided. This signal varies linearly with branch pressure (0 volts = 0 psig, 5 volts = 15 psig). The PXP0.3 is a single valve version that does not bleed or exhaust air. Its operation depends on the pneumatic circuit where it is installed to consume between 14 and 73 scim. The PXP1.3, 5.3, and 7.3 are constant bleed controllers with branch exhaust response time determined

by the bleed orifice size and pressure differentials (see ordering grid on the next page). If power fails, the PXP1.3, 5.3, or 7.3 will continue to bleed through the bleed orifice until branch pressure is zero psig. A three-way solenoid valve assembly may be used with the bleed type PXP1.3, 5.3, or 7.3 to allow control to fall back to the original local controller if power fails. The PXP2.3 incorporates two valves and does not use air at set point. Its branch exhaust flow and response time are not limited by an internal restrictor and are similar to its load rate. If power fails to the PXP2.3, branch line pressure remains constant if the branch line does not leak air. The PXP2.3FS is equipped with a N.O. branch exhaust valve which allows exhaust of branch air on power failure. A manual override (jumper selectable), which controls the output pressure, is provided for setup and troubleshooting. Custom calibration is available upon request for an additional charge. This will speed up installation time for the end user.

Applications: Three-Way Mixing Valve Control, Pilot Positioner Control, Pneumatic Valve & Damper Actuator Control, Fan Vane Control, DDC Control, Above Ceiling Applications (mixing and VAV boxes)

The PXP is covered by ACI's Two (2) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's web site, workaci.com.

PRODUCT SPECIFICATIONS

| | |
|--|---|
| Supply Voltage: | 24 VAC (+/- 10%), 50 or 60Hz, 24 VDC (+10% /-5%) |
| Supply Current: | 300 mAAC, 200mADC Maximum 400mAAC, 200mADC on fail safe models |
| Input Signal Source (@ Impedance): | 0-5 VDC @ 10,000 Ω 0-10 VDC @ 10,000Ω 0-15 VDC @ 10,000Ω 0-20 mA @ 250Ω |
| Feedback Signal Output Range: | 0-5 VDC = Output Span |
| Output Pressure Range: | Field Calibration Possible: 0 to 15 psig (0-103.421 kPa) maximum |
| Air Supply Pressure: | Maximum: 25 psig (172.369 kPa) Minimum: 18 psig (124.106 kPa) |
| Air Consumption: | See Ordering Grid |
| Output Pressure Accuracy: | 1% full scale @ room temperature 2% full scale across operating temperature range |
| Manual / Auto Override: | MAN function = output can be varied AUTO function = output is controlled from input signal |
| Air Flow: | Supply valves @ 20 psig (138 kPa) main/15 psig (103 kPa) out, 2300 scim Branch Line requires 2 in3 or 33.78 cm3 (min.). Branch line min. of 25 feet of 1/4" O.D. poly tubing |
| Filtering: | Furnished with integral-in-barb 80-100 micron filter (Part # PN004) except for PXP2LG which is furnished with external 5 micron in-line filter (PN021) |
| Connections: | 90° Pluggable Screw Terminal Blocks |
| Wire Size: | 16 (1.31 mm ²) to 26 AWG (0.129 mm ²) |
| Terminal Block Torque Rating: | 0.5 Nm (Minimum); 0.6 Nm (Maximum) |
| Connections Pneumatic Tubing Size-Type: | 1/4" O.D. nominal (1/8" I.D.) polyethylene |
| Pneumatic Fitting: | Removeable brass barbed fittings for Main and Branch in machined aluminum manifold Plugged 1/8-27-FNPT gauge port Gauge installed at additional cost |
| Gauge Pressure Range (Gauge Models): | 0-30 psig (0-200 kPa) |
| Gauge Pressure Accuracy (Gauge Models): | ± 2.5% Midscale (± 3.5% Full Scale) |
| Operating Temperature Range: | 35 to 120°F (1.7 to 48.9°C) |
| Operating Humidity Range: | 10 to 95% non-condensing |
| Storage Temperature: | -20 to 150°F (-28.9 to 65.5°C) |
| Snaptrack Material: | Polyvinyl Chloride (PVC) |
| Snaptrack Flammability Rating: | UL94 V-0 |
| Product Dimensions: | No Gauge: (L) 3.25" (W) 2.18" (H) 1.87" (82.55 x 55.37 x 47.49 mm) With Gauge: (L) 3.25" (W) 2.18" (H) 2.95" (82.55 x 55.37 x 74.9 mm) |
| Product Weight: | PXP1.3: 0.40 lbs. (0.1814 Kg) PXP2.3: 0.47 lbs. (0.2126 Kg) PXP1.3G: 0.49 lbs. (0.2211 Kg) PXP2.3G & PXP2.3GFS: 0.59 lbs. (0.2693 Kg) |
| Agency Approvals: | RoHS2, WEEE |





DIMENSIONAL DRAWING

| | | |
|------------------------------|-------------------------------------|------------------------------------|
| <p>PXP</p> | | |
| Board Only | Snap Track Side View | Snap Track Front View |
| <p>PXP With Gauge</p> | | |
| Board with Snap Track | Board with Snap Track (Side) | Board with Snap Track (Top) |

STANDARD ORDERING

Model # Example: **PXP2.3** -OR- **127209**

| Model # | Item # | Supply | Exhaust | Gauge | Additional Information |
|------------------|--------|--------------------------|--------------------------|-------|---|
| PXP0.3 | 127205 | No Air Consumption | ---- | | No Bleed Orifice, Requires Downstream Bleed |
| PXP0.3G | 127206 | No Air Consumption | ---- | • | No Bleed Orifice, Requires Downstream Bleed |
| PXP1.3 | 127207 | 2300 SCIM (37.69 Liters) | 73 SCIM (1.196 Liters) | | 0.010" Bleed Orifice |
| PXP1.3G | 127208 | 2300 SCIM (37.69 Liters) | 73 SCIM (1.196 Liters) | • | 0.010" Bleed Orifice |
| PXP2.3 | 127209 | 2300 SCIM (37.69 Liters) | 2300 SCIM (37.69 Liters) | | Maintains Branch Pressure |
| PXP2.3G | 127213 | 2300 SCIM (37.69 Liters) | 2300 SCIM (37.69 Liters) | • | Maintains Branch Pressure |
| PXP5.3 | 127215 | 2300 SCIM (37.69 Liters) | 14 SCIM (0.229 Liters) | | 0.005" Bleed Orifice |
| PXP5.3G | 127216 | 2300 SCIM (37.69 Liters) | 14 SCIM (0.229 Liters) | • | 0.005" Bleed Orifice |
| PXP7.3 | 127217 | 2300 SCIM (37.69 Liters) | 41 SCIM (0.671 Liters) | | 0.007" Bleed Orifice |
| PXP7.3G | 133044 | 2300 SCIM (37.69 Liters) | 41 SCIM (0.671 Liters) | • | 0.007" Bleed Orifice |
| PXP2.3FS | 127210 | 2300 SCIM (37.69 Liters) | 2300 SCIM (37.69 Liters) | | Exhausts on Power Failure |
| PXP2.3GFS | 127211 | 2300 SCIM (37.69 Liters) | 2300 SCIM (37.69 Liters) | • | Exhausts on Power Failure |
| PXP2.3LG | 127214 | 2300 SCIM (37.69 Liters) | 2300 SCIM (37.69 Liters) | • | Maintains Branch Pressure, High Flow |





| ACCESSORIES ORDERING | | |
|----------------------|--------|---|
| Model # | Item # | Description |
| A/DO008 | 142583 | Transient Voltage Suppressor, Bi-directional, 56 VAC/DC, 1500W |
| A/DRC 2.7 X 2.18 | 142626 | DIN Rail Adapter |
| A/PN002 | 136499 | 10-32 X 1/8" ID, Barb Fitting |
| A/PN004 | 110831 | 80-100 Micron Filter Media in Barb Fitting |
| A/PN021 | 112219 | In Line 10 Micron Filter, Installs in-between air supply and main barb conneciton |
| A/PN023 | 129675 | 0.005" Replacement Copper Orifice |
| A/PN024 | 128100 | 0.007" Replacement Brass Orifice |
| A/PN025 | 128102 | 0.010" Replacement Silver Orifice |
| A/PN028 | 128307 | Replacement Gauge |
| ENC1 | 102472 | 20 Gauge Metal Enclosure, Designed to Hold Interfaces Products |





PTP

Pressure to Analog / Current Output

Two models of the PTP accept either a 3 to 15 or 3 to 30 psig pneumatic pressure input and convert it to one of four proportional analog output ranges of 1-5, 2-10, 3-15 VDC or 4-20 mA which are jumper shunt selectable. A plugged gauge port is provided in the aluminum manifold for local mechanical indication via an optional 0 to 30 psi gauge. Custom calibration is available upon request for an additional charge. This will speed up installation time for the end user.

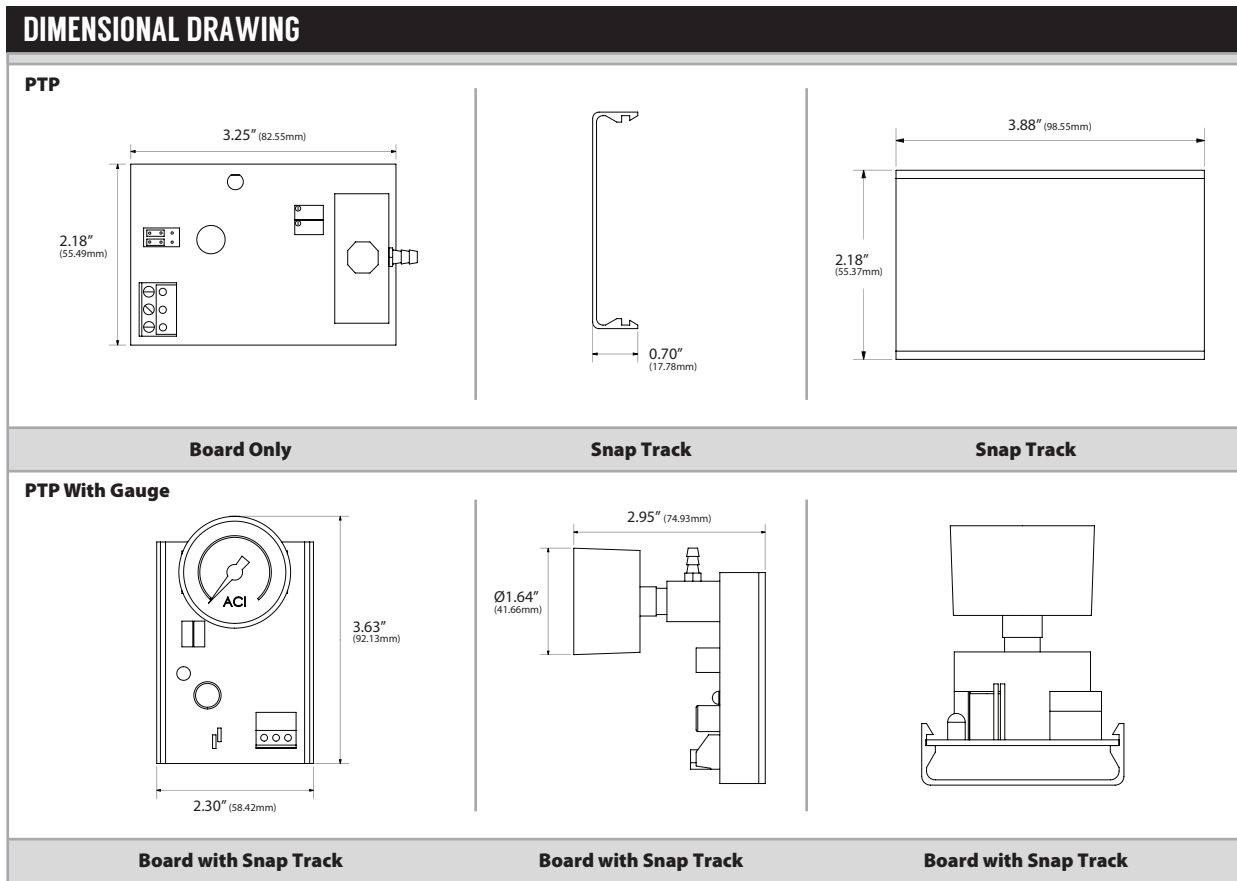
Applications: Building Automation, Process Control, Pneumatic System Monitoring, Pneumatic to Proportional Analog Output

The PTP is covered by ACI's Two (2) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|--|--|
| Supply Voltage: | 24 VDC or 24 VAC, -6%/+10% |
| Supply Current: | 50 mA maximum @ 24 VDC |
| Output Signal Range (@ Impedance): | 1-5 VDC @ 250Ω 2-10 VDC @ 500Ω 3-15 VDC @ 750Ω 4-20 mA @ 500Ω |
| Input Pressure Range: | PTP 3-15: 3 to 15 psig PTP 3-30: 3 to 30 psig |
| Output Analog Accuracy: | 2% full scale at room temperature 3% full scale across operating temperature range |
| Filtering: | Furnished with integral-in-barb 80-100 micron filter (Part # PN004) |
| Connections: | 90° Pluggable Screw Terminal Blocks |
| Wire Size: | 16 (1.31 mm ²) to 26 AWG (0.129 mm ²) |
| Terminal Block Torque Rating: | 0.5 Nm (Minimum); 0.6 Nm (Maximum) |
| Connections Pneumatic Tubing Size-Type: | 1/4" O.D. nominal (1/8" I.D.) polyethylene |
| Pneumatic Fitting: | Removeable brass barbed fitting in machined aluminum manifold Plugged 1/8-27-FNPT gauge port Gauge installed at additional cost |
| Gauge Pressure Range (Gauge Models): | 0-30 psig (0-200 kPa) |
| Gauge Pressure Accuracy (Gauge Models): | ± 2.5% Midscale (± 3.5% Full Scale) |
| Operating Temperature Range: | 35 to 120°F (1.7 to 48.9°C) |
| Operating Humidity Range: | 10 to 95% non-condensing |
| Storage Temperature: | -20 to 150°F (-28.9 to 65.5°C) |
| Snaptrack Material: | Polyvinyl Chloride (PVC) |
| Snaptrack Flammability Rating: | UL94 V-0 |
| Product Dimensions: | No Gauge: (L) 3.25" (W) 2.18" (H) 1.87" (82.55 x 55.37 x 47.49 mm) With Gauge: (L) 3.25" (W) 2.18" (H) 2.95" (82.55 x 55.37 x 74.93 mm) |
| Product Weight: | No Gauge: 0.28 lbs. (0.1276 Kg) With Gauge: 0.37 lbs. (0.170 Kg) |
| Agency Approvals: | RoHS2, WEEE |





STANDARD ORDERING

Model # Example: **PTP3-15** -OR- **127201**

| Model # | Item # | Input Range | Gauge |
|-----------------|--------|----------------------------------|-------|
| PTP3-15 | 127201 | 3 to 15PSI (20.68 to 103.42 kPa) | |
| PTP3-15G | 127202 | 3 to 15PSI (20.68 to 103.42 kPa) | • |
| PTP3-30 | 127203 | 3 to 30PSI (20.68 to 206.843kPa) | |
| PTP3-30G | 127204 | 3 to 30PSI (20.68 to 206.843kPa) | • |

ACCESSORIES

Model # Example: **A/DO008** -OR- **142583**

| Model # | Item # | Description |
|--------------------------|--------|--|
| A/DO008 | 142583 | Transient Voltage Suppressor, Bi-directional, 56 VAC/DC, 1500W |
| A/DRC 3.88 X 2.18 | 142623 | DIN Rail Adapter Kit |
| A/PN004 | 110831 | 80-100 Micron Filter Media in Barb Fitting |
| A/PN028 | 128307 | Replacement Gauge |
| ENC1 | 102472 | 20 Gauge Metal Enclosure, Designed to Hold Interfaces Products |





EPW

PWM to Pneumatic Output



The EPW converts a pulse or digital PWM signal into a proportional pneumatic signal ranging from 0 to 20 psig. The pneumatic output is proportional to the signal input, either direct or reverse acting, and features a manual override potentiometer to vary the pneumatic output. The EPW offers four jumper selectable input timing ranges (see ordering grid below). Output pressure ranges are jumper shunt selectable for 0-10, 0-15 and 0-20 psig, and adjustable in all ranges. A 0-5 VDC feedback signal indicating the resultant branch line pressure is also provided. This signal varies linearly with the branch pressure range selected. The EPW is designed with electrical terminals on one end and pneumatic connections on the other, allowing for maximum convenience in wiring and tubing installation when panel mounted. Three basic configurations

are available: The EPW is a constant bleed interface with branch exhaust response time determined by the bleed orifice size and pressure differentials. If power fails to the EPW, it will continue to bleed through the bleed orifice until branch pressure is zero psig. The EPW2 incorporates two valves (one controls exhaust) and does not bleed air at set point. Its branch exhaust flow and response time are not limited by an internal restrictor and are similar to its load rate. If power fails to the EPW2, branch line pressure remains constant if the branch line does not leak air. The EPW2FS is a two valve fail safe model. Its 3-way branch exhaust valve allows exhaust of branch line air on a power failure. Custom calibration is available upon request for an additional charge. This will speed up installation time for the end user.

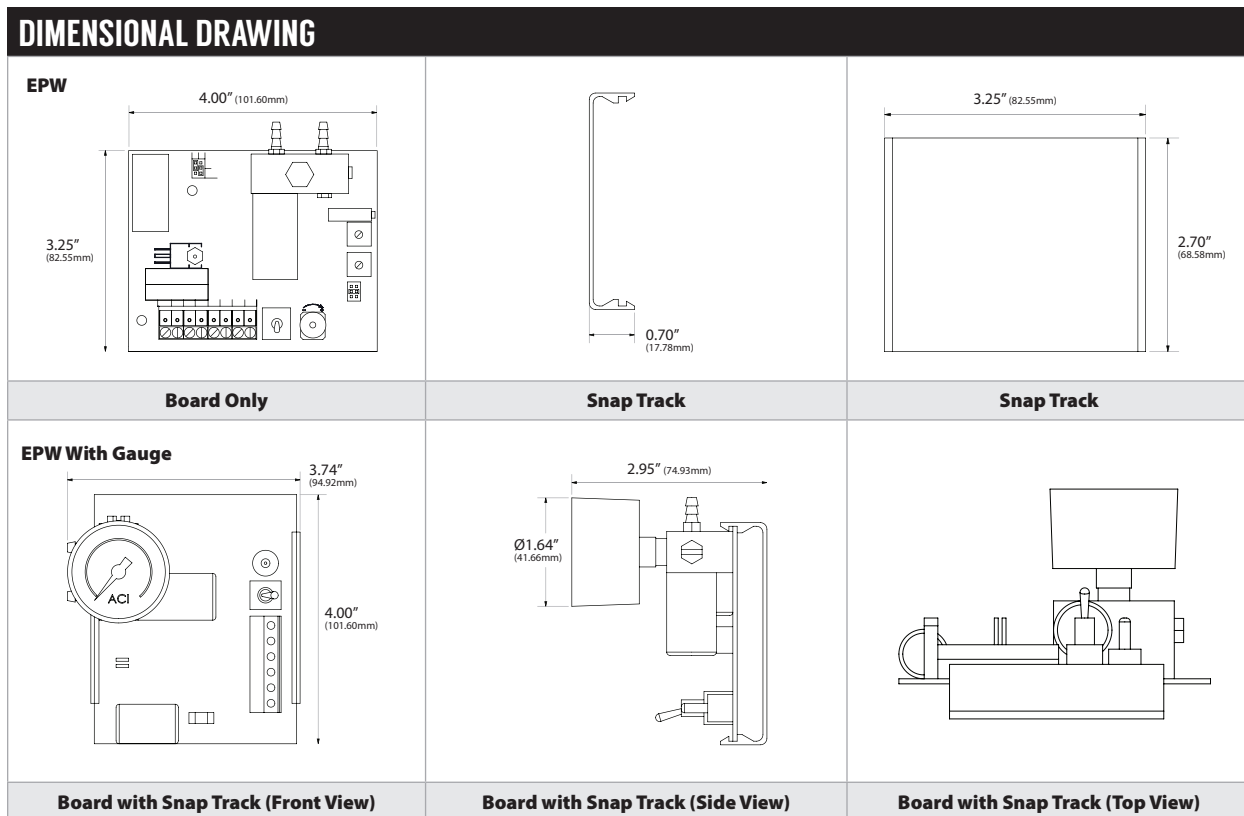
Applications: 3 Way Mixing Valve Control, Chiller Loading, Pilot Positioner Control, Pneumatic Valve and Damper Actuator Control, Fan Vane Control, DDC Control, Above ceiling applications(mixing and VAV boxes).

The EPW is covered by ACI's Two (2) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's web site, workaci.com.

PRODUCT SPECIFICATIONS

| | |
|--|---|
| Supply Voltage: | 24 VAC (+/- 10%), 50/60 Hz, 24 VDC (+10% / -5%) |
| Supply Current | EPW: 300mAAC, 200mADC Maximum EPW2: 350mAAC, 200mADC EPW2FS: 500mAAC, 200mADC |
| Input Pulse Source: | Relay Contact Closure, Transistor (solid state relay) or Triac |
| Input Pulse Trigger Level (@ Impedance): | 9-24 VAC or VDC @ 750Ω nominal |
| Off Time Between Pulses: | 10 milliseconds minimum |
| Input Pulse Timing Resolution: | Selectable Ranges-See Ordering Grid 255 Steps |
| Manual/Auto Override Switch: | MAN function = output can be varied AUTO function = output is controlled from input signal |
| Manual/Auto Override Feedback Output: | N.O. in AUTO operation (Optional: N.O. in MAN operation) |
| Feedback Output Signal Range: | 0-5 VDC = Output Span |
| Output Pressure Range: | Field Calibration Possible: 0 to 20 psig (0-138 kPa) maximum |
| Output Pressure Range-Jumper Selectable: | 0-10 psig (0-68.95 kPa), 0-15 psig (0-103.43 kPa) or 0-20 psig (137.9 kPa) |
| Air Supply Pressure: | Maximum 25 psig (172.38 kPa), minimum 20 psig (137.9 kPa) |
| Air Consumption: | 2300 SCIM (37.69 Liters) |
| Output Pressure Accuracy: | 2% full scale at room temperature (above 1 psig or 6.895 kPa) 3% full scale across operating temperature range (above 1 psig or 6.895 kPa) |
| Air Flow: | Supply valves @ 20 psig (138 kPa) main/15 psig (103 kPa) out, 2300 scim Branch Line requires 2 in3 or 33.78 cm3 (min.). Branch line min. of 25 ft of 1/4" O.D. poly tubing |
| Filtering: | Furnished with integral-in-barb 80-100 micron filter (Part # PN004) Optional standard barb (PN002) with external 5 micron in-line filter (PN021) |
| Connections: | 90° Pluggable Screw Terminal Blocks |
| Wire Size: | 16 (1.31 mm ²) to 26 AWG (0.129 mm ²) |
| Terminal Block Torque Rating: | 0.5 Nm (Minimum); 0.6 Nm (Maximum) |
| Connections Pneumatic Tubing Size-Type: | 1/4" O.D. nominal (1/8" I.D.) polyethylene |
| Pneumatic Fitting: | Removeable brass fittings for Main & Branch in machined manifold, Plugged 1/8-27-FNPT gauge port |
| Gauge Pressure Range (Gauge Models): | 0-30psig (0-200 kPa) |
| Gauge Pressure Accuracy (Gauge Models): | ± 2.5% Midscale (± 3.5% Full Scale) |
| Operating Temperature Range: | 35 to 120°F (1.7 to 48.9°C) |
| Operating Humidity Range: | 10 to 95% non-condensing |
| Storage Temperature: | -20 to 150°F (-28.9 to 65.5°C) |
| Snaptrack Material: | Polyvinyl Chloride (PVC) |
| Snaptrack Flammability Rating: | UL94 V-0 |
| Product Dimensions: | See table on back of product data sheet |
| Product Weight: | EPWG: 0.63 lbs. (0.2835 Kg) EPW2G & EPW2GFS: 0.76 lbs. (0.343 Kg) |
| Agency Approvals: | RoHS2, WEEE |





STANDARD ORDERING

Model # Example: **EPW** -OR- **T06328**

| Model # | Item # | Firmware # | Exhaust | Input Pulse Range (Seconds) | Gauge | Additional Information |
|------------------|--------|-------------|--------------------------|---------------------------------------|-------|---------------------------|
| EPW | 106328 | 0011Y0F.HEX | 41 SCIM (0.6719 Liters) | 0.1-10s, 0.02-5s, 0.1-25s, 0.59-2.93s | | 0.007" Bleed Orifice |
| EPWG | 106329 | 0011Y0F.HEX | 41 SCIM (0.6719 Liters) | 0.1-10s, 0.02-5s, 0.1-25s, 0.59-2.93s | • | 0.007" Bleed Orifice |
| EPW Version #2 | 130713 | 0302Y0B.HEX | 41 SCIM (0.6719 Liters) | 0.023-6s or 0-10s Duty Cycle | | 0.007" Bleed Orifice |
| EPWG Version #2 | 130025 | 0302Y0B.HEX | 41 SCIM (0.6719 Liters) | 0.023-6s or 0-10s Duty Cycle | • | 0.007" Bleed Orifice |
| EPW Version #4 | 130952 | 0443Y0A.HEX | 41 SCIM (0.6719 Liters) | Same as Version #1, reverse acting | | 0.007" Bleed Orifice |
| EPWG Version #4 | 138513 | 0443Y0A.HEX | 41 SCIM (0.6719 Liters) | Same as Version #1, reverse acting | • | 0.007" Bleed Orifice |
| EPW2 | 106330 | 0011Y0F.HEX | 2300 SCIM (37.69 Liters) | 0.1-10s, 0.02-5s, 0.1-25s, 0.59-2.93s | | Maintains Branch Pressure |
| EPW2G | 106331 | 0011Y0F.HEX | 2300 SCIM (37.69 Liters) | 0.1-10s, 0.02-5s, 0.1-25s, 0.59-2.93s | • | Maintains Branch Pressure |
| EPW2G Version #2 | 130117 | 0302Y0B.HEX | 2300 SCIM (37.69 Liters) | 0.023-6s or 0-10s Duty Cycle | • | Maintains Branch Pressure |
| EPW2G Version #4 | 130000 | 0443Y0A.HEX | 2300 SCIM (37.69 Liters) | Same as Version #1, reverse acting | • | Maintains Branch Pressure |
| EPW2FS | 106332 | 0011Y0F.HEX | 2300 SCIM (37.69 Liters) | 0.1-10s, 0.02-5s, 0.1-25s, 0.59-2.93s | | Exhaust on Power Failure |
| EPW2GFS | 106333 | 0011Y0F.HEX | 2300 SCIM (37.69 Liters) | 0.1-10s, 0.02-5s, 0.1-25s, 0.59-2.93s | • | Exhaust on Power Failure |

ACCESSORIES ORDERING

Model # Example: **A/DO008** -OR- **142583**

| Model # | Item # | Description |
|------------------|--------|---|
| A/DO008 | 142583 | Transient Voltage Suppressor, Bi-directional, 56 VAC/VDC, 1500W |
| A/DRC 2.7 X 3.25 | 142624 | DIN Rail Adapter Kit |
| A/PN002 | 136499 | 10-32 X 1/8" ID, Barb Fitting |
| A/PN004 | 110831 | 80-100 Micron Filter Media in Barb Fitting |
| A/PN021 | 112219 | In Line 10 Micron Filter, Installs in-between air supply and main barb connection |
| A/PN028 | 128307 | Replacement Gauge |



PTA

PWM to Analog Current / Voltage Output



The PTA converts a single pulse-width modulated input to an analog (voltage or current) output. A timed contact or solid state closure is converted to a linear analog output signal with 255 steps of resolution. The last output signal is held until the PTA receives the end of the next pulsed input signal. The PTA's output will not wrap around if an excessively long input pulse is received. Ten preset analog output signal spans are DIP switch selectable. In addition, the span and offset potentiometer offer maximum user adjustment of the output signal. The input signal is optically isolated and can accept either positive or negative polarity. If the voltage output is limited to 18

Volts on the high end of the output span, the DC supply limit can be 24 VDC -10% and the PTA will still maintain the output accuracy. If the maximum load is 700 ohms, the DC supply can be 24 VDC-10% and the PTA will still maintain the output accuracy.

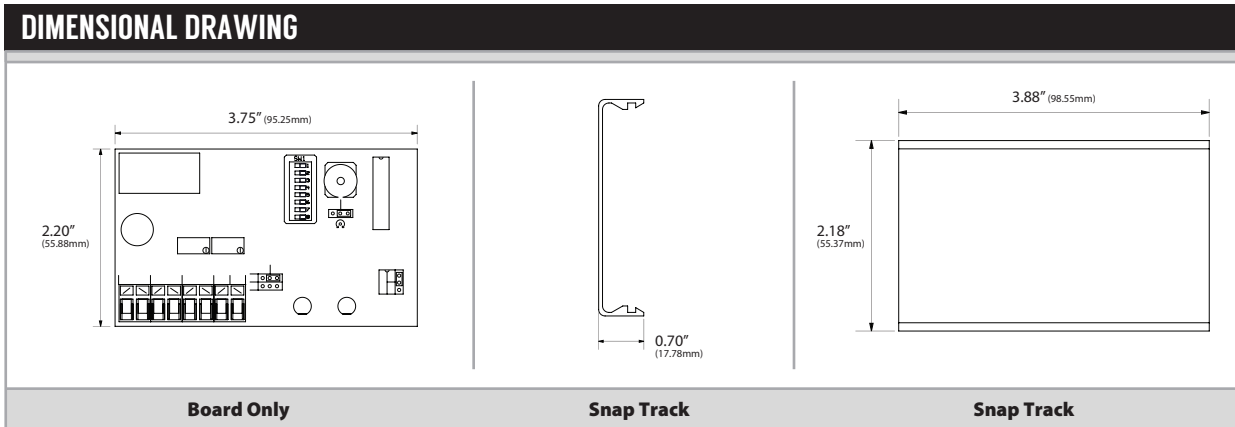
Applications: Pulse to Analog Transducer, Interface to Variable Speed Pump Drive Control, Interface to Variable, Frequency Fan Drive Control, Interface to Electric Actuator, Duty Cycle to Analog Control, Digital to Analog Conversion

The PTA is covered by ACI's Two (2) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website.

PRODUCT SPECIFICATIONS

| | |
|--|---|
| Supply Voltage: | 24 VDC (24-35 VDC) or 24 VAC (21.6-26.4 VAC), 50/60 Hz. |
| Supply Current: | 240 mA maximum using Voltage Output Terminal 125 mA maximum if not using Voltage Output Terminal |
| Input Pulse Source: | Relay Contact Closure, Transistor or Triac |
| Input Pulse Trigger Level: | Normal Mode = 5 to 26.4 VAC/DC Triac Mode = 9 to 26.4VAC |
| Input Pulse Timing: | Selectable Ranges-See Ordering Grid |
| Output Voltage Signal Selectable Range: | 0-1 VDC 0-4 VDC 0-10 VDC 0-13 VDC 1-2 VDC 1-5 VDC 1-11 VDC 1-14 VDC |
| Output Voltage Signal Adjustable Range: | 0-20 VDC (with adjustable offset) |
| Output Voltage Load Impedance: | 3300Ω minimum at 20 VDC +/- 10% 400Ω minimum at 10 VDC +/- 10% |
| Output Current Signal Selectable Range: | 0-16 mA, 4-20 mA |
| Output Current Signal Adjustable Range: | 0-20 mA (with adjustable offset) |
| Output Current Load Impedance: | 0 to 750Ω maximum |
| Output Resolution: | 256 steps of resolution |
| Accuracy (60 Hz): | +/- 2% of span for adjustable ranges, 5% for preset |
| Accuracy (50 Hz): | +/- 3% of span for adjustable ranges, 5% for preset |
| Regulated Power Output: | 24 VDC, 48 mA maximum |
| Connections: | 90° Pluggable Screw Terminal Blocks |
| Wire Size: | 16 (1.31 mm ²) to 26 AWG (0.129 mm ²) |
| Terminal Block Torque Rating: | 0.5 Nm (Minimum); 0.6 Nm (Maximum) |
| Operating Temperature Range: | 35 to 120°F (1.7 to 48.9°C) |
| Operating Humidity Range: | 10 to 95% non-condensing |
| Storage Temperature: | -20 to 150°F (-28.9 to 65.5°C) |
| Snaptrack Material: | Polyvinyl Chloride (PVC) |
| Snaptrack Flammability Rating: | UL94 V-0 |
| Product Dimensions: | (L) 3.75" (W) 2.20" (H) 1.15" (95.25 x 55.88 x 29.21 mm) |
| Product Weight: | 0.24 lbs. (0.1077 Kg) |
| Agency Approvals: | RoHS2, WEEE |





STANDARD ORDERING

Model # Example: **PTA** -OR- **102632**

| Model # | Item # | Firmware # | Input Pulse Range (Seconds) | Additional Information |
|-----------------------|--------|--------------|---|--|
| PTA | 102632 | 0218Y0B.HEX | 0.02 to 5.0s, 0.1 to 10.0s, 0.59 to 2.93s, 0.1 to 25.5s | ---- |
| PTA VERSION #2 | 109493 | 0303Y0B.HEX | 0 to 10s Duty Cycle Pulse (10 second window) 0.023 to 6.0s | ---- |
| PTA-PPM | 129569 | 0344Y0A.HEX | 60 Pulses/Min., 100 Pulses/Min., 1500 Pulses/Min., 3000 Pulses/Min. | Water Flow Meter Pulse - Analog Output |
| PTA-PRO TEMP | 129804 | 0031Y001.HEX | 5 to 55 ms | Fluidmaster™ PPM to Analog |

ACCESSORIES

Model # Example: **A/DO008** -OR- **142583**

| Model # | Item # | Description |
|--------------------------|--------|--|
| A/DO008 | 142583 | Transient Voltage Suppressor, Bi-directional, 56VAC/DC, 1500W |
| A/DRC 3.88 X 2.18 | 142623 | DIN Rail Adapter Kit |
| ENC1 | 102472 | 20 Gauge Metal Enclosure, Designed to Hold Interfaces Products |





PTA2

PWM to Voltage Output



The PTA2 accepts a timed contact, or solid state closure, from a microprocessor controller and converts it to a linear analog output with 255 steps of resolution. The PTA2 will not wrap around if an excessively long pulse is received. Seven input pulse rates are jumper selectable (between Version 1 and 2). The input signal is optically isolated and can accept either positive or negative polarity. The PTA2 includes triac adapter circuitry (jumper selectable) for a triac input. The PTA2 has a jumper selectable manual override which will allow modulation of the output between 0-10 VDC to verify proper operation of the controlled device. On Version 1, the last output signal is held until the PTA2 receives the end of the next pulsed input signal.

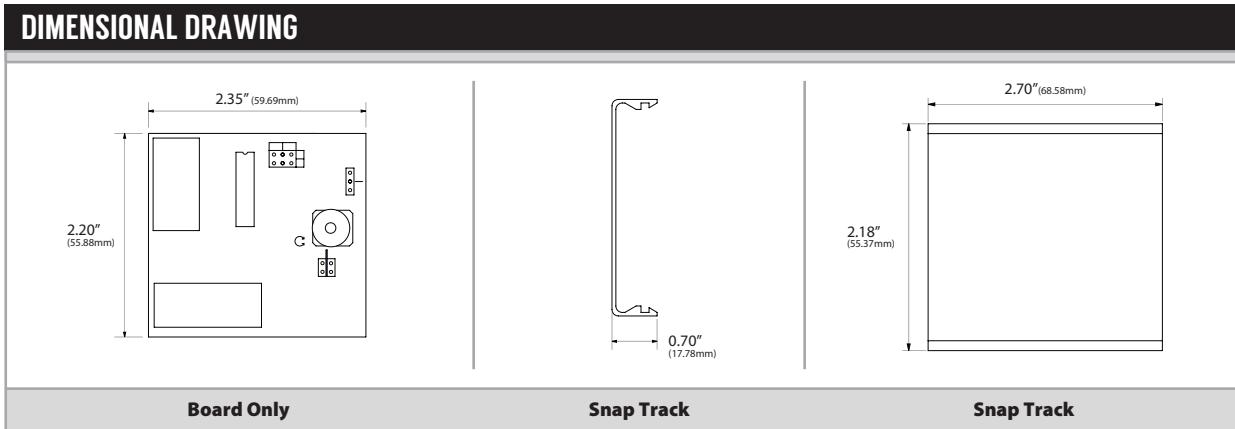
Applications: Pulse to Analog Transducer, Interface to Variable Speed Pump Drive Control, Interface to Variable, Frequency Fan Drive Control, Interface to Electric Actuator, Duty Cycle to Analog Control, Digital to Analog Conversion

The PTA2 is covered by ACI's Two (2) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website.

PRODUCT SPECIFICATIONS

| | |
|---|--|
| Supply Voltage: | 24 VAC or 24 VDC +/-10%, 50/60 Hz |
| Supply Current: | 135 mA maximum |
| Input Pulse Source: | Relay Contact Closure, Transistor, Triac, or Dry Contact to Common |
| Input Pulse Trigger Level: | Normal Mode = 5 to 26.4 VAC/DC Triac Mode = 9 to 26.4VAC |
| Input Pulse Timing: | Using Rectified DC Power Output: 21-37 VDC |
| Input Pulse Impedance: | Selectable Ranges-See Ordering Grid |
| Voltage Output Signal (@ Impedance): | VAC = 900Ω nominal VDC = 1500Ω nominal |
| Output Resolution: | 0-10 VDC @ 400Ω minimum |
| Output Resolution: | 255 steps of resolution |
| Accuracy: | +/- 5% |
| Connections: | 90° Pluggable Screw Terminal Blocks |
| Wire Size: | 16 (1.31 mm ²) to 26 AWG (0.129 mm ²) |
| Terminal Block Torque Rating: | 0.5 Nm (Minimum); 0.6 Nm (Maximum) |
| Operating Temperature Range: | 35 to 120°F (1.7 to 48.9°C) |
| Operature Humidity Range: | 10 to 95% non-condensing |
| Storage Temperature: | -20 to 150°F (-28.9 to 65.5°C) |
| Snaptrack Material: | Polyvinyl Chloride (PVC) |
| Snaptrack Flammability Rating: | UL94 V-0 |
| Product Dimensions: | (L) 2.20" (W) 2.35" (H) 1.00" (55.88 x 59.69 x 25.4 mm) |
| Product Weight: | 0.18 lbs. (0.082 Kg) |
| Agency Approvals: | RoHS2, WEEE |





STANDARD ORDERING

Model # Example: **PTA2** -OR- **102633**

| Model # | Item # | Firmware # | Input Pulse Range (Seconds) |
|------------------------|--------|------------------|---|
| PTA2 | 102633 | 0114Y0E.HEX | 0.02 to 5.0s, 0.1 to 10.0s, 0.59 to 2.93s, 0.1 to 25.5s |
| PTA2 VERSION #2 | 102634 | 03.01.001.90.HEX | 0 to 10.0s Duty Cycle Pulse (10s window) 0-25.5s Duty Cycle Pulse (25.5 sec. window) 0-100s Duty Cycle Pulse (100s window) 0.023 to 6.0s |

ACCESSORIES

Model # Example: **A/DO008** -OR- **142583**

| Model # | Item # | Description |
|-------------------------|--------|--|
| A/DO008 | 142583 | Transient Voltage Suppressor, Bi-directional, 56VAC/DC, 1500W |
| A/DRC 2.7 X 2.18 | 142626 | DIN Rail Adapter Kit |
| ENC1 | 102472 | 20 Gauge Metal Enclosure, Designed to Hold Interfaces Products |





AUD

Floating Point to Analog Output



The AUD converts a floating point signal into a linear analog output. There are two inputs on the AUD, one to increase the analog output and one to decrease the analog output. The output of the AUD is stable when the inputs are both off. A contact closure or voltage signal to either input will cause the output of the AUD to begin to ramp either up or down depending on which input was activated. The output stops ramping once the up or down input is deactivated, and will remain at that value until another up or down signal is received. If both inputs are "ON," the output will reset to the lowest value of the selected range. On all products except Version 3 and the AUD2, when power is first applied or restored after power interruption, the AUD

automatically resets to the minimum output signal as defined by the output DIP switch settings or the adjusted minimum. On Version 3, when power is first applied or restored after power interruption, or if both inputs (up/down) pulse 3.5 seconds, it resets to maximum output signal. On the AUD2, when power is first applied or restored after power interruption, the AUD2 automatically resets to the midpoint output signal as defined by the output DIP switch settings or the adjusted minimum. The output of the AUD is in the form of an analog, steady state voltage or current. This signal can be scaled to fit the needs of the application by selecting one of several preset ranges by dip switch or by adjusting the offset and the gain of the output with two potentiometers. The output of the AUD is also protected against wrap around. In the event the output reaches either its maximum or minimum level, the ramping will stop and the output will be held at that value. The output signal rate of change is field selectable by dip switch.

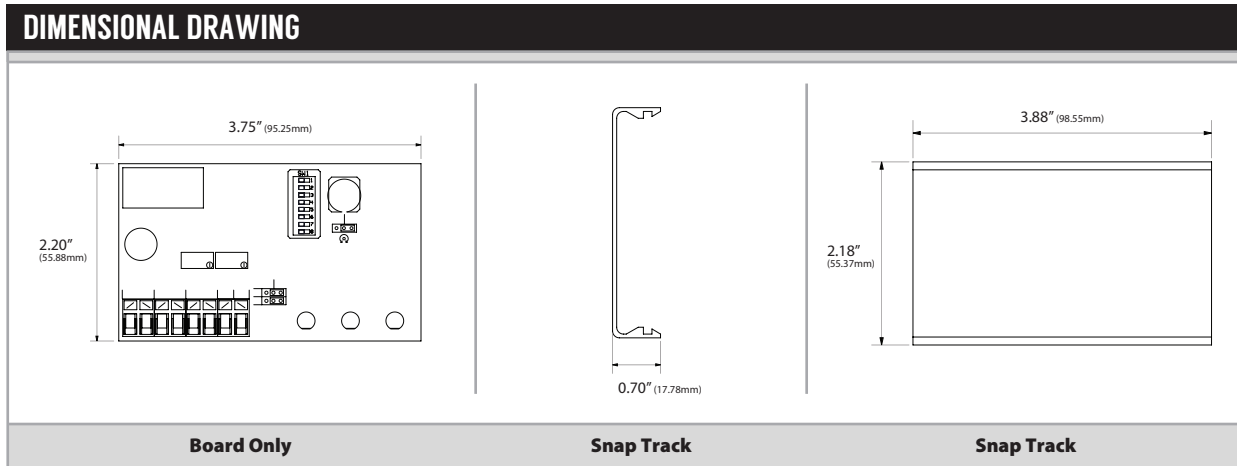
Applications: Variable Speed Drive Control, Motor Speed Control, Contact Integration, Floating Point to Analog Conversion, Positioner and Actuator Control

The AUD is covered by ACI's Two (2) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|---|--|
| Supply Voltage: | 24 VDC (24 VDC to 35 VDC) or 24 VAC (21.6 VAC to 28 VAC), 50/60 Hz. |
| Supply Current: | 208 mA maximum |
| Input Signal Source: | Relay contact closure, transistor, or triac (24 VAC, 50/60 Hz) |
| Input Signal Trigger Level: | Normal Mode: 5 to 26.4 VDC, 24 to 26.4 VAC Triac Mode: 24 to 26.4 VAC |
| Input Full Range Rates of Change: | See Ordering Grid Below |
| Output Voltage Fixed Signal Ranges: | 0 to 1 VDC, 0 to 4 VDC, 0 to 10 VDC, 0 to 13 VDC, 1 to 2 VDC, 1 to 5 VDC, 1 to 11 VDC, 1 to 14 VDC |
| Output Voltage Adjustable Signal Ranges: | 0 to 20 VDC (with adjustable offset and span) |
| Output Voltage Signal Load: | 3300Ω minimum at 20 VDC ± 10% , 400 ohms minimum at 10 VDC ± 10% (If the voltage output is limited to 18 VDC on the high end of the output span, the DC supply limit can be 24 VDC -10% and maintain stated accuracy |
| Output Current Fixed Signal Ranges: | 0 to 16 mA, 4 to 20 mA |
| Output Current Adjustable Signal Ranges: | 0 to 20 mA (with adjustable offset and span) |
| Output Current Signal Load: | 0 to 750Ω maximum (If the load is lowered to 700Ω, the DC supply can be 24 VDC -10% and maintain stated accuracy |
| Output Signal Accuracy (24 VAC, 60 Hz): | Absolute +/- 2% of span for adjustable ranges, 5% for preset |
| Output Signal Accuracy (24 VAC, 50 Hz): | Absolute +/- 3% of span for adjustable ranges, 5% for preset |
| Output Signal Resolution: | 256 steps (all ranges) |
| Regulated Power Output (User): | 24 VDC (+/- 10%), 48 mA maximum |
| Connections: | 90° Pluggable Screw Terminal Blocks |
| Wire Size: | 16 (1.31 mm ²) to 26 AWG (0.129 mm ²) |
| Terminal Block Torque Rating: | 0.5 Nm (Minimum); 0.6 Nm (Maximum) |
| Operating Temperature Range: | 35 to 120°F (1.7 to 48.9°C) |
| Operating Humidity Range: | 10 to 95% non-condensing |
| Storage Temperature: | -20 to 150°F (-28.9 to 65.5°C) |
| Snaptrack Material: | Polyvinyl Chloride (PVC) |
| Snaptrack Flammability Rating: | UL94 V-0 |
| Product Dimensions: | (L) 3.75" (W) 2.20" (H) 1.15" (95.25 x 55.88 x 29.21 mm) |
| Product Weight: | 0.24 lbs. (0.1077 Kg) |
| Agency Approvals: | RoHS2, WEEE |





STANDARD ORDERING

Model # Example: **AUD** -OR- **138535**

| Model # | Item # | Firmware Version # | Rates of Change* | Additional Information |
|-----------------------|--------|---------------------|-------------------|--|
| AUD | 138535 | 0008Y0A.HEX | 5, 15, 30, 90s | --- |
| AUD Version #2 | 102094 | 0244Y0A.HEX | 45, 60, 120, 240s | --- |
| AUD Version #3 | 130414 | 0256Y0A.HEX | 45, 60, 120, 240s | Resets to output (on start-up/both inputs (up/down) pulse 3.5s |
| AUD Version #4 | 129820 | 0537Y0A.HEX | 5, 360s | --- |
| AUD Version #5 | 138535 | S-AUD V5 | 60, 75, 120, 150s | --- |
| AUD2 | 135403 | S-AUD_020000190.HEX | 5, 15, 30, 90s | Resets to midpoint output signal on start-up |

Note*: Rates of Change unit of measurement = seconds

ACCESSORIES

Model # Example: **A/DO008** -OR- **142583**

| Model # | Item # | Description |
|--------------------------|--------|--|
| A/DO008 | 142583 | Transient Voltage Suppressor, Bi-directional, 56VAC/DC, 1500W |
| A/DRC 3.88 X 2.18 | 142623 | DIN Rail Adapter Kit |
| ENC1 | 102472 | 20 Gauge Metal Enclosure, Designed to Hold Interfaces Products |





EFP

Floating Point to Pneumatic Output

The EFP converts a floating point signal into a proportional pneumatic signal ranging from 0-20 psig. The pneumatic output is proportional to the signal input. The EFP* has a manual override switch with terminal strip contacts to indicate its status and a potentiometer to vary the pneumatic output. Two LEDs indicate UP or DOWN excursions, with an additional one for power indication. The EFP offers four jumper selectable rates of change in the output pressure. Output pressure ranges are jumper shunt selectable for 0 to 10, 0 to 15 and 0 to 20 psig, and adjustable in all ranges. A 0-5 VDC feedback signal, indicating the resultant branch line pressure, is also provided. This signal varies linearly with the branch pressure range selected. It is designed with electrical terminals on one end and pneumatic connections on the other, allowing for maximum

convenience in wiring and tubing installation when panel mounted. The EFP is a constant bleed interface with branch exhaust response time determined by the bleed orifice size and pressure differentials. If power fails to the EFP, it will continue to bleed through the bleed orifice until branch pressure is zero psig. The EFP2 incorporates two valves (one controls exhaust) and does not bleed air at set point. Its branch exhaust flow and response time are not limited by an internal restrictor and are similar to its load rate. If power fails to the EFP2, branch line pressure remains constant if the branch line does not leak air. The EFP2FS is a two valve fail safe model. Its three-way branch exhaust valve allows exhaust of branch line air on a power failure. Custom calibration is available upon request for an additional charge.

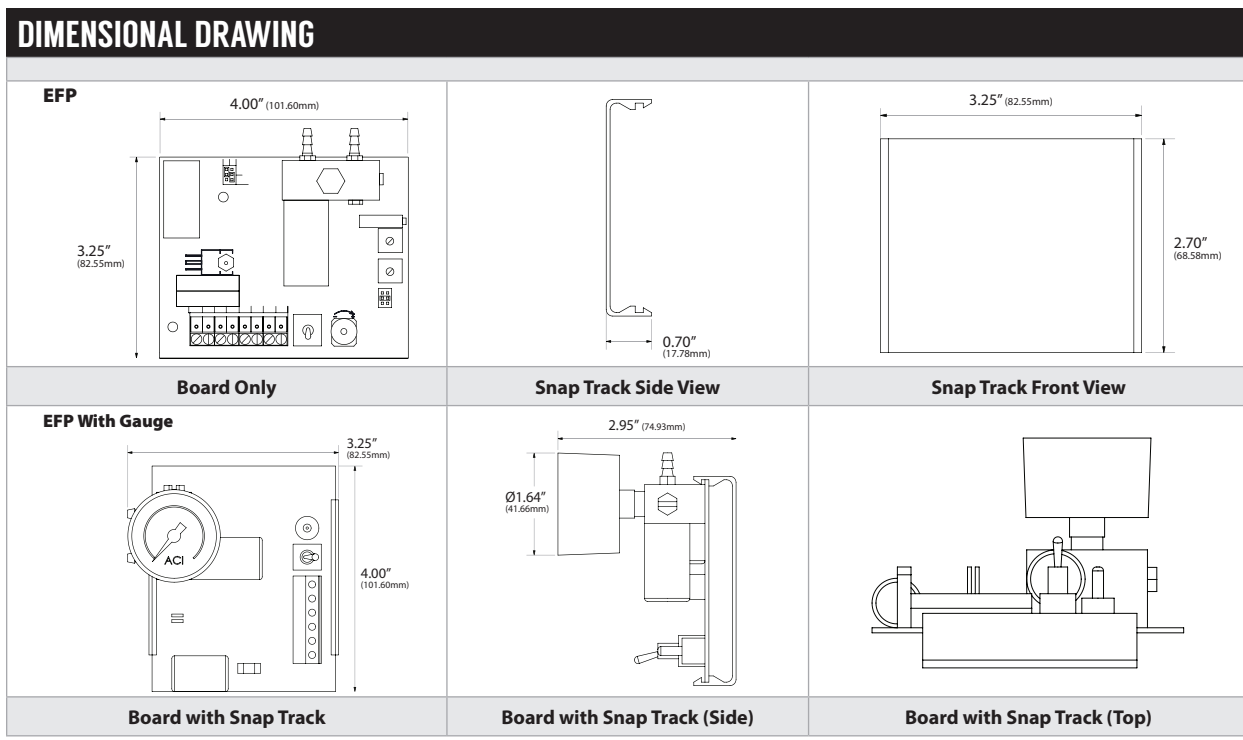
Applications: 3 Way Mixing Valve Control, Chiller Loading, Pilot Positioner Control, Pneumatic Valve and Damper Actuator Control, Fan Vane Control, Compressor Staging

The EFP is covered by ACI's Two (2) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's web site, workaci.com.

PRODUCT SPECIFICATIONS

| | |
|---|--|
| Supply Voltage: | 24 VAC (+/-10%), 50 or 60Hz, 24 VDC (+10%/- 5%) |
| Supply Current: | EFP: 300mAAC, 200mADC Maximum EFP2: 350mAAC, 200mADC EFP2FS: 500mAAC, 200mADC |
| Digital Input Signal Source: | Relay Contact Closure, Transistor or Triac |
| Digital Input Signal Level (@ Impedance): | 9-24 VAC/VDC @ 750Ω |
| Digital Input Rates of Change: | See Ordering Grid |
| Manual / Auto Override Switch: | MAN function = output can be varied AUTO function = output is controlled from input signal |
| Manual / Auto Override Feedback Output: | 24 VDC/VAC @ 1A maximum, N.O. in AUTO operation (Optional: N.O. in MAN operation) |
| Feedback Output Signal Range: | 0-5 VDC = Output Span |
| Air Supply Pressure: | Maximum 25 psig (172.369 kPa), minimum 22 psig (151.69 kPa) |
| Air Supply Consumption: | 2300 SCIM (37.69 liters) |
| Output Pressure Range (Jumper Selectable): | 0-10 psig (0-68.95 kPa), 0-15 psig (0-103.43 kPa) or 0-20 psig (137.9 kPa) |
| Output Pressure Accuracy: | 2% full scale at room temperature (above 1 psig or 6.895 kPa) 3% full scale across operating temperature range (above 1 psig) |
| Air Flow: | Supply valves @ 20 psig (138 kPa) main/15 psig (103 kPa) out, 2300 scim. Branch Line requires 2 in3 or 33.78 cm3 (minimum) Min. 25 ft of 1/4" O.D. poly branch tubing |
| Filtering: | Furnished with integral-in-barb 80-100 micron filter (Part # PN004) Optional standard barb (PN002) with external 5 micron in-line filter (PN021) |
| Connections Wire Size: | 90° Pluggable Screw Terminal Blocks 16 (1.31 mm ²) to 26 AWG (0.129 mm ²) |
| Terminal Block Torque Rating: | 0.5 Nm (Minimum); 0.6 Nm (Maximum) |
| Connections Pneumatic Tubing Size-Type: | 1/4" O.D. nominal (1/8" I.D.) polyethylene |
| Pneumatic Fitting: | Removeable brass fittings for Main & Branch in machined manifold, Plugged 1/8-27-FNPT gauge port |
| Gauge Pressure Range (Gauge Models): | 0-30 psig (0-200 kPa) |
| Gauge Pressure Accuracy (Gauge Models): | ± 2.5% Midscale (± 3.5% Full Scale) |
| Operating Temperature Range: | 35 to 120°F (1.7 to 48.9°C) |
| Operating Humidity Range: | 10 to 95% non-condensing |
| Storage Temperature: | -20 to 150°F (-28.9 to 65.5°C) |
| Snaptrack Material: | Polyvinyl Chloride (PVC) |
| Snaptrack Flammability Rating: | UL94 V-0 |
| Product Dimensions: | No Gauge: (L) 4.00" (W) 3.25" (H) 1.87" (101.60 x 82.55 x 47.50 mm) With Gauge: (L) 4.00" (W) 3.25" (H) 2.95" (101.60 x 82.55 x 74.97 mm) |
| Product Weight: | EFPG: 0.596 lbs. (0.2703 Kg) EFP2G: 0.76 lbs. (0.3459 Kg) EFP2GF: 0.70 lbs. (0.3175 Kg) |
| Agency Approvals: | RoHS2, WEEE |





STANDARD ORDERING

Model # Example: **EFP** -OR- **106319**

| Model # | Item # | Firmware Version # | Exhaust | Input Pulse Range | Gauge | Additional Information |
|------------------|--------|--------------------|--------------------------|--------------------------|-------|---------------------------|
| EFP | 106319 | 0186Y1A.HEX | 41 SCIM (0.6719 Liters) | 45s, 90s, 1 min, 2 min | | 0.007" Bleed Orifice |
| EFPG | 106320 | 0186Y1A.HEX | 2300 SCIM (37.69 Liters) | 45s, 90s, 1 min, 2 min | • | 0.007" Bleed Orifice |
| EFP2 | 106321 | 0186Y1A.HEX | 2300 SCIM (37.69 Liters) | 45s, 90s, 1 min, 2 min | | Maintains Branch Pressure |
| EFP2G | 106322 | 0186Y1A.HEX | 2300 SCIM (37.69 Liters) | 45s, 90s, 1 min, 2 min | • | Maintains Branch Pressure |
| EFP2G Version #2 | 129480 | 0206Y0B.HEX | 2300 SCIM (37.69 Liters) | 30s, 3 min, 6 min, 8 min | • | Maintains Branch Pressure |
| EFP2FS | 106324 | 0186Y1A.HEX | 2300 SCIM (37.69 Liters) | 45s, 90s, 1 min, 2 min | | Exhausts on Power Failure |
| EFP2GFS | 106323 | 0186Y1A.HEX | 2300 SCIM (37.69 Liters) | 45s, 90s, 1 min, 2 min | • | Exhausts on Power Failure |

ACCESSORIES ORDERING

Model # Example: **A/DO008** -OR- **142583**

| Model # | Item # | Description |
|------------------|--------|---|
| A/DO008 | 142583 | Transient Voltage Suppressor, Bi-directional, 56 VAC/DC, 1500W |
| A/DRC 2.7 X 3.25 | 142626 | DIN Rail Adapter |
| A/PN002 | 136499 | 10-32 X 1/8" ID, Barb Fitting |
| A/PN004 | 110831 | 80-100 Micron Filter Media in Barb Fitting |
| A/PN021 | 112219 | In Line 10 Micron Filter, Installs in-between air supply and main barb connection |
| A/PN028 | 128307 | Replacement Gauge |





PTS4.1

Floating Point to Pneumatic Output



The PTS4.1 converts two digital (increase or decrease) signals from relay contact closures, transistors, or triac inputs into a proportional pneumatic signal of 0-10, 5-15 or 0-15 psig (jumper selectable). The pneumatic output increases when the UP input is on, or decreases when the DOWN input is on. The pneumatic output changes full scale (from minimum to maximum) in 90 seconds with 255 steps of resolution. The PTS4.1's closed loop electronic design will maintain the last commanded pneumatic pressure. An on-board microprocessor measures the signal input and a solid-state pressure transducer measures branch line pressure. The PTS4.1 uses these two values to automatically increase or decrease branch line air pressure. In the event of a power failure, both PTS4.1 valves close, shutting off main air and branch line bleed. If a power brown-out

occurs, the PTS4.1 automatically reboots its on-board processor. During a power brown-out, power to the processor on the PTS4.1 is shut down, while the pressure output remains the same. When proper power level is restored, processor automatically powers up and branch pressure output defaults to 0 psig.

Applications: Pneumatic Damper Motor Control, Pneumatic Valve Actuator Control, Compressor Staging, Electric Control of any Pneumatic Actuator

The PTS4.1 is covered by ACI's Two (2) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's web site, workaci.com.

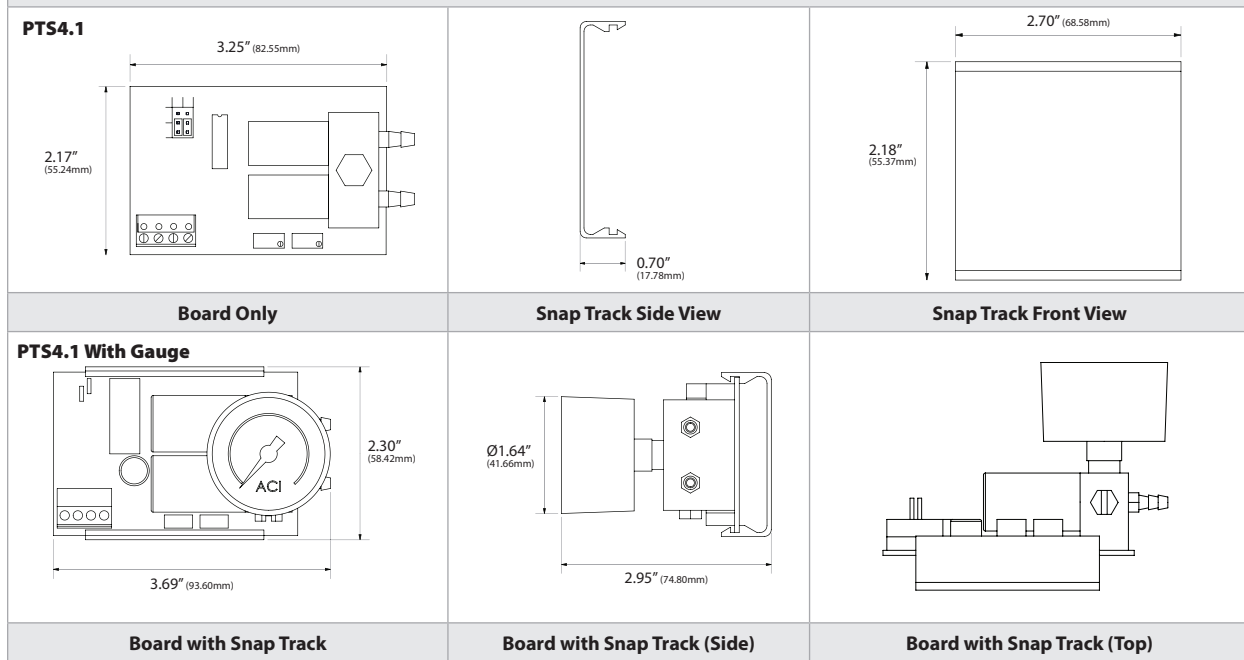
PRODUCT SPECIFICATIONS

| | |
|--|---|
| Supply Voltage: | 24 VAC +/-10% at terminals 50 or 60 Hz |
| Supply Current: | PTS4.1: 350mAAC, 200mADC Maximum |
| Digital Input Signal Source: | Two (2) Relay Contact Closures, Transistors or TRIACs (no accessories required) |
| Digital Input Signal Trigger Level (@ Impedance): | 9-24 VAC @ 750Ω |
| Rate of Change: | 90 Seconds |
| Air Supply Pressure: | 25 psig (172 kPa) maximum, 20 psig (138 kPa) minimum |
| Output Pressure Range: | 0-10 psig (0-68.95 kPa), 5-15 psig (34.47-103.43 kPa), or 0-15 psig (0-103.43 kPa) |
| Accuracy: | 2% @ room temperature, 3% @ full range of operating temperature |
| Air Flow: | Supply valves @ 20 psig (138 kPa) main/15 psig (103 kPa) out, 2300 scim, Branch Line requires 2 in3 or 33.78 cm3 (min) Unit requires min. of 25 ft of 1/4" O.D. poly tubing |
| Filtering: | Furnished with integral-in-barb 80-100 micron filter (Part # PN004) |
| Connections: | 90° Pluggable Screw Terminal Blocks |
| Wire Size: | 16 (1.31 mm ²) to 26 AWG (0.129 mm ²) |
| Terminal Block Torque Rating: | 0.5 Nm (Minimum); 0.6 Nm (Maximum) |
| Connections Pneumatic Tubing Size-Type: | 1/4" O.D. nominal (1/8" I.D.) polyethylene |
| Pneumatic Fitting: | Removeable brass barbed fittings for Main and Branch in machined aluminum manifold Plugged 1/8-27-FNPT gauge port Gauge installed at additional cost |
| Gauge Pressure Range (Gauge Models): | 0-30 psig (0-200 kPa) |
| Gauge Pressure Accuracy (Gauge Models): | ± 2.5% Midscale (± 3.5% Full Scale) |
| Operating Temperature Range: | 35 to 120°F (1.7 to 48.9°C) |
| Operating Humidity Range: | 10 to 95% non-condensing |
| Storage Temperature: | -10 to 150°F (-23.3 to 65.5°C) |
| Snaptrack Material: | Polyvinyl Chloride (PVC) |
| Snaptrack Flammability Rating: | UL94 V-0 |
| Product Dimensions: | No Gauge: (L) 3.25" (W) 2.18" (H) 1.87" (82.55 x 55.24 x 47.49 mm) With Gauge: (L) 3.69" (W) 2.30" (H) 2.95" (93.60 x 58.42 x 74.9 mm) |
| Product Weight: | 0.61 lbs. (0.276 Kg) |
| Agency Approvals: | RoHS2, WEEE |





DIMENSIONAL DRAWING



STANDARD ORDERING

Model # Example: **PTS4.1** -OR- **127749**

| Model # | Item # | Description | Gauge |
|---------|--------|--|-------|
| PTS4.1 | 127749 | Floating Point to Pneumatic Output | |
| PTS4.1G | 127750 | Floating Point to Pneumatic Output, with Gauge | • |

ACCESSORIES ORDERING

Model # Example: **A/DO008** -OR- **142583**

| Model # | Item # | Description |
|------------------|--------|--|
| A/DO008 | 142583 | Transient Voltage Suppressor, Bi-directional, 56 VAC/DC, 1500W |
| A/DRC 2.7 X 2.18 | 142626 | DIN Rail Adapter |
| A/PN004 | 110831 | 80-100 Micron Filter Media in Barb Fitting |
| ENC1 | 102472 | 20 Gauge Metal Enclosure, Designed to Hold Interfaces Products |





RIM-5

Mechanical Relay Isolation Interface

The RIM-5 was designed for use in any application where you would like to replace a stand-alone thermostat with your building management system as well as any other similar application in which multiple isolation relays are needed. While some building management systems or controllers are equipped with relay contacts, many others have a Universal or TRIAC (Solid State) digital output. In the case where your building management system has a Universal or TRIAC output, the RIM-5 should be used to replace your thermostat contacts with up to five SPST pilot or isolation relays rated to a maximum contact rating of 10A in order to

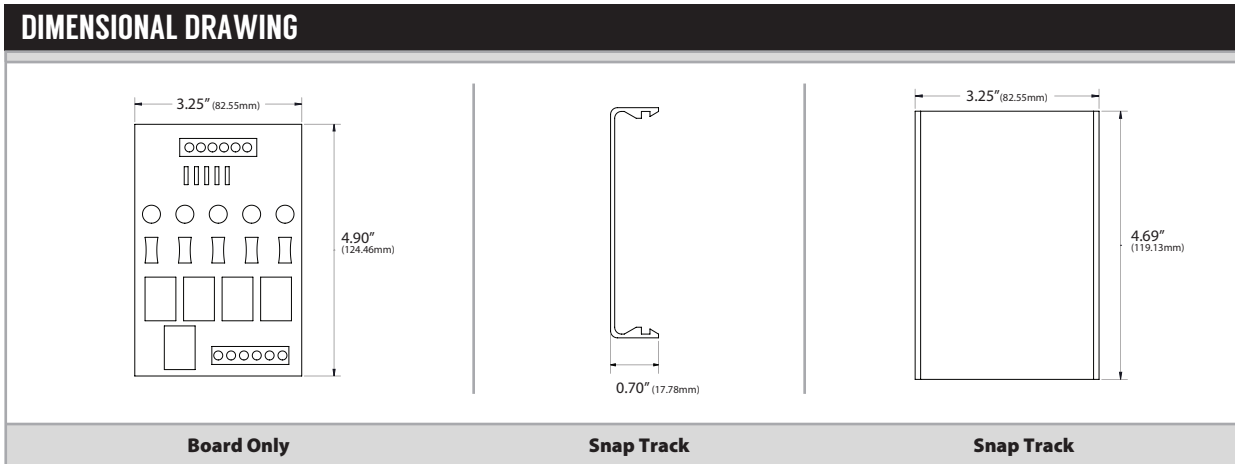
control your end devices tied to the thermostat contacts. The RIM-5 will accept either a 12 VDC or 24 VAC power source by adjusting the field selectable jumpers in the field and also includes a "Status" LED indicator for each of the relays that can be used to aid in the trouble shooting of your mechanical equipment by displaying the current operating state of your mechanical equipment.

Applications: Digital Output Expansion, Alarms, Staging and Sequencing

The RIM-5 is covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

| PRODUCT SPECIFICATIONS | |
|---------------------------------------|---|
| Coil Voltage: | 12 VDC (+/- 30%), or 24 VAC, (+/- 10%), 50/60 Hz |
| Supply Current: | 170 mA maximum |
| Coil Voltage Selection: | Jumper Selectable |
| Digital Output Type: | Five SPST Form "A" Relays |
| Relay Contact Rating: | Total current of all relay outputs used must be no greater than 2.44A |
| Relay Electrical Life: | 100,000 operations minimum |
| Relay Mechanical Life: | 10,000,000 operations |
| Connections: | Screw Terminal Blocks |
| Wire Size: | 16 AWG (1.31 mm ²) to 26 AWG (0.129 mm ²) |
| Terminal Block Torque Rating: | 0.5 Nm nominal 0.6 Nm (maximum) |
| Operating Temperature Range: | 35 to 113°F (1.6 to 45°C) |
| Operating Humidity Range: | 0 to 95% non-condensing |
| Storage Temperature: | -20 to 150°F (-40 to 65.5°C) |
| Snaptrack Material: | Polyvinyl Chloride (PVC) |
| Snaptrack Flammability Rating: | UL94 V-0 |
| Product Dimensions: | (L) 4.90" (W) 3.25" (H) 1.18" (81.92 x 82.55 x 29.97 mm) |
| Product Weight: | 0.30 lbs. (0.136 Kg) |
| Agency Approvals: | RoHS2, WEEE |





STANDARD ORDERING

Model # Example: **RIM-5** -OR- **138058**

| Model # | Item # | Description |
|--------------|--------|--------------------------------------|
| RIM-5 | 138058 | Mechanical Relay Isolation Interface |

ACCESSORIES

Model # Example: **A/DRC 4.69 X 3.25** -OR- **142620**

| Model # | Item # | Description |
|--------------------------|--------|----------------------|
| A/DRC 4.69 X 3.25 | 142620 | DIN Rail Adapter Kit |





ENC1

20 Gauge Metal Enclosure

The ENC1 is a 20 gauge metal enclosure designed to hold ACI control interfaces or any small HVAC or Building Automation Control component. ENC1 has a 2" diameter opening to view a potential gauge, and two 7/8" diameter openings in the ends to accept 1/2" EMT fittings for control and power wiring. Snap in covers on all openings. ENC1 features a light gray powder coat finish cured under high temperatures to seal all enclosure surfaces.

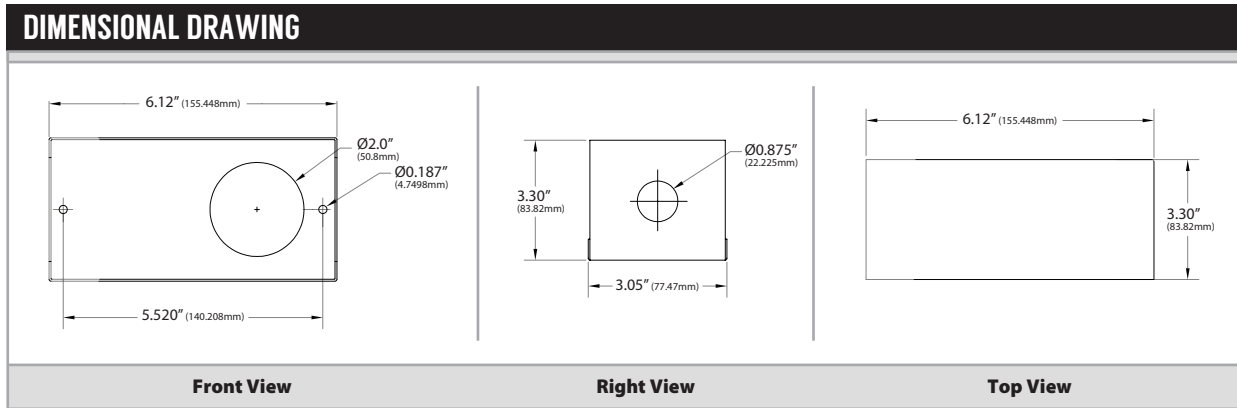
Applications: Interface Protective Housing, Protection for Small Building Automation System

The ENC1 Series is covered by ACI's two (2) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|---|--|
| Electrical Connections: | Base has two 7/8" holes in the ends to accept 1/2" EMPT conduit fitting for control and power wiring |
| Mounting Provisions (Base): | Base has two 3/16" hole for mounting with screws or bolts |
| Mounting Provisions (Interface Product): | Double faced tape for securing interface snap track in enclosure(There is an Adhesive foam Stop provided for holding interface in snaptrack) |
| Material: | 20GA Metal |
| Finish: | Light Gray Powder Coat |
| Compatible With: | AAR, ARM, ARM2, ATL, ATP, AUD, LPR, PTA, PTA2, PTP, PXP, PTS4, RTI & TOB |
| Not Compatible With: | 6N1-ISO, AFP, AIM1, AIM2, AIM3, ASA, DMUX, DRN3.1, DRN4, EFP, EPC, EPW, MAO, MDO, Photon 4.1 |
| Operating Temperature: | 35 to 120°F (1.7 to 48.9°C) |
| Operating RH: | 10 to 95% non-condensing |
| Storage Temperature: | -20 to 150°F (-40 to 65.5°C) |
| Product Weight: | 1.125 lbs. (0.51 Kg) |
| Product Dimensions: | (L) 6.12" (155.45 mm) x (W) 3.05" (77.47 mm) x (H) 3.3" (83.82 mm) |
| Agency Approvals: | RoHS2, WEEE |





STANDARD ORDERING Model # Example: **ENC1** -OR- **102472**

| Model # | Item # | Description |
|-------------|--------|--------------------------|
| ENC1 | 102472 | 20 Gauge Metal Enclosure |





COPPER AVERAGING

Bendable Copper BACnet™ MS/TP | Modbus RTU

The BN Series Copper Averaging networked temperature sensors are a cost effective, single point native BACnet™ or Modbus sensing solution designed to reduce the need for additional input modules or building management controllers when a limited number of input points are available. The BN series offers both BACnet™ and Modbus protocols in one device, providing great flexibility with various systems. The BTL Certification provides confidence that these sensors may be used in any new or retrofit installation using a BACnet™ MS/TP controller with third party BACnet™ devices. Each sensor features a copper sensing element that is

manufactured with 4 or 9 sensing points determined by the length of the sensing element. The averaging sensors provide a better average temperature of the air inside the duct when compared to a single point duct sensor. Each of the elements is sealed to prevent moisture intrusion and includes a foam pad to seal the duct and dampen vibrations. The sensor length should be determined by the dimensional size of your duct. These sensors incorporate a conformally coated printed circuit board for long-term reliability. The ABS enclosure features an easy open latch for easy access to the wiring and internal dip switches for quick setup and installation. Please contact ACI for more information regarding the BN Series.

Applications: Supply / Return / Discharge / Mixed Duct Air Temperature Sensing, Chilled Water / Hot Water / Hydronic Heating Systems, Air / Gas Temperatures, Chillers, Boilers, Hot Water Heaters & Refrigeration Systems

The ACI BN Series BACnet™ sensors are covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com

PRODUCT SPECIFICATIONS

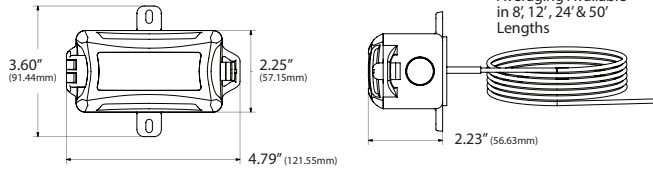
| | |
|---|---|
| Supply Voltage: | 12 to 36 VDC / 24 VAC +/- 10%, 50/60 Hz (Reverse Polarity Protected) |
| Current Consumption: | 25 mA maximum (0.67 VA) |
| Temperature Measurement Range: | -40 to 302°F (-40 to 150°C) |
| Temperature Measurement Accuracy @ 77°F (25°C): | +/- 1.0°F (+/- 0.5°C) |
| Temperature Calibration Offset: | +/- 9°F (+/- 5°C) (Field Configurable) |
| Temperature Units: | °F (Factory Default), °C, °K (Field Configurable) |
| Resolution: | +/- 0.1° +/- 0.1% |
| Temperature Update Rate: | 4 seconds |
| Communication Protocol: | BACnet™ MS/TP or Modbus RTU = Field Selectable; EIA RS-485 |
| Sensor Addresses: | 0 = Factory Default 1-127 = Field Selectable |
| Supported Baud Rates: | Auto Baud (Factory Default) 9600, 19200, 38400, 57600, 76800, 115200 (Field Selectable) |
| Parity (Modbus RTU): | None/Even/Odd = Field Selectable |
| Stop Bits (Modbus RTU): | 1 or 2 = Field Selectable |
| Databits (Modbus RTU): | 8 |
| Maximum Distance: | 4000 ft (1219 m) |
| End of Line Termination Resistance: | 120 Ohms Termination Resistance (Field Selectable) |
| Tri-Color Status LED: | Connection Status |
| Connections Wire Size: | Screw Terminal Blocks 16 AWG (1.31 mm ²) to 22 AWG (0.33 mm ²) |
| Transmitter Operating Temperature Range: | -40 to 176°F (-40 to 80°C) |
| Storage Temperature Range: | -40 to 185°F (-40 to 85°C) |
| Operating Humidity Range: | 10 to 95% RH, non-condensing |
| Sensor Material Sensor Diameter: | Copper 0.210" (5.34 mm) nominal |
| Fitting Material Flammability Rating: | Polyamide 66 (High Performance Nylon) UL94-HB |
| Enclosure Color Material UL Flammability Rating: | Black ABS Plastic UL94-HB |
| Enclosure Temperature Rating Plenum Rating: | -22 to 194°F (-30 to 90°C) Plenum Rated |
| Foam Pad Material Flammability Rating: | Neoprene/EPDM/SBR Polymer UL94-HBF; FMVSS-302; MIL-R-6130C |
| Product Dimensions (L x W x D): | See Dimensional Drawings on Back |
| Product Weights: | See Dimensional Drawings on Back |
| Agency Approvals: | BTL Certified, CE, RoHS2, WEEE, China RoHS |





DIMENSIONAL DRAWING, WEIGHTS

Plastic Box Enclosure [PB]



yy = Insertion Length

Plastic Box Enclosure [PB] Weights

| ACI Model # | 8' (Probe Length) | 12' (Probe Length) |
|----------------|----------------------|----------------------|
| BN2110-A-yy-PB | 0.72 lbs. (0.327 kg) | 0.96 lbs. (0.435 kg) |
| ACI Model # | 24' (Probe Length) | 50' (Probe Length) |
| BN2110-A-yy-PB | 1.70 lbs. (0.771 kg) | 3.28 lbs. (1.488 kg) |

Standard Views

Product Weights

STANDARD ORDERING

Model # Example: **BN2110-A-8-PB** -OR- **146609**

| Model # | Item # | Description |
|-----------------------|--------|--|
| BN2110-A-8-PB | 146609 | BACnet™ MS/TP, Modbus RTU, Temperature, Copper Averaging, 8', Plastic Enclosure |
| BN2110-A-12-PB | 146613 | BACnet™ MS/TP, Modbus RTU, Temperature, Copper Averaging, 12', Plastic Enclosure |
| BN2110-A-24-PB | 146614 | BACnet™ MS/TP, Modbus RTU, Temperature, Copper Averaging, 24', Plastic Enclosure |
| BN2110-A-50-PB | 146615 | BACnet™ MS/TP, Modbus RTU, Temperature, Copper Averaging, 50', Plastic Enclosure |





DUCT

RH-Temperature BACnet™ MS/TP | Modbus RTU



The BN Series Temperature and Humidity Duct networked sensors are a cost effective, single or dual point native BACnet™ or Modbus sensing solution designed to reduce the need for additional input modules or building management controllers when a limited number of input points are available. The BN series offers both BACnet™ and Modbus protocols in one device, providing great flexibility with various systems. The BTL Certification provides confidence that these sensors may be used in any new or retrofit installation using a BACnet™ MS/TP controller with third party BACnet™ devices. These sensors incorporate a conformally coated printed

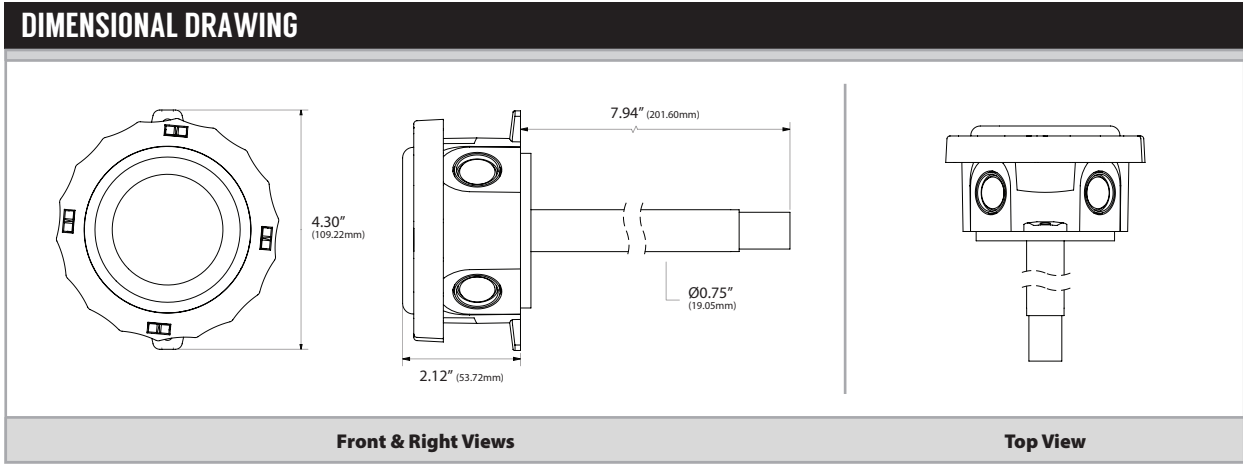
circuit board mounted inside a waterproof enclosure for long-term reliability. The enclosure features a twist off cover for easy access to the wiring and internal dip switches for quick setup and installation. Please contact ACI for more information regarding the BN Series communicating sensors.

Applications: Monitoring Supply / Discharge / Return Temperature and humidity, Dehumidification and Humidification Processes, Clean Rooms, Data Centers, Return Air in Pool Environments, Economizer Control, Air Handlers, Roof Top Units, Process Control Applications

The ACI BN Series BACnet™ sensors are covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com

| PRODUCT SPECIFICATIONS | |
|--|---|
| Supply Voltage: | 12 to 36 VDC / 24 VAC +/- 10%, 50/60 Hz (Reverse Polarity Protected) |
| Current Consumption: | 25 mA maximum (0.67 VA) |
| Temperature Measurement Range: | -40 to 176°F (-40 to 80°C) |
| Temperature Measurement Accuracy @ 77°F (25°C): | +/- 1.0°F (+/- 0.5°C) |
| Temperature Calibration Offset: | +/- 9°F (+/- 5°C) (Field Configurable) |
| Temperature Units: | °F (Factory Default), °C, °K (Field Configurable) |
| RH Measurement Range: | 0 to 100% |
| RH Measurement Accuracy @ 77°F (25°C): | +/- 2% from 10 to 90% RH |
| RH Calibration Offset: | +/- 10% RH (Field Configurable) |
| Resolution: | +/- 0.1° +/- 0.1% |
| Temperature / RH Update Rate: | 4 seconds |
| Communication Protocol: | BACnet™ MS/TP or Modbus RTU = Field Selectable; EIA RS-485 |
| Sensor Addresses: | 0 = Factory Default 1-127 = Field Selectable |
| Supported Baud Rates: | Auto Baud (Factory Default) 9600, 19200, 38400, 57600, 76800, 115200 (Field Selectable) |
| Parity (Modbus RTU): | None/Even/Odd = Field Selectable |
| Stop Bits (Modbus RTU): | 1 or 2 = Field Selectable |
| Databits (Modbus RTU): | 8 |
| Maximum Distance: | 4000 ft (1219 m) |
| End of Line Termination Resistance: | 120 Ohms Termination Resistance (Field Selectable) |
| Tri-Color Status LED: | Connection Status |
| Connections Wire Size: | Screw Terminal Blocks 16 AWG (1.31 mm ²) to 22 AWG (0.33 mm ²) |
| Transmitter Operating Temperature Range: | -40 to 176°F (-40 to 80°C) |
| Storage Temperature Range: | -40 to 185°F (-40 to 85°C) |
| Operating Humidity Range: | 10 to 95% RH, non-condensing |
| Sensing Probe and Filter Material Probe Diameter: | 304 Stainless Steel 0.750" (19.05 mm) |
| Enclosure Material UL Flammability Rating: | ABS Plastic UL94-HB |
| Enclosure Temperature Rating: | -40 to 140°F (-40 to 60°C) |
| Foam Pad Material Flammability Rating: | Neoprene/EPDM/SBR Polymer UL94-HBF; FMVSS-302; MIL-R-6130C |
| Product Dimensions (Length x Diameter): | 10.06" (255.53 mm) x 4.30" (109.22 mm) |
| Product Weights: | 1.30 lbs. (0.59 kg) |
| Agency Approvals: | BTL Certified, CE, RoHS2, WEEE, China RoHS |





STANDARD ORDERING Model # Example: **BN2120-D** -OR- **146541**

| Model # | Item # | Description |
|-----------------|--------|--|
| BN2120-D | 146541 | BACnet™ MS/TP, Modbus RTU, Relative Humidity, Duct, Euro Enclosure |
| BN2130-D | 146531 | BACnet™ MS/TP, Modbus RTU, Relative Humidity and Temperature, Duct, Euro Enclosure |



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FLEXIBLE AVERAGING

Multipoint BACnet™ MS/TP | Modbus RTU

The BN Series Flexible Averaging networked temperature sensors are a cost effective, single point native BACnet™ or Modbus sensing solution designed to reduce the need for additional input modules or building management controllers when a limited number of input points are available. The BN series offers both BACnet™ and Modbus protocols in one device, providing great flexibility with various systems. The BTL Certification provides confidence that these sensors may be used in any new or retrofit installation using a BACnet™ MS/TP controller with third party BACnet™ devices. Each sensor features a 18 AWG Plenum rated cable that is

manufactured with 4 or 9 sensing points determined by the length of the sensing element. The averaging sensors provide a better average temperature of the air inside the duct when compared to a single point duct sensor. The flexible averaging sensors are limited to applications where operating temperatures are limited and where high humidity, chemical resistance and UV Light Air Treatment Systems aren't required. Each of the sensing elements is protected by a dual wall adhesive lined heat shrink tubing to provide a level of moisture protection to the sensing elements. The sensor length should be determined by the dimensional size of your duct. These sensors incorporate a conformally coated printed circuit board for long-term reliability. The ABS enclosure features an easy open latch for easy access to the wiring and internal dip switches for quick setup and installation. Please contact ACI for more information regarding the BN Series communicating sensors.

Applications: Supply / Return / Discharge / Mixed Duct Air Temperature Sensing, Chilled Water / Hot Water / Hydronic Heating Systems, Air / Gas Temperatures, Chillers, Boilers, Hot Water Heaters & Refrigeration Systems

The ACI BN Series BACnet™ sensors are covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com

PRODUCT SPECIFICATIONS

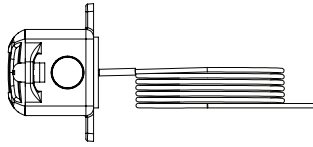
| | |
|---|---|
| Supply Voltage: | 12 to 36 VDC / 24 VAC +/- 10%, 50/60 Hz (Reverse Polarity Protected) |
| Current Consumption: | 25 mA maximum (0.67 VA) |
| Temperature Measurement Range: | 0 to 75°C (32 to 167°F) |
| Temperature Measurement Accuracy @ 77°F (25°C): | +/- 1.0°F (+/- 0.5°C) |
| Temperature Calibration Offset: | +/- 9°F (+/- 5°C) (Field Configurable) |
| Temperature Units: | °F (Factory Default), °C, °K (Field Configurable) |
| Resolution: | +/- 0.1° +/- 0.1% |
| Temperature Update Rate: | 4 seconds |
| Communication Protocol: | BACnet™ MS/TP or Modbus RTU = Field Selectable; EIA RS-485 |
| Sensor Addresses: | 0 = Factory Default 1-127 = Field Selectable |
| Supported Baud Rates: | Auto Baud (Factory Default) 9600, 19200, 38400, 57600, 76800, 115200 (Field Selectable) |
| Parity (Modbus RTU): | None/Even/Odd = Field Selectable |
| Stop Bits (Modbus RTU): | 1 or 2 = Field Selectable |
| Databits (Modbus RTU): | 8 |
| Maximum Distance: | 4000 ft (1219 m) |
| End of Line Termination Resistance: | 120 Ohms Termination Resistance (Field Selectable) |
| Tri-Color Status LED: | Connection Status |
| Connections Wire Size: | Screw Terminal Blocks 16 AWG (1.31 mm ²) to 22 AWG (0.33 mm ²) |
| Transmitter Operating Temperature Range: | -40 to 176°F (-40 to 80°C) |
| Storage Temperature Range: | 0 to 75°F (32 to 167°C) |
| Operating Humidity Range: | 10 to 95% RH, non-condensing |
| Sensor Jacket Material Cable Ratings: | Low Smoke PVC CL2P CMP Plenum Rated Cable |
| Sensor Cable Diameter: | 0.170" (4.32mm) nominal |
| Enclosure Color Material UL Flammability Rating: | Black ABS Plastic UL94-HB |
| Enclosure Temperature Rating Plenum Rating: | -22 to 194°F (-30 to 90°C) Plenum Rated |
| Foam Pad Material Flammability Rating: | Neoprene/EPDM/SBR Polymer UL94-HBF; FMVSS-302; MIL-R-6130C |
| Product Dimensions (L x W x D): | See Dimensional Drawings on Back |
| Product Weights: | See Dimensional Drawings on Back |
| Agency Approvals: | BTL Certified, CE, RoHS2, WEEE, China RoHS |



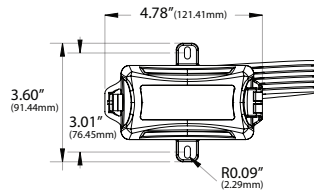


DIMENSIONAL DRAWING

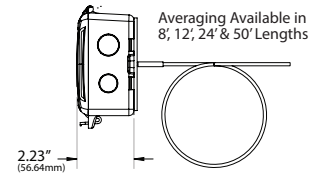
Plastic Box Enclosure [PB]



Front View



Right View



Top View

STANDARD ORDERING

Model # Example: **BN2110-FA-50-PB -OR- 146619**

| Model # | Item # | Description |
|------------------------|--------|--|
| BN2110-FA-8-PB | 146618 | BACnet™ MS/TP, Modbus RTU, Temperature, Flexible Cable Averaging, 8', Plastic Enclosure |
| BN2110-FA-12-PB | 146616 | BACnet™ MS/TP, Modbus RTU, Temperature, Flexible Cable Averaging, 12', Plastic Enclosure |
| BN2110-FA-24-PB | 146617 | BACnet™ MS/TP, Modbus RTU, Temperature Flexible Cable Averaging, 24', Plastic Enclosure |
| BN2110-FA-50-PB | 146619 | BACnet™ MS/TP, Modbus RTU, Temperature, Flexible Cable Averaging, 50', Plastic Enclosure |





OUTSIDE AIR

RH-Temperature BACnet™ MS/TP | Modbus RTU

The BN Series Outdoor Temperature and Humidity networked sensors are a cost effective, single or dual point native BACnet™ or Modbus sensing solution designed to reduce the need for additional input modules or building management controllers when a limited number of input points are available. The BN series offers both BACnet™ and Modbus protocols in one device, providing great flexibility with various systems. The BTL Certification provides confidence that these sensors may be used in any new or retrofit installation using a BACnet™ MS/TP controller with third party BACnet™ devices. These sensors incorporate a conformally

coated printed circuit board mounted inside a waterproof enclosure for long-term reliability. The enclosure features a twist off cover for easy access to the wiring and internal dip switches for quick setup and installation. Please contact ACI for more information regarding the BN Series communicating sensors.

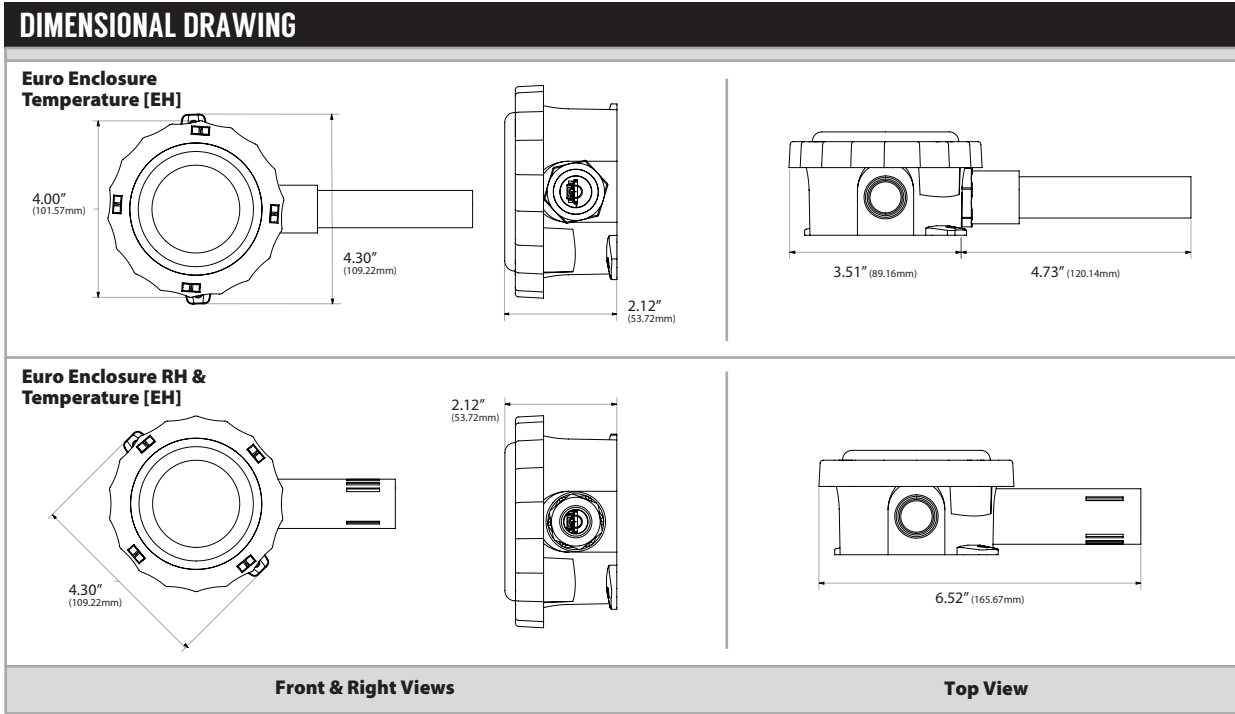
Applications: Outdoor Air Temperature and RH Sensing, Economizers, Warehouse Facilities, Cold Storage Buildings, Manufacturing Plants, Wash Down Environments

The ACI BN Series BACnet™ sensors are covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com

PRODUCT SPECIFICATIONS

| | |
|--|---|
| Supply Voltage: | 12 to 36 VDC / 24 VAC +/- 10%, 50/60 Hz (Reverse Polarity Protected) |
| Current Consumption: | 25 mA maximum (0.67 VA) |
| Temperature Measurement Range: | -40 to 176°F (-40 to 80°C) |
| Temperature Measurement Accuracy @ 77°F (25°C): | +/- 1.0 °F (+/- 0.5°C) |
| Temperature Calibration Offset: | +/- 9°F (+/- 5°C) (Field Configurable) |
| Temperature Units: | °F (Factory Default), °C, °K (Field Configurable) |
| RH Measurement Range: | 0 to 100% |
| RH Measurement Accuracy @ 77°F (25°C): | +/- 2% from 10 to 90% RH |
| RH Calibration Offset: | +/- 10% RH (Field Configurable) |
| Resolution: | +/- 0.1° +/- 0.1% |
| Temperature / RH Update Rate: | 4 seconds |
| Communication Protocol: | BACnet™ MS/TP or Modbus RTU = Field Selectable; EIA RS-485 |
| Sensor Addresses: | 0 = Factory Default 1-127 = Field Selectable |
| Supported Baud Rates: | Auto Baud (Factory Default) 9600, 19200, 38400, 57600, 76800, 115200 (Field Selectable) |
| Parity (Modbus RTU): | None/Even/Odd = Field Selectable |
| Stop Bits (Modbus RTU): | 1 or 2 = Field Selectable |
| Databits (Modbus RTU): | 8 |
| Maximum Distance: | 4000 ft (1219 m) |
| End of Line Termination Resistance: | 120 Ohms Termination Resistance (Field Selectable) |
| Tri-Color Status LED: | Connection Status |
| Connections Wire Size: | Screw Terminal Blocks 16 AWG (1.31 mm ²) to 22 AWG (0.33 mm ²) |
| Transmitter Operating Temperature Range: | -40 to 176°F (-40 to 80°C) |
| Storage Temperature Range: | -40 to 185°F (-40 to 85°C) |
| Operating Humidity Range: | 10 to 95% RH, non-condensing |
| RH Sensing Tube Diameter: | Aluminum 1.125" (28.58 mm) |
| Temperature Sensing Tube Diameter: | Polycarbonate / ASA with UV Protectant 0.86" (21.85 mm) |
| Enclosure Material UL Flammability Rating: | Polycarbonate / ASA with UV Protectant UL94-V0 |
| Enclosure Temperature Rating: | -40 to 190°F (-40 to 88°C) |
| Product Dimensions (L x W x D): | 7.00" (177.8 mm) x 5.00" (127 mm) x 3.00" (76.2 mm) |
| Product Weights: | 0.72 lbs. (0.33 kg) |
| Agency Approvals: | BTL Certified, CE, RoHS2, WEEE, China RoHS |





STANDARD ORDERING

Model # Example: **BN2130-O** -OR- **146528**

| Model # | Item # | Description |
|-----------------|--------|---|
| BN2110-O | 146540 | BACnet™ MS/TP, Modbus RTU, Temperature, Outside, Euro Enclosure |
| BN2120-O | 146543 | BACnet™ MS/TP, Modbus RTU, Relative Humidity Sensor, Outside, Euro Enclosure |
| BN2130-O | 146528 | BACnet™ MS/TP, Modbus RTU, Relative Humidity and Temperature, Outside, Euro Enclosure |



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IMMERSION-NO WELL, DUCT

BACnet™ MS/TP | Modbus RTU Immersion, Duct

The BN Series Duct and Immersion networked temperature sensors are a cost effective, single point native BACnet™ or Modbus sensing solution designed to reduce the need for additional input modules or building management controllers when a limited number of input points are available. The BN series offers both BACnet™ and Modbus protocols in one device, providing great flexibility with various systems. The BTL Certification provides confidence that these sensors may be used in any new or retrofit installation using a BACnet™ MS/TP controller with third party BACnet™ devices. These sensors incorporate a conformally coated printed circuit

board for long-term reliability. The ABS enclosure features an easy open latch for easy access to the wiring and internal dip switches for quick setup and installation. Please contact ACI for more information regarding the BN Series communicating sensors.

Applications: Supply / Return / Discharge / Mixed Duct Air Temperature Sensing, Chilled Water / Hot Water / Hydronic Heating Systems, Air / Gas Temperatures, Chillers, Boilers, Hot Water Heaters & Refrigeration Systems

The ACI BN Series BACnet™ sensors are covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com

| PRODUCT SPECIFICATIONS | |
|---|---|
| Supply Voltage: | 12 to 36 VDC / 24 VAC +/- 10%, 50/60 Hz (Reverse Polarity Protected) |
| Current Consumption: | 25 mA maximum (0.67 VA) |
| Temperature Measurement Range: | -40 to 302°F (-40 to 150°C) |
| Temperature Measurement Accuracy @ 77°F (25°C): | +/- 1.0°F (+/- 0.5°C) |
| Temperature Calibration Offset: | +/- 9°F (+/- 5°C) (Field Configurable) |
| Temperature Units: | °F (Factory Default), °C, °K (Field Configurable) |
| Resolution: | +/- 0.1° +/- 0.1% |
| Temperature Update Rate: | 4 seconds |
| Communication Protocol: | BACnet™ MS/TP or Modbus RTU = Field Selectable; EIA RS-485 |
| Sensor Addresses: | 0 = Factory Default 1-127 = Field Selectable |
| Supported Baud Rates: | Auto Baud (Factory Default) 9600, 19200, 38400, 57600, 76800, 115200 (Field Selectable) |
| Parity (Modbus RTU): | None/Even/Odd = Field Selectable |
| Stop Bits (Modbus RTU): | 1 or 2 = Field Selectable |
| Databits (Modbus RTU): | 8 |
| Maximum Distance: | 4000 ft (1219 m) |
| End of Line Termination Resistance: | 120 Ohms Termination Resistance (Field Selectable) |
| Tri-Color Status LED: | Connection Status |
| Connections Wire Size: | Screw Terminal Blocks 16 AWG (1.31 mm ²) to 22 AWG (0.33 mm ²) |
| Transmitter Operating Temperature Range: | -40 to 176°F (-40 to 80°C) |
| Storage Temperature Range: | -40 to 185°F (-40 to 85°C) |
| Operating Humidity Range: | 10 to 95% RH, non-condensing |
| Probe Material Probe Diameter: | 304 Stainless Steel 0.250" (6.35mm) |
| Immersion Thermowell Thread Size: | ½" NPS Male Thread |
| Enclosure Color Material UL Flammability Rating: | Black ABS Plastic UL94-HB |
| Enclosure Temperature Rating Plenum Rating: | -22 to 194°F (-30 to 90°C) Plenum Rated |
| Foam Pad Material Flammability Rating: | Neoprene/EPDM/SBR Polymer UL94-HBF; FMVSS-302; MIL-R-6130C |
| Product Dimensions (L x W x D): | See Dimensional Drawings on Back |
| Product Weights: | See Dimensional Drawings on Back |
| Agency Approvals: | BTL Certified, CE, RoHS2, WEEE, China RoHS |





MAXIMUM VELOCITY VS THERMOWELL INSERTION LENGTH Machined Thermowell

| Straight Shank Insertion Length "U" | | | | | Stepped Shank Insertion Length "U" | |
|-------------------------------------|----------------------------|----------------------|----------------------|----------------------|------------------------------------|----------------------|
| Material: | Media Type: | 1.0" (25.4 mm) | 2.5" (63.5 mm) | 8.0" (203.2 mm) | 4.0" (101.6 mm) | 6.0" (152.4 mm) |
| 304/316 SS | Air/Gas/Steam ¹ | 349 ft/s (106.3 m/s) | 349 ft/s (106.3 m/s) | 71.9 ft/s (21.9 m/s) | 109 ft/s (33.2 m/s) | 39.5 ft/s (12.0 m/s) |
| 304/316 SS | Water | 360 ft/s (109.7 m/s) | 360 ft/s (109.7 m/s) | 71.9 ft/s (21.9 m/s) | 82.2 ft/s (25.1 m/s) | 39.5 ft/s (12.0 m/s) |

Note 1: Values are for Air/Gas/Steam and similar density media | All velocity ratings are based upon an operating temperature of 1000°F (537.8°C)

MAXIMUM PRESSURE VS TEMPERATURE RATINGS Two-Part Fabricated / Welded Thermowell

| Material: | 70°F (21.1°C) | 200°F (93.3°C) | 400°F (204.4°C) | 600°F (315.6°C) | 800°F (426.7°C) | 1000°F (537.8°C) | 1200°F (648.9°C) |
|------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| 304/316 SS | 982 PSI (67.7 Bar) | 820 PSI (56.5 Bar) | 675 PSI (46.5 Bar) | 604 PSI (41.6 Bar) | 550 PSI (37.9 Bar) | 510 PSI (35.1 Bar) | 290 PSI (20.0 Bar) |

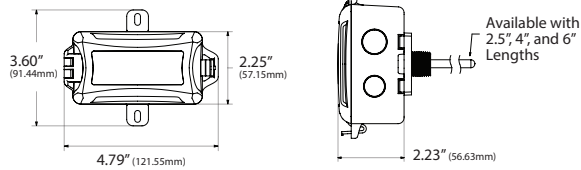
MAXIMUM FLUID VELOCITY RATINGS Two-Part Fabricated / Welded Thermowell

| Straight Shank Insertion Length "U" | | | | |
|-------------------------------------|----------------------------|---------------------|--------------------|--------------------|
| Material: | Media Type: | 2.5" (63.5 mm) | 4.0" (101.6 mm) | 6.0" (152.4 mm) |
| 304/316 SS | Air/Gas/Steam ² | 169 ft/s (51.5 m/s) | 61 ft/s (18.6 m/s) | 20 ft/s (6.1 m/s) |
| 304/316 SS | Water | 88 ft/s (26.8 m/s) | 20 ft/s (6.1 m/s) | 10 ft/s (3.05 m/s) |

Note 2: Values are for Air/Gas/Steam and similar density media

DIMENSIONAL DRAWING, WEIGHTS

Immersion-No Well [PB]

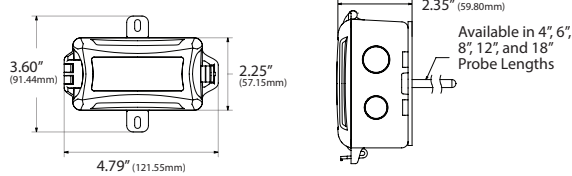


yy = Insertion Length

Immersion [PB] Weights

| ACI Model # | 2.5" (Insertion Length) | 4" (Insertion Length) | 6" (Insertion Length) |
|---------------------|-------------------------|-----------------------|-----------------------|
| A/BN21110-INW-yy-PB | 0.31 lbs. (0.141 kg) | 0.35 lbs. (0.159 kg) | 0.39 lbs. (0.178 kg) |

Duct [PB]



Duct [PB] Weights

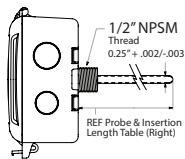
| ACI Model # | 4" (Probe Length) | 6" (Probe Length) | 8" (Insertion Length) |
|-------------------|----------------------|----------------------|-----------------------|
| A/BN21110-D-yy-PB | 0.31 lbs. (0.141 kg) | 0.32 lbs. (0.145 kg) | 0.33 lbs. (0.150 kg) |

| ACI Model # | 12" (Probe Length) | 18" (Probe Length) |
|-------------------|----------------------|----------------------|
| A/BN21110-D-yy-PB | 0.35 lbs. (0.159 kg) | 0.37 lbs. (0.168 kg) |

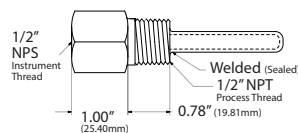
Front & Right Views

Product Weights

PROBE AND INSERTION LENGTH IMMERSION NO WELL



Pictured Below: welded two piece thermowell to show connection and depth reference. Thermowell not included with immersion no well (INW).



Probe & Insertion Length

| Probe Length | Insertion Length | ACI Part # | Thermowell Part # |
|-----------------|---------------------------------------|---------------------|-------------------|
| 4.5" (114.3 mm) | 4.31" (109.5 mm) +/- 0.13" (±3.3 mm) | A/BN1110-INW-2.5-PB | A/2.5" or A/M2.5" |
| 6" (152.4 mm) | 5.81" (147.6 mm) +/- 0.13" (±3.3 mm) | A/BN1110-INW-4-PB | A/4" or A/M4" |
| 8" (203.2 mm) | 7.81" (198.38 mm) +/- 0.13" (±3.3 mm) | A/BN1110-INW-6-PB | A/6" or A/M6" |





| STANDARD ORDERING | | |
|--------------------------|--------|--|
| Model # | Item # | Description |
| BN2110-D-4-PB | 146516 | BACnet™ MS/TP, Modbus RTU, Temperature, Duct, SS, 4", Plastic Enclosure |
| BN2110-D-6-PB | 146519 | BACnet™ MS/TP, Modbus RTU, Temperature, Duct, SS, 6", Plastic Enclosure |
| BN2110-D-8-PB | 146534 | BACnet™ MS/TP, Modbus RTU, Temperature, Duct, SS, 8", Plastic Enclosure |
| BN2110-D-12-PB | 146538 | BACnet™ MS/TP, Modbus RTU, Temperature, Duct, SS, 12", Plastic Enclosure |
| BN2110-D-18-PB | 146539 | BACnet™ MS/TP, Modbus RTU, Temperature, Duct, SS, 18", Plastic Enclosure |
| BN2110-INW-2.5-PB | 146544 | BACnet™ MS/TP, Modbus RTU, Temperature, Immersion No Well, 2.5", Plastic Enclosure |
| BN2110-INW-4-PB | 146545 | BACnet™ MS/TP, Modbus RTU, Temperature, Immersion No Well, 4", Plastic Enclosure |
| BN2110-INW-6-PB | 146546 | BACnet™ MS/TP, Modbus RTU, Temperature, Immersion No Well, 6", Plastic Enclosure |

| ACCESSORIES ORDERING | | |
|-------------------------------------|--------|--|
| Model # | Item # | Description |
| NSG HEAT TRANSFER PASTE 2OZ | 102595 | Thermal Grease, 2 oz. Tube, Silicone Free, -40 to 320°F (-40 to 160°C) |
| NSG HEAT TRANSFER PASTE 16OZ | 140574 | Thermal Grease, 16 oz. Jar, Silicone Free, -40 to 390°F (-40 to 198°C) |
| A/2.5" | 128349 | 2.5" (63.5mm) Insertion, 304 Stainless, Welded, 1/2" NPT Thermowell |
| A/4" | 128350 | 4" (101.6mm) Insertion, 304 Stainless, Welded, 1/2" NPT Thermowell |
| A/6" | 128351 | 6" (152.4mm) Insertion, 304 Stainless, Welded, 1/2" NPT Thermowell |
| A/M1" | 128337 | 1" (25.4mm) Insertion, 304 Stainless, Machined, 1/2" NPT Thermowell |
| A/M2.5" | 128338 | 2.5" (63.5mm) Insertion, 304 Stainless, Machined, 1/2" NPT Thermowell |
| A/M4" | 128343 | 4" (101.6mm) Insertion, 304 Stainless, Machined, 1/2" NPT Thermowell |
| A/M6" | 128344 | 6" (152.4mm) Insertion, 304 Stainless, Machined, 1/2" NPT Thermowell |
| A/M8" | 138725 | 8" (203.2mm) Insertion, 304 Stainless, Machined, 1/2" NPT Thermowell |
| A/M2.5"-316SS | 128352 | 2.5" (63.5mm) Insertion, 316 Stainless, Machined, 1/2" NPT Thermowell |
| A/M4"-316SS | 128353 | 4" (101.6mm) Insertion, 316 Stainless, Machined, 1/2" NPT Thermowell |
| A/M6"-316SS | 128354 | 6" (152.4mm) Insertion, 316 Stainless, Machined, 1/2" NPT Thermowell |





RIGID AVERAGING

Four Point BACnet™ MS/TP | Modbus RTU

The BN Series Rigid Averaging networked temperature sensors are a cost effective, single point native BACnet™ or Modbus sensing solution designed to reduce the need for additional input modules or building management controllers when a limited number of input points are available. The BN series offers both BACnet™ and Modbus protocols in one device, providing great flexibility with various systems. The BTL Certification provides confidence that these sensors may be used in any new or retrofit installation using a BACnet™ MS/TP controller with third party BACnet™ devices. Each sensor features a ¼" diameter stainless steel probe that is

manufactured with 4 sensing points. The rigid averaging sensors provide a better average temperature of the air inside the duct when compared to a single point duct sensor. Each of the elements is hermetically sealed to prevent any moisture intrusion and includes an integrated foam pad to properly seal the duct and dampen vibrations when installed. The benefits of using the rigid averaging sensor is that it mounts like a standard single point duct sensor but includes three additional sensing points for better control. The sensor length should be determined by the size of your duct. These sensors incorporate a conformally coated printed circuit board for long-term reliability. The ABS enclosure features an easy open latch for easy access to the wiring and internal dip switches for quick setup and installation. Please contact ACI for more information regarding the BN Series communicating sensors.

Applications: Supply / Return / Discharge / Mixed Duct Air Temperature Sensing, Chilled Water / Hot Water / Hydronic Heating Systems, Air / Gas Temperatures, Chillers, Boilers, Hot Water Heaters & Refrigeration Systems

The ACI BN Series BACnet™ sensors are covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com

PRODUCT SPECIFICATIONS

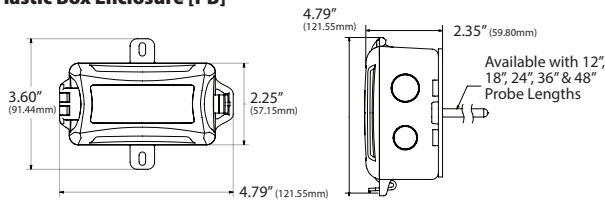
| | |
|---|---|
| Supply Voltage: | 12 to 36 VDC / 24 VAC +/- 10%, 50/60 Hz (Reverse Polarity Protected) |
| Current Consumption: | 25 mA maximum (0.67 VA) |
| Temperature Measurement Range: | -40 to 302°F (-40 to 150°C) |
| Temperature Measurement Accuracy @ 77°F (25°C): | +/- 1.0°F (+/- 0.5°C) |
| Temperature Calibration Offset: | +/- 9°F (+/- 5°C) (Field Configurable) |
| Temperature Units: | °F (Factory Default), °C, °K (Field Configurable) |
| Resolution: | +/- 0.1° +/- 0.1% |
| Temperature Update Rate: | 4 seconds |
| Communication Protocol: | BACnet™ MS/TP or Modbus RTU = Field Selectable; EIA RS-485 |
| Sensor Addresses: | 0 = Factory Default 1-127 = Field Selectable |
| Supported Baud Rates: | Auto Baud (Factory Default) 9600, 19200, 38400, 57600, 76800, 115200 (Field Selectable) |
| Parity (Modbus RTU): | None/Even/Odd = Field Selectable |
| Stop Bits (Modbus RTU): | 1 or 2 = Field Selectable |
| Databits (Modbus RTU): | 8 |
| Maximum Distance: | 4000 ft (1219 m) |
| End of Line Termination Resistance: | 120 Ohms Termination Resistance (Field Selectable) |
| Tri-Color Status LED: | Connection Status |
| Connections Wire Size: | Screw Terminal Blocks 16 AWG (1.31 mm ²) to 22 AWG (0.33 mm ²) |
| Transmitter Operating Temperature Range: | -40 to 176°F (-40 to 80°C) |
| Storage Temperature Range: | -40 to 185°F (-40 to 85°C) |
| Operating Humidity Range: | 10 to 95% RH, non-condensing |
| Probe Material: | 304 Stainless Steel |
| Probe Diameter: | 0.250" (6.35mm) |
| Enclosure Color Material UL Flammability Rating: | Black ABS Plastic UL94-HB |
| Enclosure Temperature Rating Plenum Rating: | -22 to 194°F (-30 to 90°C) Plenum Rated |
| Foam Pad Material Flammability Rating: | Neoprene/EPDM/SBR Polymer UL94-HBF; FMVSS-302; MIL-R-6130C |
| Product Dimensions (L x W x D): | See Dimensional Drawings on Back |
| Product Weights: | See Dimensional Drawings on Back |
| Agency Approvals: | BTL Certified, CE, RoHS2, WEEE, China RoHS |





DIMENSIONAL DRAWING, WEIGHTS

Plastic Box Enclosure [PB]



yy = Insertion Length

Plastic Box Enclosure [PB] Weights

| ACI Model # | 12" (Probe Length) | 18" (Probe Length) |
|-----------------|----------------------|----------------------|
| BN2110-RA-yy-PB | 0.28 lbs. (0.127 kg) | 0.30 lbs. (0.136 kg) |

| ACI Model # | 24" (Probe Length) | 36" (Probe Length) | 48" (Probe Length) |
|-----------------|----------------------|----------------------|---------------------|
| BN2110-RA-yy-PB | 0.32 lbs. (0.145 kg) | 0.36 lbs. (0.163 kg) | 0.40 lbs. (0.18 kg) |

Standard Views

Product Weights

STANDARD ORDERING

Model # Example: **BN2110-RA-12-PB** -OR- **146620**

| Model # | Item # | Description |
|------------------------|--------|---|
| BN2110-RA-12-PB | 146620 | BACnet™ MS/TP, Modbus RTU, Temperature, Rigid Probe Averaging, SS, 12", Plastic Enclosure |
| BN2110-RA-18-PB | 146621 | BACnet™ MS/TP, Modbus RTU, Temperature, Rigid Probe Averaging, SS, 18", Plastic Enclosure |
| BN2110-RA-24-PB | 146622 | BACnet™ MS/TP, Modbus RTU, Temperature, Rigid Probe Averaging, SS, 24", Plastic Enclosure |
| BN2110-RA-36-PB | 146623 | BACnet™ MS/TP, Modbus RTU, Temperature, Rigid Probe Averaging, SS, 36", Plastic Enclosure |
| BN2110-RA-48-PB | 146624 | BACnet™ MS/TP, Modbus RTU, Temperature, Rigid Probe Averaging, SS, 48", Plastic Enclosure |





ROOM

BACnet™ MS/TP | Modbus RTU Communicating

The BN Series Room Temperature and Humidity networked sensors are a cost effective, single or dual point native BACnet™ or Modbus sensing solution designed to reduce the need for additional input modules or building management controllers when a limited number of input points are available. The BN series offers both BACnet™ and Modbus protocols in one device, providing great flexibility with various systems. The BTL Certification provides confidence that these sensors may be used in any new or retrofit installation using a BACnet™ MS/TP controller

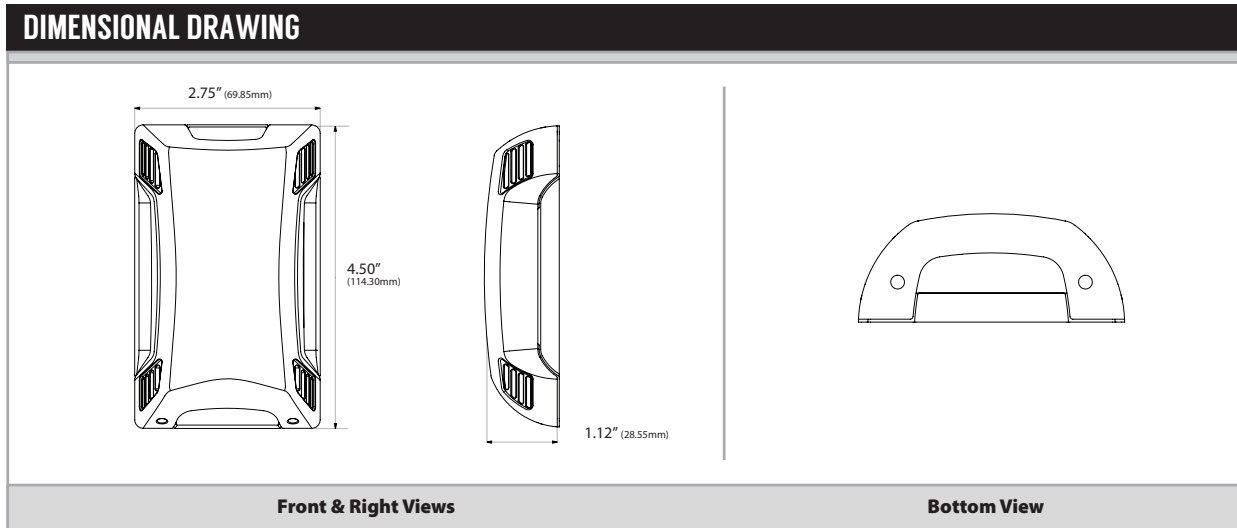
with third party BACnet™ devices. Please contact ACI for more information regarding the BN Series communicating sensors.

Applications: Ambient Air Temperature/Humidity Sensing, Office Buildings, Schools, Clean Rooms, Pharmaceutical Labs, Hospitals, Data Centers & Retail Stores

The ACI BN Series BACnet™ sensors are covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com

| PRODUCT SPECIFICATIONS | |
|--|---|
| Supply Voltage: | 12 to 36 VDC 24 VAC +/- 10%, 50/60 Hz (Reverse Polarity Protected) |
| Current Consumption: | 25 mA maximum (0.67 VA) |
| Temperature Measurement Range: | 35 to 122°F (1.5 to 50°C) |
| Temperature Measurement Accuracy @ 77°F (25°C): | +/- 1.0°F (+/- 0.5°C) |
| Temperature Calibration Offset: | +/- 9°F (+/- 5°C) (Field Configurable) |
| Temperature Units: | °F (Factory Default), °C, °K (Field Configurable) |
| RH Measurement Range: | 0 to 100% |
| RH Measurement Accuracy 77°F (25°C): | +/- 2% from 10 to 90% RH |
| RH Calibration Offset: | +/- 10% RH (Field Configurable) |
| Resolution: | +/- 0.1° +/- 0.1% |
| Temperature / RH Update Rate: | 4 seconds |
| Communication Protocol: | BACnet™ MS/TP or Modbus RTU = Field Selectable; EIA RS-485 |
| Sensor Addresses: | 0 = Factory Default 1-127 = Field Selectable |
| Supported Baud Rates: | Auto Baud (Factory Default) 9600, 19200, 38400, 57600, 76800, 115200 (Field Selectable) |
| Parity (Modbus RTU): | None/Even/Odd = Field Selectable |
| Stop Bits (Modbus RTU): | 1 or 2 = Field Selectable |
| Databits (Modbus RTU): | 8 |
| Maximum Distance: | 4000 ft (1219 m) |
| End of Line Termination Resistance: | 120 Ohms Termination Resistance (Field Selectable) |
| Tri-Color Status LED: | Connection Status |
| Connections Wire Size: | Screw Terminal Blocks 16 AWG (1.31 mm ²) to 22 AWG (0.33 mm ²) |
| Transmitter Operating Temperature Range: | 35 to 122°F (1.5 to 50°C) |
| Storage Temperature Range: | -40 to 185°F (-40 to 85°C) |
| Operating Humidity Range: | 10 to 95% RH, non-condensing |
| Enclosure Color: | White |
| Enclosure Material UL Flammability Rating: | ABS Plastic UL94-HB |
| Product Dimensions (L x W x D): | 4.50" (114.3 mm) x 2.78" (70.6 mm) x 1.40" (35.6 mm) |
| Product Weight: | 0.21 lbs. (0.095 kg) |
| Recommended Mounting Height: | 4 to 5 ft (1.2 to 1.5 m) above floor |
| Agency Approvals: | BTL Certified, CE, RoHS2, WEEE, China RoHS |





STANDARD ORDERING Model # Example: **BN2110-R2** -OR- **146511**

| Model # | Item # | Description |
|------------------|--------|---|
| BN2110-R2 | 146511 | BACnet™ MS/TP, Modbus RTU, Temperature, Room (R2) |
| BN2120-R2 | 146604 | BACnet™ MS/TP, Modbus RTU, Relative Humidity, Room (R2) |
| BN2130-R2 | 146522 | BACnet™ MS/TP, Modbus RTU, Relative Humidity and Temperature, Room (R2) |

ACCESSORIES ORDERING Model # Example: **A/LOCKING COVER** -OR- **107370**

| Model # | Item # | Description |
|----------------------------------|--------|--|
| A/MOUNTING PLATE WHITE R2 | 143369 | Plastic Wall Plate, White (R2) |
| A/LOCKING COVER | 107370 | Clear Thermostat Guard Locking Cover (Low Profile) |
| A/ROOM-FOAM-PAD | 125690 | 1/8" Foam Insulation Pad with Adhesive, 3" x 2", Black |



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STRAP ON

Non-Intrusive, BACnet™ MS/TP | Modbus RTU

The BN Series Strap On networked temperature sensors are a cost effective, single point native BACnet™ or Modbus sensing solution designed to reduce the need for additional input modules or building management controllers when a limited number of input points are available. The BN series offers both BACnet™ and Modbus protocols in one device, providing great flexibility with various systems. The BTL Certification provides confidence that these sensors may be used in any new or retrofit installation using a BACnet™ MS/TP controller with third party BACnet™ devices. The sensor is encapsulated to the back side of a 1.5" square

copper plate providing thermal conductivity between the pipe and the sensor. These sensors incorporate a conformally coated printed circuit board for long-term reliability. The ABS enclosure features an easy open latch for easy access to the wiring and internal dip switches for quick setup and installation. Please contact ACI for more information regarding the BN Series communicating sensors.

Applications: Cold Water Systems, Hot Water Systems, Hydronic Heating Systems, Chillers

The BACnet™ Strap On sensors are covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com

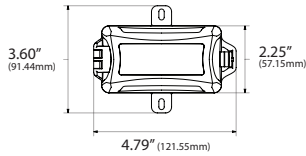
PRODUCT SPECIFICATIONS

| | |
|--|---|
| Supply Voltage: | 12 to 36 VDC / 24 VAC +/- 10%, 50/60 Hz (Reverse Polarity Protected) |
| Current Consumption: | 25 mA maximum (0.67 VA) |
| Temperature Measurement Range: | -22 to 185°F (-30 to 85°C) |
| Temperature Measurement Accuracy @ 77°F (25°C): | +/- 1.0°F (+/- 0.5°C) |
| Temperature Calibration Offset: | +/- 9°F (+/- 5°C) (Field Configurable) |
| Temperature Units: | °F (Factory Default), °C, °K (Field Configurable) |
| Resolution: | +/- 0.1° |
| Temperature / RH Update Rate: | 4 seconds |
| Communication Protocol: | BACnet™ MS/TP or Modbus RTU = Field Selectable; EIA RS-485 |
| Sensor Addresses: | 0 = Factory Default 1-127 = Field Selectable |
| Supported Baud Rates: | Auto Baud (Factory Default) 9600, 19200, 38400, 57600, 76800, 115200 (Field Selectable) |
| Parity (Modbus RTU): | None/Even/Odd = Field Selectable |
| Stop Bits (Modbus RTU): | 1 or 2 = Field Selectable |
| Databits (Modbus RTU): | 8 |
| Maximum Distance: | 4000 ft (1219 m) |
| End Of Line Termination Resistance: | 120 Ohms Termination Resistance (Field Selectable) |
| Tri-Color Status LED: | Connection Status |
| Connections Wire Size: | Screw Terminal Blocks 16 AWG (1.31 mm²) to 22 AWG (0.33 mm²) |
| Transmitter Operating Temperature Range: | -40 to 176°F (-40 to 80°C) |
| Storage Temperature Range: | -40 to 185°F (-40 to 85°C) |
| Operating Humidity Range: | 10 to 95% RH, non-condensing |
| Pipe Mount Sensor Plate Material: | Copper |
| Acceptable Pipe Size: | S: 1 1/4" (32 mm) to 4" (100 mm) S10: 2" (50 mm) to 10" (250 mm) |
| Enclosure Material UL Flammability Rating: | ABS Plastic UL94-HB |
| Enclosure Temperature Rating: | -22 to 194°F (-30 to 90°C) |
| Product Weights: | 0.43 lbs. (0.20 kg) |
| Agency Approvals: | BTL Certified, CE, RoHS2, WEEE, China RoHS |

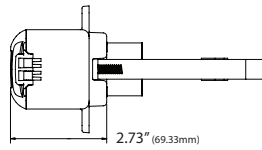




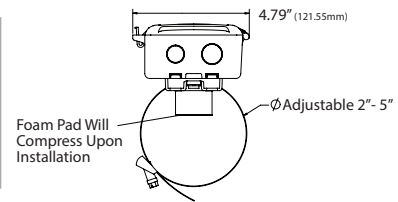
DIMENSIONAL DRAWING



Front View



Right View



Top View

STANDARD ORDERING

Model # Example: **BN2110-S-PB -OR- 146549**

| Model # | Item # | Description |
|----------------------|--------|---|
| BN2110-S-PB | 146549 | BACnet™ MS/TP, Modbus RTU, Temperature, Strap On, Plastic Enclosure |
| BN2110-S10-PB | 146550 | BACnet™ MS/TP, Modbus RTU, Temperature, Strap On, 2-10" Pipe, Plastic Enclosure |



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LIGHT LEVELS

Sensors & Transmitters



The A/LLS and A/LLS-T light level sensors and transmitters are used for applications such as turning on or off indoor or outdoor lighting based upon the amount of available light. The sensor can be mounted in a NEMA 3R rated enclosure. In darkness, the sensor has a resistance in excess of 1M ohms, versus a resistance of less than 1.5K ohms in bright light. The A/LLS-T incorporates a transmitter with the sensor to produce a non-linear 4-20 mA output signal. The A/LLS-T is calibrated for 4 mA in darkness and 20 mA in bright Light. Typically the 0-500 is used for outdoor parking lot lighting/signage applications and the 0-100 is used for indoor lighting.

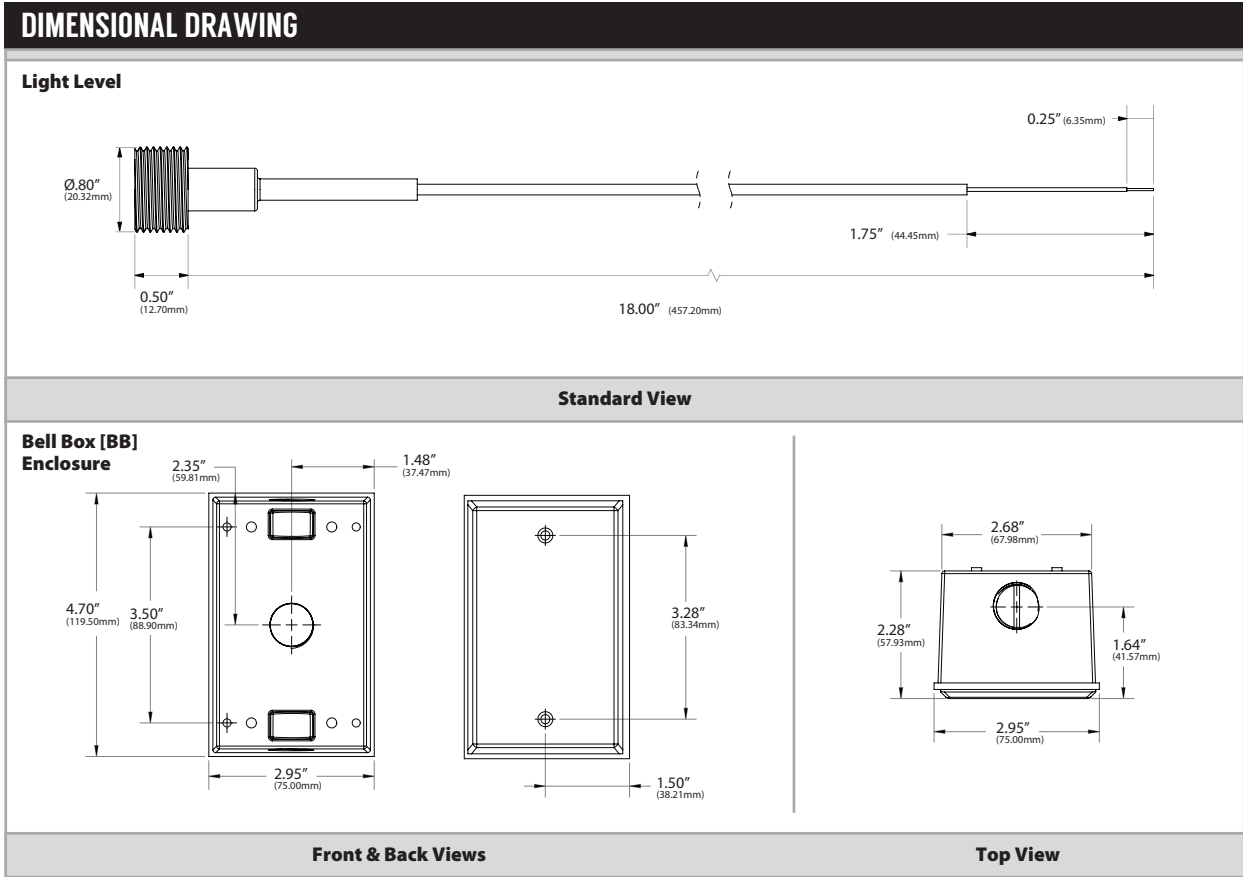
Applications: Indoor/Outdoor Lighting Control Systems & Building Automation Systems

The A/LLS & A/LLS-T are covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com

PRODUCT SPECIFICATIONS

| | |
|--|---|
| Sensor Process Thread: | 1/2" NPT |
| Sensor Housing Material: | Acrylic / Polycarbonate |
| Sensor Operating Temperature Range: | -40 to 70°C (-40 to 158°F) |
| Sensor Operating Humidity Range: | 0-95% Relative Humidity, non-condensing |
| Sensor Lead Length Cable Diameter Conductor Size: | 18" (45.7cm) 0.16" nominal (2.69 mm) 22 AWG (0.65mm) |
| Sensor Lead Wire Insulation Wire Rating: | Polyvinylchloride Unshielded Cable UL 2464 80C 300V; CSA AWM II A/B FT4 |
| Sensor Conductor Material: | Tin Plated Copper |
| Sensor Continuous Power Dissipation: | 80 mW |
| Sensor Maximum Voltage: | 100V pk |
| Sensor Response Time @ 1 Foot-Candles: | Rise (1-1/e): 78mS Fall (1/e): 8mS |
| Sensor Response Time @ Dark: | 5 Seconds |
| Sensor Resistance @ 10 Lux (@25°C): | Typical: 24K Ohms Minimum: 12K Ohms Maximum: 36K Ohms |
| Sensor Resistance @ 2 Foot-Candles (@25°C): | Typical: 12K |
| Sensor Resistance @ Dark: | Minimum: 500K |
| Transmitter Supply Voltage: | 24 to 35 VDC |
| Transmitter Input Impedance: | 150K Ohms |
| Transmitter Output Current Signal Range: | 4-20 mA (3 Wire) |
| Transmitter Maximum Load Resistance: | 500 Ohms |
| Transmitter Light Level Measurement Range: | Model Dependent: 100 foot-candles (0-100) / 500 foot-candles (0-500) |
| Transmitter Operating Temperature Range: | 35 to 131°F (1.5 to 55°C) |
| Transmitter Storage Temperature Range: | -0 to 160°F (-40 to 71°C) |
| Transmitter Operating Relative Humidity Range: | 5 to 95% non-condensing |
| Transmitter Enclosure Specifications (Material, | Aluminum, IP32 (NEMA 3R) |
| Flammability, NEMA/IP Ratings): | |
| Transmitter Snaptrack Material: | Polyvinyl Chloride (PVC) |
| Transmitter Snaptrack Flammability Rating: | UL94 V-0 |
| Transmitter Connections Wire Size: | Screw Terminal Blocks 16 (1.31 mm ²) to 26 AWG (0.129 mm ²) |
| Transmitter Terminal Block Torque Rating: | 0.5 Nm (Minimum); 0.6 Nm (Maximum) |
| Transmitter Product Dimensions: | (L) 4.58" (116.3 mm) x (W) 2.82" (71.63 mm) x (H) 2.25" (57.15 mm) |
| Transmitter Product Weight: | "LLS": 0.054 lbs (0.025 kg) "LLS-T": 0.85 lbs (0.386 kg) |
| Transmitter Agency Approvals: | RoHS2, WEEE |

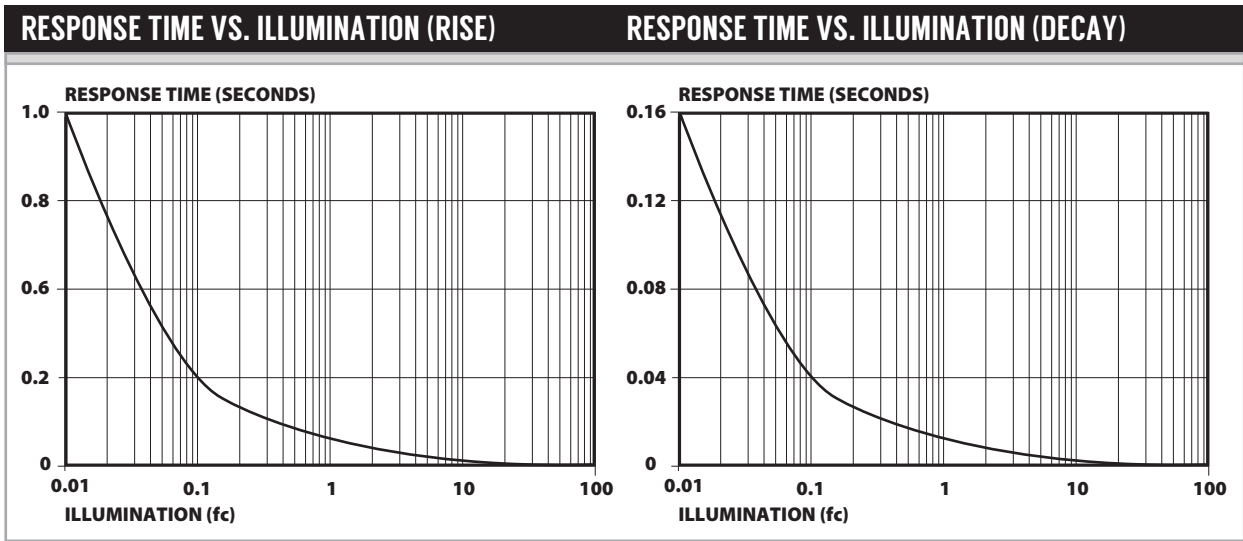




STANDARD ORDERING

Model # Example: **A/LLS** -OR- **122465**

| Model # | Item # | Description |
|-----------------------|--------|---|
| A/LLS | 122465 | Light Level Sensor |
| A/LLS-BB | 122466 | Light Level Sensor, with Bell Box |
| A/LLS-T(0-100) | 122467 | LLS-Transmitter, 0-100 foot-candles (fc), with Bell Box |
| A/LLS-T(0-500) | 122468 | LLS-Transmitter, 0-500 foot-candles (fc), with Bell Box |





PS24

Adjustable External Power Supply

The PS24 Series low voltage power supplies will accept a 24 VAC input voltage from a Class 2 transformer and convert it into an adjustable 1.5 to 26 VDC regulated output voltage. The PS24 is able to be configured in either Half or Full Wave mode by using the integral jumper shunt selection switches. An onboard potentiometer is available to allow for field adjustment of the 24 VDC factory set voltage to any voltage from 1.5 to 26 VDC. The standard unit is shipped in a standard snap track mounting configuration to allow for easy mounting inside of your electrical panel or piece of equipment.

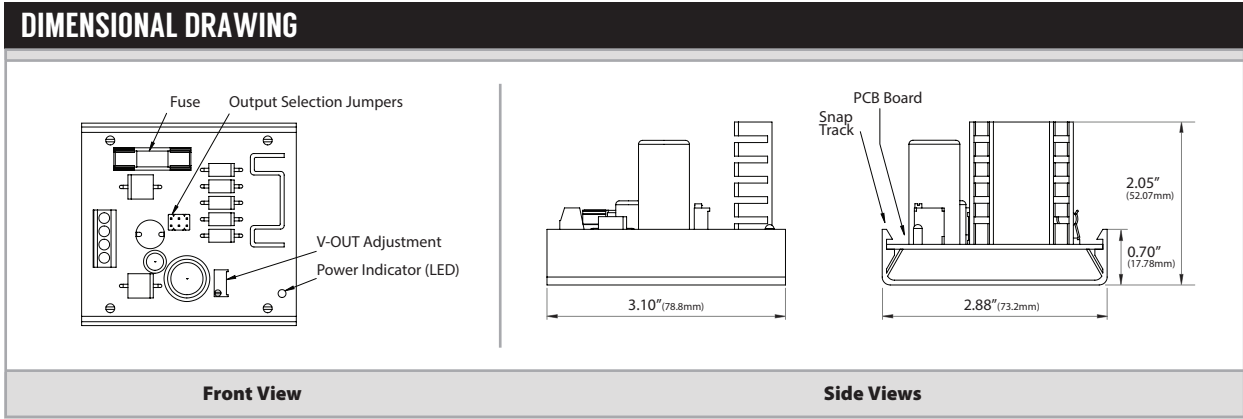
In applications where a Pilot Duty or remote relay is required, the A/DO008 transorb can be placed across the coil of the relay to snub electrical spikes when the relays are de-energized. An external transorb may not be required if the relay and PS24 power supply is mounted within the same control panel.

Applications: DC Power Supply, Transducer Supply, Test Bench Supply, Analog Signal Simulator, DC Power Regulation from Control Transformer

The ACI PS24 is covered by ACI's Two (2) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

| PRODUCT SPECIFICATIONS | |
|---|---|
| Input Voltage: | 22 to 26 VAC, 50/60 Hz (Class 2 Transformer w/ 24 VAC Secondary) or 30 to 36 VDC |
| VA Requirements: | 1.5 VA minimum (No Load); Additional VA required must be determined by load size |
| Rectification: | Half-Wave (Default) or Full Wave (Jumper Selectable) |
| Output Voltage: | Factory set at 24 VDC; Adjustable from +1.5 to 26 VDC |
| Output Current: | See Figure #1 graphs for Output Current vs Ambient Operating Temperature |
| Overload Protection: | Internal Current Limiting Thermal Protection |
| Ground Loop Protection: | Fused, 3.15A/250 VAC, 5 x 20 mm, fast acting (Littelfuse 02173.15 MXP or equivalent) |
| Status Indication: | Red LED Indicates power on status |
| Operating Temperature Range: | 32 to 158°F (0 to 70°C) |
| Operating Humidity Range: | 5 to 95%, non-condensing |
| Storage Temperature Range: | 50 to 95°F (10 to 35°C) |
| Storage Humidity Range: | 30 to 60% |
| Connections Wire Size: | Screw Terminal Blocks 14 (1.31 mm ²) to 22 AWG (0.129 mm ²) |
| Terminal Block Torque Rating: | 4 lb-in (0.5 Nm) maximum |
| Snap Track Material Flammability Rating: | Polyvinyl Chloride (PVC) UL94 V-0 |
| Product Dimensions (L x W x H): | 3.10" (78.8 mm) x 2.88" (73.2 mm) x 2.05" (52.1 mm) |
| Product Weight: | 0.14 lbs. (0.064 kg) |
| Agency Approvals: | CE, RoHS2, WEEE |





STANDARD ORDERING

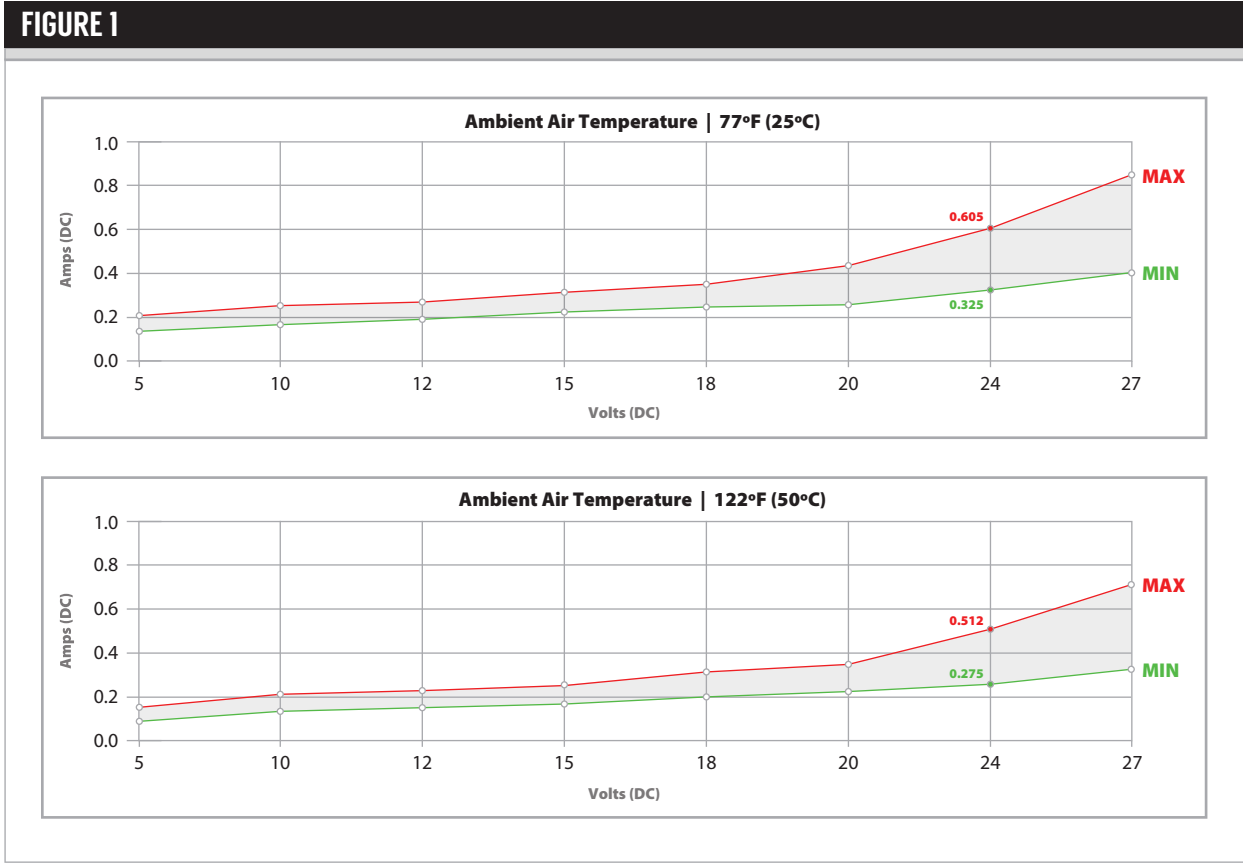
Model # Example: A/PS24-24V-S -OR- 144322

| Model # | Item # | Description |
|--------------|--------|-------------------------------|
| A/PS24-24V-S | 144322 | 24VDC Power Supply_Snap Track |

ACCESSORIES ORDERING

Model # Example: A/DO008 -OR- 142583

| Model # | Item # | Description |
|------------------|--------|--|
| A/DO008 | 142583 | Transient Voltage Suppressor, Bi-directional, 56 VAC/DC, 1500W |
| A/DRC 3.1 X 2.88 | 145395 | Snap Track to DIN Rail Adapter |



Note: The output current was tested at the ambient temperature and voltages provided in Figure 1



FREEZE STATS

Manual & Automatic with Relay(s)

The A-FLS Series Low Temperature Cutout Thermostat, otherwise known as a "Freeze Stats" are designed with a vapor charged capillary sensing element for use in equipment that requires low-temperature cutout protection. The purpose of the A-FLS Series freeze stats are to protect heating and cooling coils from freezing or to be used in any other equipment where temperature stratification may occur. All A-FLS series devices are 4 Wire, two circuit devices that can be used to shut down your system upon the air temperature reaching the low temperature limit as well as to simultaneously switch on a local indicator or remote alarm when

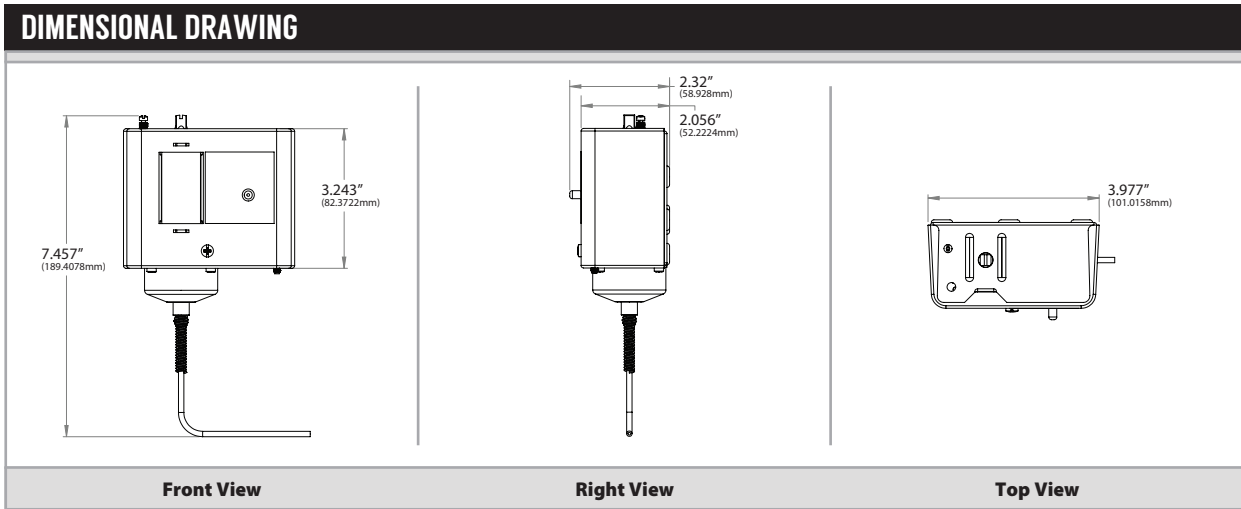
used with your building management system or controller. The A-FLS Freeze Stats or low limit switches are available in four standard lengths with either Automatic or Manual Resets based upon the system design requirements. A NEMA 1 rated metal enclosure comes standard with a 1/2" conduit knockout included for all line voltage connections. An optional mounting bracket and plenum rated nylon capillary mounting clips are available and must be ordered separately as listed on the back of this data sheet.

Applications: Protect Heating and Cooling Coils, Low Temperature Limit Switch in applications where temperature stratification may occur

The A-FLS Series Freeze Stats are covered by ACI's Two (2) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

| PRODUCT SPECIFICATIONS | |
|--|---|
| Thermostat Type: | Self-contained, electromechanical |
| Sensing Element: | Vapor Pressure |
| Sensing Media: | Temperature in air |
| Adjustable Trip Point Range: | 15°F to 55°F (-9°C to 13°C); Factory set with Stop at 35°F(1.7°C) |
| Trip Point Screw Location: | Slotted adjustment screw top of unit |
| Reset Options: | Manual and Automatic Resets available (See Ordering Grid back of data sheet) |
| Switching Differential (Auto Reset Only): | Approximately 5°F (2.8°C), Non-adjustable |
| Contact Style: | 4 Wires, 2 Circuits (Two simultaneously switching contacts (Circuits)) |
| Contact Action: | Line to M2 (Main): Open on Temperature Drop Line to M1 (Auxiliary/Alarm): Close on Temperature Drop |
| Contact Ratings: | See Electrical Ratings Table on back of data sheet |
| Wire Connections: | Screw Terminals; Copper wire only rated to 90°C (194°F) minimum |
| Sensing Response: | To lowest temperature sensed along any 14 to 16" (35.6 to 40.6 cm) length of sensing element |
| Sensing Capillary Material: | Copper |
| Sensing Capillary Length: | See Ordering Grid on Back of Data Sheet |
| Sensing Capillary Diameter: | 0.125" (3.18 mm) |
| Enclosure NEMA Rating: | NEMA 1 (IP10) |
| Enclosure Material: | Steel, galvanized |
| Enclosure Color Finish: | Black Baked Enamel |
| Conduit Entry: | 1/2" conduit knockout |
| Operating Temperature Range: | 0 to 140°F (-18 to 60°C) |
| Storage Temperature Range: | -40 to 158°F (-40 to 70°C) |
| Sensing Capillary Overrun Temperature: | 400°F (204.4°C) maximum |
| Operating / Storage Humidity Range: | 0 to 95% RH, non-condensing |
| Product Weight: | A-FLS-06-x: A-FLS-10-x: A-FLS-20-x: 2.31 lbs. (1.046 kg) A-FLS-50-x: |
| Product Dimensions (L x W x H): | A-FLS06-x, A-FLS-10-x, A-FLS-20-x: 8.125" (20.64 cm) x 6.375" (16.19 cm) x 2.625" (6.67 cm) A-FLS-50-x: 10.125" (25.72 cm) x 3.375" (16.19 cm) x 5.500" (13.97 cm) |
| Agency Approvals: | UL File # SA516 UL 873 CSA File # LR948 C22.2 No. 24-199 C-Tick # ACN 002 968 103 RoHS Compliant |





ELECTRICAL RATINGS

| POLE NUMBER | LINE-M2 (MAIN) | | | | LINE-M1 (AUXILIARY) | | | |
|--------------------------------|---|-------------|-------------|-------------|---|-------------|-------------|-------------|
| | 120V | 208V | 240V | 277V | 120V | 208V | 240V | 277V |
| Motor Ratings (VAC) | 120V | 208V | 240V | 277V | 120V | 208V | 240V | 277V |
| AC Full Load Amp | 16.0 | 9.2 | 8.0 | --- | 6.0 | 3.3 | 3.0 | --- |
| AC Locked Rotor Amp | 96.0 | 55.2 | 48.0 | --- | 36.0 | 19.8 | 18.0 | --- |
| AC Non-Inductive Amp | 16.0 | 9.2 | 8.0 | 7.2 | 6.0 | 6.0 | 6.0 | 6.0 |
| Pilot Duty - Both Poles | 125 VA, 120 to 600 VAC and 57.5 VA, 120 to 300 VDC | | | | 125 VA, 120 to 600 VAC and 57.5 VA, 120 to 300 VDC | | | |

STANDARD ORDERING

Model # Example: **A/FLS-06-A** -OR- **145354**

| Model # | Item # | Description | Capillary Length Feet (m) | Reset Style |
|-------------------|--------|--|---------------------------|-------------|
| A-FLS-06-A | 146808 | Freeze Stat_4 wires 2 circuits_Auto_6ft | 6' (1.83m) | Automatic |
| A-FLS-06-M | 146809 | Freeze Stat_4 wires 2 circuits_Man_6ft | 6' (1.83m) | Manual |
| A-FLS-10-A | 146810 | Freeze Stat_4 wires 2 circuits_Auto_10ft | 10' (3.05m) | Automatic |
| A-FLS-10-M | 146811 | Freeze Stat_4 wires 2 circuits_Man_10ft | 10' (3.05m) | Manual |
| A-FLS-20-A | 146812 | Freeze Stat_4 wires 2 circuits_Auto_20ft | 20' (6.10m) | Automatic |
| A-FLS-20-M | 146813 | Freeze Stat_4 wires 2 circuits_Man_20ft | 20' (6.10m) | Manual |
| A-FLS-50-A | 146814 | Freeze Stat_4 wires 2 circuits_Auto_50ft | 50' (15.24m) | Automatic |
| A-FLS-50-M | 146815 | Freeze Stat_4 wires 2 circuits_Man_50ft | 50' (15.24m) | Manual |

ACCESSORIES ORDERING

Model # Example: **UNIVERSAL CLIP 50** -OR- **145430**

| Model # | Item # | Description |
|--------------------------|--------|--|
| FLS MTG BKT | 145434 | FLS Series Mounting Bracket |
| UNIVERSAL CLIP 6 | 145421 | Universal Mounting Clip (Quantity 6) |
| UNIVERSAL CLIP 50 | 145430 | Universal Mounting Clip (Quantity: 50) |





FREEZE STATS

Manual & Automatic with Relay(s)

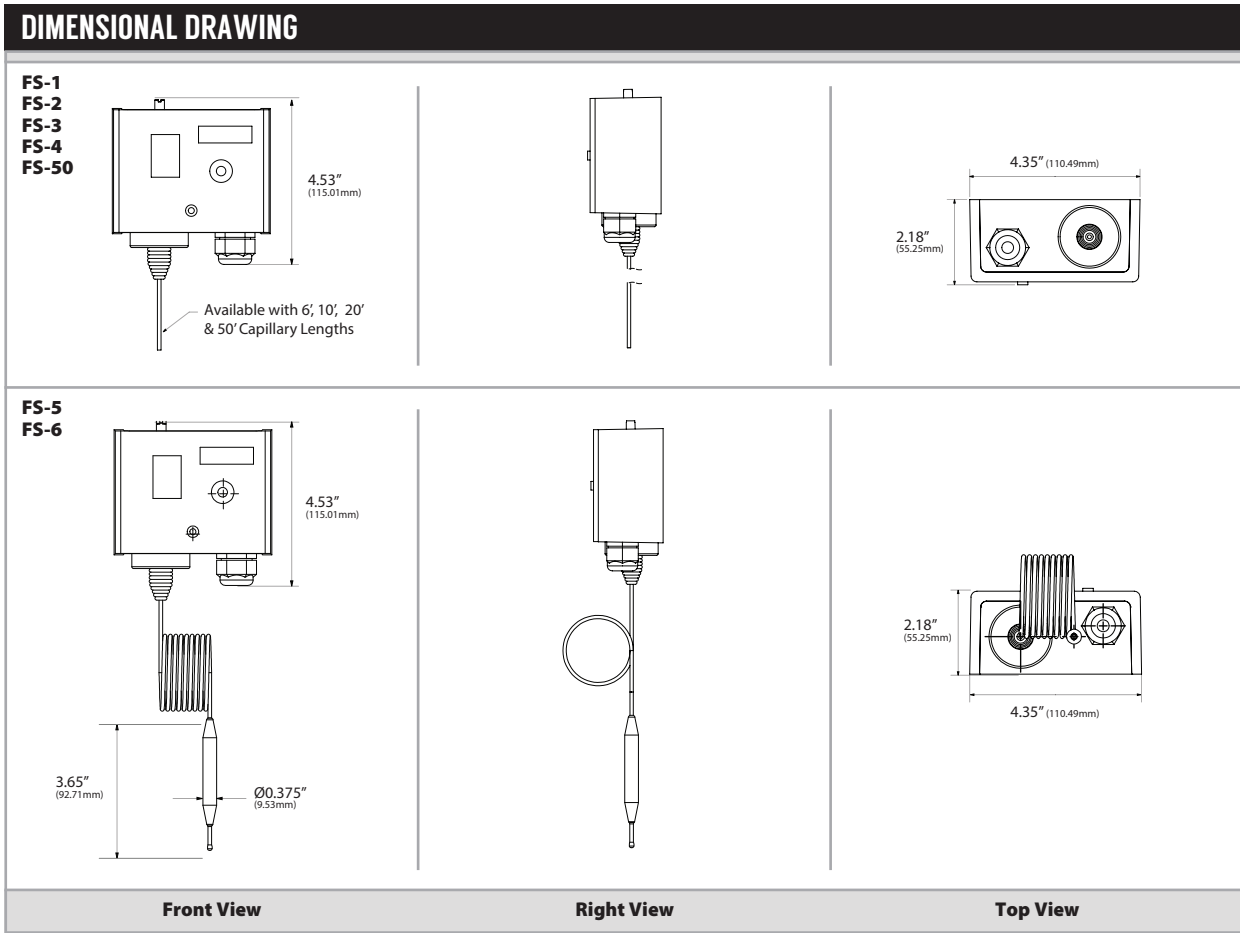
The FS Series are low limit controllers, also known as "Freeze Stats". These devices were designed for use on HVAC equipment that require low-temperature cutout protection to prevent cooling coils from freezing. They should be mounted between the heating and cooling coils on the supply side of the fan unit and respond to the lowest temperature sensed along any one foot section of the sensing element. The FS Series has manual and automatic reset versions, as well as, models that feature one or two sets of SPDT contacts. Numerous capillary lengths are also available.

The ACI Freeze Stat is covered by ACI's Two (2) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, www.workaci.com.

PRODUCT SPECIFICATIONS

| | |
|--|--|
| Thermostat Type: | Self-contained, electromechanical |
| Sensing Element: | Vapor-filled capillary |
| Sensing Media: | Temperature in air |
| Sensing Temperature Operating Range: | 14°F to 54°F (-10°C to 12°C) |
| Sensing Capillary Overload Temperature: | 392°F (200°C), maximum 60 minutes |
| Sensing Response: | To lowest temperature sensed by any 1 ft section of the capillary element |
| Sensing Capillary Material: | Copper |
| Sensing Capillary Installation: | Duct and across coil mounted |
| Sensing Capillary Length: | See Ordering Grid on Back of Data Sheet |
| Sensing Capillary Diameter: | Ø0.08 in. (2 mm) (6' Length models have a larger bulb at the end) |
| Type of Control: | ON/OFF, low-level single-stage or cut-out control, with One (1) microswitch output |
| Low-Level Setpoint (Factory Set): | At 39°F (4°C), and safety-lock secured |
| Low-Level Setpoint Visual Range: | 14°F to 54°F |
| Low-Level Setpoint Adjustment: | Over full operating range, via screwdriver slot |
| Contact Form: | Form 1C (SPDT Contact) |
| # of Relays: | See Ordering Grid on Back of Data Sheet |
| Maximum Contact Switching Voltage: | 250 VAC |
| Maximum Contact Switching Current: | 15 (8) A |
| Switching Differential: | 1.8°F (1°K), auto- or manual reset |
| Enclosure Operating Temperature Range: | 14°F to 131°F (-10°C to 55°C) |
| Operating Humidity Range: | 0 to 95% RH, non-condensing |
| Storage Temperature Range: | 14°F to 158°F (-10°C to 70°C) |
| Enclosure Base Material: | Steel, galvanized |
| Enclosure Cover Material: | ABS, fire retardant |
| Enclosure Color: | Silver / Light Gray |
| Enclosure NEMA Rating: | NEMA 1 (IP40) |
| Cable Entry: | One (1) M20 compression fitting, removable, hole fits 1/2 in. conduit connector |
| Wire Connections: | Terminal with wire-retaining screws |
| Maximum Wire Size: | 14 AWG (2.5 mm ²) |
| Agency Approvals: | CE |
| Product Weight: | 1.6 lbs (0.7 kg) |
| Enclosure Product Dimensions (L x W x H): | 4.1" (105 mm) x 3.3" (83 mm) x 2.1" (53 mm) |





STANDARD ORDERING

Model # Example: **FS-50A** -OR- **142962**

| Model # | Item # | Capillary Length | # of Relays | Contact Form | Reset |
|---------------|--------|------------------|-------------|------------------------|--------|
| FS-1 | 102482 | 20' (6m) | 1 | Form 1C (SPDT Contact) | Manual |
| FS-1A | 102483 | 20' (6m) | 1 | Form 1C (SPDT Contact) | Auto |
| FS-2 | 102484 | 20' (6m) | 2 | Form 1C (SPDT Contact) | Manual |
| FS-2A | 105904 | 20' (6m) | 2 | Form 1C (SPDT Contact) | Auto |
| FS-3 | 106291 | 10' (3m) | 1 | Form 1C (SPDT Contact) | Manual |
| FS-3A | 106292 | 10' (3m) | 1 | Form 1C (SPDT Contact) | Auto |
| FS-4 | 106293 | 10' (3m) | 2 | Form 1C (SPDT Contact) | Manual |
| FS-4A | 106294 | 10' (3m) | 2 | Form 1C (SPDT Contact) | Auto |
| FS-5 | 106295 | 6' (1.8m) | 1 | Form 1C (SPDT Contact) | Manual |
| FS-5A | 106296 | 6' (1.8m) | 1 | Form 1C (SPDT Contact) | Auto |
| FS-6 | 106297 | 6' (1.8m) | 2 | Form 1C (SPDT Contact) | Manual |
| FS-6A | 106298 | 6' (1.8m) | 2 | Form 1C (SPDT Contact) | Auto |
| FS-50 | 142963 | 50' (16m) | 2 | Form 1C (SPDT Contact) | Manual |
| FS-50A | 142962 | 50' (16m) | 2 | Form 1C (SPDT Contact) | Auto |

ACCESSORIES ORDERING

Model # Example: **UNIVERSAL CLIP 50** -OR- **145430**

| Model # | Item # | Description |
|--------------------------|--------|--|
| UNIVERSAL CLIP 6 | 145421 | Universal Mounting Clip (Quantity 6) |
| UNIVERSAL CLIP 50 | 145430 | Universal Mounting Clip (Quantity: 50) |





SMOKE DETECTOR

SL-2000



The SL-2000 series duct smoke detectors will provide early detection of smoke and products of combustion present in the air moving through HVAC ducts in any commercial, industrial, or residential application. These devices are designed for the prevention of smoke re-circulation by the air handling systems, fans, and blowers. The SL-2000 is designed and built to meet all local requirements, as well as the NFPA regulations, regarding duct smoke detectors. Output terminals are provided for remote accessories such as horns, strobes, remote status indicators, and test/reset key switches or pushbuttons. Air sampling is accomplished via two tubes that protrude into the duct. An exhaust tube with a standard length of 7" is supplied in the installation kit with the unit. Once the duct size is

determined, a sampling tube should be ordered. Three standard sizes including a 1', 2.5', 5', and 10' lengths can be ordered and cut to the correct size of the duct. The SL-2000 provides two sets of 10A form "C" and one set of a 2A form "A" alarm contacts, along with one set of 10A form "C" trouble contacts for monitoring head removal and supply voltage failure.

The ACI remote accessories are designed to be used with the ACI Duct Smoke detectors to provide audible and visual indication as well as remote test/reset functions. These devices mount to a standard single or double gang electrical backbox. Remote accessories are usually required by the AHJ (Inspector) for installation. If a duct smoke detector is not wired to a fire system or a remote test station, when the unit goes into alarm, the end user would have to climb up to the duct to manually reset the unit. ACI offers two series of remote accessories, The MS Series and the MSR-50R Series.

Applications: Smoke Detection in HVAC Ducts in Commercial, Industrial & Residential Applications

The SL-2000 Series is covered by ACI's Two (2) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's web site, workaci.com.

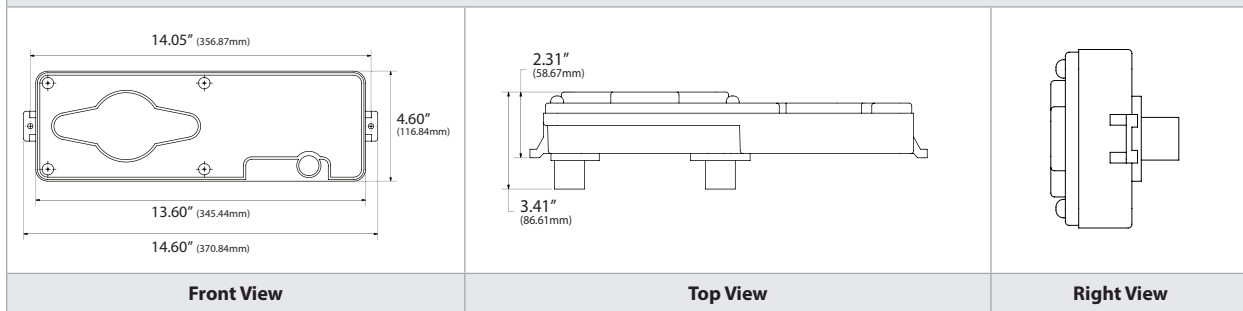
PRODUCT SPECIFICATIONS

| | |
|---|--|
| Supply Voltage: | 24 VAC/VDC, 115 VAC, 230 VAC |
| Maximum Operating Current (Standby): | 24 VDC: 14 mA 24 VAC: 55 mA 115 VAC: 22 mA 230 VAC: 12 mA |
| Maximum Operating Current (Alarm): | 24 VDC: 68 mA 24 VAC: 190 mA 115 VAC: 32 mA 230 VAC: 18 mA |
| Alarm Relay Contacts: | Resistive Load: 2 sets form "C" rated at 10 Amps @ 115 VAC Resistive Load: 1 set form "A" rated at 2 Amps |
| Trouble Relay Contacts: | Resistive Load: 1 set form "C" rated at 10 Amps @ 115 VAC |
| Detection Head Type: | Photoelectric |
| Air Velocity: | 100 to 4,000 ft / minute |
| Wiring Connections: | Screw Terminal Blocks |
| Conductor Size: | Solid or Stranded: #12 to #22 AWG |
| Operating Temperature (SL-2000-N): | 32°F to 158°F (0°C to 70°C) |
| Operating Temperature (SL-2000-P): | 32°F to 140°F (0°C to 60°C) |
| Maximum Operating Humidity Range: | 85 ±5 % RH (@32 ±2°C; 86 ±3.6°F) Non-Condensing / Non-Freezing |
| Enclosure Material: | Grey plastic backbox, clear plastic cover (Makrolon 94V-0) |
| NEMA Rating: | NEMA 1 |
| Hardware Included: | 7" exhaust tube, sampling tube end cap, mounting template, test magnet, & mounting hardware |
| Enclosure Product Dimensions: | (L) 13.5" (342.9 mm) x (W) 4.5" (114.3 mm) x (H) 2.25" (57.15 mm) |
| Product Weight: | 2.5 lbs (1.13 kg) |
| Agency Approvals: | UL & CUL Listed (UL268A, UROX, UROX7) File # S2829 CSFM Listed (3240-1004:105) MEA Accepted (73-92-E; VOL. 27) |





DIMENSIONAL DRAWING



STANDARD ORDERING

| Model # | Item # | Description |
|-----------|--------|--|
| SL-2000-P | 105792 | Smoke Detector, Multi-Application, Photoelectric |

SAMPLING TUBE ORDERING

| Model # | Item # | Description |
|-----------|--------|---|
| FAST TUBE | 131201 | Package of (3) 24" Sections Sectional sampling tube, quickly assembled to length & UL |
| STN-1.0 | 111653 | Sampling Tube for 12" or less duct width |
| STN-2.5 | 105793 | Sampling Tube for 6" to 2.5' duct width |
| STN-5.0 | 105794 | Sampling Tube for 2.5' to 5.0' duct width |
| STN-10.0 | 105795 | Sampling Tube for 5.0' to 10.0' duct width |

Note: Sampling Tubes are required and should cover 80% of duct width.

ACCESSORIES ORDERING

| Model # | Item # | Description |
|-------------------|--------|---|
| WP-2000 ENCLOSURE | 106505 | Weatherproof Enclosure, NEMA type 3R |
| 55000-328APO | 131873 | Replacement Photoelectric Detector Head |
| TG-2000 | 128407 | Aerosol Test Gas |

ACCESSORIES ORDERING

| Model # | Item # | Description |
|----------------|--------|---|
| MSR-50RKA/W | 146753 | Remote with Key, Sounder, White Double Gang Plate |
| MSR-50RKAV/W/C | 146754 | Remote with Key, Strobe, Sounder, White Double Gang Plate |
| MS-KA/R | 111733 | Remote with Key, LED for Alarm, Single Gang Plate |



SMOKE DETECTOR

SM-501

The SM-501 series duct smoke detectors will provide early detection of smoke and products of combustion present in the air moving through a duct in any commercial, industrial, or residential application. These devices are designed for the prevention of smoke re-circulation by the air handling systems, fans, and blowers. The SM-501 is designed and built to meet all local requirements, as well as the NFPA regulations regarding duct smoke detectors. Output terminals are provided for remote accessories such as horns, strobes, remote status indicators, and test/reset key switches or pushbuttons. Air sampling is accomplished via two tubes that protrude into the duct. An exhaust tube with a standard length of 7" is supplied in the installation kit with the unit. Once the duct size is

determined, a sampling tube must be ordered. Four standard sizes including a 1', 2.5', 5', and 10' lengths can be ordered and cut to the correct size of the duct. The SM-501 provides (2) sets of 10A Form "C" alarm contacts, along with (1) set of 10A Form "C" trouble contacts for monitoring head removal and supply voltage failure. The green pilot and red alarm indicators provided on the front of the SM-501 signal the operating status of the device. A manual test/reset switch is located next to the LED indicators.

The ACI remote accessories are designed to be used with the ACI Duct Smoke detectors to provide audible and visual indication as well as remote test/reset functions. These devices mount to a standard single or double gang electrical backbox. Remote accessories are usually required by the AHJ (Inspector) for installation. If a duct smoke detector is not wired to a fire system or a remote test station, when the unit goes into alarm, the end user would have to climb up to the duct to manually reset the unit. ACI offers two series of remote accessories, The MS Series and the MSR-50R Series.

Applications: Smoke Detection in HVAC Ducts in Commercial, Industrial & Residential Applications

The SM-501 Series is covered by ACI's Two (2) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's web site, workaci.com.

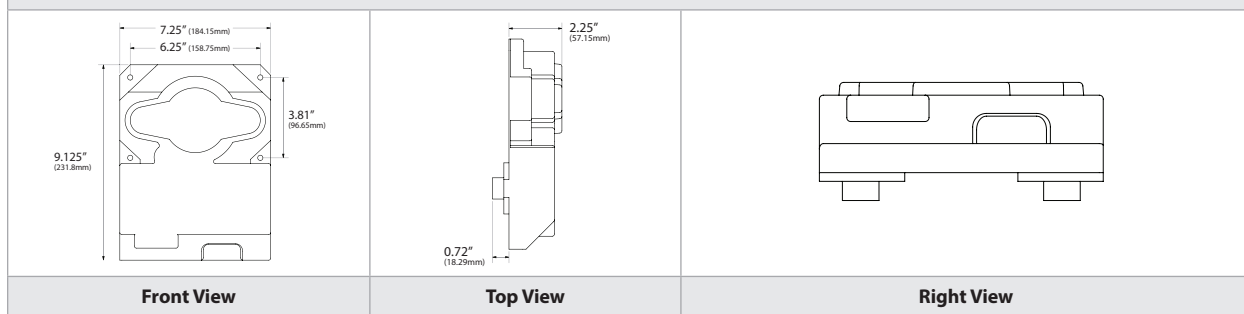
PRODUCT SPECIFICATIONS

| | |
|---|---|
| Supply Voltage: | 24 VAC/VDC, 115 VAC, 230 VAC |
| Maximum Operating Current (Standby): | 24 VDC: 15 mA 24 VAC: 35 mA 115 VAC: 25 mA 230 VAC: 12 mA |
| Maximum Operating Current (Alarm): | 24 VDC: 56 mA 24 VAC: 74 mA 115 VAC: 32 mA 230 VAC: 16 mA |
| Contact Form: | Form 1C (SPDT Contact) |
| Maximum Contact Switching Voltage: | 115 VAC |
| Maximum Contact Switching Current: | 10 Amps (Resistive) |
| Alarm Relays: | Two (2) |
| Trouble Relays: | One (1) |
| Detection Head Type: | Photoelectric |
| Air Velocity: | 500 to 4,000 ft/minute |
| Wiring Connections: | Screw Terminal Blocks |
| Conductor Size: | Solid or Stranded: #12 to #22 AWG |
| Operating Temperature (SM-501-P): | 32°F to 140°F (0°C to 60°C) |
| Maximum Operating Humidity Range: | 85 ±5 % RH (@32 ±2°C; 86 ±3.6°F) Non-Condensing / Non-Freezing |
| Enclosure Material: | 18 ga. Steel backbox, clear plastic cover (Makrolon 94V-0) |
| Enclosure Base Finish: | Grey |
| NEMA Rating: | NEMA 1 |
| Hardware Included: | 7" exhaust tube, sampling tube end cap, mounting template & mounting hardware |
| Enclosure Product Dimensions: | (L) 9.125" (231.8 mm) x (W) 7.25" (184.15 mm) x (H) 2.25" (57.15 mm) |
| Product Weight: | 3.5 lbs (1.59 kg) |
| Agency Approvals: | UL & CUL Listed (UL268A, UROX, UROX7), File # S2829 CSFM Listed (3240-1004:108) MEA Accepted (73-92-E; VOL. 26) |





DIMENSIONAL DRAWING



STANDARD ORDERING

| Model # | Item # | Description |
|----------|--------|---|
| SM-501-P | 102955 | Smoke Detector, Square Ducts, Photoelectric |

SAMPLING TUBE ORDERING

| Model # | Item # | Description |
|-----------|--------|---|
| FAST TUBE | 131201 | Package of (3) 24" Sections Sectional sampling tube, quickly assembled to length & UL |
| STS-2.5 | 102961 | Sampling Tube for 6" to 2.5' duct width |
| STS-5.0 | 102962 | Sampling Tube for 2.5' to 5.0' duct width |
| STS-10.0 | 102960 | Sampling Tube for 5.0' to 10.0' duct width |

Note: Sampling Tubes are required and should cover 80% of duct width.

ACCESSORIES ORDERING

| Model # | Item # | Description |
|--------------|--------|---|
| 55000-328APO | 131873 | Replacement Photoelectric Detector Head |
| TG-1000 | 144246 | Aerosol Test Gas |

ACCESSORIES ORDERING

| Model # | Item # | Description |
|----------------|--------|---|
| MSR-50RKA/W | 146753 | Remote with Key, Sounder, White Double Gang Plate |
| MSR-50RKAV/W/C | 146754 | Remote with Key, Strobe, Sounder, White Double Gang Plate |
| MS-KA/R | 111733 | Remote with Key, LED for Alarm, Single Gang Plate |



SMOKE DETECTOR

RT-3000



The RT-3000 is designed to be an installer and servicer friendly product line. It significantly reduces the total cost of ownership versus other comparable products. It offers a host of "No-Tools Required" features, as well as a multi-application performance level unmatched in the industry. Duct smoke detectors are designed to prevent the recirculation of smoke in areas by air handling system's fans and blowers. The RT-3000 is designed and built to meet all local requirements, as well as the NFPA regulations, regarding duct smoke detectors. Output terminals are provided for remote accessories such as horns, strobes, remote status indicators, and test/reset key switches or pushbuttons. Air sampling is accomplished via two tubes that protrude into the duct. An exhaust tube with a standard length of 7" is supplied in the installation kit with the unit. Once the duct size

is determined, a sampling tube should be ordered. Three standard sizes including a 2.5', 5', and 10' lengths can be ordered and cut to the correct size of the duct. The weathertight NEMA 4X rated corrosion resistant enclosure coupled with extended temperature listings allow installation in the widest possible range of indoor/outdoor environments. The RT-3000 can be installed in both horizontal or vertical configurations to match installation preferences.

The ACI remote accessories are designed to be used with the ACI Duct Smoke detectors to provide audible and visual indication as well as remote test/reset functions. These devices mount to a standard single or double gang electrical backbox. Remote accessories are usually required by the AHJ (Inspector) for installation. If a duct smoke detector is not wired to a fire system or a remote test station, when the unit goes into alarm, the end user would have to climb up to the duct to manually reset the unit. ACI offers two series of remote accessories, The MS Series and the MSR-50R Series.

Applications: Smoke Detection in HVAC Ducts in Commercial, Industrial & Residential Applications

The RT-3000 Series is covered by ACI's Two (2) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's web site, workaci.com.

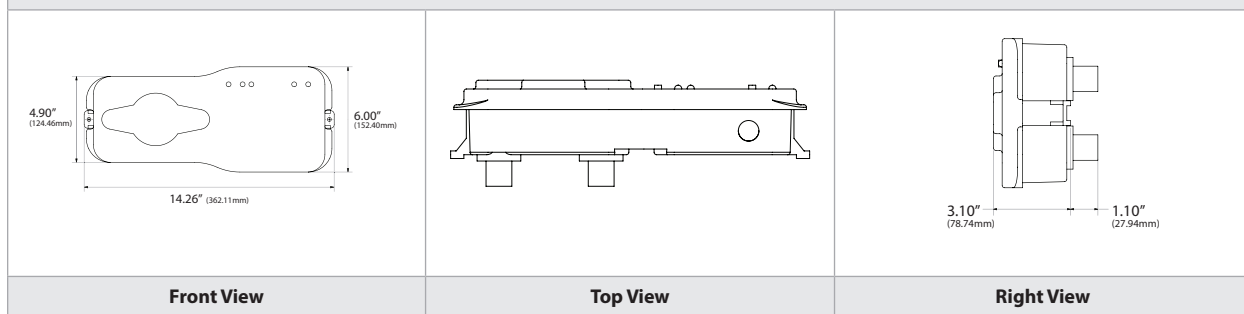
PRODUCT SPECIFICATIONS

| | |
|---|---|
| Supply Voltage: | 24 VAC/VDC, 115 VAC, 230 VAC |
| Maximum Operating Current (Standby): | 24 VDC: 45 mA 24 VAC: 122.6 mA 115 VAC: 31 mA 230 VAC: 17 mA |
| Maximum Operating Current (Alarm): | 24 VDC: 100 mA 24 VAC: 251 mA 115 VAC: 50 mA 230 VAC: 29 mA |
| Alarm Relay Contacts: | Resistive Load: 2 sets form "C" rated at 10 Amps @ 125 VAC Resistive Load: 1 set form "A" rated at 1 Amps @ 30 VDC |
| Trouble Relay Contacts: | Resistive Load: 1 set form "C" rated at 10 Amps @ 125 VAC Resistive Load: 1 set form "B" rated at 7 Amps |
| Detection Head Type: | Photoelectric |
| Air Velocity: | 100 to 4,000 ft / minute |
| Wiring Connections: | Screw Terminal Blocks |
| Conductor Size: | Solid or Stranded: #14 to #24 AWG |
| Operating Temperature (RT-3000-N): | -4°F to 158°F (-20°C to 70°C) |
| Operating Temperature (RT-3000-P): | -4°F to 140°F (-20°C to 60°C) |
| Operating Humidity Range: | 10% to 93% RH (@32°C) Non-Condensing / Non-Freezing |
| Enclosure Material: | Grey plastic backbox, white plastic cover (Makrolon 94V-0) |
| NEMA Rating: | NEMA 4X |
| Hardware Included: | 7" exhaust tube, FAST Tube sectional sampling tube starter, sampling tube end cap, mounting template, test magnet, and mounting hardware included |
| Enclosure Product Dimensions: | (L) 13.5" (342.9 mm) x (W) 5.5" (134.8 mm) x (H) 2.25" (57.15 mm) |
| Product Weight: | 3.5 lbs (1.59 kg) |
| Agency Approvals: | UL Listed (UL268A, UROX) File # S2829, CSFM Listed (3240-1004:121) |





DIMENSIONAL DRAWING



STANDARD ORDERING

| Model # | Item # | Description |
|-----------|--------|---|
| RT-3000-P | 128328 | Smoke Detector, Multi-Application, NEMA 4X Enclosure, Photoelectric |

SAMPLING TUBE ORDERING

| Model # | Item # | Description |
|-----------|--------|---|
| FAST TUBE | 131201 | Package of (3) 24" Sections Sectional sampling tube, quickly assembled to length & UL |
| STN-1.0 | 111653 | Sampling Tube for 12" or less duct width |
| STN-2.5 | 105793 | Sampling Tube for 6" to 2.5' duct width |
| STN-5.0 | 105794 | Sampling Tube for 2.5' to 5.0' duct width |
| STN-10.0 | 105795 | Sampling Tube for 5.0' to 10.0' duct width |

Note: Sampling Tubes are required and should cover 80% of duct width.

ACCESSORIES ORDERING

| Model # | Item # | Description |
|--------------|--------|---|
| 55000-328APO | 131873 | Replacement Photoelectric Detector Head |
| TG-2000 | 128407 | Aerosol Test Gas |

ACCESSORIES ORDERING

| Model # | Item # | Description |
|----------------|--------|--|
| MSR-50RK/R | 146751 | Remote with Key Test/Reset, Red Single Gang Plate |
| MSR-50RKA/R | 146752 | Remote with Key, Sounder, Red Double Gang Plate |
| MSR-50RKA/W | 146753 | Remote with Key, Sounder, White Double Gang Plate |
| MSR-50RKAV/W/C | 146754 | Remote with Key, Strobe, Sounder, White Double Gang Plate |
| MS-RH/KA/P/R | 109256 | Remote with Horn, Key, LEDs for Alarm and Pilot, Double Gang Plate |
| MS-KA/R | 111733 | Remote with Key, LED for Alarm, Single Gang Plate |
| MS-RH/P/A | 128336 | Remote with Horn, LEDs for Alarm & Pilot, Single Gang Plate |



Single Gang



MS SERIES

Remote Accessories For Duct Smoke Detectors

The MS Series remote accessories are designed to be used with Duct Smoke Detectors and other monitoring devices to provide audible and visual indication as well as remote test/reset functions. These devices are constructed of attractive, yet durable brushed stainless steel and mount on a standard single electrical backbox. Remote accessories are usually required by the AHJ (Inspector) for installation. If a duct smoke detector is not wired to a fire system or a remote test station, when the unit goes into alarm, the end user would have to climb up to the duct to manually reset the unit.

Applications: For use with ACI Duct Smoke Detection Systems

The MS Series is covered by ACI's Two (2) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's web site, workaci.com.

PRODUCT SPECIFICATIONS

| | |
|----------------------------|---|
| Power Requirements: | Alarm LED: 15 mA @ 24 VDC Trouble LED: 15 mA @ 24 VDC Pilot LED: 15 mA @ 24 VDC |
| Wiring | LEDs: 6" / 24 AWG pigtails Switches: 6" / 22 AWG pigtails |
| Product Dimensions: | Single Gang Plate: (H) 4.50" (114.3 mm) x (W) 2.75" (69.85 mm) |
| Agency Approvals: | UL Listed for use with ACI Products and Controls duct smoke detectors including all RW-Series, SM-Series, HS-Series and SL-Series duct smoke detectors UL URRQ, URRQ7.S7425 CSFM 7300-1004:107 MEA 73-92-E VOL25 |

DIMENSIONAL DRAWING

| | | |
|------------------------|--|--|
| Single Gang | | |
| | | |

STANDARD ORDERING | HORN STROBE

| Model # | Item # | Pilot LED (Green) | Alarm LED (Red) | Push Button Test/Reset | Key Operated Test/Reset | Single Gang |
|-----------|--------|-------------------|-----------------|------------------------|-------------------------|-------------|
| MS-RA | 146791 | | • | | | • |
| MS-RA/P/R | 128330 | • | • | • | | • |
| MS-KA/R | 111733 | | • | | • | • |





MSR-50 SERIES

Remote Accessories For Duct Smoke Detectors

The MSR-50R Series remote accessories are designed for use with ACI duct smoke detectors and other monitoring devices to provide the range of functionality required by your local commercial application. Remote accessories are usually required by the AHJ (Inspector) for installation. If a duct smoke detector is not wired to a fire system or a remote test station, when the unit goes into alarm, the end user would have to climb up to the duct to manually reset the unit. The MSR-50R Series comes in two models of the controller: the MSR-50RM which provides a hidden magnet test switch and a pushbutton reset; the MSR-50RK provides a key-operated detector test and reset function.

Both versions of the MSR-50R accessory are available as either a single gang remote indicator/control, or with the addition of a single gang strobe only or enhanced sounder / LED strobe assembly. As controller only or with the added strobe only or sounder / strobe, all configurations are compatible with standard Decora style cover plates (choice of white, red or stainless steel).

The strobe assembly provides visual only indication; the sounder strobe assembly provides audible indication as well as visual indication of alarm conditions. Either option is connected to the indicator/control assembly via a provided polarized connector. For convenience, blue "SMOKE" and red "FIRE" strobe lens decals are included for both horizontal and vertical mounting. The strobe and audible buzzer features are not ADA compliant, and not intended for life safety notification or evacuation purposes (public mode). These functions are for duct smoke detector status indication only (private mode).

Applications: For use with ACI Duct Smoke Detection Systems

The MSR-50 Series is covered by ACI's Two (2) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's web site, workaci.com.

PRODUCT SPECIFICATIONS

| | |
|----------------------------|--|
| Power Requirements: | Alarm LED: 15 mA @ 24 VDC |
| | Trouble LED: 15 mA @ 24 VDC |
| | Pilot LED: 15 mA @ 24 VDC |
| | Alarm Horn: 20 mA @ 24 VDC |
| Sound Pressure: | Alarm Horn: 78 db @ 10ft |
| Wiring | LEDs/Horn: 6" / 24 AWG pigtails |
| | Switches: 6" / 22 AWG pigtails |
| Product Dimensions: | Single Gang Plate: (H) 4.50" (114.3 mm) x (W) 2.75" (69.85 mm) |
| | Double Gang Plate: (H) 4.50" (114.3 mm) x (W) 4.50" (114.3 mm) |
| Agency Approvals: | UL Listed for use with ACI Products and Controls duct smoke detectors including all RW-Series, SM-Series, HS-Series and SL-Series duct smoke detectors |
| | UL URRQ, URRQ7.57425 |
| | CSFM 7300-1004:107 |
| | MEA 73-92-E VOL25 |





| DIMENSIONAL DRAWING | | |
|---|-------------------|--------------------------|
| <p>Single Gang</p> <p>4.50" (114.30mm)</p> <p>2.75" (69.85mm)</p> | | <p>.22" (5.59mm)</p> |
| <p>Double Gang</p> <p>4.50" (114.30mm)</p> <p>4.50" (114.30mm)</p> | | <p>.22" (5.59mm)</p> |
| Front View | Right View | Top View |

| STANDARD ORDERING HORN STROBE | | |
|---------------------------------|--------|---|
| Model # | Item # | Description |
| MSR-50RK/W | 144981 | Remote with Key, Test/Reset, White Single Gang Plate |
| MSR-50RM/W | ---- | Remote with Magnet Test, White Single Gang Plate |
| MSR-50RKA/W | 146753 | Remote with Key, Sounder, White Double Gang Plate |
| MSR-50RKAV/W/C | 146754 | Remote with Key, Strobe, Sounder, White Double Gang Plate |



LD310

Single Zone Leak Detection Controller

Applications

- Ideal for smaller contained areas like air conditioner condensate pans.
- Frequently used in facilities with pumps, chillers, boilers, and water control valves.

Key Features

- Monitor up to 300 feet of sensing cable and spot detectors
- Lightweight, compact design
- Plug and play installation
- Adjustable leak alarm sensitivity
- Local audible and visible alarm annunciation
- Integrate into a larger system via leak and fault relay outputs



Reliable Leak Detection In A Compact Package

ACI's most cost effective controller, the LD310 is easy to install and provides reliable leak detection as either a stand-alone device or integrated into a larger BMS platform.

What Sets ACI's LD310 Apart?

- **Zone leak detection** system alarms when water comes into contact with the attached sensing cable or spot detector. It is the right fit for spaces where sensing cables and spot detectors are visible so leaks can easily be located.
- **A supervised system**, the controller continuously monitors the cable for leaks, breaks, and disconnects and sends an alarm notification when one is detected.
- **Local alarm annunciation.** Onboard audible and visible alarms notify users of leaks and faults in real time.
- **Patented leak detection technology.** Our cables dry and reset quickly so they're ready to detect the next issue.

| Product Codes | |
|---|---|
| LD310 | Single zone leak detection controller with audible alarm. Includes LC-KIT for use with SC, SC-ZH, SD-Z. Requires A/PS24-5V-S. |
| LD310-M | Single zone leak detection controller with audible alarm. Includes LC-KIT-M for use with SC-C. Requires A/PS24-5V-S. |
| Technical Specifications | |
| Power | Requires an isolated power supply. 5VDC (±10%) Isolated @ 100mA max.; requires ACI's power supply A/PS24-5V-S. |
| Included Accessories | Leader cable and EOL terminator |
| Sensing Cable Cable Input Maximum Length Detection Response Time | One zone leak detection; Compatible with all ACI sensing cables and SD-Z and SD-Z1 spot detectors Requires 15ft (4.57m) leader cable and EOL (included) 300ft (91m) of sensing cable <20sec; 10sec typical |
| Relay Output | 2 Form C alarm relays (leak and fault); 1A @ 24VDC, 0.5A resistive @ 120VAC; configurable as supervised or non-supervised |
| Panel Alarm Notification Audible Alarm Visible Alarm | 85dB @ 10cm (min) Indicates cable break or leak detected Bi-color LED Normal Operation - Green Cable Fault - Flashing Orange Leak Detected - Flashing Red |
| Push Button Switch Push Once Push and Hold for 5 Seconds | Silence audible alarm Initiates system test, resets system, clears all active alarms |
| Operating Environment Temperature Humidity Altitude | 32° to 122°F (0° to 50°C) 5% to 95% RH, non-condensing 15,000ft (4,572m) max. |
| Storage Environment | -4° to 158°F (-20° to 70°C) |
| Dimensions | 4.4"L x 2.5"W x 1.5"H (11.2cmL x 6.4cmW x 3.8cmH) |
| Weight | 0.2lb (0.1kg) |
| Mounting | Free standing, zip ties, screw and keyhole – spaced 2.5" (6.4cm), junction box – 2 screws spaced 3.28" (8.3cm) |
| Certifications | CE; ETL listed: conforms to UL 61010-1, EN 61010-1; RoHS compliant |



LD1000

Single Zone Leak Detection Controller

Applications

- Facilities where the sensing cable or spot detector is exposed or leaks can easily be located
- Areas that require a more durable, robust, industrial single zone leak detection controller

Key Features

- Monitor up to 1,000 feet of sensing cable and spot detectors
- Quickly returns to normal status after sensing cable is wiped dry
- Durable NEMA 1 enclosure
- Adjustable leak alarm sensitivity
- Two relay outputs, configurable as supervised or non-supervised and as leak & fault or summary alarms



1,000 Feet of Durable, Patented Leak Detection

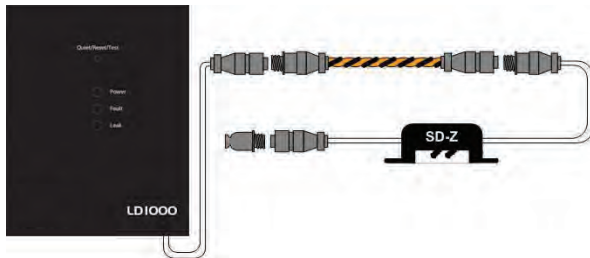
ACI's most rugged single zone controller, the LD1000 provides reliable leak detection, preventing facility and equipment damage, costly business outages, and downtime.

What Sets ACI's LD1000 Apart?

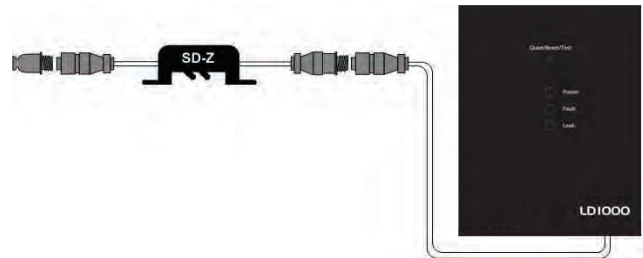
- **Zone leak detection** system alarms when water comes into contact with the attached sensing cable or spot detector. It is the right fit for spaces where sensing cables and spot detectors are visible so leaks can easily be located.
- **A supervised system**, the controller continuously monitors the cable for leaks, breaks, and disconnects and sends an alarm notification when one is detected.
- **Local alarm annunciation and Modbus integration.** Onboard audible and visible alarms and a Modbus output allow the LD1000 to notify users of leaks and faults in real time and deliver that information directly to a LD5200, LD2100, or a larger BMS system.

LD1000 - Compatible with all ACI sensing cables and the SD-Z and SD-Z1 spot detectors

| Product Codes | |
|---------------|---|
| LD1000 | Single zone leak detection controller; selectable audible. Includes LC-KIT for use with SC, SC-ZH, SD-Z, SD-Z1. AC/DC |
| LD1000-M | Single zone leak detection controller; selectable audible. Includes LC-KIT-M for use with SC-C. AC/DC |



LD1000 connected to an SD-Z and sensing cable



Connect an SD-Z1 to an LD1000

Technical Specifications

| | |
|---|---|
| Power | Requires an isolated power supply for DC operation. 24VDC (±10%) Isolated @ 300mA max.; requires ACI power supply A/PS24-24V-S. 24VAC (±10%) @ 300mA max.; requires ACI power supply LE117 or LE120. |
| Included Accessories | Leader cable and EOL terminator |
| Sensing Cable Cable Input Maximum Length Detection Response Time | Compatible with all ACI sensing cables and the SD-Z and SD-Z1 spot detectors Requires ACI LC-Kit: 15ft (4.57m) leader cable and EOL terminator (included) Up to 1,000ft (305m) of sensing cable Configurable for 10sec or 2min, ±10%, when used with conductive fluid or chemical sensing cables |
| Relay Outputs | 1 Form C Leak Relay, 1 Form C Cable Fault Relay, configurable to 2 Summary Alarm Relays; 1A @ 24VDC, 0.5A resistive @ 120VAC; configurable for supervised or non-supervised, latched or non-latched |
| Communication Port EIA-485 | 9600 or 19,200 baud; Parity none; 8 data bits, 1 stop bit |
| Protocols Modbus (EIA-485) | Slave; RTU Mode; Supports function codes 03, 04, and 06 |
| Alarm Notification Audible Alarm | 85DBA @ 2ft (0.6m); Selectable |
| Front Panel Interface LED Indicators Push Buttons | Power: 1 green (on/off); Cable Fault: 1 amber; Leak Detected: 1 red 1: Quiet, Reset, Test |
| Operating Environment Temperature Humidity Altitude | 32° to 122°F (0° to 50°C) 5% to 95% RH, non-condensing 15,000ft (4,572m) max. |
| Storage Environment | -4° to 158°F (-20° to 70°C) |
| Dimensions | 4.125"W x 5.5"H x 2.25"D (105mmW x 140mmH x 58mmD) |
| Weight | 27 oz (765g) |
| Mounting | |
| Certifications | CE; ETL listed: conforms to UL 61010-1, EN 61010-1; RoHS compliant |



SLD Spot Leak Detector

ACI's spot leak detectors recognize the presence of conductive fluids at a single point and are ideal for drip pans, floor drains, and contained spaces. ACI's leak detectors connect quickly to any controller that accepts a dry contact. The detectors can be screwed, or ram set to a floor or baseboard. Potted electronics ensure nothing within the sensor will rust or corrode, and the unit will continue to function when submerged in water. Other key features include no exposed metal sensing posts, and small footprint/enclosure. The sensor probe height can be adjusted from 0" to 0.19"(0mm – 4.8mm). Spacers can be added under the spot detector's mounting holes if additional height is required to prevent false alarms.

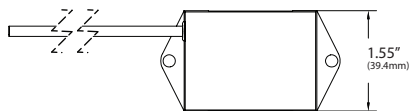
Applications: AHU Drip Pans, Floor drains, Contained Spaces

The A/SLD is covered by ACI's Two (2) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's web site, www.workaci.com.

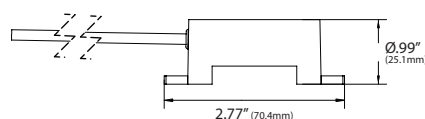
PRODUCT SPECIFICATIONS

| | |
|---|--|
| Supply Voltage: | 24 VAC or 24VDC (+/- 10%) Note: If a DC power supply is used, the A/SLD will be a latching device (once an alarm is detected, the spot detector will remain in an alarm state until power is cycled to the A/SLD) |
| Supply Current: | 0.1 Amp Maximum |
| Relay Output Type: | SPDT (Form C) Dry Contacts |
| Relay Contact Rating: | 1A @ 24VDC, 0.5A resistive @ 120VAC |
| Wire Lead Length (Non-sensing): | 14' (4.27m) |
| Operating Temperature Range: | 32 to 122F (0 to 50C) |
| Operating Relative Humidity Range: | 5% to 95% non-condensing |
| Operating Altitude: | 15,000ft (4,752m) Maximum |
| Storage Temperature: | -4 to 158F (-20 to 70C) |
| Product Dimensions(L x W x D): | 2.0"(50.8mm) x 1.55"(39.4mm) x 1.0"(25.4mm) |
| Product Weight: | 0.438 lbs (0.199 kg) |
| Agency Approvals: | CE; ETL listed: conforms to UL 61010-1, EN 61010-1; RoHS compliant |

DIMENSIONAL DRAWING



Top View



Right View

STANDARD ORDERING

Model # Example: **A/SLD** -OR- **147216**

| Model # | Item # | Description |
|--------------|--------|--|
| A/SLD | 147216 | Spot Leak Detector, Conductive Fluids, Relay Output, 24VAC/VDC |

ACCESSORIES ORDERING

Model # Example: **A/PS24-24V-S** -OR- **144322**

| Model #* | Item # | Description |
|-----------------------|--------|--|
| A/PS24-24V-S * | 144322 | 24VDC Adjustable Power Supply, Snap Track |
| LE117 | 102555 | Transformer, LE Series, PV:120 VAC, SV:24 VAC, VA:50, HUB: 1TF |
| LE120 | 102559 | Transformer, LE Series, PV:120 VAC, SV:24 VAC, VA:96, HUB: 2TF, Manual Reset |

Note*: If a DC power supply is used, the A/SLD will be a latching device (once an alarm is detected, the spot detector will remain in an alarm state until power is cycled to the A/SLD)





Applications

- Place around the perimeter of rooms
- Serpentine under raised floors
- Install inside drop ceilings
- Affix to the bottom of pipes
- Secure around floor drains and under plumbing fixtures
- Encapsulate storage tanks and cooling equipment

Key Features

- Detects any conductive fluid
- Designed to eliminate false alarms
- Fast drying; quickly resets to detect the next leak
- Plenum (CL2P) rated
- Durable yet flexible design
- Patented since 2000
- Available in standard and custom lengths with pre-installed twist-lock connectors

SC Series sensing cables are manufactured and assembled in the USA.



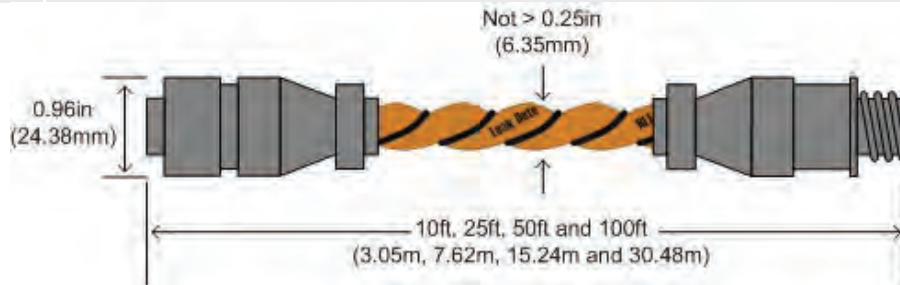
Patented Protection From Even The Smallest Leaks

ACI's sensing cable (SC) reliably detects water and other conductive fluid leaks, protecting facilities from damage and downtime.

What Sets the SC Series Sensing Cable Apart?

- **Encapsulate at-risk areas and sources of leaks.** Conductive fluid contact at any point along the length of the cable triggers an alarm condition.
- **Engineered for reliability.** Sensing wires are covered with a non-conductive polymer mesh; dirt, dust, and contact with metal will not generate false alarms.
- **Constant oversight.** Four wire construction allows the system to continually monitor the cable and identify damaged or disconnected cables.

| Product Codes | |
|-----------------------------|--|
| SC-3 | 3ft (0.91m) sensing cable; conductive fluids, pre-installed male/female connectors |
| SC-10 | 10ft (3.05m) sensing cable; conductive fluids, pre-installed male/female connectors |
| SC-17 | 17ft (5.18m) sensing cable; conductive fluids, pre-installed male/female connectors |
| SC-25 | 25ft (7.62m) sensing cable; conductive fluids, pre-installed male/female connectors |
| SC-50 | 50ft / 15.24m sensing cable; conductive fluids, pre-installed male/female connectors |
| SC-100 | 100ft / 30.48m sensing cable; conductive fluids, pre-installed male/female connectors |
| SC-CL | Custom length sensing cables are available. Contact ACI for more information. |
| SC-CL-EOL | Sensing cable; conductive fluids, custom length, pre-installed EOL. Contact ACI for more information. |
| SC-CL-L-EOL | Sensing cable; conductive fluids, custom length, pre-installed leader cable and EOL. Contact ACI for more information. |
| SC-Bulk | Bulk cable is available. Contact ACI for more information. |
| JC-10, JC-25, JC-50, JC-200 | J-clips; cable securing clips; use to secure cable every 3-4ft (1m). Available in qty of 10, 25, 50, and 200. |
| SC-T | Cable caution tags; qty 10; use to identify cable every 10ft (3m) |



Sensing Cable Detail

| Technical Specifications | |
|--|---|
| Plenum Rating | CL2P (UL) |
| Sheer Strength | >180 lbs. (>81.65kg) |
| Cut Through Resistance | >40 lbs. (>18.14kg) with .005in (0.127mm) blade |
| Abrasion Resistance | 60 cycles per UL 719 |
| Connector | 4 pin, 0.96in (24.38mm) diameter |
| Diameter of Cable | Not to exceed 0.25in (6.35mm) |
| Operating Environment Temperature Humidity Altitude | 32° to 167°F (0° to 75°C) 5% to 95% RH, non-condensing 15,000ft (4,572m) max. |
| Storage Environment | -22° to 185°F (-30° to 85°C) |
| Weight | .02lbs./ft (29.74g/m) |
| Certifications | CE; UL CL2P; RoHS Compliant; Plenum Rated; Patent No. 6,144,209 |



Facility Monitoring and Single Zone Leak Detection

Miscellaneous Devices

Applications

- Server racks
- Data cabinets and closets
- Telecommunications shelters

Key Features

- Monitors:
 - Four 1-wire sensors
 - Eight digital inputs
 - One zone of leak detection
- Plug-and-Play installation and setup
- USB powered
- Web-accessible with a clean, easy to use, mobile-friendly web interface
- Timekeeping via RTC or NTP
- Modbus output enables simple integration to a Building Management System (BMS)



Designed To Be Simple, Effective, And Efficient

This innovative, affordable product couples leak detection and facility monitoring in one plug-and-play package.

What Sets The F200 Apart?

- **1-wire and digital inputs** let you tailor the F200 to monitor your environmental needs; connect four 1-wire sensors (temp or temp/humidity) and eight digital inputs
- **Use one zone of leak detection** to supervise an SD-Z1 spot detector or up to 200 feet of our patented leak detection sensing cable and inline SD-Z spot detectors
- **A relay output** can control an external device in the event of an alarm condition
- **Multiple alarm notification configurations** including audible and visible indicators, integrated web interface, email messaging, and SNMP traps
- **Integrated Logging and Customizable Trending** - Trending data is available as a downloadable CSV file

| Product Codes | |
|---------------|---|
| F200 | Monitoring Appliance; 8DI, 4 RJ-11 inputs, Single Zone leak detection input. 12V boost converter for dry contacts, includes standard USB-A to mini-B cable, 5VDC USB wall adapter w/ type A, C G & I adapter blades |
| F200-RMB | F200 rack mount bracket; 19in/482mm; one F200-RMB can accommodate two F200 units |
| RJ11-TS | F200 temperature sensor; 25ft leader cable with RJ-11 connector |
| RJ11-THS | F200 temperature and humidity sensor; 25ft leader cable with RJ-11 connector |

| Technical Specifications | |
|---|--|
| Power | (US) 5VDC @ 500mA max.; 110/240VAC 50/60Hz; Wall adapter (Type A blade) to USB connector, with Type C, G, and I blades for international use(included) |
| Included Accessories | USB (Type A) power adapter with Type C, G, and I blades included; and USB mini B to USB A cable |
| Wired Inputs Temperature/Humidity Digital (Dry Contact) Sensing Cable Cable Input Maximum Length | 4 1-wire digital temperature or 1-wire digital temperature/humidity sensor inputs; plug-and-play; configurable alarm points 8 digital alarm points; configurable One zone leak detection, compatible with all SeaHawk sensing cables and SD-Z and SD-Z1 spot detectors 15ft (4.57m) leader cable and EOL (LC-KIT; not included), or wire one SD-Z1 directly to the F200 200ft (61m) of sensing cable |
| Relay Output | 1 Form C summary relay; 2A @ 30VDC, 0.5A @125VAC. Configurable as summary alarm output or manual operation. |
| Alarm Notification Panel Integrated Web Interface Email SNMP Traps Relay | Audible alarm, visible LED Dashboard overview with alarm indicators Up to 8 email recipients; email sent on alarm to all recipients, distribution list, or email-to-SMS Multiple community strings 1 Form C summary relay output |
| Web Interface Login Security | 8 password read only users; 8 password read/write users |
| Communication Port Ethernet | 10/100 BaseT, RJ45 connector; 500VAC RMS isolation; DHCP capable; Static IP-addressable |
| Protocols TCP/IP HTML SMTP (email) Modbus TCP/IP SNMP | ARP; DNS; UDP; DHCP Supports multiple simultaneous connections SMTP authentication; supports SSLv3 RSA:RC4-128:MD5; up to 8 recipients Modbus slave; TCP/IP transmission protocol V1; V2C MIB-2 compliant; NMS manageable with Get and Traps: V2C Get, V2C and V1 Traps |
| Timekeeping | Onboard configurable real-time clock (RTC); Network Time Protocol (NTP) capable (internet access required for NTP). |
| Logging | Logs 50 most recent alarm and return to normal events with date/time stamp. |
| Trending | Records up to 86,400 points of sensor data. Sample interval set from 10 seconds to 1 day. CSV downloadable. |
| Operating Environment Temperature Humidity Altitude | -13°F to 158°F (-25°C to 70°C) 5% to 95% RH, non-condensing 15,000ft (4,572m) max. |
| Storage Environment | -40°F to 185°F (-40°C to 85°C) |
| Dimensions | 5.63"W x 1.00"H x 2.63"D (143mmW x 25mmH x 67mmD) |
| Weight | 10.1 oz. (287g) |
| Mounting | Stand alone; keyholes included for wall mount; rack mount bracket available |
| Certifications | CE; ETL listed: conforms to UL 61010-1, EN 61010-1; certified to CSA C22.2 NO. 61010-1; RoHS compliant |





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