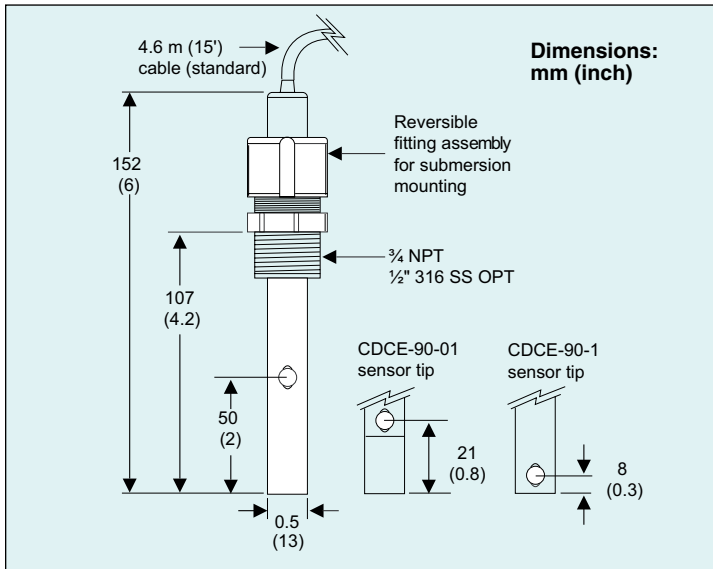




Conductivity Cells for CDCN-91, CDTX-90 and CDCN-5800 Series



CDCE-90-001, CDCE-90-01, CDCE-90-1

Cell:

CDCE-90-001: 0.01

CDCE-90-01: 0.1

CDCE-90-1: 1.0

Conductivity Range:

CDCE-90-001: 0.010 to 100 μS
(10 $\text{K}\Omega$ to 100 $\text{M}\Omega$)

CDCE-90-01: 1 to 1000 μS

CDCE-90-1: 10 to 10,000 μS

Temperature Compensation: Pt1000

Wetted Materials:

O-Rings: EPR

Insulator Material: PTFE

Electrodes: 316 SS

Standard Fitting: Polypropylene

Maximum Pressure:

6.9 bar (100 psi)

Maximum Temperature:

100°C (212°F)

Optional Fitting:

316 SS 1/2 NPT

Maximum Pressure:

13.8 bar (200 psi)

Maximum

Temperature:

120°C (248°F)



CDCE-90-10 (left),
CDCE-90-20 (right),
shown smaller
than actual size.

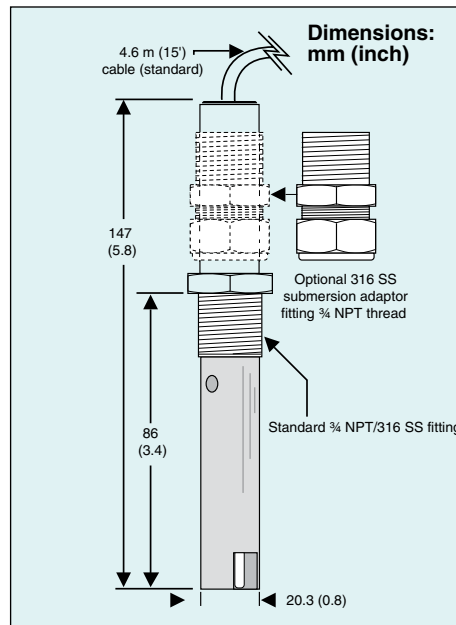


All shown
smaller than
actual size.

CDCE-90-001

CDCE-90-01

CDCE-90-1



CDCE-90-10

Cell Constant: 10.0

Conductivity Range: 100 to 200,000 μS

Temperature Compensation: Pt1000

O-Ring: EPR

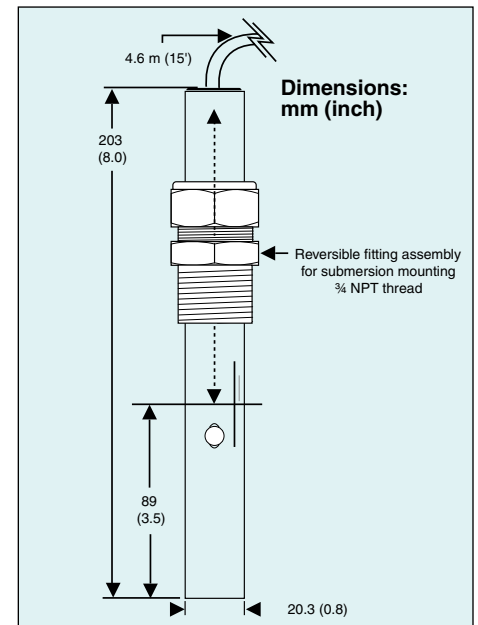
Insulator Material: CPVC

Electrodes: 316 SS

Fitting Material: 316 SS

Maximum Pressure/Temperature:

100 psig @ 95°C (203°F)



CDCE-90-20

Cell Constant: 20.0

Conductivity Range: 200 to 400,000 μS

Temperature Compensation: Pt1000

O-Ring: EPR

Insulator Material: PTFE

Electrodes: 316 SS

Fitting Material: 316 SS

Maximum Pressure/Temperature:

100 psig @ 150°C (302°F)

For Sales **1-800-82-66342**



**CDCE-90S-001, CDCE-90S-01,
CDCE-90S-1**

Cell:

- CDCE-90S-001: 0.01
- CDCE-90S-01: 0.1
- CDCE-90S-1: 1.0

Conductivity Range:

- CDCE-90S-001: 0.010 to 100 µS
(10 KΩ to 100 MΩ)
- CDCE-90S-01: 1 to 1000 µS
- CDCE-90S-1: 10 to 10,000 µS

Tri-Grip™ Sanitary Fitting Size: 1, 1½, 2"

Temperature Compensation: Pt1000

Wetted Materials:

O-Ring: EPR

Insulator Material: PTFE

Electrodes: 316 SS or titanium

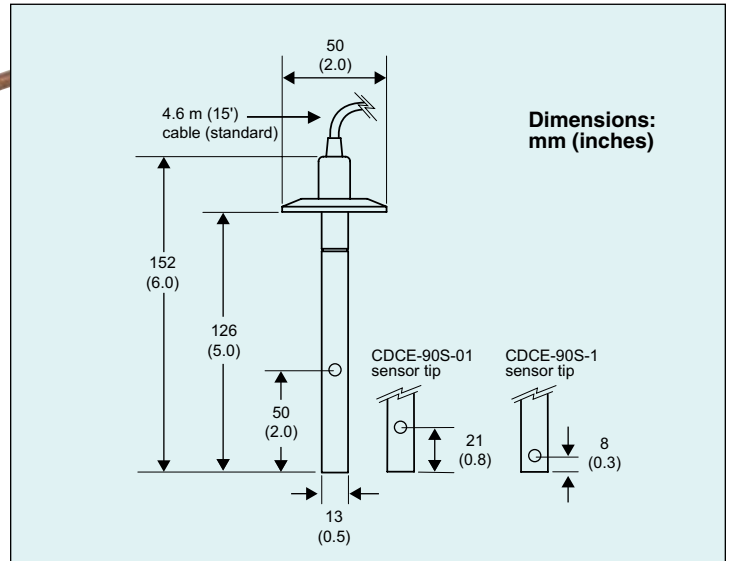
Tri-Grip™ Sanitary Fitting: 316 SS or titanium

Maximum Pressure: 6.9 bar (100 psi)

Maximum Temperature: 120°C (248°F)



CDCE-90S-001-S15,
shown smaller
than actual size.



Note: Dimension shown for 1 and 1½" Tri-Grip™ sanitary fittings.
Dimension for 2" Tri-Grip™ sanitary fitting is 64 mm (2.5")

To Order			
Model No.	Fitting	Cell Constant	Material
CDCE-90-001*	¾ NPT	0.01	316 SS
CDCE-90-01*	¾ NPT	0.1	316 SS
CDCE-90-1*	¾ NPT	1	316 SS
CDCE-90-10*	¾ NPT	10	316 SS
CDCE-90-20	¾ NPT	20	316 SS
CDCE-90S-001-S15	1.5" Tri-Grip™ sanitary	0.01	316 SS
CDCE-90S-1-S15	1.5" Tri-Grip™ sanitary	1	316 SS
CDCE-90S-001-S20	2.0" Tri-Grip™ sanitary	0.01	316 SS
CDCE-90S-01-S20	2.0" Tri-Grip™ sanitary	0.1	316 SS
CDCE-90S-1-S20	2.0" Tri-Grip™ sanitary	1	316 SS
CDCE-90S-001-T15	1.5" Tri-Grip™ sanitary	0.01	Titanium
CDCE-90S-01-T15	1.5" Tri-Grip™ sanitary	0.1	Titanium
CDCE-90S-1-T15	1.5" Tri-Grip™ sanitary	1	Titanium
CDCE-90S-001-T20	2.0" Tri-Grip™ sanitary	0.01	Titanium
CDCE-90S-01-T20	2.0" Tri-Grip™ sanitary	0.1	Titanium
CDCE-90S-1-T20	2.0" Tri-Grip™ sanitary	1	Titanium

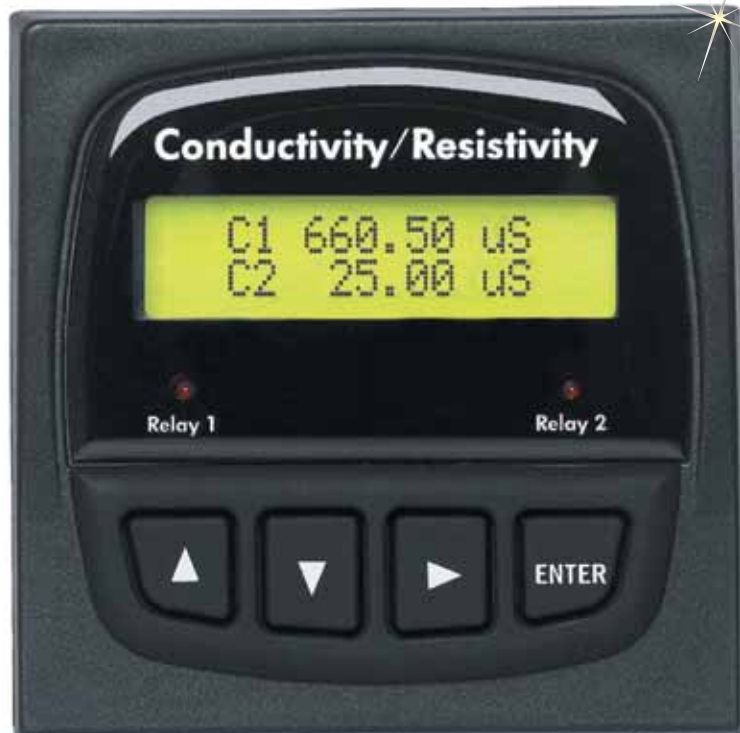
* For extended cable add "-100" to model number, consult Sales for price.

Order Online



Dual Channel Conductivity/ Resistivity Controller

CDCN-91 Series



CDCN-91, shown actual size.

Features

- ✓ 2-Channel Input
- ✓ Simultaneous Display
- ✓ AC Line-Voltage or DC Powered
- ✓ Display and/or Control: μ S, mS, PPM or PPB (TDS), $k\Omega$, $M\Omega$, % Rejection, Difference, Ratio, $^{\circ}$ C or $^{\circ}$ F
- ✓ 3 Fully Scalable
4 to 20 mA Outputs
- ✓ Up to 4 Programmable Relays
- ✓ Time Delay Relay Function
- ✓ Proportional Pulse Control Capability
- ✓ Meets USP Requirements
- ✓ Programmable Temperature Compensation
- ✓ Output Simulation for Complete System Testing
- ✓ Simple Push-Button Operation
- ✓ 1/4 DIN, NEMA 4X (IP65) Enclosure with Self-Healing Window

Application

- ✓ RO/DI System Control
- ✓ Demineralizer Regeneration and Rinse
- ✓ Scrubber, Cooling Tower and Boiler Protection
- ✓ Chemical Concentration
- ✓ Rinse Tank Water Quality
- ✓ Desalinization
- ✓ Leak Detection
- ✓ Aquatic Animal Life Support Systems
- ✓ Aquaculture
- ✓ Environmental Studies

Installation

- ✓ Front Panel provides NEMA 4X (IP65) protection
- ✓ Standard 1/4 DIN panel cutout
- ✓ 102 mm (4") mounting depth
- ✓ Optional NEMA 4X (IP65) rear cover kit with knockout ports for cable access
- ✓ 158 mm (6.3") mounting depth with optional rear cover installed

The CDCN-91 Series dual channel conductivity/resistivity controller is a two-channel input device equipped with three scalable 4 to 20 mA outputs and four programmable relays. A selector switch activates two open collector outputs in place of two of the relays for extraordinary output versatility. Dual input and advanced control capability, including percent rejection, difference and ratio calculations, together with the CDCE-91 Series conductivity sensors listed below, form the perfect measurement and control system for water treatment applications and more. Two versions are available: one accepts AC line-voltage, the other low voltage DC for power. The four-button keypad arrangement with intuitive software design is user-friendly, and the NEMA 4X (IP65) integrity of the front panel can be extended to the entire enclosure by using the optional rear cover kit.

Specifications

General

Compatible Sensors: CDCE-90 Series standard conductivity/resistivity sensors

Operating Range:

Conductivity: 0.055 to 400,000 μ S/cm
Resistivity: 10 $k\Omega$ /cm to 18.26 $M\Omega$ /cm (0.055 to 100 μ S/cm)

TDS: 0.001 to 999999 ppm or ppb (display limit)
Temperature: PT1000: -25 to 120 $^{\circ}$ C (-13 to 248 $^{\circ}$ F)

Accuracy:

Conductivity/Resistivity: \pm 2% of reading
Temperature: \pm 0.5 $^{\circ}$ C

Power Requirements:

100 to 240 Vac: \pm 10%, 50 to 60 Hz, 20 VA
11 to 24 Vdc: \pm 10% reg., 0.5A max

Display: Alphanumeric 2 x 16 LCD

Contrast: User selected, 5 levels

Update rate: 1.5 seconds

Current Outputs: (3 each) 4 to 20 mA, isolated, fully adjustable and reversible

Max Loop Impedance: 150 Ω @ 12V, 450 Ω @ 18V, 750 Ω @ 24V

Update Rate: Approx. 100 mS

Accuracy: \pm 0.03 mA @ 25 $^{\circ}$ C, 24 Vdc

Open Collector Outputs: (2 each) Isolated, 50 mA sink or source, 30 Vdc max pull-up voltage

Operational Settings: Hi, Lo, USP, Pulse, Off

Hysteresis: User adjustable
Time Delay: 0 to 6400 seconds

Maximum Pulse Rate: 400 pulses/minute

Alarm Contacts: (up to 4 each) SPDT Relays

Maximum Voltage Ratings: 5A @ 30 Vdc or 5A @ 250 Vac

Operational Settings: Hi, Lo, USP, Pulse, Off



Hysteresis: User adjustable
Time Delay: 0 to 6400 seconds
Maximum Pulse Rate:
 400 pulses/minute

Enclosure

Rating: NEMA 4X (IP65) front and back with optional NEMA 4X (IP65) rear cover kit

Materials:

Case: PBT

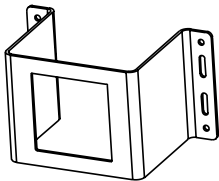
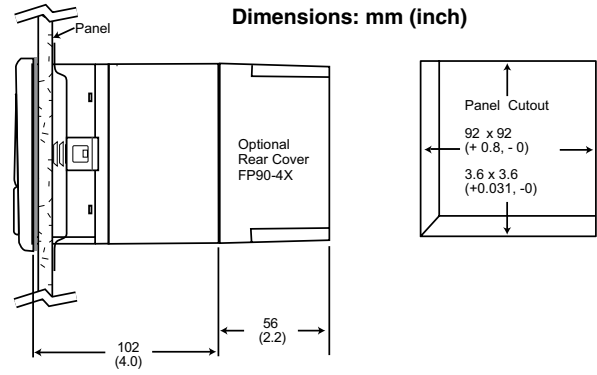
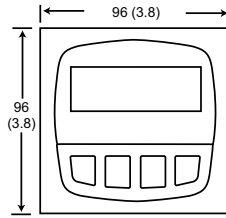
Window: Polyurethane-coated polycarbonate

Keypad: Sealed 4-key silicone rubber

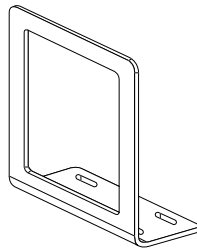
Weight:

CDCN-91AC: Approx. 581 g (20.5 oz)

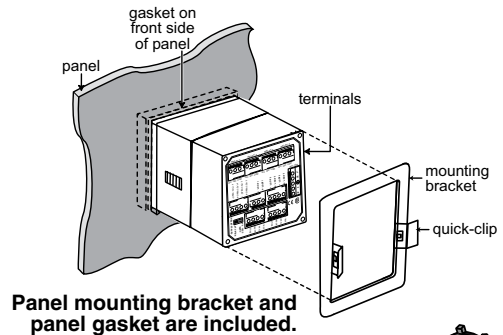
CDCN-91: Approx. 544 g (19.2 oz)



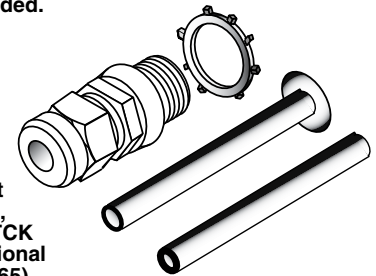
Optional heavy-duty wall mount bracket CDCN-91-WMB.



Optional surface mounting bracket FPM-5000-MB.



Panel mounting bracket and panel gasket are included.



Liquid tight connector kit 3 sets per kit, FPM-5000-LTCK Use with optional NEMA 4X (IP65) rear cover kit, FP90-4X.

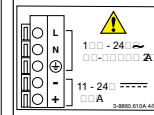
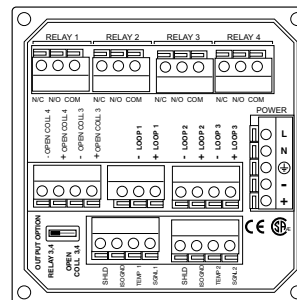
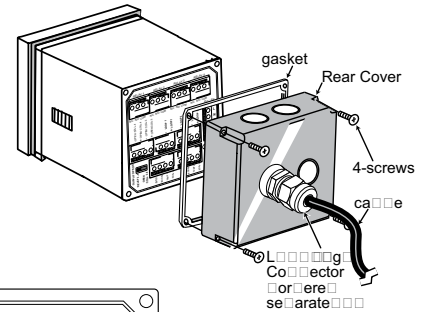
To Order	
Model No.	Description
CDCN-91	Conductivity/resistivity controller DC power
CDCN-91AC	Conductivity/resistivity controller AC/DC power

Accessories

Model No.	Description
FP90-4X	NEMA 4X (IP65) rear cover kit
FPM-5000-LTCK	Liquid-tight kit for rear cover
CDCN-91-WMB	Wall mount bracket
FPM-5000-MB	Surface mount bracket
FP90RC	RC filter kit for relays
CDCE-90-001	Conductivity cell constant = 0.01
CDCE-90-01	Conductivity cell constant = 0.1
CDCE-90-1	Conductivity cell constant = 1.0
CDCE-90-10	Conductivity cell constant = 10.0
CDCE-90-20	Conductivity cell constant = 20.0

Comes complete with mounting bracket, panel gasket and operator's manual. Additional cells available.

Ordering Example: CDCN-91 conductivity/resistivity controller DC power, with CDCE-90-1 conductivity cell constant.



Note: This label appears on the side of the instrument case

Order Online



Economical Conductivity/TDS Meter with RS232 Output

CDH221



- ✓ Economical
- ✓ Easy to Operate
- ✓ Splashproof Front
- ✓ RS232 Output Standard

The CDH221 is ideal for quality control, agricultural, water conditioning, beverage, fish hatcheries, laboratory, universities, and many other industrial applications. This microprocessor-based digital meter are rugged, portable units that can recognize and compensate for electrode offset and slope. Overload indication and data hold is standard on the CDH221.



CDH221 with conductivity probe included shown smaller than actual size.

SPECIFICATIONS	
Models	CDH221
Display	51 x 32 mm (2.00 x 1.25") LCD, 21.5 mm (0.8") digits
Measurement	Conductivity
Ranges/Resolution/Accuracy	
Conductivity	2 mS: 0.2 to 2.0 mS/0.001 mS/±(3% FS +1d) 20 mS: 2 to 20.0 mS/0.01 mS/±(3% FS +1d)
TDS	—
Temperature °C (°F)	—
Temperature Compensation °C (°F)	0 to 50 (32 to 122)
Data Output	—
Data Hold	Yes
Sampling Time	Approximately 0.4 s
Operating Temperature °C (°F)	0 to 50 (32 to 122)
Operating Humidity	Less than 80%
Memory Recall	Maximum/Minimum
Power Supply	9 V battery (included)
Dimensions (H x W x D)	200 x 68 x 30 mm (7.9 x 2.7 x 1.2")
Weight of Meter and Probe	270 g (0.6 lb)
Probe Specifications	
Probe Connections	4-pin connector
Temperature °C (°F)	0 to 60 (32 to 140) (CDE221/CDE222)
Dimensions	22 Dia. x 120 mm L with 1.06 m (3.5') cable (CDE220/CDE221)

For Sales **1-800-82-6 6 342**



To Order

Model No.	Description
CDH221	Conductivity meter with probe

Accessories

Model No.	Description
CDE221	Replacement conductivity probe for CDH221
MN1604	Replacement 9V battery
CDSA-1500	1500 μ S conductivity standard
CDSA-4500	4500 μ S conductivity standard
CDSA-1413	1413 μ S conductivity standard

Units come with 9V battery and complete operator's manual.

Ordering Examples: CDH221, conductivity meter.

Order Online

Rometec srl - www.rometec.it - info@rometec.it - Rometec srl - www.rometec.it - info@rometec.it

Over 100,000 Products Available!





Portable Conductivity/Resistivity/TDS/Salinity Meter

CDH-287-KIT



- ✓ 6 Conductivity Ranges
- ✓ 2 Resistivity Ranges
- ✓ 5 TDS Ranges
- ✓ Practical Salinity in the Range of 2 to 42.0, in Accordance with UNESCO Data
- ✓ Programmable Temperature Coefficient
- ✓ Microprocessor-Based
- ✓ Easy to Operate
- ✓ Ideal for Most Water Applications

The CDH-287 is a portable, multi-ranging conductivity meter with unsurpassed accuracy and reliability in the field. It also measures resistivity, total dissolved solids and practical salinity, making the CDH-287 the most versatile meter on the market. It comes with a glass, dip-style conductivity probe with an integral temperature sensor and cell constant of 1.0. This microprocessor-based conductivity meter features auto-ranging, programmable temperature coefficient and error diagnostics. Simply pressing the keypad switches from conductivity to TDS, resistivity or salinity units. A concentration mode allows operators to choose their own concentration units and create a specific calibration curve, by measuring up to four concentration standards and inputting the values.

To increase range accuracy, cells are also available with constants of K=0.1 and K=10. Dip cells and flow cells are available in both glass and epoxy body styles.

Specifications

Conductivity

Ranges:

0.00 to 19.99 $\mu\text{S}/\text{cm}$ or 1.999 mS/cm
 0.00 to 199.9 $\mu\text{S}/\text{cm}$ or 19.99 mS/cm
 0000 to 1999 $\mu\text{S}/\text{cm}$ or 199.9 mS/cm
 0.00 to 19.99 mS/cm or 1999 mS/m
 00.0 to 199.9 mS/cm or 19.99 mS/m
 000 to 1999 mS/cm or 199.9 mS/m

Accuracy: $\pm 0.3\%$ rdg

Temperature Compensation:

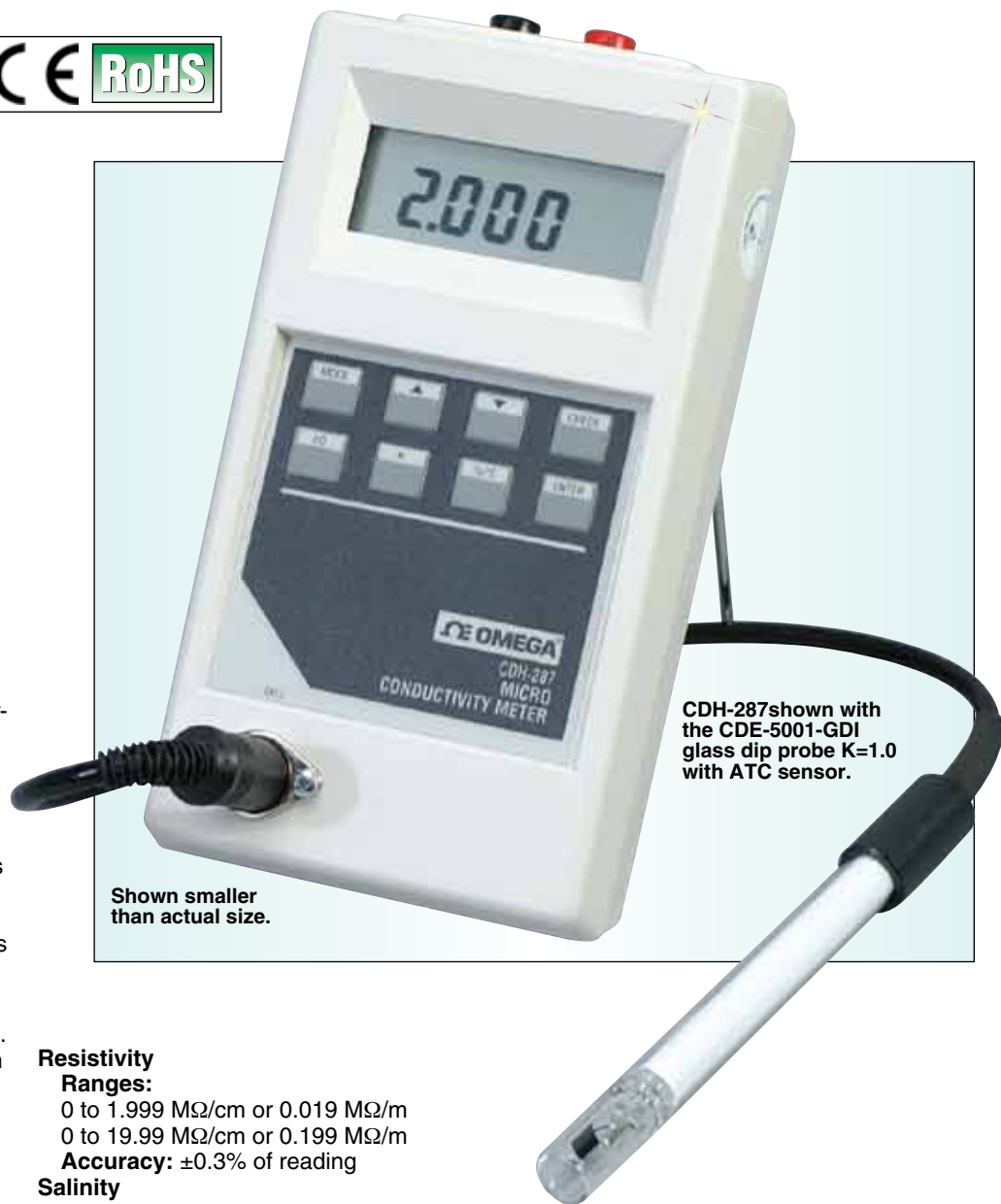
Automatic, 0 to 50°C (32 to 212°F)

Total Dissolved Solids

Ranges:

0 to 19.99 mg/L , 0 to 199.9 mg/L
 0 to 1999 mg/L , 0 to 1.999 g/L
 0 to 19.99 g/L , 0 to 132.0 g/L

Accuracy: $\pm 0.3\%$ rdg



Shown smaller than actual size.

CDH-287 shown with the CDE-5001-GDI glass dip probe K=1.0 with ATC sensor.

Resistivity

Ranges:

0 to 1.999 $\text{M}\Omega/\text{cm}$ or 0.019 $\text{M}\Omega/\text{m}$
 0 to 19.99 $\text{M}\Omega/\text{cm}$ or 0.199 $\text{M}\Omega/\text{m}$

Accuracy: $\pm 0.3\%$ of reading

Salinity

Range: 2.0 to 42.0% salinity; automatic conversion from conductivity, using temperature relationship for seawater, in accordance with UNESCO, IASPO data

Accuracy: $\pm 0.3\%$ rdg

Temperature Compensation: Automatic, -2.0 to 35°C (28.4 to 95°F)

Concentration

Range: 0 to 9999, automatic ranging, choice of units, background offset function

Calibration: 4 point straight line interpolation

Temperature

Range: -30.0 to 130.0°C (-22.0 to 266.0°F)

Accuracy: $\pm 0.3^\circ\text{C}$ (0.5°F)

General Specifications

Reference Temperature: 25°C (77°F), selectable to 20°C (68°F)

Temperature Coefficient: Preset to 2%/°C; programmable from 0 to 5%/°C

Measurement Frequency: 3000 Hz

Recorder Output: ± 200.0 mV

RS232

Display: 12.7 mm (0.5") LCD

Dimensions: 100 L x 180 W x 44 mm D (3.9 x 7.1 x 1.7")

Cable: 1.2 m (3.9')

Weight: 410 g (0.9 lb)

Power: 9V battery (included)



Shown smaller than actual size.

CDH-287 shown with the CDE-5001-GDI glass dip probe K = 1.0 with ATC sensor.

CDH-287-KIT is supplied with meter, glass dip-style conductivity probe with integral temperature sensor and cell constant of 1.0, sample bottle, calibration solution, rugged carrying case and operator's manual.

To Order	
Model No.	Description
CDH-287-KIT	Conductivity/resistivity/TDS/salinity meter, glass dip-style conductivity probe with integral temperature sensor, K = 1.0, carrying case, sample bottle, 9V battery, calibration solution
CDE-5001-GDI	Replacement conductivity probe, glass dip-style, K=1.0 with ATC, platinum plates, 12 x 130 mm (0.47 x 5.1")
CDE-5002-PD1	Polymer dip-style probe, K = 1.0 with ATC, platinum plates, 12 x 130 mm (0.47 x 5.1")
CDE-5004-ED10	Epoxy dip-style probe, K = 10 with ATC, carbon plates, 26 x 353 mm (1.0 x 13.9")
CDE-5005-GF1	Glass flow cell, K = 1.0 with ATC, platinum plates, 13 x 166 mm (0.5 x 6.5") overall length, 5 mm (0.2") tubing connections, 33 mm (1.3") cell head, 4 mL minimum volume
CDE-5008-EF10	Epoxy flow cell, K = 10 with ATC, carbon plates, 26 x 203 mm (1.0 x 8.0") with 10.5 mm (0.4") tubing connections, 353 mm (13.9") overall length, 13 mL volume
CDE-5010-ED1	Epoxy dip-style probe, K = 1 with ATC, carbon plates, 26 x 250 mm (1.0 x 9.8")
CDE-5011-ED01	Epoxy dip-style probe, K = 0.1 with ATC, carbon plates, 26 x 216 mm (1.0 x 8.5")
CDE-5012-EF1	Epoxy flow cell, K = 1.0 with ATC, carbon plates, 26 x 100 mm (1.0 x 3.9") with 10.5 mm (0.4") tubing connections, 250 mm (9.8") overall length, 26 mL volume
CDE-5013-EF01	Epoxy flow cell, K = 0.1 with ATC, carbon plates, 26 x 66 mm (1.0 x 2.6") with 10.5 mm (0.4") tubing connections, 216 mm (8.5") overall length, 12 mL volume
CDE-5014-GD01	Glass dip-style probe, K = 0.1 with ATC, platinum plates, 20 x 130 mm (0.8 x 5.1")
CDE-5019-ED1	Epoxy dip-style probe, K = 1.0 with ATC, carbon plates, 12 x 110 mm (0.5 x 4.3")
MN1604	3 Replacement 9V battery

CDH-287-KIT is supplied with meter, glass dip-style conductivity probe with integral temperature sensor and cell constant of 1.0, sample bottle, 9V battery, calibration solution, rugged carrying case and operator's manual.

Ordering Examples: CDH-287-KIT, meter and accessories, plus CDE-5008-EF10, epoxy flow cell.

CDH-287-KIT, meter and accessories, plus CDE-5011-ED01, 0.1 cell constant probe.

Cell Constant	Measuring Range	Typical Applications
0.1	>100 μ S (platinum) >200 μ S (carbon)	Pure demineralized, distilled or boiler-fed water
1.0	100 μ S to 100 mS	Surface or wastewater-diluted salt solutions, fertilizers, electroplating rinses
10	Over 100 mS	Concentrated salt solutions, sea water

Note: Carbon (Graphite) probes are easier to clean and are recommended when suspended solids are present.

Order Online



Handheld Salinity Meter

CDH45



- ✓ **Dual Display: Salinity and Temperature**
- ✓ **Salinity Range: 0.1 to 10%**
- ✓ **Automatic Temperature Compensation**
- ✓ **Average Calculation, Interval Measuring, Gram Conversion**
- ✓ **Highly Accurate Temperature Sensor**
- ✓ **Handheld, Lightweight Design**
- ✓ **Auto Power-Off Function**

The CDH45 is designed for low-concentration salinity measurement. Applications include water monitoring, seawater-prepared food solutions, breeding ponds, aquariums, and holding tanks.

Specifications

Polarity: Automatic, positive implied, negative polarity indication

Power: 3 "AAA" batteries

Low-Battery Indicator: The "⊖" is displayed

Operating Temperature: 0 to 50°C (32 to 122°F)
@ <75% RH

Storage Temperature: -20 to 60°C (-4 to 140°F)
@ 0 to 80% RH with batteries removed

Reference Conditions: 18 to 28°C, <75% RH

Dimensions: 167 H x 48 W x 24 mm D
(6.5 x 3.0 x 1.5")

Weight: 330 g (0.6 lb) with probe and batteries

Relative Salinity

Range: 0.1 to 10%

Temperature Compensation: -5 to 60°C
(23 to 140°F), automatic

Accuracy:

0 to 0.9% (±0.1)

1.0 to 1.9% (±0.2)

2.0 to 2.9% (±0.3)

3.0 to 4.9% (±0.5)

5.0 to 7.9% (±1.0)

8.0 to 10.0% (±1.5, depending on measuring technique)

Probe Cable Length: 0.8 m (34")

Probe Length: 177 mm (7.0")

Temperature

Sensor: Thermistor temperature sensor

Range: -20 to 60°C (-4 to 140°F)

Resolution: 0.1°C (0.1°F)

Accuracy:

±0.5°C (±1°F): 0 to 45°C (3 to 113°F)

±1°C (±2°F): -20 to 0°C, 45 to 60°C
(4 to 32°F, 113 to 140°F)



To Order

Model No.	Description
CDH45	Salinity meter with integral probe
MN2400	Replacement "AAA" battery (3 required)

Comes complete with 3 "AAA" batteries, probe and operator's manual.
Ordering Example: CDH45, salinity meter.



Economical pH, ORP, Conductivity and TDS Testers

CDH-5021 Series

- ✓ Economical
- ✓ Easy-to-Use
- ✓ Electrode Extends to 80 mm (3.1")

The CDH-5021, CDH-5022, PHH-5012, ORP-5041 and TDH-5031 are easy to use. These units feature a telescoping electrode which extends to 80 mm (3.1"). These kits are supplied with a carrying case, battery, screw driver, calibration solution and complete instructions.



All products shown smaller than actual size. Carrying case, battery, screw driver, calibration solution and operation instructions included.

To Order					
Model No.	CDH-5021	CDH-5022	TDH-5031	PHH-5012	ORP-5041
Range	10 to 9990 μ S/cm	0 to 999 μ S/cm	10 to 9990 ppm	0 to 14.0 pH	\pm 999 mV
Resolution	10 μ S/m	1 μ S/m	10 ppm	0.02 pH	1 mV
Accuracy	\pm 1%FS	\pm 1%FS	\pm 1%FS	\pm 0.01 pH @ 25°C	\pm 5%FS
ATC	Yes (0 to 50°C)	Yes (0 to 50°C)	Yes (0 to 50°C)	Yes (0 to 50°C)	No
Power (Battery, included)	9V	9V	9V	1.55V 3 required	9V
Size	Meter: 152 x 40 x 34 mm (6 x 1.6 x 1.3"); carrying case: 165 x 100 x 40 mm (6.5 x 3.9 x 1.6")				
Weight	120 g (4.2 oz) with battery (avg)				

Accessories	
Model No.	Description
PH-BATT-3	1.55V replacement battery for PHH-5012, requires 3
MN1604	9V replacement battery for CDH-5021, CDH-5022, TDH-5031, ORP-5041, requires 1

Comes complete with carrying case, battery, screwdriver, calibration solution and operator's manual. ORP-5041 supplied with carrying case, battery, and operator's manual
 Ordering Examples: PHH-5012, pH tester. ORP-5041, ORP tester.

Order Online



Portable pH, ORP, Conductivity, TDS, Salt and Temperature Meter

CDS107 Series



- Splashproof Cover
- Microprocessor Based
- Large LCD Display
- Stores up to Data 150 Points
- Simple to Calibrate

The CDS107 is a microprocessor based multi-purpose meter. The meter can be used as a benchtop or handheld meter to measure pH, ORP, conductivity, total dissolved solids, salt and temperature. Features include automatic temperature and altitude compensation with the ability to manually adjust the salinity compensation. Additionally the meter has auto shut-off to save battery life, a minimum/maximum function and data storage.



SPECIFICATIONS

Power: 9V battery or AC adaptor

Dimensions: 76 W x 114 L x 32 mm D (3 x 4.5 x 1.25")

Weight: 260 g (9.17 oz)

Range	pH	ORP	Temperature
	-2.00 to 16.00 pH	-1999 to -200 mV -199.9 to 499.9 mV 500 to 2000 mV	0 to 110°C
Accuracy	±0.01 + 1 digit	±2 + 1 digit	±0.2 + 1 digit
Resolution	0.01 pH	0.1/1 mV	0.1°C
Compensation	ATC: 0 to 100°C	N/A	—
Range	Conductivity	TDS	Salt
	0.0 to 199.9µS	0.0 to 131.9 ppm	0.0 to 99.9 ppm
	200 to 1999µS	132 to 1319 ppm	100 to 999 ppm
	2.00 to 19.99 mS	1.32 to 13.19 ppt	1.00 to 9.99 ppt
Accuracy	±2% FS	±2% FS	±2% FS
Resolution	0.1/1µS/0.01/0.1 mS	0.1/1 ppm/0.01/0.1 ppt	0.1/1 ppm/0.01/0.1 ppt
Compensation	ATC: 0 to 50°C	ATC: 0 to 50°C	ATC: 0 to 50°C

To Order

Model No.	Description
CDS107	Benchtop/handheld meter for pH, ORP, conductivity, TDS, salt and temperature
CDS100-PS	Replacement 120 Vac power supply
CDSB100-CDE	Replacement conductivity cell
PHE-1411	General purpose for samples requiring double junction, BNC connector
PHA-4	4.01 pH buffer solution 500 ml (1 pint) bottle
PHA-7	7.00 pH buffer solution 500 ml (1 pint) bottle
PHA-10	10.01 pH buffer solution 500 ml (1 pint) bottle
CDSA-10	10 µmho/cm conductivity solution, 1 quart
CDSA-1413	1413 µmho/cm conductivity solution, 1 quart
CDSA-1500	1500 µmho/cm conductivity solution, 1 quart
CDSA-45000	45000 µmho/cm conductivity solution, 1 quart

Comes complete with 9V batteries, AC adaptor, conductivity probe, pH probe, temperature probe, cal solutions, neck strap, carrying case and operator's manual. ORP probes sold separately.

Ordering Example: CDS107, benchtop/handheld meter for pH, ORP, conductivity, TDS, salt and temperature.



Conductivity and Salt % Calibration Solutions

1-Year Shelf Life!



CDSA Series 

Third-Arm Electrode Holder
PHA-77.

- ✓ Ideal for Calibrating All Conductivity Instruments
- ✓ 4 Popular Ranges Available for Fast Delivery
- ✓ NIST Certificate of Conformance Optional

Conductivity solutions are used for calibrating most of the conductivity instrumentation shown in this section. To calibrate an instrument, select a conductivity solution that is close to the measuring range and calibrate the instrument for optimal system accuracy.

Note: Calibration of conformance certification available at time of purchase. Add suffix "-CAL-CDS" to model number for additional cost, and set-up charge to order.

* 6 month shelf life.

Ordering Examples: CDSA-1500, 1500 $\mu\text{S/cm}$ conductivity solution.
CDSA-450, 450 $\mu\text{S/cm}$ conductivity solution.

To Order

Model No.	Description
CDSA-10*	10 $\mu\text{S/cm}$ conductivity solution
CDSA-15*	15 $\mu\text{S/cm}$ conductivity solution
CDSA-45	45 $\mu\text{S/cm}$ conductivity solution
CDSA-450	450 $\mu\text{S/cm}$ conductivity solution
CDSA-1413	1413 $\mu\text{S/cm}$ conductivity solution
CDSA-1500	1500 $\mu\text{S/cm}$ conductivity solution
CDSA-4500	4500 $\mu\text{S/cm}$ conductivity solution
CDSA-15000	15000 $\mu\text{S/cm}$ conductivity solution
CDSA-45000	45000 $\mu\text{S/cm}$ conductivity solution
CDSA-1-NACL	1% NaCl solution
CDSA-10-NACL	10% NaCl solution
PHA-77	Third-arm electrode holder

Conductivity and Temperature Monitor and Controller



CDTX-111/ CDTX-112



- ✓ On/Off Relay Outputs
- ✓ Economical
- ✓ Automatic or Manual Temperature Compensation
- ✓ Selectable Zero and Span Analog Output



CDTX-111

Industrial process conductivity/temperature controllers CDTX-111 and CDTX-112 are panel instruments for in-process monitoring of conductivity. Range switch over and cell constant checks can both be freely set and adjusted during operation. Unique signal collection and processing technology, and a special thick film circuit are employed to ensure accurate measurements and stable operation. Other features include linearized data, automatic temperature compensation, and maintenance-free cells. The control functions trigger relays based on conductivity setpoints. The CDTX-111 and CDTX-112 are ideal auxiliary instruments for many types of water testing applications.

Both models shown smaller than actual size.



CDTX-112

SPECIFICATIONS

Display Type

CDTX-111: LED, 13 mm height

CDTX-112: LCD, 13 mm height

Measurement: 0 to 18 MΩ or 0 to 19.99 μS/cm

Range (Depending upon cell constant)

CDTX-111: 0 to 199.9 μS/cm; 0 to 1999 μS/cm

CDTX-112: 0 to 999.9 μS/cm; 0 to 9999 μS/cm,

0 to 100mS/cm, 0 to 600 mS/cm

Temperature: 0 to 100°C (32 to 212°F)

Resolution: 0.01 MΩ

CDTX-111: 0.01 to 1 μS/cm

CDTX-112: 0.01 to 0.01 mS/cm

Temperature: 0.1°C (32.1°F)

Accuracy: ±1% FS, ± 0.2°C

Temperature: Automatic/manual

Compensation: 0 to 100°C (32 to 212°F)

Output Relays: 2 programmable, 10 A

Control Type: On/off

Relay Set Point Hysteresis: User programmable

Current Output

Type: Isolated 4 to 20 mA

Range: Selectable zero and span

Accuracy: ±0.02 mA

Maximum Load: 750 Ω

Power Supply: AC 110V to 220V ±10%, 50/60 Hz

Weight

CDTX-111: 580 g (20.4 oz)

CDTX-112: 650 g (22.9 oz)

Dimensions

CDTX-111: 96 × 48 × 110 mm (3.78 × 1.89 × 4.33")

CDTX-112: 96 × 96 × 110 mm (3.78 × 3.78 × 4.33")

Mount Type: Panel

Cut-Out Size

CDTX-111: 92 × 44 mm (3.6 × 1.73")

CDTX-112: 92 × 92 mm (3.6 × 3.6")

Enclosure Rating: IP54

Environmental Operating Ambient Temperature: -10 to 55°C (14 to 131°F)

Requirements

Relative Humidity: 5 to 95% non-condensing

Maximum Operating Altitude: 3000 m (10,000')



Accessory Specifications

Model No.	CDE-100-001	CDE-100-01	CDE-100-1	CDE-100-10	CDE-100-30
Cell Constant	K = 0.01	K = 0.1	K = 1	K = 10	K = 30
Measurement	0 to 18 M Ω or 0 to 19.99 μ S/cm	0 to 999.9 μ S/cm	0 to 9999 μ S/cm	0 to 100 mS/cm	0 to 600 mS/cm
Range	0 to 80°C (32 to 176°F)	0 to 80°C (32 to 176°F)	0 to 80°C (32 to 176°F)	0 to 80°C (32 to 176°F)	0 to 80°C (32 to 176°F)
Accuracy	\pm 1% FS	\pm 1% FS	\pm 1% FS	\pm 1% FS	\pm 1% FS
Temperature Accuracy	\pm 0.2°C	\pm 0.2°C	\pm 0.2°C	\pm 0.2°C	\pm 0.2°C
Temperature Sensor	10 k	10 k	10 k	10 k	10 k
Operating Temperature	0 to 80°C (32 to 176°F)	0 to 80°C (32 to 176°F)	0 to 80°C (32 to 176°F)	0 to 80°C (32 to 176°F)	0 to 80°C (32 to 176°F)
Operating Pressure	0.6 MPa	0.6 MPa	0.6 MPa	0.6 MPa	0.6 MPa
Thread Size	$\frac{3}{4}$ NPT	$\frac{3}{4}$ NPT	$\frac{3}{4}$ NPT	$\frac{3}{4}$ NPT	$\frac{3}{4}$ NPT
Cables Length	5 m (16.4')	5 m (16.4')	5 m (16.4')	5 m (16.4')	5 m (16.4')
Enclosure Rating	IP68	IP68	IP68	IP68	IP68
Sensor Diameter/Length	16 x 65 mm (0.63 x 2.5")	16 x 65 mm (0.63 x 2.5")	16 x 65 mm (0.63 x 2.5")	23 x 40 mm (0.9 x 1.6")	23 x 135 mm (0.9 x 5.3")
Outer Tube Material	316 SS	316 SS	316 SS	ABS	PPS
Sensor Material	316 SS	316 SS	316 SS	Platinum and Glass	Platinum

To Order

Model No.	Description (Sensors Sold Separately)
CDTX-111	Conductivity monitor and controller, $\frac{1}{8}$ DIN
CDTX-112	Conductivity monitor and controller, $\frac{1}{4}$ DIN

Comes complete with operator's manual.

Accessories

Model No.	Description (Electronics Sold Separately)
CDE-100-001	Conductivity cell, constant = 0.01 for 0 to 600 mS/cm
CDE-100-01	Conductivity cell, constant = 0.1 for 0 to 600 mS/cm
CDE-100-1	Conductivity cell, constant = 1.0 for 0 to 600 mS/cm
CDE-100-10	Conductivity cell, constant = 10.0 for 0 to 600 mS/cm
CDE-100-30	Conductivity cell, constant = 30.0 for 0 to 600 mS/cm



Integral Or Remote Mount Conductivity/Resistivity Transmitters

CDTX-2850 Series



- ✓ Compact Design
 - ✓ Two-Wire 4 to 20 mA Output
 - ✓ Automatic Test Solution Recognition
- Applications**
- ✓ Water Treatment and Water Quality Monitoring
 - ✓ Reverse Osmosis
 - ✓ Deionization
 - ✓ Demineralizer, Regeneration and Rinse
 - ✓ Scrubber, Cooling Tower and Boiler Protection
 - ✓ Aquatic Animal Life Support Systems

Electronics are available in various configurations for maximum installation flexibility. The universal-mount version is for pipe, wall, or tank mounting and uses the CDCE-90 Series conductivity/resistivity sensor (sold separately). It is also available as a combined integral system configuration for in-line mounting and includes a conductivity electrode in a choice of 0.01, 0.1, 1.0, 10.0 or 20.0 cm⁻¹ cell constants. The CDTX-2850 is ideal for applications with a conductivity range of 0.055 to 400,000 µS or a resistivity range of 18.2 MΩ to 10 kΩ. All CDTX-2850 units are built with NEMA 4X (IP65) enclosures which allow output wiring connections with long cable runs of up to 305 m (1000 feet). The two-wire 4 to 20 mA output has eight 4 to 20 mA output ranges for each electrode cell constant. Each range can be inverted and is field selectable. Standard calibration automatically recognizes conductivity test solution values for simple field calibration. A certification tool is available for validation of the sensor electronics according to USP requirements.

Specifications

Materials

NPT Mount: Junction box for integral mount PBT

Universal/Remote Mount: PBT, PVDF

Automatic Solution Recognition: Conductivity values 146.93 µS, 1408.8 µS, 12856 µS [*@25°C (77°F)*] (test solutions per ASTM D1125-95) 10 µS, 100 µS, 200 µS, 500 µS, 1000 µS, 5000 µS, 10,000 µS, 50,000 µS, 100,000 µS [*@ 25°C (77°F)*] (Standard test solutions)

Electrical

Power: 12 to 24 Vdc ±10%, regulated for 4 to 20 mA output (typically called "loop powered")

Accuracy Conductivity: ±2% of reading

Resolution Conductivity: 0.1% of reading

Temperature (For Compensation Only): <0.2°C/°F

Update Rate Single Channel Models: <600 ms

Dual Channel Models: <1200 ms



CDTX-2851 shown smaller than actual size.

Maximum Temperature/Pressure Rating

Operating Temperature: -10 to 85°C (14 to 185°F)

Storage Temperature: -20 to 85°C (-4 to 185°F)

Relative Humidity: 0 to 95%, non-condensing

Enclosure: NEMA 4X (IP65)

Current Output

Field-Selectable Ranges

Factory Set Span 4 to 20 mA:

0.01 Cell: = 0 to 100 µS (Integral mount only)

0.10 Cell: = 0 to 1000 µS

1.0 Cell: = 0 to 10,000 µS

10.0 Cell: = 0 to 200,000 µS

20.0 Cell: (CDCE-90-20B, not for integral mount) = 0 to 400,000 µS

Maximum Loop Resistance: 50Ω at 12 Vdc, 325Ω at 18 Vdc, 600Ω at 24 Vdc

Accuracy: ±2% of output span

Resolution: 7 µA

Update Rate: <600 ms

Error Indication: 22 mA

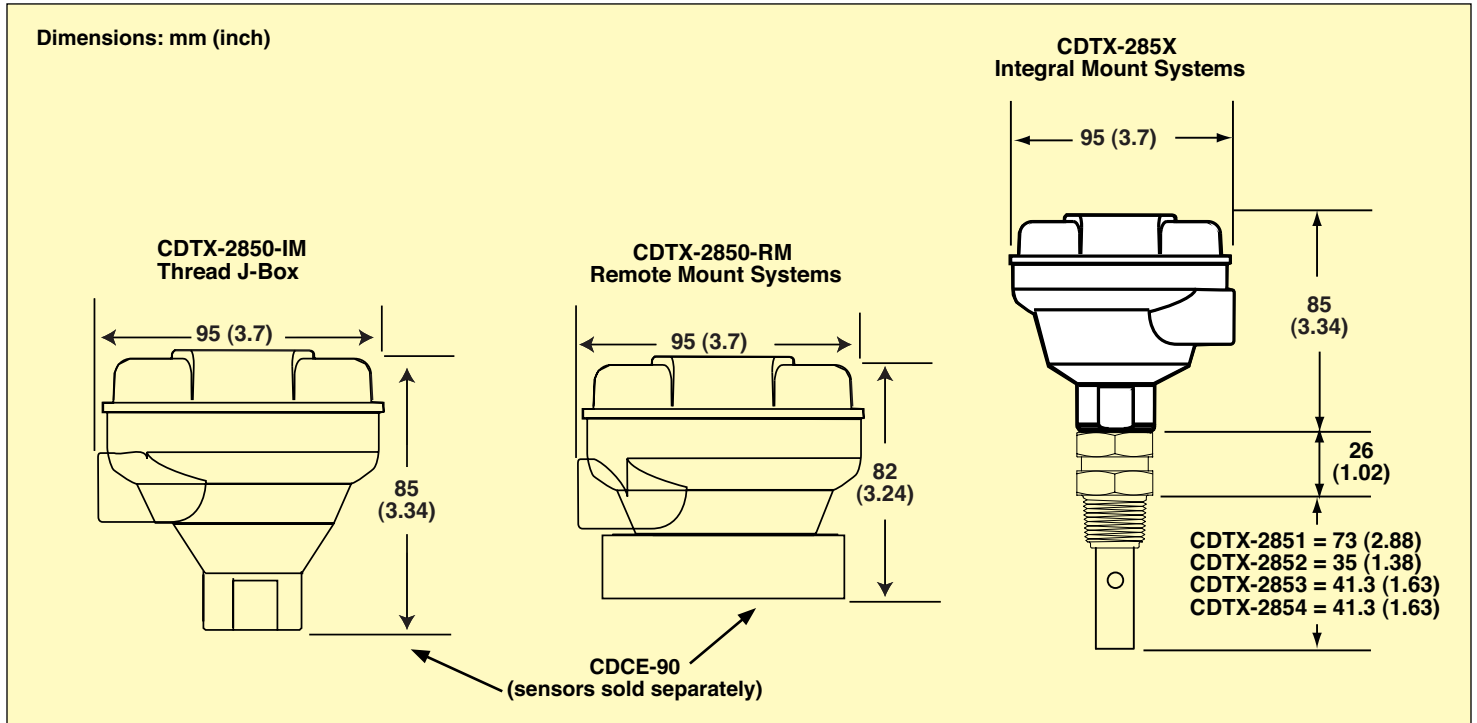
Pure water compensation when using 0.01-cm cell and raw conductivity value <0.5 µS, the CDTX-2850 auto-switches to compensate for non-linear temperature effects found in this low conductivity (high resistivity) range.

Shipping Weight

NPT Mount Junction Box: 1.75 lb (0.75 kg)

Universal Mount: 1.75 lb (0.75 kg)

Standards and Approvals: Manufactured under ISO 9001 for quality and ISO 14001 for environmental management



0.01 Cell	0.10 Cell	1.0 cell	10.0 Cell	20.0 Cell (Remote mount only)
CDTX-2851 or CDTX-2850-RM/IM with CDCE-90-001	CDTX-2852 or CDTX-2850-RM/IM with CDCE-90-01	CDTX-2853 or CDTX-2850-RM/IM with CDCE-90-1	CDTX-2854 or CDTX-2850-RM/IM with CDCE-90-10	CDTX-2850-RM/IM with CDTX-90-20B
10 to 20 MΩ	0 to 2 μS	0 to 20 μS	0 to 200 μS	0 to 400 μS
2 to 10 MΩ	0 to 5 μS	0 to 50 μS	0 to 500 μS	0 to 1000 μS
0 to 2 MΩ	0 to 10 μS	0 to 100 μS	0 to 1000 μS	0 to 2000 μS
0 to 1 MΩ	0 to 50 μS	0 to 500 μS	0 to 5000 μS	0 to 10,000 μS
0 to 5 MΩ	0 to 100 μS	0 to 1000 μS	0 to 10,000 μS	0 to 20,000 μS
0 to 10 MΩ	0 to 200 μS	0 to 2000 μS	0 to 50,000 μS	0 to 100,000 μS
N/A	0 to 500 μS	0 to 5000 μS	0 to 100,000 μS	0 to 200,000 μS
N/A	0 to 1000 μS	0 to 10,000 μS	0 to 200,000 μS	0 to 400,000 μS

The 4 to 20 output ranges shown in this chart can be inverted using the internal switch resistivity ranges are listed above in **BOLD**

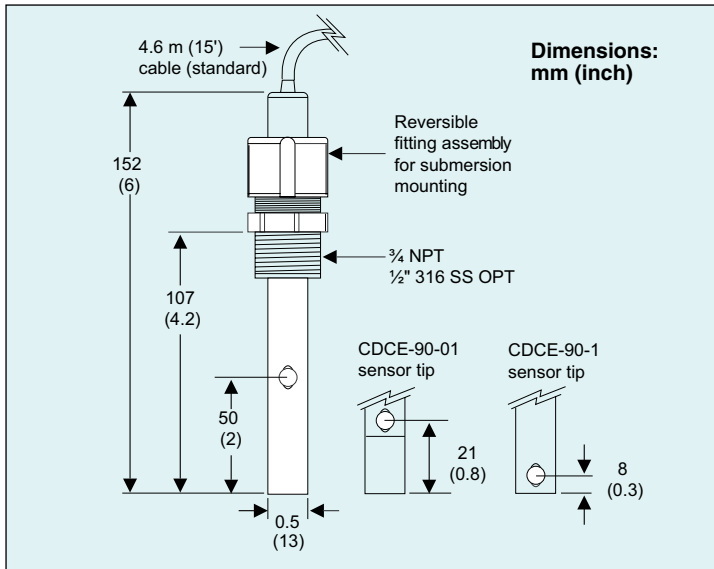
To Order			
Model No.	Description	Cell Constant	Insertion Length mm (inch)
CDTX-2851	Integrally mounted conductivity transmitter with sensor	0.01	73 (2.88)
CDTX-2852	Integrally mounted conductivity transmitter with sensor	0.1	35 (1.38)
CDTX-2853	Integrally mounted conductivity transmitter with sensor	1	41.3 (1.63)
CDTX-2854	Integrally mounted conductivity transmitter with sensor	10	41.3 (1.63)
CDTX-2850-IM	Threaded J-box conductivity transmitter	CDCE-90 sensors sold separately	
CDTX-2850-RM	Remote mount conductivity transmitter	CDCE-90 sensors sold separately	

Comes complete with operator's manual (solutions sold separately, see last page).

Ordering Example: CDTX-2852, integrally mounted 0.1 cell constant conductivity transmitter with CDSA-1500 μS conductivity solution.

CDTX-2850-RM, remote mount conductivity transmitter with CDCE-90-10 conductivity sensor with 10.0 cell constant and CDSA-4500 μS conductivity solution.

Conductivity Cells for CDTX-2850-IM/RM Series



CDCE-90-001 CDCE-90-01 CDCE-90-1

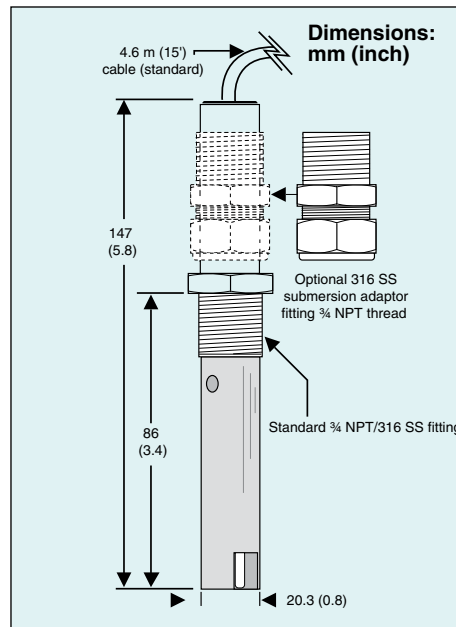
All shown smaller than actual size.

CDCE-90-001, CDCE-90-01, CDCE-90-1

- Cell:**
 CDCE-90-001: 0.01
 CDCE-90-01: 0.1
 CDCE-90-1: 1.0
- Conductivity Range:**
 CDCE-90-001: 0.010 to 100 µS (10 KΩ to 100 MΩ)
 CDCE-90-01: 1 to 1000 µS
 CDCE-90-1: 10 to 10,000 µS
- Temperature Compensation:** Pt1000
- Wetted Materials:**
- O-Rings:** EPR
- Insulator Material:** PTFE
- Electrodes:** 316 SS
- Standard Fitting:** Polypropylene
- Maximum Pressure:** 6.9 bar (100 psi)
- Maximum Temperature:** 100°C (212°F)
- Optional Fitting:** 316 SS ½ NPT
- Maximum Pressure:** 13.8 bar (200 psi)
- Maximum Temperature:** 120°C (248°F)

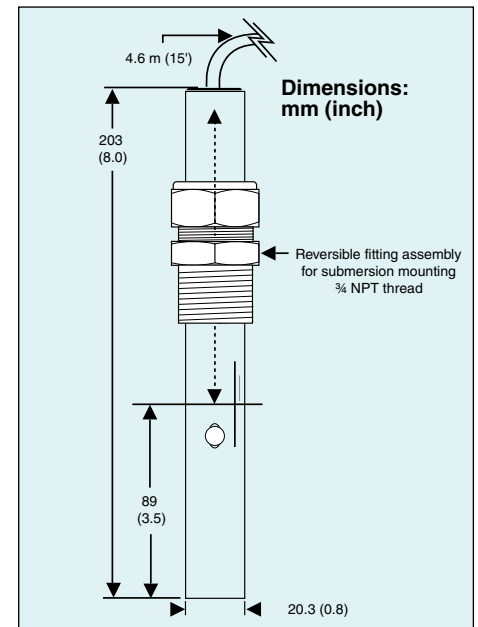


CDCE-90-10 (left), CDCE-90-20 (right), shown smaller than actual size.



CDCE-90-10

- Cell Constant:** 10.0
- Conductivity Range:** 100 to 200,000 µS
- Temperature Compensation:** Pt1000
- O-Ring:** EPR
- Insulator Material:** CPVC
- Electrodes:** 316 SS
- Fitting Material:** 316 SS
- Maximum Pressure/Temperature:** 100 psig @ 95°C (203°F)



CDCE-90-20

- Cell Constant:** 20.0
- Conductivity Range:** 200 to 400,000 µS
- Temperature Compensation:** Pt1000
- O-Ring:** EPR
- Insulator Material:** PTFE
- Electrodes:** 316 SS
- Fitting Material:** 316 SS
- Maximum Pressure/Temperature:** 100 psig @ 150°C (302°F)



CDCE-90S-001, CDCE-90S-01,
CDCE-90S-1

Cell:

CDCE-90S-001: 0.01

CDCE-90S-01: 0.1

CDCE-90S-1: 1.0

Conductivity Range:

CDCE-90S-001: 0.010 to 100 μ S
(10 K Ω to 100 M Ω)

CDCE-90S-01: 1 to 1000 μ S

CDCE-90S-1: 10 to 10,000 μ S

Tri-Grip™ Sanitary Fitting Size: 1, 1½, 2"

Temperature Compensation: Pt1000

Wetted Materials:

O-Ring: EPR

Insulator Material: PTFE

Electrodes: 316 SS or titanium

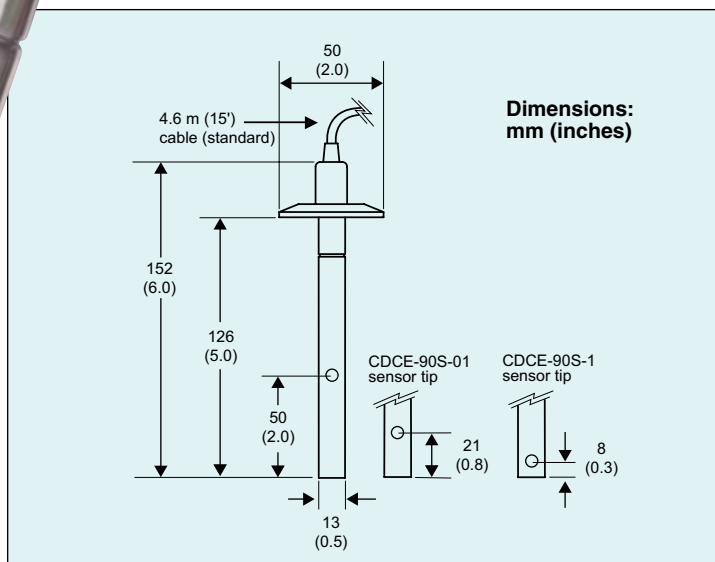
Tri-Grip™ Sanitary Fitting: 316 SS or titanium

Maximum Pressure: 6.9 bar (100 psi)

Maximum Temperature: 120°C (248°F)



CDCE-90S-001-S15,
shown smaller
than actual size.



Note: Dimension shown for 1 and 1½" Tri-Grip™ sanitary fittings.

To Order			
Model No.	Fitting	Cell Constant	Material
CDCE-90-001*	¾ NPT	0.01	316 SS
CDCE-90-01*	¾ NPT	0.1	316 SS
CDCE-90-1*	¾ NPT	1	316 SS
CDCE-90-10*	¾ NPT	10	316 SS
CDCE-90-20-B	¾ NPT	20	316 SS
CDCE-90S-001-S15	1.5" Tri-Grip™ sanitary	0.01	316 SS
CDCE-90S-1-S15	1.5" Tri-Grip™ sanitary	1	316 SS
CDCE-90S-01-S20	2.0" Tri-Grip™ sanitary	0.1	316 SS
CDCE-90S-1-S20	2.0" Tri-Grip™ sanitary	1	316 SS
CDCE-90S-001-T15	1.5" Tri-Grip™ sanitary	0.01	Titanium

* For extended cable add "-100FTCABLE" to model number for additional cost.

Accessories

Model No.	Description
CDSA-45	45 μ S conductivity solution 1 quart
CDSA-450	450 μ S conductivity solution 1 quart
CDSA-1413	1413 μ S conductivity solution 1 quart
CDSA-1500	1500 μ S conductivity solution 1 quart
CDSA-4500	4500 μ S conductivity solution 1 quart
CDSA-45000	45000 μ S conductivity solution 1 quart



2-Wire Isolated Conductivity Transmitter System

CDTX-45 and CDE-45P System



- ✓ PEEK™ Sensor Body Construction
- ✓ 4-Electrode Sensor Type
- ✓ Electrode Coating Rejection Diagnostic
- ✓ Universal Mounting Configurations
- ✓ Microprocessor-Based System
- ✓ Large Dual Display Format
- ✓ Loop Powered, Fully Isolated

Sensor Features

The sensor housings are constructed of PEEK, a high performance thermoplastic that provides outstanding mechanical strength and chemical resistance. Multiple sealing materials are used to preserve sensor integrity over a wide range of applications.

The four electrodes used in the cell are made of titanium for greater chemical resistance. Two of these electrodes are used to establish the sensor drive potential. The other two electrodes sense the flow of current between the drive electrodes and maintain the proper drive potential. The current that flows between the two drive electrodes is directly proportional to solution conductivity.

With conventional two-electrode sensors, as the process solution begins to coat the electrode surfaces, the sensor output signal begins to decrease. This produces an artificially low conductivity measurement.

The CDTX-45 four-electrode system uses electrode diagnostics to compensate for the effects of fouling. As the two drive electrodes become coated by the process solution, a feedback mechanism involving the two sensing electrodes detects the decrease in drive potential and automatically re-establishes the proper drive potential. When the degree of coating reaches a limit where compensation is no longer possible, the diagnostic actuates an alarm to signal that the sensor requires cleaning.

The unique drive/control scheme of this system allows a single sensor configuration to be used reliably over a wide conductivity range. This system eliminates the requirement for multiple sensors with varying cell constants that are restricted to narrow operating ranges.

Transmitter Features

The microprocessor-based transmitter is loop-powered and fully isolated for high service reliability. The transmitter includes devices to protect the system from power surge and brownout events.



CDTX-45, meter/transmitter, shown smaller than actual size.

CDE-45P, electrode, shown smaller than actual size.

Meter and electrode sold separately.

To Order	
Model No.	Description
CDTX-45	Conductivity meter/transmitter, electrode sold separately
CDE-45P	Conductivity electrode
CDTX-45-115VAC-R2	Conductivity meter/transmitter, 115/230 Vac power, 2-relay outputs, electrode sold separately
PSU-93	Unregulated power supply, 16 to 23 Vdc
PHTX-45-SMH	Submersion mounting hardware, 1.8 m (6')

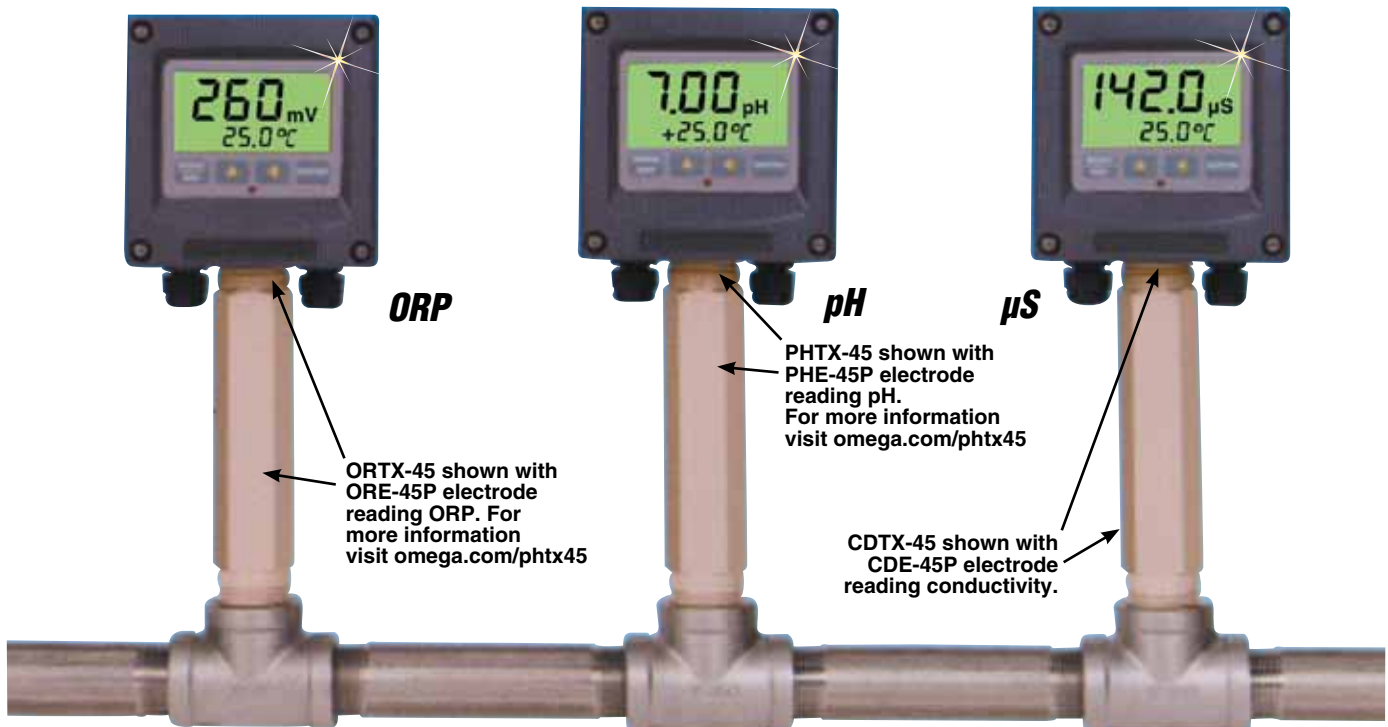
Comes complete with operator's manual.

Ordering Examples: CDTX-45, conductivity transmitter, and CDE-45P electrode.

CDTX-45, conductivity transmitter, and CDE-45P, electrode, PHTX-45-SMH, submersion mounting hardware.



CDTX-45 An In-Line Application Solution



ORP

pH

μS

ORTX-45 shown with ORE-45P electrode reading ORP. For more information visit omega.com/phtx45

PHTX-45 shown with PHE-45P electrode reading pH. For more information visit omega.com/phtx45

CDTX-45 shown with CDE-45P electrode reading conductivity.

Specifications

CDE-45P Sensor

Accuracy: 0.3% of span ($\pm 0.1 \mu\text{S}$)

Repeatability: 0.3% of span ($\pm 0.1 \mu\text{S}$)

Sensitivity: 0.05% of span ($\pm 0.1 \mu\text{S}$)

Stability: 0.1% of span per 24 hours, non-cumulative

Warm-up Time: 7 sec

Supply Voltage Effects: $\pm 0.05\%$ span

Instrument Response Time: 12 sec

Temperature Drift: Span or zero, 0.03% of span/ $^{\circ}\text{C}$

Max Cable Length: 18.3 m (60')

CDTX-45 Transmitter

Analog Outputs:

CDTX-45: Loop powered 4 to 20 mA output for conductivity

CDTX-45-115VAC-R2: Dual 4 to 20 mA outputs, second output programmable for temperature or conductivity outputs isolated

Relay Outputs:

Two SPDT, 6 Amp @ 250 Vac, 5 Amp @ 24 Vdc (CDTX-45-115VAC-R2 only)

Displayed Parameters: Main input, 0.0 μS to 2000 mS, % Concentration, sensor temperature [-10.0 to 110.0 $^{\circ}\text{C}$ (14 to 230 $^{\circ}\text{F}$)], loop current (4.00 to 20.00 mA)

Main Parameter Ranges: Automatic or manual; 0.0 to 2.0 μS , 0.0 to 20.0 μS , 0 to 200 μS , 0 to 2000.00 μS , 0.00 to 2.00 μS

Display: Large, high-contrast, Super-Twist (STN) LCD; 4-digit main display with sign, 19.1 mm (0.75") 7-segment characters; 12-digit secondary display, 7.6 mm (0.3") 5 x 7 dot matrix characters

Keypad: 4-key membrane type with tactile feedback, polycarbonate with UV coating, integral EMI/static shield and conductively coated window

Operating Ambient: -20 to 60 $^{\circ}\text{C}$ (-4 to 140 $^{\circ}\text{F}$), 0 to 95% RH, non-condensing

EMI/RFI Influence: Designed to EN 61326-1

Output Isolation: 600V galvanic isolation

Filter: Adjustable 0 to 9.9 minutes additional damping to 90% step input

Temperature Input: Selectable Pt1000 or Pt100 RTD

Power: 16 to 35 Vdc (2-wire device)

Enclosure: NEMA 4X, polycarbonate, stainless steel hardware, weatherproof and corrosion resistant

Conduit Openings: Three PG-9 openings with gland seals

Dimensions: 112 H x 112 W x 89 mm D (4.4 x 4.4 x 3.5")

Mounting Options: Wall, panel, pipe/header

Weight: 0.45 kg (1 lb)

The large, high contrast, super-twist display provides excellent readability over a wide operating temperature range, even in low light conditions. The main display line consists of large, segmented characters with measurement units. The secondary display line utilizes easily readable dot matrix characters for clear display of calibration and diagnostic messages. Two of four measured parameters may be displayed simultaneously.

Four-button programming provides intuitive navigation through the menu-driven user interface. The 4 to 20 mA transmitter output can be configured to represent any portion of the measurement range. Output HOLD, ALARM and SIMULATION features provide the user with complete control of the system output under any condition.

Diagnostic messages provide a clear description of system condition, which eliminates confusing error codes that must be looked up in the operator's manual.

The flexible calibration method includes stability monitors that check temperature and main parameter stability before accepting data.



Free Chlorine Sensors

FCLTX-100 Series

- ✓ Direct 4 to 20 mA Output
- ✓ Amperometric Technology
- ✓ 500V Input to Output Isolation
- ✓ Multiple Ranges Available
- ✓ Simple Field Maintenance

The FCLTX Series of free chlorine sensors feature amperometric measurement technology. They are designed for use in water treatment disinfection applications and for use with chlorine generators, pools, etc. The sensors are available in several ranges for detecting ppm levels of free chlorine. Choose the FCLTX-102 for 0 to 2 ppm, FCLTX-105 for 0 to 5 ppm and FCLTX-110 for 0 to 10 ppm of free chlorine. Membrane caps and fill solution are easily replaced to maximize sensor life. Sensors can be used in new installations with Omega flow cell or installed as replacement for other 4 to 20 mA output free chlorine (FCI) sensors.

Specifications

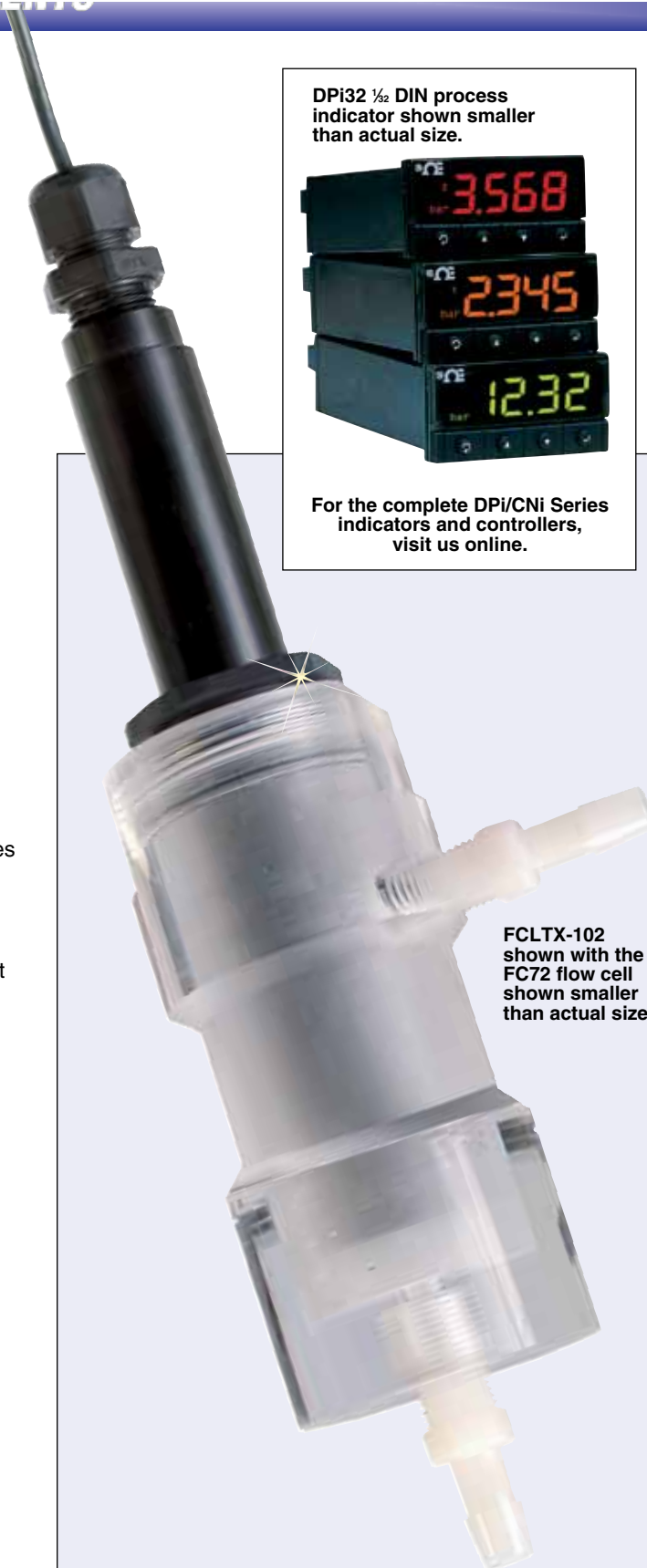
Measuring Range: 0 to 2, 0 to 5, or 0 to 10 ppm free chlorine
pH Range: 5.5 to 9
Cross Sensitivity: Bromine, ozone and ClO₂ (chlorine dioxide)
Body Material: PVC
Temperature Range: 0 to 45°C (32 to 113°F)
Temperature Compensation: Integrated
Maximum Pressure: 1 bar (14.7 psig)
Cable Length: 3 m (10') 2 conductors
Flow Cell Process Connection: ¼ FNPT inlet and outlet
Output: 4 to 20 mA
Flow Range:
 Minimum: 45 L/hr (0.2 gpm)
 Maximum: 135 L/hr (0.6 gpm)
Supply Voltage: 12 to 24 Vdc, 250 mA minimum
Chemical Compatibility: Up to 50% ethanol/water, up to 50% glycerol/water

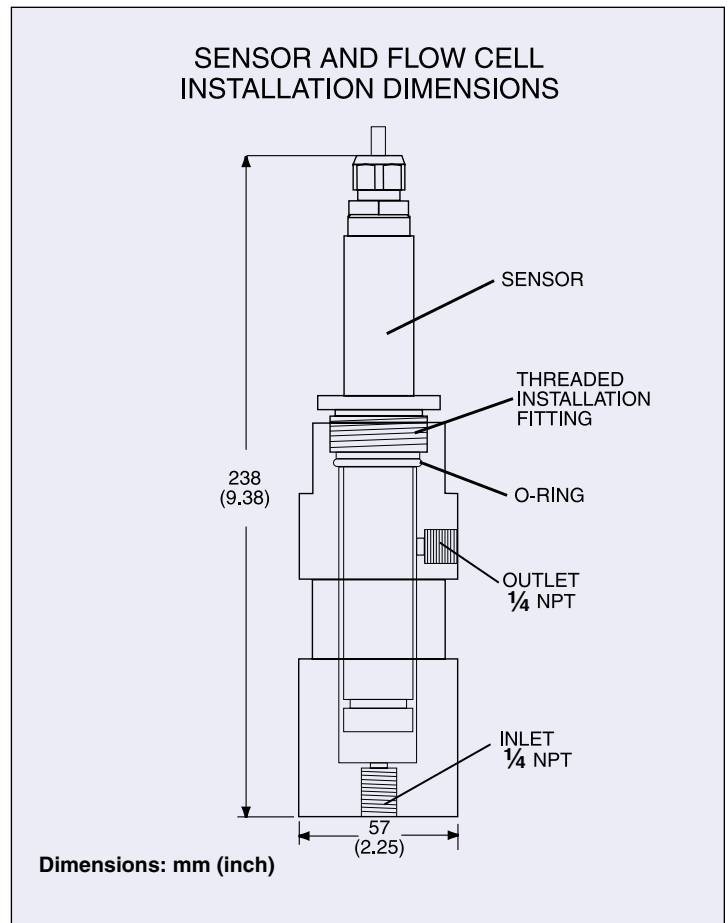
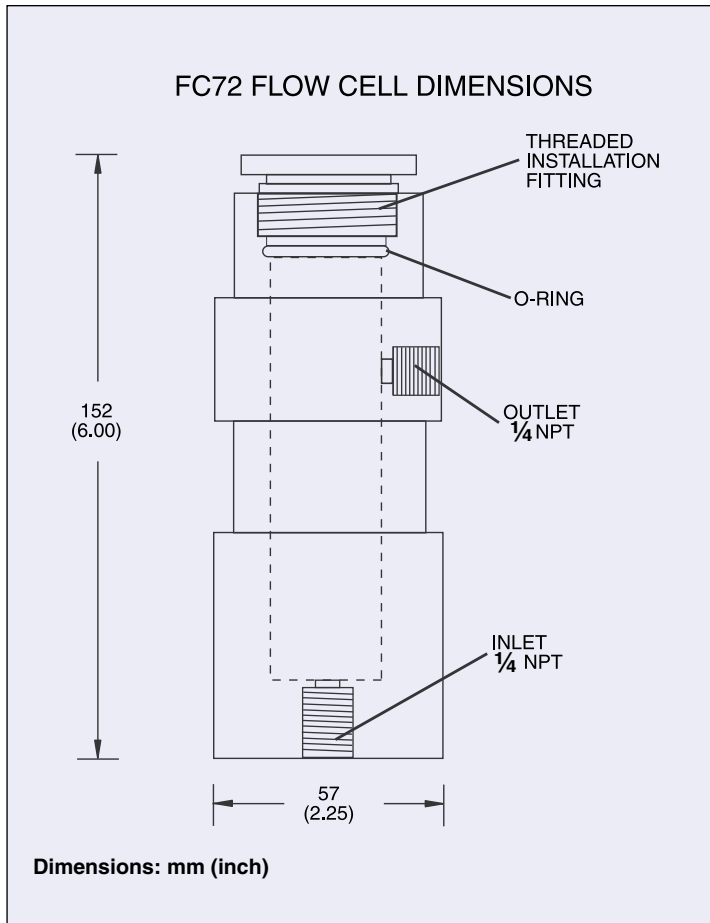
DPI32 ½ DIN process indicator shown smaller than actual size.



For the complete DPI/CNi Series indicators and controllers, visit us online.

FCLTX-102 shown with the FC72 flow cell shown smaller than actual size.





To Order	
Model No.	Description
FCLTX-102	Free chlorine sensor with 4 to 20 mA output, 0 to 2 ppm
FCLTX-105	Free chlorine sensor with 4 to 20 mA output, 0 to 5 ppm
FCLTX-110	Free chlorine sensor with 4 to 20 mA output, 0 to 10 ppm

Accessories

Model No.	Description
FC72	Flow cell for FCL or CLD sensors
FCL-RM	FCLTX replacement membranes
FCL-ES	FCLTX replacement electrolyte solution 30 ml (0.03 qt)
DPI32	1/32 DIN process indicator

Comes complete with operator's manual and calibration instruction sheet.

Ordering Example: FCLTX-102, free chlorine sensor with 4 to 20 mA output for 0 to 2 ppm, FC72, flow cell and DPI32, 1/32 DIN process indicator.

Order Online



Chlorine Analyzer

CLH-1740

- ✓ Read Total Chlorine from 0.01 to 10.00 ppm with 0.01 ppm Resolution
- ✓ Readings are Not Affected by Sample Color or Turbidity
- ✓ Extra Bold Display Includes an Analog Bar Graph Feature
- ✓ Memory Saves Calibration Values and Can Store up to 15 Readings
- ✓ Chlorine and pH Modes Also Displays Sample Temperature
- ✓ Waterproof Design With Matte Finish Makes Opening Battery Compartment and Changing Probe Tips Easier
- ✓ Automatic Shut-Off and Low Battery Indicator Provide User Convenience; Batteries (Included)
- ✓ Includes 100 Reagent Tablets at Almost Half the Price of Similar Chlorine ISE Reagents
- ✓ Follows EPA Protocol for ISE Methods

For your next chlorine analysis!

The world's first pocket-sized ISE meter for measuring chlorine directly in parts per million. It can also be used to display sample temperature or test for pH and ORP. The unit includes 100 reagent tablets at almost half the price of similar Chlorine ISE reagents. Interchangeable flat surface sensor modules make this the most versatile pocket tester ever offered.

Specifications

Display: Multifunction display with bar graph
Operating Conditions: 0 to 50°C (32 to 122°F) and <80% RH
Chlorine Range: 0.01 to 10.00 ppm (Total Chlorine)
Chlorine Accuracy: ± (10% of reading + 0.01 ppm) from 0.05 to 10.00 ppm
Temperature Range: -5 to 90°C (23 to 194°F)
Temperature Resolution: 0.1° to 99.9°, then 1°
Temperature Accuracy: ± 1°C (1.8°F) from -5 to 50°C (23 to 122°F), 3°C (±5.4°F) from 50 to 90°C (122 to 194°F)
Measurement Storage: 15 readings can be stored and recalled
Low Battery Indication: "BAT" appears on the display
Power: Four 1.55V PH-BATT-3 button batteries (included)
Auto Power Off: After 10 minutes of inactivity

To Order	
Model No.	Description
CLH-1740	Chlorine analyzer
CLE-1732	Chlorine module 0.01 to 10.00 ppm/ ±10% of reading
PHE-1733	pH module
ORE-1742	ORP module
CLH-1746	Optional weighted stand and 5 sample cups
CLH-7044J	Chlorine reagent refill pack (100 tablets)
CLH-7045	24 pack of sample cups
PH-BATT-3	1.55V replacement battery (4 required)

Comes complete with 100 reagent tablets, chlorine module, four 1.55V batteries, tablet crusher, one sample cup with cap, and operator's manual.
Ordering Example: CLH-1740, chlorine analyzer.



CLH-1740 comes complete with 100 reagent tablets, CLE-1732 chlorine module, tablet crusher, one sample cup with cap, and batteries.

Order Online

2-Wire Isolated Dissolved Oxygen Transmitter System

DOTX-45



- ✓ Reliable 3-Electrode Amperometric Sensor
- ✓ Replaceable Sensor Cartridge
- ✓ Sensor Membrane Puncture/Tear Diagnostic
- ✓ Microprocessor-Based System
- ✓ Large, Dual-Display Format
- ✓ Loop Powered, Fully Isolated

Sensor Features

The DOE-45PA dissolved oxygen sensor is a highly dependable membrane-covered galvanic sensor. The polymer membrane has hydrophobic properties to help resist fouling from biological growth and maximize diffusion of oxygen into the sensor. The DOE-45PA also has automatic temperature compensation to correct for membrane permeability errors.

Transmitter Features

The microprocessor-based transmitter is loop powered and fully isolated for high reliability. The transmitter includes devices that protect the system from power surges and brownout events. The large, high-contrast, super-twist display is readable over a wide operating temperature range, even in low-light conditions. The main display line consists of large, segmented characters with measurement units. The secondary display line displays calibration and diagnostic messages in readable dot-matrix characters. Two of four measured parameters can be displayed simultaneously. Programming is intuitive, with a 4-button, menu-driven interface. The 4 to 20 mA transmitter output can be configured to represent any portion of the measurement range. Output hold, alarm, and simulation features give the user complete control of the system output under any condition. Diagnostic messages clearly describe system conditions, which eliminates confusing error codes. The flexible calibration method includes stability monitors that check temperature and main parameter stability before accepting data.

DOTX-45 transmitter shown smaller than actual size.



Specifications (DOE-45PA Sensor)

Measuring Range: 0 to 40 ppm
Sensor Cable: 9.1 m (30')
Measurement Response Time: 90% in less than 3 minutes
Measurement Principle: Membrane covered galvanic
Electrode Material:
Cathode: Platinum
Anode: Lead
Electrolyte: Potassium chloride based
Pressure Range: 0 to 150 psig @ 25°C (77°F)
Temperature Compensation: Pt100
Temperature Range: -5 to 55°C (23 to 131°F)
Minimum Flow Rate: 6 mm (0.02') per second
Membrane Thickness: 50 microns

Membrane Material: FEP (fluorinated ethylene propylene)
Wetted Materials: 316 SS, FKM, Noryl
Sensor Cable: 5-conductor
Sensor-to-Transmitter Distance: 305 m (1000')
Mounting: Submersion 1 NPT
Shipping Weight: 0.45 kg (1 lb)
Specifications (DOTX-45 Transmitter)
Performance Specifications
Displayed Parameters: Main input, 0 to 40.0 ppm
% Saturation: 0 to 200%
Loop Current: 4 to 20 mA
Sensor Temperature: 0 to 50°C (32 to 122°F)
Power: 16 to 35 Vdc
Main Parameter Range: 0 to 40 ppm
Repeatability: 0.1% of span or better

Sensitivity: 0.05% of span
Non-Linearity: 0.1% of span
Stability: 0.1% of span per 24 hours, non-cumulative
Warm-Up Time:
 4 seconds to rated performance
Supply Voltage Effects: ±0.05% of span
Transmitter Response Time: 4 seconds to 90% of step input at lowest setting
Temperature Drift: Span or zero, 0.02% of span/°C
Temperature Compensation: 0 to 50°C (32 to 122°F), Pt1000 element; sensor is internally compensated for membrane permeability changes with temperature
Sensor-to-Transmitter Distance: 305 m (1000')
Enclosure: NEMA 4X (IP66), polycarbonate, stainless steel hardware, weatherproof and corrosion resistant, 112 H x 112 W x 89 mm D (4.4 x 4.4 x 3.5")
Mounting Options: Wall, panel, pipe, DIN rail, integral-sensor
Conduit Openings: 2-PG9 openings, 1-1 NPT center opening, cordgrips and plug included
Weight/Shipping Weight: 0.45 kg (1 lb)
Display: Large, high-contrast, super-twist LCD; 4-digit main display with sign, 19.1 mm (0.75"), 7-segment characters; 12-digit secondary display, 7.6 mm (0.3") 5 x 7 dot matrix character
Keypad: 4-key membrane type with tactile feedback, polycarbonate with UV coating, integral EMI/static shield and conductively coated window
Operating Temperature: -20 to 60°C (-4 to 140°F)
Storage Temperature: -30 to 70°C (-22 to 158°F)
Ambient Humidity: 0 to 95%, non-condensing
Location: Designed for hazardous and non-hazardous areas
EMI/RFI Influence: Designed to EN 61326-1
Voltage Range: 16 to 35 Vdc (2-wire device)
Output Isolation: 600V galvanic isolation
Transmitter Cable Type: Belden twisted-pair, shielded
Filter: Adjustable 1 to 99 seconds additional damping to 90% step input
Temperature Input: Selectable Pt1000 or Pt100, automatic compensation



To Order

Model No.	Description
DOTX-45	Dissolved oxygen transmitter
DOTX-45-115VAC-R2	Dissolved oxygen transmitter with relays
DOE-45PA**	Dissolved oxygen sensor
PSU-93	Unregulated power supply
PHTX-45-SMH	Submersion mounting hardware, 1.8 m (6')

Accessories

Model No.	Description
DOE-45PA-DOE**	DO electrolyte, 4 oz bottle
DOE-45PA-EC	Electrolyte chamber
DOE-45PA-MH	316 SS membrane holder
DOE-45PA-RLE	Replacement lead electrode
DOE-45PA-RM**	Membranes, 5 mil 10-pack
DOE-45PA-SE	Submersible sensing-element body
DOE-45PA-SH	Submersible sensing-element holder assembly
DOE-45PA-SM	Submersible sensing module

Comes complete with wall mount bracket and operator's manual.

** When purchasing the DOE-45PA for the first time it is necessary to also purchase the DOE-45PA-DOE electrolyte solution and DOE-45PA-RM membranes.

Ordering Examples: DOTX-45, dissolved oxygen transmitter, DOE-45PA, sensor, DOE-45PA-DOE, electrolyte solution 4 oz bottle, DOE-45PA-RM, 5 mil 10-pack membranes.

DOTX-45, dissolved oxygen transmitter, DOE-45PA, sensor, PSU-93, unregulated power supply, DOE-45PA-DOE, electrolyte solution 4 oz bottle, DOE-45PA-RM, 5 mil 10-pack membranes, DOE-45PA-MH, 316SS membrane holder.



INPUT TRANSMITTER

For pH/ORP

DPU91-pH/ORP Series



- ✓ Large Auto-Sensing Backlit Display
- ✓ “Dial-Style” Digital Bar Graph
- ✓ Intuitive and “User-Friendly” Interface
- ✓ Optional Field Upgradable Relays
- ✓ Warning LED Indicator
- ✓ Custom 13-Character Label Capabilities
- ✓ Factory Reset Capability

The DPU91 transmitter provides a single channel interface for many different parameters including flow, pH/ORP, conductivity/resistivity, salinity and temperature. The DPU91-BC transmitter has the added capability of supporting the batch module for batching control. The extra-large (3.90 x 3.90") autosensing backlit display can be viewed at 4 to 5 times the distance over traditional transmitters. The highly illuminated display and large characters reduce the risk of misreading or misinterpreting the displayed values. The display shows separate lines for units, main and secondary measurements as well as a “dial-style” digital bar graph. The DPU91 is offered in both panel or field-mount versions. Both configurations can run on 12 to 32 Vdc power (24 Vdc nominal). Designed for complete flexibility, plug-in modules allow the unit to easily adapt to meet changing customer needs. Optional modules include relay, direct conductivity/resistivity, batch and a PC communications configuration tool. The unit can be used with default values for quick and easy programming or can be customized with labeling, adjustable minimum and maximum dial settings, and unit and decimal measurement choices.



DPU91 shown smaller than actual size.

SPECIFICATIONS

General

Input Channels: 1

Input Types: Digital serial ASCII, TTL level, 9600 bps

Frequency Range: 0.5 to 1500 Hz

Accuracy: 0.5% of reading (display)

Measurement Types: Flow, pH/ORP, conductivity/resistivity, salinity, pressure, temperature or batch

Enclosure and Display

Case Material: PBT

Window: Shatter-resistant glass

Keypad: 4 buttons, injection-molded silicone rubber seal

Display: Backlit, 7 and 14-segment

Update Rate: 1 second

LCD Contrast: 5 settings

Indicators: “Dial-style” digital bar graph, LEDs for open collector, relays and warning indicator

Enclosure: ¼ DIN, NEMA 4X/IP65

Mounting Panel: ¼ DIN, ribbed on four sides for panel mounting clip inside panel, silicon gasket (included)

Field Mounts: Specified to OMEGA® field mount junction boxes

Weight: 0.63 kg (1.38 lb)

Display Ranges

For flow version visit omega.com/dpu91_flow

For conductivity/resistivity version visit

omega.com/dpu91_conductivity

pH: 0.00 to 15.00

pH Temperature: -99 to 350°C (-146 to 662°F)

ORP: -1999 to 1999.9 mV

Temperature: -99 to 350°C (-146 to 662°F)

Environmental

Ambient Operating Temperature:

Backlit LCD: -10 to 70°C (14 to 158°F)

Storage Temperature: -15 to 70°C (5 to 158°F)

Relative Humidity: 0 to 100% condensing for field mount; 0 to 95% non-condensing for panel mount

Maximum Altitude: 4000 m (13,123')

Electrical Requirements

Power to Sensors:

Voltage: 4.9 to 5.5 Vdc @ 25°C, regulated short circuit protected

Terminal Blocks: Pluggable screw type 14 AWG maximum wire gauge

Input Power

DC: 10.8 to 35.2 Vdc, regulated

DPU91 without Relay Module:

200 mA @ 10.8 to 35.2 Vdc



Raw Conductivity/Resistivity:
Input directly from highest conductivity/resistivity module or via CDTX-2850
For conductivity/resistivity models visit omega.com/dpu91_conductivity

Frequency Input:
Increasing with frequency
Span: 0.5 Hz to 1500 Hz @ TTL level input
Accuracy: ± 0.5% or reading maximum error @ 25°C (°77F)
Resolution: 1 µS
Repeatability: ±0.2% of reading

DPU91 with Relay Module: 300 mA @ 10.8 to 35.2 Vdc

Overvoltage Protection: 48 V transient protection device current limiting for circuit protection and reverse-voltage protection

Current Output: 4 to 20 mA (10.8 to 35.2 Vdc, 30 mA maximum)

Relay Specifications

Dry-Contact Relays: 2

Open Collector: 1

Type: SPDT N/A

Form C: N/A

Maximum Current Rating: 5 A resistive 50 mA DC

Maximum Voltage Rating: 30 Vdc or 250 Vac

Hysteresis Adjustable: Absolute in engineering units (EUs)

Latch Reset: In test screen only

Delay: 9999.9 seconds (maximum)

Test Mode: Set on/off

Cycle Time: 99999 seconds (maximum)

Maximum Pulse Rate: 400 pulses/minute

Proportional Pulse: 400 pulses/minute

Volumetric Pulse Width: 0.1 to 3200 s

Pulse Width Modulation: 0.1 to 320 s

Input Types

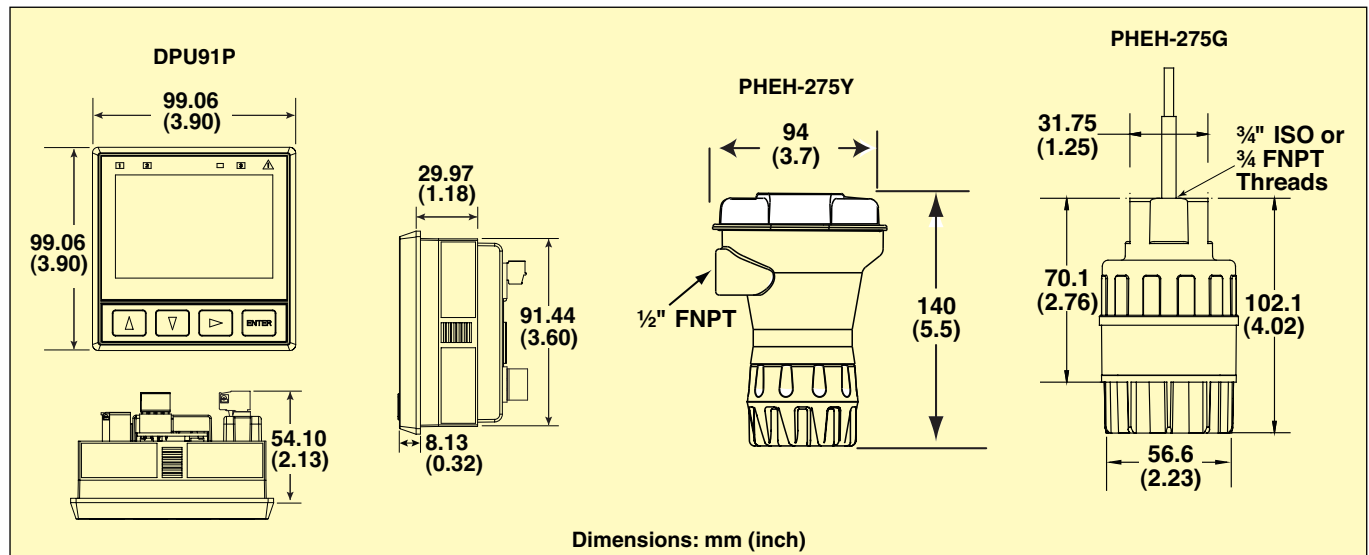
Digital or AC Frequency: pH/ORP input via the digital output from the PHTX-2750 pH/ORP sensor electronics
For flow models visit omega.com/dpu91_flow



Both models shown smaller than actual size.

DPU91 Series with Mating pH/ORP Sensors		
	DPU91	DPU91P
Submersible Mounted PHE-2724, PHE-2726, ORE-2725	FP90UM, PHEH-275G DPU90-AK (optional)	PHEH-275G
In-Line Mounted PHE-2724, PHE-2726, ORE-2725	PHEH-275Y, *Sensor installation fitting, DPU90-AK (optional)	Panel mount displays cannot be mounted integrally to the sensor

* Sensor installation fitting information can be found at omega.com/fp_fittings.





To Order	
Model No.	Description
DPU91	DC powered field mount multi-parameter display and transmitter
DPU91P	DC powered panel mount multi-parameter display and transmitter
PHE-2724	Flat surface pH electrode, ¼ MNPT thread
PHE-2726	Bulb style pH electrode, ¼ MNPT thread
ORE-2725	Flat surface ORP electrode, ¼ MNPT thread
PHEH-275Y	In-line sensor fitting
PHEH-275G	Submersible sensor fitting



DPU90-COMM



DPU90-AK



DPU90-R

Accessories

Model No.	Description
DPU90-R	Programmable dual relay output module, SPDT form C, 5 A resistive load
DPU90-COMM	Communications module, HART® protocol super imposes digital signal onto of 4 to 20 mA
DPU90-AK	Angle adjustment kit for field mount and conductivity/resistivity/salinity input units
DPU90-CT	PC configuration tool, includes software
FP90UM	Universal mounting bracket for remote mounted display
FPM-5000-LTCK	Liquid tight connector kit for liquid tight wiring feed-thru
PHA-4	4.00 pH buffer solution 500 mL (1 pint) bottle
PHA-4-GAL	4.00 pH buffer solution 4 L (1 gal) bottle
PHA-7	7.00 pH buffer solution 500 mL (1 pint) bottle
PHA-7-GAL	7.00 pH buffer solution 4 L (1 gal) bottle
PHA-10	10.00 pH buffer solution 500 mL (1 pint) bottle
PHA-10-GAL	10.00 pH buffer solution 4 L (1 gal) bottle
PHA-DI	Deionized water 500 mL (1 pint) bottle
PHA-DI-GAL	Deionized water 4 L (1 gal) bottle
PHAB-DI	20 single use deionized water packets
PHAB-PH	5 each 4, 7 and 10 buffer packs with 5 deionized water packs

Comes complete with operator's manual (sensors and mounting kits sold separately).

Ordering Examples: DPU91, display/transmitter, PHEH-275G submersible mounting fitting, and FP90UM universal mounting kit for display.

DPU91P, panel mount display/transmitter. PHEH-275Y in-line mounting and electronics kit. and FP-5310 PVC in-line mounting tee 2".

Ion Selective Electrode Selection Guide

To Order					
Electrode	Model No.	Housing	Sensor Type	Direct Measurement Range	
				Molar	PPM
Ammonia (NH ₃)	ISE-8710	Epoxy	Gas-sensing Combination	1.0 to 5x10 ⁻⁷	17000 to 0.01
Ammonium (NH ₄ ⁺)	ISE-8711 ISE-8712	PVC Glass	Polymer membrane mono Combination	1.0 to 5x10 ⁻⁶	18000 to 0.1
Bromide (Br ⁻)	ISE-8720 ISE-8722	Epoxy Glass	Solid-state mono Combination	1.0 to 5x10 ⁻⁶	79900 to 0.4
Cadmium (Cd ₂)	ISE-8730 ISE-8732	Epoxy Glass	Solid-state mono Combination	1x10 ⁻¹ to 1x10 ⁻⁷	11200 to 0.01
Calcium (Ca ₂)	ISE-8740 ISE-8742	PVC Glass	Polymer membrane mono Combination	1.0 to 5x10 ⁻⁶	40000 to 0.2
Carbon Dioxide (CO ₂) Carbonate (CO ₃ ²⁻)	ISE-8750	Epoxy	Gas-sensing Combination	1x10 ⁻² to 1x10 ⁻⁴	440 to 4.4
Chloride (Cl ⁻)	ISE-8760 ISE-8770	Epoxy Glass	Solid-state mono Combination	1.0-5 x 10 ⁻⁵	35500 to 1.8
Copper (Cu ₂)	ISE-8800 ISE-8802	Epoxy Glass	Solid-state mono Combination	1 x 10 ⁻¹ to 1 x 10 ⁻⁸	6350 to 6.4 x 10 ⁻⁴
Cyanide (CN ⁻)	ISE-8780 ISE-8782	Epoxy Glass	Solid-state mono Combination	1 x 10 ⁻² to 5 x 10 ⁻⁶	260 to 0.13
Fluoride (F ⁻)	ISE-8790 ISE-8795	Epoxy Glass	Solid-state mono Combination	Saturated to 1 x 10 ⁻⁶	Saturated to 0.02
Fluoroborate (BF ₄ ⁻)	ISE-8810 ISE-8812	PVC Glass	Polymer membrane mono Combination	1.0 to 7 x 10 ⁻⁶	10800-0.1 (as B)
Iodide (I ⁻)	ISE-8715 ISE-8716	Epoxy Glass	Solid-state mono Combination	1.0 to 5 x 10 ⁻⁸	127000 to 6 x 10 ⁻³
Lead (Pb ₂)	ISE-8725 ISE-8726	Epoxy Glass	Solid-state mono Combination	1 x 10 ⁻¹ to 1 x 10 ⁻⁶	20700 to 0.2
Nitrate (No ₃)	ISE-8735 ISE-8736	PVC Glass	Polymer membrane mono Combination	1.0 to 7 x 10 ⁻⁶	62000 to 0.5
Nitrogen Oxide (NOx)	ISE-8830	Epoxy	Gas Sensing Combination	5 x 10 ⁻³ to 5 x 10 ⁻⁶	220 to 0.2
Perchlorate (ClO ₄ ⁻)	ISE-8840 ISE-8842	PVC Glass	Polymer membrane mono Combination	1.0 to 7 x 10 ⁻⁶	98000 to 0.7
Potassium (K ⁺)	ISE-8745 ISE-8746	PVC Glass	Polymer membrane mono Combination	1.0 to 1 x 10 ⁻⁶	39000 to 0.04
Silver/Sulfide (Ag ⁺ /S ²⁻)	ISE-8755 ISE-8756	Epoxy Glass	Solid-state-mono Combination	Ag ⁺ = 1.0 to 1 x 10 ⁻⁷ S ²⁻ = 1.0 to 1 x 10 ⁻⁷	Ag ⁺ = 107900 to 0.01 S ²⁻ = 32100 to 0.003
Sodium (Na ⁺)	ISE-8765	Glass	Combination	Saturated to 1 x 10 ⁻⁶	Saturated to 0.02
Surfactant (X ⁺ ,X ⁻)	ISE-8880 ISE-8882	PVC Glass	Polymer membrane mono Combination	5 x 10 ⁻² to 1 x 10 ⁻⁵	12000 to 1.0
Water Hardness (Ca ²⁺ /Mg ²⁺)	ISE-8900 ISE-8902	PVC Glass	Polymer membrane mono Combination	1.0 to 1 x 10 ⁻⁵	40000 to 0.4 (as Ca)

* Double Junction Reference Electrode, **PHE-3211**.

Single Junction Reference Electrode, **PHE-3111**.

For Sales **1-800-82-66342**

Ion Selective Electrode Selection Guide

Slope mV per Decade	pH Range	Temp. Range °C	Resp Time Secs	Interferences	Reference Electrode*	Reference Electrolyte
56 ±3	above 11	0 to 50	30	Volatile amines	N/A	NH ₄ CL
56 ±2	4 to 10	0 to 50	30	K ⁺	Double Junction	NaCl
57 ±2	2 to 14	0 to 80	20	S ⁻² , I ⁻ , CN ⁻ , high levels of Cl and NH ₃	Double Junction	KNO ₃ KNO ₃
27 ±2	2 to 12	0 to 80	20	Ag ⁺ , Hg ⁺² , Cu ⁺² , high levels of Pb ⁺² & Fe ⁺²	Double Junction	KNO ₃
27 ±2	3 to 10	0 to 50	30	Pb ⁺² , Hg ⁺² , Cu ⁺² , Ni ⁺²	Single Junction	KCl
56 ±3	4.8 to 5.2	0 to 50	30	Volatile weak acids	N/A	NaHCO ₃
56 ±2	2 to 12	0 to 80	20	S ⁻² , I ⁻ , CN ⁻ , Br ⁻	Double Junction	KNO ₃
27 ±2	2 to 12	0 to 80	20	Ag ⁺ , Hg ₂ ⁺² , high levels of Cl ⁻ , Br ⁻ , Fe ₂ ⁺² , Cd ₂ ⁺²	Double Junction	KNO ₃
57 ±2	11 to 13	0 to 80	20	S ₂ , I ⁻ , Br ⁻ , Cl ⁻	Double Junction	KNO ₃
57±2	5 to 8	0 to 80	20	OH ⁻	Single Junction	KCl
56 ±2	2.5 to 11	0 to 50	30	ClO ₄ ⁻ , I ⁻ , CN ⁻	Double Junction	(NH ₄) ₂ SO ₄
57 ±2	0 to 14	0 to 80	20	S ⁻² , CN ⁻ , Br ⁻ , Cl ⁻ , S ₂ O _{3,2} ⁻ , NH ₃	Double Junction	KNO ₃
25 ±2	3 to 8	0 to 80	20	Ag ⁺² , Hg ⁺² , Cu ⁺² high levels of Cd ⁺² and Fe ⁺²	Double Junction	KNO ₃
56 ±2	5 to 10	0 to 50	30	Na ⁺ , K ⁺ , Ca ⁺²	Double Junction	(NH ₄) ₂ SO ₄
57 ±2	2.5 to 11	0 to 50	30	ClO ₄ ⁻ , I ⁻ , CN ⁻ , BF ₄ ⁻	Double Junction	(NH ₄) ₂ SO ₄
56 ±3	1.1 to 1.7	0 to 50	30	SO ₂ , HF, acetic acid	N/A	NaNO ₂
56 ±2	2.5 to 11	0 to 50	30	no significant interference	Double Junction	(NH ₄) ₂ SO ₄
56 ±2	2 to 12	0 to 50	30	Cs ⁺ , NH ₄ ⁺ ,	Double Junction	NaCl
Ag ⁺ =57±2 S ⁻² =27±2	2 to 12	0 to 80	20	Hg ²⁺ , Hg ⁺	Double Junction	KNO ₃
56 ±2	5 to 12	0 to 80	20	H ⁺ , K ⁺ , Li ⁺ , Ag ⁺ , Cs ⁺ , Tl ⁺	Double Junction	NH ₄ Cl
for titration	2 to 12	0 to 50	30	similar types of surfactants	Single Junction	KCl
26 ±3	5 to 10	0 to 50 (as Ca)	30	Cu ⁺² , Zn ⁺² , Ni ⁺² , Fe ⁺²	Single Junction	KCl

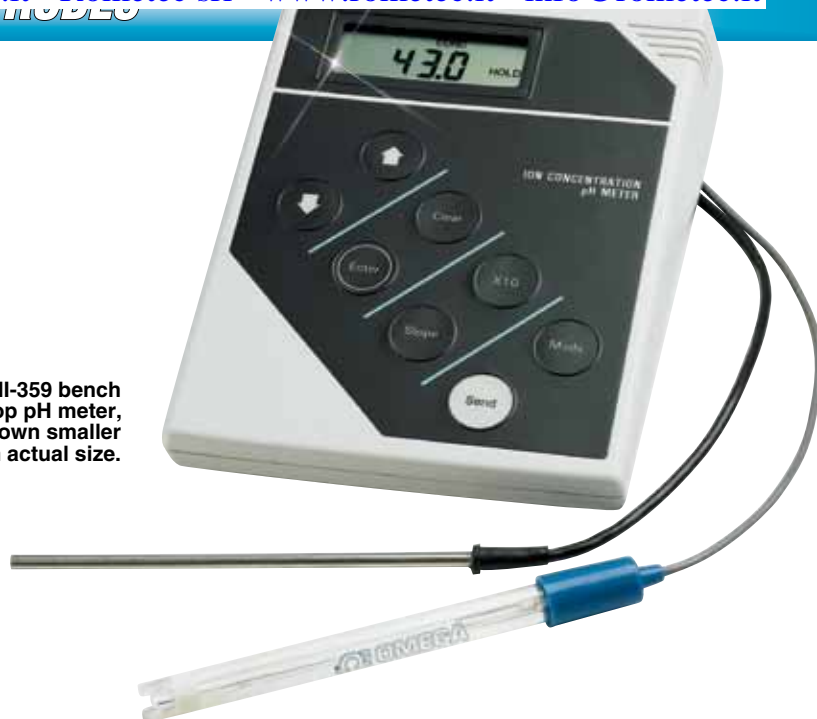
Comes complete with operator's manual.

Ordering Examples: ISE-8711, ammonium electrode. ISE-8756, silver/sulfide electrode.

Order Online

ISE Standards, ISA & Reference Outer-Fill Solutions

PHI-359 bench top pH meter, shown smaller than actual size.



To Order						
Electrode	Standard (475 mL)			ISA (475 mL)	Reference Outer-Fill (125 mL)	
	0.1 m Model No.	1000 PPM Model No.	100 PPM Model No.	Model No.	Single Junction	Double Junction
Ammonia	ISE-8710-S1	ISE-8710-S2	ISE-8710-R2	PHFS-8710	-	-
Ammonium	ISE-8711-S1	ISE-8711-S2	ISE-8711-S3	ISE-8711-R1	PHFS-1042	PHFS-1043
Bromide	ISE-8720-S1	ISE-8720-S2	-	ISE-8720-R1	-	PHFS-NO3
Cadmium	-	-	-	ISE-8730-R1	-	PHFS-NO3
Calcium	ISE-8740-S1	ISE-8740-S2	ISE-8740-S3	ISE-8740-R1	-	PHFS-4MKCL
Carbon Dioxide	ISE-8750-S1	ISE-8750-S2	ISE-8750-S3	ISE-8750-R1	PHFS-8750	-
Chloride (Solid State, PVC)	ISE-8770-S1	ISE-8770-S2	ISE-8770-S3	ISE-8770-R1 PHFS-1045	PHFS-1046 PHFS-1044	PHFS-NO3
Copper	ISE-8800-S1	ISE-8800-S2	-	ISE-8800-R1	PHFS-1046	PHFS-NO3
Cyanide	-	-	-	-	PHFS-1046	PHFS-NO3
Fluoride	ISE-8790-S1	ISE-8790-S2	-	ISE-8790-R2 ISE-8790-R1	PHFS-KCL	PHFS-4MKCL
Fluoroborate	ISE-8810-S1	ISE-8810-S2	-	ISE-8810-R1	PHFS-1045	PHFS-1044
Iodide	ISE-8715-S1	ISE-8715-S2	-	ISE-8715-R1	PHFS-1046	PHFS-NO3
Lead	ISE-8725-S1	-	-	ISE-8725-R1	PHFS-1046	PHFS-NO3
Lithium	-	-	-	-	PHFS-1041	PHFS-1044
Nitrate	ISE-8735-S1	ISE-8735-S2	ISE-8735-S3	ISE-8735-R1	PHFS-1045	PHFS-1044
Nitrogen Oxide	ISE-8830-S1	ISE-8830-S2	ISE-8830-S3	ISE-8830-R1	PHFS-NOX	-
Perchlorate	ISE-8840-S1	ISE-8840-S2	-	ISE-8840-R1	PHFS-1045	PHFS-1044
Potassium	ISE-8745-S1	ISE-8745-S2	-	ISE-8745-R1	PHFS-1042	PHFS-1043
Silver/Sulfide	ISE-8755-S1	ISE-8755-S2	-	ISE-8755-R1	PHFS-1046	PHFS-NO3
Sodium (Glass)	ISE-8765-S1	ISE-8765-S2	ISE-8765-S3	ISE-8765-R1	PHFS-1041	PHFS-1047
Sodium (PVC)	ISE-8860-S1	ISE-8860-S2	ISE-8860-S3	ISE-8860-R1	PHFS-1041	PHFS-1047
Surfactant	ISE-8880-S1	ISE-8880-S2	-	ISE-8880-R1	PHFS-KCL	PHFS-4MKCL
Water Hardness	ISE-8900-S1	ISE-8900-S2	ISE-8900-S3	ISE-8900-R1	PHFS-KCL	PHFS-4MKCL

For Sales **1-800-82-66342**



Description

The AM-2250 series is built on the legacy of the Shark and 2200 controllers. Like its predecessors it is designed to be the most flexible, easy to use, and easy to see multi-parameter controller on the market.

Four Parameters

Select the parameter you wish to measure from the easy-to-use menu. Choose Conductivity, pH, ORP or Flow. The user interface was designed under the principle that the user should not need to read the manual.

Three Relays

The AM-2250 provides control of external devices using its three independent control and alarm relays. Each relay has adjustable high, low, and in range set-points, cycle timer with adjustable on and off times. This feature enables tighter control of batch processes by eliminating chemical overshoot. Third relay can be activated by temperature or flow totalizer reading as well.

Analog Outputs

The AM-2250 provides two isolated, independent and scalable 4-20 mA outputs.

One 4-20 mA output can be configured for PID control. The second 4-20mA output can be set for process or temperature.

Zero Cards

The AM-2250 comes complete. There are no extra costs associated with buying boards for different sensors, or buying components to achieve NEMA 4X.

Enclosure

The AM-2250 is packaged in a rugged NEMA 4X polycarbonate enclosure making it ideally suited for indoor and outdoor heavy-duty applications. A mounting kit is included for surface and panel mounting. The enclosure outline makes panel-mount cutouts simple. Pipe mounting kits are available.

One Big Display

The AM-2250 features a backlit LCD display can be seen from a distance. The keypad allows easy entry of menu items and numeric values.

Calibration

No other controller offers the same combination of flexibility and ease for calibration. The process value is visible during calibration so the user knows when it has settled down. Calibration of pH can be with 2 or 3 points. Calibration of conductivity can take as many as 16 points so acids and bases can be measured through their conductivity.

All Calibration data is stored.

Features

- pH, ORP, conductivity & flow parameters available
- Highly visible large backlit LCD display
- Flexible and easy calibration, including multi-point conductivity calibration for acids and bases
- Two 4-20mA process output with range scaling and PID Control
- Universal mounting hardware for surface, panel and pipe mounting
- Compatible with AquaMetrix models 60-series differential pH/ORP sensors, 500-series combination style pH/ORP sensors, AS/AM-series conductivity sensors, and most pulsed flow sensors
- Temperature or flow totalizer output
- Three control/alarm relays with temperature or flow totalizer output option

Applications

- Industrial process control, e.g. plating, food and beverage, chemical processing, pulp & paper, mining, food and beverage
- Municipal water and wastewater treatment
- Industrial and municipal waste treatment and Neutralization
- Fume scrubbers
- HVAC, cooling towers and boilers



AquaMetrix
by  Water Analytics

100 School Street
Andover, MA 01810
978-749-9949

Toll free - 855-747-7623
www.WaterAnalytics.net

Technical Data

Probe Parameters				
	pH	ORP	Conductivity	Flow
Sensor	6-Wire Differential or Combination	6-Wire Differential or Combination	4-Wire contacting : Any cell constant between 0.01 and 100	Pulse output: Paddle-wheel, Magmeter
Temperature Elements	100, 1000 Ω RTD 300, 3000 Ω NTC or none	100, 1000 Ω RTD 300, 3000 Ω NTC or none	100, 1000 Ω RTD 300, 3000 Ω NTC	n/a
Sensor Input	-600 to +600 mV	-999 to +999 mV	0 to 9999 Ω	0 to 2000 Hz
Measurement Range (Process)	0 to 14 pH	-1000 to +1000mV	0.055 to 500,000 μS/cm (Depending on the cell constant)	0 to 999 in any units
Measurement Range (Temperature)	-20 to 120 °C	-20 to 120 °C	-20 to 120 °C	Flow Totalizer 0 to 999 in any units
Temperature Compensation	Automatic or none	Display temperature	Automatic or Manual -20 to 120 °C	Display Flow Totalizer
Calibration modes	pH: Automatic or Manual 2 or 3 points	ORP: Manual 1 point	Up to 16 points	K factor input
Outputs				
Analog	Two 4-20 mA outputs Scalable 4-20mA with PID (Process) Scalable 4-20mA (Process or Temperature) Optically isolated. Max Load - 800 Ω			
Relays	3 Dry contact relay with snubber circuit 10A @ 120/240 VAC or 8A @ 30 VDC (Resistive Load) 5A @ 120/240 VAC or 4A @30 VDC (Inductive load)			
Relay Modes	Rising/Falling/In Range. Options: Relay Delay, Cycle, Overfeed Timer, Override One relay can be triggered by temperature or flow totalizer.			
Ratings				
Ingress Protection	NEMA 4X			
Electrical	ETL (US and Canada) and CE pending			
Max. Power Input	0.2 A @ 115 VAC or 15 W			
Temperature	-20 to 70 °C			
Humidity	0 to 90% Relative Humidity, non-condensing			
Physical				
Mounting	Wall mount, panel mount with kit provided. pipe mount with optional kit			
Dimensions	Front cover: 5.5"x5.5" (14 cm x 14 cm). Depth: 5" (13 cm)			
Power	120/240 VAC, 50 or 60 Hz			
Weight	2 lbs			
Protection	NEMA 4X			
Panel Cut-out	5.4" x 5.4" (138 x 138 mm) full DIN			



Features

- pH, ORP, conductivity & flow parameters available
- Highly visible large LCD display
- Flexible and easy calibration, including multi-point conductivity calibration for acids and bases
- 4-20mA process output with range scaling and PID Control
- Universal mounting hardware for surface, panel and pipe mounting
- Compatible with AquaMetrix models 60-series differential pH/ORP sensors, 500-series combination style pH/OR sensors, AS/AM-series conductivity sensors, and most pulsed flow sensors
- 16-32 vdc loop powered

Description

The AM-2250TX series is built on the legacy of the SharkTX transmitter. Like its predecessor it is designed to be the most flexible, easy to use, and easy to see multi-parameter transmitter on the market.

Four Parameters

Select the parameter you wish to measure from the easy-to-use menu. Choose Conductivity, pH, ORP or Flow. The user interface was designed under the principle that the user should not need to read the manual.

Analog Outputs

The AM-2250TX is a loop powered device. It provides one isolated, scalable 4-20 mA output.

The 4-20 mA output can be configured for PID control. Most users will only use proportional control but the integral and derivative terms are there for advanced control.

Zero Cards

The AM-2250TX comes complete. There are no extra costs associated with buying boards for different sensors, or buying components to achieve NEMA 4X.

Enclosure

The AM-2250TX is packaged in a rugged NEMA 4X polycarbonate enclosure making it ideally suited for indoor and outdoor heavy-duty applications. A mounting kit is included for surface and panel mounting. The enclosure outline makes panel-mount cutouts simple. Pipe and DIN-rail mounting kits are available.

One Big Display

The AM-2250TX features a large LCD display that can be seen from a distance. The keypad allows easy entry of menu items and numeric values.

Calibration

No other controller offers the same combination of flexibility and ease for calibration. The process value is visible during calibration so the user knows when it has settled down. Calibration of pH can be with 2 or 3 points. Calibration of conductivity can take as many as 16 points so acids and bases can be measured through their conductivity.

All Calibration data is stored.

Applications

- Industrial process control, e.g. plating, food and beverage, chemical processing, pulp & paper, mining, food and beverage
- Municipal water and wastewater treatment
- Industrial and municipal waste treatment and Neutralization
- Fume scrubbers
- HVAC, cooling towers and boilers



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by  Water Analytics

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978-749-9949

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Technical Data

Probe Parameters				
	pH	ORP	Conductivity	Flow
Sensor	6-Wire Differential or Combination	6-Wire Differential or Combination	4-Wire contacting : Any cell constant between 0.01 and 100	Pulse output: Paddle-wheel, Magmeter
Temperature Elements	100, 1000 Ω RTD 300, 3000 Ω NTC or none	100, 1000 Ω RTD 300, 3000 Ω NTC or none	100, 1000 Ω RTD 300, 3000 Ω NTC	n/a
Sensor Input	-600 to +600 mV	-999 to +999 mV	0 to 9999 Ω	0 to 2000 Hz
Measurement Range (Process)	0 to 14 pH	-999 to +999 mV	0.055 to 500,000 μS/cm (Depending on the cell constant)	0 to 999 in any units
Measurement Range (Temperature)	-20 to 120 °C	-20 to 120 °C	-20 to 120 °C	Flow Totalizer 0 to 999 in any units
Temperature Compensation	Automatic or none	Display temperature	Automatic or Manual -20 to 120 °C	Display Flow Totalizer
Calibration modes	pH: Automatic or Manual 2 or 3 points	ORP: Manual 1 point	Up to 16 points	K factor input
Outputs				
Analog	One 4-20 mA output Scalable 4-20mA with PID (Process) Optically isolated. Max Load - 800 Ω			
Relays	None			
Relay Modes	N/A			
Ratings				
Ingress Protection	NEMA 4X			
Electrical	ETL (US and Canada) and CE pending			
Max. Power Input	20 mA @ 24 VDC			
Temperature	-20 to 70 °C			
Humidity	0 to 90% Relative Humidity, non-condensing			
Physical				
Mounting	Wall mount, panel mount with kit provided. DIN rail and pipe mount with optional kit			
Dimensions	Front cover: 5.5"x5.5" (14 cm x 14 cm). Depth: 5" (13 cm)			
Power	16-32 VDC (24VDC nominal)			
Weight	2 lbs			
Protection	NEMA 4X			
Panel Cut-out	5.4" x 5.4" (138 x 138 mm) full DIN			

pH and Temperature Data Logger with LCD Display

OM-CP-PHTEMP2000



- ✓ Large LCD Display
- ✓ Works with OMEGA® PHE-4200 Series of pH Probes
- ✓ Real-Time Operation
- ✓ Programmable Engineering Units
- ✓ NIST Traceable Calibration
- ✓ Automatic Temperature Compensation
- ✓ Programmable Start-Time

The OM-CP-PHTEMP2000 is a battery powered, stand alone pH and temperature data logger with an LCD.

The OM-CP-PHTEMP2000 will directly connect to many commonly used pH, ORP and ISE electrodes through a female BNC connector mounted on its side. Temperature compensation is done automatically by connecting an RTD to the unit. The storage medium is non-volatile solid state memory, providing maximum data security even if the battery becomes discharged.

The OM-CP-PHTEMP2000 makes data retrieval quick and easy. Simply plug it into an empty com port and our user-friendly software does the rest.

SPECIFICATIONS

TEMPERATURE

Input: 100Ω Pt RTD

Measurement Range: -40 to 110°C (-72 to 230°F, 80 to 145 °F)

Resolution: 0.01°C (0.001 °F)

Calibrated Accuracy: ±0.15°C @ 25°C ambient (±0.015 °F)

Input Connection: Removable screw terminal; 2-, 3- or 4-wire interface

PH/ORP/ISE

Input Connection: Female BNC

Measurement Range: -2.00 to 16.00 pH

Resolution: 0.01 pH (0.001 pH)

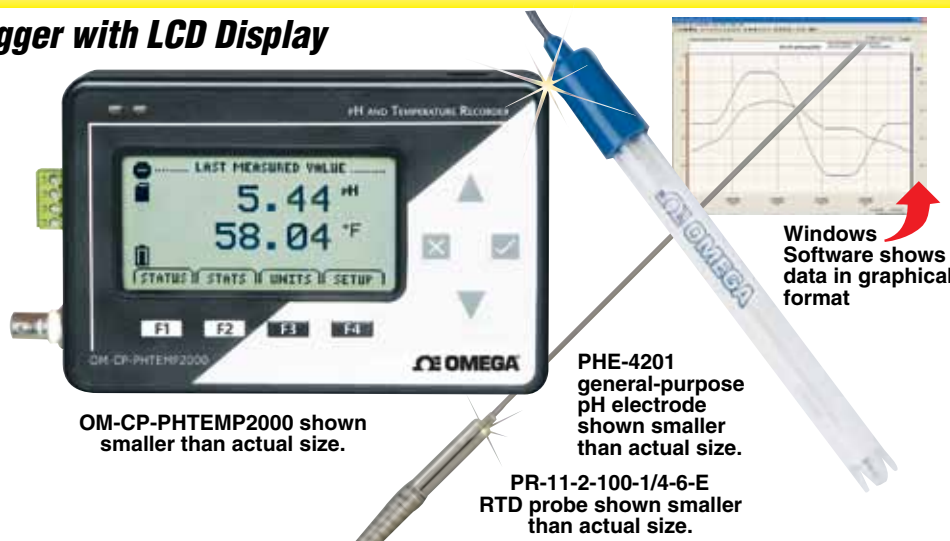
pH Accuracy: ±0.01 pH

pH EMI Susceptibility: <0.2 pH @ 3V/M, 80 MHz to 1 GHz

ORP/ISE Accuracy: ±0.1 mV

ORP/ISE Susceptibility: <10 mV @ 3V/M, 80 MHz to 1 GHz

Input Impedance: 10¹² Ω typical



OM-CP-PHTEMP2000 shown smaller than actual size.

PHE-4201 general-purpose pH electrode shown smaller than actual size.

PR-11-2-100-1/4-6-E RTD probe shown smaller than actual size.

Windows Software shows data in graphical format

Start Modes: Software programmable immediate start or delay start up to six months in advance

Real-Time Recording: May be used with PC to monitor and record data in real time

DOT-MATRIX LCD

Dimensions: 35 H x 63 mm W (1.375 x 2.5")

Text: Configurable channel text size

Indicators: Power, status, memory

Backlight: Configurable w/auto shut-off and contrast adjustment

Memory: 131,071 readings per channel

Reading Rate: 1 reading every 2 seconds to 1 every 24 hours

Calibration: Digital calibration through software

Battery Type: 9V lithium or alkaline battery (included); user replaceable

Battery Life: 1 year battery life at 1 minute reading rate with display off; 30 days typical with continuous display use; optional AC adaptor available

Data Format: Date and time stamped °C, °F, K, R, Ω; pH, V, mV, engineering units specified through software

Time Accuracy: ±1 minute/month (at 25°C; RS232 cable not in use)

Computer Interface: PC serial or USB (interface cable required); 115,200 baud

Software: XP SP3/Vista/7 and 8 (32-bit and 64-bit)

Operating Environment: -5 to 50°C (23 to 122°F), 0 to 95% RH (non-condensing)

Dimensions: 84 H x 122 W x 32 mm D (3.3 x 4.8 x 1.25")

Weight: 440 g (16 oz)

To Order	
Model No.	Description
OM-CP-PHTEMP2000	pH and temperature data logger with LCD display
OM-CP-PHTEMP2000-CERT	pH and temperature data logger with LCD display and NIST calibration certificate
OM-CP-IFC200	Windows software and 1.8 m (6') USB interface cable
OM-CP-SVP-SYSTEM	FDA 21 CFR part 11 compliant IQ/OQ/PQ secure software validation workbook and software package (unlimited users, license per computer)
OM-CP-BAT103	Replacement 9V lithium battery
OM-CP-110-PWR-2000	110 Vac power adaptor
OM-CP-220-PWR-2000	220 Vac power adaptor
PHE-4201	General purpose pH electrode
PR-11-2-100-1/4-6-E	General purpose 100Ω RTD probe, 6" sheath, 1/4" diameter

Operator's manual and USB cable are included with the OM-CP-IFC200 (software is required to operate the data logger and is sold separately).

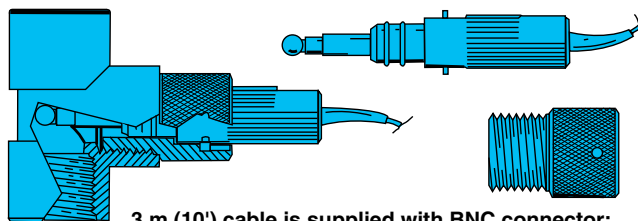
Ordering Example: OM-CP-PHTEMP2000, pH and temperature data logger and OM-CP-IFC200, Windows software and 1.2 m (4') USB cable.



Industrial Electrodes

Twist Lock Industrial Electrodes and Adaptors

Specially designed to withstand harsh industrial environments, the twist lock-style combination electrode features a non-fouling annular ceramic junction and an electrode housing of PVDF construction with 316SS locking pins. Dual "O" rings (1 EPR, 1 FKM) are supplied to prevent process contact with potting epoxy. A choice of PVC or PVDF adaptors is available with 3/4 or 1 NPT threading.



3 m (10') cable is supplied with BNC connector; withstands pressure up to 150 psi.



Electrodes

Model No.	pH Range	Temp °C (°F)	R MΩ at 25°C (77°F)	Notes
PHE-5321-10	0 to 13	-5 to 110 (23 to 230)	50	General purpose
PHE-5421-10	0 to 13	-5 to 110 (23 to 230)	50	Double junction
PHE-5322-10	0 to 14	0 to 110 (32 to 230)	200	High pH
ORE-5421-10	ORP Platinum	-5 to 110 (23 to 230)	—	ORP general purpose Pt
ORE-5329-10	ORP Gold	-5 to 110 (23 to 230)	—	ORP with cyanide present Av

Pipe Tees

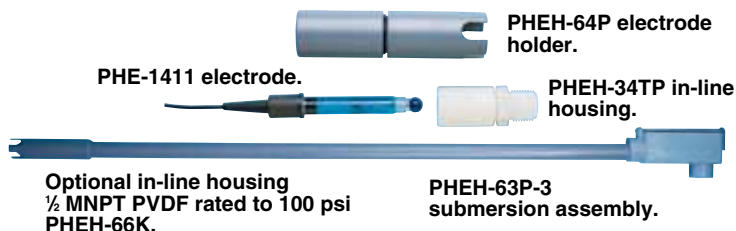
Model No.	Fitting	Material	Maximum Temperature
PHEH-34TP	3/4 MNPT	CPVC	66°C (151°F)
PHEH-1TP	1 MNPT	CPVC	66°C (151°F)
PHEH-34TK	3/4 MNPT	PVDF	110°C (230°F)
PHEH-1TK	1 MNPT	PVDF	110°C (230°F)

Twist Lock Adaptors

Model No.	Fitting	Material	Maximum Temperature
PHEH-34AP	3/4 MNPT	CPVC	66°C (151°F)
PHEH-1AP	1 MNPT	CPVC	66°C (151°F)
PHEH-34AK	3/4 MNPT	PVDF	110°C (230°F)
PHEH-1AK	1 MNPT	PVDF	110°C (230°F)

Rebuildable Submersible Electrode Assemblies

OMEGA® Submersible Electrode Assemblies are intended for use in industrial and process ORP/pH measurement applications. For versatility, modular construction allows quick removal of the sealed combination electrode and easy mounting onto 3/4" pipe. The CPVC or PVDF housings permit use in hostile environments. The electrodes utilize annular non-fouling reference junctions.



Electrodes

Model No.	Length mm (inch)	Dia mm (inch)	pH Range	Temp °C (°F)	R MΩ at 25°C (77°F)	Notes
PHE-6361-3	80 (3.13)	12 (0.47)	0 to 13	-5 to 100 (23 to 212)	50	General purpose
PHE-6362-3	80 (3.13)	12 (0.47)	0 to 14	0 to 110 (32 to 230)	200	High pH
PHE-6461-3	80 (3.13)	12 (0.47)	0 to 13	-5 to 100 (23 to 212)	50	Double junction
PHE-6462-3	80 (3.13)	12 (0.47)	0 to 14	0 to 110 (32 to 230)	200	Double junction high pH
ORE-6361-3	80 (3.13)	12 (0.47)	ORP Pt	-5 to 110 (23 to 230)	—	ORP general purpose Pt
ORE-6461-3	80 (3.13)	12 (0.47)	ORP Pt	-5 to 110 (23 to 230)	—	ORP double junction Pt
ORE-6469-3	80 (3.13)	12 (0.47)	ORP Gold	-5 to 110 (23 to 230)	—	ORP double junction for application with cyanide (Au)

* Specify type of temperature compensation. Visit omega.com. Order electrode and housing separately.

Submersion Assemblies

Model No.	Length	Dia.	Material	Temp °C (°F)
PHEH-63P-3	3'	3/4"	CPVC	-5 to 80 (23 to 186)
PHEH-63K-3	3'	3/4"	PVDF	-5 to 110 (23 to 230)

Comes complete with instruction sheet.
Ordering Example: PHE-6361-3, electrode.

Replacement Electrode Holders

Model No.	Material	Temp °C
PHEH-64P	CPVC	-5 to 80
PHEH-64K	PVDF	-5 to 110

Order Online



Microprocessor-Based pH Controller with Automatic Temperature Compensation

PHCN-37 Series



- ✓ Microprocessor-Based Versatility
- ✓ High and Low Alarm Setpoints
- ✓ Scalable 4 to 20 mA, 0 to 20 mA or 0 to 10V Output
- ✓ Compact Panel Design

This microprocessor-based family of pH panel mounted controller is designed for a wide variety of environmental monitoring applications. The units feature automatic or manual temperature compensation of pH, two 5 A mechanical relays and a choice of a scalable 4 to 20 mA, or 0 to 20 mA control or recording output or a 0 to 10V output. For ease of operation all calibration and parameter setpoints are selectable through the front keypad. The PHCN-37 can be interfaced with a variety of pH electrodes.

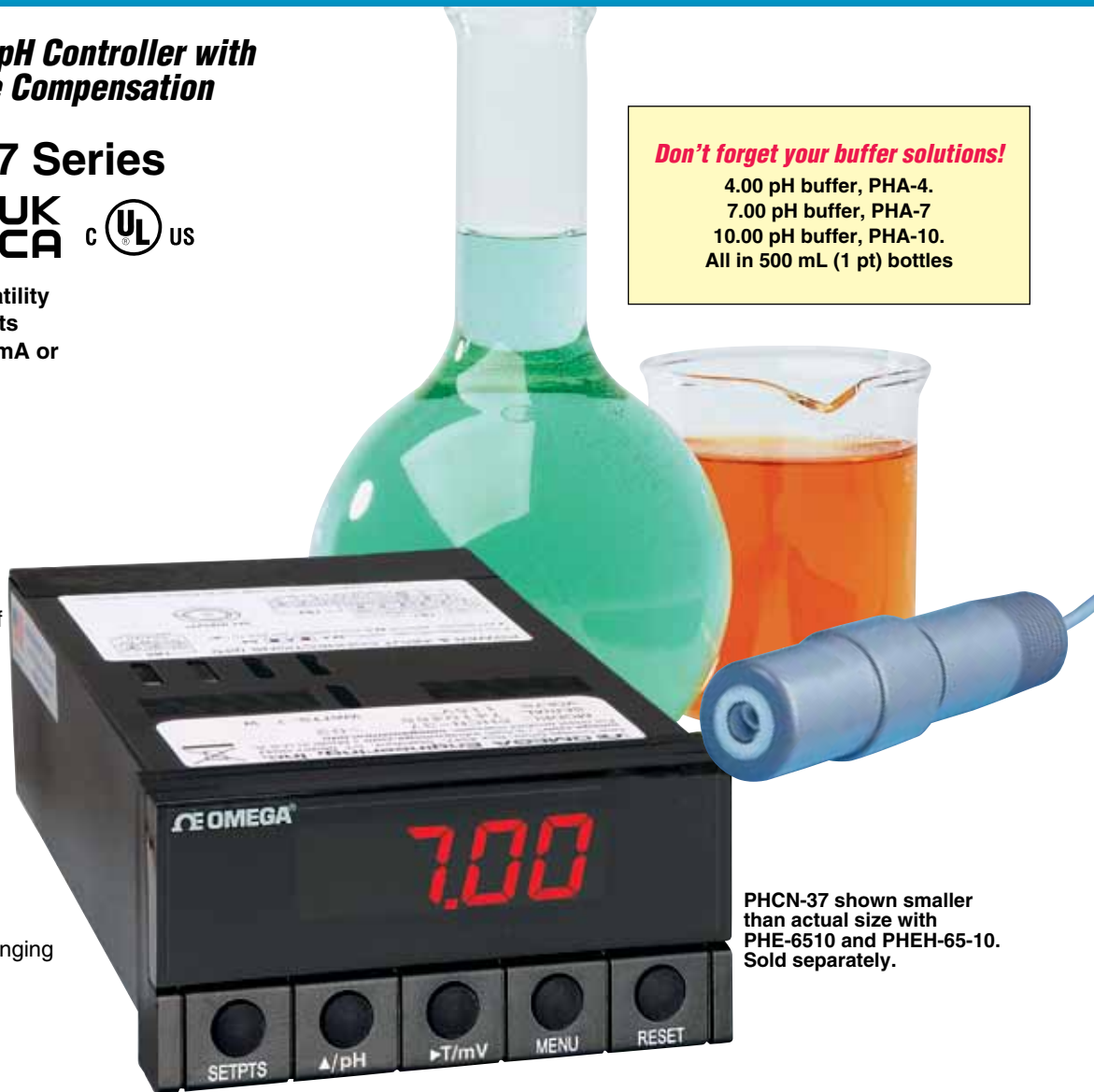
Specifications

Resolution: 0.1, 1 mV
Accuracy: 0.1 mV @ 25°C
Decimal Point: 2 position auto ranging pH and Temperature
Range: 0 to 14.00 pH; 0 to 100°C (32 to 212°F)
Resolution: 0.01 pH, 0.1°C
Calibration pH: 2 or 3 point
Accuracy: ±0.03 pH; ±0.5°C
Common Specifications
Display: 4-digit, LED, 13.7 mm (0.54")
Relays: 2 From "C" on/off relays. Configurable for latched and unlatched by software.

Max Current: 5 AMPS, **Resistive Load***
 Max Voltage: 250 V AC or 28 V DC

***Important Note:** For inductive loads not to exceed maximum voltage/current relay specifications, a proper TVS protection diode needs to be used externally across Wiper and NC/NO contacts of relays.

Output: 4 to 20 mA, 0 to 20 mA or 0 to 10V (scalable) software selectable
Input Impedance: >10¹² Ω



Don't forget your buffer solutions!

4.00 pH buffer, PHA-4.
 7.00 pH buffer, PHA-7
 10.00 pH buffer, PHA-10.
 All in 500 mL (1 pt) bottles

PHCN-37 shown smaller than actual size with PHE-6510 and PHEH-65-10. Sold separately.

Temperature Compensation: Manual or Automatic, 0 to 100°C using Pt 100 Ω or Pt 1000 Ω
RTD Connectors: pH/ORP-BNC; Temperature -terminal strip
Power: 115 Vac, 230 Vac; 10 to 32 Vdc

Panel Cutout: 1/8 DIN, 45 H x 92 mm W (1.772 x 3.622")
Dimensions: 48 H x 96 W x 177 mm D (1.89 x 3.78 x 7.00")
Weight: 580 g (1.27 lb)

To Order

Model No.	Description
PHCN-37	Microprocessor-based pH controller. 115 VAC power.
PHCN-37-230	Microprocessor-based pH controller. 230 VAC power.
PHCN-37-DC10/32	Microprocessor-based pH controller. 10/32 VDC power.

Comes complete with operator's manual.

To order with isolated analog output, add suffix "-AI" to model number for additional cost.

To order with 10 to 32 Vdc power, add suffix "-DC10/32" to model number for additional cost.

Ordering Examples: PHCN-37 microprocessor-based pH controller.



pH Controller and Transmitter

PHCN-961



- ✓ Measure Temperature and Control pH or ORP
- ✓ Built-In Memory Backup When Power Fails
- ✓ NEMA 4X (IP65) Wall or Panel Mount Enclosures
- ✓ -2 to 16 pH Range
- ✓ 4 to 20 mA Output
- ✓ Display 4-Digit LCD 13.7 mm (0.54")
- ✓ LCD Blue Backlight
- ✓ RS485 Communications

The PHCN-961/962 series of pH controller and transmitter provides a reliable method of monitoring and controlling pH in water treatment, electrolytic water cleaning, chemical industry, food process, cleaning water or wastewater treatment, and neutralization processes.

The controllers standard features include a digital display capable of displaying pH readings between -2 and 16 pH or ORP readings between -2000 and 2000 mV. Additional features include temperature, and status of relays, adjustable dual alarm set points, dead band adjustments of 0.01 to 2 pH of the setpoint, and menu-driven program to set up pH or ORP calibration.

The PHCN-961/962 is a basic pH or ORP controller, it includes a NEMA 4X (IP65) enclosure, digital display, two separate setpoints for high and low alarms, adjust dead bands, three 1 A SSRs. Accepts one pH or ORP electrode input through supplied pH transmitter.

Specifications

- pH Range:** -2.00 to 16.00 pH
- pH Resolution:** 0.01 pH
- pH Accuracy:** ±0.01 pH
- mV Range:** -1999 to 1999 mV
- mV Resolution:** 1 mV
- mV Accuracy:** ±1 mV
- Temperature Range:** -9.9 to 130°C
- Temperature Resolution:** 0.1°
- Temperature Accuracy:** ±0.5°C
- Temperature Sensor:** 1000 Ω Pt RTD
- Temperature Compensation:** Automatic with ±10°C offset adjustment or manual
- Cleaning/Recalibration Notification:** Programmable from 1 to 999 hours
- pH Deadband Adjust:** 0.01 to 2 pH
- ORP Deadband Adjust:** 1 to 200 mV
- Relay Output:** Three SPST relays, rated 250V @ 1 A
- Analog Output:** 0 to 20 mA/4 to 20 mA isolated current output
- Signal Output Load:** 600 Ω
- pH/ORP Input:** BNC connector
- Input Impedance:** 10¹³ Ω
- Communications:** RS485 client program
- Power:** 110 or 220 Vac, 50 or 60 Hz
- Display:** 4-digit LCD, 13.7 mm (0.54"); blue backlit
- Operating Ambient:** -10 to 50°C (14 to 122°F); 10 to 95% RH, non-condensing



PHCN-961, shown smaller than actual size.

Dimensions:

PHCN-961 Panel Mount: 108 H x 100 W x 148 mm D (4.25 x 3.93 x 5.82")

PHCN-962 Wall Mount: 213 H x 185 W x 113 mm D (8.39 x 7.28 x 4.45")

Panel Cutout, PHCN-961: 93.5 mm² (3.68 in²)

To Order

Model No.	Description
PHCN-961	Panel mount pH controller
PHCN-962	Wall mount pH controller

Accessories

Model No.	Description
PHE-7351-15	Industrial pH electrode for in-line or submersible (does not require mounting assembly)
PHE-6510	Submersible pH electrode
ORE-6510	ORP submersible electrode
PHEH-65-10	Mounting assembly for ORE-6510 and PHE-6510 (Required)
PHA-4	Buffer solution, pH 4.00, 500 mL (1 pt) bottle
PHA-7	Buffer solution, pH 7.00, 500 mL (1 pt) bottle
PHA-10	Buffer solution, pH 10.00, 500 mL (1 pt) bottle

Comes complete with operator's manual.

Ordering Example: PHCN-961, panel mount pH controller, PHE-6510, pH electrode, PHEH-65-10, mounting assembly, PHA-4, buffer 4, PHA-7, buffer 7.

Order Online



In Line Flat Surface pH/ORP Electrodes

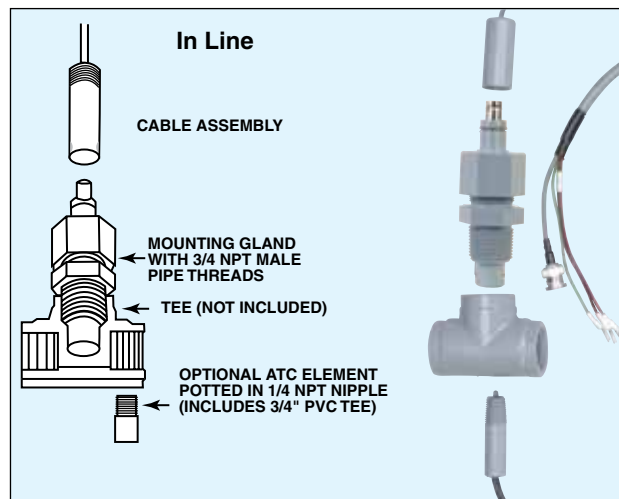
PHE-5460 Series



PHE-5460, and PHEH-54-10-PT100, shown smaller than actual size.



- ✓ Designed For 3/4, 1, or 2" Pipes or Pipe Tees
- ✓ CPVC Construction with Acryl Gel Standard For High Temperature Applications



In Line Electrodes for 3/4, 1, 2" Pipe

Flat Surface In-Line Electrodes (CPVC)

In-Line Electrodes

The PHE/ORE-5460 in-line pH and ORP electrodes feature a flat, self-cleaning abrasion-free surface. When exposed to turbulent flow, the resulting scrubbing action keeps the electrodes clean. The electrodes can be used in applications with 0 to 87°C (32 to 190°F) temperatures, pressures up to 6.89 bar (100 psig) and a 0 to 14 pH measurement range. Having fresh material sweeping past the electrode's surface improves response time as well as accuracy, especially for the measurement of oily waste fluids, lime slurries, flocculant and emulsions. The electrodes accept a cable assembly with a gland mounted in a 3/4, 1 or 2 NPT tee.

In-line electrodes are ideal for replacing existing threaded electrodes. They are used in applications where flow can be shut off for electrode maintenance.

The high temperature Acrylamide gel is supplied as standard with the PHE-5460 electrodes. These are only available with CPVC construction.

Maximum Temperature: 87°C (190°F)

Available Options:

- “-HF” Fluoride resistant, additional cost
- “-LC” Low conductivity, additional cost
- “-GL” Ground loop, additional cost

To Order

Model No.	Description
PHE-5460	pH electrode for 3/4" pipe, CPVC
PHE-5460-1	pH electrode for 1" pipe, CPVC
PHE-5460-2	pH electrode for 2" pipe, CPVC
ORE-5460	ORP electrode for 3/4" pipe, CPVC
ORE-5460-1	ORP electrode for 1" pipe, CPVC
ORE-5460-2	ORP electrode for 2" pipe, CPVC
Mounting Assemblies (CPVC) — Required for Installation	
PHEH-54-10	3/4 NPT mounting assembly and cable without ATC
PHEH-54-10-1	1 NPT mounting assembly and cable without ATC
PHEH-54-10-2	2 NPT mounting assembly and cable without ATC
PHEH-54-10-(*)	3/4 NPT mounting assembly and cable with ATC
PHEH-54-10-1-(*)	1 NPT mounting assembly and cable with ATC
PHEH-54-10-2-(*)	2 NPT mounting assembly and cable with ATC

Note: Temperature compensation is not required with ORP electrodes.

Order electrode and mounting assemblies separately. Materials of construction must be the same. Mounting Assemblies come with 3 m (10') cable with BNC connector. Cable lengths available up to 15 m (50'). Consult Engineering for ordering information and per foot price of additional cable.

* Specify ATC Sensor

Order Code	Description
PT100	100 Ω Pt RTD
PT1K	1000 Ω Pt RTD
TH700	Series 700 Thermistor
R3K	3000 Ω Balco

NOTE: At the time of initial purchase, please order both electrode and mounting assembly. Mounting assembly includes insertion assembly and cable. If ordered with automatic temperature compensation (ATC), the temperature compensator is built into the insertion assembly. When electrode has expired, simply re-order electrode.

Ordering Examples: PHE-5460-GL-HF 3/4" in-line pH electrode with ground loop interrupt circuit and HF resistant glass.

PHEH-54-10-PT100 mounting assembly with 3/4 NPT with 100 Ω Pt RTD ATC and 3 m (10') cable.

PHE-5460, 3/4" in-line pH electrode, PHEH-54-10, mounting assembly with 3/4 NPT with 3 m (10') cable.



Submersible Flat Surface pH/ORP Electrodes

PHE-6510 Series



PHE-6510 and PHEH-65-10, shown larger than actual size.

- ✓ CPVC or PVDF Construction
- ✓ Designed For Mounting in Tanks and Flumes
- ✓ Easy Mounting in Tanks

Submersion Electrodes

The OMEGA® PHE/ORE-6510 submersible electrodes are designed for use in drums, open tanks and streams, etc. The flat sensing surface is surrounded by a porous polyethylene reference junction which minimizes fouling. Electrode installation and removal done by a simple ¼ turn quick disconnect. The cable assembly's cap has ½ MNPT thread, which can be connected to a coupling and support pipe. The pipe allows easy mechanical mounting and protects the cable from the liquid measured. The resulting assembly is lightweight for convenient handling when maintenance is needed. ATC is available as part of the mounting assembly.

The flat surface design is well suited for applications with relatively high suspended solids or where flocculation operations require low velocities.

Where only low velocities are present and coating is a problem, the electrode can be mounted at a 45° angle facing the flow so as to obtain increased scrubbing action across the measuring surface.

Specifications

Maximum Temperature

Standard Models: 65°C (150°F)

“-ACRYL” Units: 87°C (190°F) CPVC body 100°C (212°F)

PVDF body

Available Options: “-ACRYL” Acrylamide gel,
“-HF” Fluoride resistant, “-LC” Low conductivity,
“-GL” Ground loop, for additional cost.

Submersion/Electrodes

To Order	
Model No.	Description
PHE-6510	Submersion pH electrode, CPVC
PHE-6511	Submersion pH electrode, PVDF
ORE-6510	Submersion ORP electrode, CPVC
ORE-6511	Submersion ORP electrode, PVDF
Mounting Assemblies — Required for Installation	
PHEH-65-10	CPVC without automatic temperature compensation
PHEH-65-10-(*)	CPVC with ATC
PHEH-65K-10	PVDF without ATC
PHEH-65K-10-(*)	PVDF with ATC

Note: Temperature compensation is not required with ORP electrodes. Order electrode and mounting assemblies separately. Materials of construction must be the same.

Mounting Assemblies come with 3 m (10') cable with BNC connector. Cable lengths available up to 15 m (50') for additional cost per extra foot. Consult Engineering for ordering information.

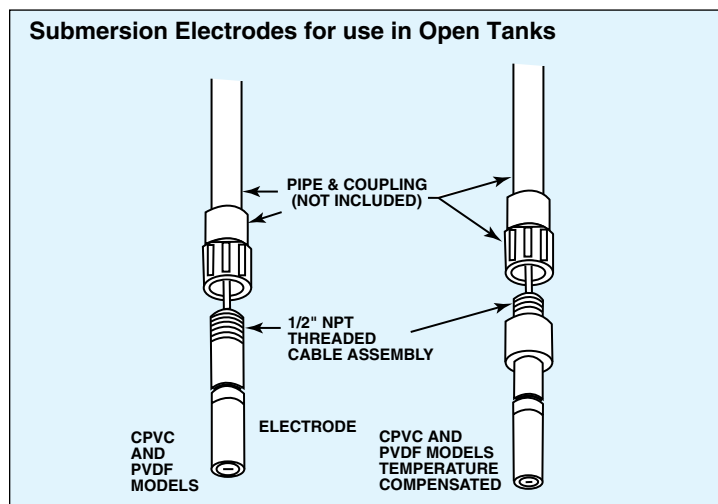
* Specify ATC Sensor

Order Code	Description
PT100	100 Ω Pt RTD
PT1K	1000 Ω Pt RTD
TH700	Series 700 Thermistor
R3K	3000 Ω Balco

Ordering Examples: PHE-6510-HF, CPVC electrode with HF resistant glass and PHEH-65K-10-TH700 mounting assembly with 3 m (10') cable and 700 Series thermistor ATC

PHE-6510 CPVC pH electrode, and PHEH-65-20 mounting assembly with 6 m (20') cable.

NOTE: At the time of initial purchase, please order both electrode and mounting assembly. Mounting assembly includes insertion assembly and cable. If ordered with automatic temperature compensation (ATC), the temperature compensator is built into the insertion assembly. When electrode has expired, simply re-order electrode.



Order Online



Submersible Flat Surface pH/ORP Electrodes

PHE-6510B Series



PHE-6510B (above) and PHEH-65-10 (above right), both shown smaller than actual size.



PHE-6510B enlarged

- ✓ CPVC or PVDF Construction
- ✓ Designed For Mounting in Tanks, Flumes, and Streams
- ✓ Easy Mounting in Tanks
- ✓ Acrylamide Gel Standard

The flat surface design is well suited for applications with relatively high suspended solids or where flocculation operations require low velocities.

Where only low velocities are present and coating is a problem, the electrode can be mounted at a 45° angle facing the flow so as to obtain increased scrubbing action across the measuring surface.

Submersion Electrodes

The OMEGA® PHE/ORE-6510B submersible electrodes are designed for use in drums, open tanks and streams. The flat sensing surface is surrounded by a porous polyethylene reference junction which minimizes fouling. Electrode installation and removal done by a simple ¼ turn quick disconnect. The cable assembly's cap has ½ MNPT thread, which can be connected to a coupling and support pipe. The pipe allows easy mechanical mounting and protects the cable from the liquid measured. The resulting assembly is lightweight for convenient handling when maintenance is needed. ATC is available as part of the mounting assembly.

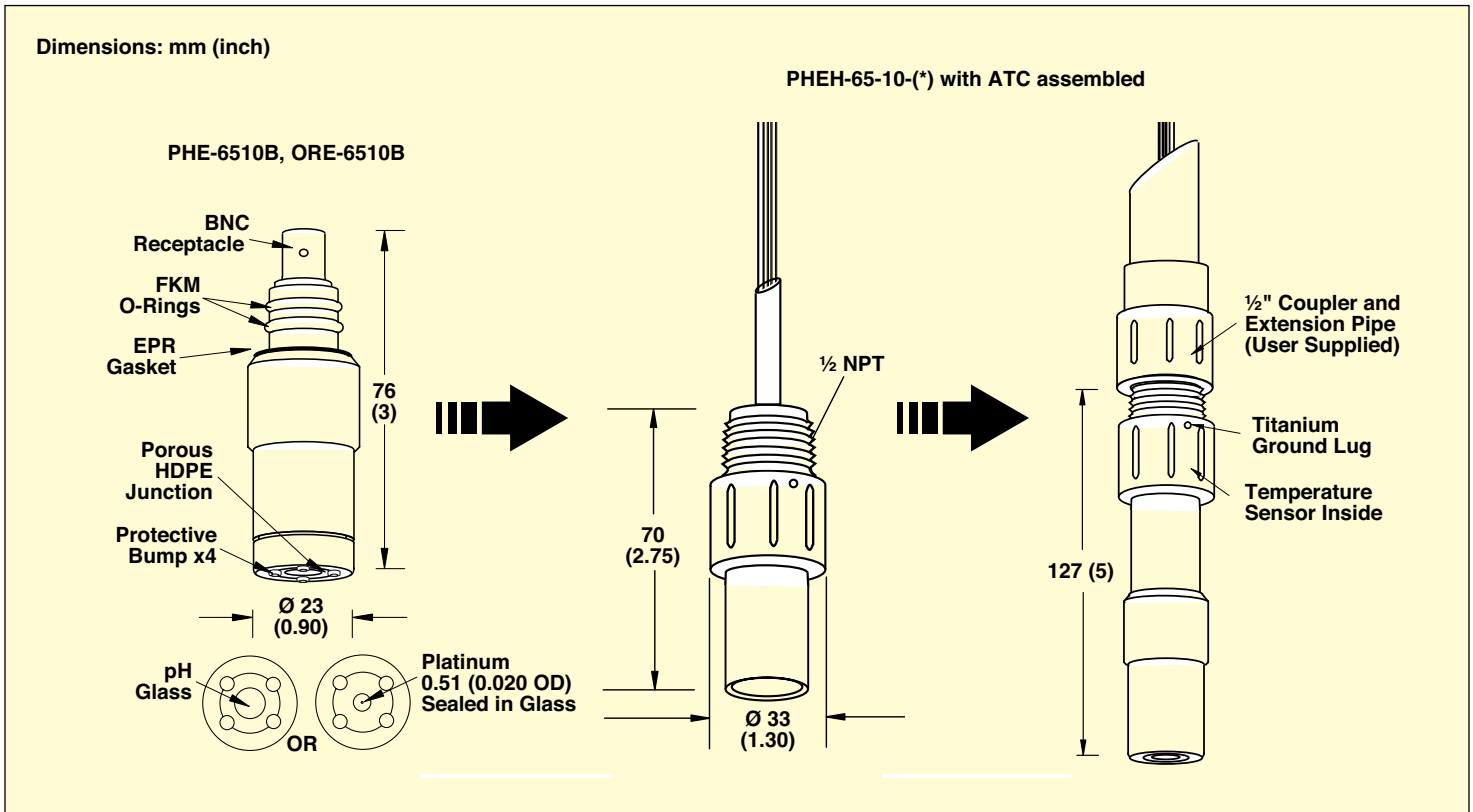
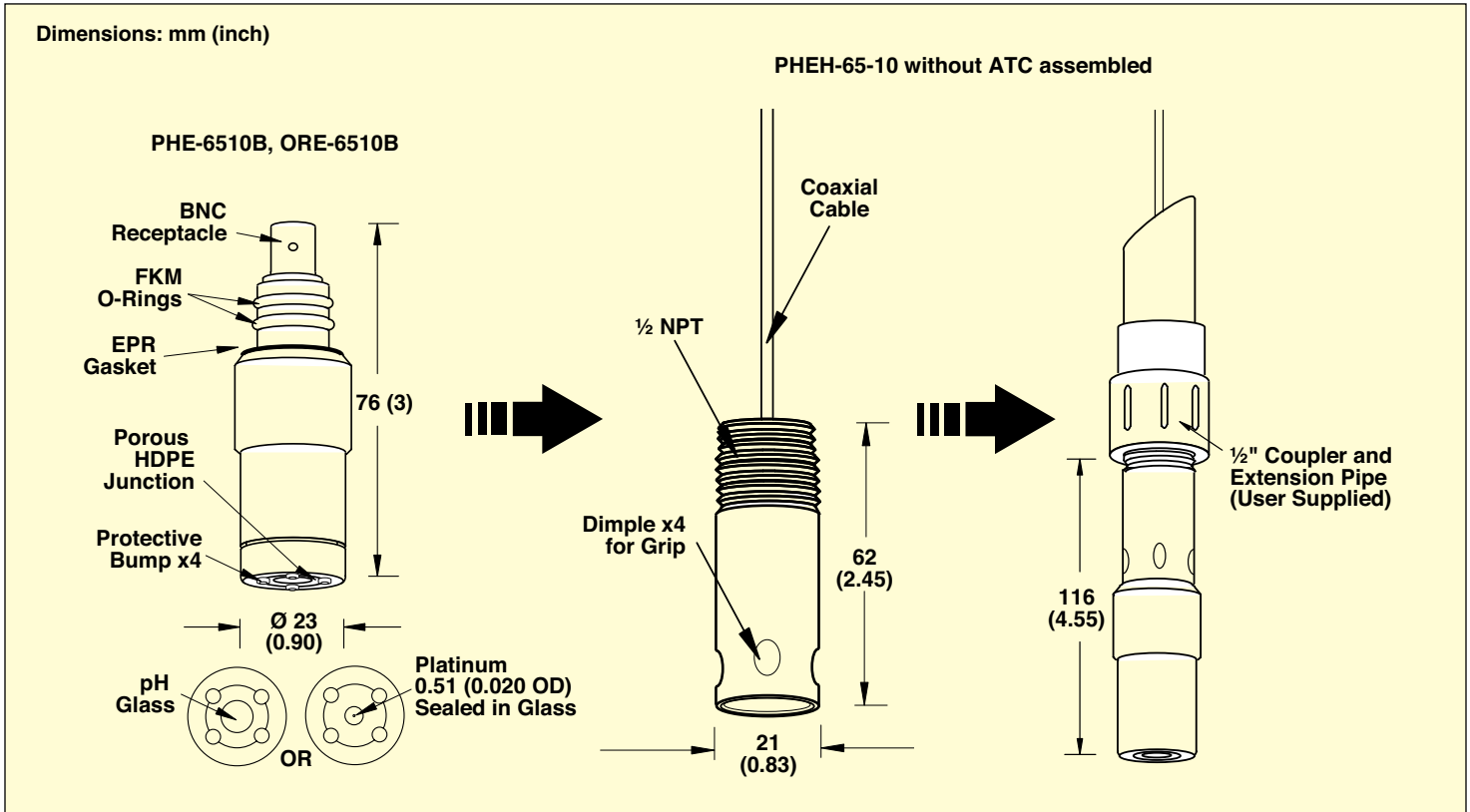
Specifications

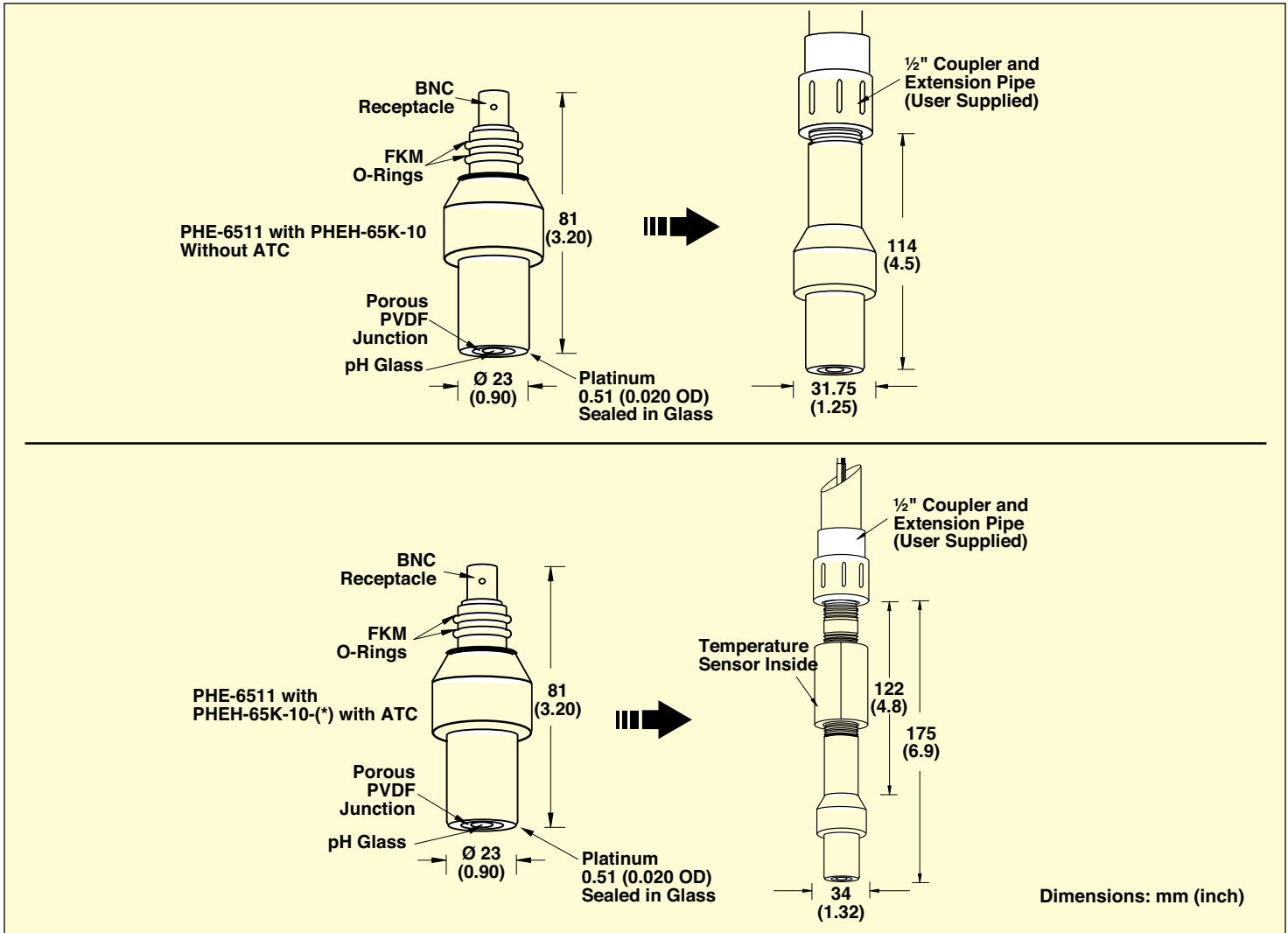
Maximum Temperature

87°C (190°F) CPVC body 100°C (212°F) PVDF body

Available Options:

- “-HF” Fluoride resistant
- “-LC” Low conductivity
- “-GL” Ground loop, for additional cost





Submersion/Electrodes

To Order	
Model No.	Description
PHE-6510B	Submersion pH electrode, CPVC
PHE-6511	Submersion pH electrode, PVDF
ORE-6510B	Submersion ORP electrode, CPVC
ORE-6511	Submersion ORP electrode, PVDF
Mounting Assemblies — Required for Installation	
PHEH-65-10	CPVC without automatic temperature compensation
PHEH-65-10(*)	CPVC with ATC
PHEH-65K-10	PVDF without ATC
PHEH-65K-10(*)	PVDF with ATC

Note: Temperature compensation is not required with ORP electrodes. Order electrode and mounting assemblies separately. Materials of construction must be the same. Mounting Assemblies come with 3 m (10') cable with BNC connector. Cable lengths available up to 15 m (50') for additional cost per extra foot. Consult Engineering for ordering information.

* Specify ATC Sensor

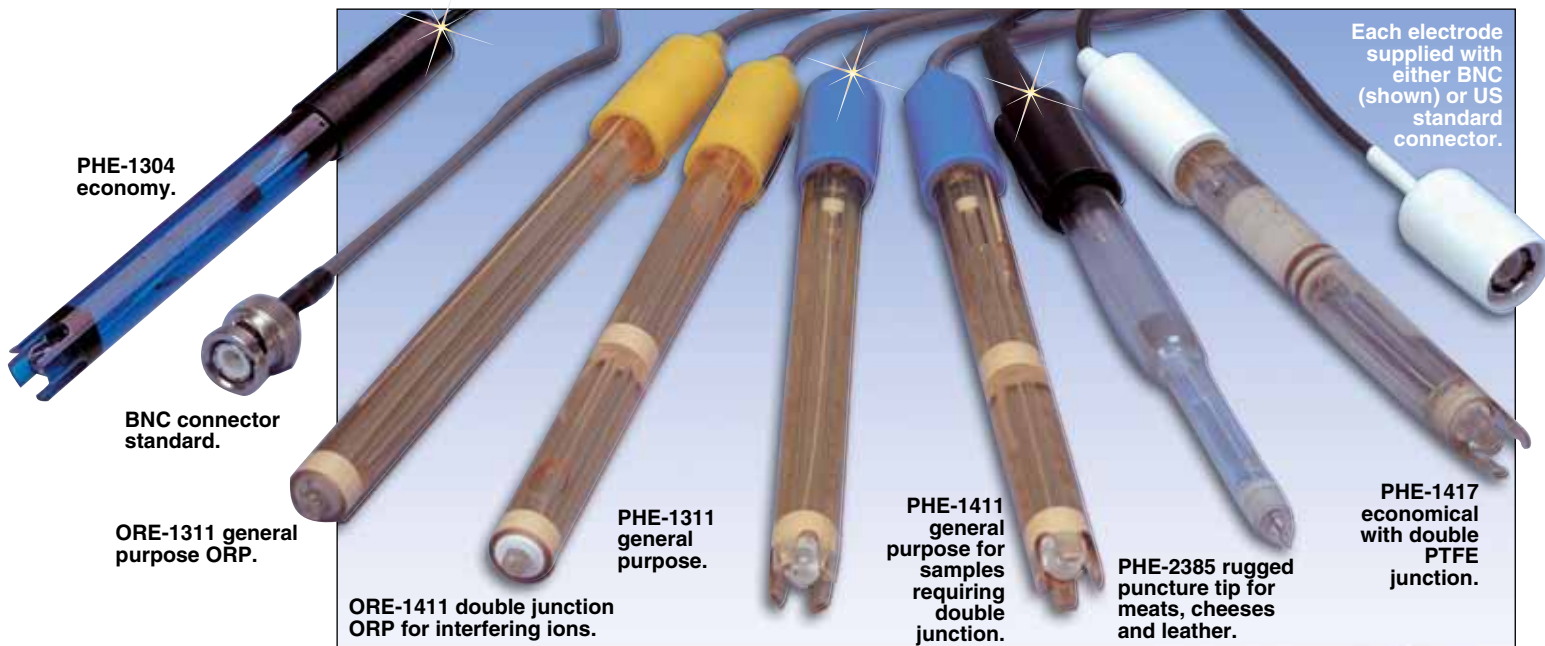
Order Code	Description
PT100	100 Ω Pt RTD
PT1K	1000 Ω Pt RTD
TH700	Series 700 thermistor
R3K	3000 Ω Balco

Ordering Examples: PHE-6510B-HF, CPVC electrode with HF resistant glass and PHEH-65K-10-TH700, mounting assembly with 3 m (10') cable and 700 Series thermistor ATC. PHE-6510B, CPVC pH electrode, and PHEH-65-20 mounting assembly with 6 m (20') cable.

Note: At the time of initial purchase, please order both electrode and mounting assembly. Mounting assembly includes insertion assembly and cable. If ordered with automatic temperature compensation (ATC), the temperature compensator is built into the insertion assembly. When electrode has expired, simply re-order electrode.

ALPHA® Series Rugged Gel-Filled Electrodes

PHE-1311 Series



To Order

Model No. BNC	Applications/Features	Length mm (in)	Diameter mm (in)	Temp Range °C (°F)	R @ 25°C (77°F) MΩ
PHE-1311†	Epoxy general purpose electrode with Polypropylene liquid junction	150 (5.9)	12 (0.47)	0 to 100 (32 to 212)	50 to 80
PHE-1411†	Epoxy general purpose electrode with double Polypropylene liquid junction	150 (5.9)	12.(0.47)	0 to 100 (32 to 212)	50 to 80
PHE-1332†	Epoxy test tube electrode with Polypropylene liquid junction	150 (5.9)	6 (0.24)	0 to 100 (32 to 212)	50 to 80
PHE-1432†	Epoxy test tubes for samples with double Polypropylene liquid junction	150 (5.9)	6 (0.24)	0 to 100 (32 to 212)	50 to 80
PHE-1335††	Epoxy for extra long test tubes with Annular Ceramic liquid junction	300 (12.0)	6 (0.24)	0 to 100 (32 to 212)	200
PHE-1471†	Epoxy electrode for measure of flat surfaces for samples requiring double HDPE liquid junction	150 (5.9)	12 (0.47)	0 to 100 (32 to 212)	50 to 80
PHE-2385††	Glass electrode with rugged puncture tip for meats, cheeses, fruits, and leather with Annular Ceramic liquid junction	55 (2.2)	8 (0.31)	0 to 100 (32 to 212)	150
PHE-1317††	Polyethersulfone economical electrode with removable guard and Annular PTFE liquid junction	110 (4.3)	12 (0.47)	0 to 100 (32 to 212)	60
PHE-1417†††	Polyethersulfone electrode with double Annular PTFE liquid junction	110 (4.3)	12 (0.47)	0 to 80 (32 to 176)	60
PHE-1304†††	Epoxy electrode with double Annular PTFE liquid junction	90 (3.5)	12.5 (0.49)	0 to 80 (32 to 176)	50
ORE-1311	Epoxy general purpose ORP with Polypropylene liquid junction and pH range of ±2000 mV	150 (5.9)	12 (0.47)	0 to 100 (32 to 212)	—
ORE-1411	Epoxy ORP for interfering ions such as zinc, copper, or sulfide, with double Polypropylene liquid junction with a pH range of ±2000 mV	150 (5.9)	12 (0.47)	0 to 100 (32 to 212)	—

Comes complete with 0.75 to 1 m (2.5 to 3') of cable and operator's manual. * For US Standard connector add suffix, "-U" to model number for additional cost.

Electrodes are reference type: Ag/Ag/Cl. † pH range 0 to 14, †† pH range 0 to 13, ††† pH range 0 to 12

Ordering Examples: PHE-1311, general purpose electrode with BNC.

PHE-1411-U, general purpose double junction electrode with US Standard connector.

pH ELECTRODES

PHE-1478

\$75



pH Electrodes

OMEGA's glass-bodied, refillable (RF), combination pH electrodes are for general purpose laboratory measurements. The inert nature of the glass body allows these electrodes to be used in aqueous and non-aqueous solutions at temperatures up to 110°C (230°F).

The PHE-1479 has a ceramic liquid junction and a saturated potassium chloride electrolyte. This electrolyte is a laboratory standard and is suitable for most measurements. The ceramic junction has a low flat rate that minimizes sample contamination from the potassium chloride solution.

The PHE-1478 has a porous PTFE liquid junction and a saturated potassium chloride electrolyte. The porous PTFE liquid junction provides a stable, non-fouling reference contact ideal for the most demanding applications. This research-grade electrode should be used when the sample has a very low or very high ionic strength, where greases or oils are present, or in biological solutions containing TRIS or large amounts of protein.



PHE-1479, \$80, shown smaller than actual size.

SPECIFICATIONS

pH Range: 0 to 14 pH

Temperature Range: -5 to 100°C (23 to 212°F)

Accuracy: ±0.02 pH

Response Time: 95% of reading within 5 seconds

Impedance: 60 MΩ at 25°C (77°F)

Zero Potential: 7.0 ±0.2 pH

Dimensions (L x D): 140 x 12 mm (5.5 x 0.47")



MOST POPULAR MODELS HIGHLIGHTED!

To Order (Specify Model Number)

Model No.	Price	Description
PHE-1478	\$75	PTFE liquid junction
PHE-1479	80	Ceramic liquid junction
ES-2207	99	Reference Book: Handbook of Water and Wastewater Treatment Technologies

Comes with complete operator's manual.

Note: 1 m (3') of cable length is standard; for additional length consult Engineering.
Ordering Example: PHE-1478, PTFE liquid-junction electrode, \$75.

Specialty pH Electrodes

These specialty electrodes are designed for surface and subsurface measurements of semi-soft materials. Typical applications include meats, cheese, dairy products, photographic emulsions, and electrophoresis gels.

The PHE-1525 flat style is a refillable combination pH electrode with a polymer body, porous PTFE liquid, and a flat pH glass membrane. It can be used to measure the pH of any moist surface or inverted and used as a "one-drop" electrode. Samples as small as 100 µL are easily measured with this inverted technique.



PHE-1526, \$110, shown smaller than actual size.

SPECIFICATIONS

pH Range: 0 to 14 pH

Temperature Range: -5 to 100°C (23 to 212°F)

Accuracy: ±0.02 pH

Response Time: 95% of reading within 5 seconds

Impedance: 60 MΩ at 25°C (77°F)

Zero Potential: 7.0 ±0.2 pH

Dimensions (L x D):

Flat: 140 x 12 mm (5.5 x 0.47")

Spear-Point:

150 x 9.5 mm (5.9 x 0.37")

To Order (Specify Model Number)

Model No.	Price	Description
PHE-1525	\$85	Flat-surface pH electrode
PHE-1526	110	Spear-point pH electrode

Comes with complete operator's manual.

Note: 1 m (3') of cable length is standard; for additional length consult Engineering.

Ordering Example: PHE-1525, flat surface pH electrode, \$85.

Options for Combination Electrodes

Suffix	Description	Price
-D	Double junction	\$50
-HF	HF fluoride resistant body	50
-HT	High-temperature reference	35
-HPH	High-pH glass	30
-ORP	Redox (ORP) measurement	40

Options available on PHE-1478, PHE-1479, PHE-1525, PHE-1526, PHE-1523 and PHE-1524 electrodes.

Note: 1 m (3') of cable length is supplied standard; for additional length, consult Engineering.

For Sales **1-800-82-66342**[®]

Laboratory Electrodes

Laboratory Reference Electrodes

PHE-3216
\$75



PHE-3216D, \$105, shown smaller than actual size.

Laboratory procedures require a separate reference electrode. Several standard methods and techniques for pH measurement and most ion selective electrodes require the use of a "double junction" reference electrode. The PHE-3216 is ideal for such applications. These gel-filled electrodes feature a replaceable porous PTFE liquid junction in a polymer body. They are supplied ready to use with a saturated potassium chloride-silver reference cell. The double junction version uses potassium nitrate as the screening electrolyte, although it can be easily replaced with the electrolyte of your choice. The liquid junction has a large surface area and provides a stable, low-impedance contact to the solution, ensuring fast, accurate measurements. The chemically inert nature of PTFE makes the sensor easy to clean.

SPECIFICATIONS

pH Range: 0 to 14 pH

Temperature Range: -5 to 100°C (23 to 212°F)

Response Time: Stable in 30 seconds

Resistance: Less than 1000 Ω

Liquid Junction: Porous PTFE

Electrolytes:

Saturated potassium chloride-silver

Screening Electrolyte: 8 molar potassium nitrate

Dimensions (L x D): 140 x 12 mm (5.5 x 0.47")

MOST POPULAR MODELS HIGHLIGHTED!

To Order (Specify Model Number)

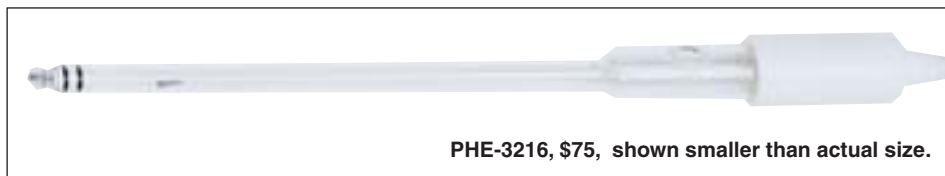
Model No.	Price	Description
PHE-3216	\$75	Single-junction pH electrode
PHE-3216D	105	Double-junction pH electrode

Comes with complete operator's manual.

Ordering Example: PHE-3216, single-junction pH electrode, \$75.

Laboratory-Insertable Electrodes

Lab insertables are designed for pH measurement inside narrow vessels. Small volumes in test tubes or solutions in large Erlenmeyer casks can be conveniently measured by one of these responsive electrodes. The PHE-1523 is a glass-bodied, refillable, combination pH electrode. The 5.0" insertion length allows measurement in test tubes or other narrow vessels. This electrode features full-span, fast-response pH glass and high-flow porous PTFE reference junction, making it a must for any laboratory.



PHE-3216, \$75, shown smaller than actual size.

SPECIFICATIONS

pH Range: 0 to 14 pH

Temperature Range:

-5 to 100°C (23 to 212°F)

Accuracy: ±0.02 pH with proper calibration

Sodium Error: 0.05 pH in 0.1 molar Na⁺ ion at 12.8 pH

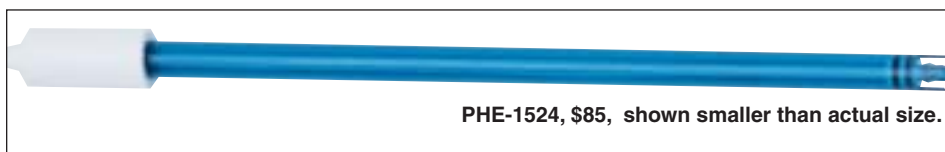
Response Time: 95% in 10 seconds, stable in 30 seconds

Impedance: 60 MΩ at 25°C (77°F)

Zero Potential: 7.0 ±0.2 pH

Dimensions (L x D Micro):

190 x 12 mm (7.5 x 0.47")



PHE-1524, \$85, shown smaller than actual size.

The PHE-1524 is a sealed, polymer-bodied, 254 mm (10") long combination pH electrode. The length allows measurements to be made in large, deep flasks or bottles. This sensor has our full-span pH glass and a gel-filled silver chloride reference using the trouble-free porous PTFE liquid junction.

Accessory

Model No.	Price	Description
ES-2186	\$125	Reference Book: Environmental Monitoring Handbook



To Order (Specify Model Number)

Model No.	Price	Description
PHE-1523	\$95	Glass-body pH electrode
PHE-1524	85	Polymer-body pH electrode

Comes with complete operator's manual.

Ordering Example: PHE-1523, glass-body pH electrode, \$95.

Order Online



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**Clear Epoxy-Bodied,
Gel-Filled Combination
ALPHA® Electrodes**

PHE-4201



PHE-4232
semi-micro.

PHE-4201
general-purpose.

PHE-4202
double
junction.

PHE-4222
flask size.

PHE-4272
flat surface
double
junction.

BNC
connector
standard.

All models
shown smaller
than actual size.

- ✓ Five Electrode Styles
- ✓ Covers Entire 0 to 14 pH Range
- ✓ Clear Epoxy Body Construction
- ✓ Fast Responding: 95% in Less than 1 Second
- ✓ Comes with OMEGA Quality Certificate

OMEGA Engineering is pleased to offer a complete line of laboratory pH electrodes. The PHE-4200 Series consists of gel-filled, combination pH electrodes with a unique clear epoxy body design. With five electrode styles to choose from, you're sure to find one suitable for your application.

OMEGA® PHE-4200 Series electrodes offer reliable quality at a reasonable cost. The electrodes measure the entire pH range from 0 to 14 pH units at 0 to 100°C (32 to 212°F) and feature an Ag/AgCl reference and polypropylene liquid junction. Each electrode comes in a soaker storage bottle to keep the electrode moist and ready for use. Shelf life is guaranteed for one year, and the provided OMEGA quality certificate assures that these electrodes meet the most stringent quality control requirements.

Certificate of Quality

This electrode has been manufactured to the most stringent quality control standards. It has been shipped in a special soaker/storage bottle to ensure its quality.

Your electrode has been 100% inspected prior to shipment and meets or exceeds all factory performance specifications.



PHH-830, portable
pH/mV/ORP
and temperature
meter with RS232.

To Order

Model No.	Description	Length mm (inch)	Dia. mm (inch)	R (25°C) MΩ
PHE-4201	General purpose	150 (6)	12 (0.47)	50 to 80
PHE-4202	Double junction	150 (6)	12 (0.47)	50 to 80
PHE-4222	Flask size	300 (12)	9.5 (0.37)	50 to 80
PHE-4272	Flat surface double junction	150 (6)	12 (0.47)	50 to 80
PHE-4232	Semi-micro	150 (6)	6 (0.24)	50 to 80
PHA-D1	500 ml (1 pint) bottle deionized water			

All electrodes come complete with 750 mm (2.5') of cable, BNC connector and electrode care instruction sheet.

Ordering Examples: PHE-4201, general purpose electrode.
PHE-4202, double junction electrode.



High Accuracy ALpHA® pH Electrodes

PHE-4810 Series



- ✓ Fast Response
- ✓ Accurate Performance
- ✓ Stable Readings
- ✓ Covers Entire 0 to 14 pH Range
- ✓ Suitable for Temperature from 0 to 100°C (32 to 212°F)
- ✓ Rapid Renew Junctions Models Available
- ✓ BNC Connector

PHB-600R and PHE-4821 shown smaller than actual size.



OMEGA Engineering is pleased to offer the ALpHA® Series of pH electrodes. The special internal design allows rapid, stable readings to be taken even during large temperature shifts. The double junction construction prevents silver ions from contacting the sample, eliminating reactions with heavy metals, sulfides, and proteins. ALpHA Series electrodes are available in a variety of styles to suit a wide range of applications.

The low maintenance sealed designs are economical and easy to use. Their porous polyethylene junction resists clogging and provides good chemical compatibility with many solutions. The refillable ALpHA® Series electrodes have a unique spring-loaded knob that opens the sleeve junction to provide fresh reference fluid. The refillable style also has a twist-seal refill hole that opens by simply turning the collar, making the refilling process less awkward. ALpHA® Series pH electrodes are available in epoxy body and glass body styles. The epoxy model is used for applications that require a more rugged electrode; the glass style offers a better range of chemical compatibility. All ALpHA® Series electrodes can measure the full 0 to 14 pH scale (0 to 12 pH without sodium ion error) and can withstand temperatures from 0 to 100°C (32 to 212°F).

Application Suggestions

- PHE-4810** Sealed with an epoxy body and removable bulb guard. Suitable for general laboratory applications that require a double junction style.
- PHE-4815** Sealed with a glass body. Suggested for applications similar to the PHE-4810, but with broader chemical compatibility.
- PHE-4821** Refillable electrode with epoxy body and removable bulb guard. Suitable for samples that can cause junction fouling. Also features Rapid Renewal Junction.
- PHE-4830** Sealed, with a flat measuring surface. Suitable for measuring semi-solids, slurries, and viscous materials.
- PHE-4841** Refillable with a glass body. Suggested for similar applications suited to the PHE-4821, but provides better chemical compatibility. Rapid Renewal Junction feature.



BNC
Connector
Standard.

PHE-4841.

PHE-4815.

PHE-4830.

PHE-4810.

PHE-4821.

All models shown
smaller than actual size.

- ✓ Covers Entire 0 to 14 pH Range
- ✓ Suitable for Temperature from 0 to 100°C (32 to 212°F)

- ✓ Fast Response
- ✓ Accurate Performance
- ✓ Stable Readings

- ✓ Rapid Renewal Junction Models Available
- ✓ BNC Connector



PHE-4821 and PHE-4841 refillable electrodes feature rapid renewal junctions, allowing the junctions to be cleaned when scaling occurs.

To Order

Model No.	Length mm (inch)	Dia. mm (inch)	Description
PHE-4810	150 (6)	12 (0.47)	Epoxy body, sealed, with removable bulb guard
PHE-4815	150 (6)	12 (0.47)	Glass body, sealed
PHE-4821	150 (6)	12 (0.47)	Epoxy body, refillable, with removable bulb guard and rapid renewal junction
PHE-4830	150 (6)	12 (0.47)	Epoxy body, sealed, with flat measuring surface
PHE-4841	150 (6)	12 (0.47)	Glass body, refillable, with removable bulb guard and rapid renewal junction

Comes complete with 75 cm (30") of cable with BNC connector, and operator's manual.

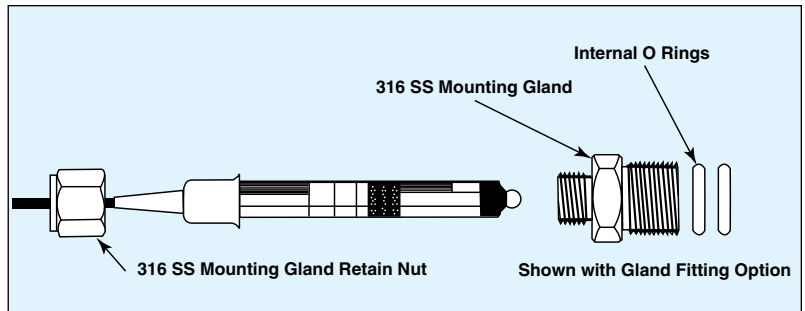
Ordering Examples: PHE-4830, epoxy-bodied sealed electrode with flat measuring surface, 150 mm (6") length, 12 mm (0.47") diameter.
PHE-4810, epoxy body electrode with removable guard.

Order Online



Universal Industrial Electrodes 12 mm (0.47") pH Sensor for Tough Measurement Applications

PHE-5432-10



Applications

- ✓ High-Temperature Environment
- ✓ Continuous Processing Applications
- ✓ Harsh Conditions
- ✓ Steam Sterilization

The PHE-5432 is a steam-sterilizable combination pH electrode designed to withstand high temperatures and pressures. A porous PTFE liquid double junction and specifically formulated low-impedance glass membrane allow it to function in a wide variety of pH applications. This combination of features permits extended periods of pH measurement in the presence of poisoning ions or where membrane leaching would shorten the life of a conventional electrode. Melting of the cable due to contact with steam lines and motion-generated noise are common problems with interconnecting cables on steam-sterilizable electrodes. Our proprietary TPE high-temperature/ultra-low noise cable is designed for optimal service, even in demanding environments.

Specifications

- pH Range:** 0 to 14
- Temperature Range:** -5 to 135°C (23 to 275°F) @ 25 psig
- Maximum Pressure:** 500 psig @ 25°C (77°F)
- Accuracy:** ±0.1% over full range
- Sodium Error:** Less than 0.05 pH in 0.1 Molar Na⁺ ion @ 12.8 pH
- Reference Cell:** Double-junction KNO₃ and KCl/AgCl
- Reference Junction:** Porous PTFE
- Zero Potential:** 7.0 ±0.2 pH
- Wetted Materials:** PTFE, glass membrane, glass outer body
- Drift:** Less than 2 mV per week



PHCN-37 pH controller shown smaller than actual size

PHE-5432-10 pH sensor shown smaller than actual size.

To Order

Model No.	Description
PHE-5432-10	Glass body, porous PTFE liquid junction pH electrode
PHE-5432-10-(*)	Glass body, porous PTFE liquid junction pH electrode with ATC
ORE-5432-10	Oxidation-reduction potential electrode

* Specify ATC sensor: "-PT100" for 100 Ω Pt RTD or "-PT1K" for 1000 Ω Pt RTD. Comes complete with operator's manual.

Ordering Examples: PHE-5432-10-PT100, high-temperature electrode with 3 m (10') cable and 100 Ω Pt RTD ATC.

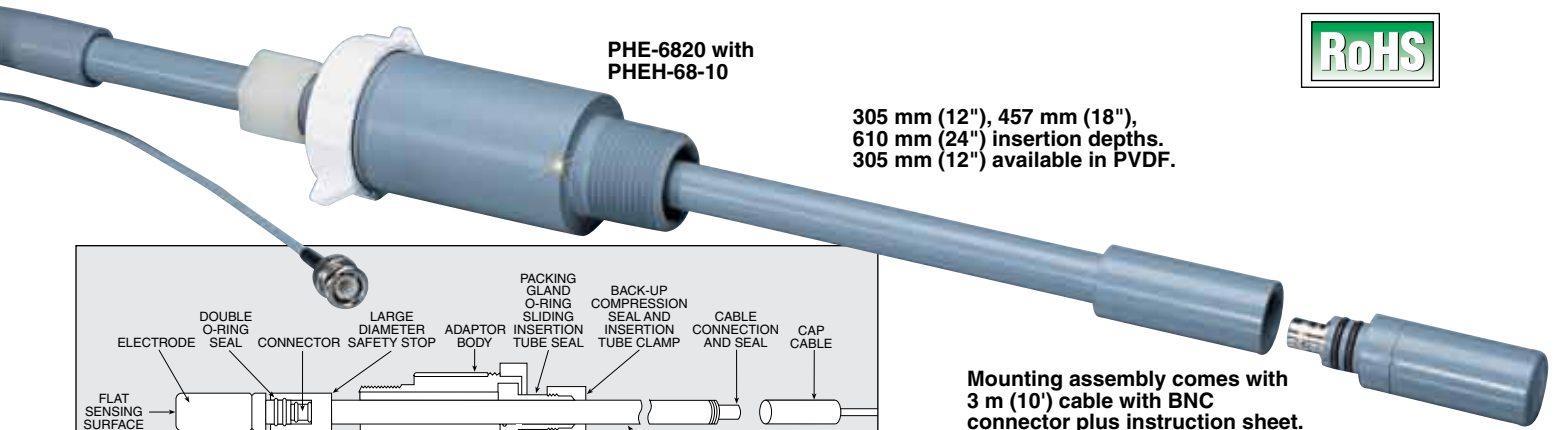
ORE-5432-10, ORP electrode, with 3 m (10') cable.

Order Online



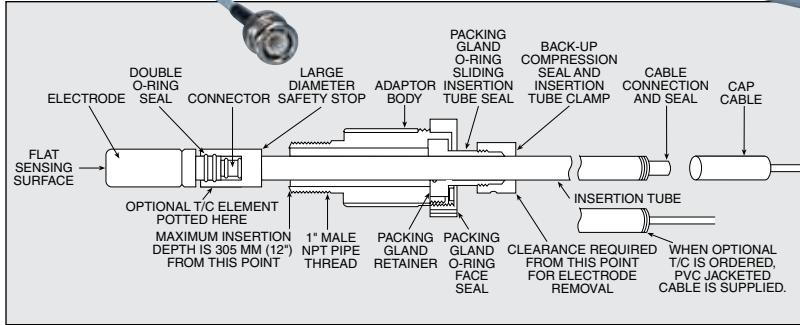
Retractable Flat Surface pH/ORP Electrodes for Insertion into Tanks and Main Lines

PHE-6820



PHE-6820 with PHEH-68-10

305 mm (12"), 457 mm (18"), 610 mm (24") insertion depths. 305 mm (12") available in PVDF.



Mounting assembly comes with 3 m (10') cable with BNC connector plus instruction sheet.

- ✓ Can Be Installed in Any Direction
- ✓ Retractable Design Allows Removal Without System Shutdown
- ✓ Detachable Electrode for Easy Maintenance and Removal

NOTE: At the time of initial purchase, please order both electrode and mounting assembly. Mounting assembly includes insertion assembly and cable. If ordered with automatic temperature compensation (ATC), the temperature compensator is built into the insertion assembly. When electrode has expired, simply re-order electrode.

The PHE-6820 electrode and assembly features a retractable design for insertion into tanks and main lines. The assembly, when used with a 1" full port or larger ball valve (user supplied), allows the electrode to be removed without shutting the system down. This electrode can be mounted in any location, even up through the bottom of a tank with the electrode surface facing upward. Its unique design affords mounting in any direction and is suitable for most systems' inherent design.

The flat surface design minimizes fouling and coating and eliminates electrode breakage. Turbulent flow across the electrode surface results in a scrubbing action that keeps the electrode clean. The flat surface electrode is specifically designed for difficult applications such as oily waste water, emulsions, lime slurries, and flocculants.

Specifications

Maximum Temperature

Standard Models: 65°C (150°F)

"-ACRYL" Units: 87°C (190°F) CPVC body

100°C (212°F) PVDF body

Mounting Assembly: CPVC or PVDF, with FKM O-Rings; 1 MNPT Pipe thread.

Available Options:

"-ACRYL" Acrylamide gel, additional cost

"-HF" Fluoride resistant, additional cost

"-LC" Low conductivity, additional cost

"-GL" Ground loop, additional cost

* Specify ATC Sensor

Order Code	Description
PT100	100 Ω Pt RTD
PT1K	1000 Ω Pt RTD
TH700	Series 700 Thermistor
R3K	3000 Ω Balco

Electrodes

To Order	
Model No.	Description
PHE-6820	pH electrode, CPVC
PHE-6821	pH electrode, PVDF
ORE-6820	ORP electrode, CPVC
ORE-6821	ORP electrode, PVDF
Mounting Assemblies — Required for Installation	
PHEH-68-10	305 mm (12") CPVC without ATC
PHEH-68K-10	305 mm (12") PVDF without ATC
PHEH-68-10-(*)	305 mm (12") CPVC with ATC
PHEH-68K-10-(*)	305 mm (12") PVDF with ATC
PHEH-6820	457 mm (18") CPVC without ATC
PHEH-6830	610 mm (24") CPVC without ATC

Note: Temperature compensation is not required with ORP electrodes.

Order electrode and mounting assemblies separately. Materials of construction must be the same.

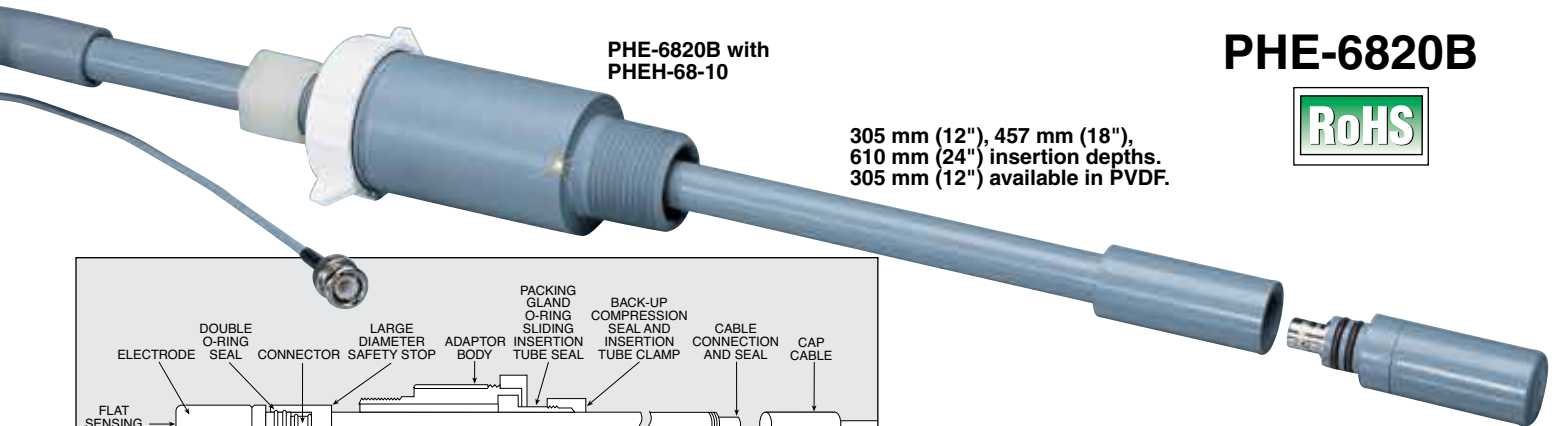
Mounting Assemblies come with 3 m (10') cable with BNC connector. Cable lengths available up to 15 m (50') additional cost per extra foot. Consult Engineering for ordering information.

Ordering Examples: PHE-6820 CPVC pH electrode and PHEH-68-20 CPVC mounting assembly with 6 m (20') cable.

PHE-6821, PVDF pH electrode and PHEH-68-10-PT100 mounting assembly with 100Ω Pt RTD ATC.



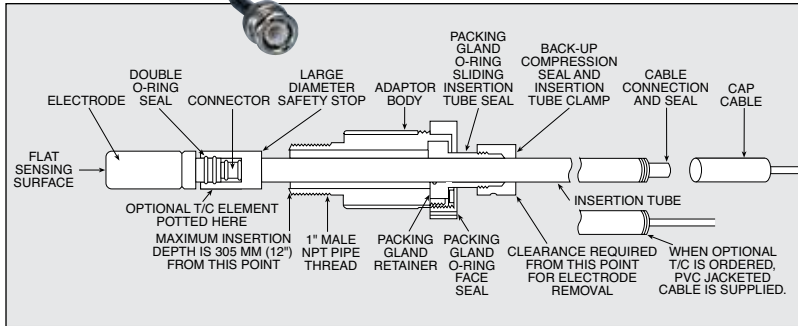
Retractable Flat Surface pH/ORP Electrodes for Insertion into Tanks and Main Lines



PHE-6820B with PHEH-68-10

PHE-6820B

305 mm (12"), 457 mm (18"), 610 mm (24") insertion depths. 305 mm (12") available in PVDF.



Mounting assembly comes with 3 m (10') cable with BNC connector plus instruction sheet.

- ✓ Acrylamide Gel Standard
- ✓ Can Be Installed in Any Direction
- ✓ Retractable Design Allows Removal Without System Shutdown
- ✓ Detachable Electrode for Easy Maintenance and Removal

The PHE-6820B electrode and assembly features a retractable design for insertion into tanks and main lines. The assembly, when used with a 1" full port or larger ball valve (user supplied), allows the electrode to be removed without shutting the system down. This electrode can be mounted in any location, even up through the bottom of a tank with the electrode surface facing upward. Its unique design affords mounting in any direction and is suitable for most systems' inherent design.

The flat surface design minimizes fouling and coating and eliminates electrode breakage. Turbulent flow across the electrode surface results in a scrubbing action that keeps the electrode clean. The flat surface electrode is specifically designed for difficult applications such as oily waste water, emulsions, lime slurries, and flocculants.

SPECIFICATIONS

Maximum Temperature Standard Models: 87°C (190°F)
 CPVC body 100°C (212°F) PVDF body
Mounting Assembly: CPVC or PVDF, FKM O-Rings; 1 MNPT Pipe thread

Available Options:

- “-HF” Fluoride resistant, for additional cost
- “-LC” Low conductivity, for additional cost
- “-GL” Ground loop, for additional cost

Electrodes

To Order	
Model No.	Description
PHE-6820B	pH electrode, CPVC
PHE-6821	pH electrode, PVDF
ORE-6820B	ORP electrode, CPVC
ORE-6821	ORP electrode, PVDF
Mounting Assemblies — Required for Installation	
PHEH-68-10	305 mm (12") CPVC without ATC
PHEH-68K-10	305 mm (12") PVDF without ATC
PHEH-68-10-(*)	305 mm (12") CPVC with ATC
PHEH-68K-10-(*)	305 mm (12") PVDF with ATC
PHEH-6820	457 mm (18") CPVC without ATC
PHEH-6830	610 mm (24") CPVC without ATC

Note: Temperature compensation is not required with ORP electrodes.

Order electrode and mounting assemblies separately. Materials of construction must be the same. Mounting assemblies come with 3 m (10') cable with BNC connector. Cable lengths available up to 15 m (50'), additional cost per extra foot. Consult Engineering for ordering information.

* Specify ATC Sensor

Order Code	Description
PT100	100 Ω Pt RTD
PT1K	1000 Ω Pt RTD
TH700	Series 700 thermistor
R3K	3000 Ω Balco

Note: At the time of initial purchase, please order both electrode and mounting assembly. Mounting assembly includes insertion assembly and cable. If ordered with automatic temperature compensation (ATC), the temperature compensator is built into the insertion assembly. When electrode has expired, simply re-order electrode.

Ordering Examples: PHE-6820B, CPVC pH electrode and PHEH-68-20, CPVC mounting assembly with 6 m (20') cable.

PHE-6821, PVDF pH electrode and PHEH-68-10-PT100, mounting assembly with 100 Ω Pt RTD ATC.



Insertion/Submersion Combination Electrodes

PHE-7151-15 Series



The PHE-7151 Series combination electrodes are ruggedly constructed; the outer body is ABS with ¼ MNPT threads at both ends. The maximum insertion length is 31.75 mm (1.25"). Electrodes are annular PTFE liquid junction refillable and include 4.6 m (15') of cable with a BNC connector. For applications with temperatures up to 120°C (248°F), units are available in polyphenylene sulfide (PPS).***

These electrodes have a special plunger design allowing them to be mounted at any angle.



To Order

Model No.	Length mm (inch)	Dia. mm (inch)	pH Range	Temp. °C (°F)	Refill or Gel	R M Ω Price at 25°C (77°F)	Description
PHE-7151-15	140 (5.5)	30 (1.2)	0 to 12	0 to 80 (32 to 176)	Refill	400	Refillable general purpose**
PHE-7351-15	140 (5.5)	30 (1.2)	0 to 12	0 to 80 (32 to 176)	Gel	400	Sealed general purpose
PHE-7152-15	140 (5.5)	30 (1.2)	0 to 14	0 to 80 (32 to 176)	Refill	1000	Refillable high pH applications**
ORE-7151-15	140 (5.5)	30 (1.2)	—	0 to 80 (32 to 176)	Refill	—	General purpose refillable ORP**

Comes complete with operator's manual.

** Refill Solution: PHFS-7151-4, 4 oz bottle
PHFS-7151-16, 16 oz bottle.

*** For polyphenylene sulfide body, add suffix "-PPS" to model number for additional cost.

PHEH-71-4, 48-inch extension for PHE-7151-15 electrode.

Ordering Examples: PHE-7151-15-PT100-PPS, refillable general purpose electrode, 4.5 m (15') cable with BNC connector, 100 Ω PT RTD ATC and optional polyphenylene sulfide body.

PHE-7351-15, sealed general purpose electrode, 4.5 m (15') cable, with BNC connector.

Heavy-Duty Extension Cables for Industrial Electrodes

Model No. BNC to BNC	Length meters (feet)
PHEC-B10HD	3.0 (10)
PHEC-B25HD	7.6 (25)
PHEC-B50HD	15.3 (50)

In-Line Disposable Electrodes

OMEGA in-line combination electrodes mount on standard pipe tees for continuous pH or ORP monitoring. The electrode is constructed in a Kynar housing with ½ MNPT threading. Probe insertion length is 25 mm (1") and is able to withstand pressure up to 150 psi. 3 m (10') cable length and BNC connector are standard. Dimensions: 127 x 25 mm (5 x 10")



A

CPVC In-Line Disposable pH Electrodes

Also available, the CPVC in-line disposable electrode is ruggedly constructed to withstand up to 100 psi. Probe insertion length is 51 mm (2") with ¾" diameter. A ¼ MNPT fitting is standard and is supplied with 3 m (10') of cable and a BNC connector. Dimensions: 168 x 25 mm (6.6 x 10").



B

	Model No.	pH Range	Temperature Range °C (°F)	Notes	RMΩ at 25°C (77°F)
A	PHE-5311-10	0 to 13	-5 to 100 (23 to 212)	General purpose	50
A	PHE-5312-10	0 to 14	0 to 100 (32 to 212)	High pH	200
A	PHE-5411-10	0 to 13	-5 to 100 (23 to 212)	Double junction	50
A	PHE-5412-10	0 to 14	0 to 100 (32 to 212)	Double junction high pH	200
A	ORE-5311-10	ORP	-5 to 100 (23 to 212)	Platinum band	—
A	ORE-5411-10	ORP	-5 to 100 (23 to 212)	Platinum band double junction	—
A	ORE-5419-10	ORP	-5 to 100 (23 to 212)	Gold disc double junction for cyanide applications	—
B	PHE-5316-10	0 to 13	-5 to 80 (23 to 176)	Sealed Ag/AgCl	50

Automatic temperature compensation is not required with ORP (redox) electrodes.

Ordering Example: PHE-5311-10, 0 to 13 general purpose electrode.



Heavy-Duty pH Sensor for Submersible Applications

PHE-7352-15



Applications

- ✓ Suitable for Severe Conditions
- ✓ Large Diameter Pipe Insertion
- ✓ Waste Water Pipeline Insertion
- ✓ Strong PPS Body
- ✓ Low Maintenance
- ✓ Short or Long Insertion Lengths
- ✓ Any Angle Orientation

The PHE-7352-15 is a combination pH sensor designed for insertable use in process and waste water applications where greater pipeline penetration is required. The outer body material is PPS and has 3/4 MNPT front and rear facing threads with 57.1 mm (2 1/4") insertion depth. The sensor features sealed double junction construction which is highly resistant to electrode poisoning solutions, (typically those with cyanide, ammonia, sulfide and heavy metals in appreciable concentrations). The use of the non-fouling patented Porous PTFE liquid junction ensures a steady presence of reference electrolyte. Coupled with the novel plunger pH glass electrode design, this sensor assures a low long maintenance service life in most applications. Use of the high temperature version is recommended where service temperatures continuously exceed 80°C (176°F).

Specifications

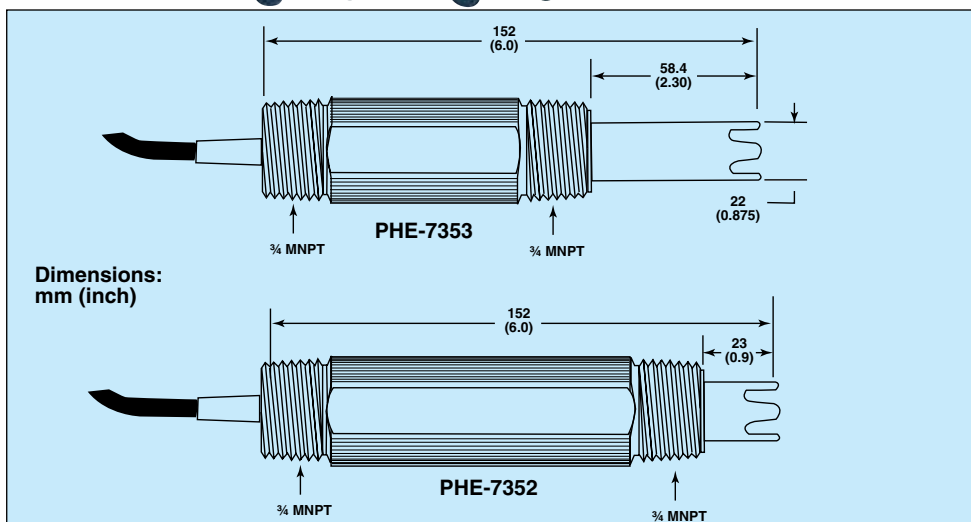
pH Range: 0 to 14 pH
Temperature Range: 0 to 80°C (32 to 176°F) or 0 to 110°C (32 to 230°F) (HT high temperature version)
Pressure Range: 0 to 100 psig or 0 to 150 psig (HT high temperature version) $\beta \pm 0.1\%$ over full range
Sodium Error: Less than 0.05 pH in 0.1 Molar Na⁺ ion @ 12.8 pH
Impedance: 150 M Ω @ 25°C (77°F)
Reference Cell: Double junction KNO₃ and KCl/AgCl
Zero Potential: 7.0 pH \pm 0.2 pH
Wetted Materials: PPS, PTFE, FKM, glass
Response Time: 95% of reading in 10 sec
Drift: <2 mV per week



Both shown smaller than actual size.

PHE-7352-15

PHE-7353-15



To Order

Model No.	Description
PHE-7352-15-(*)	Heavy-duty submersible pH electrode
PHE-7353-15-(*)	Heavy-duty long length insertion pH electrode

Comes complete with 4.6 m (15') cable and operator's manual.

Non standard cable lengths available for additional cost.

* **Specify ATC Sensor:** "-PT100" for 100 Ω Platinum RTD or "-PT1K" for 1000 Ω Pt RTD, for additional cost.

Ordering Examples: PHE-7352-15-PT100-HT is a heavy-duty submersible pH sensor with "-HT" (for high temperature), and 100 Ω Pt RTD ATC.

PHE-7353-15, submersible pH electrode.



General Purpose 1/2 MNPT pH Sensor

PHE-7357-10



Applications

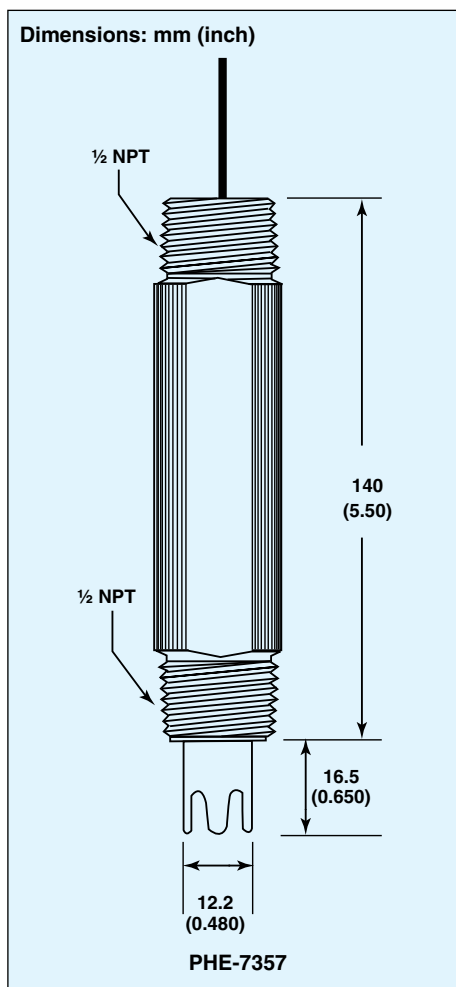
- ✓ Potable Water Supplies
- ✓ Cooling Towers
- ✓ Fresh and Salt Water Aquariums
- ✓ Secondary Treated Waste Water

The PHE-7357 sensor is designed for use in most water and waste water applications. The large reservoir of reference electrolyte, coupled with the non-fouling nature of the Porous PTFE liquid junction, assures a long life in general service.

The sensor body reduces the risk of accidental breakage during installation and maintenance by the inclusion of protective lobes around the sensing element. Also available for ORP measurement.

Use of the high temperature version is recommended where service temperatures exceed 80°C (176°F).

PHE-5551 is a double-junction construction with solution ground in a robust PPS housing, being highly resistant to electrode poisoning solutions. Standard on these electrodes is a 110°C (230°F) rating.



PHE-7357-10

PHE-5551-10

Both shown smaller than actual size.

To Order

Model No.	Description
PHE-7357-10-(*)	General purpose pH sensor
PHE-5551-10-(*)	General purpose pH sensor with solution ground
ORE-7357-10	ORP probe for clean water
ORE-5551-10	ORP probe for clean water with solution ground

Comes complete with 3 m (10') cable and operator's manual. Non standard cable lengths available for additional cost.

* Specify ATC sensor for PHE-5551-10-(*) only: "-PT100" for 100 Ω Pt RTD or "-PT1K" for 1000 Ω Pt RTD, for additional cost.

Ordering Examples: PHE-5551-10-PT1K, general purpose sensor with 1/2 MNPT pH sensor with 1 KΩ Pt RTD ATC and 3 m (10') cable.

ORE-5551-10, ORP electrode.

Option Code (For Additional Cost)

Order Suffix	Description
-HF	HF/Fluoride resistant
-HT	High temperature reference cell, standard on PHE/ORE-5551

Specifications

pH Range: 0 to 14 pH

Temperature Range:

0 to 80°C (32 to 176°F) (standard)

0 to 110°C (32 to 230°F) (high temperature)

Pressure Range: 0 to 100 psig

Accuracy: ±0.1% over full range

Impedance: 80 MΩ (standard version)

150 MΩ (high temperature version)

Reference Cell:

Single junction, KCl/AgCl

Reference Junction: Porous PTFE

Wetted Materials:

PPS, PTFE, glass, 316 SS

Response Time:

95% of reading in 10 seconds

Drift: Less than 2 mV per week

pH ELECTRODES

PHE-1478



pH Electrodes

OMEGA's glass-bodied, refillable (RF), combination pH electrodes are for general purpose laboratory measurements. The inert nature of the glass body allows these electrodes to be used in aqueous and non-aqueous solutions at temperatures up to 110°C (230°F).

The PHE-1479 has a ceramic liquid junction and a saturated potassium chloride electrolyte. This electrolyte is a laboratory standard and is suitable for most measurements. The ceramic junction has a low flat rate that minimizes sample contamination from the potassium chloride solution.

The PHE-1478 has a porous PTFE liquid junction and a saturated potassium chloride electrolyte. The porous PTFE liquid junction provides a stable, non-fouling reference contact ideal for the most demanding applications. This research-grade electrode should be used when the sample has a very low or very high ionic strength, where greases or oils are present, or in biological solutions containing TRIS or large amounts of protein.



PHE-1479, shown smaller than actual size.

SPECIFICATIONS

pH Range: 0 to 14 pH
Temperature Range: -5 to 100°C (23 to 212°F)

Accuracy: ±0.02 pH
Response Time: 95% of reading within 5 seconds

Impedance: 60 MΩ at 25°C (77°F)

Zero Potential: 7.0 ±0.2 pH

Dimensions (L x D): 140 x 12 mm (5.5 x 0.47")

MOST POPULAR MODELS HIGHLIGHTED!

To Order (Specify Model Number)		
Model No.	Description	
PHE-1478	PTFE liquid junction	
PHE-1479	Ceramic liquid junction	
ES-2207	Reference Book: Handbook of Water and Wastewater Treatment Technologies	

Comes with complete operator's manual.
Note: 1 m (3') of cable length is standard; for additional length consult Engineering.
Ordering Example: PHE-1478, PTFE liquid-junction electrode,

Specialty pH Electrodes

These specialty electrodes are designed for surface and subsurface measurements of semi-soft materials. Typical applications include meats, cheese, dairy products, photographic emulsions, and electrophoresis gels.

The PHE-1525 flat style is a refillable combination pH electrode with a polymer body, porous PTFE liquid, and a flat pH glass membrane. It can be used to measure the pH of any moist surface or inverted and used as a "one-drop" electrode. Samples as small as 100 µL are easily measured with this inverted technique.



PHE-1526, shown smaller than actual size.

SPECIFICATIONS

pH Range: 0 to 14 pH
Temperature Range: -5 to 100°C (23 to 212°F)

Accuracy: ±0.02 pH
Response Time: 95% of reading within 5 seconds

Impedance: 60 MΩ at 25°C (77°F)

Zero Potential: 7.0 ±0.2 pH

Dimensions (L x D):
Flat: 140 x 12 mm (5.5 x 0.47")
Spear-Point:
 150 x 9.5 mm (5.9 x 0.37")

To Order (Specify Model Number)

Model No.	Price	Description
PHE-1525	Flat-surface pH electrode
PHE-1526	Spear-point pH electrode

Comes with complete operator's manual.
Note: 1 m (3') of cable length is standard; for additional length consult Engineering.
Ordering Example: PHE-1525, flat surface pH electrode

Options for Combination Electrodes

	Suffix	Description	---
-D	Double junction		---
-HF	HF fluoride resistant body		...
-HT	High-temperature reference		...
-HPH	High-pH glass		...
-ORP	Redox (ORP) measurement		...

Options available on PHE-1478, PHE-1479, PHE-1525, PHE-1526, PHE-1523 and PHE-1524 electrodes.

Note: 1 m (3') of cable length is supplied standard; for additional length, consult Engineering.



Laboratory Electrodes

PHE-3216

Laboratory Reference Electrodes



PHE-3216D, shown smaller than actual size.

Laboratory procedures require a separate reference electrode. Several standard methods and techniques for pH measurement and most ion selective electrodes require the use of a "double junction" reference electrode. The PHE-3216 is ideal for such applications. These gel-filled electrodes feature a replaceable porous PTFE liquid junction in a polymer body. They are supplied ready to use with a saturated potassium chloride-silver reference cell. The double junction version uses potassium nitrate as the screening electrolyte, although it can be easily replaced with the electrolyte of your choice. The liquid junction has a large surface area and provides a stable, low-impedance contact to the solution, ensuring fast, accurate measurements. The chemically inert nature of PTFE makes the sensor easy to clean.

SPECIFICATIONS

pH Range: 0 to 14 pH

Temperature Range: -5 to 100°C (23 to 212°F)

Response Time: Stable in 30 seconds

Resistance: Less than 1000 Ω

Liquid Junction: Porous PTFE

Electrolytes:

Saturated potassium chloride-silver

Screening Electrolyte: 8 molar potassium nitrate

Dimensions (L x D): 140 x 12 mm (5.5 x 0.47")

MOST POPULAR MODELS HIGHLIGHTED!

To Order (Specify Model Number)

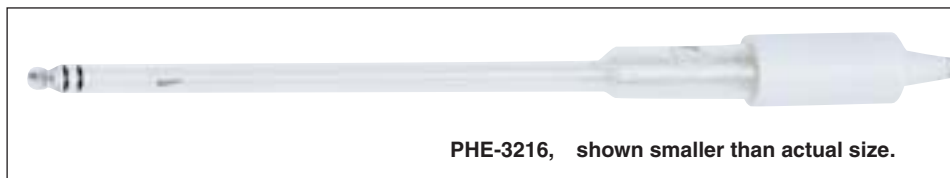
Model No.	Price	Description
PHE-3216	...	Single-junction pH electrode
PHE-3216D	...	Double-junction pH electrode

Comes with complete operator's manual.

Ordering Example: PHE-3216, single-junction pH electrode,

Laboratory-Insertable Electrodes

Lab insertables are designed for pH measurement inside narrow vessels. Small volumes in test tubes or solutions in large Erlenmeyer casks can be conveniently measured by one of these responsive electrodes. The PHE-1523 is a glass-bodied, refillable, combination pH electrode. The 5.0" insertion length allows measurement in test tubes or other narrow vessels. This electrode features full-span, fast-response pH glass and high-flow porous PTFE reference junction, making it a must for any laboratory.



PHE-3216, shown smaller than actual size.

SPECIFICATIONS

pH Range: 0 to 14 pH

Temperature Range:

-5 to 100°C (23 to 212°F)

Accuracy: ±0.02 pH with proper calibration

Sodium Error: 0.05 pH in 0.1 molar Na⁺ ion at 12.8 pH

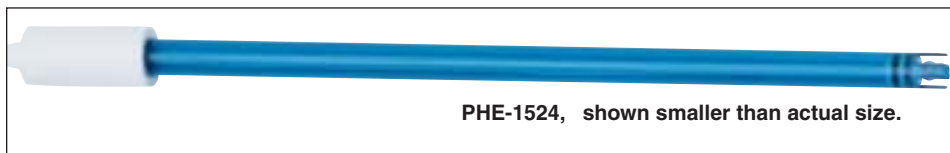
Response Time: 95% in 10 seconds, stable in 30 seconds

Impedance: 60 MΩ at 25°C (77°F)

Zero Potential: 7.0 ±0.2 pH

Dimensions (L x D Micro):


190 x 12 mm (7.5 x 0.47")



PHE-1524, shown smaller than actual size.

The PHE-1524 is a sealed, polymer-bodied, 254 mm (10") long combination pH electrode. The length allows measurements to be made in large, deep flasks or bottles. This sensor has our full-span pH glass and a gel-filled silver chloride reference using the trouble-free porous PTFE liquid junction.

Accessory

Model No.	Price	Description
ES-2186	...	Reference Book: Environmental Monitoring Handbook 

To Order (Specify Model Number)

Model No.	Price	Description
PHE-1523	...	Glass-body pH electrode
PHE-1524	...	Polymer-body pH electrode

Comes with complete operator's manual.

Ordering Example: PHE-1523, glass-body pH electrode,



Handheld pH/mV Temperature Meter with RS232 Communications and Software



PHH-37



- ✓ Lightweight Handheld Design
- ✓ Dual Display: pH/mV and Temperature
- ✓ Hold, Maximum/Minimum/Avg Functions
- ✓ RS232 Interface with Windows® Software
- ✓ Low-Battery Indicator

The PHH-37 is a portable pH/mV and temperature meter with an easy-to-read digital display. Its temperature compensation feature enables it to read solutions at various temperatures. Temperature compensation can be adjusted manually, or it may occur automatically when the temperature sensor is immersed in a solution.

PHH-37 comes with software, batteries, RS232 cable, pH 4, 7, 10 buffer solutions, operator's manual and carrying case.



Specifications

Measurement	Range	Resolution	Accuracy
pH	0 to 14	0.01	±0.03
mV	0 to 1999	0.1 or 1	±0.05% rdg + 2 digits
Temp (°F)	32 to 176	0.1	±2
Temp (°C)	0 to 80	0.1	±1

Range/Resolution/Accuracy:

Operating Temperature: 0 to 50°C (32 to 122°F) at <70% relative humidity

Storage Temperature: -20 to 60°C (-4 to 140°F) at <80% relative humidity with battery removed

Sampling Rate: 1 time per second, nominal

pH Connection: BNC

Communications: RS232 serial interface with Windows software (included)

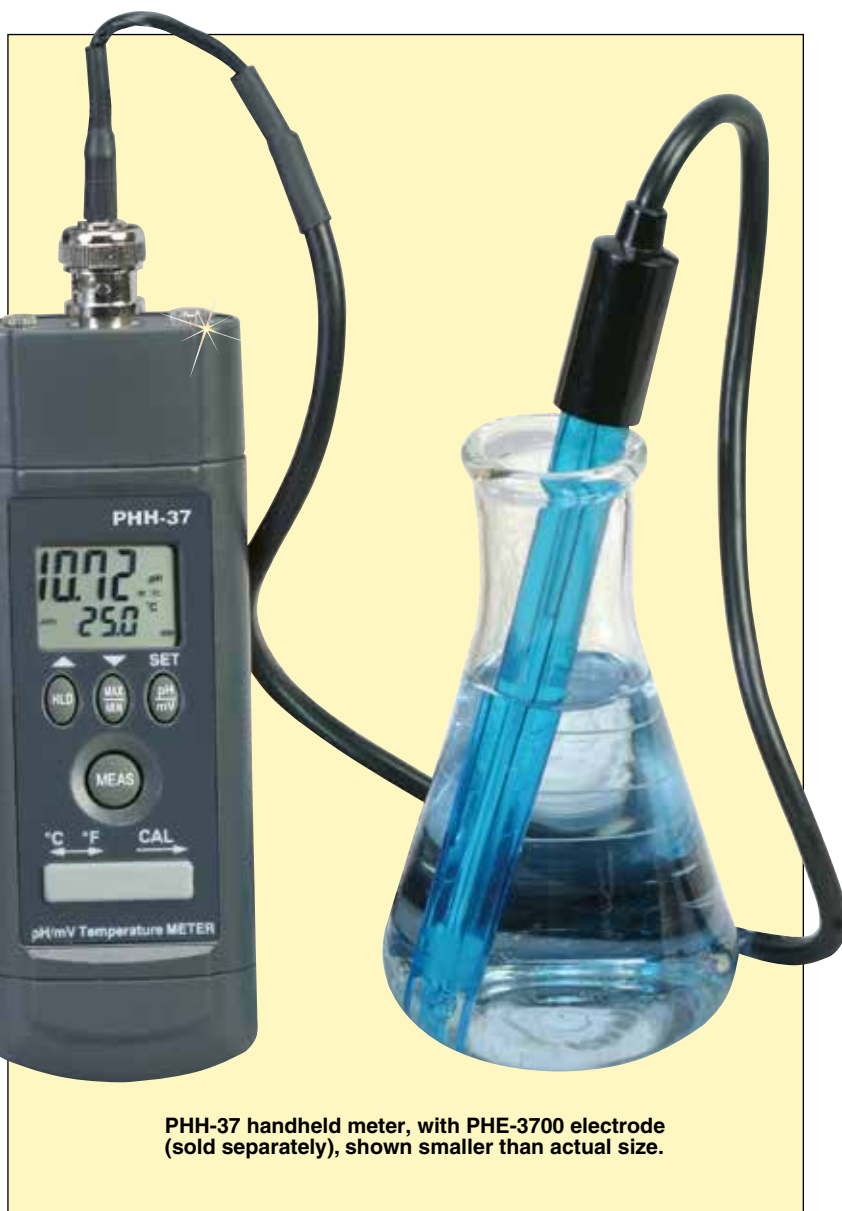
Communications Connection: 2.5 mm jack

Power: 3 "AAA" batteries (included)

Battery Life: 100 hours typical; auto power-off function to extend battery life

Dimensions: 155 H x 48 W x 35 mm D (6.1 x 1.8 x 1.4")

Weight: 180 g (0.3 lb)



PHH-37 handheld meter, with PHE-3700 electrode (sold separately), shown smaller than actual size.

To Order

Model No.	Description
PHH-37	pH handheld meter with RS232 communications
PHE-3700	General purpose pH laboratory electrode
PHA-4	4.00 pH buffer solution 500 ml (1 pint) bottle
PHA-7	7.00 pH buffer solution 500 ml (1 pint) bottle
PHA-10	10.00 pH buffer solution 500 ml (1 pint) bottle
MN2400-12	12 "AAA" replacement batteries

Comes complete with Windows software, 3 "AAA" batteries, RS232 cable, pH 4, 7, 10 buffer solutions, carrying case and operator's manual (Electrode sold separately).

Ordering Example: PHH-37, handheld pH meter.



OMEGAETTE™ Microprocessor Based Water Test meter

PHH-7000 Series



- ✓ Microprocessor-Based for Fast and Accurate Measurement
- ✓ Special Viewing Angle
- ✓ IP67 Rated, Waterproof Housing
- ✓ Large LCD—Displays pH, Conductivity and Temperature Simultaneously
- ✓ 1-Keyboard Calibration
- ✓ Automatic Temperature Compensation
- ✓ Multifunctional Including Data-Hold and Min/Max
- ✓ Low-Battery Indicator
- ✓ Auto Power-Off After 10 Minutes of Non-Use

The PHH-7011, PHH-7200 and CDH-7021 are easy to use and feature replaceable sensors. The PHH-7200 can measure pH or conductivity and will automatically recognize which sensor is installed. Each kit comes in a convenient carrying case with buffer or standard solutions for easy calibration.

Perfect for Education, Training or Demonstration Programs!

PHH-7011 shown smaller than actual size.

PHH-7011 includes carrying case, instrument and solutions.



Specifications

	PHH-7200 (pH, mV, Temperature, Conductivity, TDS)						
	PHH-7011			CDH-7021			
	pH	mV	Temperature	Conductivity	TDS	Salt	Temperature
Range	-2 to 16	-1000 to 1000	0 to 90°C (32 to 194°F)	0 to 1999 µS 0.01 to 19.99 mS	0 to 999 ppm 1.00 to 9.99 ppt	0 to 999 ppm 1.00 to 9.99 ppt	0 to 90°C (32 to 194°F)
Accuracy	±0.01 + 1 digit	±2 + 1 digit	±0.3°C (0.54°F)	±2% FS	±2% FS	±2% FS	±0.3°C (0.54°F)
Resolution	0.01	1	0.1°C (0.2°F)	1 µS/0.01 mS	1 ppm/0.01 ppt	1 ppm/0.01 ppt	0.1°C (0.2°F)
ATC	0 to 80°C (32 to 176°F)	N/A	N/A	0 to 50°C (32 to 122°F)			
Calibration	pH 4.00, 7.00, 10.00			0, 1413 µS, 12.88 mS			
Power	(4) 1.5 Vdc "AAA"/UM-4 batteries (included)						

Accessories

Model No.	Description
PHE-7011	Replacement pH electrode
CDE-7021	Replacement conductivity sensor
ORE-7011	Optional ORP electrode
PHA-4	pH 4 buffer solution, 475 mL
PHA-7	pH 7 buffer solution, 475 mL
PHA-10	pH 10 buffer solution, 475 mL
CDSA-1413	1413 µS conductivity solution
MN2400	Replacement "AAA" battery (4 required)

To Order

Model No.	Description
PHH-7011	pH pocket tester
CDH-7021	Conductivity pocket tester
PHH-7200	pH and conductivity tester

Comes complete with calibration solutions, 4 "AAA" batteries, lanyard, hard carrying case and operator's manual.

Ordering Examples: PHH-7011, pH tester, and PHE-7011, replacement pH electrode.

PHH-7200, pH and conductivity tester.

Order Online



Economical pH or pH/mV Meter

PHH222 Series



- ✓ Ergonomically Designed
- ✓ Splashproof Front
- ✓ Easy to Operate
- ✓ RS232 Output Standard

The portable pH meter, PHH222 provides you with affordable, convenient solutions for basic pH or mV measurements. The OMEGA® PHH222 portable pH meter is easy to operate.



PHH222, shown smaller than actual size with optional PHE-1411 electrode.

Specifications

Measurement: pH/mV/Temperature
Accuracy: $\pm(0.02 \text{ pH} + 2 \text{ d}) \pm(0.5\% + 2 \text{ d})$
Display: 51 x 32 mm, dual function LCD, 15 mm (0.6") digit
Range: 0 to 14/-1999 to 1999 mV
Resolution: 0.01 pH/ 1 mV
Input Impedance: 1012 Ω
Temperature: Manual or automatic 0 to 65°C
Compensation: (Temperature probe)
Data Output: RS232
Data Hold: Yes
Sampling Time: Approx 0.8 sec
Operating Temperature: 0 to 50°C (32 to 122°F)
Operating Humidity: Less than 80% RH
Memory Recall: Maximum/Minimum
Power Supply: 9V battery (included)
Power Consumption: Approx 8 mA
Electrode Connection: BNC
Dimensions: 205 x 68 x 30 mm (8.1 x 2.7 x 1.2")
Weight: 250 g (0.55 lb)

To Order

Model No.	Description
PHH222	pH/mV meter/temp with RS232

Accessories

Model No.	Description
HHWT-SD1-ATC	Temperature probe for PHH222
SWCABLE	RS232 cable and windows software
PHE-1411	pH lab electrode
PHA-4	4.00 pH buffer solution 500 ml (1 pint) bottle
PHA-7	7.00 pH buffer solution 500 ml (1 pint) bottle
PHA-10	10.00 pH buffer solution 500 ml (1 pint) bottle
MN1604	Replacement 9V battery

Comes complete with operator's manual and 9V battery. Probes sold separately.

Ordering Examples: PHH222, pH meter, PHE-1411, pH electrode, PHA-4, buffer 4, PHA-7, buffer 7.

PHH222, pH/mV meter, PHE-1411, pH electrode.

Order Online



Portable pH/mV Meters with ATC



pH and temperature probes and carrying case included

PHH-253-KIT
\$475



Accuracy:
 pH: ± 0.02 pH units
 mV: $\pm 0.05\%$ or 1 digit
 Temperature: $\pm 0.3^\circ\text{C}$
 pH Calibration: Manual, 1- or 2-point
Temperature Compensation:
 Manual: 0 to 100°C (32 to 212°F)

PHH-253, \$475, shown smaller than actual size

- ✓ LCD Meter Display
- ✓ pH or mV Indication
- ✓ Manual or Automatic Temperature Compensation
- ✓ One- or Two-Point Manual pH Calibration

OMEGA's PHH-253-KIT is ideal for quick and accurate measurement of pH and mV either in the field or in the laboratory. Supplied as a compact and portable kit, the PHH-253-KIT is perfect for transporting to on-site locations while keeping the equipment organized and ready for future use. The meter provides ± 0.02 pH accuracy of measurement with 0.01 pH and 1 mV resolution. pH calibration is manual using one or two points. The kit comes complete with meter, epoxy-bodied general purpose pH electrode, temperature probe, carrying case and user's manual.

Specifications

Measurement Range:
 pH: 0 to 14
 mV: ± 2000 (absolute)
Temperature: -100 to 100°C (-148 to 212°F)
Resolution:
 pH: 0.01 pH units
 mV: 1.0 mV
 Temperature: 0.1°C

Temperature Probe Connection:
 3 pole, 3.5 mm (0.138") diameter jack
Reference Electrode Connection:
 4 mm (0.157") diameter
Meter Dimensions: 145 L x 81 W x 38 mm H (5.7 x 3.2 x 1.5")
Meter Weight (Including Battery):
 272 g (9.6 oz)

Automatic: 0 to 100°C (32 to 212°F)
Power Supply: one 9 V battery (included)
Instrument Display: 12.7 mm (0.5") LCD
pH Electrode Connection: BNC

To Order (Specify Model Number)

Model No.	Price	Description
PHH-253-KIT	\$475	pH meter with case, pH electrode and temperature probe

Includes meter, epoxy-bodied general purpose pH electrode, temperature probe, carrying case and operator's manual.

Ordering Example: PHH-253-KIT, portable pH/mV and temperature meter and PHE-4201, replacement electrode, \$475 + 51 = \$526.

Accessories

Model No.	Price	Description
PHE-4201	\$51	Clear, epoxy-bodied, gel-filled combination replacement electrode
ORE-1411	86	Double junction ORP probe
PHAT-253	80	Replacement temperature probe
FW-300	99.95	Reference Book: Water Wells and Septic Systems Handbook

For Sales **1-800-82-66342**[®]



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• Flow and Level

Air Velocity Indicators, Doppler Flowmeters, Level Measurement, Magnetic Flowmeters, Mass Flowmeters, Pitot Tubes, Pumps, Rotameters, Turbine and Paddle Wheel Flowmeters, Ultrasonic Flowmeters, Valves, Variable Area Flowmeters, Vortex Shedding Flowmeters

• pH and Conductivity

Conductivity Instrumentation, Dissolved Oxygen Instrumentation, Environmental Instrumentation, pH Electrodes and Instruments, Water and Soil Analysis Instrumentation

• Data Acquisition

Auto-Dialers and Alarm Monitoring Systems, Communication Products and Converters, Data Acquisition and Analysis Software, Data Loggers Plug-in Cards, Signal Conditioners, USB, RS232, RS485 and Parallel Port Data Acquisition Systems, Wireless Transmitters and Receivers

• Pressure, Strain and Force

Displacement Transducers, Dynamic Measurement Force Sensors, Instrumentation for Pressure and Strain Measurements, Load Cells, Pressure Gauges, Pressure Reference Section, Pressure Switches, Pressure Transducers, Proximity Transducers, Regulators, Strain Gages, Torque Transducers, Valves

• Heaters

Band Heaters, Cartridge Heaters, Circulation Heaters, Comfort Heaters, Controllers, Meters and Switching Devices, Flexible Heaters, General Test and Measurement Instruments, Heater Hook-up Wire, Heating Cable Systems, Immersion Heaters, Process Air and Duct, Heaters, Radiant Heaters, Strip Heaters, Tubular Heaters



Splashproof Portable pH/mV Measurement Kits

PHH-257-KIT



pH and temperature probes and carrying case included.

- ✓ Splashproof Case
- ✓ Suitable for Ion Selective Measurements
- ✓ Automatic Buffer Recognition and Calibration
- ✓ Diagnostic Error Code Displays for Faculty pH Electrode
- ✓ Recorder Output
- ✓ LCD Meter Display

The PHH-257-KIT is designed for field and laboratory measurement of pH. Supplied as a complete kit, the PHH-257-KIT is perfect for transporting to remote locations, keeping the equipment organized and ready for future measurements. Standard features include automatic buffer recognition and calibration, diagnostic error code display to indicate defective electrodes or incorrect buffer solution. The meter has a very precise 0.1 mV resolution, ideal for ion selective measurements. The PHH-257-KIT comes complete with meter, epoxy-bodied general purpose pH electrode, temperature probe, carrying case and user's manual.

Specifications

Measurement Range:

- pH:** 0 to 14
- mV:** ±200, ±2000 (absolute)
- Relative mV:** ±FS (back-off)
- Temperature:** -30 to 130°C (-22 to 266°F)

Resolution:

- pH:** 0.01 pH units
- mV:** 0.1, 1.0 mV
- Temperature:** 0.1°C

Accuracy:

- pH:** ±0.02 pH units
- mV:** ±0.05 % or 1 digit
- Temperature:** ±0.3°C
- pH Calibration:** Automatic (1- or 2-point), compatible with buffers 4, 7 and 10

Temperature Compensation:

- Manual:** 0 to 100°C (32 to 212°F)
- Automatic:** 0 to 100°C (32 to 212°F)
- Power Supply:** Two 9 V batteries (included)
- Instrument Display:** 12.7 mm (½") LCD



PHH-257 shown smaller than actual size.

pH Electrode Connection: BNC

Temperature Probe Connection: 3 pole, 3.5 mm (0.138") diameter jack

Reference Electrode Connection: 4 mm (0.157") diameter

Recorder Output: ±200.0 mV

Meter Dimensions: 145 L x 81 W x 38 mm H (5.7 x 3.2 x 1.5")

Meter Weight (Including Batteries): 363 g (12.7 oz)

To Order

Model No.	Description
PHH-257-KIT	pH meter with case, pH electrode and temperature probe

Includes meter, epoxy-bodied general purpose pH electrode, temperature probe, carrying case and operator's manual.

Ordering Example: PHH-257-KIT with PHE-4201 replacement electrode.

Accessories

Model No.	Description
PHE-4201	Clear, epoxy-bodied, gel-filled combination electrode
ORE-1411	Double junction ORP probe
PHAT-3016	Temperature probe

Handheld pH/mV Meter and pH Electrode Kit with Optional Data Logging Function

- Professional look design, accurate portable meters with large LCD display, BNC connector
- Hold function, low battery icon indicator, automatic power off in 15 mins.
- Built-in different temperature compensation selectable: Thermistor 30K, 10K ohm and not 25.0 (manual compensation)
- RFS function included
- 3 points pH calibration: 4.01, 7, 10.01 (Adjustable)
- Tripod receptacle mountable design for long time monitoring purposes
- All electrodes are well calibrated

Overview

The portable pH meter, PHH444 provides you with affordable, convenient solutions for basic pH or mV measurements. The OMEGA PHH444 portable pH meter is easy to operate and is equipped with automatic temperature compensation. The kit includes the meter, pH Sensor, pH 4, pH 7, and pH 10 calibration solution, calibration certificate, 3 AAA batteries and rugged carrying case.



Specifications

Model	PHH444	PHH444-DL
Parameter	pH	
Datalogger sampling time setting range	N/A	Auto: 0, 2 secs, 5 secs, 10 secs, 15 secs, 30 secs, 60 secs, 120 secs, 300secs, 600 secs, 900 secs, 1800secs, 1Hr Manual: Press the ADJ button once will save data one time. Set the sampling time to 0 second.
Memory Card	N/A	SD memory card 8G
Data Hold	Freeze the display reading	
Meter Dimension	175mm x 58mm x 32mm (With BNC connector)	
Power Supply	AAA batteries x 3 pcs or 9V AC/DC adaptor (optional)	
Temperature	0~90 °C	
Temp. Accuracy	±0.5 °C	
Measurement Range	pH: 0 to 14 pH mV: 414.12 mV to -414.12 mV	
Accuracy	±0.02 pH + 2 digit	
pH Calibration	pH 4, pH 7, pH 10, 3 points calibration	
Resolution	0.01(pH)	
Automatic Temp.	YES	
Dimension	12x120mm	
Electrode body	PC	
Sensor type	Glass bulb	
ATC Temperature sensor electrode port (pH)	3.5 mm diameter phone jack	
Cable length	1 M	

To Order	
Model No.	Description
PHH444	Handheld pH/mV/Temperature Meter
PHH444-DL	Handheld pH/mV Meter and pH Electrode Kit with Optional Data Logging Function



2-Wire Isolated pH/ORP Transmitter Systems

PHTX-45



- ✓ PEEK Sensor Body Construction
- ✓ Dual-Glass Style Sensor
- ✓ Replaceable Sensor Saltbridge
- ✓ Electrode Breakage Diagnostic
- ✓ Universal Mounting Configurations
- ✓ Microprocessor Based System
- ✓ Large Dual Display Format
- ✓ Loop Powered, Fully Isolated

Sensor Features

Sensor housings are constructed of PEEK, a high performance thermoplastic that provides outstanding mechanical strength and chemical resistance. Multiple sealing materials are used to preserve sensor integrity over a wide range of applications.

A large volume, dual junction saltbridge is used to maximize the in-service time of the sensor. The annular junction provides a large surface area to minimize the chance of fouling. Large electrolyte volume and dual reference junction minimizes contamination of the reference solution. The replaceable saltbridge allows for easy sensor regeneration.

The reference element of this sensor is a second pH electrode immersed in a reference buffer solution. This glass reference system allows the sensor to be used in applications that poison conventional pH sensors.

An integral preamplifier is encapsulated in the body of the sensor. This creates a low impedance signal output which ensures stable readings in harsh environments, and maximize the distance between sensor and transmitter. Sensor diagnostics are used to alarm the user in the event of electrode breakage, loss of sensor seal integrity, or integral temperature sensor failure.

Sensor electrodes can be user-specified to ensure measurement reliability and maximum sensor lifetime. The type of glass used in the pH electrode can be selected for optimal performance. The metal electrode used for ORP measurements can be platinum or gold, depending on chemical makeup of the process solution.



PHTX-45, transmitter shown with PHE-45P electrode, both shown smaller than actual size.

To Order

Model No.	Description
PHTX-45	pH transmitter
PHE-45P	pH electrode
ORTX-45	ORP transmitter
ORE-45P	ORP sensor, -1000 mV to 2000 mV
U24Y101	24 Vdc power supply
PHTX-45-SMH	Submersion mounting hardware, 1.8 m (6')
PHTX-45-RK	pH/ORP sensor regeneration kit: 1 saltbridgeplus 1, 125 mL bottle of reference cell solution, pH 7.00 (for Models PHE-45P and ORTX-45E sensors only)
PHA-4	pH 4.01 buffer solution, 475 ml bottle
PHA-7	pH 7.01 buffer solution, 475 ml bottle
PHA-10	pH 10.01 buffer solution, 475 ml bottle

Comes complete with operator's manual.

Ordering Example: PHTX-45, pH transmitter, PHE-45P, electrode and PHA-4, buffer solution.



PHTX-45 in Line Application Solution

Transmitter Features

The microprocessor-based transmitter is loop-powered and fully isolated for high service reliability. The transmitter includes devices to protect the system from power surge and brownout events.

The large, high contrast, super-twist display provides excellent readability over a wide operating temperature range, even in low light conditions. The main display line consists of large, segmented characters with measurement units. The secondary display line utilizes easily readable dot matrix characters for clear display of calibration and diagnostic messages. Two of four measured parameters may be displayed simultaneously.

Four-button programming provides intuitive navigation through the menu driven user interface. The 4 to 20 mA transmitter output can be configured to represent any portion of the measurement range. Output HOLD, ALARM and SIMULATION features provide the user with complete control of the system output under any condition.

Diagnostic messages provide a clear description of system condition, which eliminates confusing error codes that must be looked up in the operator's manual.

The flexible two-point and sample calibration options include auto-buffer recognition from thirteen built-in buffer tables. Manual override of the automatic buffer values allows the user to customize calibration values. To ensure high accuracy, all calibration methods include stability monitors that check temperature and main parameter stability before accepting data.

Specifications

PHE-45P and ORE-45P

Sensor Specifications

Sensor Cable: 3 m (10')

Measuring Range:

PHE-45P: 0 to 14.00 pH

ORE-45P: -1000 to 2000 mV

Sensitivity: 0.002 pH, 0.2 mV (ORP)

Stability: 0.02 pH or 2 mV per 24 hours, non-cumulative

Wetted Materials:

PHE-45P: PEEK, ceramic, titanium, glass, FKM, EDPM (316 stainless steel with 316SS body option)

ORE-45P: PEEK, ceramic, titanium, glass, FKM, EDPM, platinum or gold

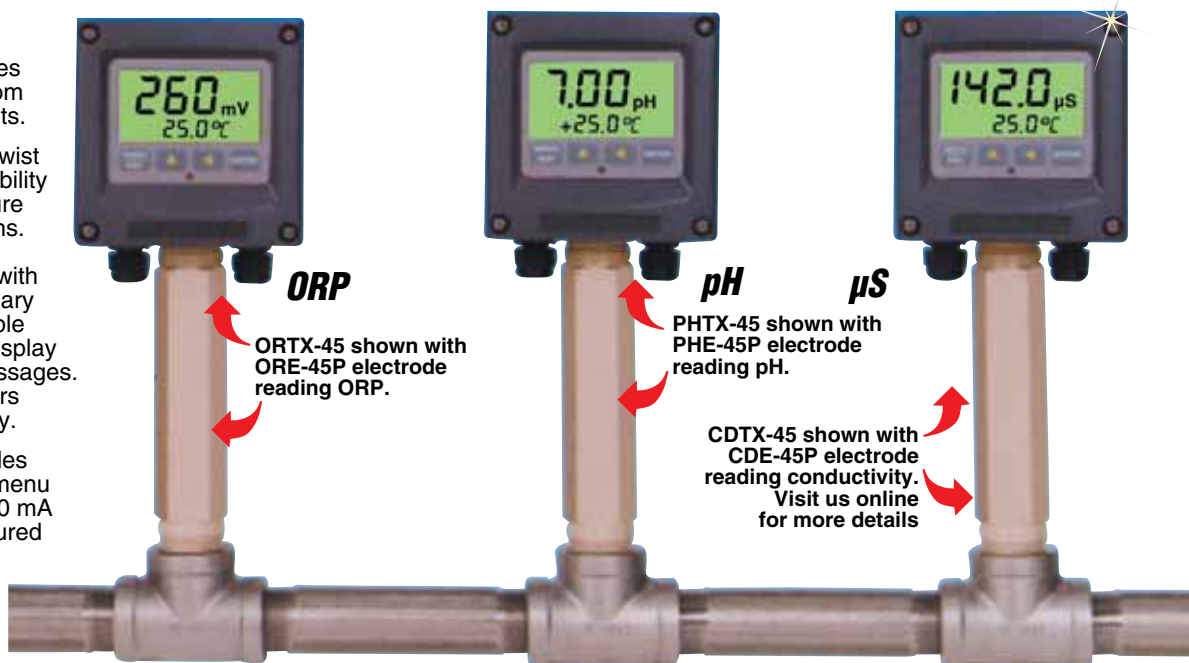
Temperature Compensation:

Pt1000 Sensor Cable:

6 Conductor plus 2 shields

Temperature Range:

-5 to 95°C (23 to 203°F)



ORP

ORTX-45 shown with ORE-45P electrode reading ORP.

pH

PHTX-45 shown with PHE-45P electrode reading pH.

µS

CDTX-45 shown with CDE-45P electrode reading conductivity. Visit us online for more details

Pressure Range: 0 to 100 psig

Maximum Flow Rate:

3 m (10') per second

Sensor to Transmitter Distance:

914 m (3000')

Mounting Options: 1 NPT convertible

Weight/Shipping Weight:

0.45 kg (1 lb)

PHTX-45 Transmitter Specifications

Enclosure: NEMA 4X, IP65, polycarbonate, stainless steel hardware, weatherproof and corrosion resistant, 112 H x 112 W x 89 mm D (4.4 x 4.4 x 3.5")

Mounting Options: Wall, panel, pipe, Din rail, integral-sensor

Conduit Openings: 2-PG9 openings, 1 to 1 NPT center opening, cord grips and plug included

Weight/Shipping Weight:

0.45 kg (1 lb)

Display: Large, high-contrast, super-Twist (STN) LCD; 4-digit main display with 19.1 mm (0.75")

seven-segment character, 12-digit secondary display, 7.6 mm (0.3") 5 x 7 dot matrix character

Keypad: 4-key membrane type with tactile feedback, polycarbonate with UV coating, integral EMI/static shield and conductivity coated window

Ambient Temperature:

Service: -20 to 60°C (-4 to 140°F)

Storage: -30 to 70°C (-22 to 158°F)

Ambient Humidity:

0 to 95%, non-condensing

Location: Designed for hazardous and non-hazardous areas

EMI/RFI Influence:

Designed to EN61326-1

Voltage Range:

16 to 35 Vdc (two-wire device)

Output Isolation:

600 V galvanic isolation

Transmitter Cable Type:

Belden twisted-pair, shielded

Filter: Adjustable 1 to 99 seconds

additional damping to 90% step input

Temperature Input: Selectable Pt1000 or Pt100, automatic compensation

PHE-45P Performance Specifications

Displayed Parameters:

Main Input: 0 to 14.00 pH;

Sensor Voltage: ±500 mV;

Loop Current: 4 to 20 mA;

Sensor Temperature:

-10 to 110°C (14 to 230° F)

Main Parameter Range: 0 to 14.00 pH

Input Impedance: Greater than 1013 Ω

Repeatability: 0.1% of or better

Sensitivity: 0.05% of span

Non-Linearity: 0.1% of span

Stability: 0.1% of span

per 24 hours, non-cumulative

Warm-Up Time: 4 seconds to rated performance

Supply Voltage Effects: ±0.05% span

Transmitter Response Time:

4 seconds to 90% of step input at lowest setting

Temperature Drift:

Span or zero, 0.02% of span/°C

Sensor to Transmitter Distance:

914 m (3000') w/preamp,

9.1 m (30') w/o preamp



Wireless pH/Temperature

Transmitter

with Automatic Temperature Compensation

UWPH-2-NEMA

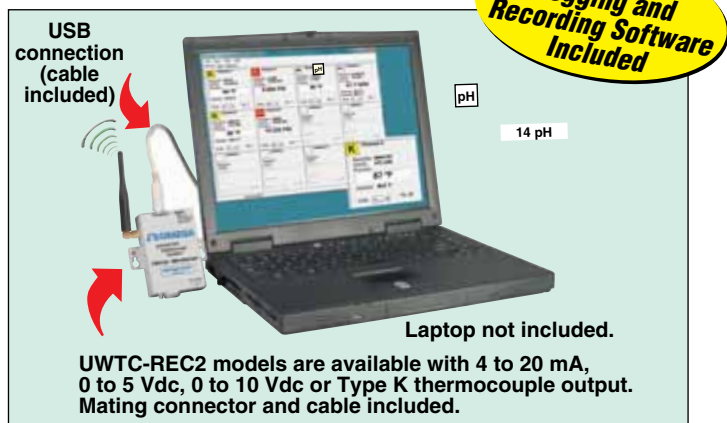
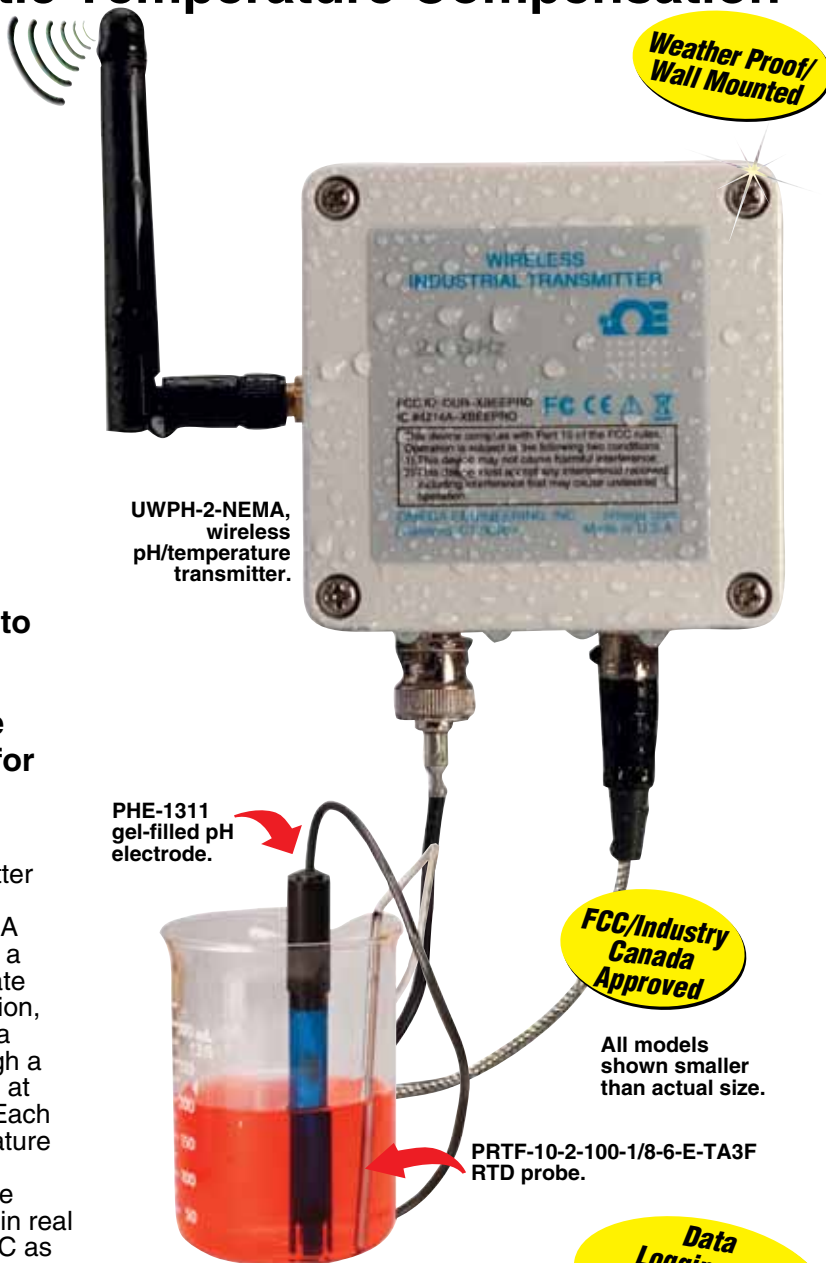


- ✓ 0 to 14 pH and 0 to 100°C (32 to 212°F) Ranges
- ✓ Transmit Data in Real-Time, Up to 120 m (400')
- ✓ Free Software Converts Your PC into a Multi-Channel Chart Recorder or Data Logger
- ✓ Low Power Operation and Sleep Mode
- ✓ Works with UWTC-REC Receivers for a Complete Wireless System

OMEGA's new wireless pH/temperature transmitter features a high performance microprocessor based wireless radio transmitter built into a NEMA enclosure. Compatible with most pH probes with a BNC connector, the UWPH provides fast, accurate readings. For automatic temperature compensation, the UWPH accepts a Pt100 RTD probe through a standard (series T) connector. Configured through a standard USB port, the UWPH can transmit data at rates from every 2 seconds to every 2 minutes. Each transmitted reading includes the pH and temperature data, along with RF signal strength and battery condition to the host. Using the standard software (included), this data can be displayed on screen in real time. The software allows the user to use your PC as a meter, chart recorder or data logger, so data can be saved, or exported to a spreadsheet file.

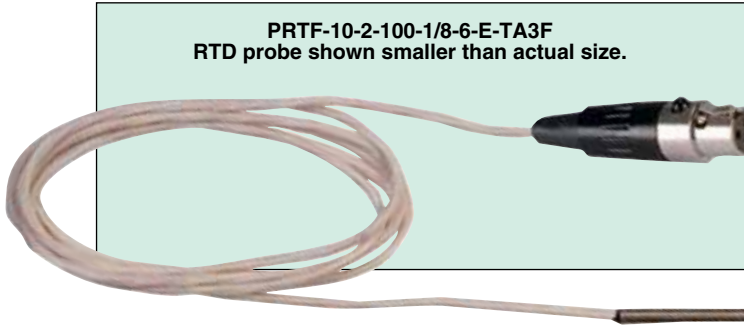
Works with Wireless Receivers:

- UWTC-REC1 48-Channel Receiver
- UWTC-REC2 48-Channel Receiver with Analog Output and Alarm
- UWTC-REC4 DIN Rail Mount 4-Channel Receiver with 4-Channel Analog Output and Alarms
- UWTC-REC6 1-Channel Receiver with Analog Output

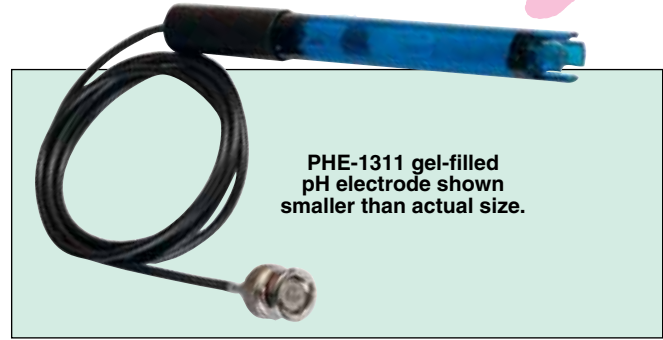




Recommended RTD and pH Electrode



PRTF-10-2-100-1/8-6-E-TA3F
RTD probe shown smaller than actual size.



PHE-1311 gel-filled
pH electrode shown
smaller than actual size.

SPECIFICATIONS

Input Range: 0 to 14 pH
Accuracy: ±0.1 pH
Resolution: 0.01 pH
Response Time: 2 second max
Input Connection: BNC
Temperature Compensation:
 Automatic, 0 to 100°C (32 to 212°F)
RTD Temperature Input:
Input Type: Pt100 Ω, 0.00385 curve
Range: 0 to 100°C (32 to 212°F)
Accuracy: ±1°C (1.8°F)
Resolution: 0.1°

Input Connection: TA3M receptacle;
 TA3F mating connector (included)
Computer Interface: USB
Transmit Sample Rate: Programmable
 from 2 seconds to 2 minutes
Radio Frequency (RF) Transceiver
Carrier: ISM 2.4 GHz, direct sequence
 spread spectrum
RF Output Power: 10 dBm (10 mW)
Range of RF Link:
Outdoor Line of Sight:
 Up to 120 m (400')
Indoor/Urban: Up to 40 m (130')

RF Data Packet Standard:
 IEEE 802.15.4, open
 communication architecture
Software (Included Free): Requires
 Windows® 2000, XP or Vista (32-bit)
 operating system
Power: One 3.6V, lithium "C"
 cell (included)
Battery Life (Typical): 3 years;
 1 sample/minute reading rate @ 25°C
Enclosure: NEMA 4X polycarbonate
Enclosure Dimensions:
 80 L x 82 mm W (3.15 x 3.23")
Note: pH and RTD probes sold separately.

To Order

Model No.	Description
UWPH-2-NEMA	Wireless pH/temperature transmitter

Receivers/Accessories

Model No.	Description
UWTC-REC1	USB-powered 48-channel transmitter receiver
UWTC-REC2-(*)	48-channel receiver with analog output
UWTC-REC2-D-(*)	48-channel receiver with analog output and display
UWTC-REC4-(*)	48-channel DIN rail receiver with 4 analog outputs and alarms
UWTC-REC6-(*)	1-channel transceiver with analog output
UWTC-CABLE	Spare USB programming/communication cable
UWTC-BATT-C	Replacement 3.6V, lithium "C" cell battery assembly
PHE-1311	Gel-filled pH electrode, general purpose
PRTF-10-2-100-1/8-6-E-TA3F	Pt100 RTD probe, 1/8" dia, 6" L, with 40' PFA insulated cable with TA3F connector
PHA-4	4.00 pH buffer solution 500 mL (1 pint) bottle
PHA-7	7.00 pH buffer solution 500 mL (1 pint) bottle
PHA-10	10.00 pH buffer solution 500 mL (1 pint) bottle

Comes complete with one 3.6V lithium "C" cell assembly, TA3F RTD mating connector, and operator's manual. UWTC-REC2 units also include DC power adaptor.

* Specify analog output signal: "V1" for 0 to 5 Vdc; "V2" for 0 to 10 Vdc, or "MA" for 4 to 20 mA.

Ordering Example: UWPH-2-NEMA, wireless pH/temperature transmitter, UWTC-REC1, USB powered 48-channel transmitter receiver, PHE-1311, gel-filled pH electrode and PRTF-10-2-100-1/8-6-E-TA3F, Pt100 RTD probe.



Water Quality Test Strips Free Chlorine Water Check

WTS Series



- ✓ Quick and Easy-to-Run with No Setup Time
Completely Portable for Field Use
- ✓ Minimum Technical Know-How Required Since
No Sample Mixing or Reagent Mixing
is Required
- ✓ Safe Since Chemical Weight on
One Strip is Only 3% of What One
"Powder Pillow" Contains
- ✓ Ideal for Measuring Cloudy and Colored
Water Samples with Negligible Effect
on Test Results

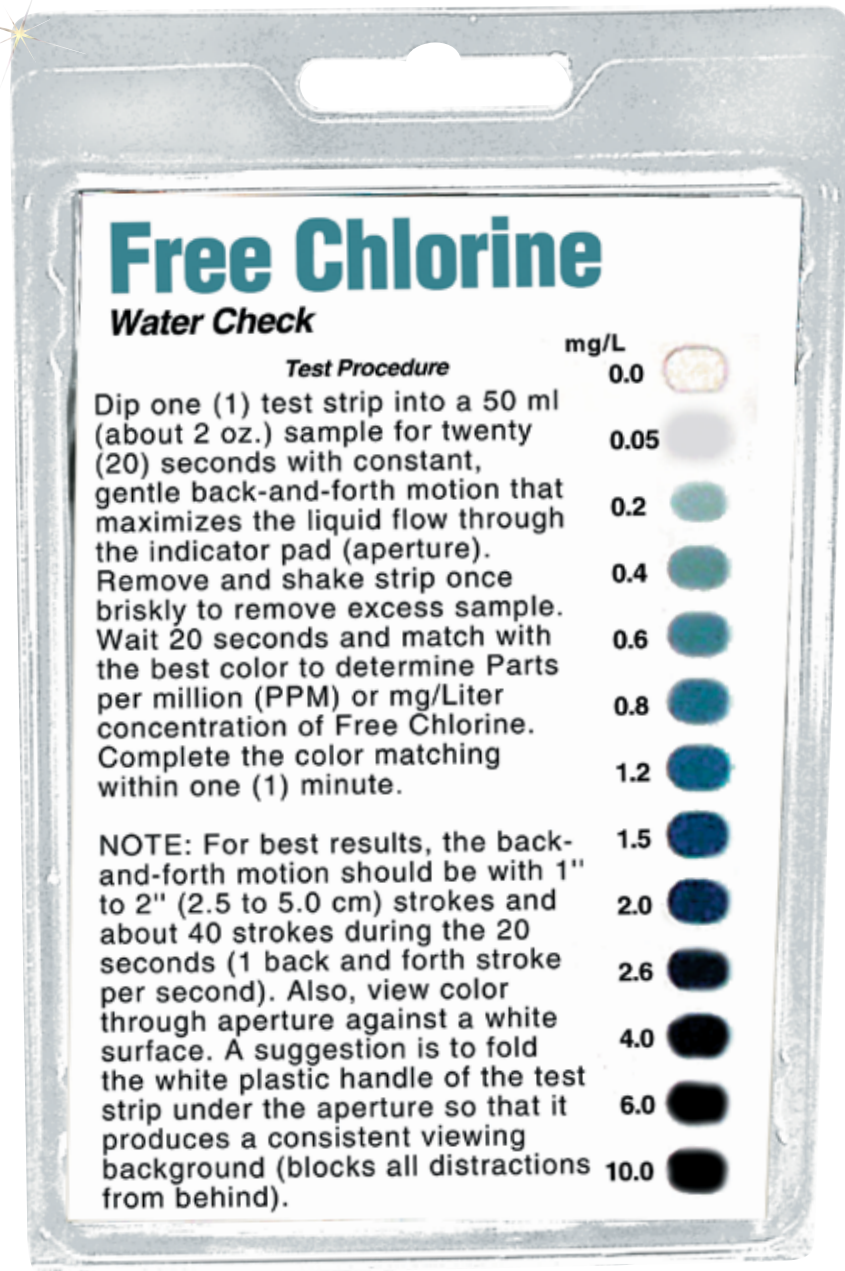
Free Chlorine Water Check

The latest product in a line of continuous product innovations, the Free Chlorine Water Check offers the user an extremely comprehensive testing system. Currently under US EPA evaluation, the test offers a range of 0.05 to 10 PPM (mg/L) with no monochloramine interference. With accurate and reproducible results in under 1 minute, the Free Chlorine Water Check (Models: WTS-481026 and WTS-481126) is sure to revolutionize Free Chlorine testing as you know it.

Free Chlorine

These water quality tests are the sensitive and safe alternative to wet chemical free chlorine tests. A mechanical reader is not required, even for the 0.05 PPM or mg/L sensitivity. The unique indicator is reactive only to free Chlorine; therefore, no interference to monochloramines occurs. Accurate results are achieved in under 1 minute. Products are available with ranges from 0.05 to 750 PPM (mg/L).

Most test strip products are available in two different packages; individual packets with a detailed color chart card or in bottles labeled with a color chart. No matter which option you choose, all products offer the same high level of quality and reliability.



WTS-481126

To Order		
Model No.	Description	Detection Levels PPM (mg/L)
WTS-480002	Free chlorine, bottle of 50	0, 0.05, 0.1, 0.2, 0.4, 0.5, 0.8, 1.0, 2.0, 5.0
WTS-480022	Free chlorine HR*, bottle of 50	1.0, 2.0, 5.0, 10, 20, 40, 80, 120
WTS-480023	Free chlorine check, bottle of 50	0.0, 0.25, 0.5, 1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 15, 20, 25
WTS-480024	Free chlorine check HR*, bottle of 50	0.0, 25, 50, 100, 200, 300, 400, 500, 750
WTS-481026	Free chlorine water check, bottle of 50	0, 0.05, 0.2, 0.4, 0.6, 0.8, 1.2, 1.5, 2.0, 2.6, 4.0, 6.0, 10
WTS-481126	Free chlorine water check, 30 pkts of 1	0, 0.05, 0.2, 0.4, 0.6, 0.8, 1.2, 1.5, 2.0, 2.6, 4.0, 6.0, 10

* High Range

Ordering Example: WTS-481126, Free Chlorine water check, 30 individual packets of 1 ea.



Water Quality Test Strips

Total Chlorine

Most products are available in bottles of 50 strips or 30 individual foil packets with a detailed color chart card. Total Chlorine test strips offer both versatility and sensitivity without compromising accuracy. Ranging from 0.05 to 80 PPM (mg/L), Total Chlorine strips use patented technology to make your testing easier. With results being achieved in under 1 minute, Total Chlorine test strips save you time and money.

To Order	
Model No.	Description Detection Levels PPM (mg/L)
WTS-480010	Total chlorine, bottle of 50. 0, 0.05, 0.075, .1, 0.125, 0.15, 0.175, 0.2, 0.3, 0.5, 0.8, 4.0, 10
WTS-481110	Total chlorine, 30 pkts of 1. 0, 0.05, 0.075, 0.1, 0.125, 0.15, 0.175, 0.2, 0.3, 0.5, 0.8, 4.0, 10
WTS-480033	Total chlorine high range, bottle of 50. 0, 5, 10, 20, 30, 40, 60, 80



WTS-480655

WTS-481133



WTS-481110

Specialty Combination Strips

Testing multiple parameters in water takes time and money. With these combination test strips you can reduce testing time and expenses. Testing for free and total chlorine on the same strip, the WTS-480655, offers accuracy and reliability. If more parameters are required, the 4-in-1 water check tests for total chlorine, pH, total hardness and total alkalinity. The 5-in-1 strips test for pH, total alkalinity, total hardness, free chlorine and total chlorine, all on one strip!

To Order		
Model No.	Description	Detection Levels PPM (mg/L)
WTS-480655	Free and total chlorine, 30 pkts of 1	0, 0.1, 0.2, 0.5, 1.0, 2.5, 5.0
WTS-480115	5-in-1 strip, 30 pkts of 1	See WTS-480655, 480008 and 480005 for Specs
WTS-481133	4-in-1 strip, 30 pkts of 1	See: pH, total alkalinity, total chlorine, total hardness

Order Online



Water Quality Test Strips

pH and Total Alkalinity

pH is a natural part of water chemistry. pH Check test strips are designed to offer highly accurate results with minimal cost. For a more comprehensive test try the combination pH/total Alkalinity test strips.

To Order		
Model No.	Description	Detection Levels PPM (mg/L)
WTS-480104	pH check,	2, 3, 4, 5, 6, 6.5, 7, 7.5, 30 pkts of 18 8.5, 9, 9.5, 10, 11, 12
WTS-481104	pH check,	pH: 2 to 11 bottle of 50
WTS-480005	pH/total	pH: 6, 6.5, 7, 7.5, alkalinity, 8.5, 9 TA: 0, 80, 120, bottle of 50 180, 240, 360 PPM

WTS-480008.

Total Hardness

Calcium is found in water naturally from leaching. A typical sign of high calcium is scale that can build up in your bathtub. Accurate calcium measurement is very important to prolong the life of appliances and plumbing. The Total Hardness test strip provides accurate and reliable measurement without sacrificing time and money. This product produces accurate results in only one second!



To Order		
Model No.	Description	Detection Levels PPM (mg/L)
WTS-480008	Total hardness, bottle of 50	40, 80, 120, 180, 250, 425
WTS-481108	Total hardness, 30 pkts of 1	40, 80, 120, 180, 250, 425 and 0, 2, 5, 7, 11, 15, 25 gpg



WTS-480104



WTS-480018



WTS-480014

Peroxide and Iodine Check Strips

With the usage of alternative oxidizers becoming more predominate, you need a quick, reliable and economical test. Offering sensitivities from 0.05 to 30,000 PPM (mg/L), Peroxide Check answers demanding testing needs.

Iodine has been used for many years as a sanitizing agent. Measurement concerns have necessitated the need for an accurate, economical way to check Iodine levels. Iodine Check offers the user a wide range of sensitivity, 0.02 to 300 PPM (mg.L), while still remaining accurate and affordable.

Manufactured under exacting conditions, all of these products provide accurate results ideal for the food, medical, industrial, and potable water industries.

To Order		
Model No.	Description	Detection Levels PPM (mg/L)
WTS-480018	Iodine, bottle of 50	0, 0.02, 0.05, 0.1, 0.2, 0.3, 0.4, 0.5, 1.0, 2.0, 3.0, 4.0, 5.0
WTS-480064	Iodine check, bottle of 50	0, 5, 10, 15, 20, 30, 40, 50, 75, 100, 150, 200, 250, 300
WTS-480014	Peroxide check, bottle of 50	0.5 to 100

For Sales **1-800-82-66342**

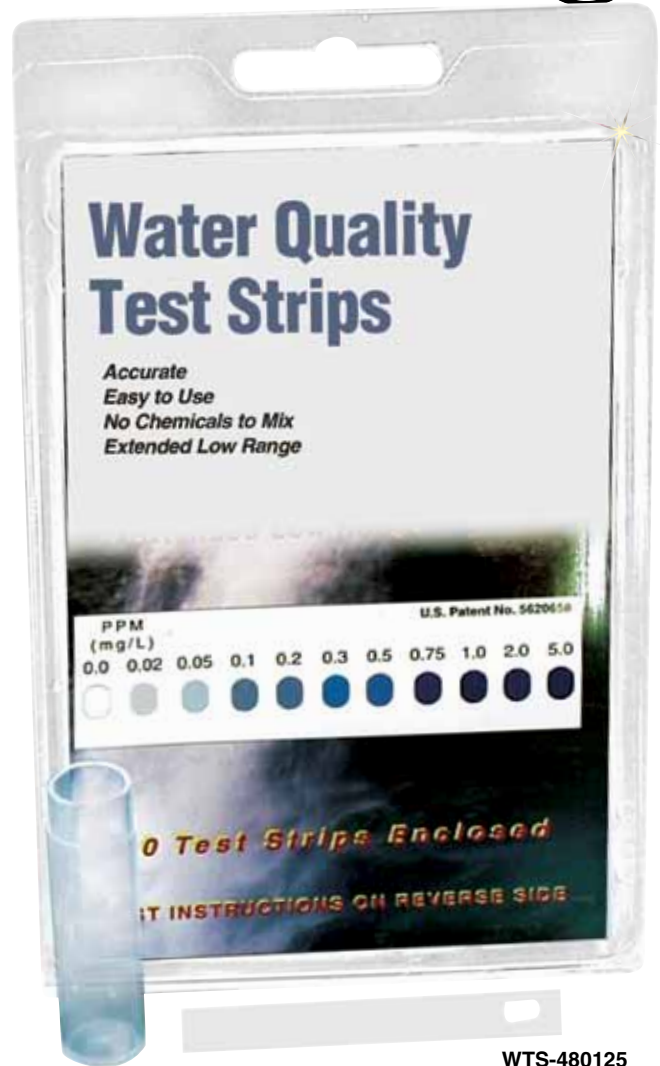


Iron and Copper Test Strips

Whether you are testing for Iron or Copper on surfaces or in water, OMEGA has a solution for you. Iron and Copper tests make short work of an otherwise frustrating project.

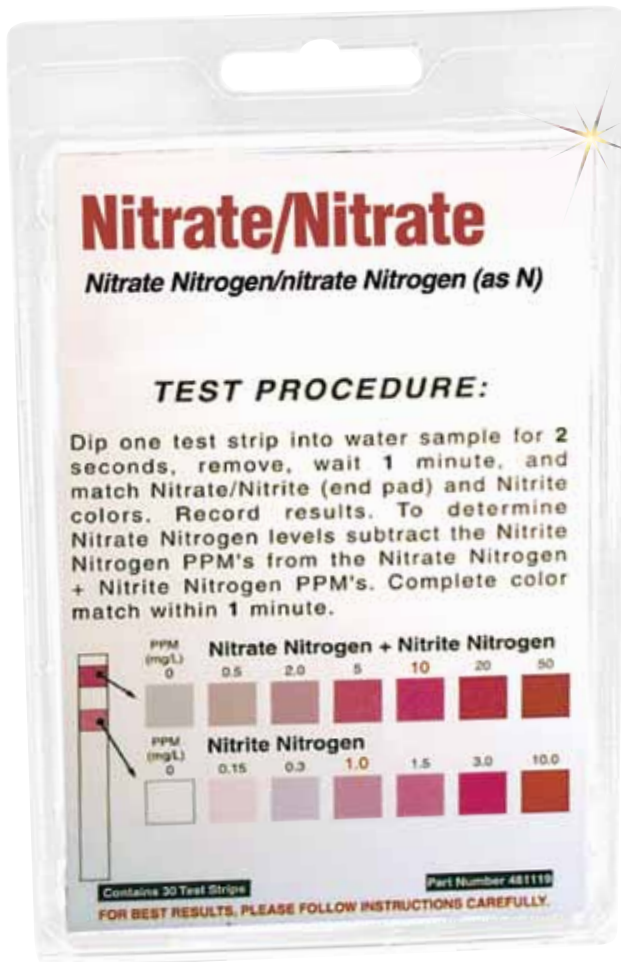
Requiring no mechanical reader or extra reagents, Iron test is an extremely accurate and sensitive test for measuring from 0.02 to 5.0 PPM (mg/L) in water.

Designed to complement the Iron test product, Copper test strips report results from 0.5 to 10.0 PPM (mg/L) without the need for a mechanical reader or hazardous reagents to mix.



WTS-480125

To Order		
Model No.	Description	Detection Levels PPM (mg/L)
WTS-480125	Iron test, 30 pkts of 1	0, 0.02, 0.05, 0.1, 0.2, 0.3, 0.5, 0.75, 1.0, 2.0, 5.0
WTS-480025	Iron test, bottle of 25	0, 0.02, 0.05, 0.1, 0.2, 0.3, 0.5, 0.75, 1.0, 2.0, 5.0
WTS-480011	Copper test, bottle of 25	0, 0.5, 1.0, 2.5, 5.0



WTS-481109

Nitrate Nitrogen and Nitrite Nitrogen

Nitrate Nitrogen and Nitrite Nitrogen can be very harmful in water. Side effects range from a lack of energy all the way to severe illness and, sometimes, death. Quickly and accurately determining the presence and levels of Nitrates and Nitrites in your water can save more than time and money. Nitrate/Nitrite Nitrogen test strips offer the user more than accurate, cost-effective results. The precise measuring tools offer the user peace-of-mind and safety. Ideal for the potable water industry, food industry, medical industry and educational classes. Nitrate/Nitrite Nitrogen test strips offer a sensitivity of 0 to 50 PPM (mg/L) for Nitrates, and 0.15 to 10 PPM (mg/L) for Nitrite Nitrogen. With a large, easy to read color chart and an economical price, Nitrate/Nitrite Nitrogen test strips are a must for any scientific tool kit.

To Order		
Model No.	Description	Detection Levels Detection Levels PPM (mg/L)
WTS-480009	Nitrate/nitrite as nitrogen, bottle of 50	Nitrate: 0, 0.5, 2.0, 5, 10, 20, 50 Nitrite: 0.0, 0.15, 0.3, 0.9, 1.5, 3, 10
WTS-481109	Nitrate/nitrite as nitrogen, 30 pkts of 1	Nitrate: 0, 0.5, 2.0, 5, 10, 20, 50 Nitrite: 0.0, 0.15, 0.3, 0.9, 1.5, 3, 10

Order Online



Water Testing Methods

Titrimetric

Titrimetric tests can be used to determine the concentration of a substance in a sample solution. After the sample is treated with an indicator, a standard titrant is added until a color change indicates a completed reaction. OMEGA® offers four separate types of titration methods, allowing a choice of precision and convenience.



WTNNO3-3110, nitrate test kit.

Automatic Buret

The self-zeroing automatic buret is calibrated from 0 to 10 mL in 0.1 mL increments. It is available with a squeeze valve (pinchcock), glass stopcock, or PTFE stopcock.

Direct Reading Titrator

The direct reading titrator is a 1.0 mL microburet calibrated to allow direct reading of the test result. Each titrator has a specific range, but may be refilled to test higher concentrations.

Dropper Pipet

The drop count test uses a pipet to provide fast, precise measurements in the field. The number of drops used before the color change is multiplied by a fixed factor to provide the test result.

Dropper Bottle

The dropper bottle test uses bottle tips which deliver a consistent, standard drop size to add titrant to the sample. As with the drop count test, the number of drops used to complete the reaction is multiplied by a given equivalence factor to determine the concentration.

To Order

Factor & Method	Model No.	Test System	Range/Sensitivity	# of Tests (# Reagents)
ACIDITY Titration with standard alkali to methyl orange or phenolphthalein endpoint	WTH-7182	HCl, H ₂ SO ₄ , H ₃ PO ₄	1 drop = 0.1 or 1.0% 50 at 10%	(2) Dropper Bottle
ALKALINITY Titration with standard acid to phenolphthalein (P) or total (T) alkalinity endpoint. Hydroxide determination (OH) uses barium pretreatment to eliminate carbonate interference. Test results are expressed as ppm CaCO ₃	WTOH-4491-DR	Total alkalinity direct reading titrator	0 to 200 ppm/4 ppm 50 at 200 ppm	(2)
	WTOH-4533-DR	P & T alkalinity direct reading titrator	0 to 200 ppm/4 ppm 50 at 200 ppm	(3)
	WTOH-4533	P & T alkalinity dropper pipet	1 drop = 10 ppm 50 at 200 ppm	(3)
	WTOH-3467*	P & T alkalinity direct reading titrator	0-200 ppm/4 ppm 50 at 200 ppm	(3)
ALUMINUM Eriochrome Cyanine R	WTOH-7515	P, T, & OH alkalinity dropper pipet	1 drop = 10 ppm 50 at 200 ppm	(4)
AMMONIA NITROGEN Color development with Nessler or salicylate method. The salicylate method is preferred for salt water analysis and does not contain mercury as does the Nessler method	WTAL-3569	Octet comparator	0, 0.1, 0.15, 0.2, 0.25, 0.3, 0.4, 0.5 ppm	50 (2)
	WTNH3-N-4795	Nessler Octet comparator	1.0, 2.0, 3.0, 4.0, 5.0, 6.0 7.0, 8.0 ppm	50 (2)
	WTNH3-N-3680	Nessler Colorimeter	0 to 5.0 ppm/0.05 ppm 0.4, 0.6, 1.0 ppm	100 (2)

Kit contents vary. Each kit comes complete with everything necessary to perform the specified test.

* Accepted by EPA National Primary Drinking Water Regulations (NPDWR) & by EPA National Pollutant Discharge Elimination Systems (NPDES)

Ordering Example: WTOH-4491-DR, total alkalinity direct reading titrator.

Order Online

Rometec srl - www.rometec.it - info@rometec.it - Rometec srl - www.rometec.it - info@rometec.it

Over 100,000 Products Available!



Individual Water Testing Kits



WTCO2-7297-DR, carbon dioxide testing kit.



WTCHEL-7144, chelant testing kit.

Convenient reagent refill packages available. When ordering, place prefix "R-" in front of Model Number. Contact OMEGA for price and delivery terms.

To Order

Factor & Method	Model No.	Test System	Range/Sensitivity	# of Tests (# Reagents)
BLEACH (See Chlorine Bleach)				
BROMINE Color development with DPD; titration using DPD and ferrous ammonium sulfate. With WTBR-6824 kit, bromine can be separated from chlorine determination using glycine	WTBR-6955	DPD tablet octet comparator	0.2, 0.4, 0.6, 0.8, 1.0, 1.5, 2.0, 3.0 ppm	50 (1)
	WTBR-6824	DPD tablet bromine in chlorine octet comparator	0.2, 0.4, 0.6, 0.8, 1.0, 1.5, 2.0, 3.0 ppm	50 (3)
CALCIUM (See Hardness)				
CARBON DIOXIDE Titration with standard alkali	WTCO2-7297-DR	Direct reading titrator	0 to 50 ppm/1.0 ppm 50 at 50 ppm	(2)
CAUSTIC Titration to phenolphthalein endpoint with standard acid	WTNAOH-7516-DR	Direct reading titrator	0 to 10%/0.2%, 50 at 10%	(4)
	WTNAOH-7181	Dropper bottle	1 drop = 0.1 or 1%, 50 at 10%	(3)
CHELANT Back titration with magnesium for free; titration with bismuth nitrate for total	WTCHEL-7144	Free chelant dropper bottle	1 drop = 2 ppm EDTA 1 drop = 2 ppm NTA	100 (3)
CHLORIDE Argentometric titration. Kits WTCL-7172 and WTCL-7247 contain hydrogen peroxide to eliminate sulfite interference	WTCL-3468*	Direct reading titrator	0 to 50 ppm/1 ppm	50 (2)
	WTCL-4503-DR	Direct reading titrator	0 to 200 ppm/4 ppm 0 to 20,000 ppm/400 ppm 50 at 200 ppm	(4)
	WTCL-7459	Salinity direct reading titrator	0 to 20 ppt/0.4 ppt 50 at 20 ppt	(2)
	WTCL-7172	Dropper bottle	1 drop = 10, 25, or 50 ppm 120 at 100 ppm	(5)
	WTCL-7247	Dropper bottle	1 drop = 2, 5, or 10 ppm 120 at 10 ppm	(5)

Kit contents vary. Each kit comes complete with everything necessary to perform the specified test.

* Accepted by EPA National Primary Drinking Water Regulations (NPDWR) and EPA National Pollutant Discharge Elimination Systems (NPDES).

Ordering Example: **WTBR-6824**, DPD tablet bromine in chlorine test kit.



Convenient reagent refill packages available. When ordering, place prefix "R-" in front of Model Number. Contact OMEGA for price and delivery terms.

WTCL2-3176, chlorine test kit.

To Order				
Factor & Method	Model No.	Test System	Range/Sensitivity	# of Tests (# Reagents)
CHLORINE				
Low concentrations of free, total, and various forms of combined chlorine are determined colorimetrically using DPD tablets or liquids, or by ferrous ammonium sulfate/DPD titration. Higher concentrations are best determined using iodometric titration, which indicates total chlorine only.				
Free & Total	WTCL2-6817*	DPD Tablet octet comparator	0.2, 0.4, 0.6, 0.8, 1.0, 1.5, 2.0, 3.0 ppm	50 (2)
	WTCL2-6819*	DPD Tablet octet comparator	0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.8, 1.0 ppm	50 (2)
	WTCL2-3308*	DPD Tablet octa-slide	0.2, 0.4, 0.6, 0.8, 1.0, 1.5, 2.0, 3.0 ppm	50 (2)
	WTCL2-3312*	DPD Tablet octa-slide	0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.8, 1.0 ppm	50 (2)
	WTCL2-3313*	DPD Tablet octa-slide	1.0, 1.5, 2.0, 2.5, 3.0, 4.0, 5.0, 6.0 ppm	50 (2)
	WTCL2-3314*	DPD Tablet 2 octa-slide	Low: 0.1 to 1.0 ppm High: 1.0 to 6.0 ppm	100 (2)
	WTCL2-3670-LI	DPD Liquid colorimeter	0 to 4.0 ppm/0.05 ppm	144 (3)
DPD-FAS Titration	WTCL2-3176*†	Direct reading titrator	0 to 10 ppm/0.2 ppm 50 at 10 ppm	(4)

Kit contents vary. Each kit comes complete with everything necessary to perform the specified test.

* Accepted by EPA National Primary Drinking Water Regulations (NPDWR), EPA National Pollutant Discharge Elimination Systems (NPDES).

** Free and combined chlorine, bromine, iodine, chlorine mixtures, chlorine dioxide, chlorite, bromine, nitrogen trichloride, ozone, and ozone-chlorine mixtures.

† National Pollutant Discharge Elimination Systems (NPDES), EPA Accepted.

Ordering Example: WTCL2-6819, free and total chlorine tablet octet comparator.

Order Online



Individual Water Testing Kits



Convenient reagent refill packages available. When ordering, place prefix "R-" in front of Model Number. Contact OMEGA for price and delivery terms.

WTCOLI-4-3616,
Coliform Test Kit.

To Order				
Factor & Method	Model No.	Test System	Range/Sensitivity	# of Tests (# Reagents)
CHLORINE...Continued				
<i>Iodometric Titration (For high chlorine levels)</i>	WTCL2-4501	Dropper pipet	1 drop = 1 ppm	50 (3)
<i>DPD Chlorine/pH phenol red combination</i>	WTCL2-6980	DPD tablet/ phenol red tablet 3 octet comparators	Low: 0.1 to 1.0 ppm High: 1.0 to 6.0 ppm pH: 6.8 to 8.2	200 (5)
CHLORINE BLEACH Iodometric titration	WTOCL-7894	Dropper pipet	1 drop = 0.005%, 0.05%, or 0.5% 50 at 0.1, or 10%	(3)
CHLORINE DIOXIDE Color analysis using DPD tablets with glycine	WTCL02-3592	Octet comparator with axial reader	0.02, 0.6, 0.8, 2.0, 3.0, 5.0 ppm	50 (2)
COLIFORM	WTCOLI-4-3616	Tableted nutrient based on 5 tube MPN	Presence/Absence	1 (1)
COLOR Direct analysis with platinum cobalt color standards or visual matching by adding a standard color solution dropwise to uncolored water. Test results are APHA Standard Color Units.	WTWAV-3528	Octet comparator with axial reader	0, 20, 50, 80, 110, 140, 170, 200	Unlimited (0)

Kit contents vary. Each kit comes complete with everything necessary to perform the specified test.

Ordering Example: **WTWAV-3528**, color test kit dual range dropper pipet.





WTCU-6616, copper test kit.



WTCA-4824-LT-01, hardness test kit.

To Order				
Factor & Method	Model No.	Test System	Range/Sensitivity	# of Tests (# Reagents)
COPPER Diethyldithiocarbamate colorimetric analysis	WTCU-6616	Octet comparator with axial reader	0, 0.05, 0.10, 0.15, 0.20, 0.30, 0.40, 0.50 ppm	50 (1)
	WTCU-3673	Colorimeter	0 to 8 ppm/0.03 ppm	100 (1)
DETERGENTS (Anionic) Reaction with bromphenol blue, extraction, addition of standard color solution	WTDT-4507	Dropper pipet	1 drop = 1.0 ppm 60 at 5.0 ppm	(3)
HARDNESS EDTA titration is used for determinations. All kits express results as CaCO ₃ . Some also express results as gpg. Kit WTCA-3609 has conversion factor for Ca ⁺⁺ . The -LI suffix indicates an all liquid reagent system; the -LT suffix indicates system using a liquid buffer and a tablet indicator	WTCA-3609	Fresh & salt water hardness direct reading titrator	0 to 200 ppm/4 ppm	50 (3)
	WTCA-4482-DR-LI	Total hardness direct reading titrator	0 to 200 ppm/4ppm 50 at 200 ppm	(3)
	WTCA-4482-LI	Total hardness dropper pipet	1 drop = 10 ppm or 1 gpg 50 at 200 ppm or 20 gpg	(3)
	WTCA-4482-DR-LT	Total hardness direct reading titrator	0 to 200 ppm/4 ppm 50 at 200 ppm	(3)
	WTCA-4824-LT-01	Calcium, magnesium, total hardness dropper pipet	1 drop = 10 ppm or 1 gpg 50 at 200 ppm or 20 gpg	(5)

Kit contents vary. Each kit comes complete with everything necessary to perform the specified test.

* National Primary Drinking Water Regulations (NPDWR), EPA Accepted.

Ordering Example: WTCA-3609, fresh and salt water hardness direct reading titrator water kit.

Order Online



Individual Water Testing Kits



To Order				
Factor & Method	Model No.	Test System	Range/Sensitivity	# of Tests (# Reagents)
HARDNESS ...Continued	WTCA-4824-DR-LT	Calcium, magnesium, & total hardness direct reading titrator	0 to 200 ppm/4 ppm 50 at 200 ppm	(5)
	WTCA-3037-DR	Low range total hardness direct reading titrator	0 to 10 ppm/0.2 ppm 50 at 10 ppm	(3)
	WTCA-7171	Total hardness dropper bottle	1 drop = 10, 25, or 50 ppm	100 (3)
	WTCA-7246	Total hardness dropper bottle	1 drop = 2, 5, or 10 ppm	100 (3)
HYDROGEN PEROXIDE Colorimetric analysis with DPD; iodometric titration	WTH202-3188	DPD tablet octet comparator	Low: 0.1, 0.3, 0.5, 0.75, 1.0, 1.25, 1.5, 2.0 ppm High: 2, 6, 10, 15, 20, 25, 30, 40 ppm	50 (2)
IODINE Iodometric titration	WTI-7253-DR	Direct reading titrator	0 to 50 ppm/1 ppm 50 at 50 ppm	(3)
	WTI-7253	Dropper pipet	1 drop = 2.5 ppm 100 at 25 ppm	(3)
IRON Bipyridyl colorimetric analysis of total iron as well as ferrous/ferric. 1,10 Phenanthroline total iron analysis is used in DC1100 colorimeter kit	WTFE-3347	Total Iron octet comparator	0.5, 1.0, 2.0, 3.0, 4.0, 6.0, 8.0, 10.0 ppm	100 (2)
	WTFE-7787	Total Iron octet comparator with axial reader	0.05, 0.10, 0.20, 0.30, 0.40, 0.60, 0.80, 1.0 ppm	50 (2)
	WTFE-3681	Total Iron 1, 10 phenanthroline colorimeter	0 to 4.0 ppm/0.25 ppm	100 (2)

Kit contents vary. Each kit comes complete with everything necessary to perform the specified test.

* National Primary Drinking Water Regulations (NPDWR), EPA Accepted. † National Pollutant Discharge Elimination Systems (NPDES), EPA Accepted.

Ordering Example: WTH202-3188, hydrogen peroxide water test kit.



WTMO-6628, molybdate/molybdenum test kit.



WTNNO3-3615, nitrate nitrogen test kits.

To Order				
Factor & Method	Model No.	Test System	Range/Sensitivity	# of Tests (# Reagents)
LEAD Presence of lead in solder may be tested using sodium rhodizonate. Banned for household use.	WTPB-3582	Spot plate plumbing inspector kit	Yes/No	100 (3)
MOLYBDATE/MOLYBDENUM Determined colorimetrically using xanthate or thioglycolate method, or by titration with citric acid	WTMO-6628	Xanthate, sodium molybdate octet comparator	1, 2, 3, 4, 5, 6, 8, 10 ppm	100 (2)
	WTMO-3346	Thioglycolate, molybdate octa-slide	30, 60, 90, 120, 150, 180, 240, 300 ppm	50 (2)
MORPHOLINE Colorimetric analysis using naphthoquinone sulfonic acid salt	WTMOR-3133	Octet comparator	0, 1, 2, 4, 5, 6, 8, 10 ppm	100 (5)
NITRATE NITROGEN Determined colorimetrically by diazotization/coupling reaction after reduction to nitrite by cadmium. Results expressed as NO ₃ -N; Phosphate test in kit WTNNO3-3119 uses ascorbic acid reduction	WTNNO3-3110	Octet comparator	0.25, 0.5, 1.0, 2.0, 4.0, 6.0, 8.0, 10.0 ppm	40 (2)
	WTNNO3-3615	Octet comparator with axial reader	0, 0.2, 0.4, 0.6, 0.8, 1.0 ppm	50 (2)
	WTNNO3-3677	Cadmium reduction colorimeter	0 to 3.0 ppm/0.05 ppm	50 (2)

Kit contents vary. Each kit comes complete with everything necessary to perform the specified test.

Ordering Example: WTMO-6628, molybdate/molybdenum.

Order Online



Individual Water Testing Kits

Convenient reagent refill packages available. When ordering, place prefix "R-" in front of Model Number. Contact OMEGA for price and delivery terms.



WTH202-7191, peracetic acid.

To Order

Factor & Method	Model No.	Test System	Range/Sensitivity	# of Tests (# Reagents)
NITRITE NITROGEN Determined colorimetrically by diazotization/coupling. Kit WTNNO2-7421 reports as $\text{NO}_2^- \text{N}$; kit	WTNNO2-7421	Octet comparator	0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.8 ppm	50 (3)
NITRITE, SODIUM Titration using permanganate or ceric ammonium nitrate (CAN). Results reported as NaNO_2	WTNO2NA-7101-DR	Permanganate direct reading titrator	0 to 1000 ppm/20 ppm 50 at 1000 ppm	(2)
	WTNO2NA-7101	Permanganate dropper pipet	1 drop = 50 or 100 ppm 50 at 1000 or 2000 ppm	(2)
	WTNO2NA-3036-DR	CAN direct reading titrator	0 to 1000 ppm/20 ppm 50 at 1000 ppm	(2)
	WTNO2NA-7183	CAN dropper bottle	1 drop = 50 ppm 50 at 1000 ppm	(2)
OXYGEN, DISSOLVED Azide modification of Winkler method	WTDO-5860	All liquid reagents direct reading titrator	0 to 10 ppm/0.2 ppm 50 at 10 ppm	(5)
OZONE Colorimetric determination using DPD or indigo trisulfonate. The WTO3-3678 indigo kit can test for ozone in the presence of chlorine	WTO3-3526	DPD tablet octet comparator with axial reader	0.01, 0.03, 0.07, 0.11, 0.2, 0.4, 0.7, 1.0 ppm	50 (2)
	WTO3-3678	Indigo trisulfonate Colorimeter	0 to 0.4 ppm/0.04 ppm	100 (3)
PERACETIC ACID/HYDROGEN PEROXIDE Cerium titration of peroxide with subsequent Iodometric titration of peracetic acid	WTH202-7191	Dropper bottle	1 drop = 50 ppm peroxide 1 drop = 15 ppm peracetic acid	50 (5)

Kit contents vary. Each kit comes complete with everything necessary to perform the specified test.

† National Pollutant Discharge Elimination Systems (NPDES), EPA Accepted.

Ordering Example: **WTNNO2-7421**, nitrite nitrogen, octet comparator water test kit.

For Sales **1-800-82-66342**



WTPO4-3114, phosphate test kit.



WTPHOS-7530-DR, phosphonate test kit.

To Order

Factor & Method	Model No.	Test System	Range/Sensitivity	# of Tests (# Reagents)
PHENOLS Aminoantipyrine color development	WTPHEN-7824	Octet comparator with axial reader	0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.8, 1.0 ppm	50 (3)
PHOSPHATE Ascorbic acid or stannous chloride reduction after forming molybdate complex yields a blue color. Comparator Vanadate molybdate method yields yellow color. All kits determine orthophosphate concentrations. The ascorbic acid method must be used when testing salt water	WTPO4-3114	Ascorbic acid octet comparator	0.5, 1, 2, 3, 4, 6, 8, 10 ppm and 5, 10, 20, 30, 40, 60, 80, 100 ppm	50 (2)
	WTPO4-3121	Ascorbic acid octet comparator with axial reader	0, 0.2, 0.4, 0.6, 0.8, 1.0, 1.5, 2.0 ppm	50 (2)
	WTPO4-7416	Stannous chloride octet comparator with axial reader	0.05, 0.1, 0.2, 0.3, 0.4, 0.6, 0.8, 1.0 ppm	50 (2)
	WTPO4-4401	Vanadate molybdate octet comparator	10, 20, 30, 40, 50, 60, 70, 80 ppm	50 (1)
PHOSPHONATE Thorium titration using xylenol orange indicator (testing Dequest) or chrome azurol S indicator (testing Bayhibit or Dequest). The xylenol orange method uses a fluoride inhibitor. All kits list equivalences for various phosphonates	WTPHOS-7625-DR	CAS direct reading titrator	0 to 20 ppm/0.4 ppm HEDP/PBTC 50 at 20 ppm	(5)
	WTPHOS-7625	CAS dropper pipet	1 drop = 1 ppm HEDP/PBTC 50 at 20 ppm	(5)
	WTPHOS-7530-DR	XO direct reading titrator	0 to 20 ppm/0.4 ppm NaAMP 50 at 20 ppm	(5)
	WTPHOS-7530-WT	XO dropper bottle	1 drop = 1 ppm NaAMP 50 at 20 ppm	(5)

Kit contents vary. Each kit comes complete with everything necessary to perform the specified test.

* National Primary Drinking Water Regulations (NPDWR), EPA Accepted.

† National Pollutant Discharge Elimination Systems (NPDES), EPA Accepted.

Ordering Example: WTPO4-3114, phosphate ascorbic acid octet comparator water test kit.

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Individual Water Test Kits



WTSAL-7459, salinity test kit.



WTSI-4463, silica test kit.

To Order				
Factor & Method	Model No.	Test System	Range/Sensitivity	# of Tests (# Reagents)
POLYQUAT Polyelectrolytic titration using toluidine blue indicator	WTPQUAT-7056	Dropper bottle	1 drop = 1 ppm	100+ (5)
POTASSIUM Sodium tetraphenylboron turbidimetric reaction	WTK-3138	Turbidity reading tube	6, 8, 10, 20, 30, 40, 50 ppm	100 (2)
QAC The kit WTQAC-3043-DR uses a titration with sodium tetraphenyl boron. The kit WTQAC-7057 uses a titration with a polyelectrolyte in the presence of toluidine blue	WTQAC-3043-DR	Direct reading titrator	0 to 500 ppm/10 ppm 50 at 500 ppm	(2)
	WTQAC-7057	Dropper bottle	1 drop = 2, 5, or 10 ppm	100+ (5)
SALINITY Argentometric titration	WTSAL-7459	Direct reading titrator	0 to 40 ppt/0.4 ppt 50 at 20 ppt	(2)
SILICA Molybdosilicate color reaction	WTSI-4463	Octet comparator	0.5, 1.0, 2.0, 3.0, 4.0, 6.0, 8.0, 10.0 ppm or 5, 10, 20, 30, 40, 60, 80, 100 ppm	50 (4)
SODIUM NITRITE (See Nitrite, Sodium)				
SULFATE Turbidimetric analysis after reaction with barium	WTSO4-7778	Tablet octet comparator	20, 40, 60, 80, 100, 120, 160, 200 ppm	50 (1)
	WTSO4-3683	colorimeter	0 to 100 pm/1.0 ppm	100 (1)

Kit contents vary. Each kit comes complete with everything necessary to perform the specified test.

* National Primary Drinking Water Regulations (NPDWR), EPA Accepted. † National Pollutant Discharge Elimination Systems (NPDES), EPA Accepted.

Ordering Example: WTSO4-7778, sulfate tablet octet comparator.

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WTSO3-7132, sulfite test kit.

Convenient reagent refill packages available.
When ordering, place prefix "R-"
in front of Model Number. Contact
OMEGA for price and delivery terms.

To Order				
Factor & Method	Model No.	Test System	Range/Sensitivity	# of Tests (# Reagents)
SULFIDE Pomeroy methylene blue method	WTS-4456†	Total sulfide octet comparator	0.2, 0.5, 1.0, 2.0, 5.0, 10.0, 15.0, 20.0 ppm	50 (3)
	WTSO3-7132	Dropper bottle	1 drop = 2, 5, or 10 ppm	100+ (3)
SULFITE Iodometric titration. Results expressed as SO ₃	WTSO3-7175-DR	Direct reading titrator	0 to 100 ppm/2 ppm 50 at 100 ppm	(3)
	WTSO3-7175	Dropper pipet	1 drop = 5 ppm 50 at 100 ppm	(3)
TANNIN/LIGNIN Tungsto-molybdophosphoric acid color reaction	WTTAN-7831	Octet comparator	1, 2, 3, 4, 5, 6, 8, 10 ppm	50 (2)
TURBIDITY Comparison of reacted sample with unreacted sample while adding standard turbidity reagent	WTTURB-7519	Dropper pipet	5 to 100 JTU/5 JTU, 10 to 200 JTU/10 JTU 50 at 10 or 20 JTU	(1)
ZINC Buffered zincon colorimetric analysis	WTZN-7391-01	Octet comparator	0, 1, 2, 3, 4, 6, 8, 10 ppm	50 (2)
	WTZN-7417-01	Octet comparator	0, 0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4 ppm	50 (2)

Kit contents vary. Each kit comes complete with everything necessary to perform the specified test.

* National Primary Drinking Water Regulations (NPDWR), EPA Accepted.

† National Pollutant Discharge Elimination Systems (NPDES), EPA Accepted.

Ordering Example: WTSO3-7132, sulfite dropper bottle water test kit.

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