Pyrometers

With Parallax Mirror Display

7000 Series

MADE IN USA — 1 YEAR WARRANTY

7035-T-100 shown slightly smaller than actual size.

7035-J-300 shown smaller than actual size.

- **Self-Powered**
- **Taut Band Mechanism Standard**
- **Phenolic Fronts**
- **Glass Windows**
- **Proven Reliability**
- **Accurate Measurement and Display**
- **Wide Selection of Ranges**
- **3 Choices of Mounting: Front-Panel, Bezel, or Bench Stand**

OMEGA® Series 7000 meters have thermocouple ranges calibrated for 10 Ω external resistance and are supplied with an adjustable 10 Ω resistor for use with thermocouples of lower resistance.

Specifications

Accuracy: ±2%

Tracking: None

Balance: ±1%

Repeatability (Taut Band Mechanism): <¼%

OMEGA CARE℠ Extended Warranty Program

OMEGACARE℠ extended warranty program is available for models shown on this page. Ask your sales representative for full details when placing an order. OMEGACARE℠ covers parts, labor and equivalent loaners.

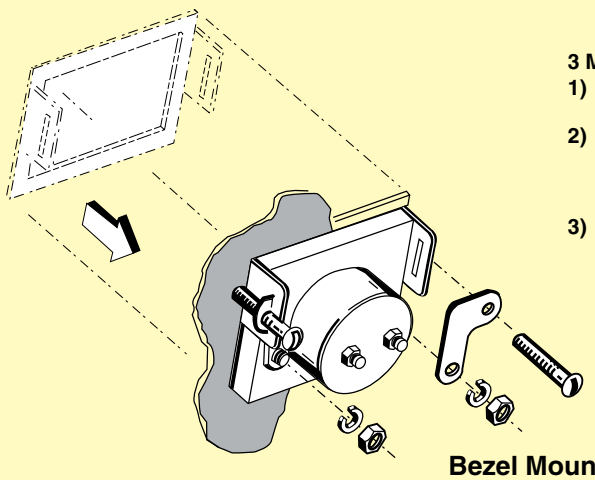
Effects of shock, vibration, humidity and temperature are equal to or better than ANSI C39.1 - 1981.
Safety (dielectric test, leakage and other hazards): instruments are equal to or better than ANSI C39.5 - 1974.
The above tolerance limits apply to the standard ranges listed in this bulletin. Special instruments may vary from these limits. Rated circuit to ground voltage = 80 Vms (1100 peak)

Thermocouple Specifications

Thermistor-type copper error compensation. Current sensitivity is approximately 4 Ω/mV (250 mA). Automatic bimetal cold-junction compensation for changes in ambient temperature. Mirrored scales with knife edge pointers are standard on all pyrometer models.

Thermocouple Ranges

Standard Ranges		
T/C	**°C**	**°F**
T	-130 to 40	-200 to 100
J	-100 to 120	-150 to 250
	-70 to 310	-100 to 600
	-60 to 110	-75 to 225
	0 to 150	0 to 300
	0 to 260	0 to 500
	0 to 430	0 to 800
	0 to 500	0 to 1000
K	0 to 800	0 to 1500
	0 to 1100	0 to 2000
	0 to 1370	0 to 2500
R	0 to 1650	0 to 3000



Bezel Mount Style

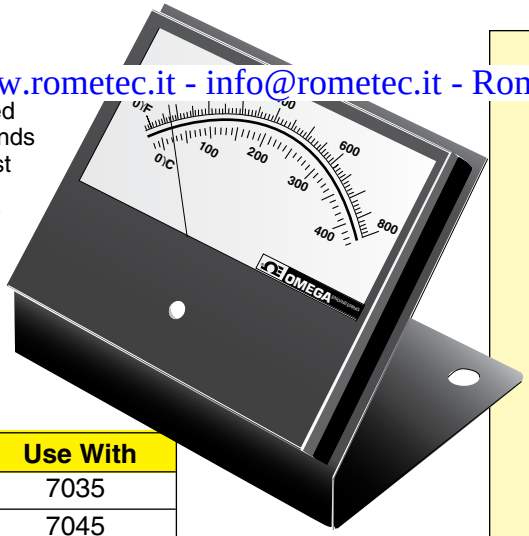
3 Mounting Styles

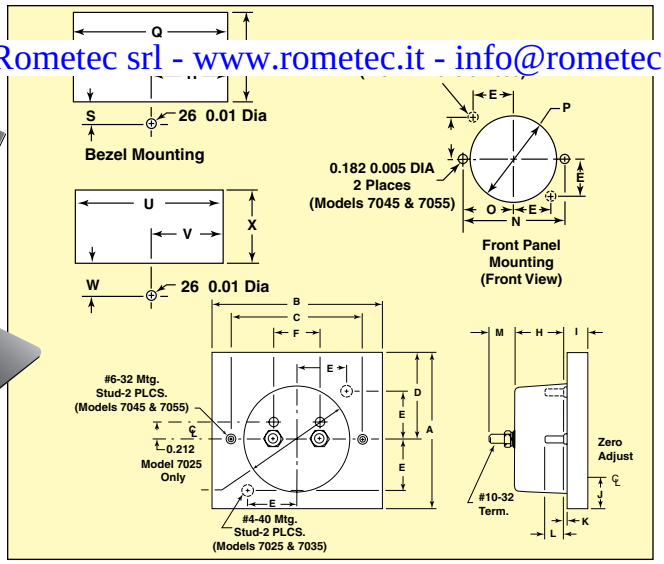
1) **Front-Panel Mount Standard**
2) **Rear-Panel Mount Using Bezel Mounting Kit (See Below)**
3) **Bench Stands (Models: S-35, S-45, S-55— See Next Page)**

Bezel Mounting Kits

Model No.	Use with
7045-BMK	7045
7055-BMK	7055

Heavy-gage anodized aluminum bench stands are available for most pyrometer models. These simplify many laboratory applications. See table for model and part numbers.





Bench Stands

Model No.	Use With
S-35	7035
S-45	7045
S-55	7055

Model No.	A	B	C	D	E	F	G	H	I	J	K	L
7035	3.04 max	3.5 max	— —	1.53 max	1.125 ±0.01	1.25 ±0.01	2.79 max	1.37 max	0.60 max	0.53 ±0.02	0.02 max	0.56 ±0.02
7045	4.09 max	4.64 max	3.5 ±0.01	2.29 ±0.03	— —	1.25 ±0.01	2.79 max	1.37 max	0.60 max	0.77 ±0.02	0.02 max	0.56 ±0.02
7055	4.53 max	5.66 max	4.50 ±0.01	2.695 ±0.02	— —	1.25 ±0.01	2.79 max	1.37 max	0.58 max	0.845 ±0.02	0.02 max	0.56 ±0.01

Model No.	M	N	O	P	Q	R	S	T	U	V	W	X
7035	0.675 Max	— —	— —	2.810 ±0.15	3.718 +0.030 -0.000	1.859 +0.015 -0.000	— 0.44 ±0.01	2.156 +0.030 -0.000	3.105 ±0.015	1.552 ±0.008	0.76 ±0.01	1.515 ±0.015
7045	0.675 max	3.50 ±0.01	1.750 ±0.005	2.810 ±0.015	4.812 +0.030 -0.000	2.406 +0.015 -0.000	— 0.63 ±.01	2.75 +0.03 -0.00	4.205 ±0.015	2.102 ±0.008	0.95 ±0.01	2.125 ±0.015
7055	0.675 max	4.50 ±0.01	2.250 ±0.005	2.810 ±0.015	5.875 +0.030 -0.000	2.937 ±0.015 -0.000	— 0.64 ±0.01	3.156 -0.000	5.240 ±0.015	2.620 ±0.008	0.98 ±0.01	2.500 ±0.015

Model 7035 (2% accuracy)	Model 7045 (2% accuracy)	Model 7055 (2% accuracy)	Temperature Ranges		Thermocouple*	ANSI Type
Model No.	Model No.	Model No.	°C	°F		
7035-T-100	7045-T-100	7055-T-100	-130 to 40	-200 to 100	Cu/C	T
—	7045-T-250	7055-T-250	-100 to 140	-150 to 250	Cu/C	T
—	7045-T-225	—	-60 to 100	-75 to 225	Cu/C	T
7035-J-250	7045-J-250	7055-J-250	-100 to 120	-150 to 250	I/C	J
7035-J-600	7045-J-600	7055-J-600	-70 to 310	-100 to 600	I/C	J
7035-J-225	7045-J-225	7055-J-225	-60 to 110	-75 to 225	I/C	J
7035-J-300	7045-J-300	7055-J-300	0 to 150	0 to 300	I/C	J
7035-J-500	7045-J-500	7055-J-500	0 to 260	0 to 500	I/C	J
7035-J-800	7045-J-800	7055-J-800	0 to 430	0 to 800	I/C	J
7035-J-1000	7045-J-1000	7055-J-1000	0 to 500	0 to 1000	I/C	J
7035-K-1000	7045-K-1000	7055-K-1000	-20 to 540	0 to 1000	C/A	K
7035-K-1500	7045-K-1500	7055-K-1500	0 to 800	0 to 1500	C/A	K
7035-K-2000	7045-K-2000	7055-K-2000	0 to 1100	0 to 2000	C/A	K
7035-K-2500	7045-K-2500	7055-K-2500	0 to 1370	0 to 2500	C/A	K
7035-E-225	—	7055-E-225	-60 to 110	-75 to 225	Ch/C	E
7035-E-300	7045-E-300	7055-E-300	0 to 150	0 to 300	Ch/C	E
—	—	7055-E-500	0 to 260	0 to 500	Ch/C	E
7035-E-800	—	7055-E-800	0 to 430	0 to 800	Ch/C	E
—	—	7055-E-1500	0 to 800	0 to 1500	Ch/C	E
7035-R-3000	7045-R-3000	7055-R-3000	0 to 1650	0 to 3000	Pt/Pt 13% Rh	R
—	—	7055-S-3000	0 to 1650	0 to 3000	Pt/Pt 10% Rh	S

Comes complete with operator's manual.

** Cu/C signifies copper vs. constantan. I/C signifies iron vs. constantan. C/A signifies CHROMEGA® vs. ALOMEGA®. Ch/C signifies CHROMEGA® vs. constantan.*

***Ordering Examples: 7035-J-250,** high performance readout pyrometer, Type J thermocouple. **7045-K-1000,** high performance readout pyrometer, Type K thermocouple.*

Audible Alarm

For Controllers with Relay Outputs

70A-1 shown larger than actual size.

70A-1, shown with the CN77332 controller. See omega.com for more information.

GKQSS-316G-12 low-noise thermocouple probes. See omega.com

Mounts in a 28.58 mm (1⅛") diameter cutout. Shown actual size.

70A Series

2 YEAR WARRANTY

- **Loud Tone— 95 dB @ 2900 Hz**
- **Solid State Reliability, No Arcing or Mechanical Wear**
- **Easy to Install**

OMEGA® Series 70A temperature alarms are the latest development in solid state sound production. When power is applied, a piezoelectric transducer operates as a solid state oscillator resulting in a loud, audible alarm tone.

OMEGA® temperature alarms are designed to give years of trouble-free service. There is no arcing or mechanical wear, and they are rugged and easy to install. Only a 1⅛" diameter hole is required for mounting by removing the front plastic nut, inserting unit and rethreading. Units are easy to operate. Simply connect to a temperature controller and 120 Vac power supply.

Specifications

Surge Voltage: 20% over maximum rated voltage applied for <1 minute
Continuous: 100 hours continuous operation at 65°C with maximum rated voltage applied
Intermittent: A duty cycle of 1 minute on, 5 minutes off, a minimum of 5000 times at room temperature with maximum rated voltage applied
Life Expectancy: 5 years under normal operating conditions
Storage Temperature: -40 to 85°C (-40 to 185°F)
Operating Temperature: -30 to 65°C (-22 to 149°F)
Humidity: Series 70A temperature alarms will operate after having been subjected to 95% relative humidity at 40°C continuously for 100 hours; after removal from high humidity, the unit should be allowed to dry for a minimum of 4 hours at room temperature before operation

To Order

Model No.	Sound Type	Level
70A-1	Continuous tone	95 dB @ 2900 Hz
70A-2	Fast pulse tone	
70A-3	Slow pulse tone	
70A-4	Warble tone	

Comes complete with operator's manual.
*To order with 220 Vac power, add suffix "**-220V**" to model number; no additional cost.*
***Ordering Examples: 70A-3-220V,** audible temperature alarm taking 220 Vac power and emitting a slow pulse tone. **70A-1,** continuous tone alarm.*

P

DIN RAIL MOUNTED MULTI-FUNCTIONAL DIGITAL TIMER

AU-AMT Series

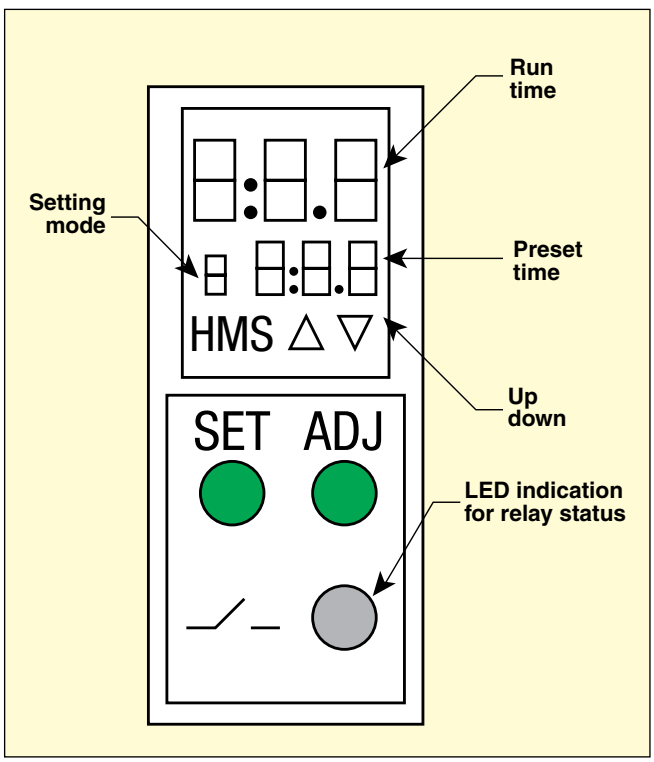
AU-AMT8-D2, DIN rail mountable 8 function digital timer. Shown actual size.

- **Multifunctional Timer (8 or 18 Functions)**
- **Universal Voltage 24 to 265 Vac/Vdc**
- **Wide Time Range: 0.1 Seconds to 999 Hours**
- **3 Digit LCD Display for Preset Time and Run Time**
- **17.5 mm (0.68") Width**
- **Models include 2 NO or NO/NC Contacts**

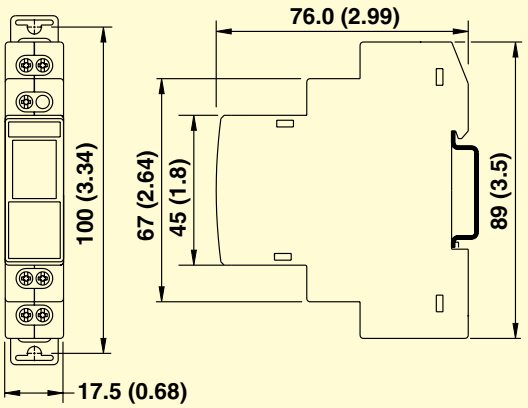
The AU-AMT Series of DIN rail mountable digital multi-timers includes four models featuring 8 or 18 timer functions to offer highest flexibility in controlling operations. The time range is adjustable from 0.1 second to 999 hours. An LCD display shows current run time information.

SPECIFICATIONS

Supply Voltage: 24 to 265 Vac/Vdc (50, 60Hz)
Power Consumption: 10 VA maximum
Timing Range: 0.1 second to 999 hours
Reset Time: 200 ms maximum
Repeat Accuracy: ±0.5%
Output Contact Rating: 8A @ 240 Vac/24 Vdc (resistive)
Electrical Life: 10,000 switching cycles
Mechanical Life: 2,000,000 switching cycles
Operating Temperature: -10 to 55°C (14 to 131°F)
Storage Temperature: -20 to 65°C (-4 to 149°F)
Weight: 85 g (0.14 lb)
Protection Enclosure: IP30
Protection Terminals: IP20
Torque: 0.40 Nm (3.5 lb/inch)
Terminal Wire Size: 0.3 to 2.5 mm^2 (22-14 AWG)

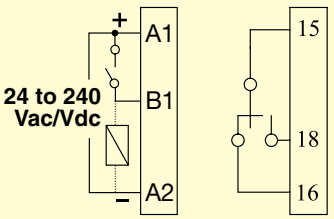


Dimensions: mm (inch)

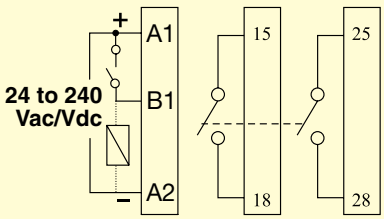


AU-AMT8-D2 shown actual size.

Connection Diagrams



AU-AMT8-S1, AU-AMT12-S1



AU-AMT8-D2, AU-AMT12-D2

To Order

MODEL NO.		AU-AMT8-S1	AU-AMT8-D2	AU-AMT12-S1	AU-AMT12-D2
OUTPUT CONTACTS		NO/NC	2 NO	NO/NC	2 NO
NUMBER OF TIMER FUNCTIONS		8	8	18	18
FUNCTIONS/ SETTING MODES	1	ON Delay [A]		ON Delay [0]	
	2	Cyclic OFF/ON [B]		Cyclic OFF/ON [1]	
	3	Cyclic ON/Off [C]		Cyclic ON/OFF [2]	
	4	Signal ON/OFF [D]		Impulse on Energizing [3]	
	5	Signal OFF Delay [E]		Accumlative Delay on Signal [4]	
	6	Interval [F]		Accumlative Delay on Inverted Signal [5]	
	7	Signal OFF/ON [G]		Accumlative Impulse on Signal [5]	
	8	One Shot Output [H]		Signal ON Delay [7]	
	9	—		Inverted Signal ON Delay [8]	
	10	—		Signal OFF Delays [9]	
	11	—		Impulse ON/OFF [A]	
	12	—		Signal OFF/ON [B]	
	13	—		Leading Edge Impulse 1 [C]	
	14	—		Leading Edge Impulse 2 [D]	
	15	—		Trailing edge Impulse 1 [E]	
	16	—		Trailing Edge Impluse 2 [F]	
	17	—		Delay Impulse [G]	
	18	—		Inverted Signal ON Delay 2 [H]	

Process Controllers

CN1504/CN1507

MADE IN USA 2 YEAR WARRANTY

CN1504-TC shown actual size.

- **⅛ DIN Cutout**
- **On/Off and Full PID Controls**
- **Wide Range of Input Signals: Thermocouples, RTD's, Thermistors, 4 to 20 mA, 0 to 10 Vdc, Millivolts**
- **Input Type Selectable from Front Keys**
- **Scaling for Voltage, Current and Millivolt Signals**
- **Independent 7-Segment Ramp/Soak Profile for Each Zone**
- **3 Display Modes: Setpoint Only, Process Only or Both Process and Setpoint**
- **Programmable Heating or Cooling Outputs**
- **Setpoint Deviation Display**
- **Captures Min/Max Readings for Each Zone**

The CN1500 Series is a compact unit that offers the features of up to 7 controllers in a single ⅛ DIN enclosure. Careful design, high-functionality and compactness allow it to offer the best cost/performance ratio of any controller in its class.

The input type for each zone is selected independently. Scaling and offset allow current and voltage signals to be converted and displayed in engineering units. Temperature can be displayed in Centigrade or Fahrenheit. Additionally, each zone has its own ramp/soak profile with up to 7 segments. On/off, as well as PID control, is offered for optimum process stability. Processes that do not require tight control through complex tuning of PID parameters can be run under simple on/off control. Each zone has its own set of on/off and PID parameters and each zone can be programmed for heating or cooling. Setpoint deviation, positive as well as negative, can be viewed. Additional functions include min/max reading for each zone, indefinite program hold, automatic scanning and displaying of different zones and three display modes (setpoint only, process only or both setpoint and process). Power, control, and process signal connections are conveniently made with Euro-style plug-in connectors.

Each zone has a 3-digit long engineering label that can be programmed to indicate the type of process being controlled, e.g., °C or °F for temperature, PSI for pressure, etc. Every controller's run status is indicated by LED's. Channel-to-channel scan time is also programmable.

Specifications

Input Types: J, K, T, E, R, S, B, thermistor, RTD, 4 to 20 mA loop current, 0 to 10 Vdc, and 0 to 100 mV

CJC Error: ±0.5°C (10 to 45°C)/±0.9°F (50 to 113°F)

Open Thermocouple Indication: "HELP" displayed

Accuracy:
- **Temperature Resolution:** 1°C/1°F
- **Voltage:** 0.05% FS
- **Current:** 0.05% FS

Resolution:
- **Thermocouple and RTD:** 1°C/°F
- **Thermistor:** 0.1°C/°F

Display: Red 7-segment LED display, 10 mm (0.39")

Display Test: "8.8.8.8.8.8.8." on power-up

Scan Rate: 2 channels/s (non-adjustable)

Channel Display Time: Programmable, 1 to 999 seconds

Power Option: 120 Vac 50/60 Hz, ±10%, (optional) 220 Vac 50/60 H, 12 Vdc @ 900 mA, ±20%

Scale: Programmable, 1 to 30,000

Offset:
- **Current:** 0 to 20.00
- **Votage Input:** 0 to 10.000
- **Millivolt:** 0 to 100.00

Decimal Point: Programmable, none, 10th, 100th, 1000th

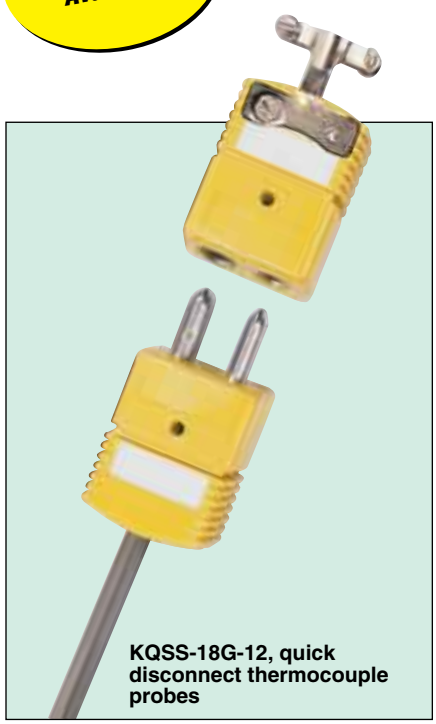
Rate: (PID) 0 to 500 seconds

Proportional Band: 0 to 100% of span

Reset: 0.00 to 50.00 repeats/minute
0 to FS
Control Output:
5 Vdc drive @ 50 mA open collector
Bezel Dimensions:
65 H x 117 W x 178 D mm (2.5 x 4.6 x 7")
Panel Cutout:
45 x 92 mm (1.77 x 3.66"); ⅛ DIN
Weight: 992 g (2 lb, 3 oz)
Ramp and Soak: 7-segment programmable for each channel

DPS3104 companion scanners also available.

Panel Punches Available



KQSS-18G-12, quick disconnect thermocouple probes

OMEGACARE℠ Extended Warranty Program

OMEGACARE℠ extended warranty program is available for models shown on this page. Ask your sales respresentative for full details when placing an order. OMEGACARE℠ covers parts, labor and equivalent loaners.

Input Types and Ranges

Thermocouple	Maximum Range	Accuracy (% of reading)
J Iron–Constantan	-200 to 1190°C -328 to 2174°F	±1°C ±1 count ±2°F ±1 count
K CHROMEGA®–ALOMEGA®	-170 to 1365°C -274 to 2489°F	±1°C ±1 count ±2°F ±1 count
T Copper–Constantan	-155 to 400°C -247 to 752°F	±1°C ±1 count ±2°F ±1 count
E CHROMEGA®–Constantan	-185 to 915°C -300 to 1675°F	±1°C ±1 count ±2°F ±1 count
R Pt-13%Rh/Pt	0 to 1600°C 32 to 2900°F	±3°C ±1 count ±6°F ±1 count
S Pt-10%Rh/Pt	0 to 1600°C 32 to 2900°F	±3°C ±1 count ±6°F ±1 count
B Pt-30%Rh/Pt-6%Rh	470 to 1800°C 900 to 3300°F	±3°C ±1 count ±6°F ±1 count

RTD	Maximum Range	Accuracy (% of reading)
RTD 0.00385 (2-wire)	-200 to 800°C -328 to 1472°C	±1°C ±1 count ±2°F ±1 count
RTD 0.00392 (2-wire)	-100 to 450°C -148 to 842°F	±1°C ±1 count ±2°F ±1 count

Thermistor	Scaling Range	Accuracy (% of reading)
400 Series 2252 Ω @ 25°C	-8.0 to 100.0°C 17.2 to 212.0°F	±0.5°C ±1 count ±1.0°F ±1 count

Linear Input	Scaling Range	Accuracy (% of reading)
Current (4 to 20 mA)	1 to 30000	0.05% ±1 count
Millivolt (0 to 100 mV)	1 to 30000	0.05% ±1 count
Voltage (0 to 10 V)	1 to 30000	0.05% ±1 count

Input Code	Programmable Inputs
TC	J, K, T, E thermocouples, 4 to 20 mA, 0 to 10 Vdc
RTD	100 Ω RTD, 4 to 20 mA, 0 to 10 Vdc
TH	Thermistor (400 Series), 4 to 20 mA, 0 to 10 Vdc
R	R thermocouple, 4 to 20 mA, 0 to 10 Vdc
S	S thermocouple, 4 to 20 mA, 0 to 10 Vdc
B	B thermocouple, 4 to 20 mA, 0 to 10 Vdc
MV	100 mV, 4 to 20 mA, 0 to 10 Vdc

To Order

Model No.	Description
CN1504(*)	4-zone controller
CN1507(*)	7-zone controller

***** *Add input code from table above.*

Power Options

Ordering Suffix	Description
-1	240 Vac power
-2	12 Vdc power

Accessory

Model No.	Description
CNQUENCHARC	Noise suppression RC snubber (2 leads), 110 to 230 Vac

Comes complete with operator's manual.
***** *Add input code from table above.*
***Ordering Examples: CN1504TC,** 4-zone controller for thermocouple input.*
***OCW-3,** OMEGACARE℠ extends standard 2-year warranty to a total of 5 years.*

P

PID Process Controller

Product Details

The CN400 Single/Dual Inputs PID Controller Series stand out for the bright display which ensures optimal visibility and increased level of information for the operator.
The CN400 Series introduces the latest NFC/RFID programming technology with a dedicated App - Omega Direct Link for all Android devices (Free Download from Google Play). No more wiring, cables, or power supply, just quick set-up/updates on site with your phone.
With dual analog input and dual analog outputs model option, the CN400 Series can achieve two separate heating/cooling PID control loops in one device or to handle mathematical operations between two process values. The outputs can be selected as command/multiple alarm modes/analog retransmission. Serial communication standard is RS485 with Modbus RTU/Slave protocol. The CN400 Series power supply has an extended range of 24 to 230VAC / VDC with galvanic insulation of the net for the single loop version, while the model with double analog input provides two versions: 115 / 230 VAC or 24 VAC / VDC.

Features

- **1/16 DIN Dual Display**
- **Single/Dual Universal Inputs**
- **Fast Speed up to 470 Samples/Sec**
- **Programmable by NFC/RFID**
- **Supports Heating/Cooling P.I.D**
- **Universal Power Supply Option**
- **UL Certified**

The CN40x series includes 5 versions:

Models with power supply 24..230 VAC/VDC ±15% 50/60 Hz – 6 Watt/VA	
CN401-11445	1 analogue input + 2 relays 2 A + 2 SSR + 2 D.I. + 1 analogue output V/mA
CN401-11445-C4	1 analogue input + 2 relays 2 A + 2 SSR / D.I. + 1 analogue output V/mA + RS485
CN401-111445	1 analogue input + 3 relays 2 A + 2 SSR + 2 D.I. + 1 analogue output V/mA (1 D.O. + 1 D.I. when using CT)
Model with power supply 24 VAC/VDC ±15% 50/60 Hz – 6 Watt/VA	
CN402-1114455-C4-DC	2 analogue input + 3 relays 2 A + 2 SSR + 2/4 D.I. + 2 analogue output V/mA + RS485 + CT (2 D.I./D.O when using CT)
Model with power supply 115..230 VAC ±15% 50/60 Hz – 6 Watt/VA	
CN402-1114455-C4	2 analogue input + 3 relays 2 A + 2 SSR + 2/4 D.I. + 2 analogue output V/mA + RS485 + CT (2 D.I./D.O when using CT)

Specifications

Inputs

1 or 2 - Configurable: 16 bit, selectable for TC type K, S, R, J, T, N, B (automatic compensation of cold junction) -25 to 85°C, ±0,2% F.S. ±1 digit F.S.), thermoresistances PT100, PT500, PT1000, Ni100, PTC1K, NTC10K (β 3435K), process signals 0 to 10 V (50000 points), 0/4 to 20mA (40000 points), 0 to 60 mV (25000 points), potentiometer 1 to 150 KΩ (50000 points)

Sampling time:
Programmable up to 2.1 ms (frequency up to 470 Hz)

2/4 digital inputs:
Setpoint change, Hold, Run, Tuning launch, Start / Stop, Lock configuration

1 Current Transformer (C.T.) input:
Selection C.T. 50 mA, 800 µs - 4096 points

Outputs

2/3 relays:
Relay 2 A - 250 V AC resistive change

2 SSR:
12 / 24 V DC - 30 mA max

1/2 analog:
Selection 4 to 20 mA (40000 points ± 0,2% F.S.) or 0 to 10 V DC (40000 points ± 0,2% F.S.) for command or retransmission PV / SPV

Serial communication:
RS485 Modbus RTU - Slave (4800 to 115200 baud code-T)

Software Features

Control algorithms:
ON - OFF with hysteresis, P., P.I., P.I.D., P.D. time proportional

Tuning:
Manual or automatic

Data protection:
Lock of control / alarm setpoint / Access to parameters by password

Alarm modes:
Absolute / Threshold, Band, High / Low deviation. Alarm with optional Manual reset. Loop Break Alarm

Auto / Manual function:
Output percentage command also with automatic change in case of sensor failure

Double P.I.D:
Heating / Cooling P.I.D

Programmer function:
Pre-programmed cycle / 3 steps

Soft-Start:
Rising gradient expressed as Degrees / Hour or fixed output percentage

Open / Close logic:
Open / Close logic for motorized valves

Box:
48 x 48 (front panel) x 105 mm

Power supply:
24 to 230 V AC / DC ±15% 50/60 Hz - galvanic isolation 2.5KV

Consumption:
8 W

Display:
4 digits 0.5” white + 4 digits 0.3” red

Operating conditions:
Temperature 0 to 45 °C, humidity 35 to 95 RH%

MaterialBox:
PC UL94V2 self-extinguishing, front panel: PC UL94V2

Weight:
Approx. 185 g

Sealing:
IP65 (front panel) IP20 (box and terminal blocks)

Quick set-up options:
Memory Card, software LABSOFTVIEW, or EASY-UP

APP:
NFC Programming via APP Direct Link for Android smartphones

1/4 DIN Ramp/Soak Controllers

Panel punches available, visit omega.com/panelpunches

CN7833

CN7800 Series

1 YEAR WARRANTY

- **Dual Display**
- **Autotune**
- **Universal Input**
- **8 Ramp/Soak Programs, 8 Segments Each**
- **Programmable Repeat and Linking Features**
- **RS485 Communications**
- **Free Software**
- **2 Alarm Standard**

Monitor and control temperature or process applications with precision using the CN7800 Series controllers. The CN7800 Series provides dual LED displays for local indication of process value and setpoint value. Control methods include on/off, PID, auto-tune and manual-tune. PID control is supported with 64 ramp/soak control actions. Two additional alarm outputs are standard on the CN7800 Series. The alarm outputs can be quickly configured by using the 13 built-in alarm functions. The controller communicates easily with the built-in RS485 interface.

Inputs

Input Types	Range
K	-200 to 1300°C (-328 to 2372°F)
J	-100 to 1200°C (-148 to 2192°F)
T	-200 to 400°C (-328 to 752°F)
E	0 to 600°C (32 to 1112°F)
N	-200 to 1300°C (-328 to 2372°F)
R	0 to 1700°C (32 to 3092°F)
S	0 to 1700°C (32 to 3092°F)
B	100 to 1800°C (212 to 3272°F)
L	-200 to 850°C (-328 to 1562°F)
U	-200 to 500°C (-328 to 932°F)
Pt100 RTD	-200 to 600°C (-328 to 1112°F)
0 to 50 mV	-999 to 9999
0 to 5 V	-999 to 9999
0 to 10 V	-999 to 9999
0 to 20 mA*	-999 to 9999
4 to 20 mA*	-999 to 9999

** Requires external 250 Ω precision shunt resistor, OMX-R250 (sold separately). Available at **omega.com/cn7800***

Specifications

Inputs: Thermocouple, RTD, DC voltage or DC current
Display: Two 4-digit, 7 segment 6.35 mm H (0.25") LEDs (PV: red, SV: green)
Resolution: 1.0, 0.1 for thermocouples (except Types R, S and B)
Accuracy: ±0.25% span, ±1 least significant digit
Supply Voltage: 100 to 240 Vac, 50/60 Hz
Power Consumption: 5 VA max
Operating Temperature: 0 to 50°C (32 to 122°F)
Memory Backup: Non-volatile memory
Control Output Ratings:
Relay: SPST, 5 A @ 250 Vac resistive
Voltage Pulse: 14V, 10 to -20% (max 40 mA)
Current: 4 to 20 mA
Alarms: SPST, 3 A @ 250 Vac resistive
Communication: RS485 MODBUS® A-5-11/RTU communication protocol
Weight: 114 g (4 oz)
Front Bezel: 48 mm² (1.89 in²)
Panel Cut-Out: 45 mm² (1.77 in²)
Maximum Panel Thickness: 9.50 mm (0.375")
Panel Depth: 80 mm (3.15")

To Order *Visit omega.com/cn7800 for Pricing and Details*

Model No.	Description
CN7833	Dual output, relay/relay, 2 alarms, RS485*
CN7823	Dual output, DC pulse/relay, 2 alarms, RS485*
CN7853	Dual output, 4 to 20 mA/relay, 2 alarms, RS485*

** Free CN7-A software download available at **omega.com/cn7800***

Accessories (Field Installable)

Model No.	Description
CNQUENCHARC	Noise suppression RC snubber (2 leads), 110 to 230 Vac
OMX-R250	250 Ω precision resistor
CN7-485-USB-1	RS485 to USB mini-node converter

Comes complete with operator's manual.

***Ordering Examples: CN7823,** dual-output controller, DC pulse, mechanical relay output, and RS485 communications.*

***CN7853,** dual output 4 to 20 mA relay two alarms.*

General Purpose "Ice Cube"

Plug-In Relays

for High Current Applications

D7P

** DPF series only when used with D7PA2 socket*

D7PF2AA shown slightly larger than actual size.

D7PF4AA shown slightly larger than actual size.

D7R FEATURES

- **Arc Barrier Equipped Relay with High Dielectric Strength**
- **Panel, DIN Rail and Flange Mounting**

D7PF FEATURES

- **Flag Indicator Shows Relay Status in Manual or Powered Condition**
- **Bi-Polar LED Status Lamp Allows for Reverse Polarity Applications**
- **Shows Coil ON or OFF Status**
- **Ideal in Low Light Conditions**
- **Color Coded Pushbutton Identifies AC Coils with Red or DC Coils with Blue Pushbuttons**
- **Allows for Manual Operation of Relay Without the Need for Coil Power**
- **Ideal for Field Service Personnel to Test Control Circuits**
- **Lock Down Door, when Activated, Holds Pushbutton and Contacts in the Operate Position**
- **Excellent for Analyzing Circuit Problems**
- **Finger-Grip Cover Allows Operator to Remove Relays from Sockets More Easily Than Conventional Relays**
- **White Plastic I.D. Tag/Write Label Used for Identification of Relays in Multi-Relay Circuits**

Specifications

D7PR RELAY

Rated Load (Resistive Load*): 120/240 Vac 15 A, 30 Vdc 15 A

Rated Load (Inductive Load*): 120/240 Vac 10 A, 30 Vdc 7 A

Carry Current: 15 A

Max Operating Voltage: 250 Vac/125 Vdc

Max Operating Current: 15 A

Contact Material: AgCdO

Max Switching Capacity (Resistive Load*): 1700 VA 360 W

Max Switching Capacity (Inductive Load*): 1100 VA 170 W

Min Permissible Load: 100 mA, 5 Vdc

Pickup Voltage (Max): 80%

Drop Out Voltage (Min): 30% AC, 10% DC

Voltage (Max): 110%

Mechanical Life (Min): 10,000,000 AC, 100,000,000 DC

Electrical Life @ All Contact Ratings (Min): 200,000

Maximum hp Rating (Resistive Load*): ⅓ hp (120 Vac)

Maximum hp Rating (Inductive Load*): ½ hp (240 Vac)

** Resistive load p.f. = 1, inductive load p.f. = 0.4, L/R = 7 ms*

D7PF

(RESISTIVE LOAD PF=1.0)

Coil Pickup Voltage (Max): 85% AC; 80% DC (% of nominal)

Coil Drop Out Voltage (Min): 10% AC; 10% DC (% of nominal)

Coil Maximum Voltage: 110% of nominal

Coil Insulation System per, UL Standard 1446: Class B 130°C (266°F)

Contact Rated Load:

D7PF2: 120 Vac to 15 A , 277 Vac, 28 Vdc to 12 A, 220 Vdc to 0.5 A

D7PF4: 120 Vac, 28 Vdc to 15 A, 277 Vac to 12 A, 220 Vdc to 0.5 A

Maximum hp Ratings:

D7PF2: ½ hp, 120 Vac, 1 hp, 250 Vac

D7PF4: ½ hp, 120 Vac, ¾ hp, 250 Vac

Contact Material: Silver alloy, gold flashed

Pilot Duty: B300

Utilization Category (IEC): AC-15

Min Permissible Load: 100 mA @ 5 Vdc or 0.5 W

Contact Resistance: 100 Milliohms, max @ 6V, 1 A

Dielectric Strength (Coil to Contacts): 2500 Vrms

Dielectric Strength (Across Open Contacts): 1000 Vrms

Dielectric Strength (Pole to Pole): 2500 Vrms

Insulation Resistance: 100 Megohms min @ 500 Vdc

Operating Temperature: -40 to 70°C (-40 to 158°F)

Storage Temperature: -40 to 105°C (-40 to 221°F)

Life Expectancy (At Rated Resistive), Load:

D7PF2: 200,000, operations

D7PF4: 150,000, operations

Life Expectancy (Mechanical at No Load): 10 million operations

Approximate Weight:

D7PF2: 36 g (0.079 lb)

D7PF4: 80 g (0.176 lb)

Relay/Socket Compatibility Guide

Relay	Single Socket and Hold Down Spring/Clip	Socket	Hold Down Spring	Mounting Style
D7PF2	D7PF2-BC	D7PA5	PQC-1342	Panel
D7PF2	D7PF2A-BC	D7PAA	PQC-1342	DIN Rail
D7PF4	D7PF4-B	D7PA4	NA	DIN Rail
D7PR1	D7PR2-BC	D7PA2	PQC-1342	DIN Rail
D7PR1	D7PR5-BC	D7PA5	PQC-1342	Panel
D7PR2	D7PR2-BC	D7PA2	PQC-1342	DIN Rail
D7PR2	D7PR5-BC	D7PA5	PQC-1342	Panel
D7PR3	D7PR3-BC	D7PA3	PYC-B2	DIN Rail
D7PR4	D7PR4-BC	D7PA4	PYC-B2	DIN Rail

Socket Specifications

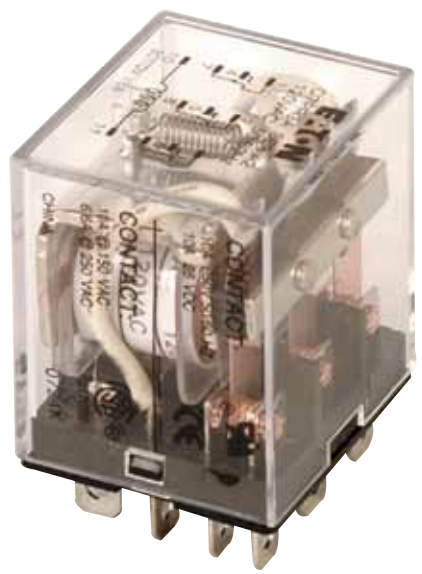
Socket	Description	Electrical Rating	Mounting Torque	Hook-Up Wire Range
D7PAA	1 and 2 pole DIN rail mount, finger safe®	16 A, 300V	8 to 10 in-lbs	20 to 12 AWG
D7PA2	1 and 2 pole DIN rail mount	15 A, 250V	0.785 Nm to 1.18	14 AWG max
D7PA3	3 pole DIN rail mount	10 A, 300V	7 to 8 in-lb	12 to 22 AWG solid or stranded
D7PA4	4 pole DIN rail mount	10 A, 300V	7 to 8 in-lb	12 to 22 AWG solid or stranded
D7PA5	1 and 2 pole panel mount	15 A, 250V	NA	14 AWG max

Relay Coil Resistance

Relay	Voltage	Ω	Milliamps*	Relay	Voltage	Ω	Milliamps*
D7PF2	24 Vdc	650	37	D7PR2	24 Vac	180	41
D7PF2	120 Vac	3830	12	D7PR2	120 Vac	4430	11
D7PF4	120 Vac	2200	188	D7PR3	120 Vac	2700	12.6
D7PR1	24 Vdc	750	32	D7PR4	24 Vdc	360	67
D7PR1	120 Vac	4430	11	D7PR4	120 Vac	2000	14.8

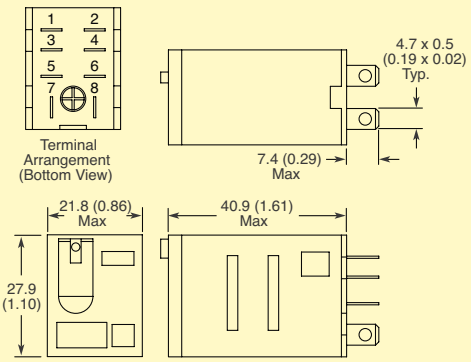
** At 60 Hz for AC coils.*

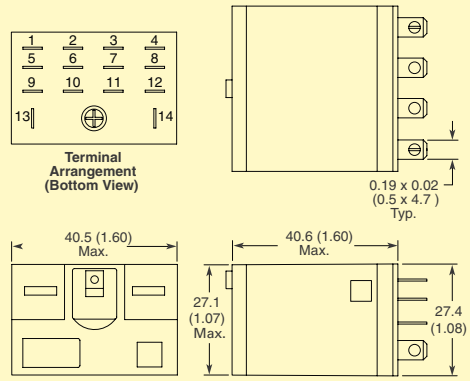
D7PR2A shown slightly larger than actual size.



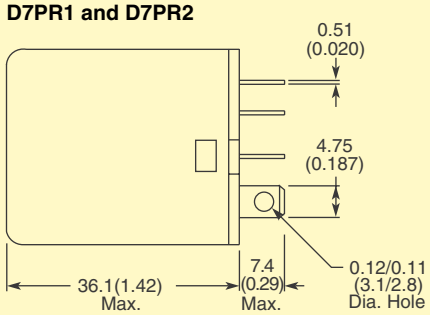
D7PR3A shown slightly larger than actual size.

D7PA2 shown slightly larger than actual size.

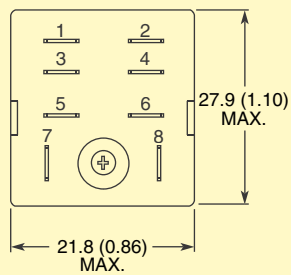




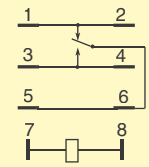
D7PR1 and D7PR2



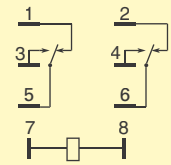
(Side View)



Terminal Arrangement (Bottom View)

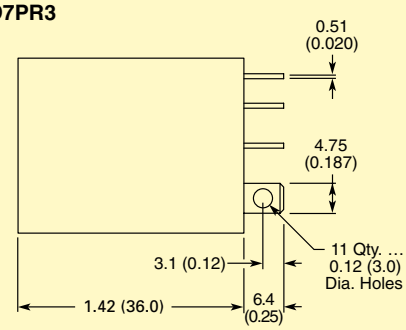


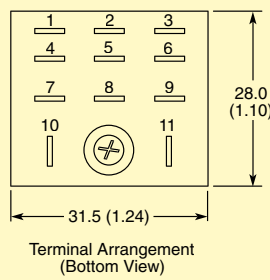
Schematic Diagram D7PR1



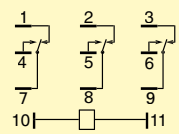
Schematic Diagram D7PR2

D7PR3





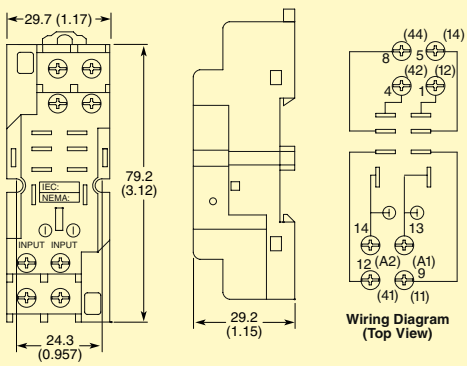
Terminal Arrangement (Bottom View)



Schematic Diagram

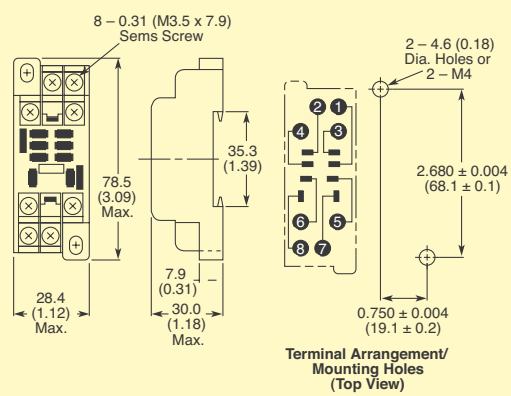
Dimensions: mm (in)

D7PAA

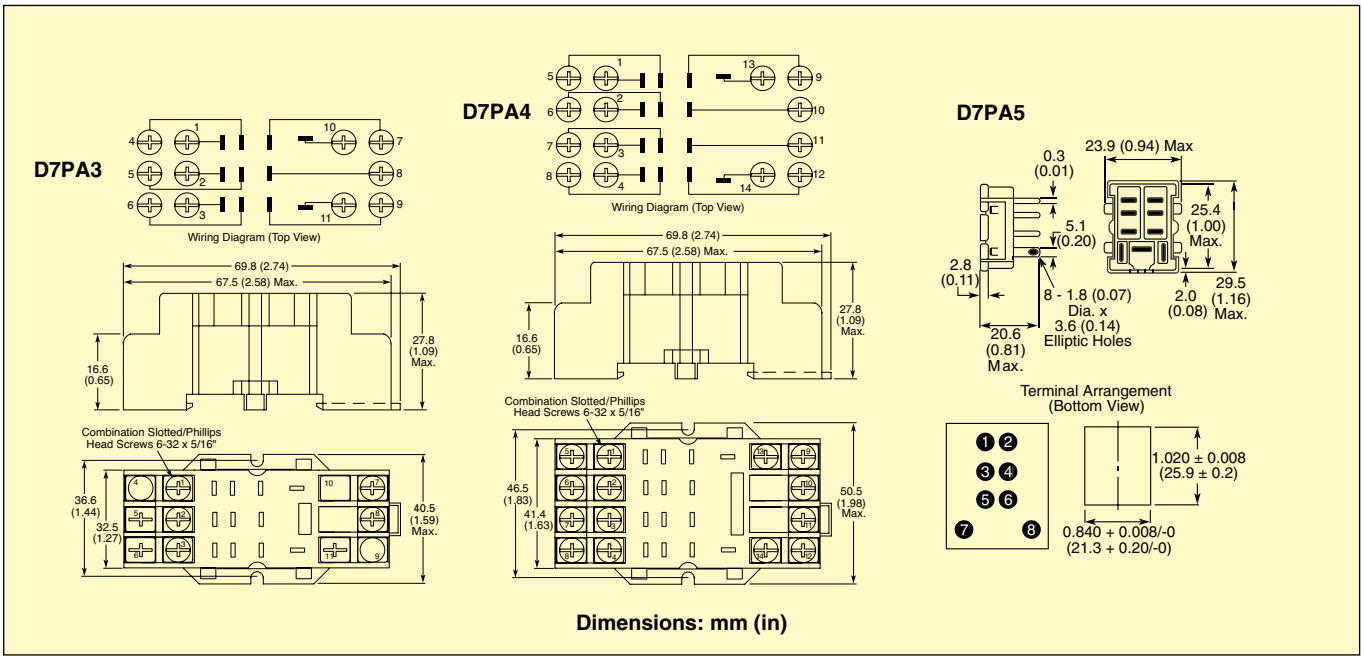


Wiring Diagram (Top View)

D7PA2



Terminal Arrangement/ Mounting Holes (Top View)



Dimensions: mm (in)

To Order

Model No.	Description
D7PF Full Featured Relays with LED Test Button, Flag Indicator, Lock-Down Door, Finger-Grip Cover, ID Tag	
D7PF2AA	DPDT relay with120 Vac coil voltage, requires D7PA5 socket
D7PF2AT1	DPDT relay with 24 Vdc coil voltage, requires D7PA5 socket
D7PF4AA	4PDT relay with 120 Vac coil voltage, requires D7PA4 socket
D7PR Standard Relays	
D7PR11T1	SPDT with 24 Vdc coil voltage, indicating light, requires D7PA2 or D7PA5 socket
D7PR1A	SPDT relay with 120 Vac coil voltage, requires D7PA2 or D7PA5 socket
D7PR2A	DPDT relay with120 Vac coil, requires D7PA2 or D7PA5 socket
D7PR2T	DPDT relay with 24 Vac coil voltage, requires D7PA2 or D7PA5 socket
D7PR2T1	DPDT relay with 24 Vdc coil voltage requires D7PA2 or D7PA5 socket
D7PR3A	3PDT relay with 120 Vac coil voltage, requires D7PA3 socket
D7PR4A	4PDT relay with 120 Vac coil voltage, requires D7PA4 socket
D7PR4T1	4PDT relay with 24 Vdc coil voltage, requires D7PA4 socket

Ordering Examples: D7PF2AA *relay,* ***D7PA5*** *socket,* ***PQC-1342,*** *hold down clip.*
Two ***D7PR4A,*** *4PDT relays with 120 Vac coil voltage, two* ***D7PR4-BC,*** *4 pole DIN rail mount sockets and hold down clips.*

Model No. for Single Socket and Hold Down Spring/Clip	Model No. Sockets Only	Model No. Hold Down Spring/Clip Only	Mounting Style
D7PF2-BC	**D7PA5**	**PQC-1342**	Panel
D7PF2A-BC	**D7PAA**	**PQC-1342**	DIN rail
D7PF4-B	**D7PA4**	**Not required**	DIN rail
D7PR2-BC	**D7PA2**	**PQC-1342**	DIN rail
D7PR5-BC	**D7PA5**	**PQC-1342**	Panel
D7PR3-BC	**D7PA3**	**PYC-B2**	DIN rail
D7PR4-BC	**D7PA4**	**PYC-B2**	DIN rail

** See relay/socket compatibility guide for selecting correct spring.*

DC INPUT ALARM TRIPS
ISOLATED, FIELD CONFIGURABLE

Input: 0-50 mV to ±10 Vdc, 0-1 mA to 4-20 mADC
Output: Two 8 Amp DPST Relays

DMD1080

- **One Minute Setup for 24 Input Ranges**
- **Switch Selectable Relay Configuration**
- **Removable Plugs for Faster Installation**
- **Input Tracker and Alarms Status LEDs**
- **Full 1200V Isolation**
- **Alarm Test/Reset Button**
- **Built-In Loop Power Supply for Sink/Source Input**

Applications

- **Process Limit Backup Alarm**
- **Tank Level Alarm**
- **Process Signal Over, Under, Out-of-Range Alarm**

The DMD1080 accepts a DC voltage or current input and provides visual alarm indication and alarm relay contact outputs. 15 voltage and 9 current input ranges can be field configured via external rotary and slide switches. Offset ranges such as 1 to 5 Vdc and 4 to 20 mAdc are also included. Heavy-duty relay contacts allow the module to directly control high capacity loads. Front accessible potentiometers are used to adjust the alarm setpoint from 0 to 100% and the deadband from 1 to 100%. The unit provides a single setpoint adjustment of the two DPST relay contacts. The alarm output can be field configured for HI or LO operation, latching or non-latching, and normal or reverse acting.

SPECIFICATIONS

Input Ranges: 24 field selectable ranges via switch settings
- **Voltage:** 0-50 mV to 0-10 Vdc
- **Bipolar Voltage:** ±5 Vdc or ±10 Vdc
- **Current:** 0-1 mADC to 0-20 mADC, 4-20 mADC

Input Impedance and Burden:
- **Voltage:** 250 kΩ minimum
- **Current:** 50 Ω typical
- **Voltage Burden:** 1 Vdc at 20 mA current input

Isolation:
- **1200V Isolation:** power to input 600 Vac or 600 Vdc common mode protection

Input Loop Power Supply: 15 Vdc ±10%, 25 mADC maximum ripple, less then 10 mV rms may be wired for sinking or sourcing mA input

Relay Output: Single setpoint dual DPST contacts, field configurable; 2 Form A (NO) and Form B (NC) contact sets (8 terminals) may be wired for C Form operation

Relay Contact Ratings:
- 8 Amps @ 240 Vac resistive load
- 5 Amps @ 240 Vac inductive load
- 8 Amps @ 30 Vdc resistive load
- 3.5 Amps @ 30 Vdc inductive external contact protection such as a RC snubber is recommended for inductive loads

Set Point: 12 turn potentiometer adjustable from 0 to 100% of span

Deadband: 12 turn potentiometer adjustable from 1 to 100% of span

Response Time: 70 milliseconds typical

Functional Test/Reset Button: Toggles relay to opposite state when pressed; resets latching relay if latching relay mode is selected

DMD1080 shown actual size.

Ambient Temperature Range and Stability: -10 to 60°C (14 to 140°F) operating ambient; better than 1% of span over operating temperature range; better than 0.02% of span per °C

Power: 60 to 265 Vac, 50/60 Hz or 85 to 300 Vdc, 2W maximum
- **DC Versions:** 9 to 30 Vdc or 10 to 32 Vac, 50/60 Hz, 2W maximum

Housing: Mounts to standard 35 mm DIN rail, IP40 rating

Connectors: Four 4-terminal removable connectors 14 AWG maximum wire size

Dimensions: 22.5 W x 117 H x 122 mm D (0.89 x 4.62 x 4.81")

To Order

MODEL NO.	DESCRIPTION
DMD1080	Standard power input, DC input alarm trip, isolated, field configurable
DMD1080-DC	Low power input, DC input alarm trip, isolated, field configurable

ACCESSORIES

MODEL NO.	DESCRIPTION
DRTB-RAIL-3575	DIN rail, 35 mm x 7.5 mm (1.4 x 0.30") slotted, 2 m (6.6') length
DRTB-RAIL-3515	DIN rail, 35 mm x 15 mm (1.4 x 0.60") slotted, 2 m (6.6') length

Comes complete with operator's manual.

Ordering Example: DMD1080, *standard power, DC input alarm trip.*

⅛ DIN Strain, Process and Temperature Meters

With Optional Relays and Analog Output

Panel Punches Available, Visit omega.com/panelpunches

MONOGRAM SERIES

DP25B Series

1 YEAR WARRANTY

Inputs
- Thermocouple
- RTD
- Process (DC Voltage and Current)
- Strain Gage

Options
- Relay Output with Adjustable Deadband
- Isolated or Non-Isolated Analog Output
- Patented Programmable Color Display
- Low-Voltage Power Options
- NEMA 4 Front Bezel

DP25B, shown actual size.

BEZEL DESIGN IS A REGISTERED TRADEMARK

Panel Meters

The OMEGA DP25B Series features the biggest, brightest display of any ⅛ DIN panel meter. The user can select the display color: **RED**, **AMBER**, or **GREEN**.

Unparalleled accuracy in signal conditioning is available in this economical series of panel meters/controllers. The series has a 4-digit, 9-segment display plus optional dual 5 A, SPDT relays (Form "C") and a choice of isolated or non-isolated analog output. The scalable 0 to 10 Vdc, 0 to 20 mA, or 4 to 20 mA analog output can be used for retransmission of the display value or as a proportional control output, as required. The microprocessor-based DP25B series includes instruments for process (DC voltage and current) strain gage, thermocouple, and RTD.

Specifications

Display: 4-digit, 9-segment, 21 mm (0.83") red, amber or green LED (programmable)

Analog-to-Digital Technique: Dual slope

Internal Resolution: 15 bit

Polarity: Automatic

Read Rate: 3/second

Step Response: 2 seconds

Relay Outputs (Optional): 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.

Analog Output (Optional): 0 to 10V, 4 to 20 mA or 0 to 20 mA; can be assigned to a display range (scalable) or proportional control output with setpoint #1 when used as a control output

Power: 115 Vac or 230 Vac ±10%, 10 to 32 Vdc, 26 to 56 Vdc; 8 W max (DP25B-TC or -RTD), 11 W max (DP25B-E or -S); 240 Vrms overvoltage protection

Thermocouple and RTD Models

The DP25B Series for thermocouple and RTD inputs is a versatile panel meter and limit alarm-in-one that is easily programmable. The DP25B-TC is selectable for J, K, T, or J DIN thermocouples. The DP25B-RTD accepts 100 Ω Pt (0.00385 curve) RTDs.

DP25B-TC (Thermocouple)

Input Type	Range	Accuracy
J	-210 to 760°C (-346 to 1400°F)	0.5°C (0.9°F)
K	-270 to 1372°C (-454 to 2500°F)	
T	-210 to 400°C (-346 to 752°F)	
J DIN	-200 to 900°C (-328 to 1652°F)	

Isolation: Dielectric strength to 2500V transient per 3 mm spacing based on EN 61010 for 260 Vrms or Vdc

NMR: 60 dB

CMR: 120 dB

Operating Temperature: 0 to 50°C (32 to 122°F)

Storage Temperature: -40 to 85°C (-40 to 185°F)

Relative Humidity: 90% @ 40°C (104°F) non-condensing

Dimensions: 48 H x 96 W x 152 mm D (1.89 x 3.78 x 6.0")

Panel Cutout: 45 H x 92 mm W (1.772 x 3.622")

Weight: 36 g (1.27 lb)

Specifications (Thermocouple Meter)

Input: Thermocouple Types J, K, T and J DIN

Relay Hysteresis: Programmable from 0 to 9999

Accuracy: ±0.50°C (0.9°F) after 30 min warm-up

Temperature Coefficient: ±50 PPM/°C

Input Resistance: 100 MΩ

M

Process and Strain Models

The DP25B-E process and strain meters accept a wide range of DC voltage and current inputs to cover any typical process application. They feature easy, front-panel scaling to virtually any engineering units, selectable excitation of 4 voltages to work with most transducers and transmitters, front panel and remote tare function for weighing applications, and a hardware lockout to prevent unauthorized changes in set-up.

DP25B-TC-GN, programmed for optional green display (no additional charge), shown actual size.

DP25B-RTD (RTD)

Input Type	Range	Accuracy
RTD, 100 Ω Pt, 2, 3, 4-wire	-200 to 850°C (-328 to 1562°F)	0.5°C (0.9°F)

Specifications (RTD Temperature Meter)

Input: RTD 100 Ω Pt (0.00385 curves)
2-, 3- and 4-wire selectable

Accuracy: ±0.50°C (0.9°F) after 30 min warm-up

Temperature Coefficient: ±50 PPM/°C

Input Resistance: 100 MΩ

DP25B-E (Process)/DP25B-S (Strain)

Input Type	Range	Accuracy
mV, V, mA	0 to 100 mV, ±50 mV, 0 to 10 V±5 V, 0 to 20 mA, 4 to 20 mA	0.02% Rdg

Specifications (Process and Strain Meters)

Input Ranges: 0 to 100 mV, ±50 mV, 0 to 10V, ±5V, 0 to 20 mA, 4 to 20 mA

Protection: 240 Vrms max for voltage input ranges; 200 mA for current ranges

Input Impedance: 100 MΩ for 100 mV or ±50 mV range; 1 MΩ for 10V or ±5V range; 5 Ω for 20 mA current input

Analog-to-Digital Technique: Dual slope

Internal Resolution: 15 bit

Polarity: Automatic

Max Error Strain/Process: ±0.03% rdg

Span Temperature Coefficient: ±50 ppm/°C

Warm-Up to Rated Accuracy: 30 min

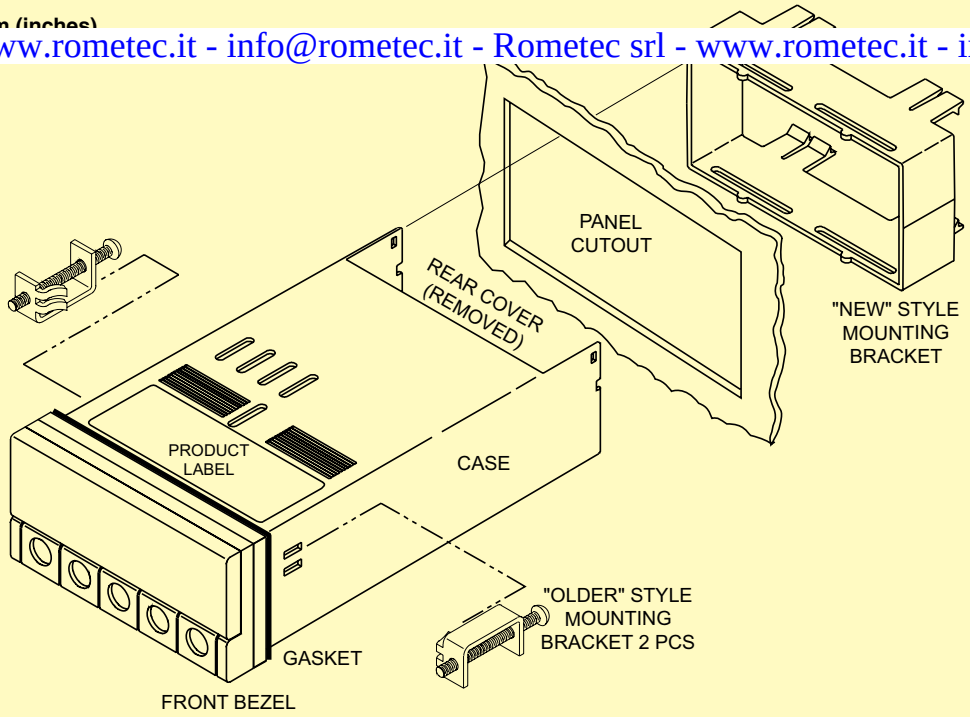
Excitation Voltage: 24V @ 25 mA or 12V @ 50 mA; 10V @ 120 mA or 5V @ 60 mA

Select Your Color!

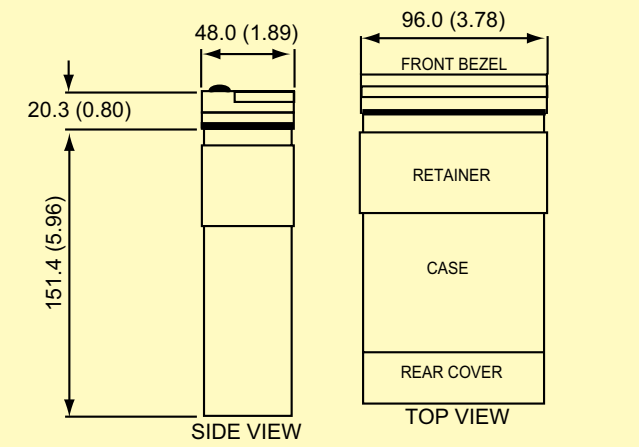
Program to display in RED, AMBER, or GREEN.

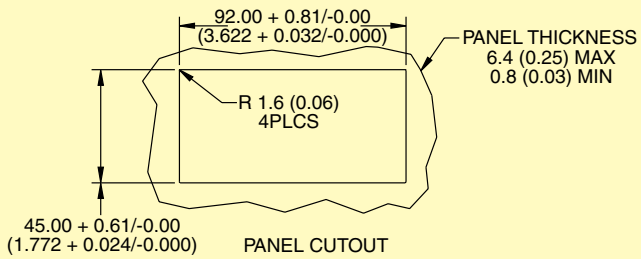
Totally Programmable Color Displays

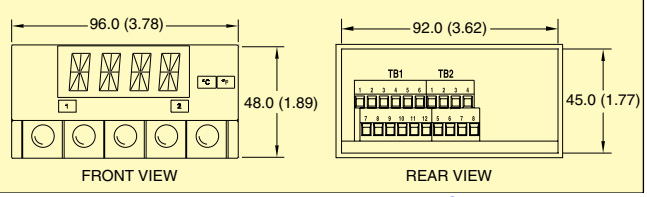
The OMEGA® DP25B Series meters and controllers have totally programmable color displays—for **RED**, **AMBER**, or **GREEN**.



Dimensions: mm (inches)







To Order *Visit omega.com/dp25b_tc for Pricing and Details*

MODEL NO.	DESCRIPTION
DP25B-TC	Thermocouple
DP25B-RTD	RTD
DP25B-E	Process (DC voltage and current)
DP25B-S	Strain input

POWER OPTIONS*

ORDER SUFFIX	POWER
-230	230 Vac
-DC10/32	10 to 32 Vdc
-DC26/56	26 to 56 Vdc

OUTPUT OPTIONS*

ORDER SUFFIX	POWER
-A	Analog output
-AI-R	Isolated analog output
-R	Dual 5 A relays
-AR	Analog and relay options

ACCESSORY

MODEL NO.	DESCRIPTION
DPP-5	1/8 DIN panel punch

***** *Not field installable. For **"-AI"** option, the **"-R"** option is required. Comes complete with operator's manual.*

***Ordering Examples: DP25B-TC-DC10/32-AR,** thermocouple indicator for J, K, T or J DIN input, low-voltage power, analog output and dual 5 A relays.*

***DP25B-E,** process meter.*

M

ALARM/CONTROL CAPABILITIES
STRAIN GAGE, PROCESS VOLTAGE AND CURRENT, TEMPERATURE

DP41 Series

1 YEAR WARRANTY

DP41-S strain meter shown actual size.

All Units Feature:
- 5-Year Warranty
- 6-Digit Display
- Min/Max Storage
- 4 Isolated Open-Collector Outputs
- NEMA 4 (IP65) Front Panel
- 12 Readings per Second
- Alarm/Control Capabilities
- Smart Filtering Detects the Difference Between a Spike or Process Change (Patent Applied for)
- Peak and Valley Detection
- Digital Tare
- Easy Front-Panel Programming
- Optional BCD Output
- Optional Analog Output
- Optional RS232/RS485 Communications
- Optional Mechanical Relays

Thermocouple Input:
- 0.01° Resolution
- 0.2°C Accuracy
- 9 Thermocouple Types
- °C/°F/K Units
- Uses Complete NIST Calibration Tables

RTD Input:
- 0.01° Resolution
- 0.2°C Accuracy
- 2-, 3-, or 4-Wire
- 385 and 392 Pt Curves

Voltage/Current Inputs:
- ±0.005% Rdg Accuracy
- 10 User-Selectable Voltage or 4 to 20/ 0 to 20 mA Input Ranges
- Fully Scalable Display Up to 500,000 Counts
- 1.5 to 11 Vdc or 24 Vdc Sensor Excitation
- Adjustable Decimal Point

The OMEGA DP41 Series of digital panel meter/controllers has set the world standard for accuracy and quality in industrial instrumentation. These meters can measure a broad spectrum of DC voltage and current ranges as well as inputs from 9 thermocouple types and from most RTDs, pressure transducers, load cells, strain gages, and potentiometers. Models include the DP41-W, a legal-for-trade, NTEP-certified strain meter with enhanced features, and the DP41-U, which covers all the input types.

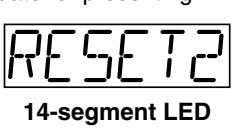
Standard features include 6-digit display; 5 front-panel pushbutton keys; 4 open-collector outputs; and alarm/control, BCD, and analog outputs. Configurable analog output ranges are 0 to 20 mA, 4 to 20 mA, 0 to 5 Vdc, and 0 to 10 Vdc.

On-board excitation allows these meters to power virtually any sensor or transmitter, and 4 setpoints give the user numerous control/alarm possibilities. Setpoint configurations include active above or below; latching or non-latching; and high deviation, low deviation, or band deviation.

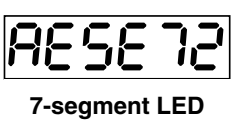
With the RS232/485 serial communications option, the user can set the display parameters and read the current, max, and min values remotely. The DP40-R board option provides dual 7 A mechanical relays, activated by the selected setpoint.

OMEGA MONOGRAM™ SERIES

The DP41 displays feature 14-segment LED characters, which greatly improves alphanumeric representations. The 7-segment LED characters found on most instruments are adequate for presenting numbers, but not letters. Words are easier to read with the 14-segment LED characters on the DP41, which, in turn, simplifies operating and programming.



14-segment LED



7-segment LED

Red LED display standard. Also available with green LED at no charge.

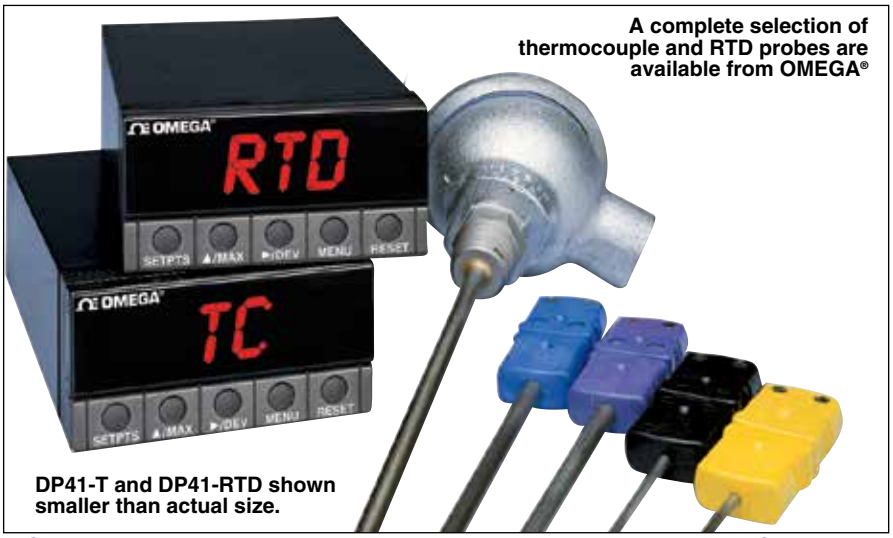
SPECIFICATIONS

Accuracy: ±0.005% rdg
Span Temperature Coefficient: ±20 ppm
Step Response: 1 s to 99.9%
Warm-Up to Rated Accuracy: 50 minutes
Operating Environment: 0 to 50°C (32 to 122°F); 95% RH, non-condensing
Storage Temperature: -40 to 85°C (-40 to 185°F)
Power: 115 or 230 Vac, 49 to 400 Hz; 10 to 32 Vdc
Power Consumption: 6 W nom., 10 W max
Normal-Mode Rejection: 60 dB
Common-Mode Rejection: 120 dB
Common-Mode Voltage: 1500 Vp per HV test
Resolution: 15-bit
Conversion: Dual-slope technique
Reading Rate: 3/s or 13/s, 60 Hz; 3/s or 12/s, 50 Hz
Display: Red or green 6-digit, 14-segment, 13.7 mm (0.54") high; 4 alarm indicators
Dimensions: 48 H x 96 W x 165 mm D (1.89 x 3.78 x 6.5")
Panel Cutout: 45 H x 92 mm W (1.772 x 3.622"); ⅛ DIN
Weight: 574 g (1.27 lb)
Setpoint Outputs: 4 isolated open collector; rated 150 mA at 1V sink, 30V open
BCD Output: Isolated, tri-state, TTL/CMOS compatible; external 5V supply required for isolated; internal 5V supply for non-isolated
Dual Relays: Form "C", 7 A @ 30 Vdc or 230 Vac
4-Relay Option: Dual 7 A relays and dual 1 A relays
Analog Output: 0 to 5V/1 to 5V/ 0 to 10V/0 to 20 mA/4 to 20 mA, user selectable; 354 Vp isolation; 15-bit resolution; 0.1% accuracy; 50 ms step response
RS232 Communications: 300/600/1200/2400/4800/9600/ 19.2K baud; RJ11 4-wire connection; programmable to transmit current display, alarm status, min/max, actual measured input value and status
RS485 Communications: 300/600/1200/2400/4800/9600/ 19.2K baud; RJ12 6-wire connection; addressable from 0 to 199
Voltage Input Ranges: 0 to 100 mV, 0 to 1V, 0 to 5V, 1 to 5V, 0 to 10V, 0 to 100V, ±50 mV, ±500 mV, ±5V, ±50V
Current Input Ranges: 0 to 20 mA, 4 to 20 mA
Input Configuration: Single-ended
Polarity: Unipolar/bipolar, programmable
Span Adjustment: 0.00001 to 500,000, programmable
Offset Adjustment: 0 to 999,999 or 0 to -99,999, programmable
Thermocouple Input Types: J, K, T, E, R, S, B, N, J DIN
RTD Input: Any 6 Ω to 6 kΩ NIST or DIN platinum and any linear RTD
RTD Connection: 2-, 3- or 4-wire
Sensor Break Protection: Up-scale or down-scale, programmable
Sensor Excitation: 10 V at 30 mA; 24V at 25 mA

The DP41 thermocouple meter offers very high accuracy ensured by an advanced (patent applied for) thermocouple linearizing system. Accuracy for most thermocouple types is 0.2°C (3.6°F). The meter is front-panel programmable for any of 9 thermocouple types. The DP41 RTD input meter is programmable for any 6 to 6000 Ω DIN or NIST platinum RTD. It provides a precision ultra-low constant current excitation to minimize self-heating errors and maximize stability.

INPUT TYPE		RANGE, °C	RANGE, °F	ACCURACY
J	Iron-constantan	-210 to 760	-346 to 1400	0.2°C/0.3°F
K	CHROMEGA®-ALOMEGA®	-270 to 1372	-454 to 2500	0.2°C/0.3°F
T	Copper-constantan	-270 to 400	-454 to 752	0.2°C/0.3°F
E	CHROMEGA®-constantan	-270 to 1000	-454 to 1832	0.2°C/0.3°F
R/S	Pt/Rh	-50 to 1768	-58 to 3214	0.2°C/0.3F
B	Pt/30% Rh-Pt/6° Rh	100 to 1820	212 to 3300	0.3°C/0.5F
N	OMEGALLOY®	-270 to 1300	-454 to 2372	0.2°C/0.3F
J DIN	Iron-constantan	-200 to 900	-328 to 1652	0.6°C/1.0F
RTD	All curves	-200 to 850	-328 to 1562	0.2°C/0.3F

INPUT TYPE		RANGE, °C	RANGE, °F	RANGE, K	ACCURACY
RTD 1	10 Ω copper	-200 to 200	-328 to 392	73.2 to 473.2	1.0°C/2.0°F/1.0 K
RTD 2	100 Ω Pt 0.00385	200 to 900	-328 to 1652	73.2 to 1173.2	0.2°C/0.3°F/0.2 K
RTD 3	100 Ω Pt 0.00392	-200 to 850	-328 to 1562	73.2 to 1123.2	0.2°C/0.3°F/0.2 K



A complete selection of thermocouple and RTD probes are available from OMEGA®

DP41-T and DP41-RTD shown smaller than actual size.

HIGH-PERFORMANCE METERS

DP41Z-E split meter with remote display, panel mount or surface mount with bracket shown smaller than actual size.

DP41-TBS bench stand, sold separately.

DP41-TC with thermocouple probe, sold separately from OMEGA, shown smaller than actual size.

To Order

MODEL NO.	DESCRIPTION
DP41-E	Process voltage/current indicator
DP41-S	Strain gage indicator
DP41-W	Weight NTEP strain indicator
DP41-TC	Thermocouple indicator
DP41-RTD	RTD indicator
DP41-U	Universal input indicator
DP41Z-E	Split-display voltage/current indicator
DP41Z-S	Split-display strain gage indicator
DP41Z-W	Split-display weight NTEP strain indicator
DP41Z-TC	Split-display thermocouple indicator
DP41Z-RTD	Split-display RTD indicator
DP41Z-U	Split-display universal input indicator

POWER AND DISPLAY OPTIONS

SUFFIX	DESCRIPTION
-230	230 Vac power
-DC	10 to 32 Vdc isolated power
-GN	Green LED display

ANALOG OUTPUT/COMPUTER COMMUNICATIONS

MODEL NO.	DESCRIPTION
DP40-A3	Analog output
DP40-S24	Isolated RS232/485 communications

DP40-S24 option comes with communications cable with phone plug termination. For proper termination to a computer, 9-pin and 25-pin connectors are offered below.

ACCESSORIES FOR COMPUTER COMMUNICATIONS

MODEL NO.	DESCRIPTION
DP40-9SC2	9-pin serial connector for RS232
DP40-9SC4	9-pin serial connector for RS485
DP40-25SC2	25-pin serial connector for RS232
DP40-25SC4	25-pin serial connector for RS485

CONTROL/BCD OUTPUTS

MODEL NO.	DESCRIPTION
DP40-B	Isolated BCD output board*
DP40-R	Dual 7 A mechanical relays*
DP40-R4	Dual 7 A and Dual 1 A relays*

***Note:** Order DP40-B, DP40-R or DP40-R4; only 1 option can be used per unit. DC power option not available on models with DP40-R or DP40-R4.*

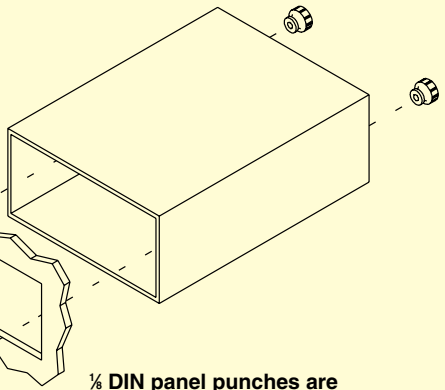
***Ordering Example: DP41-TC-DC-S2A** and **DP40-9SC2,** DP41 unit for thermocouple inputs, with 10 to 32 Vdc power, RS232 communications, analog output and 9-pin serial connector.*

ACCESSORIES FOR DP41 METERS

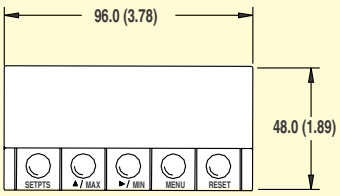
MODEL NO.	DESCRIPTION
SPC4	NEMA 4 (IP65) heavy-duty splashproof lens, screw clamp
SPC18	NEMA 4 (IP65) splashproof lens, spring clip
DP41-TBS	Economical bench stand
DPP-5	⅛ DIN panel punch

PROCESS INDICATORS
DP41 SERIES

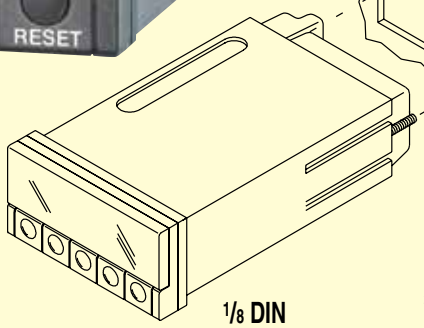
DP41-S shown smaller than actual size.



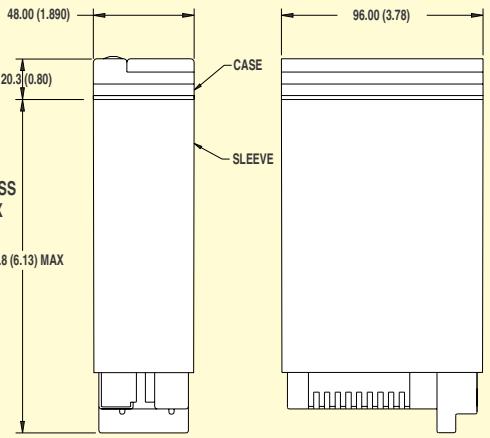
⅛ DIN panel punches are available from OMEGA.



FRONT VIEW
TYP

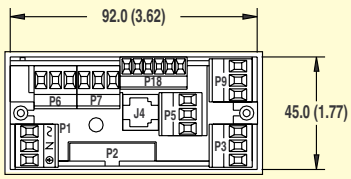


1/8 DIN

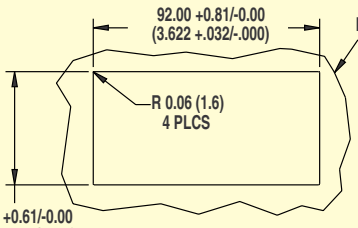


SIDE VIEW
WITH T/C COVER

TOP VIEW
WITH T/C COVER



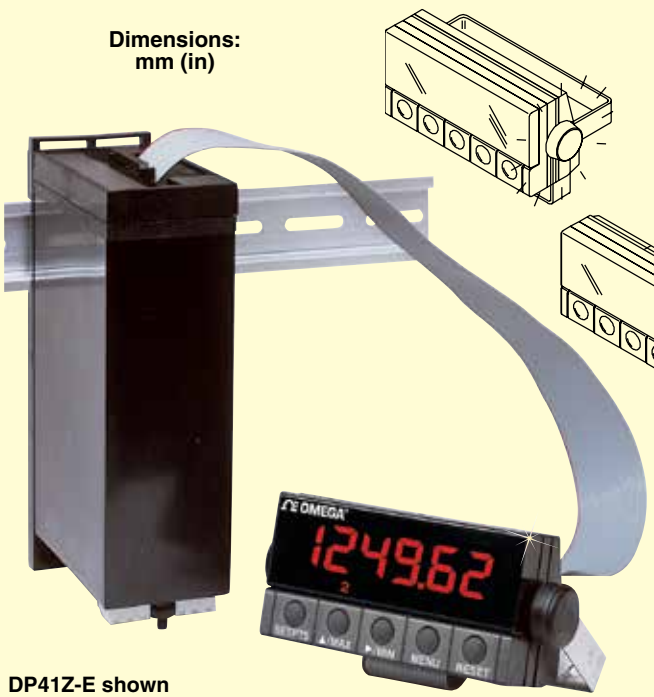
REAR VIEW
TYP



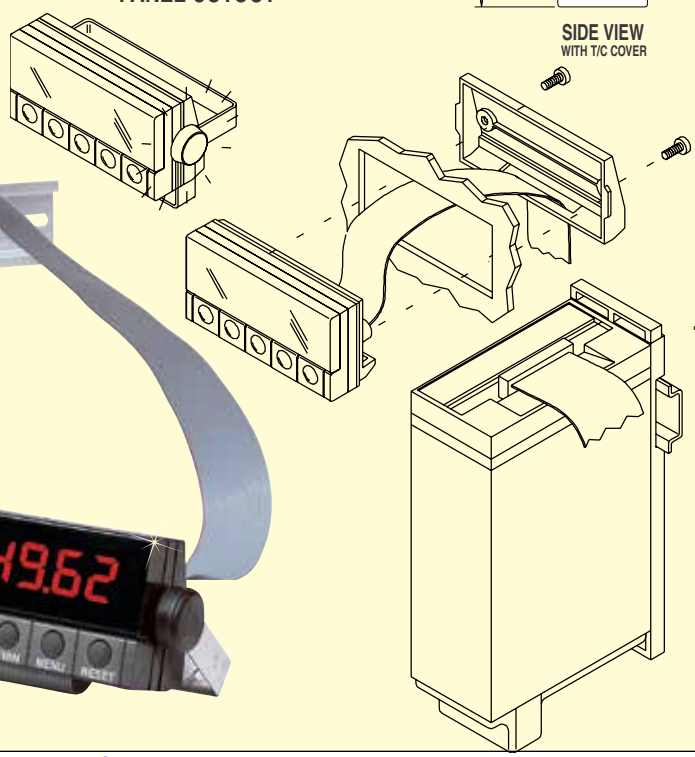
PANEL CUTOUT

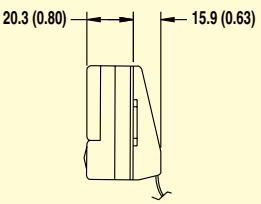
PANEL THICKNESS
6.4 (0.25) MAX
0.8 (0.03) MIN
155.8 (6.13) MAX

Dimensions:
mm (in)

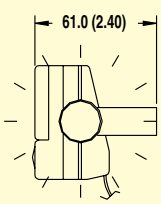


DP41Z-E shown smaller than actual size.





SIDE VIEW
THROUGH PANEL MOUNT



SIDE VIEW OF
SURFACE MOUNT

ALARM/CONTROL CAPABILITIES
STRAIN GAGE, PROCESS VOLTAGE AND CURRENT, TEMPERATURE

DP41 Series

1 YEAR WARRANTY

DP41-S strain meter shown actual size.

All Units Feature:
- 5-Year Warranty
- 6-Digit Display
- Min/Max Storage
- 4 Isolated Open-Collector Outputs
- NEMA 4 (IP65) Front Panel
- 12 Readings per Second
- Alarm/Control Capabilities
- Smart Filtering Detects the Difference Between a Spike or Process Change (Patent Applied for)
- Peak and Valley Detection
- Digital Tare
- Easy Front-Panel Programming
- Optional BCD Output
- Optional Analog Output
- Optional RS232/RS485 Communications
- Optional Mechanical Relays

Thermocouple Input:
- 0.01° Resolution
- 0.2°C Accuracy
- 9 Thermocouple Types
- °C/°F/K Units
- Uses Complete NIST Calibration Tables

RTD Input:
- 0.01° Resolution
- 0.2°C Accuracy
- 2-, 3-, or 4-Wire
- 385 and 392 Pt Curves

Voltage/Current Inputs:
- ±0.005% Rdg Accuracy
- 10 User-Selectable Voltage or 4 to 20/ 0 to 20 mA Input Ranges
- Fully Scalable Display Up to 500,000 Counts
- 1.5 to 11 Vdc or 24 Vdc Sensor Excitation
- Adjustable Decimal Point

The OMEGA DP41 Series of digital panel meter/controllers has set the world standard for accuracy and quality in industrial instrumentation. These meters can measure a broad spectrum of DC voltage and current ranges as well as inputs from 9 thermocouple types and from most RTDs, pressure transducers, load cells, strain gages, and potentiometers. Models include the DP41-W, a legal-for-trade, NTEP-certified strain meter with enhanced features, and the DP41-U, which covers all the input types.

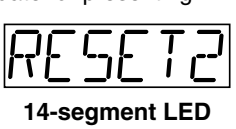
Standard features include 6-digit display; 5 front-panel pushbutton keys; 4 open-collector outputs; and alarm/control, BCD, and analog outputs. Configurable analog output ranges are 0 to 20 mA, 4 to 20 mA, 0 to 5 Vdc, and 0 to 10 Vdc.

On-board excitation allows these meters to power virtually any sensor or transmitter, and 4 setpoints give the user numerous control/alarm possibilities. Setpoint configurations include active above or below; latching or non-latching; and high deviation, low deviation, or band deviation.

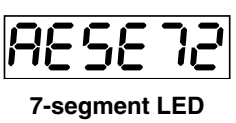
With the RS232/485 serial communications option, the user can set the display parameters and read the current, max, and min values remotely. The DP40-R board option provides dual 7 A mechanical relays, activated by the selected setpoint.

OMEGA MONOGRAM™ SERIES

The DP41 displays feature 14-segment LED characters, which greatly improves alphanumeric representations. The 7-segment LED characters found on most instruments are adequate for presenting numbers, but not letters. Words are easier to read with the 14-segment LED characters on the DP41, which, in turn, simplifies operating and programming.



14-segment LED



7-segment LED

Red LED display standard. Also available with green LED at no charge.

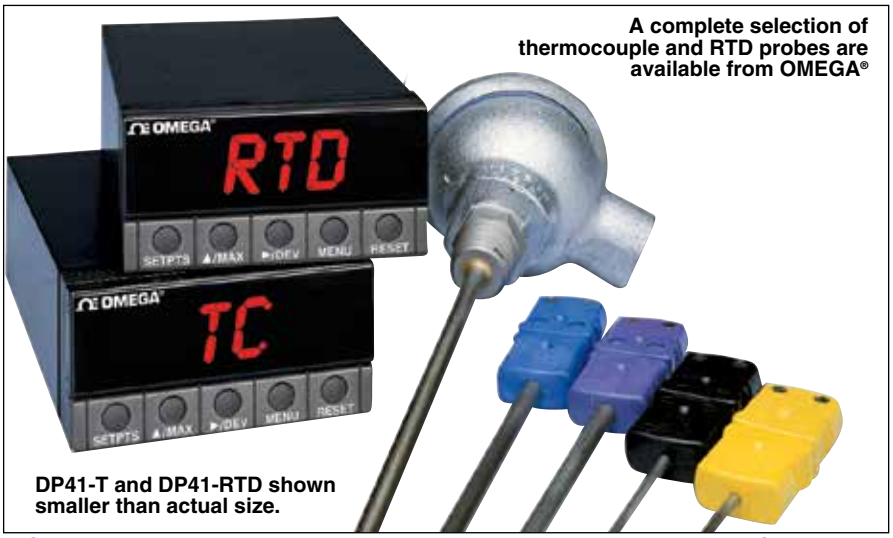
SPECIFICATIONS

Accuracy: ±0.005% rdg
Span Temperature Coefficient: ±20 ppm
Step Response: 1 s to 99.9%
Warm-Up to Rated Accuracy: 50 minutes
Operating Environment: 0 to 50°C (32 to 122°F); 95% RH, non-condensing
Storage Temperature: -40 to 85°C (-40 to 185°F)
Power: 115 or 230 Vac, 49 to 400 Hz; 10 to 32 Vdc
Power Consumption: 6 W nom., 10 W max
Normal-Mode Rejection: 60 dB
Common-Mode Rejection: 120 dB
Common-Mode Voltage: 1500 Vp per HV test
Resolution: 15-bit
Conversion: Dual-slope technique
Reading Rate: 3/s or 13/s, 60 Hz; 3/s or 12/s, 50 Hz
Display: Red or green 6-digit, 14-segment, 13.7 mm (0.54") high; 4 alarm indicators
Dimensions: 48 H x 96 W x 165 mm D (1.89 x 3.78 x 6.5")
Panel Cutout: 45 H x 92 mm W (1.772 x 3.622"); ⅛ DIN
Weight: 574 g (1.27 lb)
Setpoint Outputs: 4 isolated open collector; rated 150 mA at 1V sink, 30V open
BCD Output: Isolated, tri-state, TTL/CMOS compatible; external 5V supply required for isolated; internal 5V supply for non-isolated
Dual Relays: Form "C", 7 A @ 30 Vdc or 230 Vac
4-Relay Option: Dual 7 A relays and dual 1 A relays
Analog Output: 0 to 5V/1 to 5V/ 0 to 10V/0 to 20 mA/4 to 20 mA, user selectable; 354 Vp isolation; 15-bit resolution; 0.1% accuracy; 50 ms step response
RS232 Communications: 300/600/1200/2400/4800/9600/ 19.2K baud; RJ11 4-wire connection; programmable to transmit current display, alarm status, min/max, actual measured input value and status
RS485 Communications: 300/600/1200/2400/4800/9600/ 19.2K baud; RJ12 6-wire connection; addressable from 0 to 199
Voltage Input Ranges: 0 to 100 mV, 0 to 1V, 0 to 5V, 1 to 5V, 0 to 10V, 0 to 100V, ±50 mV, ±500 mV, ±5V, ±50V
Current Input Ranges: 0 to 20 mA, 4 to 20 mA
Input Configuration: Single-ended
Polarity: Unipolar/bipolar, programmable
Span Adjustment: 0.00001 to 500,000, programmable
Offset Adjustment: 0 to 999,999 or 0 to -99,999, programmable
Thermocouple Input Types: J, K, T, E, R, S, B, N, J DIN
RTD Input: Any 6 Ω to 6 kΩ NIST or DIN platinum and any linear RTD
RTD Connection: 2-, 3- or 4-wire
Sensor Break Protection: Up-scale or down-scale, programmable
Sensor Excitation: 10 V at 30 mA; 24V at 25 mA

The DP41 thermocouple meter offers very high accuracy ensured by an advanced (patent applied for) thermocouple linearizing system. Accuracy for most thermocouple types is 0.2°C (3.6°F). The meter is front-panel programmable for any of 9 thermocouple types. The DP41 RTD input meter is programmable for any 6 to 6000 Ω DIN or NIST platinum RTD. It provides a precision ultra-low constant current excitation to minimize self-heating errors and maximize stability.

INPUT TYPE		RANGE, °C	RANGE, °F	ACCURACY
J	Iron-constantan	-210 to 760	-346 to 1400	0.2°C/0.3°F
K	CHROMEGA®-ALOMEGA®	-270 to 1372	-454 to 2500	0.2°C/0.3°F
T	Copper-constantan	-270 to 400	-454 to 752	0.2°C/0.3°F
E	CHROMEGA®-constantan	-270 to 1000	-454 to 1832	0.2°C/0.3°F
R/S	Pt/Rh	-50 to 1768	-58 to 3214	0.2°C/0.3F
B	Pt/30% Rh-Pt/6° Rh	100 to 1820	212 to 3300	0.3°C/0.5F
N	OMEGALLOY®	-270 to 1300	-454 to 2372	0.2°C/0.3F
J DIN	Iron-constantan	-200 to 900	-328 to 1652	0.6°C/1.0F
RTD	All curves	-200 to 850	-328 to 1562	0.2°C/0.3F

INPUT TYPE		RANGE, °C	RANGE, °F	RANGE, K	ACCURACY
RTD 1	10 Ω copper	-200 to 200	-328 to 392	73.2 to 473.2	1.0°C/2.0°F/1.0 K
RTD 2	100 Ω Pt 0.00385	200 to 900	-328 to 1652	73.2 to 1173.2	0.2°C/0.3°F/0.2 K
RTD 3	100 Ω Pt 0.00392	-200 to 850	-328 to 1562	73.2 to 1123.2	0.2°C/0.3°F/0.2 K



A complete selection of thermocouple and RTD probes are available from OMEGA®

DP41-T and DP41-RTD shown smaller than actual size.

HIGH-PERFORMANCE METERS

DP41Z-E split meter with remote display, panel mount or surface mount with bracket shown smaller than actual size.

DP41-TBS bench stand, sold separately.

DP41-TC with thermocouple probe, sold separately from OMEGA, shown smaller than actual size.

To Order

MODEL NO.	DESCRIPTION
DP41-E	Process voltage/current indicator
DP41-S	Strain gage indicator
DP41-W	Weight NTEP strain indicator
DP41-TC	Thermocouple indicator
DP41-RTD	RTD indicator
DP41-U	Universal input indicator
DP41Z-E	Split-display voltage/current indicator
DP41Z-S	Split-display strain gage indicator
DP41Z-W	Split-display weight NTEP strain indicator
DP41Z-TC	Split-display thermocouple indicator
DP41Z-RTD	Split-display RTD indicator
DP41Z-U	Split-display universal input indicator

POWER AND DISPLAY OPTIONS

SUFFIX	DESCRIPTION
-230	230 Vac power
-DC	10 to 32 Vdc isolated power
-GN	Green LED display

ANALOG OUTPUT/COMPUTER COMMUNICATIONS

MODEL NO.	DESCRIPTION
DP40-A3	Analog output
DP40-S24	Isolated RS232/485 communications

DP40-S24 option comes with communications cable with phone plug termination. For proper termination to a computer, 9-pin and 25-pin connectors are offered below.

ACCESSORIES FOR COMPUTER COMMUNICATIONS

MODEL NO.	DESCRIPTION
DP40-9SC2	9-pin serial connector for RS232
DP40-9SC4	9-pin serial connector for RS485
DP40-25SC2	25-pin serial connector for RS232
DP40-25SC4	25-pin serial connector for RS485

CONTROL/BCD OUTPUTS

MODEL NO.	DESCRIPTION
DP40-B	Isolated BCD output board*
DP40-R	Dual 7 A mechanical relays*
DP40-R4	Dual 7 A and Dual 1 A relays*

***Note:** Order DP40-B, DP40-R or DP40-R4; only 1 option can be used per unit. DC power option not available on models with DP40-R or DP40-R4.*

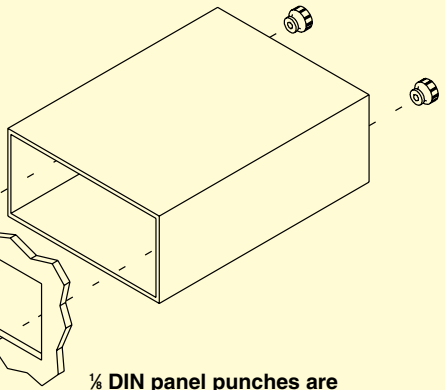
***Ordering Example: DP41-TC-DC-S2A** and **DP40-9SC2,** DP41 unit for thermocouple inputs, with 10 to 32 Vdc power, RS232 communications, analog output and 9-pin serial connector.*

ACCESSORIES FOR DP41 METERS

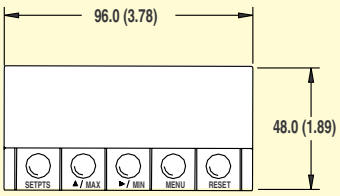
MODEL NO.	DESCRIPTION
SPC4	NEMA 4 (IP65) heavy-duty splashproof lens, screw clamp
SPC18	NEMA 4 (IP65) splashproof lens, spring clip
DP41-TBS	Economical bench stand
DPP-5	⅛ DIN panel punch

PROCESS INDICATORS
DP41 SERIES

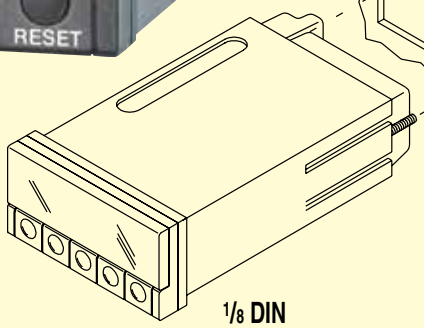
DP41-S shown smaller than actual size.



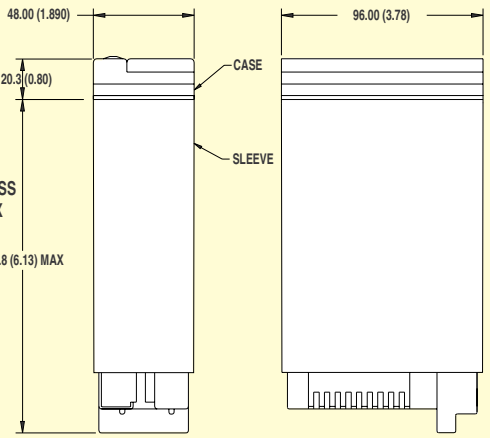
⅛ DIN panel punches are available from OMEGA.



FRONT VIEW
TYP

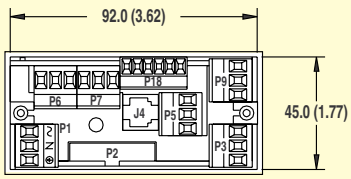


1/8 DIN

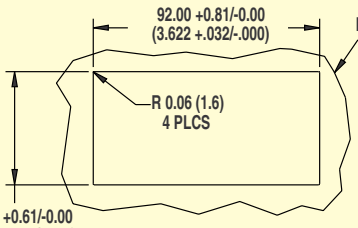


SIDE VIEW
WITH T/C COVER

TOP VIEW
WITH T/C COVER



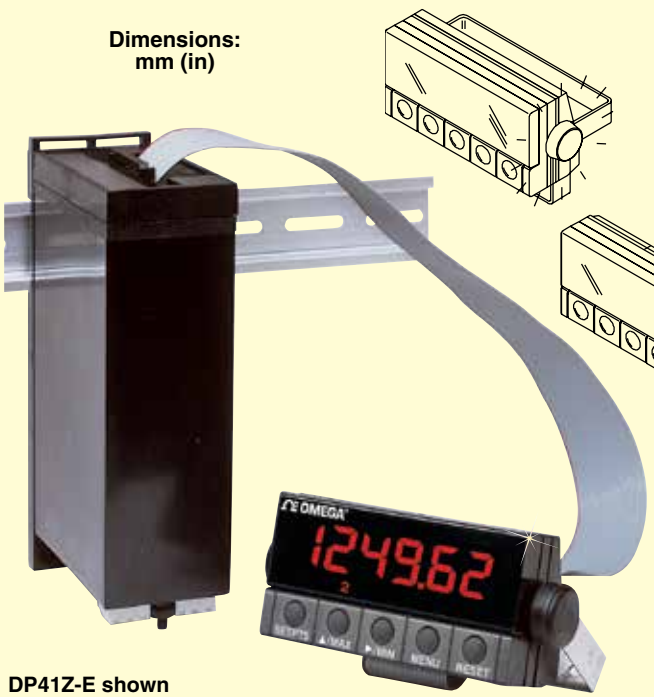
REAR VIEW
TYP



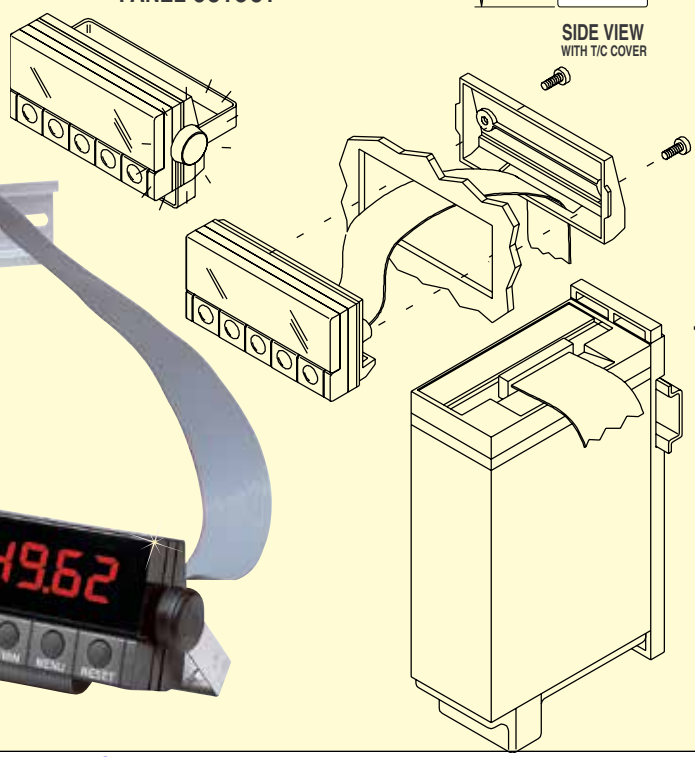
PANEL CUTOUT

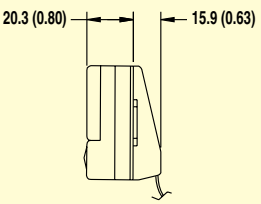
PANEL THICKNESS
6.4 (0.25) MAX
0.8 (0.03) MIN
155.8 (6.13) MAX

Dimensions:
mm (in)

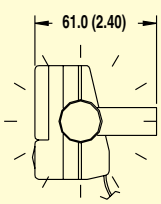


DP41Z-E shown smaller than actual size.





SIDE VIEW
THROUGH PANEL MOUNT



SIDE VIEW OF
SURFACE MOUNT

1/4 DIN Process Panel Meter

With Optional USB Communications

DP6000 Series

1 YEAR WARRANTY

- **Modular USB, RS232, RS485 Serial Communication Options and Relays**
- **0 to 20 mA, 4 to 20 mA, 0 to 5V, 1 to 5V, and ±10V Inputs**
- **NEMA 4X (IP65) Front**
- **Universal 85 to 265 Vac or 12/24 Vdc Input Power**
- **Large Dual-Line 6-Character Display, 15 and 12 mm (0.60 and 0.46")**
- **Sunlight Readable Display Models**
- **Isolated 24 Vdc @ 200 mA Transmitter Power Supply Standard**
- **Programmable Displays and Function Keys**
- **32-Point, Square Root, or Exponential Linearization**
- **MODBUS® RTU Communication Protocol Standard**
- **Free Software for Operation, Monitoring and Programming**

DP6000 shown smaller than actual size.

The DP6000 Series meter boasts specifications and functionality that clearly make it one of the most advanced process meters available. Its dual-line 6-digit display (999,999), advanced signal input conditioning functions, function keys, MODBUS RTU serial communications, and optional expansion modules are only a few of the features found on the DP6000. Sunlight readable display models have an extraordinarily bright LED display. They are perfect for applications where the meter is in direct sunlight or in applications where visibility may be impaired by smoke, fog, dust, or distance. The upper display can be programmed to indicate PV, maximum (peak), minimum (valley), alternating maximum/minimum, one of eight alarm set points, or MODBUS input. The lower display can also be configured to display engineering units, set points, user defined legends, or simply turned off. The user friendly dual-line display makes the DP6000 easy to set up and program. No jumpers to set for input selection. All setup and programming are done via the front panel. Three levels of password protection help maintain the reliability of the programming. The Copy feature is used to copy (or clone) all the settings from one DP6000 to other meters in about 20 seconds! The Copy function is a standard feature on all meters. It does not require a communications adaptor, only an optional cable assembly.

General Specifications

Display: Both displays are 6 digits (-99999 to 999999), red LEDs with leading zero blanking

Upper Display: 15 mm (0.60") high

Lower Display: 12 mm (0.46") high

Display Intensity: 8 intensity levels

Display Update Rate: 5/second (200 ms)

Overrange: Display flashes 999999

Underrange: Display flashes -99999

Display Assignment: The upper and lower displays may be assigned to PV1, PV2, PCT (percent), max/min, alternate max and min, set points, units (lower display only), or MODBUS input

Front Panel: NEMA 4X (IP65)

Programming Methods: 4 front panel buttons, digital inputs, PC and software, MODBUS registers, or cloning using copy function

Noise Filter: Programmable from 2 to 199 (0 will disable filter)

Filter Bypass: Programmable from 0.1 to 99.9% of calibrated span

Recalibration: Calibrated at the factory. Recalibration is recommended at least every 12 months

Max/Min Display: Max (peak)/min (valley) readings reached by the process are stored until reset by the user or until power to the meter is cycled

Password: 3 programmable passwords restrict modification of programmed settings; Pass 1: Allows use of function keys and digital inputs; Pass 2: Allows use of function keys, digital inputs and editing set/reset points; Pass 3: Restricts all programming, function keys, and digital inputs

M

Non-Volatile Memory: All programmed settings are stored in ten years if power is lost

Power Options: 85 to 265 Vac 50/60 Hz, 90 to 265 Vdc, 20 W max, or jumper selectable 12/24 Vdc ±10%, 15 W max

Fuse (External, Required): 5 A max, slow blow; up to 6 meters may share one 5 A fuse

Isolated Transmitter Power Supply: 24 Vdc ±5% @ 200 mA max (standard), (12/24 Vdc powered models rated @ 100 mA max); 5 or 10 Vdc @ 50 mA max, selectable with internal jumper J4

Normal Mode Rejection: Greater than 60 dB at 50/60 Hz

Isolation: 4 kV input/output-to-power line; 500 V input-to-output or output-to-P+ supply

Overvoltage Category: Installation overvoltage category II; local level with smaller transient overvoltages than installation overvoltage category III

Operating Temperature Range: -40 to 65°C (-40 to 149°F)

Storage Temperature Range: -40 to 85°C (-40 to 185°F)

Relative Humidity: 0 to 90% non-condensing

Connections: Removable screw terminal blocks accept 12 to 22 AWG wire, RJ45 for external relays, digital I/O, and serial communication adaptors

Enclosure: ⅛ DIN, high impact plastic, color: black

Mounting: ⅛ DIN panel cutout required: 92 x 45 mm (3.622 x 1.772"); two panel mounting bracket assemblies are provided

Tightening Torque: Screw terminal connectors: 5 lb-in (0.56 Nm)

Overall Dimensions: 119 W x 62 H x 143 mm D (4.68 x 2.45 x 5.64")

Weight: 269 g (9.5 oz)

Process Input

Input: Field selectable: 0 to 20 mA, 4 to 20 mA, ±10 Vdc (0 to 5, 1 to 5, 0 to 10V), MODBUS PV (slave)

Accuracy: ±0.03% of calibrated span ±1 count, square root and programmable exponent accuracy range: 10 to 100% of calibrated span

Temperature Drift: 0.005% of calibrated span/°C max from 0 to 65°C ambient, 0.01% of calibrated span/°C max from -40 to 0°C ambient

Signal Input Conditioning Function: Linear, square root, programmable exponent, or round horizontal tank volume calculation

Multi-Point Linearization: 2 to 32 points for PV or PV1 level feature)

Programmable Exponent: 1.0001 to 2.9999

Low-Flow Cutoff: 0 to 999999 (0 disables cutoff function)

Decimal Point: Up to 5 decimal places or none: d.ddddd, dd.dddd, ddd.ddd, dddd.dd, ddddd.d, or dddddd

Calibration Range:
- **4 to 20 mA:** Minimum span; input 1 and Input 2: 0.15 mA
- **±10 V:** Minimum span; input 1 and 2: 0.10 V

An Error message will appear if input 1 and input 2 signals are too close together

Input Impedance:
- **Voltage Ranges:** Greater than 1 MΩ
- **Current Ranges:** 50 to 100 Ω (depending on resettable fuse impedance)

Input Overload: Current input protected by resettable fuse, 30 Vdc max; fuse resets automatically after fault is removed

Relays

Rating: 2 or 4 SPDT (Form C) internal and/or 4 SPST (Form A) external; rated 3 A @ 30 Vdc and 125/250 Vac resistive load; 1/14 HP (≈ 50 W) @ 125/250 Vac for inductive loads such as contactors, solenoids, etc.

Noise Suppression: Recommended for each relay contact switching inductive loads

Deadband: 0 to 100% of span, user programmable

High or Low Alarm: User may program any alarm for high or low trip point; unused alarm LEDs and relays may be disabled (turned off)

Relay Operation: Automatic (non-latching), latching (requires manual acknowledge), sampling (based on time), pump alternation control (2 to 8 relays), off (disable unused relays and enable interlock feature, manual on/off control mode)

Time Delay: 0 to 999.9 seconds, on and off relay time delays; programmable and independent for each relay

Fail-Safe Operation: Programmable and independent for each relay

Note: *Relay coil is energized in non-alarm condition. In case of power failure, relay will go to alarm state.*

Auto Initialization: When power is applied to the meter, relays will reflect the state of the input to the meter

Serial Communications

Protocol: MODBUS RTU

Meter Address/Slave ID: 1 - 247

Baud Rate: 300 to 19,200 bps

Data: 8 bit (1 start bit, 1 or 2 stop bits)

Parity: Even, odd, or none with 1 or 2 stop bits

Byte-to-Byte Timeout: 0.01 to 2.54 seconds

Turn Around Delay: Less than 2 ms (fixed)

Isolated 4 to 20 mA Transmitter Output

Output Source: Process variable (PV), max, min, set points 1 through 8, manual control setting, or MODBUS input

Scaling Range: 1.000 to 23.000 mA for any display range

Factory Calibration: 4.000 to 20.000 = 4 to 20 mA output

Analog Output Programming: 23.000 mA maximum for all parameters: overrange, underrange, max, min, and break

Accuracy: ± 0.1% of span ± 0.004 mA

Temperature Drift: 0.4 µA/°C maximum from 0 to 65°C ambient, 0.8 µA/°C maximum from -40 to 0°C ambient

Note: *Analog output drift is separate from input drift.*

Isolated Transmitter Power Supply: Terminals I+ & R: 24 Vdc ± 5% @ 40 mA maximum, may be used to power the 4 to 20 mA output or other devices

External Loop Power Supply: 35 Vdc maximum

Output Loop Resistance:
- **24 Vdc Power Supply:** 10 Ω minimum, 700 Ω maximum
- **35 Vdc (External) Power Supply:** 100 Ω minimum, 1200 Ω maximum

Digital I/O Expansion Module

Channels: 4 digital inputs and 4 digital outputs per module

System: Up to 2 modules for a total of 8 inputs and 8 outputs

Digital Input Logic:
- **High:** 3 to 5 Vdc
- **Low:** 0 to 1.25 Vdc

Digital Output Logic:
- **High:** 3.1 to 3.3 Vdc
- **Low:** 0 to 0.4 Vdc

Source Current: 10 mA maximum

Sink Current: 1.5 mA minimum

+5 V Terminal: To be used as pull-up for digital inputs only

4-Relay Expansion Module

Relays: 4 Form A (SPST) rated 3 A @ 30 Vdc and 125/250 Vac resistive load; 1/14 HP (≈ 50 W) @ 125/250 Vac for inductive loads

Meter Copy

The Copy feature is used to copy (or clone) all the settings from one DP6000 to other DP6000 meters in about 20 seconds! The Copy function is a standard feature on all meters. It does not require a communications adapter, only an optional cable assembly, model number DPA1200. See the ordering information for complete details

NEMA 4X Field Enclosures

Thermoplastic NEMA 4X enclosures are constructed for either indoor or outdoor use.

DP6000 with DPA2812 NEMA 4X field enclosure, shown smaller than actual size.

To Order *Visit omega.com/dp6000 for Pricing and Details*

Model No.	Description
Standard 85 to 265 Vac Models	
DP6000-6R0	Process panel meter
DP6000-6R2	Process panel meter with 2 relays
DP6000-6R3	Process panel meter with 4 to 20 mA output
DP6000-6R4	Process panel meter with 4 relays
DP6000-6R5	Process panel meter with 2 relays and 4 to 20 mA output
DP6000-6R7	Process panel meter with 4 relays and 4 to 20 mA output
Standard 12/24 Vdc Low Voltage Models	
DP6000-7R0	Process panel meter
DP6000-7R2	Process panel meter with 2 relays
DP6000-7R3	Process panel meter with 4 to 20 mA output
Sunlight Readable Models, 85 to 265 Vac	
DP6000-6H0	Process panel meter
DP6000-6H2	Process panel meter with 2 relays
DP6000-6H3	Process panel meter with 4 to 20 mA output
Sunlight Readable Models, 12/24 Vdc Low Voltage	
DP6000-7H0	Process panel meter
DP6000-7H2	Process panel meter with 2 relays
DP6000-7H3	Process panel meter with 4 to 20 mA output

Accessories

Model No.	Description
DPA1004	4-relay expansion module - field installable
DPA1044	4 digital inputs and 4 digital outputs module - field installable
DPA1232	RS232 serial adaptor - field installable
DPA1485	RS485 serial adaptor - field installable
DPA8008	USB serial adaptor - field installable
DPA7485-I	RS232 to RS422/485 isolated converter - field installable
DPA7485-N	RS232 to RS422/485 non-isolated converter - field installable
DPA8232-N	USB to RS232 non-isolated converter - field installable
DPA8485-I	USB to RS422/485 isolated converter - field installable
DPA8485-N	USB to RS422/485 isolated converter - field installable
DPA1002	DIN rail mounting kit for 2 expansion modules
DPA1200	Meter copy cable
DPA2811	Plastic NEMA 4X enclosure for one DP6070 temperature meter
DPA2812	Plastic NEMA 4X enclosure for two DP6070 temperature meters

Comes complete with 2 side mounting brackets and operator's manual.

***Ordering Example: DP6000-6R2,** process panel meter with 2 relays, and **DPA8008,** USB serial adaptor.*

Panel Meter
With Optional USB Communications

DP6060 Series

MADE IN USA | 3 YEAR WARRANTY | CE | c UL | RoHS

DP6060 shown smaller than actual size.

- **Modular USB, RS232, RS485 Serial Communication Options and Relays**
- **Math Functions: Addition, Difference, Average, Multiplication, Division, Min, Max, Weighted Average, Ratio, Concentration, and More**
- **0 to 20 mA, 4 to 20 mA, 0 to 5V, 1 to 5V, and ±10V Inputs**
- **Large Dual-Line 6-Digit Display, 15 and 12 mm (0.60 and 0.46")**
- **Sunlight Readable Display Models**
- **NEMA 4X (IP65) Front**
- **Universal 85 to 265 Vac, or 12/24 Vdc Input Power Models**
- **Isolated 24 Vdc @ 200 mA Transmitter Power Supply**
- **Free Software for Operation, Monitoring, and Programming**

The DP6060 Series process meter combines two independently programmed analog inputs with powerful math functions to make an advanced meter capable of handling complex math requirements common in the process industry. Various math functions may be applied to the inputs including addition, difference, average, multiplication, division, ratio, and more. A customizable dual-line display allows a wide variety of input variables, math calculations, or units and tags to be displayed based on your application needs. Sunlight readable display models have an extraordinarily bright LED display. The DP6060 has two red LED displays, an upper display 15 mm (0.60") high, and a lower display 12 mm (0.46") high. Each display is a full 6 digits (-99999 to 999999). The displays can be set up to read input channels (A or B), math function channel C, toggle between A & B, B & C, A & C, A & B & C, toggle between channels A, B, or C & units, the max/min of any of the channels, including the math channel (C), set points, gross (without tare) or net (with tare) and gross values of channel A or B, or the MODBUS input. No jumpers to set for input selection. All setup and programming are done via the front panel. Three levels of password protection help maintain the reliability of the programming. The Copy feature is used to copy (or clone) all the settings from one DP6060 to other meters in about 20 seconds! The Copy function is a standard feature on all meters. It does not require a communications adaptor, only an optional cable assembly. The DP6060 minimizes the menu selections by auto-detecting the installed options to determine what menu navigation is required.

General Specifications

Display: Both displays are 6 digits (-99999 to 999999), red LEDs with leading zero blanking

Upper Display: 15 mm (0.60") high

Lower Display: 12 mm (0.46") high

Display Intensity: 8 intensity levels

Display Update Rate: 5/second (200 ms)

Overrange: Display flashes 999999

Underrange: Display flashes -99999

Display Assignment: The upper and lower displays may be assigned to process values for Channels A (Ch-A), B (Ch-B), or C (Ch-C), toggle between (Ch-A & Ch-B, Ch-A & Ch-C, Ch-B & Ch-C, and Ch-A, Ch-B, & Ch-C), toggle between Channel and units, show channel gross value (no tare) or toggle net (tare) and gross values, show relay set points, max and min values, or MODBUS input; the second display may also be set to show engineering units or be off, with no display

Front Panel: NEMA 4X (IP65)

Programming Methods: 4 front panel buttons, digital inputs, PC and software, MODBUS registers, or cloning using copy function

Noise Filter: Programmable from 2 to 199 (0 will disable filter)

Filter Bypass: Programmable from 0.1 to 99.9% of calibrated span

Recalibration: Calibrated at the factory. Recalibration is recommended at least every 12 months

Max/Min Display: Max (peak)/min (valley) readings reached by the process are stored until reset by the user or until power to the meter is cycled

Password: 3 programmable passwords restrict modification of programmed settings; Pass 1: Allows use of function keys and digital inputs; Pass 2: Allows use of function keys, digital inputs and editing set/reset points; Pass 3: Restricts all programming, function keys, and digital inputs

Non-Volatile Memory: All programmed memory for a minimum of ten years if power is lost

Power Options: 85 to 265 Vac 50/60 Hz, 90 to 265 Vdc, 20 W maximum, or jumper selectable 12/24 Vdc ±10%, 15 W maximum

Fuse (External, Required): UL recognized, 5 A maximum, slow blow; up to 6 meters may share one 5 A fuse

Isolated Transmitter Power Supply: 24 Vdc ±5% @ 200 mA maximum (standard), (12/24 Vdc powered models rated @ 100 mA maximum); 5 or 10 Vdc @ 50 mA maximum, selectable with internal jumper J4

Normal Mode Rejection: Greater than 60 dB at 50/60 Hz

Isolation: 4 kV input/output-to-power line; 500 V input-to-output or output-to-P+ supply

Overvoltage Category: Installation overvoltage category II; local level with smaller transient overvoltages than installation overvoltage category III

Operating Temperature Range: -40 to 65°C

Storage Temperature Range: -40 to 85°C

Relative Humidity: 0 to 90% non-condensing

Connections: Removable screw terminal blocks accept 12 to 22 AWG wire, RJ45 for external relays, digital I/O, and serial communication adapters

Enclosure: ⅛ DIN, high impact plastic, UL 94V-0, color: black

Mounting: ⅛ DIN panel cutout required: 92 x 45 mm (3.622 x 1.772"); two panel mounting bracket assemblies are provided

Tightening Torque: Screw terminal connectors: 5 lb-in (0.56 Nm)

Overall Dimensions: 119 W x 62 H x 143 mm D (4.68 x 2.45 x 5.64")

Weight: 269 g (9.5 oz)

Dual Process Input

Inputs: 2 inputs, each separately, field selectable: 0 to 20, 4 to 20 mA, 10V (0 to 5, 1 to 5, 0 to 10V), MODBUS PV (slave)

Channels: Channel A, Channel B, Channel C (math channel)

Accuracy: ±0.03% of calibrated span ±1 count, square root and programmable exponent accuracy range: 10 to 100% of calibrated span

Temperature Drift: 0.005% of calibrated span/°C max from 0 to 65°C ambient, 0.01% of calibrated span/°C maximum from -40 to 0°C ambient

Signal Input Conditioning: Linear, square root, programmable exponent, or round horizontal tank volume calculation

Multi-Point Linearization: 2 to 8 points for PV2 (dual-scale level feature)

Programmable Exponent: 1.0001 to 2.9999

Low-Flow Cutoff: 0 to 999999 (0 disables cutoff function)

Decimal Point: Up to 5 decimal places or none: d.ddddd, dd.dddd, ddd.ddd, dddd.dd, ddddd.d, or dddddd

Calibration Range:

4 to 20 mA: Minimum span; input 1 and input 2: 0.15 mA

±10 V: Minimum span; input 1 and 2: 0.10V

An Error message will appear if input 1 and input 2 signals are too close together

Input Impedance:

Voltage Ranges: Greater than 500 kΩ

Current Ranges: 50 to 100 Ω (depending on resettable fuse impedance)

Input Overload: Current input protected by resettable fuse, 30 Vdc max; fuse resets automatically after fault is removed

Relays

Rating: 2 or 4 SPDT (Form C) internal and/or 4 SPST (Form A) external; rated 3 A @ 30 Vdc and 125/250 Vac resistive load; 1/14 HP (≈ 50 W) @ 125/250 Vac for inductive loads such as contactors, solenoids, etc.

Noise Suppression: Recommended for each relay contact switching inductive loads

Deadband: 0 to 100% of span, user programmable

High or Low Alarm: User may program any alarm for high or low trip point; unused alarm LEDs and relays may be disabled (turned off)

Relay Operation: Automatic (non-latching), latching (requires manual acknowledge), sampling (based on time), pump alternation control (2 to 8 relays), off (disable unused relays and enable interlock feature, manual on/off control mode)

Time Delay: 0 to 999.9 seconds, on and off relay time delays; programmable and independent for each relay

Fail-Safe Operation: Programmable and independent for each relay

Note: *Relay coil is energized in non-alarm condition. In case of power failure, relay will go to alarm state.*

Auto Initialization: When power is applied to the meter, relays will reflect the state of the input to the meter

Serial Communications

Protocol: MODBUS RTU

Meter Address/Slave ID: 1 - 247

Baud Rate: 300 to 19,200 bps

Response Delay: Programmable between 0 and 199 ms

Data: 8 bit (1 start bit, 1 or 2 stop bits)

Parity: Even, odd, or none with 1 or 2 stop bits

Byte-to-Byte Timeout: 0.01 to 2.54 seconds

Turn Around Delay: Less than 2 ms (fixed)

Isolated 4 to 20 mA Transmitter Output

Output Source: Process variable (PV), max, min, set points 1 through 8, manual control setting, or MODBUS input

Scaling Range: 1.000 to 23.000 mA for any display range

Factory Calibration: 4.000 to 20.000 = 4 to 20 mA output

Analog Output Programming: 23.000 mA maximum for all parameters: overrange, underrange, max, min, and break

Accuracy: ± 0.1% of span ± 0.004 mA

Temperature Drift: 0.4 µA/°C maximum from 0 to 65°C ambient, 0.8 µA/°C maximum from -40 to 0°C ambient

Note: *Analog output drift is separate from input drift.*

Isolated Transmitter Power Supply: Terminals I+ & R: 24 Vdc ± 5% @ 40 mA maximum, may be used to power the 4 to 20 mA output or other devices

External Loop Power Supply: 35 Vdc maximum

Output Loop Resistance:

24 Vdc Power Supply: 10Ω minimum, 700Ω maximum

35 Vdc (External) Power Supply: 100 Ω minimum, 1200 Ω maximum

Digital I/O Expansion Module

Channels: 4 digital inputs and 4 digital outputs per module

System: Up to 2 modules for a total of 8 inputs and 8 outputs

Digital Input Logic:

High: 3 to 5 Vdc

Low: 0 to 1.25 Vdc

Digital Output Logic:

High: 3.1 to 3.3 Vdc

Low: 0 to 0.4 Vdc

Source Current: 10 mA maximum

Sink Current: 1.5 mA minimum

+5 V Terminal: To be used as pull-up for digital inputs only

4-Relay Expansion Module

Relays: 4 Form A (SPST) rated 3 A @ 30 Vdc and 125/250 Vac resistive load; 1/14 HP (≈ 50 W) @ 125/250 Vac for inductive loads

Meter Copy

The Copy feature is used to copy (or clone) all the settings from one DP6060 to other DP6060 meters in about 20 seconds! The Copy function is a standard feature on all meters. It does not require a communications adapter, only an optional cable assembly, model number DPA1200. See the ordering information for complete details

NEMA 4X Field Enclosures

Thermoplastic NEMA 4X enclosures are constructed for either indoor or outdoor use.

DP6060 with DPA2812 NEMA 4X field enclosure, shown smaller than actual size.

To Order *Visit omega.com/dp6060 for Pricing and Details*

Model No.	Description
Standard 85 to 265 Vac Models	
DP6060-6R0	Dual input process panel meter
DP6060-6R2	Dual input process panel meter with 2 relays
DP6060-6R3	Dual input process panel meter with 4 to 20 mA output
DP6060-6R4	Dual input process panel meter with 4 relays
DP6060-6R5	Dual input process panel meter with 2 relays and 4 to 20 mA output
DP6060-6R7	Dual input process panel meter with 2 relays and 4 to 20 mA output
Standard 12/24 Vdc Low Voltage Models	
DP6060-7R0	Dual input process panel meter
DP6060-7R2	Dual input process panel meter with 2 relays
DP6060-7R3	Dual input process panel meter with 4 to 20 mA
Sunlight Readable Models, 85 to 265 Vac	
DP6060-6H0	Dual input process panel meter
DP6060-6H2	Dual input process panel meter with 2 relays
DP6060-6H3	Dual input process panel meter with 4 to 20 mA output
Sunlight Readable Models, 12/24 Vdc Low Voltage	
DP6060-7H0	Dual input process panel meter
DP6060-7H2	Dual input process panel meter with 2 relays
DP6060-7H3	Dual input process panel meter with 4 to 20 mA output

Accessories

Model No.	Description
DPA1004	4-relay expansion module - field installable
DPA1044	4 digital inputs and 4 digital outputs module - field installable
DPA1232	RS232 serial adaptor - field installable
DPA1485	RS485 serial adaptor - field installable
DPA8008	USB serial adaptor - field installable
DPA7485-I	RS232 to RS422/485 isolated converter - field installable
DPA7485-N	RS232 to RS422/485 non-isolated converter - field installable
DPA8232-N	USB to RS232 non-isolated converter - field installable
DPA8485-I	USB to RS422/485 isolated converter - field installable
DPA8485-N	USB to RS422/485 isolated converter - field installable
DPA1002	DIN rail mounting kit for 2 expansion modules
DPA1200	Meter copy cable
DPA2811	Plastic NEMA 4X enclosure for one DP6070 temperature meter
DPA2812	Plastic NEMA 4X enclosure for two DP6070 temperature meters

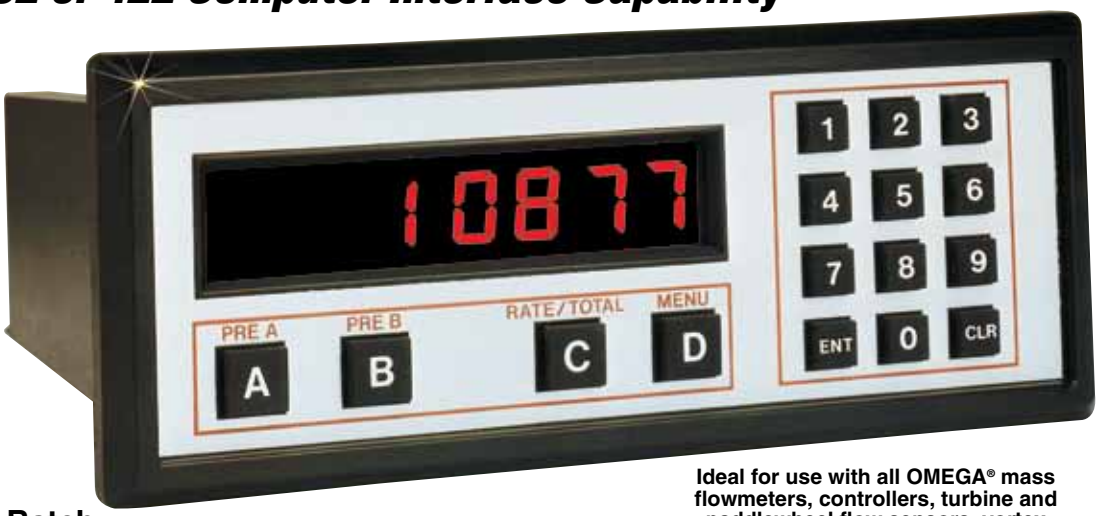
Comes complete with 2 side mounting brackets and operator's manual. Free ***CN6000-SOFT*** *software download available at* ***omega.com/dp6060***
Ordering Example: DP6060-6R2, *temperature panel meter with 2 relays, and* ***DPA8008,*** *USB serial adaptor.* ***OCW-2,*** *OMEGACARE℠ extends*

TWO-STAGE BATCH CONTROLLER/RATEMETER

Optional RS232 or 422 Computer Interface Capability

DP-F30 Series

2 YEAR WARRANTY



DP-F31 shown smaller than actual size.

Ideal for use with all OMEGA® mass flowmeters, controllers, turbine and paddlewheel flow sensors, vortex meters, magmeters, and pitot tubes.

- **Displays Rate, Batch Total, and Grand Total**
- **Separate K Factors for Rate and Total**
- **12 to 24V Output**
- **Optional 16-Point Linearization**
- **NEMA 4X (IP65) Front-Panel Cover**

The DP-F30 Series ratemeters/totalizers accept 3 to 30 Vdc pulses, dry-contact closure, voltage, or milliamp inputs, and provides 2-stage SPDT relay outputs for batch control. The display is fully scalable for engineering units and may be toggled between batch total, rate, and grand total. The linearization option allows the user to select up to 16 different K factors over the input range for accurate indication of non-linear signals.

Other features include 12 to 24 Vdc output for powering up flowmeters; pulsed (0.1 to 9.9 s) or maintained outputs; input filtering for dry-contact closure (such as reed relays); local/remote reset; excitation for open-collector or mechanical contacts; user-programmable auto-reset of batch total (repeat cycles, 10 Hz max); security lockout to prevent unauthorized changes; factored pulse output; and analog output for rate or total (analog output not available with square root -SQRT option).

The DP-F30 series indicates rate to 5½-digits and total to 8-digits, with program and count data stored for up to 10 years if power is lost.

SPECIFICATIONS

Input Power: 110 Vac ±15% or 12 to 27 Vdc std.; 220 Vac ±15% optional
Current: Maximum 250 mA DC or 3.2 VA
Output Power: On AC-powered units only: +24 or +12 Vdc @ 100 mA; unregulated (±5% worst case)
Pulse Inputs:
DP-F31: 0 to 1 Vdc (low), 3 to 30 Vdc (high), 20 kHz maximum (minimum on/off 35 µs)
DP-F32: 4.7 kΩ pull up to +5 Vdc on input for pulsing with contact to ground or NPN collector transistor
Factored Output: Minimum on/off: 0.013 ms; open collector sinks 100 mA maximum from 1 to 30 Vdc maximum; maximum factored count speed is 20 kHz
Temperature:
Operating: 0 to 54°C (32 to 130°F)
Storage: -40 to 93°C (-40 to 200°F)
Accuracy: ±0.5% FS
Relay Outputs: 2 SPDT contacts rated for 10 A at 120/240 Vac or 28 Vdc
4 to 20 mA Output: ±0.5% FS accuracy; requires 3 to 24 Vdc supply voltage, non-inductive
Dimensions: 63.5 H x 187 mm W (2.5 x 7.375") cutout

To Order

Model No.	Input Type
DP-F31	High level pulse; 3 to 30 Vdc, 20 kHz maximum
DP-F32	High level pulse; 3 to 30 Vdc, 20 kHz maximum with 4.7 kΩ pull-up resistors to +5 Vdc for NPN
DP-F33	4 to 20 mA, 250 Ω impedance
DP-F33-SQRT	4 to 20 mA with square root extraction
DP-F34	0 to 5 Vdc; 15 kΩ impedance

Options

Ordering Suffix	Description
-MA	4 to 20 mA analog output, not available with DP-F33-SQRT
-LIN	16 point linearization
-220VAC	220 Vac power
-RS232	RS232 communications
-RS422	RS422 communications

Comes complete with operator's manual, gasket, 4 mounting ears and screws.

***Ordering Examples: DP-F33-RS422** ratemeter/totalizer with 4 to 20 mA input, and RS422 computer communications option. **OCW-3** OMEGACARE℠ extends standard 2-year warranty to a total of 5 years.*

***DP-F31-LIN**, ratemeter/totalizer with 16-point linearization.*

AND BATCH CONTROLLERS

For Voltage and Current Inputs

DPF60 Series

2 YEAR WARRANTY

- Front-Panel Programming and Scaling
- Rate and Total in One Unit
- Remote or Front-Panel Reset
- Relays Latch or Auto-Recycle
- Zero and Span Adjustable
- Rate Alarm Acts as Window Alarm with Hysteresis Around Setpoint
- Analog Output Optional

DPF66 ⅛ DIN, shown actual size.

The DPF60 is a combination microprocessor-based digital rate indicator and integrating totalizer. It accepts inputs of 4 to 20 mA, 0 to 20 mA, 0 to 5V, or 1 to 5V and can be scaled for engineering units directly from the nema 4X (IP66) rated front panel without tweaking internal potentiometers. The dual standard 5 A (@ 250 Vac) relays can be assigned to the ratemeter, or to the totalizer, or one relay to each for batch control and rate alarm.

The display features a floating decimal point that moves left or right depending on how many "significant figures" the user has selected. In the totalizer mode, 6-digits can be displayed. The unit is fully scalable from 0 to 59,999, which indicates the flow rate represented at 20 mA. A peak and valley feature allows the user to call up the recent high and low readings.

A square-root extracting input is optional on all units for use with differential pressure flowmeters, such as orifice plates and pitot tubes.

With the DPF66, the user can toggle between rate of flow and total flow (6-digits) from the front panel. The rate display is selectable for units per second, minute, or hour, and the totalizer integrates in the same engineering units. The DPF65 displays just total flow, while the DPF64 only displays rate of flow.

SPECIFICATIONS

Accuracy: ±0.15% FS for rate and total
Temperature Range:
Operating: 5 to 54°C (41 to 129°F)
Storage: -40 to 93°C (-40 to 199°F)
Relay Output: 2 SPDT relays, 5 A @ 250 Vac; relays latch or auto-recycle after 0.1 to 99.9 s
Power: 94 to 126 Vac, 50/60 Hz (or 12 to 24 Vdc) standard; 187 to 253 Vac or 12 to 24 Vdc optional
Display: 15 x 8 mm (0.6 x 0.32") LED—6-digits total, 5-digits rate
Standby: Non-volatile RAM retains scale settings, presets, output status and total flow up to 1 year without power
Regulated Power Output: ±5% 24 Vdc @ 50 mA
Panel Cutout: 45 H x 92 mm W (1.772 x 3.622"); DIN standard; 112 mm (4.4") depth

OMEGACARE℠ Extended Warranty Program

OMEGACARE℠ extended warranty program is available for models shown on this page. Ask your sales representative for full details when placing an order. OMEGACARE℠ covers parts, labor and equivalent loaners.

To Order

Model No.	Description
DPF64	Ratemeter with 2 separate 5 A SPDT alarms
DPF65	Batch controller with prewarn and preset 5 A SPDT relays
DPF66	Ratemeter and batch controller with 2 separate 5 A SPDT relays for rate alarm or batching
DPP-5	⅛ DIN panel punch

Options

Ordering Suffix	Description
-A	Analog output, 4 to 20 mA proportional to rate
-SQRT	Square root extraction, for differential pressure flowmeters
-RS232	RS232 communications
-RS422	RS422 communications

Comes complete with mounting bracket, gasket and screws, and operator's manual.
***Ordering Examples: DPF64-RS232,** ratemeter/ batch controller with RS232 output.*
***OCW-3,** OMEGACARE℠ extends standard 2-year warranty to a total of 5 years.*
***DPF64-SQRT,** digital ratemeter with square root extraction option.*

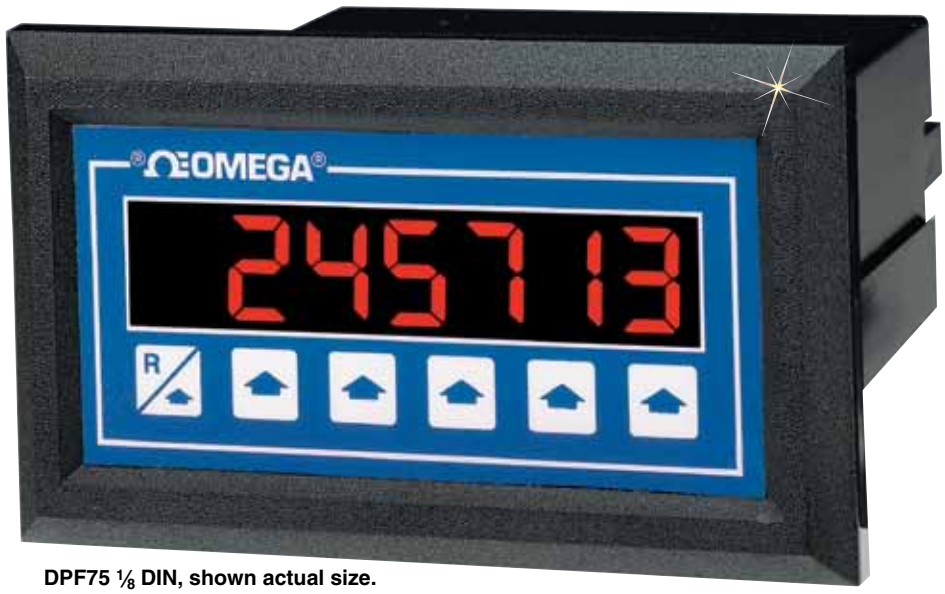
1/ DIN RATEMETERS, TOTALIZERS AND BATCH CONTROLLERS

For Frequency Inputs

DPF76 Series

2 YEAR WARRANTY

- **Front-Panel Programming and Scaling**
- **Rate and Total in One Unit**
- **Remote or Front-Panel Reset**
- **Optional Analog Output for Rate or Total**
- **NEMA 4X (IP66) Front Panel**



DPF75 ⅛ DIN, shown actual size.

The DPF75 is a combination 6-digit totalizer/batch controller and 5½ digit ratemeter with 2 relays. The user can set one relay for batch and the other for rate alarm. The totalizer and ratemeter display in the same engineering units: units per second, minute, or hour. The DPF75 can accept 2 inputs and separately scale them for "A - B" or "A + B". Either input A rate or net total can be displayed.

The DPF76 is a 6-digit scalable totalizer/batch controller with 2 relays for 2-stage batch control. The DPF78 is a 4½ digit scalable ratemeter with 2 alarm relays.

SPECIFICATIONS

Input Power: 110 Vac ±15%, 220 Vac ±15%, 6.5 VA at rated AC voltage
Output Power (AC-Powered Units Only): +12 Vdc @ 50 mA unregulated—10 + 50%
Rate Accuracy: ±0.1% of rdg + 1 LSD
K Factor: Up to 5-digits
Temperature:
Operating: 0 to 54°C (32 to 129°F)
Storage: -40 to 93°C (-40 to 199°F)
Memory: EEPROM stores data for 10 years if power lost
Pulse Input: Low = 0 to 1 Vdc; high = 4 to 30 Vdc; 10 kΩ impedance, up to 10 kHz; min 0.05 Hz for rate indication
Option "-LL": 30 mV min to 50V maximum p-p input, 10 kΩ impedance, 5 kHz maximum
Relays: Rated 5 A @ 240 Vac or 28 Vdc; SPST, selectable for NO or NC; relays latch or auto-recycle after 0.1 to 99.9 s
Panel Cutout: 4.5 H x 9.2 cm W (1.772 x 3.622"); DIN standard, 10.3 cm (4.06") depth
Shipping Weight: 907 g (2 lb)

OMEGA CARE℠ Extended Warranty Program

OMEGACARE℠ extended warranty program is available for models shown on this page. Ask your sales representative for full details when placing an order. OMEGACARE℠ covers parts, labor and equivalent loaners.

To Order

Model No.	Description
DPF75	Ratemeter and batch controller with 2 separate 5 A SPST relays for rate alarm or batching
DPF76	Scalable totalizer/batch controller with relays
DPF78	Scalable ratemeter with 2 separate 5 A SPST alarms

Options

Ordering Suffix	Description
-A	Analog output, 0 or 4 to 20 mA proportional to rate/total*
-LL	Low level magnetic input A, 30 mV range
-220	220 Vac power
-RS232	RS232 communications*
-RS422	RS422 communications*

** "-A", "RS232" and "RS422" options are mutually exclusive. Only one may be ordered with a unit.*

Accessories

Model No.	Description
DPP-5	⅛ DIN panel punch
FLSC-AMP	Amplifier for low-level turbine and paddlewheel sensor inputs

Comes complete with operator's manual.

***Ordering Examples: DPF75-RS232-LL**, ratemeter/batch controller with RS232 output, and low-level input option.*

***DPF75,** totalizer/batch controller, **OCW-3,** OMEGACARE℠ extends standard 2-year warranty to a total of 5 years.*

M

Miniature 1/32 DIN and Loop-Powered 1/8 DIN Models

DP35 Series Starts at

$160

1 YEAR WARRANTY

- **3½ Digit Display**
- **User-Selectable Inputs**
- **Minimal Panel Depth**
- **±0.2% Accuracy**
- **10 to 30 Vdc Power, Isolated**
- **Scalable to Engineering Units, with Selectable Decimal Point**

DP35 1/8 DIN loop-powered LCD meter, $160, shown smaller than actual size.

The compact DPM35A, LED 1/32 DIN meter with a bezel of 24 H x 48 mm W, $180.

The DPM35A is a compact process indicator, requiring only 70 mm (2.8") of depth behind a panel. It uses a 45 x 22.2 mm (1.77 x 0.87") 1/32 DIN cutout, and has large, 10 mm (0.4") display digits and a rear screw-clamp connector for inputs.

The DPM35A can accept input voltage ranges from 0 to 200 Vdc and current from 0 to 50 mA. The unit can be scaled for both zero and span to display in engineering units. The decimal point position is jumper-selectable.

The DP35 is a 1/8 DIN loop-powered process indicator that can be configured for 1 of 3 input ranges: 1 to 5 mA, 4 to 20 mA, or 10 to 50 mA. Like the DPM35A, the DP35 can be scaled for both zero and span to display in engineering units and has a jumper-selectable decimal point position.

Specifications

Display: 3½ digit, 0 to 1999; 7-segment
- **DPM35A:** Red LED
- **DP35:** LCD

Display Height:
- **DPM35A:** 10 mm (0.39")
- **DP35:** 12.7 mm (0.5")

Inputs:
- **DPM35A:** 0 to 200 Vdc or 0 to 20 mA
- **DP35:** 1 to 5 mA, 4 to 20 mA, 10 to 50 mA (jumper-selectable)

Input Configuration: Bipolar single

A/D Converter: Dual slope, average value

Reading Rate:
- **DP35:** 3/s
- **DPM35A:** 2.5/s

CMRR: 65 dB

Warm-Up to Rated Accuracy: 2 min

Polarity: Automatic, minus sign indicator

Accuracy:
- **DPM35A:** 0.2% ±1 count;
- **DP35:** 0.2% ±1 count

Span Temp Coefficient:
- **DP35:** 80 ppm
- **DPM35A:** <50 ppm

Zero Temp Coefficient: 2 µV/°C

Overrange:
- **DP35:** Only "1" or "-1" displayed
- **DPM35A:** Positive = display blank, negative = "-" is displayed

Decimal Point: Jumper-selectable for 1.XXX, 1X.XX or 1XX.X

Operating Temperature:
- **DPM35A:** -20 to 60°C (-4 to 140°F)
- **DP35:** 0 to 70°C (32 to 158°F)

Power: 10 to 30 Vdc, isolated

Ripple: 10%

Power Consumption:
- **DP35:** 0.3 mA
- **DPM35A:** 0.6 W @ 24 Vdc

Electrical Connection: Screw-clamp connector

Dimensions:
- **DPM35A:** 24 H x 48 W x 70 mm D (0.94 x 1.89 x 2.76")
- **DP35:** 48 H x 96 W x 117 mm D (1.89 x 3.78 x 4.61")

Panel Cutout:
- **DPM35A:** 22.2 x 45 mm (0.87 x 1.77")
- **DP35:** 44.5 x 92.5 mm (1.75 x 3.64"); DIN 43700

Weight:
- **DPM35A:** 60 g (2.1 oz)
- **DP35:** 150 g (5.3 oz)

MOST POPULAR MODELS HIGHLIGHTED!

To Order *(Specify Model Number)*

Model No.	Price	Description
DPM35A	**$180**	1/32 DIN LED process indicator
DP35	**160**	1/8 DIN LCD process indicator, loop powered

Comes with complete operator's manual.

Ordering Example: DPM35A,** 1/32 DIN process indicator, **$180.

Accessory

Model No.	Price	Description
AV-1043	**$150**	Reference Book: Dictionary of Scientific and Technical Terms

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• Flow and Level

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• 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

Digital Panel Meters

Industry Leading Performance...and Easy to Use

DP16DPt Series shown actual size.

DP8EPt Series shown actual size.

DP32Pt, DP16Pt, and DP8Pt Series

1 YEAR WARRANTY

- High Performance, Extremely Versatile
- Easy and Intuitive to Use
- Bright 3-Color (RED, GREEN, and AMBER) 9 Segment LED, 4 or 6 Digit Display with Wide Viewing Angle
- High Accuracy Universal Inputs for Thermocouples, RTD's, Thermistors, and Process Voltage/Current
- No Jumpers to Set, Totally Firmware Configurable
- Automated Configuration Recognition, "Smart" Menu Flow
- Up to 20 Samples per Second with 24-Bit ADC
- Standard USB, Optional Ethernet and RS232/ RS485 with MODBUS® Serial Communications
- Built-In Excitation Firmware Selectable at 5V, 10V, 12V, and 24V
- Full Scale Positive and Negative Readings
- NEMA 4 (IP65) Front Bezel (1/32 and 1/16 DIN)
- Flexible Alarm Programming
- Remote Latch Reset
- Available with 4 Optional SSR or Mechanical Relays for Alarms and Isolated Analog Output
- Offered in 1/32, 1/16, and 1/8 DIN Sizes

The PLATINUM Series family of microprocessor-based digital panel meters offer unparalleled flexibility in process measurement. While extremely powerful and versatile, great care has gone into designing a product that is very easy to set-up and use. The automatic hardware configuration recognition eliminates the need for jumpers and allows the firmware to automatically simplify itself, eliminating all menu options that do not apply to a specific configuration.

Each unit allows the user to select the input type from 9 thermocouple types (J, K, T, E, R, S, B, C, and N), Pt RTDs (100, 500, or 1000 Ω, with either 385, 392, or 3916 curve), thermistors (2250 Ω, 5K Ω, and 10K Ω), DC voltage, or DC current and strain. The bipolar voltage or current inputs are fully scalable to virtually all engineering units, with a selectable decimal point that is perfect for use with pressure, flow, or other process input.

Two alarms can be configured for above, below, hi/lo, and band triggering using either absolute or deviation alarm trigger points.

DP32Pt Series shown actual size.

In addition, high-high/low-low indication is available. The four optional SSR or mechanical relays can be assigned to either or both alarm triggers. Two annunciators and three display colors can also be assigned to the alarm triggers.

The PLATINUM Series device features a large, 3-color, 9 segment programmable LED display with the capability to change color and/ or change the state of designated outputs every time an alarm is triggered. The universal power supply accepts 90 to 240 Vac. The low voltage power option accepts 24 Vac or 12 to 36 Vdc.

Embedded Ethernet and Serial Communications

Optional embedded ethernet on the 1/16 and 1/8 DIN models allow the units to connect directly to an ethernet network and transmit data in standard TCP/IP packets, or serve web pages over a LAN or the internet. Optional serial communications are also available configurable as RS232 or RS485, with straightforward ASCII commands or MODBUS®. All three types of communications interfaces (USB, ethernet, and serial) can be installed and active simultaneously.

Specifications

Input Types: Thermocouple, RTD, thermistor, analog voltage, analog current, strain

Current Input: 4 to 20 mA, 0 to 24 mA scalable

Voltage Input: -100 to 100 mV, -1 to 1 V, -10 to 10 Vdc scalable

Thermocouple Input (ITS 90): K, J, T, E, R, S, B, C, N

RTD Input (ITS 90): 100/500/1000 Ω Pt sensor, 2-, 3- or 4-wire; 0.00385, 0.00392 (100 Ω only), or 0.003916 (100 Ω only) curves

Thermistor Input: 2252 Ω, 5K Ω, 10K Ω

Strain Input: ±50 mV, ±100 mV

Configuration: Differential

Polarity: Bipolar

Resolution: 0.1° temperature; 10 µV process

Input Impedances:
- **Process/Strain:** 10M Ω for ±100 mV, 1M Ω for other voltage ranges
- **Process Current:** 5 Ω
- **Thermocouple:** 10K Ω max

Temperature Stability:
- **RTD:** 0.04°C/°C
- **Thermocouple @ 25°C (77°F):** 0.05°C/°C (cold junction compensation)
- **Process/Strain:** 50 ppm/°C

A/D Conversion: 24-bit sigma delta

Reading Rate: 20 samples per second

Digital Filter: Programmable from 0.05 seconds (filter = 1) to 6.4 seconds (filter = 128)

CMRR: 120 dB

Excitation: Firmware selectable (no jumpers to set) to 5, 10, 12, and 24 Vdc @ 25 mA

Setpoint Adjustment: 4 digit (-9999 to +9999 counts), 6 digit (-99999 to +999999 counts)

Warm-Up to Rated Accuracy: 30 mins

ALARM OUTPUTS (OPTIONAL)

SPDT Relay: Single pole, double throw mechanical relay, 250 Vac or 30 Vdc at 3 A (resistive load)

SPST Relay: Single pole, single throw mechanical relay, 250 Vac or 30 Vdc at 3 A (resistive load)

SSR: 20 to 265 Vac at 0.05 to 0.5 A (resistive load); continuous

Isolated Analog: Isolated, user programmable 0 to 5, 0 to 10, 4 to 20 mA, or 0 to 24 signal

COMMUNICATIONS (USB STANDARD, OPTIONAL SERIAL AND ETHERNET)

Connection:
- **USB:** Female micro-USB
- **Ethernet:** Standard RJ45
- **Serial:** Screw terminals

USB: USB 2.0 host or device

Ethernet Standards Compliance: IEEE 802.3 10/100 Base-T auto-switching

Serial: Software selectable RS232 or RS485; programmable 1200 to 115.2 K baud

Protocols: OMEGA ASCII, MODBUS® ASCII/RTU

ISOLATION

Approvals: UL, cUL, CE, UKCA

Power to Input/Output: 2300 Vac per 1 min test; 1500 Vac per 1 min test (low voltage/power option)

Power to Relays/SSR Outputs: 2300 Vac per 1 min test

Relays/SSR to Relay/SSR Outputs: 2300 Vac per 1 min test

RS232/RS485 to Inputs/Outputs: 500 Vac per 1 min test

GENERAL

Display: 4-digit, 9 segment LED
- **DP32Pt, DP16Pt:** 10.2 mm (0.40")
- **DP8Pt/DP8EPt:** 21 mm (0.83")

Dimensions:
- **DP8Pt Series:** (1.89 x 3.78 x 5")
- **DP16Pt Series:** 48 H x 48 W x 127 mm D (1.89 x 1.89 x 5")
- **DP32Pt Series:** 25.4 H x 48 W x 127 mm D (1.0 x 1.89 x 5")

Panel Cutout:
- **DP8Pt Series:** 45 H x 92 mm W (1.772 x 3.622"), ⅛ DIN
- **DP16Pt Series:** 45 mm (1.772") square, ¹⁄₁₆ DIN
- **DP32Pt Series:** 22.5 H x 45 mm W (0.886 x 1.772"), ¹⁄₃₂ DIN

Environmental Conditions: 0 to 50°C (32 to 122°F), 90% RH non-condensing

External Fuse Required:
- **Time-Delay, UL 248-14 Listed:** 100 mA/250 V; 400 mA/250 V (low voltage option)
- **Time-Lag, IEC 127-3 Recognized:** 100 mA/250 V; 400 mA/250 V (low voltage option)

Ranges and Accuracies for Supported Inputs

Input Type	Description	Range	Accuracy
Process/Strain	Process Voltage	±50 mV, ±100 mV, ±1, ±10 Vdc	0.03% FS
Process	Process Current	Scalable within 0 to 24 mA	0.03% FS
J	Iron-Constantan	-210 to 1200°C (-346 to 2192°F)	0.4°C (0.7°F)
K	CHROMEGA™-ALOMEGA™	-270 to -160°C (-454 to -256°F) -160 to 1372°C (-256 to 2502°F)	1.0°C (1.8°F) 0.4°C (0.7°F)
T	Copper-Constantan	-270 to -190°C (-454 to -310°F) -190 to 400°C (-310 to 752°F)	1.0°C (1.8°F) 0.4°C (0.7°F)
E	CHROMEGA™-Constantan	-270 to -220°C (-454 to -364°F) -220 to 1000°C (-364 to 1832°F)	1.0°C (1.8°F) 0.4°C (0.7°F)
R	Pt/13%Rh-Pt	-50 to 40°C (-58 to 104°F) 40 to 1788°C (104 to 3250°F)	1.0°C (1.8°F) 0.5°C (0.9°F)
S	Pt/10%Rh-Pt	-50 to 100°C (-58 to 212°F) 100 to 1768°C (212 to 3214°F)	1.0°C (1.8°F) 0.5°C (0.9°F)
B	30%Rh-Pt/6%Rh-Pt	100 to 640°C (212 to 1184°F) 640 to 1820°C (1184 to 3308°F)	1.0°C (1.8°F) 0.5°C (0.9°F)
C	5%Re-W/26%Re-W	0 to 2320°C (32 to 4208°F)	0.4°C (0.7°F)
N	Nicrosil-Nisil	-250 to -100°C (-418 to -148°F) -100 to 1300°C (-148 to 2372°F)	1.0°C (1.8°F) 0.4°C (0.7°F)
RTD	Pt, 0.00385, 100 Ω, 500 Ω, 1000 Ω	-200 to 850°C (-328 to 1562°F)	0.3°C (0.7°F)
RTD	Pt, 0.003916, 100 Ω	-200 to 660°C (-328 to 1220°F)	0.3°C (0.7°F)
RTD	Pt, 0.00392, 100 Ω	-200 to 660°C (-328 to 1220°F)	0.3°C (0.7°F)
Thermistor	2252 Ω	-40 to 120°C (-40 to 248°F)	0.2°C (0.35°F)
Thermistor	5K Ω	-30 to 140°C (-22 to 284°F)	0.2°C (0.35°F)
Thermistor	10K Ω	-20 to 150°C (-4 to 302°F)	0.2°C (0.35°F)

Line Voltage/Power: 90 to 240 Vac equivalent voltage
**No CE compliance above 60 Hz.*
Max Power Consumption:
4 W power

Low Voltage/Power Option:
Agency Approvals, units can be powered safely with 24 Vac power, but no certification for CE/UL is claimed for this case
DP8Pt, DP16Pt, DP32Pt Models:
12 to 36 Vdc, 3 W power

Protection:
DP8Pt Models: NEMA 1 front bezel
Weight:
DP8Pt Models: 295 g (0.65 lb)
DP16Pt Models: 159 g (0.35 lb)
DP32Pt Models: 127 g (0.28 lb)

To Order

Model No.	Size/ Cutout	Input Types	Alarm Outputs	Communications	Power
DP32Pt	1/32 DIN	T/C, RTD, thermistor, process	None	USB	AC
DP32Pt-DC	1/32 DIN	T/C, RTD, thermistor, process	None	USB	DC
DP32Pt-330	1/32 DIN	T/C, RTD, thermistor, process	2 Relays	USB	AC
DP32Pt-330-DC	1/32 DIN	T/C, RTD, thermistor, process	2 Relays	USB	DC
DP32Pt-C24	1/32 DIN	T/C, RTD, thermistor, process	None	USB, Serial	AC
DP32Pt-C24-DC	1/32 DIN	T/C, RTD, thermistor, process	None	USB, Serial	DC
DP32Pt-330-C24	1/32 DIN	T/C, RTD, thermistor, process	2 Relays	USB, Serial	AC
DP32Pt-330-C24-DC	1/32 DIN	T/C, RTD, thermistor, process	2 Relays	USB, Serial	DC
DP16Pt	1/16 DIN	T/C, RTD, thermistor, process	None	USB	AC
DP16Pt-DC	1/16 DIN	T/C, RTD, thermistor, process	None	USB	DC
DP16Pt-330	1/16 DIN	T/C, RTD, thermistor, process	2 Relays	USB	AC
DP16Pt-330-DC	1/16 DIN	T/C, RTD, thermistor, process	2 Relays	USB	DC
DP16Pt-C24	1/16 DIN	T/C, RTD, thermistor, process	None	USB, Serial	AC
DP16Pt-C24-DC	1/16 DIN	T/C, RTD, thermistor, process	None	USB, Serial	DC
DP16Pt-330-C24	1/16 DIN	T/C, RTD, thermistor, process	2 Relays	USB, Serial	AC
DP16Pt-330-C24-DC	1/16 DIN	T/C, RTD, thermistor, process	2 Relays	USB, Serial	DC
DP16Pt-EIP	1/16 DIN	T/C, RTD, thermistor, process	None	USB, Ethernet	AC
DP16Pt-EIP-DC	1/16 DIN	T/C, RTD, thermistor, process	None	USB, Ethernet	DC
DP16Pt-330-EIP	1/16 DIN	T/C, RTD, thermistor, process	2 Relays	USB, Ethernet	AC
DP16Pt-330-EIP-DC	1/16 DIN	T/C, RTD, thermistor, process	2 Relays	USB, Ethernet	DC
DP16Pt-C24-EIP	1/16 DIN	T/C, RTD, thermistor, process	None	USB, Serial, Ethernet	AC
DP16Pt-C24-EIP-DC	1/16 DIN	T/C, RTD, thermistor, process	None	USB, Serial, Ethernet	DC
DP16Pt-330-C24-EIP	1/16 DIN	T/C, RTD, thermistor, process	2 Relays	USB, Serial, Ethernet	AC
DP16Pt-330-C24-EIP-DC	1/16 DIN	T/C, RTD, thermistor, process	2 Relays	USB, Serial, Ethernet	DC
DP8EPt	1/8 DIN, 6 digit	T/C, RTD, thermistor, process	None	USB	AC
DP8Pt-DC	1/8 DIN	T/C, RTD, thermistor, process	None	USB	DC
DP8Pt-330	1/8 DIN	T/C, RTD, thermistor, process	2 Relays	USB	AC
DP8Pt-330-DC	1/8 DIN	T/C, RTD, thermistor, process	2 Relays	USB	DC
DP8Pt-C24	1/8 DIN	T/C, RTD, thermistor, process	None	USB, Serial	AC
DP8Pt-C24-DC	1/8 DIN	T/C, RTD, thermistor, process	None	USB, Serial	DC
DP8Pt-330-C24	1/8 DIN	T/C, RTD, thermistor, process	2 Relays	USB, Serial	AC
DP8Pt-330-C24-DC	1/8 DIN	T/C, RTD, thermistor, process	2 Relays	USB, Serial	DC
DP8Pt-EIP	1/8 DIN	T/C, RTD, thermistor, process	None	USB, Ethernet	AC
DP8Pt-EIP-DC	1/8 DIN	T/C, RTD, thermistor, process	None	USB, Ethernet	DC
DP8Pt-330-EIP	1/8 DIN	T/C, RTD, thermistor, process	2 Relays	USB, Ethernet	AC
DP8Pt-330-EIP-DC	1/8 DIN	T/C, RTD, thermistor, process	2 Relays	USB, Ethernet	DC
DP8Pt-C24-EIP	1/8 DIN	T/C, RTD, thermistor, process	None	USB, Serial, Ethernet	AC
DP8Pt-C24-EIP-DC	1/8 DIN	T/C, RTD, thermistor, process	None	USB, Serial, Ethernet	DC
DP8Pt-330-C24-EIP	1/8 DIN	T/C, RTD, thermistor, process	2 Relays	USB, Serial, Ethernet	AC
DP8Pt-330-C24-EIP-DC	1/8 DIN	T/C, RTD, thermistor, process	2 Relays	USB, Serial, Ethernet	DC

Comes complete with quickstart manual with downloadable operator's manual.
Note: *Ethernet options not available on 1/32 DIN models.*

⅛ DIN Programmable Process Scanners 4- and 7-Channel Inputs

DPS3000 Starts at $468

MADE IN USA — 2 YEAR WARRANTY

Panel punches available, visit omega.com/panelpunches

DPS3104, $468, shown smaller than actual size.

- **Process Voltage, Current or Thermocouple Input**
- **Auto/Manual Scanning**
- **Rate, Min/Max and Channel Differentials**
- **4-Digit Display Plus 3 Alphanumeric**
- **Separate Limit Relay and Independent Scaling for Each Channel**
- **Built-In Buzzer to Sound Alarm on Models with Outputs**

DPS3000 Series scanners monitor up to seven individual inputs. Each channel on the DPS3204 and DPS3207 can be programmed to accept different types of inputs, while DPS3104 and DPS3107 are limited to one input type on all channels. Temperature is displayed in °C or °F, while process voltage and current signals can be scaled to engineering units.

All models can be set up to display in any one of six operating modes: automatically scan and display each channel; show elapsed time; display the channel with highest or lowest reading; scan each channel's deviation from a preset setpoint; show differential between a 'master' channel and other inputs.

Specifications

Accuracy: 0.5% reading (J, K, T, E: 1°C; S: 2°C; R, B: 3°C)
CJC Error: 1°C (10 to 40°C)
Scale: 1 to 30,000
Resolution: 1°C/°F (0.1°C/°F for thermistor input); 0.025% FS
Power: 120 Vac, 60 Hz; 240 Vac, 50 Hz (optional); 9 to 15 Vdc, 900 mA (optional)
Scan Rate: Fixed, 2 channels/second
Channel Display Time: 1 to 999 seconds per channel

Power and Output Options
DPS3100, DPS3104, DPS3200, DPS3204

Ordering Suffix	Add'l Price	Description
-1	N/C	240 Vac power
-2	$28	9 to 15 Vdc power
-3	193	7 relays (DPS3107, 3207)
-4	193	7 DC drivers (DPS3107, 3207)
-5	111	4 relays (DPS3104, 3204)
-6	111	4 DC drivers (DPS3104, 3204)
EE-1319	85	Reference Book: Grounding and Shielding Techniques

Accessory

Model No.	Price	Description
DPP-5	$525	⅛ DIN panel punch

Alarms (Optional): Mechanical relay; 1 A @ 28 Vdc or 0.5 A @ 120 Vac, SPST, programmable as NO/NC, DC driver; 5 Vdc @ 50 mA; 1 alarm per channel
Deadband: 2 to full scale, programmable
Dimensions: 57 H x 112 W x 178 mm D (2.25 x 4.4 x 7")
Cutout: ⅛ DIN; 45 x 92 mm (1.772 x 3.662"); 180 mm (7.0") depth
Weight: 1.2 kg (2.8 lb)

MOST POPULAR MODELS HIGHLIGHTED!

To Order *(Specify Model Number)*

Model No.	Price	Description
Dedicated Input 4 and 7 Channel Scanner		
DPS3104-(*)	$468	4-channel scanner (same input type on all 4 channels)
DPS3107-(*)	656	7-channel scanner (same input type on all 7 channels)
Programmable Input 4 and 7 Channel Scanner		
DPS3204-(*)	$579	4-channel scanner (input channels are independently programmable)
DPS3207-(*)	767	7-channel scanner (input channels are independently programmable)

***Note:** Add input code from chart below.*

Input Code	Dedicated Input	Programmable Input
R	R	R, 4 to 20 mA, 0 to 10 Vdc
S	S	S, 4 to 20 mA, 0 to 10 Vdc
B	B	B, 4 to 20 mA, 0 to 10 Vdc
TC	J, K, T, E	J, K, T, E, 4 to 20 mA, 0 to 10 Vdc
RTD	RTD (385 and 392 curve)	RTD (385 and 392 curve), 4 to 20 mA, 0 to 10 Vdc
TH	400 series thermistor	400 series thermistor, 4 to 20 mA, 0 to 10 Vdc
MV	0 to 100 mV	—
V	0 to 10 Vdc	—
C	4 to 20 mA	—
P	—	0 to 100 mV, 0 to 10 Vdc, 4 to 20 mA

Comes complete with operator's manual.
Ordering Examples: DPS3104-C-5**, 4-channel scanner, process input (4 to 20 mA), with 4 mechanical relays, $468 + 111 = **$579.
DPS3207-TC,** 7-channel scanner, programmable inputs, **$767.

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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

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Process Scanners

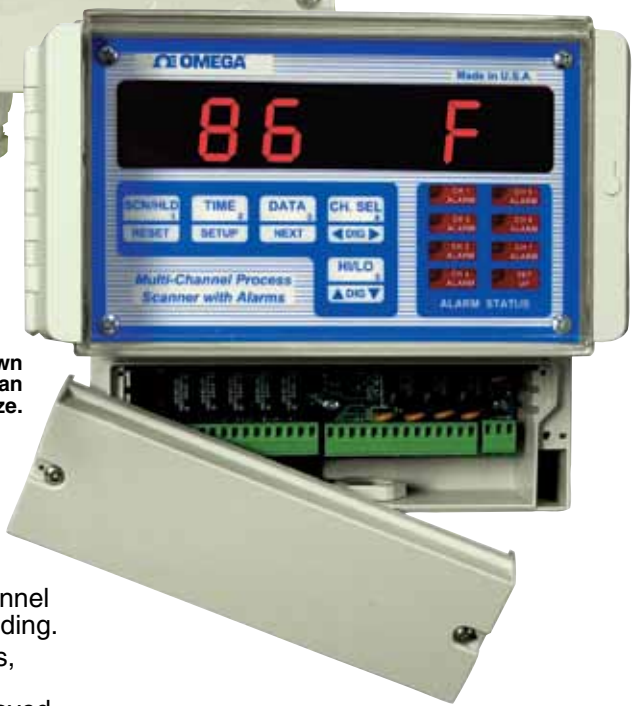
DPS3300 Series

2 YEAR WARRANTY

DPS3307 shown smaller than actual size.

- **Large, 7-Digit, 7-Segment LED Display, 20 mm (0.8") H**
- **Selectable Temperature Units—°C or °F**
- **Process Readings in Engineering Units**
- **Fully Programmable via Front Keys**
- **Programmable Automatic Scanning**
- **Hold Feature to Dwell on Any Selected Channel**
- **Thermocouples, RTDs, and Thermistors**
- **Simple Scaling for Voltage, Current, and Millivolt Inputs**
- **Programmable Limit for Each Channel**
- **Built-In Buzzer to Sound Alarm (Optional)**
- **Visual Indication of Channel Alarm Status**
- **Power Line Filter for High Reliability**
- **Protection from Dust and Moisture**
- **Sealed Enclosure with Clear Plastic Front**

MOISTUREPROOF!



DPS3307 shown smaller than actual size.

Housed in a wall-mount, watertight plastic enclosure, the DPS3300 Series scanners offer highly functional multichannel scanning with a number of very useful features. Tasks that formerly required multiple monitors can now be accomplished by using a single unit. Signals from 7 different transducers are carried into conveniently located screw terminals that are accessed through a sealed plastic cover. The unit automatically scans each channel, displaying the channel number and its process reading.

Signals from thermocouples, RTDs, and thermistors are linearized and can be displayed in °C or °F. Current, voltage, and millivolt signals are easily scaled for indicating the process in specified engineering units. Up to 7 different processes can be displayed on a single scanner, and each channel can be assigned a 3-digit, alphanumeric engineering unit (psi, ft, etc.). Channels are sequentially displayed for a programmed length of time; with the hold feature, the display can be held indefinitely on any one channel.

The DPS3300 has multiple display modes and can be programmed to scan all channels, display the channel with the highest or lowest reading, process deviation from a pre-programmed setpoint, and display differentials between channels. The DPS3300 can also run merely as a timer.

Additional features include min/max readings and rate of change for all channels. A control relay or open-collector output for each channel is available as an option. A built-in buzzer (available with output option) sounds an alarm whenever a limit is reached. Visual indication of relay output status is given by LEDs.

Specifications

Pt100 RTD and thermistor [2252 Ω @ 25°C (77°F)], 4 to 20 mA, 0 to 100 mV, 0 to 10 Vdc

Cold-Junction Compensation Error: ±1°C max [10 to 40°C (50 to 104°F)]

Open Thermocouple Indication: "HELP" displayed.

Custom Inputs Available: Consult Engineering

Scan Rate: Fixed—2 channels per second

Channel Interval: Programmable from 1 to 999 seconds

Reliability/Accuracy:

Calibration: NIST traceable (temperature)

Resolution: 1°C or F
Thermistor: 0.1°C/0.2°F
Process: 9999, 999.9, 99.99, 9.999

Selectable Temperature Units: Celsius or Fahrenheit

Analog-to-Digital Conversion: 20,000 count A/D converter; dual-slope integrating converter

Conversion Rate: 7 conversions per second (typical)

Display: Red 7-segment LED display, 7 digits, 20 mm (0.8") high; negative polarity indication

Over-Range Indication: "HELP"

Display Test: Briefly indicates 8.8.8.8.8.8.8 on power-up

Elapsed Time: Displayed in hours, minutes and seconds

Format: HH.MM.SS

Power Options: 120 Vac—60 Hz (standard)
220 Vac—50/60 Hz (optional)
8 to 15 Vdc @ 900 mA (optional)

Relay/Open-Collector Output (Optional):

Relays: SPST, 1 A @ 28 Vdc or 0.5 A @ 120 Vac

Open Collector Output: 50 mA max (internal 5 Vdc source)

Dimensions/Enclosure:

Case: 192 W x 160 H x 103 mm D (7.55 x 6.29 x 4.05")

Material: Polystyrene with crystal-clear polycarbonate lid

Ingress Protection: Up to IP65 (DIN standard)

Weight: 1.4 kg (3 lb)

OMEGA CARE℠ Extended Warranty Program

OMEGACARE℠ extended warranty program is available for models shown on this page. Ask your sales representative for full details when placing an order. OMEGACARE℠ covers parts, labor and equivalent loaners.

Type	Range	Accuracy
K	-170 to 1365°C (-274 to 2489°F)	±1°C ±1 cnt (±2°F ±1 cnt)
T	-155 to 400°C (-247 to 752°F)	±1°C ±1 cnt (±2°F ±1 cnt)
E	-185 to 915°C (-300 to 1675°F)	±1°C ±1 cnt (±2°F ±1 cnt)
R	0 to 1600°C (32 to 2900°F)	±3°C ±1 cnt (±6°F ±1 cnt)
S	0 to 1600°C (32 to 2900°F)	±3°C ±1 cnt (±6°F ±1 cnt)
B	470 to 1800°C (900 to 3300°F)	±3°C ±1 cnt (±6°F ±1 cnt)
RTD-385 (2-Wire)	-200 to 800°C (-328 to 1472°F)	±1°C ±1 cnt (±2°F ±1 cnt)
RTD-392 (2-Wire)	-100 to 450°C (-148 to 842°F)	±1°C ±1 cnt (±2°F ±1 cnt)
Thermistor	-8 to 100°C (17 to 212°F)	±0.5°C ±1 cnt (±1°F ±1 cnt)
Current	1 to 30,000 counts	0.05% ±1 cnt
Millivolt	1 to 30,000 counts	0.05% ±1 cnt
Voltage	1 to 30,000 counts	0.05% ±1 cnt

To Order

Model No.	Description
DPS3304-(*)	Dedicated input 4-zone scanner
DPS3307-(*)	Dedicated input 7-zone scanner
DPS3314-(*)	Programmable input 4-zone scanner
DPS3317-(*)	Programmable input 7-zone scanner

Note: *Select input code from table below.*

Input Codes

Input Code*	Programmable Inputs	Dedicated Inputs
TC	J, K, T, E, 4 to 20 mA, 0 to 10 Vdc	J, K, T, E
RTD	RTD, 4 to 20 mA, 0 to 10 Vdc	RTD
TH	Thermistor, 4 to 20 mA, 0 to 10 Vdc	Thermistor
R	R T/C, 4 to 20 mA, 0 to 10 Vdc	R thermocouple
S	S T/C, 4 to 20 mA, 0 to 10 Vdc	S thermocouple
B	B T/C, 4 to 20 mA, 0 to 10 Vdc	B thermocouple
MV	—	0 to 100 mV
P	100 mV, 4 to 20 mA, 0 to 10 Vdc	—
V	—	0 to 10 Vdc
C	—	4 to 20 mA

**Select one input code.*

Power Options

Ordering Suffix	Description
-1	240 Vac
-2	8 to 15 Vdc

Output Options

Ordering Suffix	Description
-3	7 relay outputs (7-channel units)
-4	7 open-collector outputs (7-channel units)
-5	4 relay outputs (4-channel units)
-6	4 open-collector outputs (4-channel units)

Accessories

Model No.	Description
RELAY-URM-400	Universal 15 A mechanical 4-relay module
RELAY-URM-800	Universal 15 A mechanical 8-relay module

Comes with watertight connectors (2) and complete operator's manual.
Ordering Example: DPS3304-TC-1-5, *dedicated input 7-zone scanner, thermocouple input, 240 Vac, with 4 relay outputs.*

MULTI-PARAMETER INPUT TRANSMITTER

For Flow , pH/ORP, Conductivity

DPU91 Series

1 YEAR WARRANTY

- 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

DPU91 shown smaller than actual size.

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.

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 (1.63 lb)

Display Ranges

Flow Ranges

Flow Rate: -9999 to 99999 units per second, minute, hour or day

Totalizer: 0.00 to 99999999 units (program lockout or resettable)

pH/ORP Ranges

pH : 0.00 to 15.00

ORP: -1999 to 1999.9 mV

Conductivity Ranges

Conductivity: 0.0000 to 99999 µS, mS, PPM and PPB (TDS), k Ω, MΩ

Salinity: 0 to 100 PPT

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

Volume: 0 to 99999 cm^3, m^3, in^3, ft^3, gal, L, lb, kg, %

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

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Input Power

DPU91 without Relay Module: 200 mA @ 10.8 to 35.2 Vdc

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

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

Conductivity/Resistivity: Input

conductivity/resistivity module or via CDTX-2850

Input Specifications

Digital Serial: ACSII, TTL level, 9600 bps

Frequency Input:

Sensitivity: 80 mV @ 5 Hz, gradually increasing with frequency

Span: 0.5 Hz to 1500 Hz @ TTL level input

Accuracy: ± 0.5% or reading maximum error @ 25°C (77°F)

Repeatability: ±0.2% of reading

Resolution: *1 µS*

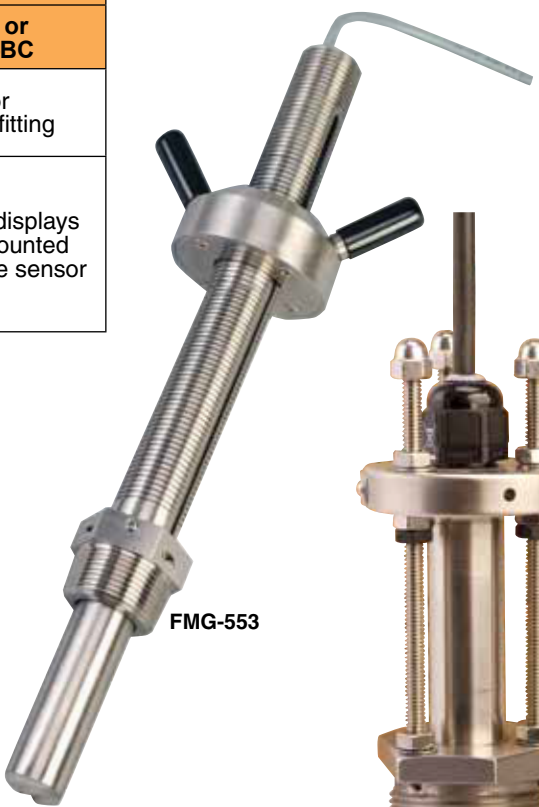
FLOW SENSORS

DPU91 Series with Mating Flow Sensors		
	DPU91 or DPU91-BC	**DPU91P or DPU91P-BC**
FP-5100, FP-5200, FP-5300, FPB100, FMG3000	FP90UM and *sensor installation fitting, DPU90-AK (optional)	*Sensor installation fitting
Integral Mount FP-5600, FP-8500, FP-8500A	FP90IM and *sensor installation fitting, DPU90-AK (optional)	Panel mount displays cannot be mounted integrally to the sensor
FP-5061, FP-5070, FP-2540, FMG-550	FP90UM, DPU90-AK (optional)	

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

FMG3002

FP-5300



FMG-553

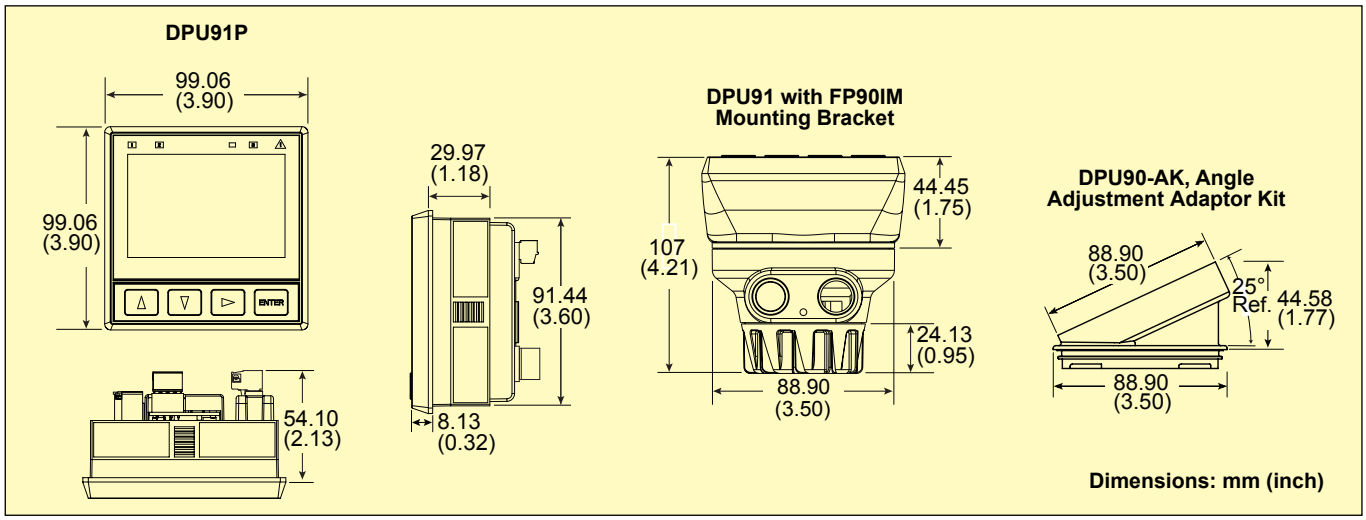
FP-2541

All model shown smaller than actual size.

FP-5200

FP-8500

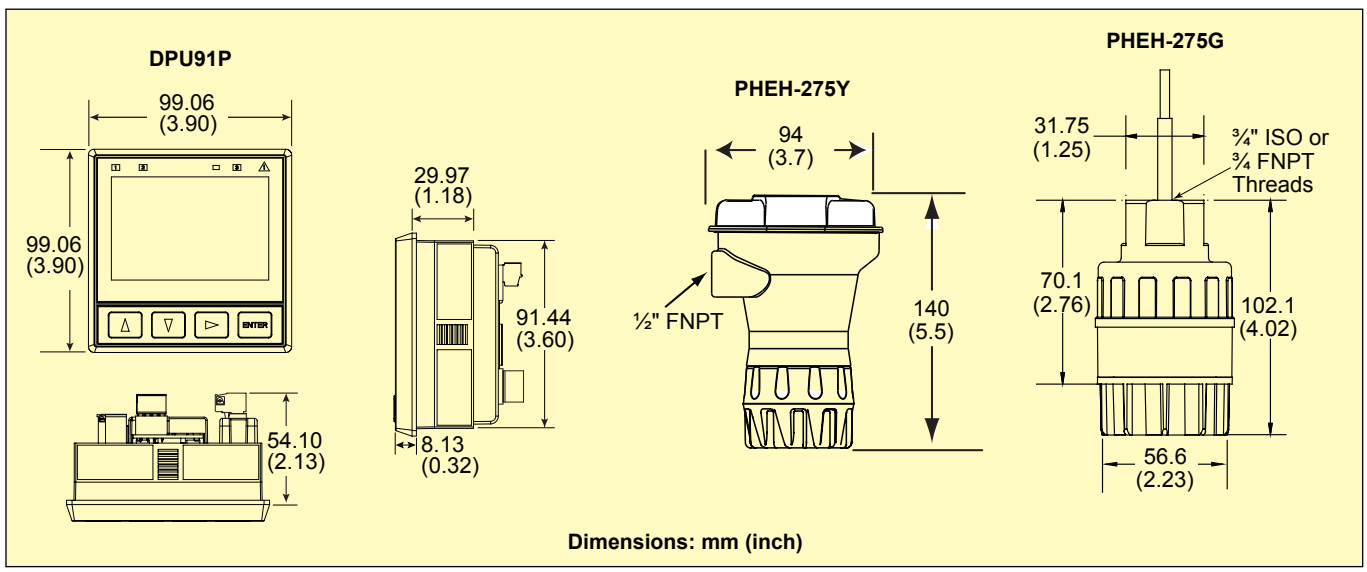
FP-5061



pH/ORP SENSORS

D U91 Series with Mating pH/OR Sensors		
	DPU91	**DPU91P**
Submersible Mounted PHE-2724, HE-2726, ORE-2725	FP90UM, PHEH-275G DPU90-AK (optional)	PHEH-275G
In-Line Mounted PHE-2724, HE-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.



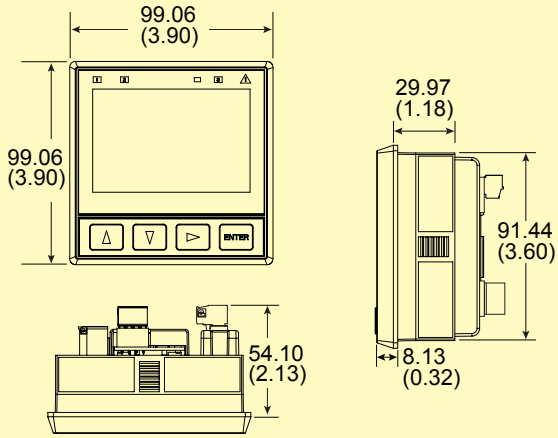
CDCE-90-001/01/1 shown smaller than actual size.

CDCE-90S shown smaller than actual size.

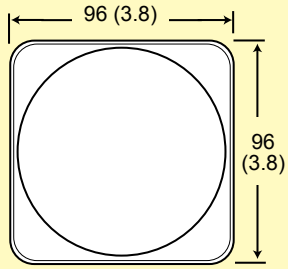
DPU91 Series with Mating Conductivity/Resistivity/Salinity Sensors		
	DPU91	**DPU91P**
CDCE-90 Series Sensors*	FP90UM, DPU90-AK and DPU90-C	DPU90-C

** For complete sensor specifications visit us online.*

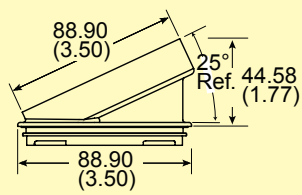
DPU91P



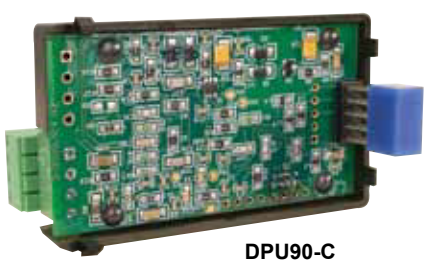
FP90UM Mounting Bracket Universal Mount



DPU90-AK, Angle Adjustment Adaptor Kit

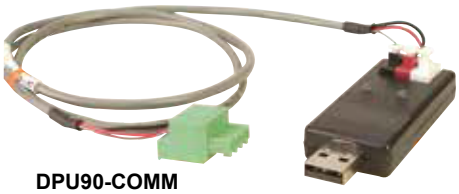


Dimensions: mm (inch)



DPU90-C

DPU90-R



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 field mounted units
FP90IM	Integral mounting bracket for use with field mount displays and integral sensors
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
CDSA-10*	10 µS/cm conductivity solution
CDSA-15*	15 µS/cm conductivity solution
CDSA-45	45 µS/cm conductivity solution
CDSA-450	450 µS/cm conductivity solution
CDSA-1413	1413 µS/cm conductivity solution
CDSA-1500	1500 µS/cm conductivity solution
CDSA-3000	3000 µS/cm conductivity solution
CDSA-4500	4500 µS/cm conductivity solution
CDSA-45000	45000 µS/cm conductivity solution

Comes complete with operator's manual (sensors, modules, and mounting kits sold separately).
***Ordering Examples: DPU91**, display/transmitter **FP90UM** universal mounting kit and **FP-5061**, low flow turbine.*
***DPU91P**, panel mount display, **FP-5300** paddlewheel, and **FP-5310** PVC tee fitting 1".*
** 6-month shelf life.*
***DPU91**, display/transmitter, and **FP90UM** universal mounting kit for display **CDCE-90-01** conductivity cell.*
***DPU91P**, display/transmitter panel mount, and **CDCE-90-10** conductivity cell.*

INTELLIGENT RELAYS

EZ Series

1 YEAR WARRANTY

Easy Operation with Maximum Benefits

The Eaton EZ intelligent relays provide basic functions that users could only implement previously with individually installed and wired devices. The EZD multi-function displays offer powerful visualization functions.

The EZ intelligent relays bring timers, relays, counters, special functions, inputs and outputs into one compact device that is easily configured. The EZ family of products provides exceptional levels of flexibility together with substantial savings in commissioning time and effort.

The EZ intelligent relays are available in more than 20 different styles that support from 12 I/O up to 320 I/O points providing the ideal solution for lighting, energy management, industrial control, watering, pump control, HVAC and home automation.

Once EZ products are installed, changes are easily accomplished through front panel programming, eliminating the need to change wiring and wiring diagrams increasing the savings realized.

Other terms often used for intelligent relay are relay replacer, control relay and smart relay.

Simplicity and User-Friendly Operation

EZ and EZD products are known for their user-friendly operation and programming. Every rung or circuit connection is wired just like you remember: Contact – Contact – Contact – Coil – Done! The devices allow the "wiring" of 128 or 256 rungs or circuit connections. Series and parallel connections, which make up a major part of a control circuit, are easily created without previous programming knowledge. Ready-to-use function blocks are simply integrated in the wiring with coils, and contacts are provided for additional functions.

EZ820-DC-RC shown smaller than actual size.

EZ719-DC-RC shown smaller than actual size.

EZ512-DC-RC shown smaller than actual size.

EZD-80-B shown smaller than actual size.

Everything Needed is Built-In

Depending on the device selected, EZ and EZD products provide users with timing relays, flash relays, counters, comparators, timer switches and other ready-to-use functions. The circuit diagram display of serial and parallel connections, unlike the display of AND and OR operations in a function block diagram, offers a more manageable display of the circuit. Every EZ and EZD intelligent relay features an integrated power flow display to ensure safe operation during commissioning and helps identify errors in the circuit diagram. For ease-of-use, energized rungs are highlighted, and non-energized rungs are dimmed.

Security Means Safety

The finished circuit diagram is stored internally and can also be saved externally on a memory module (EEPROM) for transport, security and backup. Multi-level password protection secures your circuit diagram from unauthorized viewing, editing, copying or deleting.

EZ500 Series

EZ500 Series— for controlling small applications with up to 12 input/output signals. Models are available with and without displays. DIN rail mounted.

- **8 Digital Inputs**
- **4 Digital Inputs**
- **128 Rungs of 3 Contacts and 1 Coil Each**
- **16 Operating and Message Texts**
- **2 Analog Inputs (10-Bit) Optional (Not with 240 Vac)**
- **2 High-Speed Inputs, 1 kHz (Only DC Devices)**

EZ512-DC-RC shown smaller than actual size.

EZ512-AC-RC shown smaller than actual size.

To Order

MODEL NO.	DESCRIPTION	INPUTS					OUTPUTS
		Vac	24 240 Vac	110 to Vdc	12 Vdc	24 ANALOG	RELAY
EZ512-AC-R	12 I/O, no clock, display	—	8	—	—	—	4
EZ512-AC-RC	12 I/O, clock, display	—	8	—	—	—	4
EZ512-AC-RCX	12 I/O, clock, no display	—	8	—	—	—	4
EZ512-DC-R	12 I/O, no clock, display	—	—	—	8	2	4
EZ512-DC-RC	12 I/O, clock, display	—	—	—	8	2	4
EZ512-DC-RCX	12 I/O, clock, no display	—	—	—	8	2	4

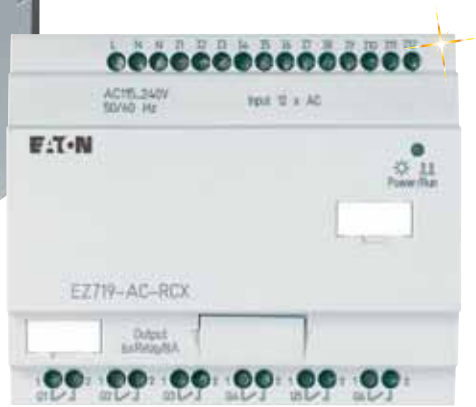
Comes complete with installation guide.
Ordering Example: EZ512-AC-RCX, *12 I/O, clock, no display.*

EZ700 Series— for controlling medium-sized applications with up to 40 input/output signals. DIN rail mounted.

- 12 Digital Inputs
- 6 Digital Relay Outputs
- 128 Rungs of 3 Contacts and 1 Coil Each
- 16 Operating and Message Texts
- 4 Analog Inputs (10-Bit) Optional (Not with 230 Vac)
- 2 High-Speed Inputs, 1 kHz (Only DC Devices)
- 1 Digital Expansion or Network Connection

EZ719-DC-RC shown smaller than actual size.

EZ700 Series



EZ719-AC-RCX shown smaller than actual size.

MODEL NO.	DESCRIPTION	INPUTS					OUTPUTS
		24 Vac	110 to 240 Vac	12 Vdc	24 Vdc	ANALOG	RELAY
EZ719-AC-RC	18 I/O, clock, display	—	12	—	—	—	6
EZ719-AC-RCX	18 I/O, clock, no display	—	12	—	—	—	6
EZ719-DC-RC	18 I/O, clock, display	—	—	—	12	4	6
EZ719-DC-RCX	18 I/O, clock, no display	—	—	—	12	4	6

Comes complete with installation guide. ***Ordering Example: EZ719-AC-RCX,*** *18 I/O, clock, no display.*

EZ800 Series

EZ800 Series— for controlling large scale applications with up to 320 input/ output signals. Models are available with and without displays. DIN rail mounted.

- 12 Digital Inputs
- 6 Digital Relay Outputs
- 256 Rungs of 4 Contacts and 1 Coil Each
- 32 Operating and Message Texts
- 4 Analog Inputs (10-Bit) Optional (Not with 230 Vac)
- 4 High-Speed Inputs, 3/5 kHz (Only DC Devices)
- 1 Digital Expansion or Network Connection
- Networkable via EZ-NET with Up to 8 Stations
- 1 Analog Output (10 bit)

EZ819-AC-RC shown smaller than actual size.

To Order

MODEL NO.	DESCRIPTION	INPUTS			OUTPUTS	
		110 to 240 Vac	24 Vdc	ANALOG	RELAY	ANALOG
EZ819-AC-RC	18 I/O, clock, display	12	—	—	6	—
EZ819-AC-RCX	18 I/O, clock, no display	12	—	—	6	—
EZ819-DC-RC	18 I/O, clock, display	—	12	4	6	—
EZ819-DC-RCX	18 I/O, clock, no display	—	12	4	6	—
EZ820-DC-RC	19 I/O, clock, display	—	12	4	6	1
EZ820-DC-RCX	19 I/O, clock, no display	—	12	4	6	1

Comes complete with installation guide. ***Ordering Example: EZ819-DC-RCX,*** *18 I/O, clock, no display.*

EZD Modular Relays

The EZD modular intelligent relays allows you to assemble a system to meet your exact requirements. A system consists of the following components:

1. EZD display with or without buttons
2. CPU with or without clock; in a variety of power configurations
3. I/O module

- **12 Digital Inputs**
- **4 Digital Relay Outputs**
- **256 Rungs of 4 Contacts and 1 Coil Each**
- **24 KB Mask Memory on a Fully Graphical, Backlit Display (64 x 132 Pixels)**
- **4 Analog Inputs (10-Bit) Optional (Not with 230 Vac)**
- **4 High-Speed Inputs, 3/5 kHz (Only DC Devices)**
- **1 Digital Expansion or Network Connection**
- **Networkable via EZ-NET with Up to 8 Stations**
- **1 Analog Output (10-Bit)**

EZD Assembly. Display + CPU + I/O Module. Shown smaller than actual size.

EZD80-B shown smaller than actual size.

EZD-CP8-NT shown smaller than actual size.

EZD-R16 shown smaller than actual size.

EZD Displays and CPU/Power Supply

To Order	
MODEL NO.	**DESCRIPTION**
EZD-80	EZD display
EZD-80-B	EZD display with buttons
EZD-CP8-ME	EZD CPU with 24 Vdc, power supply, clock
EZD-CP8-NT	EZD CPU with 24 Vdc, power supply, clock, EZ-Net
EZD-AC-CP8-ME	EZD CPU with 100 to 240 Vac, power supply, clock
EZD-AC-CP8-NT	EZD CPU with 100 to 240 Vac, power supply, clock, EZ-Net

Comes complete with installation guide. ***Ordering Example: EZD-80-B,*** *EZD display with buttons.*

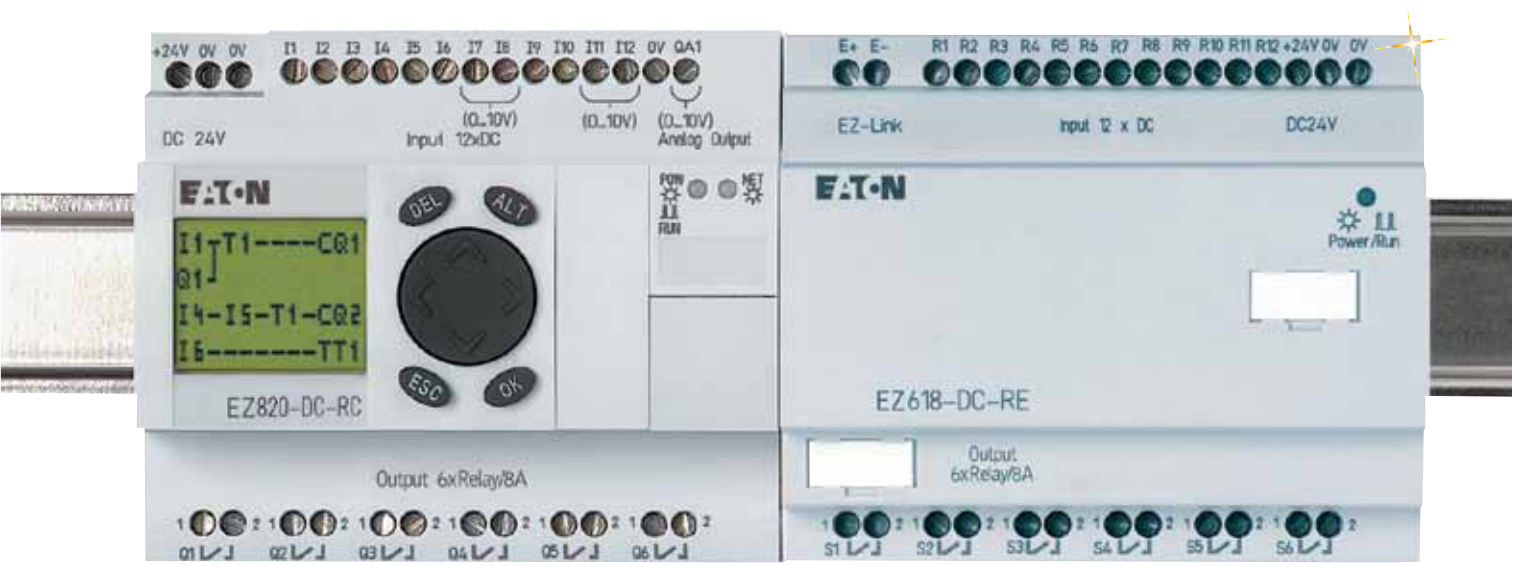
EZD Controller I/O Modules

MODEL NO.	DESCRIPTION	INPUTS				OUTPUTS
		240 Vac	110 to Vdc	24 ANALOG	RELAY	ANALOG
EZD-AC-R16	16 I/O	12	—	—	4	—
EZD-R16	16 I/O	—	12	4	4	—
EZD-RA17	17 I/O	—	12	4	4	1

Comes complete with installation guide. ***Ordering Example: EZD-RA17,*** *17 I/O.*

MODEL	EZD-AC-R16	EZD-R16	EZD-RA17
SUPPLY VOLTAGE	Supply via EZD-CP8 module		
HEAT DISSIPATION	0.5 W	0.5 W	0.5 W
CONTINUOUS CURRENT OUTPUTS	8 A	8 A	8 A
CONNECTION CABLES	0.2 to 4.0 mm² (AWG 22-12), solid 0.2 to 2.5 mm² (AWG 22-12), flexible		
DEGREE OF PROTECTIONS	IP20	IP20	IP20
RFI SUPPRESSION	EN 55011, EN 55022 Class B, IEC 61000-6-1, 2, 3, 4		
AMBIENT OPERATING TEMPERATURE	-25 to 55°C	-25 to 55°C	-25 to 55°C
TRANSPORT AND STORAGE TEMPERATURE	-40 to 70°C	-40 to 70°C	-40 to 70°C
CERTIFICATION, STANDARDS	EN 50178, IEC/EN 60947, UL, CSA		
MOUNTING	Snap fitted to EZD-CP8 module		

EXPANSION MODULES



Expansion modules are available for increasing the input/output of the EZ700/800 and EZD intelligent relays to 24 inputs and up to 16 outputs. Expansion modules can be mounted directly to the EZ/EZD unit.

EZ618-DC-RE shown conected to EZ820-DC-RC (see page A-20), shown smaller than actual size.

To Order

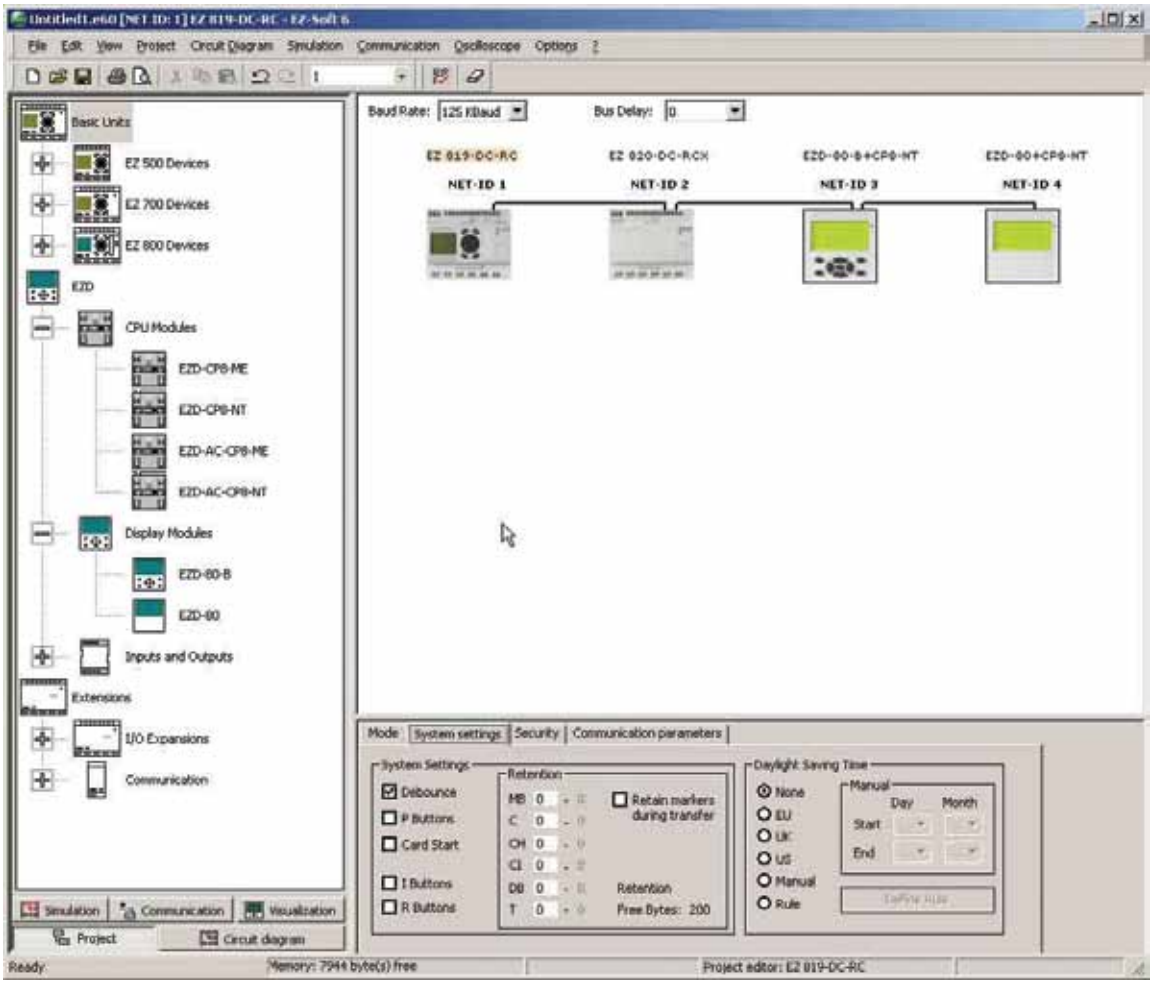
MODEL NO.	DESCRIPTION	INPUTS		OUTPUTS
		110 to 240 Vac	24 Vdc	RELAY
EZ202-RE	2 I/O expansion	—	—	2
EZ618-AC-RE	18 I/O expansion	12	—	6
EZ618-DC-RE	18 I/O expansion	—	12	6

Comes complete with installation guide and EZ-LINK-DS to connect expansion module to intelligent relay.
***Ordering Example: EZ618-AC-RE,** 18 I/O expansion.*

Accessories

MODEL NO.	DESCRIPTION
EZ-PC-CAB	EZ500/700 to PC cable
EZ800-PC-CAB	EZ800/EZD to PC cable
EZ200-POW	Power supply, 100-240 Vac input to 24 Vdc at 250 mA
EZ400-POW	Power supply, 100-240 Vac input to 24 Vdc at 1.25 A
EZ-M-32K	EZ500/700 32 K program storage module
EZ-M-256K	EZ800/EZD 256 K program storage module

MODEL	EZ202-RE	EZ618-AC-RE	EZ618-DC-RE
SUPPLY VOLTAGE	—	100 to 240 Vac	24 Vac
HEAT DISSIPATION	1 W	10 VA	4 W
CONTINUOUS CURRENT OUTPUTS	8 A	8 A	8 A
CONNECTION CABLES	0.2 to 4.0 mm² (AWG 22-12), solid 0.2 to 2.5 mm² (AWG 22-12), flexible		
DEGREE OF PROTECTIONS	IP 20	IP 20	IP 20
RFI SUPPRESSION	EN 55011, EN 55022 Class B, IEC 61000-6-1,2,3,4		
AMBIENT OPERATING TEMPERATURE	-25 to 55°C	-25 to 55°C	-25 to 55°C
TRANSPORT AND STORAGE TEMPERATURE	-40 to 70°C	-40 to 70°C	-40 to 70°C
CERTIFICATION, STANDARDS	EN 50178, IEC/EN 60947, UL, CSA		
MOUNTING	On top-hat rail to DIN 50022, 35 mm or screw mounting with EZB4-101-GF1 fixing brackets		



EZSoft User-Friendly Circuit Diagram Editor

EZSoft makes things particularly easy for users. The graphical editor shows the circuit diagram immediately in the display format required. Selection menus and drag & drop functions simplify circuit diagram creation. Simply select contacts and coils and connect with the mouse – that's it! In addition to the editing functions, EZSoft is available for straightforward circuit diagram input. All software includes user-friendly menus and Help screens. EZSoft offers the following display formats for viewing, editing and printing out your program:

- IEC format, with contact and coil symbols using international standards
- EZ circuit diagram, same as what is seen when programming from the EZ front panel
- ANSI format, in compliance with American standards

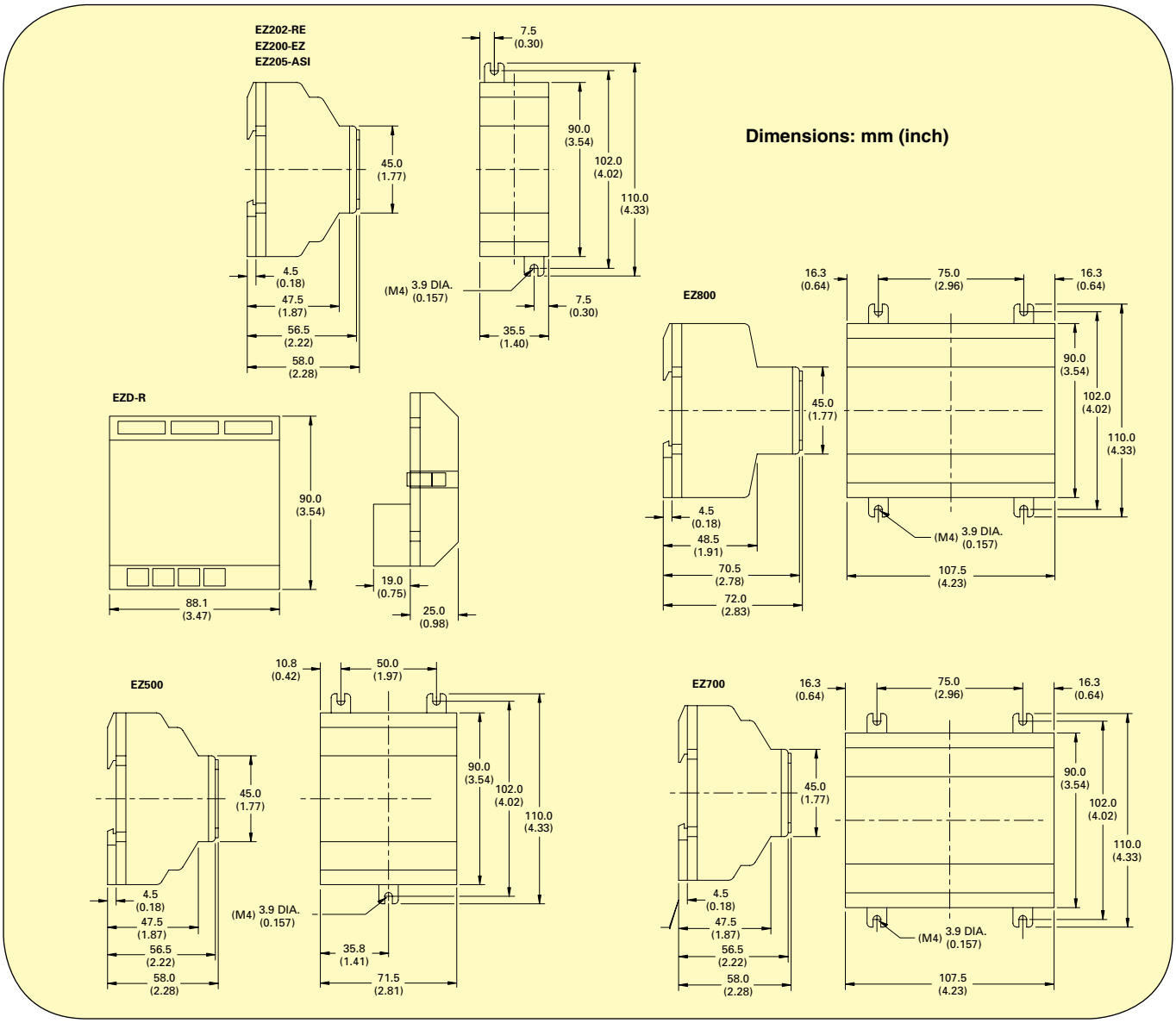
EZSoft supports users who are configuring, programming and defining parameters for EZ intelligent relays and creating visualization functions for EZD displays. When intelligent relays are connected to EZ-NET, all connected devices can be accessed and their programs loaded from a single intelligent relay. The integrated offline simulation tool allows users to test the functionality of the circuit diagram before commissioning, without the need for a connected device. The comment function for contacts, coils and function blocks helps provide a clear overview of the circuit diagram. A cover sheet with a customized company logo and different text fields, as well as the cross-reference list with comments, can turn printouts into the perfect documentation for applications.

EZ is Maintenance-Free

The finished program is stored in EZ's non-volatile memory until modified. Additional auxiliary power or batteries are not required. The intelligent relays are entirely maintenance-free. Circuit diagrams and parameters are saved in the event of a power failure. If a power failure occurs, the EZ controller stores switch positions and values such as operating hours, meters, counters and timing relays. When power is restored the values are restored. This retentive feature for the different function blocks and data is available on all EZ intelligent relay models.

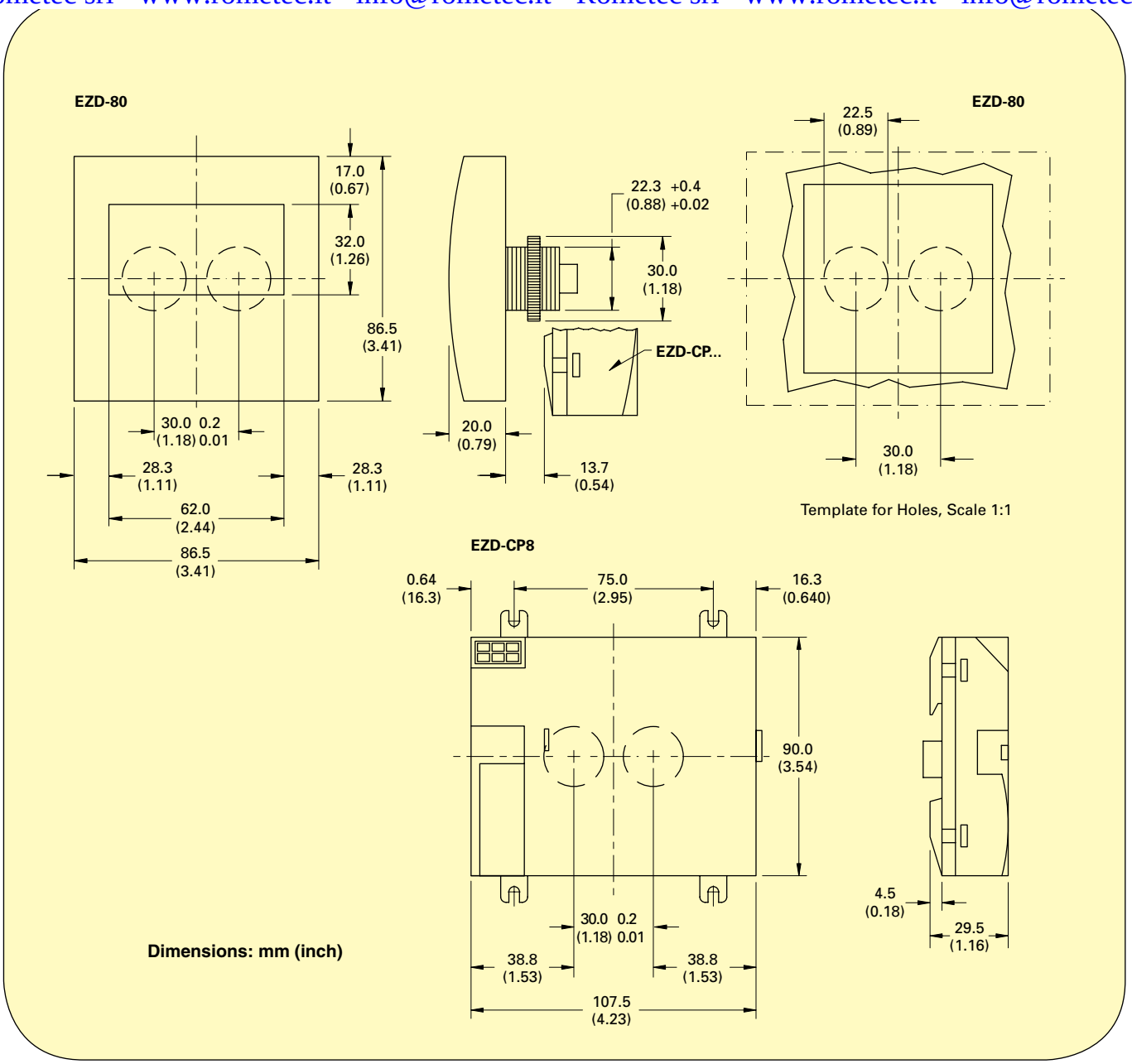
To Order

MODEL NO.	DESCRIPTION
EZSOFT	Programming software for EZ800 and EZD
EZSOFT-BASIC	Programming software for EZ500/700



EZ500, EZ700 and EZ800 Series

MODEL NO.	EZ512-AC	EZ512-DC-R	EZ719-AC	EZ719-DC-RC	EZ819-AC	EZ819-DC-RC
SUPPLY VOLTAGE	100 to 240 Vac	24 Vdc	100 to 240 Vac	24 Vdc	100 to 240 Vac	24 Vdc
HEAT DISSIPATION	5 VA	2 W	10 VA	3.5 W	10 VA	3.4 W
CONTINUOUS CURRENT OUTPUTS (1)	8 A	8 A	8 A	8 A	8 A	8 A
MOUNTING	On top-hat rail to DIN 50022, 35 mm or screw mounting with EZB4-101-GF1 fixing brackets					
CONNECTION CABLES	0.2 to 4.0 mm² (AWG 22-12), solid 0.2 to 2.5 mm² (AWG 22-12), flexible					
DEGREE OF PROTECTIONS	IP 20					
RFI SUPPRESSION	EN 55011, EN 55022 Class B, IEC 61000-6-1, 2, 3, 4					
AMBIENT OPERATING TEMPERATURE	-25 to 55°C					
TRANSPORT AND STORAGE TEMPERATURE	-40 to 70°C					
CERTIFICATION, STANDARDS	EN 50178, IEC/EN 60947, UL, CSA, Class 1, Div 2					



EZD Displays (EZD-80 and EZD-80B)

SUPPLY VOLTAGE	Supply from EZD-CP8
HEAT DISSIPATION	3 W
MOUNTING	Front Mounting in 2 x 22.5 mm Standard Drill Holes
DEGREE OF PROTECTIONS	IP65
RFI SUPPRESSION	EN 55011, EN 55022 Class B, IEC 61000-6-1,2,3,4
AMBIENT OPERATING TEMPERATURE	Clearly Legible at -5 to 50°C
TRANSPORT AND STORAGE TEMPERATURE	-40 to 70°C
CERTIFICATION, STANDARDS	EN 50178, IEC/EN 60947, UL, CSA, Class 1, Div 2

EZD CPU/Power Supply Module

MODEL	EZD-CP8	EZD-AC-CP8
SUPPLY VOLTAGE	24 Vdc	100 to 240 Vac
HEAT DISSIPATION	3 W	8 VA
MOUNTING	Snap fitted to EZD-80 or on top-hat rail to DIN 50022, 35 mm or screw mounting with EZB4-101-GF1 fixing brackets	

Large Display Meters and Controllers

iLD-UTP and iLD-SP Series

5 YEAR WARRANTY

Meters shown smaller than actual size.

57 and 101 mm (2.25 and 4") Displays Available!

- **UL and cUL Certified**
- **Big Bright LED 4-Digits**
- **Program to Change Colors: RED, AMBER, GREEN**
- **Temperature and Process Input Models**
- **Strain and Process Input Models**
- **Optional Relays, DC Pulse, and Analog Outputs for Alarm and Full PID Control**
- **Communications Via Ethernet, RS232, RS485, and MODBUS®**
- **Embedded Web Server**
- **RoHS 2 Compliant**

The Large Displays can handle a wide variety of signal inputs direct from transducer or process transmitters and offer multiple control output options and serial or Ethernet connectivity for logging the data.

The "**Universal Temperature+Process Large Display**" **(iLD-UTP)** is designed for Thermocouples, RTD's, and Process (DC) Voltage or Current. It handles TEN (10) thermocouple types: K, J, T, E, R, S, B, C, N, & J DIN.
It works with a wide selection of RTD's, both Pt. 0.00385 and 0.00392 curves for 100 Ω, 500 Ω, and 1000 Ω and it measures with 2, 3, or 4 wire connections for the highest accuracy. This model also measures process voltage: 0 to 100 mV, 0 to 1V, 0 to 10V ranges and process current, 0 to 20 mA (4 to 20 mA) with built-in excitation of 24 Vdc standard.

The "**Universal Strain+Process Large Display**" **(iLD-SP)** handles a wide variety of DC voltage and current outputs from all common load cells, pressure transducers, and most any strain gage type of transducer. The meter measures input ranges of 0 to 100 mV, -100 mV to 1V, 0 to 10V, 0 to 20 mA (4 to 20 mA) with built-in excitation of 5 Vdc and 10 Vdc standard. This model also features 10 point linearization enabling accurate measurements from a wide assortment of unique and nonlinear transducers.

The Large Displays are easy to configure and scale to virtually any engineering units with the push buttons on the front panel, or with a personal computer using the free configuration software and the optional Ethernet connectivity or Serial Communications. The Ethernet option allows the device to be connected on a standard Ethernet network and communicates using standard TCP/IP protocol. The Ethernet option **(-C4EI)** also includes RS485 (and RS422) Serial Communications. The serial communications option **(-C24)** includes both RS232 and RS485 (and RS422) on one instrument. It communicates with a straightforward ASCII communications protocol, as well as MODBUS protocol.

Control Functions

The Universal Large Displays features a choice of two optional outputs: Form C SPDT (single pole double throw) mechanical relays **(-3)**, Solid State Relays **(-2)**, DC pulse **(-4)**, and/or programmable analog output **(-5)** selectable as either a controlling function or as retransmission of the process value.

The Universal Large Displays can control simple manual operation to ON-OFF and full Autotune PID control. (Selectable preset tune, adaptive tune, PID, PI, PD control modes.) The dual control outputs can be configured for a variety of independent control and alarm applications. The ramp-to-setpoint feature allows the user to define the rate of rise to setpoint, minimizing thermal shock to the load during start-up. Maximum ramp time: 99.59 (HH.MM), Soak: 00.00 to 99.59 (HH.MM), Damping: 1 to 8 in unit steps. Input types: 0 to 20 mA, 0 to 100 mV, 0 to 1 V and 0 to 10 Vdc.

For applications that do not require PID control, Universal Large Displays controllers are available in a special model that offer simplified programming. The Universal Large Displays "Simplified Menu" model (specify **-SM** option) offers simplified programming. The menu flowchart is similar to programmable digital panel meters that are used for on/off control or alarms. (Please see the Universal Large Displays operator's manuals for programming details.)

Programmable Color Display

The Large Display can be programmed to change colors between **RED**, **AMBER**, and **GREEN** at any set point or alarm point. The Large Display has a wide range of signal inputs as well as control, alarm, and communication outputs including: RS232, RS485, MODBUS®, and Ethernet. The device with an embedded Web Server can connect directly to Ethernet/Internet. You can "see" your meter and control your process through a web browser over the Internet from halfway around the world. With the Large Display, you can also see your meter from a hundred feet.

The Large Display can be mounted flush in a panel or surface mounted with the included brackets. The entire Large Display enclosure provides NEMA 1 protection.

Configuration of the **iLD-UTP** or **iLD-SP** can be performed by using either **-C24** or **-C4EI** options and the configuration software that is available on our website.

Universal Temperature and Process Input (Model UTP)

Accuracy: ±0.5°C temp; 0.03% reading process
Resolution: 1°/0.1°; 10 µV process
Temperature Stability:
RTD: 0.04°C/°C
Thermocouple @ 25°C (77°F): 0.05°C/°C—cold junction compensation
Process: 50 ppm/°C
NMRR: 60 dB; **CMRR:** 120 dB
A/D Conversion: Dual slope
Reading Rate: 3 samples per second
Digital Filter: Programmable
Display: 4-digit, 7-segment LED 57.2 mm (2.25") or 101.6 mm (4.00") red, green and amber programmable colors for process variable, set point and temperature units
Input Types: Thermocouple, RTD, analog voltage, analog current
Thermocouple Type (ITS 90): J, K, T, E, R, S, B, C, N, L
RTD Input (ITS 68): 100/500/1000 Ω Pt sensor, 2-, 3- or 4-wire; 0.00385 or 0.00392 curve
Voltage Input: 0 to 100 mV, 0 to 1 V, 0 to 10 Vdc
Input Impedance: 10 MΩ for 100 mV 1 MΩ for 1 or 10 Vdc
Current Input: 0 to 20 mA (5 Ω load)
Configuration: Single-ended
Polarity: Unipolar
Step Response: 0.7 sec for 99.9%
Decimal Selection:
Temperature: None, 0.1
Process: None, 0.1, 0.01 or 0.001
Setpoint Adjustment: -1999 to 9999 cts
Span Adjustment: 0.001 to 9999 cts
Offset Adjustment: -1999 to 9999
Excitation (Optional in Place of Communication): 24 Vdc @ 25 mA

Universal Strain and Process Input (Model SP)

Accuracy: 0.03% reading
Resolution: 10/1µV
Temperature Stability: 50 ppm/°C
NMRR: 60 dB; **CMRR:** 120 dB
A/D Conversion: Dual slope
Reading Rate: 3 samples per second
Digital Filter: Programmable
Input Types: Analog voltage, analog current
Voltage Input: 0 to 100 mVdc, -100 mVdc to 1 Vdc, 0 to 10 Vdc
Input Impedance: 10 MΩ for 100 mV; 1 MΩ for 1 V or 10 Vdc
Current Input: 0 to 20 mA (5 Ω load)
Linearization Points: Up to 10 Linearization Points
Configuration: Single-ended
Polarity: Unipolar
Step Response: 0.7 sec for 99.9%
Decimal Selection: None, 0.1, 0.01 or 0.001
Setpoint Adjustment: -1999 to 9999 cts
Span Adjustment: 0.001 to 9999 cts
Offset Adjustment: -1999 to 9999
Excitation (Optional in Place of Communication):
5 Vdc @ 40 mA; 10 Vdc @ 60 mA

Communication Options

Supported Protocols: TCP/IP, ARP, HTTPGET
RS232/RS422/RS485/MODBUS®: Selectable from menu; both ASCII and MODBUS protocol selectable from menu; programmable 300 to 19.2 K baud; complete programmable setup capability; program to transmit current display, alarm status, minimum/maximum, actual measured input value and status
RS485: Addressable from 0 to 199
Connection: Screw terminals
Control for UTP, SP Action: Reverse (heat) or direct (cool)

Alarm 1 and 2 (Programmable)

Operation: High/low, above/below, band, latch/unlatch, normally open/normally closed and process/deviation; front panel configurations

Isolation

Power to Input/Output: 2300 Vac per 1 min test (RS232 or RS485, input or output)
Between Inputs: 500 Vac per 1 min test

General

Power: 100 to 240 Vac ±10%, 50/60 Hz 22.5 W
Environmental Conditions: 0 to 40°C (32 to 104°F), 90% RH non-condensing
Warm-Up to Rated Accuracy: 60 minutes
Protection: NEMA 1 (IP65) front bezel
Dimensions
iLD24: 289 L x 137 W x 73 mm D (11.75 x 5.375 x 2.875")
iLD44: 480 L x 211 W x 95 mm D (18.11 x 8.31 x 3.76")

Factory Scaling **(-FS)** is available if you prefer the unit to be fully configured before shipment.

Please provide your selections for Factory Scaling settings:

iLD-UTP-FS	iLD-SP-FS
Input Range = Display Range	Input Range = Display Range
Excitation: 24 V	**Excitation:** 5 V or 10 V
Example: 4-20 mA = 0 to 100.0	**Example:** 0-30 mVdc = 0 to 100.0; Exc: 10 Vdc

To Order

Basic Model	Description
Universal Temperature Thermocouple, RTD and Process Input	
iLD24-UTP	57 mm (2.25") 4-digit display, universal temperature/process, monitor
iLD44-UTP	101 mm (4") 4-digit display, universal temperature/process, monitor
Strain Gage and Process Input	
iLD24-SP	57 mm (2.25") 4-digit display, strain gage/process, monitor
iLD44-SP	101 mm (4") 4-digit display, strain gage/process, monitor
Control Outputs*	
-33	2 relays—form "C" SPDT 3 A @ 120/240 Vac
Communication Options	
-C24	Isolated RS232 and RS485/RS422
-C4EI	Ethernet with embedded Web server + RS485/RS422
-FS	Factory scaling (no charge, see factory scaling table above for required information)

Contact Sales for Custom Control or Alarm Outputs.
***Ordering Example: iLD24-UTP-33-C24,** large 57.2 mm (2.25") 4-digit controller with temperature/process input, 2 relays and serial communication.*

iSeries BIG Display

MONOGRAM®

57 mm (2.25") and 101 mm (4") Displays Available!

Meters shown smaller than actual size.

iLD Series

5 YEAR WARRANTY

- **BIG, Bright 57 mm (2.25") or 101 mm (4") LED Digits**
- **Program to Change Colors: RED, AMBER, GREEN**
- **Many Input Choices**
- **Optional Relays for Alarm and Full PID Control**
- **Communications Via Ethernet, RS232, RS485, and MODBUS**
- **Embedded Web Server**
- **Free Software, Active X Controls**

PATENTED

The award-winning iSeries meters and controllers now features a **BIG** display.

Like all iSeries meters, the **BIG** display can be programmed to change colors between **RED**, **AMBER**, and **GREEN** at any set point or alarm point. For example, the instrument can be programmed to display the process value in **GREEN** during warm-up, switching to **AMBER** to signal the normal operating range, and in **RED** to signal an alarm condition.

The **BIG** display can be mounted flush in a panel or surface mounted with the included brackets. The entire **RED** Display enclosure provides NEMA 4 (IP65) protection. Whether panel-mounted or surface-mounted, the **BIG** display does not need to go inside a bulky and expensive NEMA enclosure.

Universal Temperature and Process Input (Model UTP)

Accuracy: 2.0°C temp; 0.03% reading process

Resolution: 1°/0.1°; 10 µV process

Temperature Stability:

RTD: 0.04°C/°C

Thermocouple @ 25°C (77°F): 0.05°C/°C—cold junction

Compensation

Process: 50 ppm/°C

NMRR: 60 dB, CMRR: 120 dB

A/D Conversion: Dual slope

Reading Rate: 3 samples per second

Digital Filter: Programmable

Display: 4-digit or 6-digit, 7-segment LED 57.2 mm (2.25") or 101.6 mm (4.00") red, green and amber programmable colors for process variable, set point and temperature units

Input Types: Thermocouple, RTD, analog voltage, analog current

Thermocouple Lead Res: 100 Ω max

Thermocouple Type (ITS 90): J, K, T, E, R, S, B, C, N, L

RTD Input (ITS 68): 100/500/1000 Ω Pt sensor, 2-, 3- or 4-wire; 0.00385 or 0.00392 curve

Voltage Input: 0 to 100 mV, 0 to 1 V, 0 to 10 Vdc

Input Impedance: 10 MΩ for 100 mV 1 MΩ for 1 or 10 Vdc

Current Input: 0 to 20 mA (5 Ω load)

Configuration: Single-ended

Polarity: Unipolar

Step Response: 0.7 sec for 99.9%

Decimal Selection:

Temperature: None, 0.1

Process: None, 0.1, 0.01 or 0.001

Setpoint Adjustment: -1999 to 9999 cts

Span Adjustment: 0.001 to 9999 cts

Offset Adjustment: -1999 to +9999

Excitation (Optional in Place of Comunication): 24 Vdc @ 25 mA

Universal Strain and Process Input (Model SP)

Accuracy: 0.03% reading

Resolution: 10/1µV

Temperature Stability: 50 ppm/°C

NMRR: 60 dB, CMRR: 120 dB

A/D Conversion: Dual slope

Reading Rate: 3 samples per second

Digital Filter: Programmable

Input Types: Analog voltage, analog current

Voltage Input: 0 to 100 mVdc, -100 mVdc to 1 Vdc, 0 to 10 Vdc

Input Impedance: 10 MΩ for 100 mV; 1 MΩ for 1 V or 10 Vdc

Current Input: 0 to 20 mA (5 Ω load)

Linearization Points: Up to 10

Linearization Points Configuration: Single-ended

Polarity: Unipolar

Step Response: 0.7 sec for 99.9%

Decimal Selection: None, 0.1, 0.01 or 0.001

Setpoint Adjustment: -1999 to 9999cts

Span Adjustment: 0.001 to 9999 cts

Offset Adjustment: -1999 to ±9999

Excitation (Optional in Place of Communication): 5 Vdc @ 40 mA; 10 Vdc @ 60 mA

Ethernet, Serial Communications Input (Model EI)

Temperature Stability: 50 ppm/°C

Alarm: Alarm 1 and 2 programmable, latch/unlatch, high, low, high/low

Standards Compliance: IEEE 802.3, 10 Base-T

Supported Protocols: TCP/IP, ARP, HTTPGET

Serial Interface

Communication Standard: RS485, RS422

Transfer Speed (Baud Rate): 300, 600, 1200, 2400, 4800, 9600, 19200 bps

Data Format:

7O1-7 Bit: Odd, 1 stop bit

7E1-7 Bit: Even, 1 stop bit

8N1-8 Bit: No parity, 1 stop bit

Multi-Point Address (RS485): 0 to 199

Flow Control: No flow control

Screw Terminals: For RS232/485/422 interface

Network Interface: 10 Base-T port (RJ45 connector)

Socket Port Number: 1000

HTTP Port Number: 80

AC Current Input (Model ACC)

Input Ranges: 10 mA, 100 mA, 1 A, 5 A AC current dedicated input terminals for (10, 100 mA same input),1 A and 5 A; return terminal common to all ranges

Frequency Range: 30Hz to 1 KHz

Input Impedance: 3.3 Ωs for 10, 100 mA input; 0.2 Ωs for 1 A input; 0.04 Ωs for 5 A input

Isolation: Dielectric strength to 1000 Vrms transient per 1 min test based on EN 61010 for 50 Vdc or Vrms working voltage

3-Way Isolation: Power to input; power to analog output/communication; input to analog output/communication

Input Over-Current Protection: 10% above full scale continuously; 100% above full scale for 10 s

A to D Technique: Dual slope

Read Rate: 3 readings/sec.

Accuracy At 25°C: ±0.2% of FS; 30 Hz to 1Hz

Temperature Stability: 10, 100 mA Range 100 ppm/°C typical; 1 A range 150 ppm/°C typical; 5 A range 200 ppm/°C typical

Step Response: 2 s to 99% of the final value (filter time constant = 64)

AC Voltage Input (Model ACV)

Input Ranges: 400 mV, 4V, 40 V, 400 V

Frequency Range: 30 Hz to 1 KHz

Input Impedance: 2.1 MB for all ranges

Isolation: Dielectric strength to 1000 Vrms transient per 1 min test based on EN61010 for 50 Vdc or Vrms working voltage

Input Over-Voltage Protection: 10% above full scale continuously; 100% above full scale for 10 s

A to D Technique: Dual slope

Read Rate: 3 readings/s

Accuracy at 25°C: 400 mV, 4V, 40V and 400 V ranges; 49 Hz to 500 Hz ±0.2% of FS; 30 Hz to 1KHz ±0.2% of FS ±10 cts

Temperature Stability: 400 mV and 40 V range, 150 ppm/°C typical; 4 V and 400 V range, 100 ppm/°C typical

Step Response: 2 s to 99% of the final value (filter time constant = 64)

Frequency Pulse Input (Model FP)

Input Types [Min Low-Level Signal to 120 mV:

- Open Collector NPN
- Open Collector PNP
- TTL/CMOS Input
- NAMUR Sensors: 8.2 V Excitation

Operating Modes

Frequency: Range = 0.2 Hz to 50 KHz

Frequency	Resolution
0 to 9.99999 Hz	0.00001 Hz
10 to 99.9999 Hz	0.0001 Hz
100 to 999.999 Hz	0.001 Hz
1000 to 9999.99 Hz	0.01 Hz
10000 to 50000.0 Hz	0.1 Hz
0 to 50000 Hz	1 Hz

Totalize with Reset: Range = 0 to 999999*

A-B Totalize (Reset Input Used As A +A Input): Range = -99999 to 999999*

Quadrature (Reset Input Used As A Second Input): Range = -99999 to 999999*

**Resolution is 1 count*

Input Impedance:

Input: 1 MΩ to +EXC

Reset: 100 K to 5 V

Isolation: Dielectric strength to 1000 Vrms transient per 1 min test based on EN61010 for 50 Vdc or Vrms working voltage

Input Over-Voltage Protection:

With 1 K Pull Down: 14 V

With 3K Pull Up: 20 V

Without Pull Up/Down: 60 V

Excitation: 5, 8.2 or 12.5 V at 25 mA, programmable

Accuracy At 25°C: ±0.1% of FS crystal time-based accuracy: ± 50 ppm

Temperature Stability: ±50 ppm/°C typical; time base stability: ±1 ppm/°C

Step Response for RS485 Output: 0.1 s to 99% of the final value (filter time constant = 0, gate time = 0.05 s)

Network and Communications For All Models (Optional -C24, -C4EI, -EI)

Ethernet: Standards compliance IEEE 802.3 10Base-T

Supported Protocols: TCP/IP, ARP, HTTPGET

RS232/RS422/RS485/MODBUS: Selectable from menu; both ASCII and MODBUS protocol selectable from menu; programmable 300 to 19.2 K baud; complete programmable setup capability; program to transmit current display, alarm status, min/max, actual measured input value and status

RS485: Addressable from 0 to 199

Connection: Screw terminals

Control for UTP, SP Action: Reverse (heat) or direct (cool)

ALARM 1 and 2 (Programmable)

Operation: High/low, above/below, band, latch/unlatch, normally open/ normally closed and process/deviation; front panel configurations

Isolation

Power to Input/Output: 2300 Vac per 1 min test (RS232/485, input or output)

Between Inputs: 500 Vac per 1 min test

General

Power: 100 to 240 Vac ±10%, 50/60 Hz 22.5 W

Environmental Conditions: 0 to 40°C (32 to 104°F), 90% RH non-condensing

Warm-Up to Rated Accuracy: UTP, SP, FP, ACC, ACV = 60 minutes

Protection: NEMA 4 (IP65) front bezel

BIG, Bright 101 mm (4") Digit Display

Display Shown Actual Size!

iLD iSeries Big Display

Available with 4 or 6 Digits!

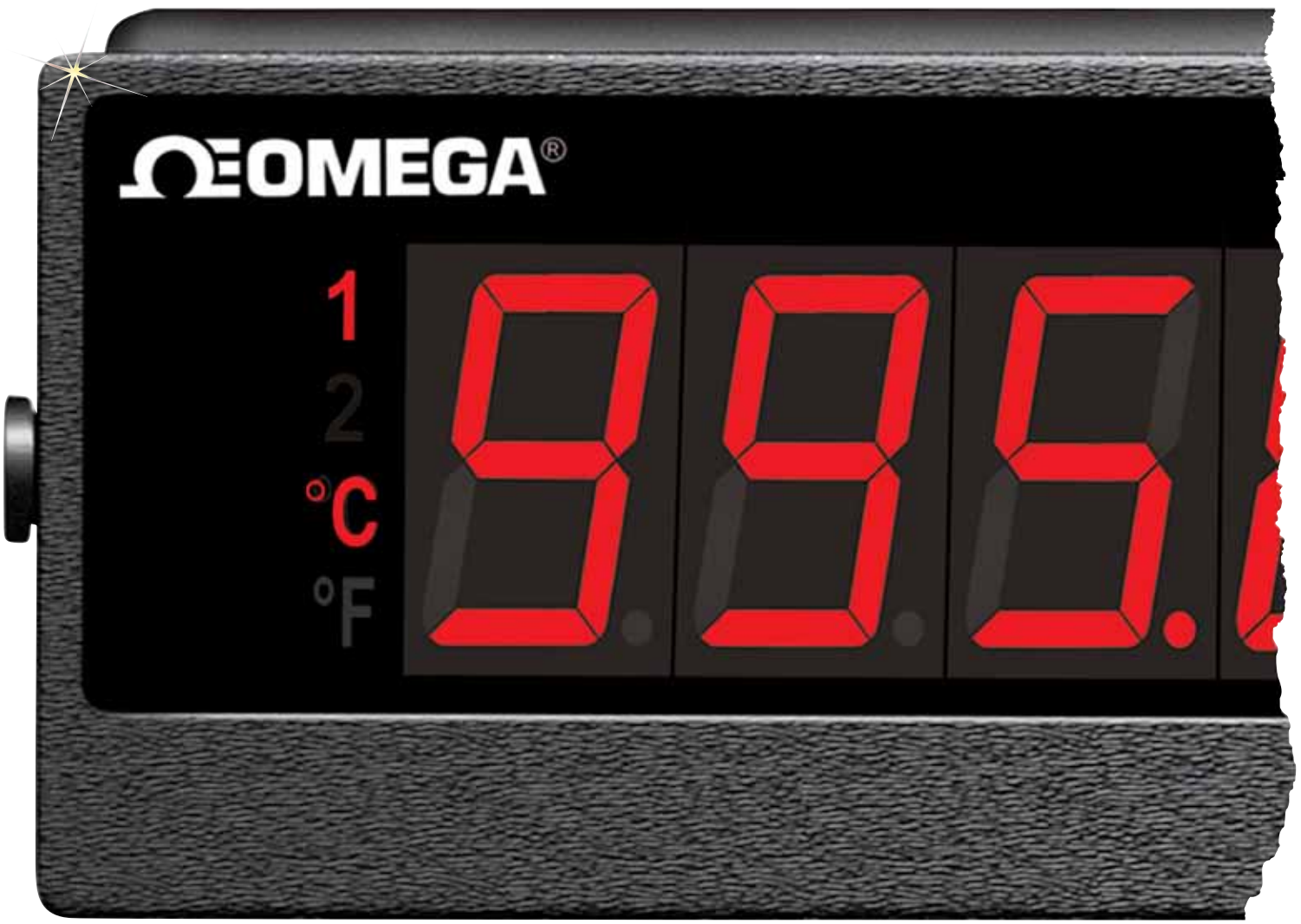
Program to Change Colors:
RED, AMBER, GREEN

LD Series LED Big Display

Bright 57 mm (2.25") Digit Display Available With a 4- or 6-Digit LED Display

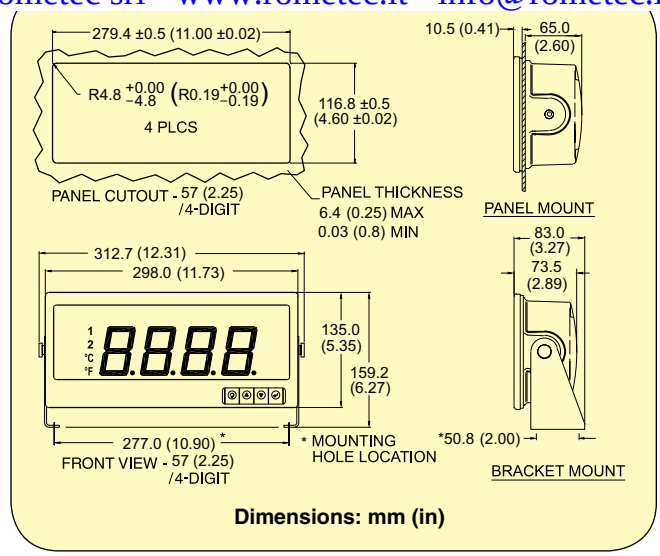
Display Shown Actual Size!

5 YEAR WARRANTY



Totally Programmable Color Display!

Changes in color between **RED**, **AMBER**, and **GREEN**, at any set point or alarm point can be quickly seen from a distance, and equipment operators can intuitively react to changing conditions!



Dimensions: mm (in)

Mounts in panel or on surface with included bracket.

	Ordering Matrix—Optional Outputs		
	2 Relays	Serial Output	Ethernet
-UTP	X	X	X
-SP	X	X	X
-FP		X	X
-ACC		X	X
-ACV		X	X
-EI			
-C2			

To Order *Visit omega.com/ild_series for Pricing and Details*

Basic Model	Description
Universal Temperature Thermocouple, RTD and Process Input	
iLD24-UTP	57 mm (2.25") 4-digit display, universal temperature/process, monitor/controller
iLD44-UTP	101 mm (4") 4-digit display, universal temperature/process, monitor/controller
Strain Gage and Process Input	
iLD24-SP	57 mm (2.25") 4-digit display, strain gage/process, monitor/controller
iLD44-SP	101 mm (4") 4-digit display, strain gage/process, monitor/controller
Control Outputs for UTP and SP Instruments	
-33	2 relays—form "C" SPDT 3 A @ 120/240 Vac (available on UTP and SP models only)
Network Options for UTP and SP Instruments*	
-C24	Output: isolated RS232 and RS485/422 with baud rate from 300 to 19.2 kB
-C4EI	Output: ethernet with embedded Web server + RS485/422 hub for up to 31 devices
-FS	Factory scaling (example: iLD24-SP, FS for input 4-20 mA = 0-99.99)
Frequency/Pulse/Rate/Total Input	
iLD24-FP	57 mm (2.25") 4-digit display with frequency/pulse totalize input, RS485 output
iLD26-FP	57 mm (2.25") 6-digit display with frequency/pulse totalize input, RS485 output
iLD44-FP	101 mm (4") 4-digit display with frequency/pulse totalize input, RS485 output
iLD46-FP	101 mm (4") 6-digit display with frequency/pulse totalize input, RS485 output
AC Current and Voltage Input	
iLD24-ACC	57 mm (2.25") 4-digit display with AC current input, RS485 output
iLD44-ACC	101 mm (4") 4-digit display with AC current input, RS485 output
iLD24-ACV	57 mm (2.25") 4-digit display with AC voltage input, RS485 output
iLD44-ACV	101 mm (4") 4-digit display with AC voltage input, RS485 output
Network Options for FP and AC Instruments*	
-EI	Ethernet, RS232, RS485/422 output
-FS	Factory scaling
Remote Displays	
iLD24-C2	57 mm (2.25") 4-digit display with RS232, RS485/422, ethernet input
iLD44-C2	101 mm (4") 4-digit display RS232, RS485/422, ethernet input
iLD26-C2	57 mm (2.25") 6-digit display with RS232, RS485/422, ethernet input
iLD46-C2	101 mm (4") 6-digit display with RS232, RS485/422, ethernet input
iLD24-EI	57 mm (2.25") 4-digit display with ethernet input
iLD44-EI	101 mm (4") 4-digit display with ethernet input
iLD26-EI	57 mm (2.25") 6-digit display with ethernet input
iLD46-EI	101 mm (4") 6-digit display with ethernet input

Ordering Examples: iLD24-UTP, *large 57.2 mm (2.25") 4-digit display, universal temperature/process monitor.*
iLD44-SP*, large 101 mm (4") 4-digit display, strain/process monitor/controller.*
iLD46-FP*, large 101 mm (4") 6-digit display with frequency/pulse totalize input.*

**Network Options cannot be combined.*
Contact Sales for Custom Control or Alarm Outputs.

SIGNALING ALARMS
DUAL TONE, INDOOR/OUTDOOR PANEL ALARMS

M22 Series

- **Mounts in Standard 22 mm (0.87") Pushbutton Hole**
- **UL Type 4, 4X, 13, IP65**
- **Sound Output Range 65 to 105 dBa @ 1 meter**
- **Selectable Continuous/Pulsing and Wobble on 65 mm (2.6") Model**
- **Adjustable Sound Pressure Levels on 45 (1.8") and 65 mm (2.6") Models**
- **12 Vac/dc, 120 Vac or 240 Vac**
- **Plug-In Terminal Block–IP2X Rated**
- **M22-30K Models for Use in Food Industry**

M22-45M-12VB showing detail of terminal block, shown smaller than actual size.

The M22 Series panel mount signaling alarms are made of heavy-duty industrial polycarbonate and are intended for indoor or outdoor use. They are UL Type 4/4X/13 and IP65 approved for harsh environments and are watertight. The M22-30K models are specifically designed for the food industries and have fully enclosed housings to prevent contaminates from accumulating.

The M22 series alarm sounders are equipped with a plug-in three point finger-safe terminal block for ease of wiring and configuring the tone type. All M22 models can be configured for either continuous or pulsing tones. The M22-65G models can also be wired for a wobble tone (alternating frequency). Users may also adjust the intensity of the sound levels on the 45 and 65 mm (1.8 and 2.6") alarm models.

SPECIFICATIONS

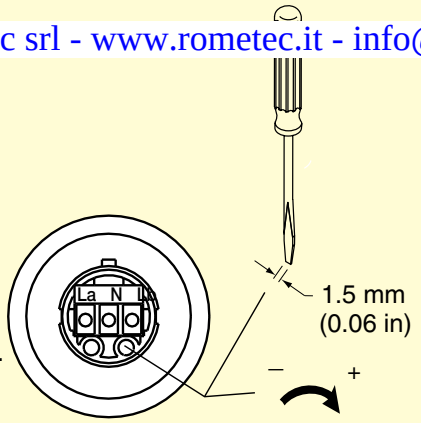
Materials: UV stabilized polycarbonate
Operating Temperature: -25 to 60°C (-13 to 140°F)
Mounting Nut Torque: 1.7 Nm (15 in/lbs)
Terminals: 14 AWG (2.5 mm²), IP2X

ELECTRICAL		65 mm	45 mm	30 mm
Supply Voltage	12 Vac/dc 50/60Hz	8 to 26 Vac/dc	8 to 26 Vac/dc	10 to 26 Vac/dc
	120 Vac 50/60Hz	50 to 140 Vac	50 to 140 Vac	80 to 140 Vac
	240 Vac 50/60Hz	150 to 260 Vac	150 to 260 Vac	180 to 260 Vac
Nominal Current	24 Vac/dc	57 mA	20 mA	20 mA
	120 Vac	40 mA	40 mA	20 mA
	240 Vac	42 mA	42 mA	20 mA
Turn-On Leakage		≥ 3 mA	≥ 3 mA	≥3 mA
Sound Main Frequency		3300 Hz	3300 Hz	3500 Hz
Sound Types	Continuous/ Pulsing	Yes	Yes	Yes
	Alternating (Wobble)	Yes	No	No
Sound Level Adjustment		Yes	Yes	No
Weight		65 g (2.3 oz)	35 g (1.2 oz)	25 g (0.9 oz)

Configuring Tone Type via Supply Voltage Connector

La	N	Lb		
X	X		— — — —	PULSING
	X	X	⊓⊓⊓	WOBBLE (65 mm ONLY)
X	X	X	———	STEADY

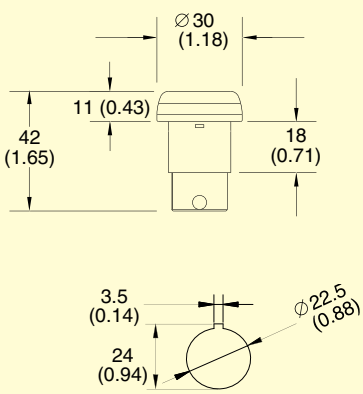
Connect AC-Neutral to N, and AC-Line to La and/or Lb as appropriate.



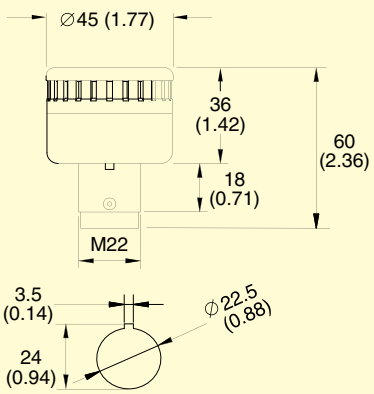
Sound Adjustment (45mm / 65mm only)

Dimensions: mm (inch) **Ø = diameter**

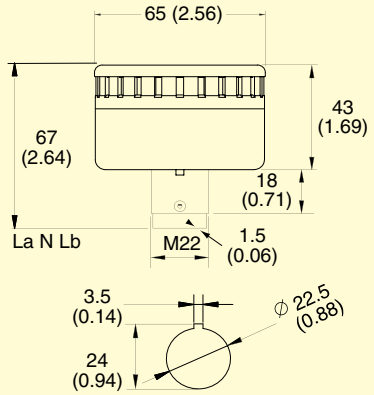
30 mm Alarm



45 mm Alarm



60 mm Alarm



To Order *Visit omega.com/m22 for Pricing and Details*

MODEL NO.	O.D. mm (inch)	TONE TYPES	SOUND LEVEL @ 1 m (MINIMUM/MAXIMUM)	VOLTAGE
M22-30K-12VB	30 (1.18)	Pulse/continuous	65 to 70 dBa	12 to 24 Vac/dc
M22-30K-120VB	30 (1.18)	Pulse/continuous	65 to 70 dBa	120 Vac
M22-30K-240VB	30 (1.18)	Pulse/continuous	65 to 70 dBa	240 Vac
M22-30V-12VB	30 (1.18)	Pulse/continuous	80 to 85 dBa	12 to 24 Vac/dc
M22-30V-120VB	30 (1.18)	Pulse/continuous	80 to 85 dBa	120 Vac
M22-30V-240VB	30 (1.18)	Pulse/continuous	80 to 85 dBa	240 Vac
M22-45M-12VB	45 (1.77)	Pulse/continuous	<85 to 100 dBa	12 to 24 Vac/dc
M22-45M-120VB	45 (1.77)	Pulse/continuous	<85 to 100 dBa	120 Vac
M22-45M-240VB	45 (1.77)	Pulse/continuous	<85 to 100 dBa	240 Vac
M22-65G-12VB	65 (2.56)	Pulse/continuous/wobble	<85 to 105 dBa	12 to 24 Vac/dc
M22-65G-120VB	65 (2.56)	Pulse/continuous/wobble	<85 to 105 dBa	120 Vac
M22-65G-240VB	65 (2.56)	Pulse/continuous/wobble	<85 to 105 dBa	240 Vac

Accessories

MODEL NO.	DESCRIPTION
OMPBD7-AHA1	Hole adaptor for 30 mm (1.18") holes
OMPBD7-AW2	Mounting ring wrench

Comes complete with operator's manual.

Ordering Examples: M22-30K-12VB, *30 mm (1.18") signaling alarm for washdown locations, 12 to 24 Vac/dc.*

M22-65G-120VB, *65 mm (2.6") signaling alarm with pulse, continuous or wobble sound options, 120 Vac.*

XL GRAPHICAL OCS

LOW-COST COMPACT "ALL-IN-ONE" CONTROLLER

HE-XE102 shown smaller than actual size.

HE-XL100 shown smaller than actual size.

HE-XT102 shown smaller than actual size.

An industry-first! The XL series can store data or easily upload programs via MicroSD™ memory card.

OCS XL Series

1 YEAR WARRANTY

- More Compact and Affordable than Separate PLC and Operator Interface
- Best of Class Graphics Display for Better Process Visualization and Machine Indication
- Built-In I/O with Removable Terminal Blocks for Easy Wiring
- Removable Mass Data Storage (MicroSD™)
- Two Serial Ports and Downloadable Protocol
- Ethernet and Telephone Modem Options Cards for Plant and Remote Connectivity
- Daylight Readable Touch Screen (XLt. XL6)

Introducing the XL series Operator Control Station (OCS), an "all-in-one" controller, small enough to fit in the palm of your hand (only 3.75" square). These devices include a Graphical Operator Interface, built-in I/O, networking and removable mass data storage. OCS is a robust, reliable control product that combines a traditional controller (programmed with ladder logic) with an operator interface, I/O and networking into an integrated, all-in-one unit using a single industry-recognized software package called Cscape™.

First with Removable MicroSD™ Memory

The XL is the first industrial product to include support for the latest standard in removable mass storage. This dime-sized memory, to date is only found on video enabled cellular phones and is available in densities ranging from 128 MB to 2 GB. This is ideal for storing process data, machine recipes, and application files. Users can easily update the application program through this memory device—allowing logic and screen updates to be made in a single step with transportable media.

Built-In I/O and Networking

The four available XL models with built-in I/O include digital, analog and high speed I/O. For machine control, the high speed I/O can provide totalizing, frequency measurement, PWM generation and pulse outputs. The available universal analog I/O is ideal for process control applications with high-resolution inputs which can be configured for thermocouple, RTD, 4 to 20 mA, ±100 mV, and 0 to 10V signals. The XL OCS also has field installable communications options. An internal 10/100 MB Ethernet card makes machine data and programming accessible at a plant-wide or world-wide basis. In addition, the XL Series is available with an internal 57.6k telephone modem card. While Ethernet and modem are optional, dual RS232/RS485 serial ports and an integrated CAN-based network are standard.

Applications

As a compact, powerful controller the XL series can be used in literally thousands of applications. From OEM machine control to machine monitoring in a plant environment, the XL series can be instrumental in keeping you or your customer's automation activities running smoothly.

the XL Series is part of the wide ranging OCS product line, programmable throughout with a single FREE software package Cscape. The XL series is designed with an attractive, generic look so it will fit in with most panel or console designs.

Temperature Control

With built-in RTD and thermocouple available, along with auto-tune PID, the XL series can perform advanced temperature control and much more on any machine.

Packaging

The XL series compact size, affordable price and fast response make it a natural for packaging machinery of all types.

Agriculture

A small rugged package, 12 Vdc compatibility, and removable mass storage are ideal for the agricultural environment.

Water Treatment

The XL Series offers the perfect I/O mix, size and communications capability for pump control, tank monitoring and remote telemetry in general.

Connectivity I/O expansion

XL Series I/O expansion is not limited to its built-in I/O. Smartstix I/O is high-speed and can be local or highly distributed.

Architecture

The XL Series supports CsCAN high-speed networking as standard, and Ethernet networking as a field-installable option. Single-point-of-connect allows seamless communication between the computer and any controller.

SPECIFICATIONS

DISPLAY
Graphics/Text: Yes/Yes
Pixels: 128 x 64 (XLe), 160 x 128 (XLt), 320 x 240 (XL6)
Display Technology: Backlit LCD (XLe), daylight readable touchscreen (XLt, XL6)

KEYPAD TOUCH SCREEN
Total Keys: 20 (XLe), 5 (XLt), 6 (XL6)
Function Keys: 10 (XLe), 4 (XLt), 5 (XL6)
Numeric Keys: Shared (XLe), pop-up keypad (XLt, XL6)

CONTROLLER
Ladder Logic Memory: 256 KB
Logic Scan Rate: 1.2 mS/K (XLe, XLt), 0.2 mS/k (XL6)
Memory Card Slot: Yes (up to 2 GB)
Local Comment Storage: Yes
Floating Point Support: Yes
Auto Tune PID capable: Yes

I/O SUPPORT
Built-in I/O: Yes
Smartstix I/O: Yes via CsCAN

UNIVERSAL ANALOG INPUTS (HE-XLE/XLT/XL105)
Input Ranges (Selectable): 0 to 10 Vdc, 0 to 20 mA, 4 to 20 mA, 100 mV, Pt100 RTD and J, K, N, T, E, R, S, B thermocouples
Thermocouple Ranges:
B/R/S: 0 to 1600°C (32 to 2912°F)
E: -200 to 900°C (-328 to 1652°F)
T: -240 to 400°C (-400 to 752°F)
J: -210 to 750°C (-346 to 1382°F)
K/N: -240 to 1370°C (-400 to 2498°F)
Nominal Resolution 10V, 20 mA, 100 mV: 14 bits
Nominal Resolution RTD, Thermocouple: 16 bits
Conversion Time per Channel 10V, 20 mA, 100 mV: 16.7 mS
Conversion Time per Channel RTD, Thermocouple: 66.7 mS
Maximum Thermocouple Error (After Warm Up Time of One Hour): ±0.2% (±0.3% below -100°C)

ANALOG INPUTS (HE-XLE/XLT/XL102,103,104)
Range: 0 to 10 Vdc, 0 to 20 mA, 4 to 20 mA, -0.5 to 12V
Resolution: 10 bits
Maximum Error at 25°C: 1% for current ranges, 0.5% for 0 to 10 Vdc range
Conversion Speed: All channels converted once per ladder logic scan
Filtering: 160 Hz hash (noise) filter 1 to 128 scan digital running average filter

DIGITAL DC INPUTS(ALL MODELS)
Input Voltage Range: 12/24 Vdc
Absolute Maximum Voltage: 35 Vdc
Input Impedance: 10 kΩ
Maximum Upper Threshold: 8 Vdc
Minimum Lower Threshold: 3 Vdc
OFF to ON Response: 1 ms
ON to OFF Response: 1 ms
High Speed Counter(HSC) Switching Rate: 10 kHz totalizer/pulse, edges, 5 kHz frequency/pulse, width, 2.5 kHz quadrature

ANALOG OUTPUTS (HE-XLE/XLT/XLT105)
Output Ranges: 0 to 10 Vdc, 0 to 20 mA
Nominal Resolution: 12 bits
Update Rate: Once per PLC scan
Minimum 10V Load: 1 kΩ
Maximum 20 mA Load: 500 Ω
Maximum Error at 25°C (Excluding Zero): 0.1%

RELAY OUTPUTS (HE-XLE/XLT/XL102)
Type: Mechanical contact
Maximum Output Current per Relay: 3 A at 250 Vac, resistive
Maximum Total Output Current: 5 A continuous
Maximum Output Voltage: 275 Vac, 30 Vdc
Maximum Switched Power: 1250 VA, 150 W
Contact Isolation to Ground: 1000 Vac
Maximum Voltage Drop at Rated Current: 0.5V
Expected Life: No load: 5,000,000
Rated Load: 100,000
Maximum Switching Rate: 300 CPM at no load, 20 CPM at rated load
Response Time: One update per ladder scan plus 10 mS

DIGITAL OUTPUTS (HE-XLE/XLT/XL103,104,105)
Output Type: Sourcing/10 K pull-down
Absolute Max Voltage: 28 Vdc maximum
Output Protection: Short circuit
Maximum Output Current per Point: 0.5 A
Maximum Total Current: 4 A continuous
Maximum Output Supply Voltage: 30 Vdc
Minimum Output Supply Voltage: 10 Vdc
OFF to ON Response: 1 mS
ON to OFF Response: 1 mS

SERIAL COMMUNICATIONS
Total Active Ports: 2
RS232 Ports/RS485 Ports: Yes/Yes
PLC/Drive Protocols: Yes
RTU/Modbus Master/Slave: Yes

NETWORKING
Integrated CsCan Network: Yes
Maximum CsCan Distance: 189 m (6000')
Programming Over Network: Yes
Peer-to-Peer Message: Yes
DeviceNet/PROFIBUS Master: No

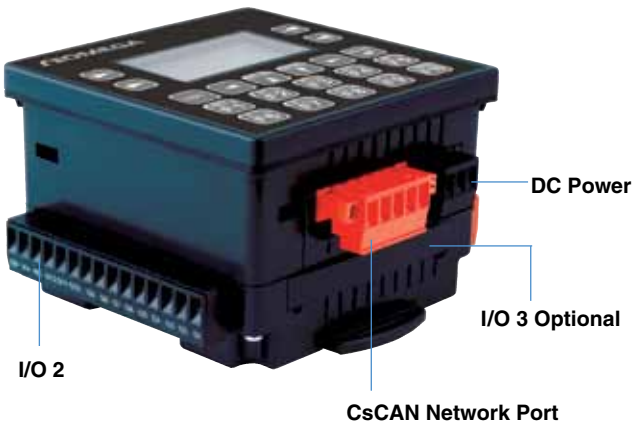
ETHERNET/INTERNET/WIRELESS
Ethernet Support: Optional
Telephone Modem Support: Optional
Wireless Modem Support: Optional
Cell Modem Support: Optional

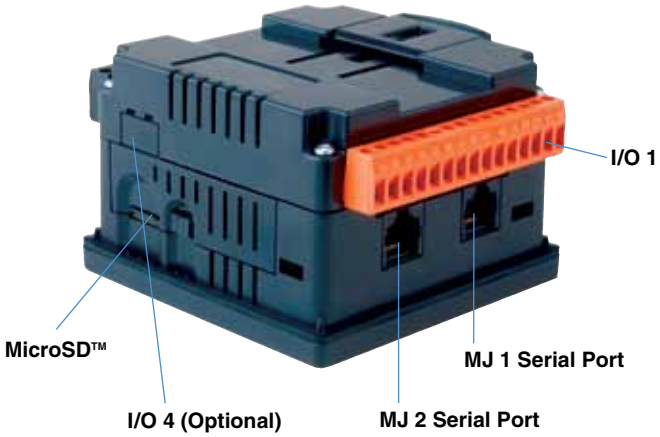
GENERAL XLe/XLt:
Height: 95.1 mm (3.7")
Width: 95.1 mm (3.7")
Depth: 63.9 mm (2.5")
Weight: 0.354 kg (12.5 oz)

GENERAL XL6:
Height: 143.6 mm (5.65")
Width: 186.1 mm (7.33")
Depth: 88 mm (3.46")
Weight: 0.751 kg (26.5 oz)

Environmental: 0 to 50°C (32 to 122°F)
Washdown: NEMA 4X (IP66) equivalent

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





XLe Series OCS: All models have a controller, operator interface, networking and I/O built-in. Controller has 256 KB of application memory and 1.2 mS/K logic scan. Operator interface features a 128 x 64 graphical display and 20 key keypad with function key and numeric entry capability.

To Order *Visit omega.com/ocsxl_series for Pricing and Details*

MODEL NO.	DESCRIPTION
HE-XE102	XLe Series OCS with DC/relay I/O; 12 digital inputs compatible with 12V/24 Vdc – 4 inputs can be used for 10 kHz high speed counting; 6 relay outputs – up to 5 A continuous current; 4 10-bit analog inputs selectable between 0 to 10V and 4 to 20 mA
HE-XE103	XLe Series OCS with DC/DC I/O; 12 digital inputs compatible with 12V/24 Vdc – 4 inputs can be used for 10 kHz hgh speed counting; 12 DC outputs – 0.5 A per point – 2 outputs can be used as PWM/pulse outputs; 2 10-bit analog inputs selectable between 0 to 10V and 4 to 20 mA
HE-XE104	XLe Series OCS with high-density DC/DC I/O; 24 digital inputs compatible with 12V/24 Vdc – 4 inputs can be used for 10 kHz high speed counting; 16 DC outputs – 0.5 A per point – 2 outputs can be used as PWM/pulse outputs; 2 10-bit analog inputs selectable between 0 to 10V and 4 to 20 mA
HE-XE105	XLe Series OCS with DC/DC and universal analog I/O; 12 digital inputs compatible with 12V/24 Vdc – 4 inputs can be used for 10 kHz high speed counting; 12 DC outputs – 0.5 A per point – 2 outputs can be used as PWM/pulse outputs; 2 14-bit universal analog inputs selectable between thermocouple, RTD, 0 to 100 mV, 0 to 10V and 4 to 20 mA; 2 12-bit analog outputs selectable between 0 to 10V and 4 to 20 mA

***Ordering Example: HE-XE102,** OCS, and **HE-CSP100-4,** software package.*

XLt Series OCS: All models have a controller, operator interface, networking and I/O built-in. Controller has 256 KB of application memory and 1.2 mS/K logic scan. Operator interface features a 160 x 128 sunlight readable graphics display via a high resolution resistive touch screen, 4 function keys and a system key.

MODEL NO.	DESCRIPTION
HE-XT102	XLt Series OCS with DC/relay I/O; 12 digital inputs compatible with 12V/24 Vdc – 4 inputs can be used for 10 kHz high speed counting; 6 relay outputs – up to 5 A continuous current; 4 10-bit analog inputs selectable between 0 to 10V and 4 to 20 mA
HE-XT103	XLt Series OCS with DC/DC I/O; 12 digital Inputs compatible with 12V/24 Vdc – 4 inputs can be used for 10 kHz high speed counting; 12 DC outputs – 0.5 A per point – 2 outputs can be used as PWM/pulse outputs; 2 10-bit analog inputs selectable between 0 to 10V and 4 to 20 mA
HE-XT104	XLt Series OCS with high-density DC/DC I/O; 24 digital inputs compatible with 12V/24 Vdc – 4 inputs can be used for 10 kHz high speed counting; 16 DC outputs – 0.5 A per point – 2 outputs can be used as PWM/pulse outputs; 2 10-bit analog inputs selectable between 0 to 10V and 4 to 20 mA
HE-XT105	XLt Series OCS with DC/DC and universal analog I/O; 12 digital Inputs compatible with 12V/24 Vdc – 4 inputs can be used for 10 kHz high speed counting; 12 DC outputs – 0.5 A per point – 2 outputs can be used as PWM/pulse outputs; 2 14-bit universal analog inputs selectable between thermocouple, RTD, 0 to 100 mV, 0 to 10V and 4 to 20 mA; 2 2-bit analog outputs selectable between 0 to 10V and 4 to 20 mA

***Ordering Example: HE-XT102,** OCS, and **HE-CSP100-4,** software package.*

HE-XE102 shown smaller than actual size.

XL6 Series OCS: 5.7" TFT color touchscreen with PLC, networking, and I/O. Controller has 256 KB of memory and 0.2 mS/K logic scan. Operator interface features a 320 x 240 sunlight readable graphics display via a high resolution resistive touch screen, 5 function keys and system key.

To Order *Visit omega.com/ocsxl_series for Pricing and Details*	
MODEL NO.	**DESCRIPTION**
HE-XL100	No local I/O; requires expansion I/O modules
HE-XL102	DC/relay I/O: 12 DC inputs (4 HSC); 6 relay outputs (3A); 4 analog inputs (0 to 10V, 4 to 20 mA, selectable)
HE-XL103	DC/DC I/O: 12 DC inputs (4 HSC); 12 DC outputs (2 PWM/pulse); 2 analog inputs (0 to 10V, 4 to 20 mA, selectable)
HE-XL104	DC/DC I/O: 24 DC inputs (4 HSC); 16 DC outputs (2 PWM/pulse); 2 analog inputs (0 to 10V, 4 to 20 mA, selectable)
HE-XL105	DC/DC and universal analog I/O: 12 DC inputs (4 HSC); 12 DC outputs (2 PWM/pulse); 2 universal analog inputs (RTD, thermocouple, 0 to 100 mV, 0 to 10V, 4 to 20 mA, selectable); 2 analog ouputs (0 to 10V, 4 to 20 mA, selectable)

Ordering Example: HE-XL102, *OCS,* ***HE-CSP100-4,*** *software package.*

XL SERIES COMMUNICATION OPTIONS

MODEL NO.	DESCRIPTION
HE-XEC	10/100 ethernet option kit, field installable; kit includes all parts necessary for internal installation within the XLe case, including a deeper plastic back cover adapted for Ethernet operation
HE-XMC	57.6k telephone modem option kit, field installable; kit includes all parts necessary for internal installation within the XLe case, including a deeper plastic back cover adapted for modem operation
HE-XRC9	900 MHz RF modem interface

XL SERIES ACCESSORIES

MODEL NO.	DESCRIPTION
HE-CPK	Cscape software package includes; USB memory stick with Cscape software and symbol library with 4000 plus symbols, and OCS programming cable (serial cable and USB adaptor)
HE500CBL300	OCS programming cable, 9-pin female (PC) to RJ-45 (OCS), 1.8 m (6')
HE-XCK	USB programming cable; includes USB to serial adaptor and RS232 cable
HE-MC1	Removable memory card, compatible with XL Series; card capacity is 1 GB
HE-MR1	Memory card reader for HE-MC1; portable device allows HE-MC1 to be plugged into the USB port of personal computers as a portable hard drive

Smart Graphics Displays

OM-SGD Series

1 YEAR WARRANTY

OM-SGD-35-M, 3.5" display.

OM-SGD-28-M, 2.8" display.

All models shown smaller than actual size.

OM-SGD-24-M, 2.4" display.

- **Color TFT Display—Choice of Three Screen Sizes**
- **Software Configurable—Multiple Display Configurations Included to Begin Programming**
- **Panel Mount**
- **Voltage or Current Input Models**
- **Two NEMA 6 (IP67) Waterproof (-IP) Models**
- **Wide Operating Power Supply Voltage Range: 4 to 30 Vdc**
- **Two Alarm Outputs**

Choose from over 40 configurations and customize in seconds to your exact requirements.

The OM-SGD Series is a family of panel meters with smart graphics display. Using the simple wizard based configuration software you can select from any of over 40 standard display configurations to start with. Users can then customize colors, text labels, input scaling and units before uploading the selected display configuration to the meter via USB interface to the PC.

The configuration software is compatible with Windows® XP (SP3), Vista, 7 and 8 and can be downloaded free online at OMEGA.

Each of the three display sizes 61, 71, 89 mm (2.4", 2.8", 3.5") is available as either a dual voltage input model or 4 to 20 mA input model. Waterproof NEMA 6 (IP67) rated versions of the 2.4" display are also available. A thermocouple add-on board is available for use with the six standard meters. The thermocouple add-on board is not compatible with the waterproof versions (OM-SGD-24-M-IP, OM-SGD-24-M-IP420). This will measure temperature via any Type J, K or T thermocouple.

OM-SGD-24-M-IP, waterproof smart graphics display, shown smaller than actual size.

OM-SGD-ADPT-TC, thermocouple adapter available for temperature monitoring applications shown connected to the back of the OM-SGD-24-M display. Shown smaller than actual size.

Specifications

INPUT

Voltage Input (OM-SGD-24-M, OM-SGD-24-M-IP, OM-SGD-28-M, OM-SGD-35-M): Accepts 2 voltage inputs, each channel can be programmed independently from 8 available ranges; voltage inputs are single-ended (power supply V+, Input 1 and Input 2 share a common ground)

Voltage Range (V)	Resolution (mV)
0 to 1.25	0.3
0 to 2.5	0.6
0 to 4	1.0
0 to 5	1.2
0 to 8	2.0
0 to 10	2.4
0 to 20	4.9
0 to 40	9.8

Current Input (OM-SGD-24-M-420, OM-SGD-24-M-IP420, OM-SGD-28-M-420, OM-SGD-35-M-420): 4 to 20 mA typical, 0 mA min, 50 mA max

Loop Voltage Drop (Current Input Models): 0.4 to 2.0V typical, 0V min, 5.0V max

Input Connection: Screw terminals for all models except waterproof models OM-SGD-24-M-IP and OM-SGD-24-M-IP420 which have NEMA 6 (IP67) 12-way connection

Alarm Outputs: 2 open-collector outputs (sink up to 10 mA max each)

Accuracy: 0.05% typical, 0.1% max

Linearity: ±1 count max (depends on user calibration settings)

Sample Rate: 3 samples/sec max

Display: Color TFT, 320 x 240 pixel, 16-bit color

Software: Windows® XP/Vista/7/8

Operating Temperature Range: 0 to 40°C (32 to 104°F)

Weight:

OM-SGD-24-M, OM-SGD-24-M-420: 96 g (3.4 oz)

OM-SGD-24-M-IP, OM-SGD-24-M-IP420: 255 g (9.0 oz)

OM-SGD-28-M, OM-SGD-28-M-420: 114 g (4.0 oz)

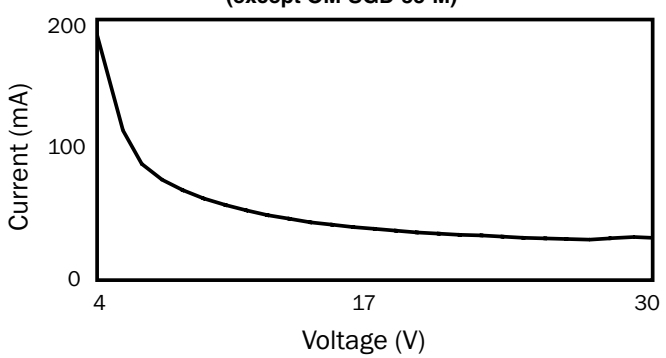
OM-SGD-35-M, OM-SGD-35-M-420: 162 g (5.7 oz)

POWER

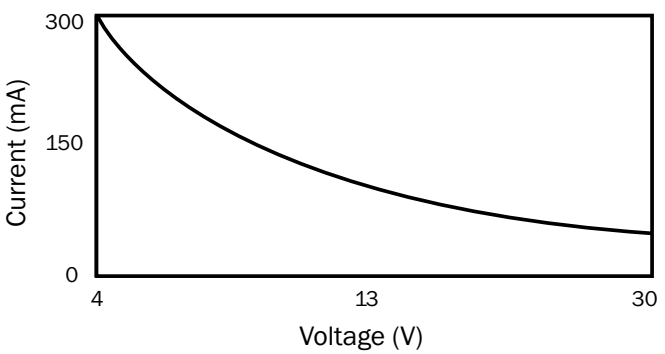
Supply Voltage: 4 to 30 Vdc (from external power supply or via USB connection, compatible with USB 1.0 and 2.0)

Supply Current (Voltage Dependent): 35 to 190 mA for all models except OM-SGD-35-M which is 50 to 300 mA

Typical supply current for all models (except OM-SGD-35-M)

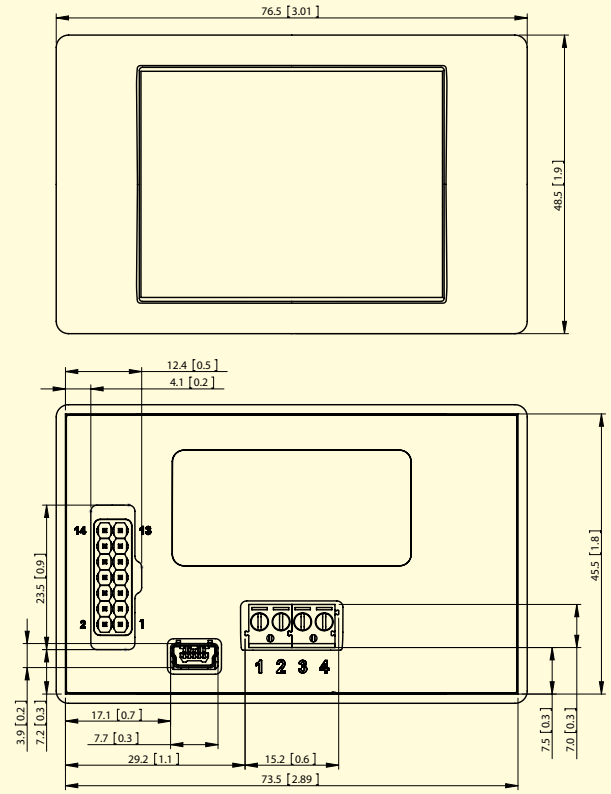


Typical supply current for OM-SGD-35-M

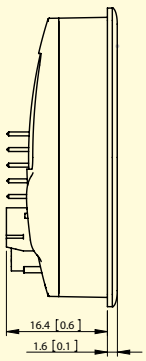


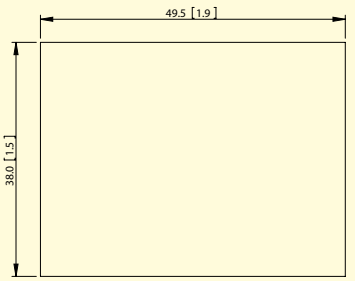
Dimensions: mm (inch)

OM-SGD-24-M and OM-SGD-24-M-420



WIRE SIZE = 16-26 AWG



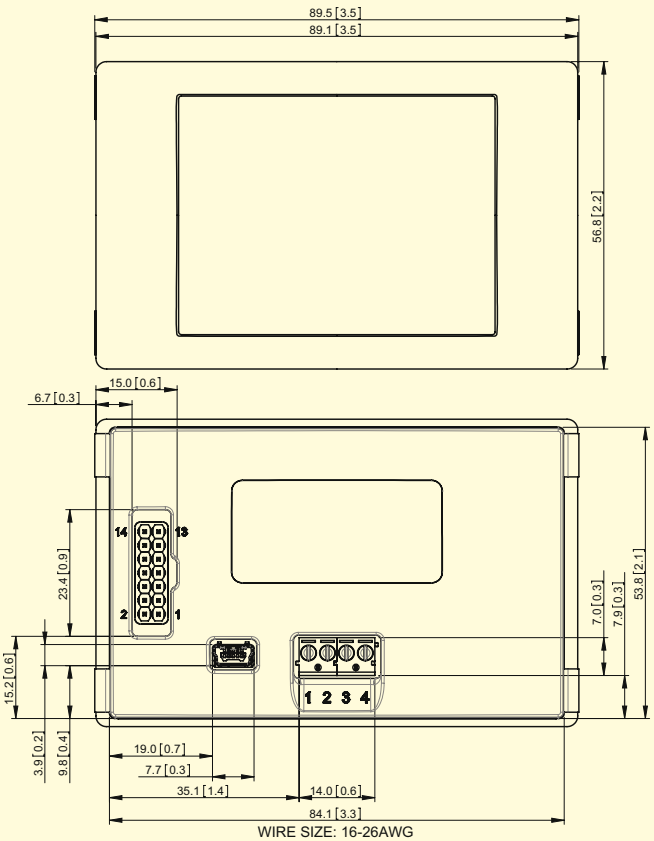


Viewing Area showing display in TEST mode

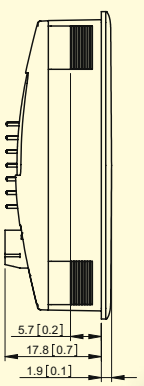
Panel Cut-out: 74 x 46 (2.91 x 1.81)

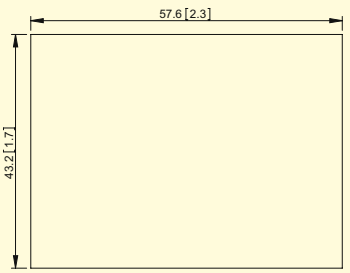
Dimensions: mm (inch)

OM-SGD-28-M and OM-SGD-28-M-420



WIRE SIZE: 16-26AWG



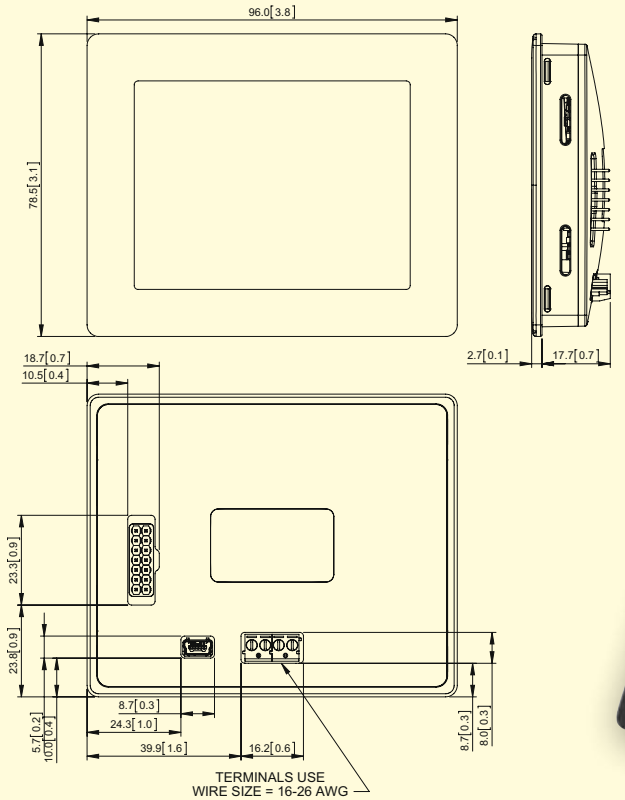


Viewing Area

Panel Cut-Out: 87 x 54.5 (3.43 x 2.15)

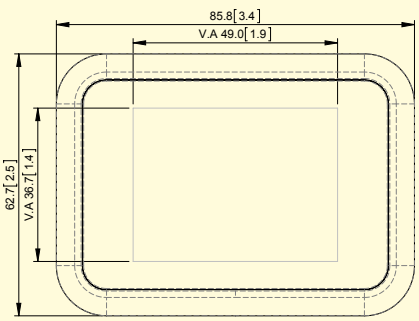
Dimensions: mm (inch)

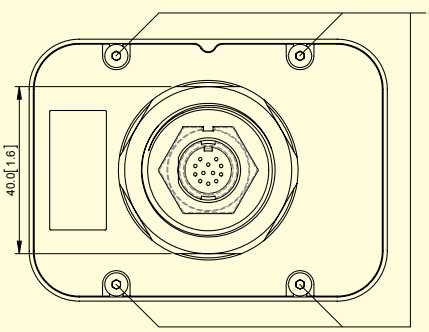
OM-SGD-35-M and OM-SGD-35-M-420

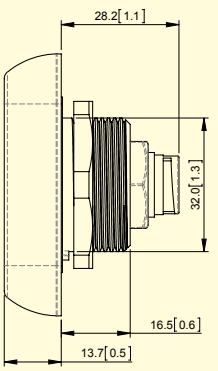


Dimensions: mm (inch)
Ø=diameter

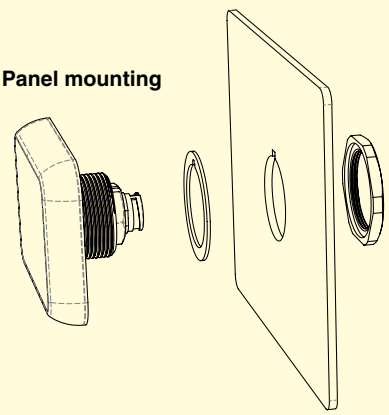
OM-SGD-24-M-IP and OM-SGD-24-M-IP420

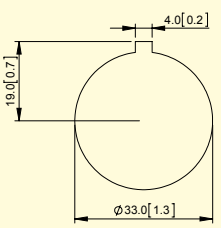






Panel mounting





Panel cut-out

All models shown smaller than actual size.

OM-SGD-35-M, 3.5" display.

OM-SGD-28-M, 2.8" display.

OM-SGD-24-M, 2.4" display.

OMEGACARE℠ Extended Warranty Program

OMEGACARE℠ extended warranty program is available for models shown on this page. Ask your sales representative for full details when placing an order. OMEGACARE℠ covers parts, labor and equivalent loaners.

To Order

Model No.	Description
Voltage Input (2 inputs)	
OM-SGD-24-M	2.4" smart graphics display
OM-SGD-24-M-IP	2.4" waterproof smart graphics display
OM-SGD-28-M	2.8" smart graphics display
OM-SGD-35-M	3.5" smart graphics display
Current Input (1 input)	
OM-SGD-24-M-420	2.4" smart graphics display
OM-SGD-24-M-IP420	2.4" waterproof smart graphics display
OM-SGD-28-M-420	2.8" smart graphics display
OM-SGD-35-M-420	3.5" smart graphics display

Accessories

Model No.	Description
OM-SGD-ADPT-TC	Thermocouple input module (for use with all models except waterproof models OM-SGD-24-M-IP and OM-SGD-24-M-IP420)
OM-CABLE-IP-12W-RA	Right angle waterproof connector cable for OM-SGD-24-M-IP and OM-SGD-24-M-IP420, 2 m (6.6') length
OM-CABLE-USB-A-MF	0.45 m (1.5') USB cable, type A to mini B

*Comes complete with quick start manual. Waterproof models **OM-SGD-24-M-IP** and **OM-SGD-24-M-IP420** include 32 mm mounting nut and IP67 connector. All other models include panel mounting clip. USB interface cable is required for programming and is sold separately.*

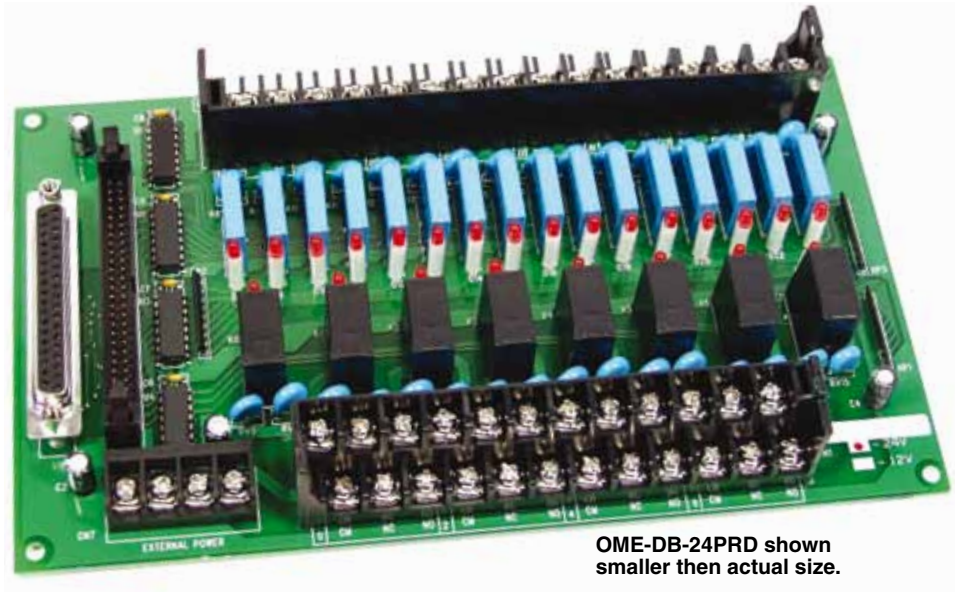
***Ordering Example: OM-SGD-35-M** 3.5" smart graphics display and **OCW-1,** OMEGACARE℠ extends standard 1-year warranty to a total of 2 years.*

24-Channel Power Relay Output Board

OME-DB-24PR/DB-24PRD

1 YEAR WARRANTY

- **Accepts 20-Pin Connector (OME-DB-24PR Only) to Control 8 Form C and 8 Form A Relays**
- **Switch up to 5A at 250 Vac / 5A at 30 Vdc**
- **Includes Varistor to Protect Each Channel Against High Voltage Spike**
- **Screw Terminals for Easy Field Wiring**
- **50-Pin Header Connects Directly to OME-PIO-D24, OME-PIO-D48, OME-PIO-D96, OME-PIO-D144 or Other OPTO-22 Compatible Board**
- **20-Pin Header (OME-DB-24PR Only) Connects Directly to OME-A-82XPG Series or OME-PCI-1800 Series**
- **37-Pin D-Sub Connector (OME-DB-24PRD Only) Attaches to OME-PIO-D24, OME-PIO-D48, OME-PIO-D56, OME-PIO-D96 or OME-PIO-D144 Boards**



OME-DB-24PRD shown smaller then actual size.

The OME-DB-24PR 24-Channel power relay output board consists of 8 form C and 16 form A electromechanical relays for efficient switching of loads by programmed control. The contact of each relay can control a 5 A load at 250 Vac/ 30 Vdc. The relay is energized by applying a 5 voltage signal to the appropriate relay channel on the 50-pin OPTO-22 compatible connector, 37-pin D-sub connector (OME-DB-24PRD only) or 20-pin flat cable connector (OME-DB-24PR only). Twenty-four enunciator LED's, one for each relay, light hen their associated relay is activated. To avoid overloading your PC's power supply, this board needs a 12 Vdc or 24 Vdc external power supply.

Specifications

RELAY
Nominal Load: 50 A/250 Vac, 5 A/30 Vdc
Maximum Switching Voltage: 270 Vac, 150 Vdc
Maximum Switching Current: 5 A
Life Expectancy: Mechanical (2 x 10^7), Electrical (3 x 10^4)
Time Value: (10 ms)
Control Logic: Input TTL high (+5V), relay on
Power Consumption: 24V@0.8 A maximum; 5V @ 0.2 A maximum

Operating Temperature: 0 to 60°C (32 to 140°F)
Storage Temperature: -20 to 70°C (-4 to 158°F)
Dimensions: 210 H x 130 mm W (8.3 x 5.1")
Humidity: 5 to 90% RH non-condensing

OMEGA CARE℠ Extended Warranty Program

OMEGACARE℠ extended warranty program is available for models shown on this page. Ask your sales representative for full details when placing an order. OMEGACARE℠ covers parts, labor and equivalent loaners.

To Order

Model No.	Description
OME-DB-24PR/24	24-channel power relay board (24V version) includes 1.5 m (5') 50-pin flat cable
OME-DB-24PR/12	24-channel power relay board (12V version) includes 1.5 m (5') 50-pin flat cable
OME-DB-24PR/24/DIN	OME-DB-24PR 24V version with DIN-rail mounting kit
OME-DB-24PR/12/DIN	OME-DB-24PR 12V version with DIN-rail mounting kit
OME-DB-24PRD/24	24-channel power relay board with 37-pin D-sub connector (24V version), includes 1 m 37-pin D-sub connector cable
OME-DB-24PRD/12	24-channel power relay board with 37-pin D-sub connector (12V version), includes 1 m 37-pin D-sub connector cable
OME-DB-24PRD/24/DIN	OME-DB-24PRD 24V version with DIN-rail mounting kit
OME-DB-24PRD/12/DIN	OME-DB-24PRD 12V version with DIN-rail mounting kit
OME-CA-2010	20-pin flat cable, 1 m (3')
OME-CA-2020	20-pin flat cable, 2 m (7')
OME-CA-5015	50-pin flat cable, 1.5 m (5')
OME-CA-3720	37-pin male-male D-sub connector cable 2 m (7')
OME-CA-3710	37-pin male-male D-sub connector cable 1 m (3')

Comes complete with operator's manual on CD.

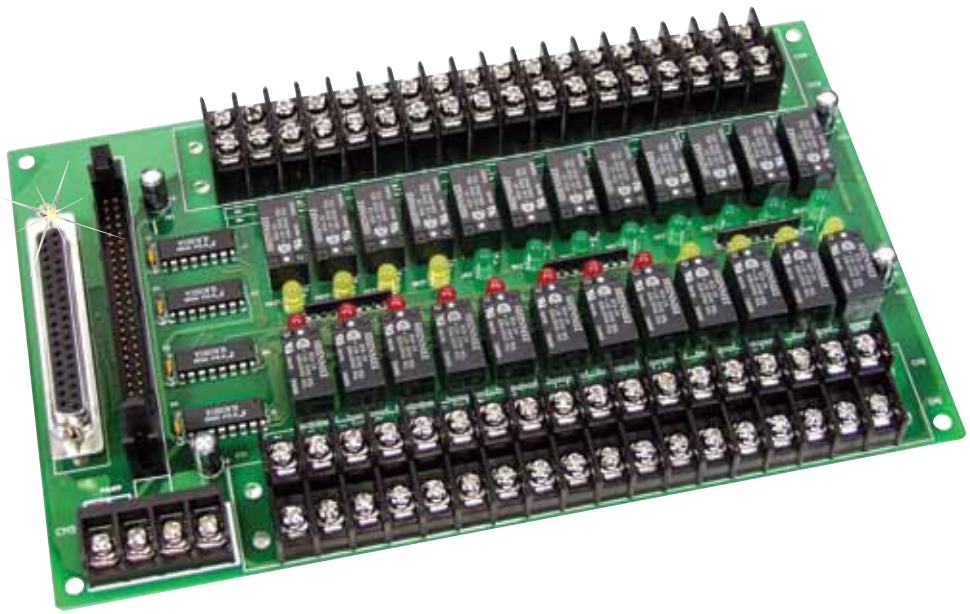
***Ordering Example: OME-DB-24PR/12,** 24-channel power relay board and **OCW-1** OMEGACARE℠ 1 year extended warranty for **OME-DB-24PR/12** (adds 1 year to standard*

24-Channel Relay Output Board

OME-DB-24R/ OME-DB-24RD

1 YEAR WARRANTY

- 24 Form C SPDT Relays
- OPTO-22 Compatible Connector
- Connects Directly to OME-DIO-24, OME-DIO-48, OME-DIO-144 or Other OPTO-22 Compatible Digital Output Board
- Switch up to 0.5A at 120 Vac; Switch up to 1A at 24 Vdc
- On Board Relay Driver Circuits
- LED's Indicate Relay Status
- Screw Terminals for easy Field Wiring



The OME-DB-24R consists of 24 form C, electromechanical relays for efficient switching of load by programmed control. The contact of each relay can control a 0.5 A /110 V load or 1 A/24 Vdc. The relay is energized by applying a 5 V signal to the appropriate relay channel on the 50-pin OPTO-22 compatible connector or 37-pin D-Sub connector. Twenty-four enunciator LED's, one for each relay, light when their associated relay is activated. To avoid overloading your PC's power supply, this board needs a +12 Vdc or +24 Vdc external power supply.

Specifications

Relay Type: 24 form C SPDT
Nominal Load: 0.5 A @120 Vac, 1A @ 24 Vdc
Maximum Switching Power: 60 VA, 24 W
Maximum Switching Voltage: 120 Vac, 60 Vdc
Maximum Switching Current: 1A
Life Expectancy: mechanical (2×10^7), electrical (2×10^5)
Time Value: operate (6 ms)
Control Logic: input TTL high (+5 V) current, relay on
Power Consumption: +12 V @ 528 mA max; +5 V @ 150 mA max
Dimensions: 132 H x 225 mm W (8.1 x 4.5")
Operating Temperature: 0 to 60°C (32 to 140°F)
Storage Temperature: -20 to 70°C (-4 to 158°F)
Humidity: 5 to 90% RH non-condensing
Connector: OME-DB-24, one 50-pin header; OME-DB-24RD, one 50-pin header and one 37-pin D-sub connector

OMEGACARE℠ Extended Warranty Program

OMEGACARE℠ extended warranty program is available for models shown on this page. Ask your sales representative for full details when placing an order. OMEGACARE℠ covers parts, labor and equivalent loaners.

To Order

Model No.	Description
OME-DB-24R/12	24-channel relay board (12 V version), includes 1.5 m (5') 50-pin flat cable
OME-DB-24R/24	24-channel relay board (24 V version), includes 1.5 m (5') 50-pin flat cable
OME-DB-24R/12/DIN	OME-DB-24R (12 V version) with DIN-rail mounting kit
OME-DB-24R/24/DIN	OME-DB-24R (24 V version) with DIN-rail mounting kit
OME-DB-24RD/12	24-channel relay board with 37-pin D-sub connector (12 V version), includes 1 m (3') 37-pin D-sub connector cable
OME-DB-24RD/24	24-channel relay board with 37-pin D-sub connector (24 V version), includes 1 m (3') 37-pin D-sub connector cable
OME-DB-24RD/12/DIN	OME-DB-24RD (12 V version) with DIN-rail mounting kit
OME-DB-24RD/24/DIN	OME-DB-24RD (24 V version) with DIN-rail mounting kit
OME-CA-5015	50-pin flat cable 1.5m (5')
OME-CA-3710	37-pin male-male D-sub connector cable 1 m (3')
OME-CA-3720	37-pin male-male D-sub connector cable 2 m (7')

Each board includes complete operator's manual on CD ROM.

***Ordering Example: OME-DB-24R** 16-channel isolated digital input board and **OCW-1,** OMEGACARE℠ extends standard 1-year warranty to a total of 2 years.*

Multifunction Digital Timer

CE

- 4 digit backlit LCD display digital timer
- 24 programmable timing modes
- 0-9999sec or 0-9999min time ranges
- 24 to 240Vac/dc powered
- 1 changeover and 1 N/O relay output
- Easy to programme through front keys
- Status and timing indicators
- EEPROM memory (minimum 10 years)
- IP20 enclosure code
- DIN rail mounting
- 2 module 36mm width
- Clear hinged tamperproof cover
- CE and RoHS compliant

The Omega PTC-16-A digital timer is a 4 digit multifunction, multi-time range timer suitable for controlling the operation of equipment, machinery, systems or processes in a wide range of industrial applications.

This dual digital timer has two relay outputs which can be configured as two independent timed outputs. A choice of 24 timing function modes can be selected for each of the outputs, together with a time range from 1 second to 9999 minutes.

The output contacts are fully isolated from the supply voltage.

These timers are housed in a compact DIN rail mounting enclosure measuring only 36mm in width and are powered from a wide range of 24 to 240Vac/dc.

Specifications

Accuracy: ±3sec/24hours

Power Supply Voltage:
24 to 240Vac

Burden: <3VA

Frequency: 50/60Hz

Time Ranges:
0 to 9999sec
0 to 9999min

Relay Output: Single pole changeover contact and single pole N/O contact

Contact Rating:
OP1 8A at 250Vac/30Vdc (resistive)
OP2 8A at 250Vac/30Vdc (resistive)

Electrical Contact Life:
100,000 operations

Reset Time:
100ms approx.

Mechanical

Enclosure: Panel mounting to DIN 43700, Self extinguishing plastic case
Plug in connection terminals

Enclosure Code:
Case IP20

Weight: 140g

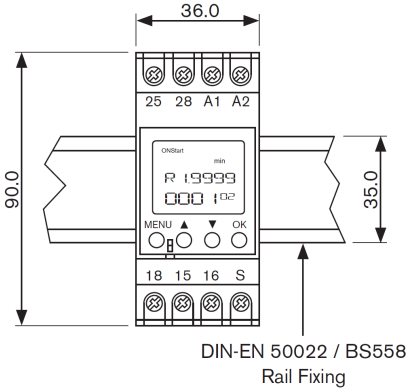
Environmental

Operating Temperature:
-5°C to 45°C (23°F to 113°F)

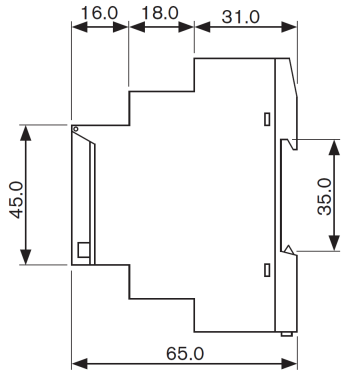
Storage Temperature:
-10°C to 55°C (14°F to 131°F)

General

Markings: CE marked
(meets EN61010-1:2010 low voltage and EN61326-1:2013 EMC directives)



DIN-EN 50022 / BS558
Rail Fixing

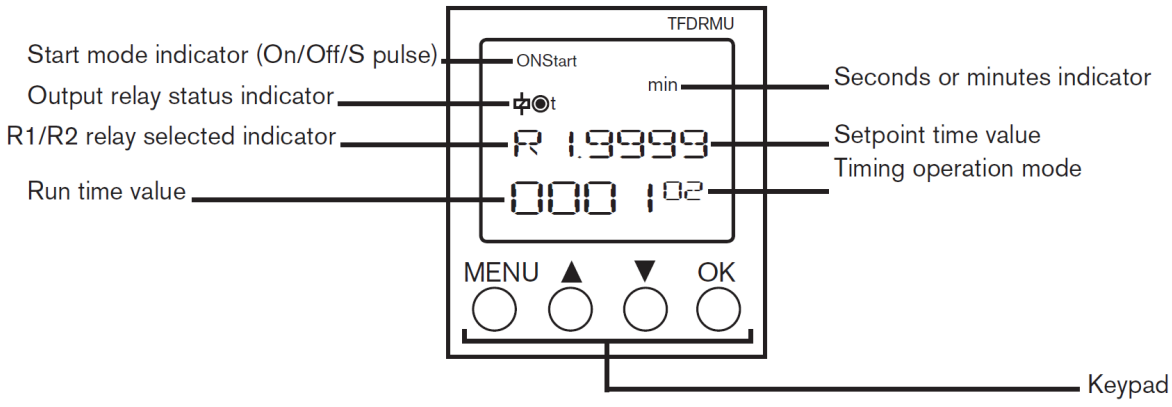


Cable entry 2mm²

Timing Modes

Timing Mode	Timing Function Description	Start Mode
Mode 01	Delay on Energise (On Delay)	Starts when power applied
Mode 02	Interval	Starts when power applied
Mode 03	Delayed Cycling with Equal On and Off Time	Starts when power applied
Mode 04	Immediate Cycling with Equal On and Off Time	Starts when power applied
Mode 05	Delayed Pulse (0.5 second)	Starts when power applied
Mode 06	Interval (Close to Start)	Close to Start
Mode 07	Interval (Open to Start)	Open to Start
Mode 08	Delay On Delay Off	Close to Start
Mode 09	Bistable with Time Limit	Close to Start, Close again to Stop
Mode 10	Delay on De-Energise (Re-triggerable)	Close to Start, Open for Time Delay
Mode 11	Delay on De-Energise (Non re-triggerable)	Close to Start, Open for Time Delay
Mode 12	Delay on Energise	Pulse to Start
Mode 13	Output Permanently On	Starts when power applied
Mode 14	Output Permanently Off	Starts when power applied
Mode 15	Single Delayed Cycle with Variable On and Off Times	Starts when power applied
Mode 16	Single Immediate Cycle with Variable On and Off Times	Starts when power applied
Mode 17	Delayed Cycling with Variable On and Off Times	Starts when power applied
Mode 18	Immediate Cycling with Variable On and Off Times	Starts when power applied
Mode 19	Delay On Delay Off with Variable Off and On Times	Close to Start (Re-triggerable)
Mode 20	Delay On Delay Off with Variable Off and On Times	Close to Start (Non Re-triggerable)
Mode 21	Interval with Alternate Time Duration	Close to Start
Mode 22	Delay Off Delay On	Close to Start
Mode 23	Delay on Energise followed by Independent Interval	Close to Start
Mode 24	Interval followed by Independent Delay on De-Energise	Close to Start

Front Panel Display Functions



To Order	
P/N	**Description**
PTC-16-A	Multifunction Digital Timer 24-240Vac/dc

Multifunction Digital Timer

CE

- **Dual 4 digit green LCD display timer**
- **13 programmable timing modes**
- **9 time ranges from 99.99sec to 9999hrs**
- **7-24Vac/9-30Vdc or 90-250Vac**
- **1 changeover and 1 N/O relay output**
- **2 SSR drive outputs**
- **Programmable start, gate and reset**
- **EEPROM memory (minimum 10 years)**
- **Security passcode**
- **Standard DIN48 square size**
- **IP65 front enclosure code**
- **Panel mounting**
- **CE and RoHS compliant**

The Omega PTC-13-A dual 4 digit digital timer is a multifunction, multi-time range digital timer suitable for controlling operation of equipment, machinery, systems or processes in a wide range of industrial applications.

Thirteen timing functions can be selected together with time ranges from 0.01 seconds to 9999 hours, to operate two independent relay output contacts which are isolated from the supply voltage.

The output contacts can be configured as two timed outputs, or one timed and one instantaneous output.

These timers are housed in a compact DIN48 square panel mounting enclosure and are powered from 7-24Vac/9-30Vdc or 90-250Vac.

Specifications

Accuracy: ±0.01% ±1ms

Power Supply Voltage:

PTC-13-LV-A 7-24Vac/9-30Vdc (±10%)
PTC-13-A 90-250Vac (±10%)

Burden: <5VA

Frequency: 50/60Hz

Time Ranges: 0.01 to 99.99sec, 0.1 to 999.9sec, 1 to 9999sec, 00:01 to 99:59min, 0.1 to 999.9min, 1 to 9999min, 00:01 to 99:59hrs, 0.1 to 999.9hrs, 1 to 9999hrs

Relay Output: Single pole changeover contact and single pole N/O contact

Contact Rating:
OP1 10A at 250Vac/30Vdc (resistive)
OP2 5A at 250Vac/30Vdc (resistive)

Relay Contact Life:
Electrical: 200,000 operations
Mechanical: 5,000,000 operations

SSR Drive Output: Open collector output, maximum 30Vdc, 100mA

Start, Gate & Reset Inputs:
PNP or NPN programmable
minimum pulse/void durations adjustable from 5 to 100ms
PNP active level is a 5 to 30V pulse
NPN active level is a 0 to 2V pulse

Mechanical

Enclosure: Panel mounting to DIN 43700, Self extinguishing plastic case Plug in connection terminals

Enclosure Code: Case front IP65, Case rear IP20

Weight: 230g

Environmental

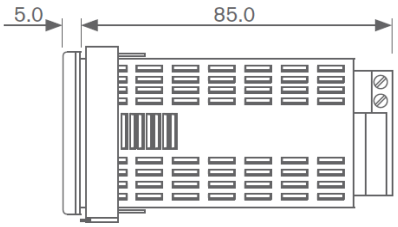
Operating Temperature:
0°C to 50°C (32°F to 122°F)

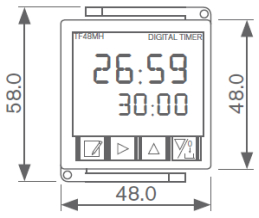
Storage Temperature:
-25°C to 70°C (-13°F to 158°F)

General

Markings: CE marked

(meets EN61010-1:2010 low voltage and EN61326-1:2013 EMC directives)





Panel cutout 45mm square (-0.0/+0.6)

Timing Modes

Timing Mode	Timing Function Description	Start / Reset / Restart / Count
Mode 0	Delay on Energise, Interval or Delayed Pulse	Close to Start, Reset when Start Opens
Mode 1	Delay on Energise, Interval or Delayed Pulse	Pulse to Start
Mode 2	Delay on Energise, Interval or Delayed Pulse	Close to Start, Restarts when Start Opens
Mode 3	Delay on Energise, Interval or Delayed Pulse	Open to Start, Close Start to Reset
Mode 4	Delayed Cycle or Immediate Cycle with Equal On and Off Time	Pulse to Start
Mode 5	Delayed Cycle or Immediate Cycle with Equal On and Off Time	Close to Start, Reset when Start Opens
Mode 6	Delay on Energise, Interval or Delayed Pulse	Count only with Start Closed
Mode 7	Delay on Energise, Interval or Delayed Pulse	Count only with Start Closed, Restarts when Start Closed again
Mode 8	Delayed Cycle or Immediate Cycle with Single Cycle and Equal On and Off Time	Pulse to Start
Mode 9	Delayed Cycle or Immediate Cycle with Variable On and Off Times	Pulse to Start
Mode A	Delayed Cycle or Immediate Cycle with Variable On and Off Times	Close to Start, Reset when Start Opens
Mode b	Double Output Delayed Cycle or Immediate Cycle with Variable On and Off Times	Pulse to Start
Mode C	Delay on Energise, Interval or Delayed Pulse	Count only with Start Closed, Restarts when Start Opens

Front Panel Display Functions

To Order	
P/N	**Description**
PTC-13-LV-A	Dual Digital Timer 7-24Vac/9-30Vdc
PTC-13-A	Dual Digital Timer 90-250Vac

Multifunction Digital Timer

CE

- **4 digit red LED display dual timer**
- **5 programmable timing modes**
- **Time ranges from 99.99sec to 9999hrs**
- **24Vac/Vdc or 100-240Vac**
- **1 changeover and 1 N/O relay output**
- **Programmable start and reset**
- **EEPROM memory (minimum 10 years)**
- **Security passcode**
- **IP65 enclosure code**
- **Panel mounting**
- **Selectable up/down timing**
- **LED status and timing indicators**
- **CE and RoHS compliant**

The Omega PTC-14-A dual 4 digit digital timer is a multifunction, multi-time range digital timer suitable for controlling operation of equipment, machinery, systems or processes in a wide range of industrial applications.

Five timing functions can be selected together with time ranges from 0.01 second to 9999 hours, to operate two independent relay output contacts which are isolated from the supply voltage.

The output contacts can be configured as two timed outputs, or one timed and one instantaneous output.

These timers are housed in a compact panel mounting enclosure and are powered from 24Vac/dc or 100-240Vac.

Specifications

Accuracy: ±0.1% of full scale

Power Supply Voltage:
PTC-14-LV-A: 24Vac/dc
PTC-14-A: 100 to 240Vac

Burden: <3VA

Frequency: 50/60Hz

Time Ranges:
0.01 to 99.99sec, 00:01 to 99:59min
00:01 to 99:59hrs, 1 to 9999hrs

Relay Output:
Single pole changeover contact and single pole N/O contact

Contact Rating:
OP1 16A at 250Vac/30Vdc (resistive)
OP2 5A at 250Vac/30Vdc (resistive)

Electrical Contact Life:
100,000 operations

Reset Time:
100ms approx.

Mechanical

Enclosure: Panel mounting to DIN 43700, Self extinguishing plastic case
Plug in connection terminals

Enclosure Code:
Case IP65

Weight: 170g

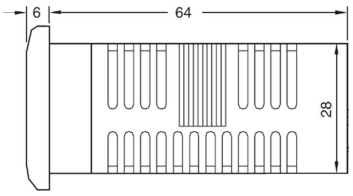
Environmental

Operating Temperature:
0°C to 50°C (32°F to 122°F)

Storage Temperature:
-20°C to 60°C (-4°F to 140°F)

General

Markings: CE marked
(meets 2014/35/EU low voltage and 2014/30/EU EMC directives)



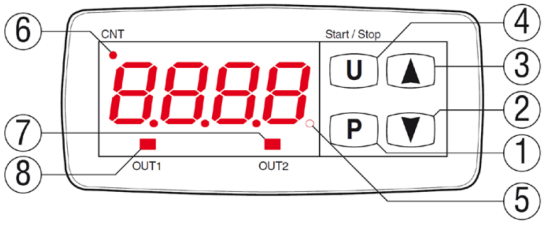
Panel cutout 71mm x 29mm (-0.0/+0.5)

Allow 95mm x 41mm clearance around controller for panel clips

Timing Modes

Timing Mode	Timing Function Description	Start / Stop / Reset / Count
OUT1 Mode 1	Delay on Energise (On Delay)	Bistable Start/Stop Bistable Reset-Start/Stop Monostable Start/Stop Monostable Reset-Start/Stop Bistable Reset/Start/Stop Bistable Start/Stop-Reset Count UP or DOWN
OUT1 Mode 2	Interval	
OUT1 Mode 3	Immediate Cycling with Variable On and Off Times	
OUT1 Mode 4	Delayed Cycling with Variable On and Off Times	
OUT1 Mode 5	Single Delayed Cycle with Variable On and Off Times	
OUT2 Mode 1	Disabled	
OUT2 Mode 2	Instantaneous Contact	
OUT2 Mode 3	Operates the same timing function as OUT1 with an independent set time	Bistable Start/Stop Bistable Reset-Start/Stop Monostable Start/Stop Monostable Reset-Start/Stop Bistable Reset/Start/Stop Bistable Start/Stop-Reset Count UP or DOWN
OUT2 Mode 4	Operates the same timing function as OUT1 but in advance of OUT1 by an independent set time	
OUT2 Mode 5	Energises when the buzzer sounds	

Front Panel Display Functions



1. P: Key to set the time delays and to access the parameter programming mode to set the parameter values.
2. ▼: Key to decrease the setting value and to select parameters.
3. ▲: Key to increase the setting value and to select parameters.
4. U **Start/Stop:** Press for Start/Stop/Reset functions.
5. **SET LED:** In normal operating mode this indicates the time delays are being set. In programming mode this indicates the parameter programming level.
6. **CNT LED:** Indicates count in progress, count interrrupted or the reset status.
7. **OUT1 LED:** Indicates the status of output relay 1.
8. **OUT2 LED:** Indicates the status of output relay 2.

To Order	
P/N	**Description**
PTC-14-LV-A	Multifunction Digital Timer 24Vac/dc
PTC-14-A	Multifunction Digital Timer 100-240Vac

⅛ DIN Multi-Programmable Timers

PTC-20 Series

1 YEAR WARRANTY

- ⅛ DIN Cutout
- 3 Different Models:
  - Standard
  - High-Performance
  - Repeat Cycle
- 4-Digit Dual-Line Display Indicates Set Value and Time Value
- All Models Offer Multiple Field-Programmable Modes For Operation and Time Ranges
- NEMA 4 (IP65) Rated for Use in Washdown Conditions
- Universal AC Supply Voltage (90 to 264 Vac)
- 5 A Relay Output or Open-Collector Output
- Industry-Standard 11-Pin Socket Connection*

PTC-21

PTC-22

PTC-23

Panel Punches Available, Visit OMEGA

All models shown smaller than actual size.

If you are looking to outfit your control panel with timers that have an attractive LED display, consider the PTC-20 Series, which delivers functionality at competitive prices.

Designed to fit the correct timer to your application, the PTC-20 Series comprises 3 models. The PTC-21 base unit offers 5 field-selectable operating modes and time ranges as well as a host of other convenient features. The high-performance PTC-23 offers advanced functions, such as dual setpoints and 1 ms resolution. The PTC-22 provides a repeat cycle (batch stop, batch continue) and interval modes specifically tailored for cyclical operations.

General Specifications

Supply Voltage: 90 to 240 Vac, 50/60 Hz
Power Consumption: <10 VA
Resolution: Settable for time values in hours/minutes/seconds ranges
Inputs Start and Reset: NPN or dry contact
Activation Time: 21 ms (85 to 264 Vac powered units)
Impedance: 10 kΩ
Front-Panel Rating: IEC IP65
Operating Temperature: 0 to 55°C (32 to 131°F)
Storage Temperature: -40 to 90°C (-40 to 194°F)
Humidity: 5 to 95% RH, non-condensing
Memory: Non-volatile

Operation

Time Ranges: Hours, minutes, seconds; hours, minutes; minutes, seconds
Repeat Accuracy: ±0.01%

Physical

Dimensions: 48 H x 48 W x 85 mm D (1.89 x 1.89 x 3.35")
Display: Dual-line, 4-digit, 7-segment LED, 8 mm H (0.31")
Mounting: Panel-mount 45 x 45 mm (1.77 x 1.77"), cutout or DIN rail
Wiring Connection: Screw terminals on an 11-pin socket
Weight: 100 g (3.5 oz)

Base Model PTC-21

Output: Timed relay, DPDT (5 A)
Operating Modes (Shown): On-delay, off-delay, on-delay (interval), interval and repeat cycle

Repeat Cycle PTC-22

Inhibit: NPN or dry contact
Outputs:
Relay: 2 SPDT (5 A), 15 ms latency
Transistor: NPN
Open Collector: 30 Vdc, 30 mA max
Operating Mode (Shown):
Repeat Cycle: Batch stop, batch continue and interval

High Performance PTC-23

Inhibit: NPN or dry contact
Outputs:
Relay: 2 SPDT (5 A), 15 ms max latency
Transistor:
NPN Open Collector: 30 Vdc, 30 mA max opto isolated
Operating Modes: 17 different operating modes available (popular modes shown)

OMEGACARE℠ Extended Warranty Program

OMEGACARE℠ extended warranty program is available for models shown on this page. Ask your sales representative for full details when placing an order. OMEGACARE℠ covers parts, labor and equivalent loaners.

To Order

Model No.	Description
PTC-21	Standard timer
PTC-22	Repeat-cycle timer
PTC-23	High-performance timer
PTC-21-SOCKET	Socket for PTC-20 Series - *Required for operation

Comes complete with operator's manual.
***Ordering Example: PTC-21,** standard timer.*
***OCW-2.** OMEGACARE℠ extends standard 1-year warranty to a total of 3 years.*

70A

as a solid state oscillator, resulting in a loud alarm tone. A small, 29 mm (1.13") diameter hole is required for panel mounting.

AUDIBLE ALARM

OMEGA's Model 70A audible alarms are the latest development in solid sound production. When 120 Vac is applied to them, a piezoelectric transducer operates

To Order

MODEL NO.	TONE TYPE
70A-1	Continuous tone
70A-2	Fast pulse tone
70A-3	Slow pulse tone
70A-4	Warble tone

70A-4, shown larger than actual size.

SSR330

HIGH-RELIABILITY SOLID STATE RELAYS

Solid state relays are used for switching large loads and, in conjunction with pressure switches, they extend the power rating of the switch.

SSR330DC10 with cover, shown smaller than actual size.

To Order

MODEL NO.	CONTROL SIGNAL	MAX AC OUTPUT
SSR330AC10 **SSR330AC25** **SSR330AC50**	AC Control Signal (100 to 280 Vac)	10 A 25 A 50 A
SSR330DC10 **SSR330DC25** **SSR330DC50**	DC Control Signal (4 to 32 Vdc)	10 A 25 A 50 A
FHS-2	Finned heat sink	

TD Series

DELAY RELAYS

Delay relays are used to eliminate false pressure transients from sounding high alarms (TD-69). The TD-73 is used to prevent furnaces and compressors from quick restarts.

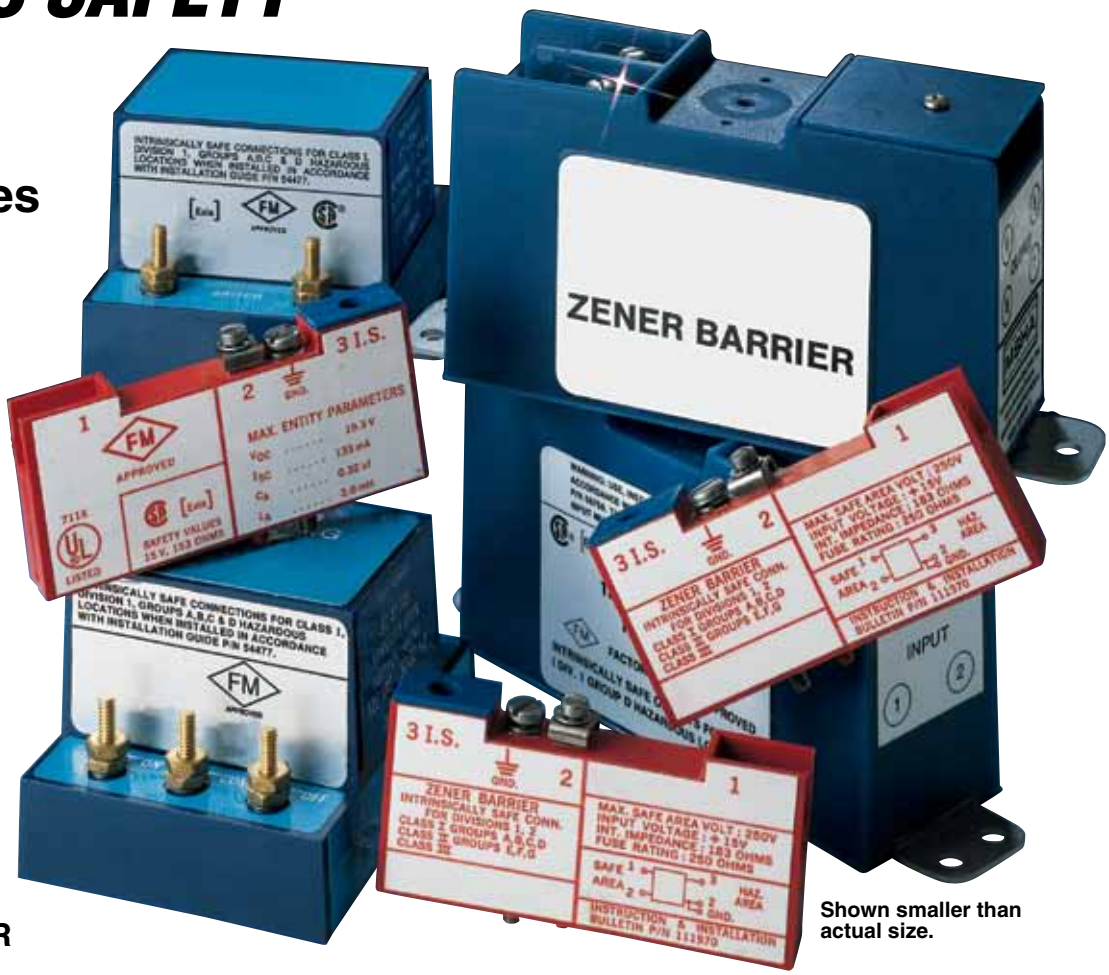
To Order

MODEL NO.	ADJUSTABLE TIME DELAY	TYPE
TD-69	6 seconds to 8 minutes	Delay-on-make
TD-73	6 seconds to 5 minutes	Delay-on-break

SOLID-STATE RELAYS FOR INTRINSIC SAFETY

SBG Series

1 YEAR WARRANTY



Shown smaller than actual size.

OMEGA SOLID STATE RELAYS FOR INTRINSIC SAFETY

The maximum energy possible at the switch terminals of the OMEGA Solid-State Relays is far below the explosive point of the most volatile surrounding gas conditions. The type of non-voltage-producing switch or sensor best fitted for the application can be utilized, since the entire switching circuit is rendered intrinsically safe by the OMEGA Solid-State Relay. As the switching circuit is low voltage, there is no shock hazard to operating or maintenance personnel.

OMEGA zener barriers must be installed in conformance with the National Electrical Code and the Instruction, Installation and Service Bulletin supplied with all units. Periodic checks of ground bonding and cleanliness of units and terminals constitute the only maintenance required.

Installation and Maintenance

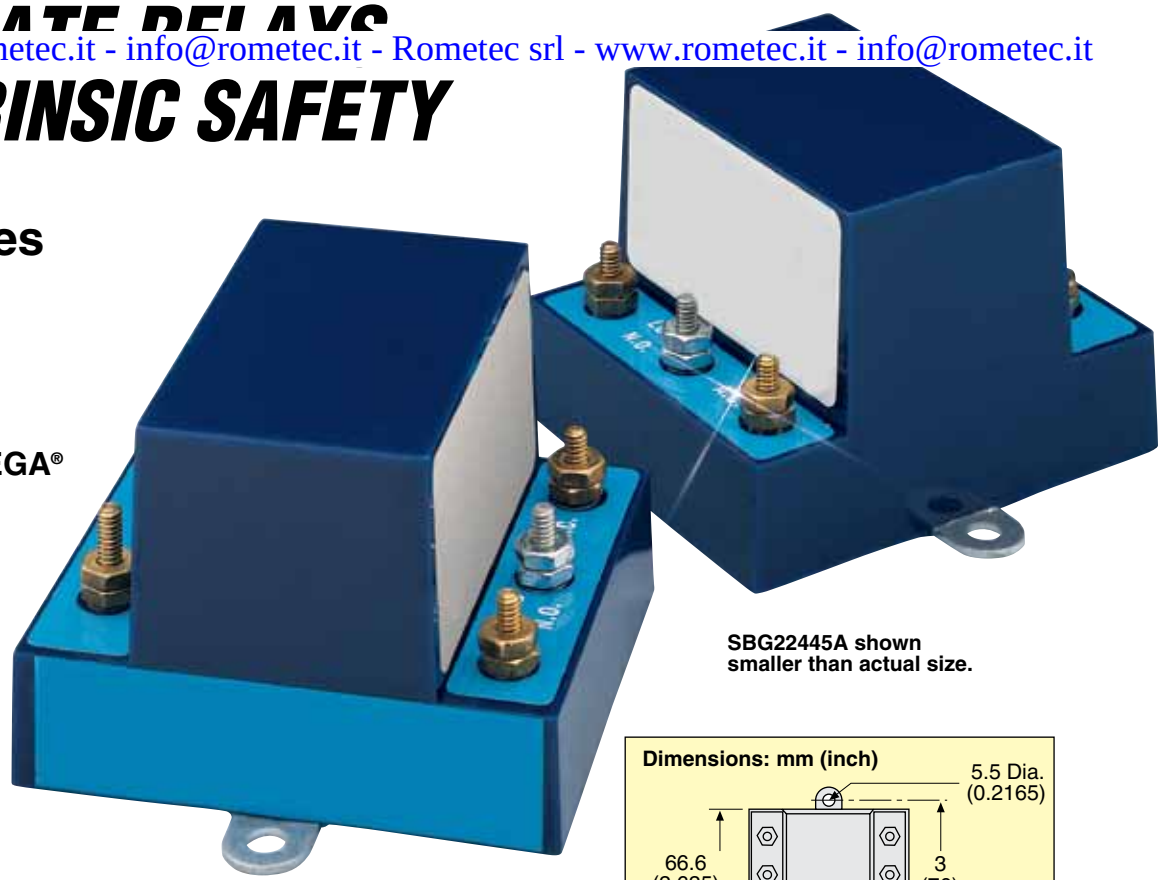
OMEGA Solid-State Relays units are normally installed in a safe area and connected to the sensor in a hazardous location; no explosion-proof or protective housings of any kind are are needed. Units install singly in any position, or can be grouped on a common earth-grounded plate with mounting tabs to provide electrical grounding. No. 6-32 threaded electrical terminals are conveniently placed atop the unit housings.

	Model No.	Approval					Hazardous Locations					
							Group					
		UL	FM	CSA	Class	Division	A	B	C	D	E	F
Solid-State Relay	**SBG25872A**	X	X	X	I, II	1, 2	X	X	X	X	X	X
	SBG25873A	X	X	X	I, II	1, 2	X	X	X	X	X	X
Latching Solid-State Relay	**SBG41705A**	X	X		I, II	1, 2	X	X	X	X	X	X

Note: *Zener barrier model numbers* ***SBG54803A*** *and* ***SBG54806A*** *are certified by CSA for mounting inside a suitable enclosure in Div. 2 or non-hazardous locations and must be connected by means of the 2 studs provided to a grounded copper busbar or equivalent.*

SOLID STATE RELAYS FOR INTRINSIC SAFETY

SBG Series



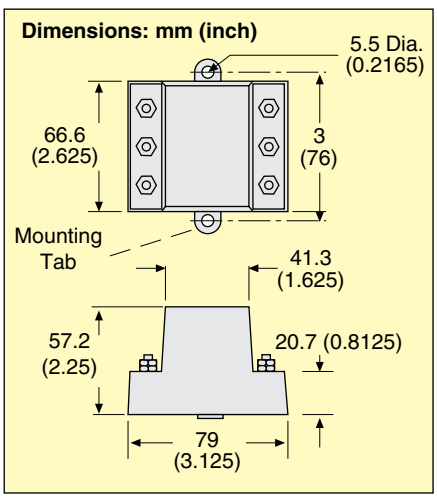
SBG22445A shown smaller than actual size.

Advantages of OMEGA® Solid State Relays

- Rapid, Arc-Free Response for Positive, Non-Mechanical Operation
- Solid State Reliability Ensures Consistent Performance
- Low-Power Switching where a Few Milliamps of Current Control High-Power Loads
- Encapsulated Construction—Impervious to Dust, Moisture, and Foreign Material
- Standardized, Modular Housings for Easier Installation
- Exceptionally Long, Trouble-Free Service Life

Solid State Relay:
Less than 100 µA at 14 Vdc actuates the unit to control AC loads to 5 A at 120 Vac. Resistive (up to 400,000 Ω) or short-circuiting sensors operate the unit. There are 115 Vac and 230 Vac models.

Latching Solid State Relay:
The 115 Vac model has momentary actuation, "start-stop" or differential control switching for resistive loads to 0.3 A. OMEGA solid state relays for intrinsic safety allow non-voltage producing switches mounted in the hazardous area to safely control higher-power AC loads in the non-hazardous area. Typical applications include flow, level, and pressure switches, which may be inputs to an alarm or control system.



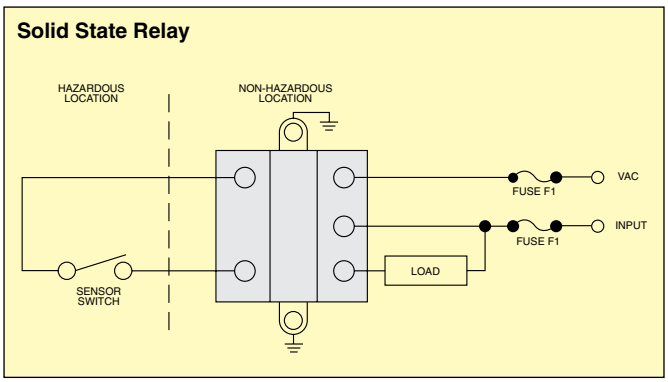
To Order

Model No.	Description	Line & Load Voltage Range (Vac)	Load Current Max	Turn-On Sensitivity (Typical)	Turn-Off Sensitivity (Typical)	Voltage Loss	Operating Temperature Range	Output Leakage Current Max	Switching Operation
SBG22445A	SSR for Intrinsic safety	95 to 135	5A	≤400 kΩ	1 MΩ	2 Vac	-17.8 to 48.9°C (0 to 120°F)	6 mA @120 Vac	SPST NO
SBG25872A		100 to 135						6 mA @120 Vac	SPST NC
SBG25873A		200 to 250						12 mA @ 250 Vac	SPST NO
SBG41705A	Latching SSR for intrinsic safety	105 to 125	0.3A steady state	≤25 kΩ	1 MΩ	2 Vac	32 to 120°F	3 mA @120 Vac	SPST NO

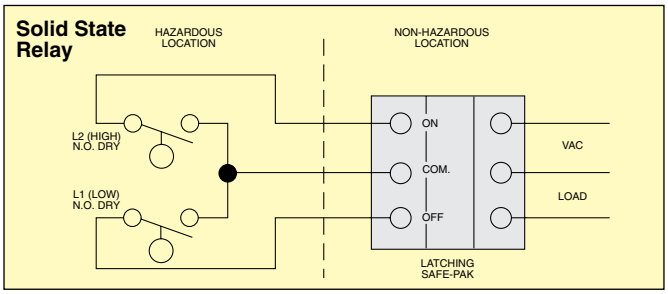
Note 1: *For typical wiring diagrams, see next page.*
Note 2: *All AC voltage and current specifications are RMS values unless otherwise stated.*
Note 3: *Housing material is polysulfone.*
Comes complete with operator's manual.
Ordering Example: SSBG22445A, *intrinsic safety SSR.*

FOR INTRINSIC SAFETY

Solid state relays are typically used with non-powered sensor switches in the hazardous area.



Solid state relays SBG22445A, SBG25872A, and SBG25873A have a sensor switch for hazardous locations.



Latching solid state relay SBG41705A handles high and low sensors located in a hazardous location.

Warning

Product must be maintained and installed in strict accordance with the National Electrical Code and the applicable OMEGA® operator's manual. Failure to observe this warning could result in serious injuries or damages.

INTRINSICALLY SAFE RELAYS FOR LEVEL CONTROL SYSTEMS

Intrinsically safe relay electronics are designed for use with OMEGA® LVC-E conductivity level switches and LVC-S, LVC-N, and LVC-F mounting assemblies. They can also be used with other non-powered mechanical relays to provide an intrinsically safe switch in a hazardous area. Relay electronics must be mounted in the non-hazardous area.

The sensor switches can be mounted in the hazardous area and are intrinsically safe only when connected to an approved intrinsically safe relay. Consult Flow Engineering for additional information.

LVC551 shown smaller than actual size.

To Order

Model No.	Description	Function	Max Media Resistance	Approvals	Hazardous Locations
LVC551	8 A resistive @ up to 120 Vac	Field selectable high/low, latching/ non-latching, pump up/pump down	470,000 Ω	FM	Class I, II, Division 1, Groups A, B, C, D, E, F, G
LVC552	8 A resistive @ up to 120 Vac		100,000 Ω	UL	

Comes complete with operator's manual.

***Ordering Example: LVC551,** SPDT relay output.*

Single- and Three-Phase DIN Rail Mount Solid State Relays

SSRDIN Series

- Ratings Up to 30 A (22.5 mm), 45 A (45 mm), or 25 A 3-Phase
- LED Input Status Indicator
- Integral Heat Sink Eliminates the Need for Complex Thermal Calculations
- DBC Substrate for Superior Thermal Performance
- Epoxy-Free Design Minimizes Internal Component Stress
- Standard Ratings Up to 30 A @ 600 Vac
- No External Transient Protection Required (Internal TVS)
- IP20 Touch-Safe Housing
- AC or DC Inputs
- 4000 Vac Optical Isolation
- Zero-Voltage Switching
- Mounts on DIN Rail or Panel

Designed for superior thermal performance in harsh industrial environments, OMEGA's new SSRDIN/SSR3PH relay is the most advanced DIN rail solid state relay in its range. The epoxy-free design eliminates stress on internal components, preventing damage to the encapsulant during load failure.

The vertical placement of the direct-bond substrate allows the SCR die to efficiently transfer heat to the heat sink and into ambient air. As a result, these relays can operate at a lower temperature than their competitors, which accounts for the higher I2T and surge-current ratings.

The SSRDIN's internal transient protection is fully repeatable, making MOVs or other external suppressors unnecessary. This feature allows the output to conduct load-current when a transient is detected across the output terminals, rather than forcing load-current through the protection circuit. Thus, no degradation of protection occurs.

These relays are ideal for numerous commercial and industrial applications, including mercury relay replacement, professional food-service equipment (ovens, fryers, dispensing equipment, conveyors, etc.), sterilizers, temperature control systems, plastic extrusion/thermoforming machinery, HVAC and R, kilns, packaging equipment, sorting equipment, wave solder and reflow systems, lighting systems, pump controls, incubators, motor-switching, and UPS systems.

Specifications

Operating Temperature:
-20 to 80°C* (-4 to 176°F)

Storage Temperature:
-40 to 100 °C (-40 to 212°F)

Input-to-Output Isolation: 4000 Vrms

Input/Output-to-Ground Isolation: 4000 Vrms

Input-to-Output Capacitance: 8 pF (typical)

Operating Frequency: 40 to 63 Hz

Housing Material: UL 940VD (self-extinguishing)

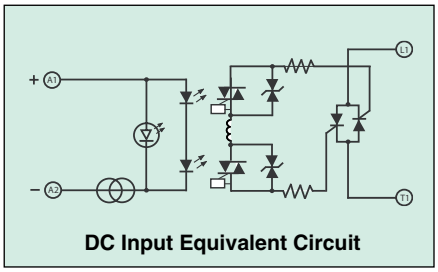
Weight: 600 g (1.3 lb)

** For 108 to 280 Vac input.*

22.5 mm DIN Rail SSR

Voltage Range (Vrms)	24 to 240 Vac	48 to 600 Vac	600 Vac
Output Current	10	20	30
Peak Voltage (Vp, t = 1 min)	550	1100	1100
Off-State Leakage µArms (@ Max Line Voltage and T_a = 25°C)	100	250	250
Minimum Current (mArms)	100	100	100
Maximum 1-Cycle Surge Current (Ap, T_a = 25°C)	100	495	750
Maximum 1 s Surge Current (Ap, T_a = 25°C)	30	100	150
Forward Voltage Drop (Vp @ I_{max}, T_a = 25°C)	1.5	1.35	1.35
I^2T (60 Hz, ½ Cycle)	340	1020	2350
Static Off-State dv/dt (Vµs, T_a = 25°C)	500	500	500
hp Ratings at 120 V	—	½	¾
hp Ratings at 240 V	—	1	2
Output Type	Triac	SCR	SCR
Min/Max Stranded Wire	16/8 AWG	16/8 AWG	16/8 AWG
Min/Max Solid Wire	16/10 AWG	16/10 AWG	16/10 AWG
Input Specifications			
Input Voltage	4 to 32 Vdc	90 to140 Vac	180 to 280 Vac
Dropout Voltage	1 Vdc	10 Vac	10 Vac
Minimum Input Current (for On-State)	16 mA	5 mA	6 mA
Maximum Input Current	19 mA	6 mA	8 mA
Input Resistance (Ω)	Current Regulated		
Turn-On Time*	8.33 ms	20 ms	20 ms
Turn-Off Time	8.33 ms	30 ms	30 ms
Min/Max Stranded/Solid Wire	24/16 AWG	24/16 AWG	24/16 AWG
** Random SSRs turn on in less than 100 µs.*			

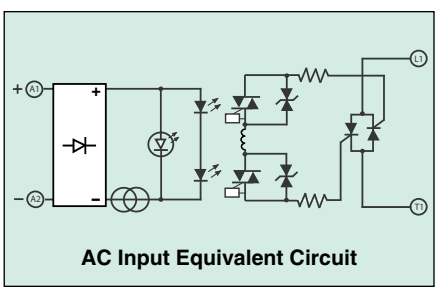
SSRDIN280DC10 shown smaller than actual size.



DC Input Equivalent Circuit

45 mm DIN Rail SSR

Output Specifications			
Voltage Range (Vrms)	48 to 600 Vac		48 to 600 Vac
Output Current	35		45
Peak Voltage (Vp , t = 1 min)	1100		1100
Off-State Leakage µArms (@ 480 V and T_a = 25°C)	250		250
Minimum Current (mArms)	100		100
Maximum 1-Cycle Surge Current (Ap, T_a = 25°C)	770		800
Maximum 1 s Surge Current (Ap, T_a = 25°C)	150		160
Forward Voltage Drop (Vp @ I_{max}, T_a = 25°C)	1.35		1.35
I^2T (60 Hz, ½ Cycle)	2500		2600
Static Off-State dv/dt (Vµs, T_a = 25°C)	500		500
hp Ratings at 240 V	2		3
hp Ratings at 480 V	3		4
Output Type	SCR		SCR
Min/Max Stranded Wire	16/8 AWG		16/8 AWG
Min/Max Solid Wire	16/10 AWG		16/10 AWG
Input Specifications			
Input Voltage	4 to 32 Vdc	90 to 140 Vac	180 to 280 Vac
Dropout Voltage	1 Vdc	10 Vac	10 Vac
Minimum Input Current (for On-State)	16 mA	5 mA	6 mA
Maximum Input Current	19 mA	6 mA	8 mA
Input Resistance (Ω)	Current Regulated		
Turn-On Time*	8.33 ms	20 ms	20 ms
Turn-Off Time	8.33 ms	30 ms	30 ms
Min/Max Stranded/Solid Wire	24/16 AWG	24/16 AWG	24/16 AWG
** Random SSRs turn on in less than 100 µs.*			



AC Input Equivalent Circuit

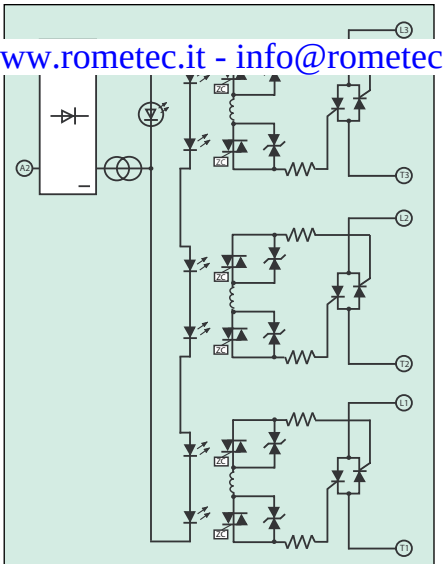
SSRDIN600DC35 shown smaller than actual size.

P

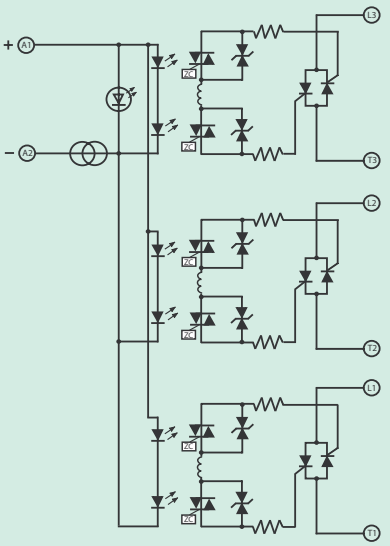
90 mm 3-Phase DIN Rail SSR

Output Specifications			
Voltage Range (Vrms)		48 to 600 Vac	
Output Current		25	
Peak Voltage (Vp , t = 1 min)		1100	
Off-State Leakage µArms (@ Max Line Voltage and T_a = 25°C)		250	
Minimum Current (mArms)		100	
Maximum 1-Cycle Surge Current (Ap, T_a = 25°C)		500	
Maximum 1 s Surge Current (Ap, T_a = 25°C)		100	
Forward Voltage Drop (Vp @ I_{max}, T_a = 25°C)		1.35	
I^2T (60 Hz, ½ Cycle)		1040	
Static Off-State dv/dt Vµs, T_a = 25°C)		500	
hp Ratings at 480 V		3	
Output Type		SCR	
Min/Max Stranded Wire		16/8 AWG	
Min/Max Solid Wire		16/10 AWG	
Input Specifications			
Input Voltage	4 to 32 Vdc	90 to 140 Vac	180 to 280 Vac
Dropout Voltage	1 Vdc	10 Vac	10 Vac
Minimum Input Current (for On-State)	50 mA	15 mA	19 mA
Maximum Input Current	62 mA	19 mA	24 mA
Input Resistance (Ω)	Current Regulated		
Turn-On Time*	8.33 ms	20 ms	20 ms
Turn-Off Time	8.33 ms	30 ms	30 ms
Min/Max Stranded/Solid Wire		12/16 AWG	

** Random SSRs turn on in less than 100 µs.*



DC Equivalent Circuit

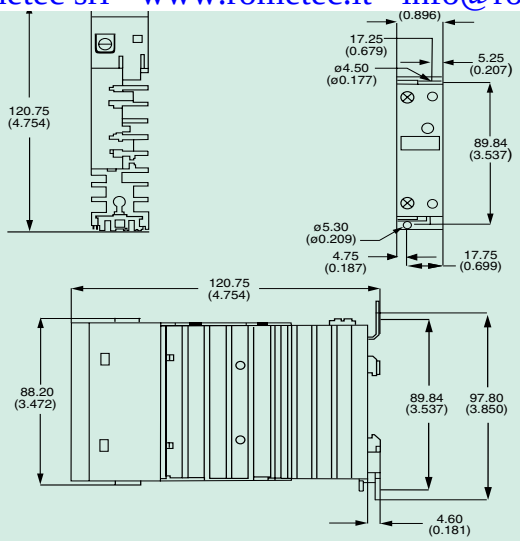


AC Equivalent Circuit

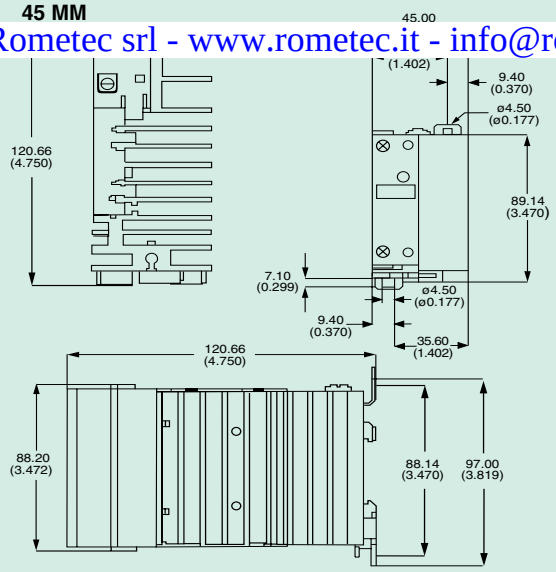
AC/DC Control Specifications

Model Number	Current A	Output Voltage	Input Voltage	Output Type	Size: mm (inch)
SSRDIN280AC10	10	24 to 280 Vac	90 to 140 Vac	Triac	22.5 (0.9)
SSRDIN280DC10	10	24 to 280 Vac	4 to 32 Vdc	Triac	22.5 (0.9)
SSRDIN600AC20	20	48 to 600 Vac	90 to 140 Vac	SCR	22.5 (0.9)
SSRDIN600DC20	20	48 to 600 Vac	4 to 32 Vdc	SCR	22.5 (0.9)
SSRDIN600AC30	30	48 to 600 Vac	90 to 140 Vac	SCR	22.5 (0.9)
SSRDIN600DC30	30	48 to 600 Vac	4 to 32 Vdc	SCR	22.5 (0.9)
SSRDIN600AC35	35	48 to 600 Vac	90 to 140 Vac	SCR	45.0 (1.8)
SSRDIN600DC35	35	48 to 600 Vac	4 to 32 Vdc	SCR	45.0 (1.8)
SSRDIN600AC45	45	48 to 600 Vac	90 to 140 Vac	SCR	45.0 (1.8)
SSRDIN600DC45	45	48 to 600 Vac	4 to 32 Vdc	SCR	45.0 (1.8)
SSR3PH600AC25	25	48 to 600 Vac	90 to 140 Vac	SCR	90.0 (3.6)
SSR3PH600DC25	25	48 to 600 Vac	4 to 32 Vdc	SCR	90.0 (3.6)

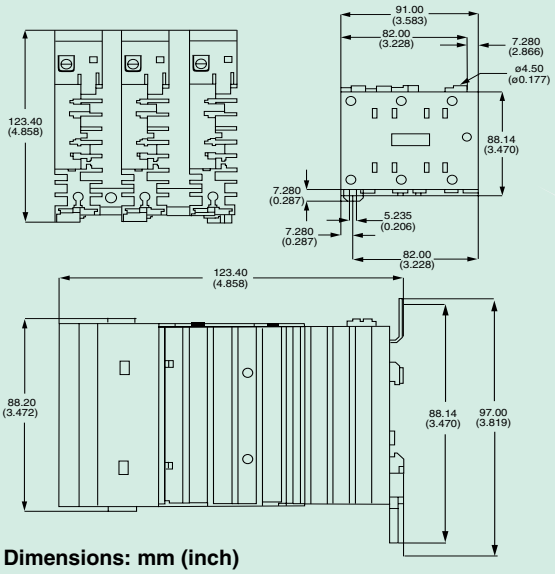
25 MM



45 MM



90 MM



Dimensions: mm (inch)

SSRDIN and SSRPH Series solid state relays, shown smaller than actual size.

To Order

Model Number	Description	Nominal Rating (A)
SSRDIN280DC10	DC control signal, 24 to 280 Vac line	10
SSRDIN600DC20	DC control signal, 48 to 600 Vac line	20
SSRDIN600DC30	DC control signal, 48 to 600 Vac line	30
SSRDIN280AC10	AC control signal, 24 to 280 Vac line	10
SSRDIN600AC20	AC control signal, 48 to 600 Vac line	20
SSRDIN600AC30	AC control signal, 48 to 600 Vac line	30
SSRDIN600DC35	DC control signal, 48 to 600 Vac line	35
SSRDIN600DC45	DC control signal, 48 to 600 Vac line	45
SSRDIN600AC35	AC control signal, 48 to 600 Vac line	35
SSRDIN600AC45	AC control signal, 48 to 600 Vac line	45
SSR3PH600DC25	DC control signal, 48 to 600 Vac line, 3 phase	25
SSR3PH600AC25	AC control signal, 48 to 600 Vac line, 3 phase	25

Comes with operator's manual.

Ordering Example: SSR3PH600DC25, *DC input, 25 A, 3-phase relay.*

Single- and Three-Phase DIN Rail Mount Solid State Relays

SSRDIN Series

- Ratings Up to 30 A (22.5 mm), 45 A (45 mm), or 25 A 3-Phase
- LED Input Status Indicator
- Integral Heat Sink Eliminates the Need for Complex Thermal Calculations
- DBC Substrate for Superior Thermal Performance
- Epoxy-Free Design Minimizes Internal Component Stress
- Standard Ratings Up to 30 A @ 600 Vac
- No External Transient Protection Required (Internal TVS)
- IP20 Touch-Safe Housing
- AC or DC Inputs
- 4000 Vac Optical Isolation
- Zero-Voltage Switching
- Mounts on DIN Rail or Panel

Designed for superior thermal performance in harsh industrial environments, OMEGA's new SSRDIN/SSR3PH relay is the most advanced DIN rail solid state relay in its range. The epoxy-free design eliminates stress on internal components, preventing damage to the encapsulant during load failure.

The vertical placement of the direct-bond substrate allows the SCR die to efficiently transfer heat to the heat sink and into ambient air. As a result, these relays can operate at a lower temperature than their competitors, which accounts for the higher I2T and surge-current ratings.

The SSRDIN's internal transient protection is fully repeatable, making MOVs or other external suppressors unnecessary. This feature allows the output to conduct load-current when a transient is detected across the output terminals, rather than forcing load-current through the protection circuit. Thus, no degradation of protection occurs.

These relays are ideal for numerous commercial and industrial applications, including mercury relay replacement, professional food-service equipment (ovens, fryers, dispensing equipment, conveyors, etc.), sterilizers, temperature control systems, plastic extrusion/thermoforming machinery, HVAC and R, kilns, packaging equipment, sorting equipment, wave solder and reflow systems, lighting systems, pump controls, incubators, motor-switching, and UPS systems.

Specifications

Operating Temperature:
-20 to 80°C* (-4 to 176°F)

Storage Temperature:
-40 to 100 °C (-40 to 212°F)

Input-to-Output Isolation: 4000 Vrms

Input/Output-to-Ground Isolation:
4000 Vrms

Input-to-Output Capacitance:
8 pF (typical)

Operating Frequency: 40 to 63 Hz

Housing Material:
UL 940VD (self-extinguishing)

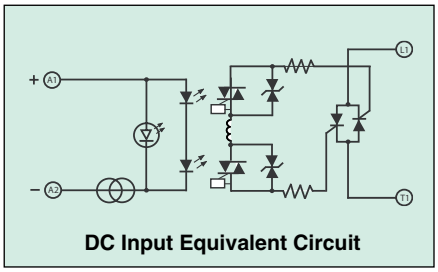
Weight: 600 g (1.3 lb)

** For 108 to 280 Vac input.*

22.5 mm DIN Rail SSR

Voltage Range (Vrms)	24 to 240 Vac	48 to 600 Vac	600 Vac
Output Current	10	20	30
Peak Voltage (Vp, t = 1 min)	550	1100	1100
Off-State Leakage µArms (@ Max Line Voltage and T_a = 25°C)	100	250	250
Minimum Current (mArms)	100	100	100
Maximum 1-Cycle Surge Current (Ap, T_a = 25°C)	100	495	750
Maximum 1 s Surge Current (Ap, T_a = 25°C)	30	100	150
Forward Voltage Drop (Vp @ I_{max}, T_a = 25°C)	1.5	1.35	1.35
I^2T (60 Hz, ½ Cycle)	340	1020	2350
Static Off-State dv/dt (Vµs, T_a = 25°C)	500	500	500
hp Ratings at 120 V	—	½	¾
hp Ratings at 240 V	—	1	2
Output Type	Triac	SCR	SCR
Min/Max Stranded Wire	16/8 AWG	16/8 AWG	16/8 AWG
Min/Max Solid Wire	16/10 AWG	16/10 AWG	16/10 AWG
Input Specifications			
Input Voltage	4 to 32 Vdc	90 to140 Vac	180 to 280 Vac
Dropout Voltage	1 Vdc	10 Vac	10 Vac
Minimum Input Current (for On-State)	16 mA	5 mA	6 mA
Maximum Input Current	19 mA	6 mA	8 mA
Input Resistance (Ω)	Current Regulated		
Turn-On Time*	8.33 ms	20 ms	20 ms
Turn-Off Time	8.33 ms	30 ms	30 ms
Min/Max Stranded/Solid Wire	24/16 AWG	24/16 AWG	24/16 AWG
** Random SSRs turn on in less than 100 µs.*			

SSRDIN280DC10 shown smaller than actual size.

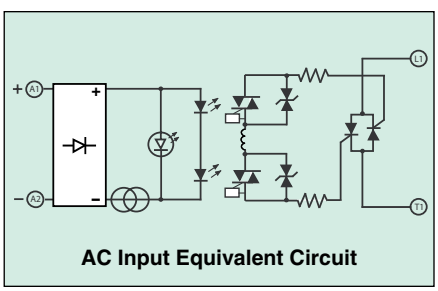


DC Input Equivalent Circuit

45 mm DIN Rail SSR

Output Specifications		
Voltage Range (Vrms)	48 to 600 Vac	48 to 600 Vac
Output Current	35	45
Peak Voltage (Vp , t = 1 min)	1100	1100
Off-State Leakage µArms (@ 480 V and T_a = 25°C)	250	250
Minimum Current (mArms)	100	100
Maximum 1-Cycle Surge Current (Ap, T_a = 25°C)	770	800
Maximum 1 s Surge Current (Ap, T_a = 25°C)	150	160
Forward Voltage Drop (Vp @ I_{max}, T_a = 25°C)	1.35	1.35
I^2T (60 Hz, ½ Cycle)	2500	2600
Static Off-State dv/dt (Vµs, T_a = 25°C)	500	500
hp Ratings at 240 V	2	3
hp Ratings at 480 V	3	4
Output Type	SCR	SCR
Min/Max Stranded Wire	16/8 AWG	16/8 AWG
Min/Max Solid Wire	16/10 AWG	16/10 AWG

Input Specifications			
Input Voltage	4 to 32 Vdc	90 to 140 Vac	180 to 280 Vac
Dropout Voltage	1 Vdc	10 Vac	10 Vac
Minimum Input Current (for On-State)	16 mA	5 mA	6 mA
Maximum Input Current	19 mA	6 mA	8 mA
Input Resistance (Ω)	Current Regulated		
Turn-On Time*	8.33 ms	20 ms	20 ms
Turn-Off Time	8.33 ms	30 ms	30 ms
Min/Max Stranded/Solid Wire	24/16 AWG	24/16 AWG	24/16 AWG
** Random SSRs turn on in less than 100 µs.*			



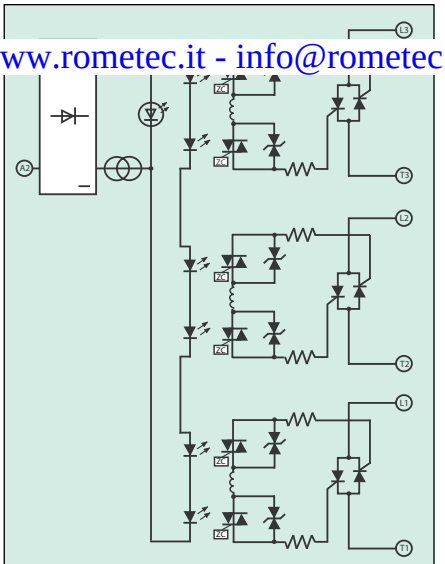
AC Input Equivalent Circuit

SSRDIN600DC35 shown smaller than actual size.

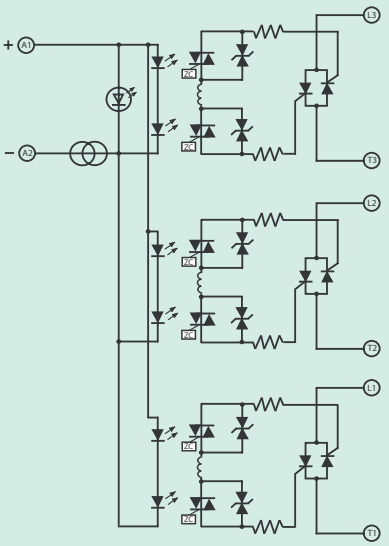
90 mm 3-Phase DIN Rail SSR

Output Specifications			
Voltage Range (Vrms)		48 to 600 Vac	
Output Current		25	
Peak Voltage (Vp , t = 1 min)		1100	
Off-State Leakage µArms (@ Max Line Voltage and T_a = 25°C)		250	
Minimum Current (mArms)		100	
Maximum 1-Cycle Surge Current (Ap, T_a = 25°C)		500	
Maximum 1 s Surge Current (Ap, T_a = 25°C)		100	
Forward Voltage Drop (Vp @ I_{max}, T_a = 25°C)		1.35	
I^2T (60 Hz, ½ Cycle)		1040	
Static Off-State dv/dt Vµs, T_a = 25°C)		500	
hp Ratings at 480 V		3	
Output Type		SCR	
Min/Max Stranded Wire		16/8 AWG	
Min/Max Solid Wire		16/10 AWG	
Input Specifications			
Input Voltage	4 to 32 Vdc	90 to 140 Vac	180 to 280 Vac
Dropout Voltage	1 Vdc	10 Vac	10 Vac
Minimum Input Current (for On-State)	50 mA	15 mA	19 mA
Maximum Input Current	62 mA	19 mA	24 mA
Input Resistance (Ω)	Current Regulated		
Turn-On Time*	8.33 ms	20 ms	20 ms
Turn-Off Time	8.33 ms	30 ms	30 ms
Min/Max Stranded/Solid Wire		12/16 AWG	

** Random SSRs turn on in less than 100 µs.*



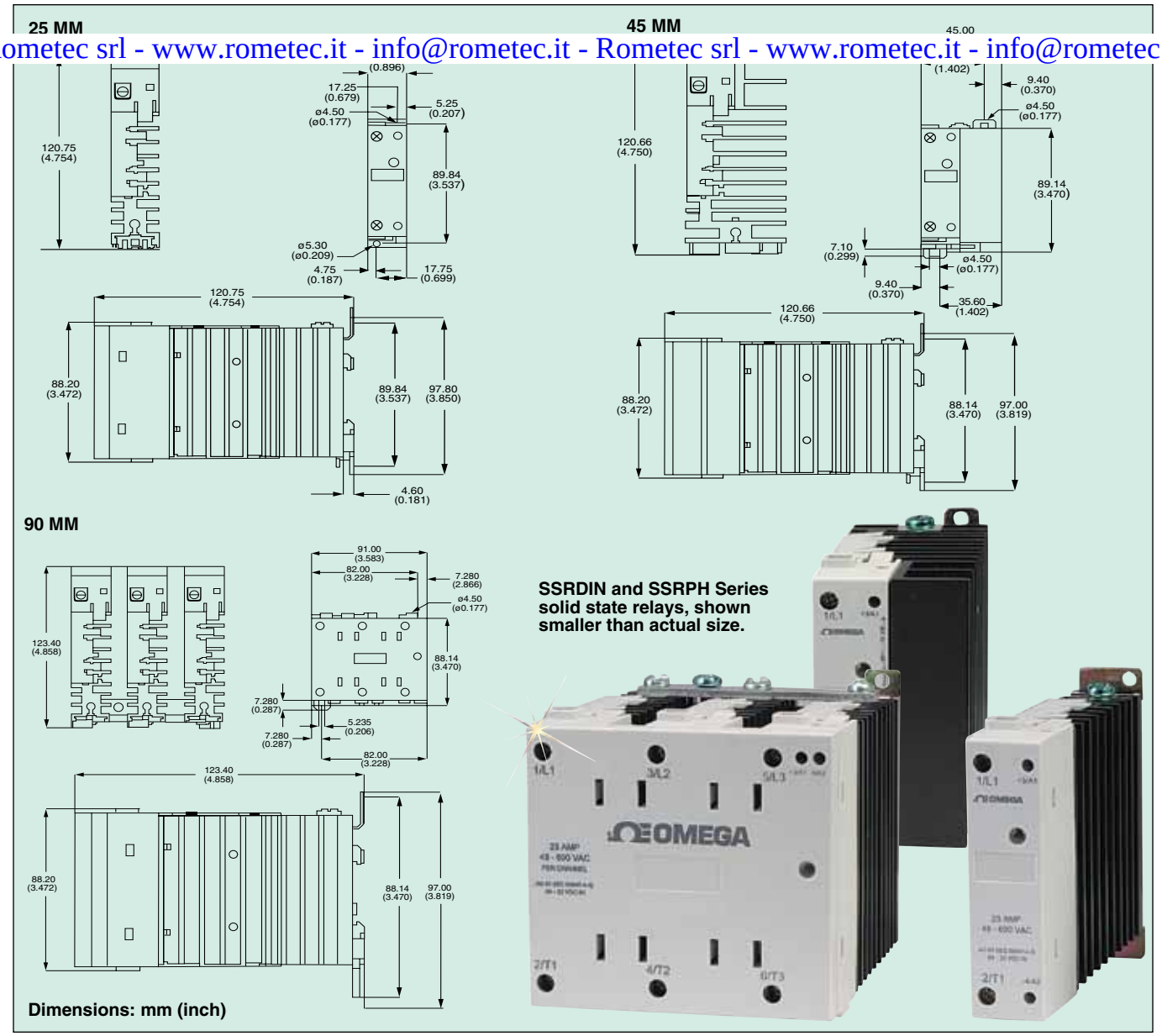
DC Equivalent Circuit



AC Equivalent Circuit

AC/DC Control Specifications

Model Number	Current A	Output Voltage	Input Voltage	Output Type	Size: mm (inch)
SSRDIN280AC10	10	24 to 280 Vac	90 to 140 Vac	Triac	22.5 (0.9)
SSRDIN280DC10	10	24 to 280 Vac	4 to 32 Vdc	Triac	22.5 (0.9)
SSRDIN600AC20	20	48 to 600 Vac	90 to 140 Vac	SCR	22.5 (0.9)
SSRDIN600DC20	20	48 to 600 Vac	4 to 32 Vdc	SCR	22.5 (0.9)
SSRDIN600AC30	30	48 to 600 Vac	90 to 140 Vac	SCR	22.5 (0.9)
SSRDIN600DC30	30	48 to 600 Vac	4 to 32 Vdc	SCR	22.5 (0.9)
SSRDIN600AC35	35	48 to 600 Vac	90 to 140 Vac	SCR	45.0 (1.8)
SSRDIN600DC35	35	48 to 600 Vac	4 to 32 Vdc	SCR	45.0 (1.8)
SSRDIN600AC45	45	48 to 600 Vac	90 to 140 Vac	SCR	45.0 (1.8)
SSRDIN600DC45	45	48 to 600 Vac	4 to 32 Vdc	SCR	45.0 (1.8)
SSR3PH600AC25	25	48 to 600 Vac	90 to 140 Vac	SCR	90.0 (3.6)
SSR3PH600DC25	25	48 to 600 Vac	4 to 32 Vdc	SCR	90.0 (3.6)



To Order *Visit omega.com/ssrdin600 for Pricing and Details*

Model Number	Description	Nominal Rating (A)
SSRDIN280DC10	DC control signal, 24 to 280 Vac line	10
SSRDIN600DC20	DC control signal, 48 to 600 Vac line	20
SSRDIN600DC30	DC control signal, 48 to 600 Vac line	30
SSRDIN280AC10	AC control signal, 24 to 280 Vac line	10
SSRDIN600AC20	AC control signal, 48 to 600 Vac line	20
SSRDIN600AC30	AC control signal, 48 to 600 Vac line	30
SSRDIN600DC35	DC control signal, 48 to 600 Vac line	35
SSRDIN600DC45	DC control signal, 48 to 600 Vac line	45
SSRDIN600AC35	AC control signal, 48 to 600 Vac line	35
SSRDIN600AC45	AC control signal, 48 to 600 Vac line	45
SSR3PH600DC25	DC control signal, 48 to 600 Vac line, 3 phase	25
SSR3PH600AC25	AC control signal, 48 to 600 Vac line, 3 phase	25

Comes with operator's manual.

Ordering Example: SSR3PH600DC25, *DC input, 25 A, 3-phase relay.*

25 and 40 A; Vdc Input/ Vac Output

SSRLDUAL Series

Two 25 or 40 A SSR's in 1 Standard Package Opto-Isolated 2500 VRMS

The OMEGA® SSRLDUAL Series solid-state relays are 2 totally independent AC output relays in a single standard panel mount package. They utilize OMEGA's inverse-parallel SCR output design with integral dV/dt snubber circuitry to provide protection against false triggering by limiting the rate of rise of most voltage transients to within acceptable limits. Zero volt turn-on and zero current turn-off of the load being switched substantially reduces EMI and RFI.

General Specifications

Operating Temperature: -40 to 80°C (-40 to 176°F)

Storage Temperature: -40 to 100°C (-40 to 212°F)

Input to Output Isolation: 4000 Vrms

Input/Output to Ground Isolation: 2500 Vrms

Input to Output Capacitance: 8 pF (typical)

Operating Frequency: 47 to 63 Hz

Housing Material: UL 94V0 (self-extinguishing)

Output

Voltage Range (Vrms): 24 to 280 Vac

Peak Voltage (Vpk, t = 1 Minute): 550

Off-State Leakage (@ Maximum Line Voltage and Ta = 25°C): 0.1 mArms

Output Current (Mounted on Proper Heat Sink, See Deratings):

DC25: 25
DC40: 40

Minimum Current: 100 mArms

Maximum 1-Cycle Surge Current (Apk, Ta = 25°C):

DC25: 500
DC40: 780

Forward Voltage Drop (Vpk @ Imax, Ta = 25°C):

DC25: 1.4
DC40: 1.3

I²T (60 Hz, ½ Cycle):

DC25: 1041
DC40: 2435

Rjb (Thermal Res. Junction to Baseplate):

DC25: 0.6
DC40: 0.4

Static Off-State dv/dt (V/μs, Ta = 25°C): 500

Input

Input Voltage: 4 to 15 Vdc

Drop-Out Voltage: 1 Vdc

Minimum Input Current (for On-State): 7.5 mA

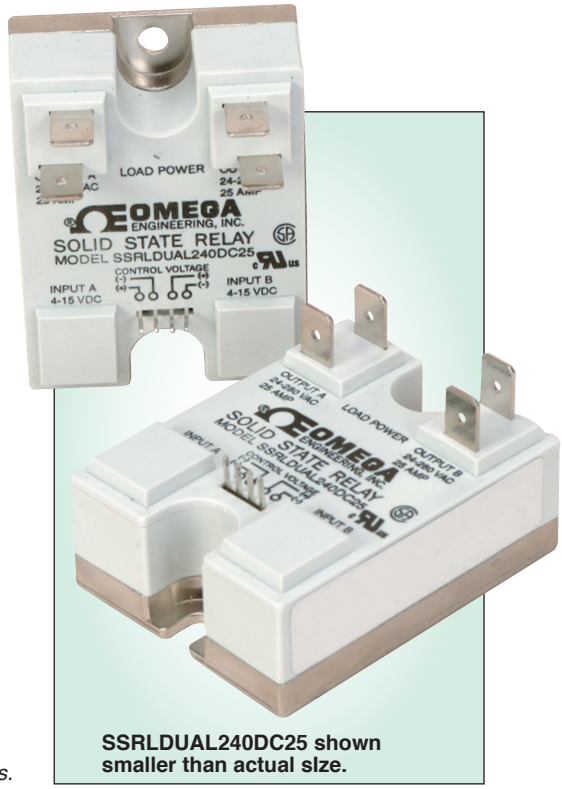
Maximum Input Current: 34 mA

Input Resistance: 500 Ω

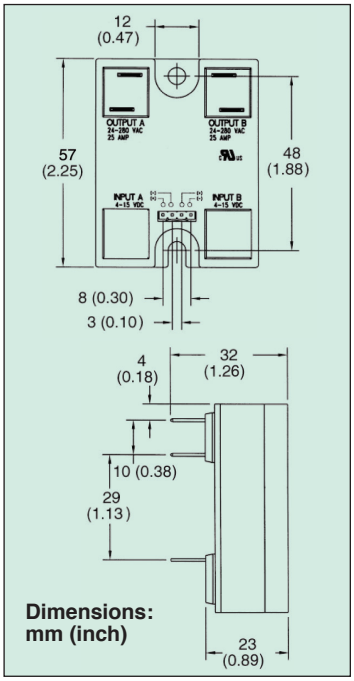
Turn-On Time*: 8.33 ms

Turn-Off Time: 8.33 ms

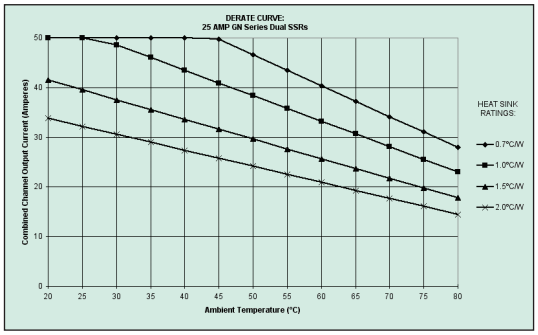
** Random SSR's turn on in less than 100 μs.*

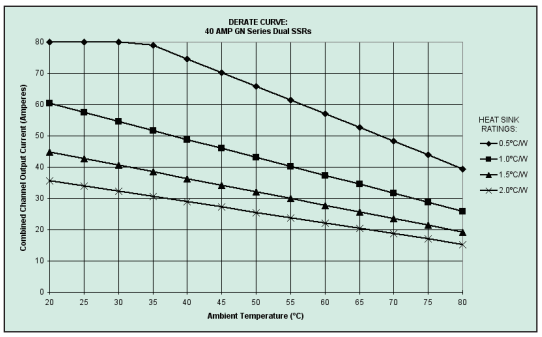


SSRLDUAL240DC25 shown smaller than actual size.



Dimensions: mm (inch)





To Order

Model Number	Description
SSRLDUAL240DC25	25 A dual SSR output
SSRLDUAL240DC40	40 A dual SSR output
CX136-4	Connector

Comes with complete operator's manual.

***Ordering Example: SSRDUAL240DC25**. 25 A dual SSR output.*

P

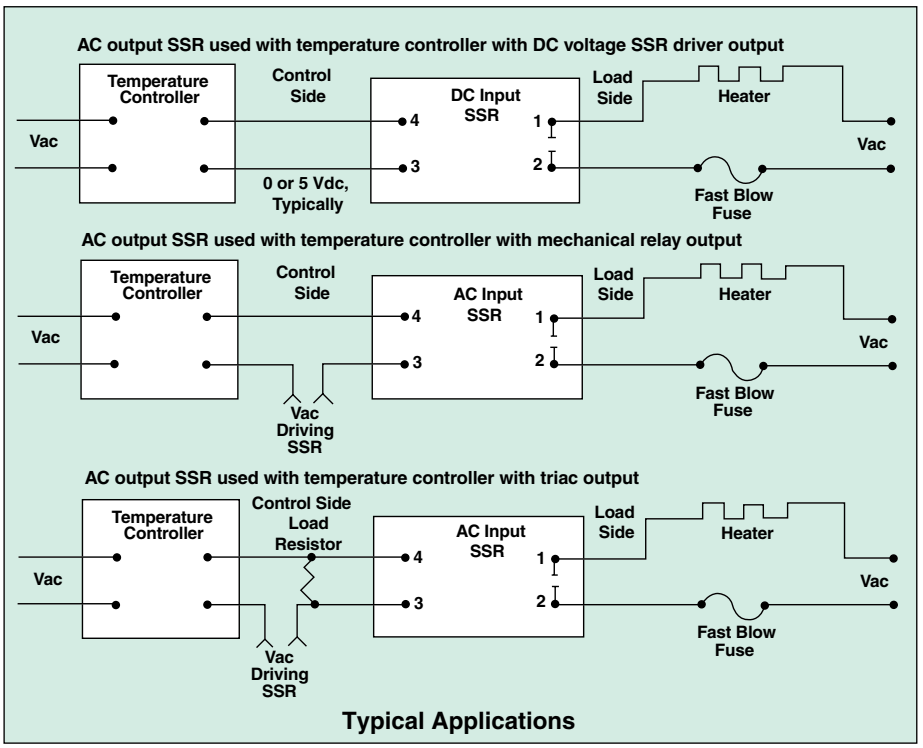
High Reliability, Vdc Input/ Vac Output, Vac Input/Vac Output

SSRL Series

1 YEAR WARRANTY

SSRL240AC10 shown actual size.

- **Current Ratings to 100 A**
- **Multi-Million Cycle Life**
- **Compatible with Temperature Controllers**
- **Solid-State, SCR Design**
- **Zero Voltage Switching**
- **Control AC Lines to 660 Vac**
- **AC and DC Control Signal Models**
- **LED Input Status Indicator**



Typical Applications

The SSRL Series solid state relays are used to control large resistance heaters in conjunction with temperature controllers. Solid state relays are SPST, normally open switching devices with no moving parts, capable of millions of cycles of operation. By applying a control signal, an SSR switches “on” the AC load current, just as the moving contacts do on a mechanical contactor. Three-phase loads can be controlled using 2 or 3 SSR’s. Use 3 SSR’s for “Y” or “star” 3-phase loads using a neutral line. Two SSR’s will control “delta” loads with no neutral line. Three solid state relays are also used when there is no neutral load to provide redundancy and extra assurance of control.

“Switching” takes place at the 0 voltage crossover point of the alternating current cycle. Because of this, no appreciable electrical noise is generated, making SSR’s ideal for environments where there are apparatuses susceptible to RFI

Common Specifications

Operating Temperature: -20 to 80°C (-5 to 175°F)

Storage Temperature: -40 to 80°C (-40 to 175°F)

Isolation: 4000 Vrms, input to output; 2500 Vrms input/output to ground

Capacitance: 8 pF, input to output (max)

Line Frequency Range: 47 to 63 Hz

Turn-On Time: 20 ms, AC; 05 cycle, DC

Turn-Off Time: 30 ms, AC; 05 cycle, DC

Output Specifications for Vac and Vdc Input Models

Specifications	10 Amp	25 Amp	50 Amp	75 Amp	100 Amp
Max On-State Current	10 A	25 A	50 A	75 A	100 A
Min On-State Current	100 mA				
Max 1-Cycle Surge	150 A	300 A	750 A	1000 A	1200 A
Max 1 sec Surge	30 A	75 A	150 A	225 A	300 A
I^2T (60 Hz), A^2sec	416	937	2458	5000	6000

These SSR's are of the twin SCR type, inherently more reliable and capable of higher overloads before failure than triacs. Heat is developed in a solid state relay due to the nominal voltage drop across the switching device. To dissipate the heat, an SSR must be mounted on a finned heat sink or aluminum plate. An SSR should be located where the ambient temperature is relatively low, since the current switching rating is lowered as the temperature increases. Another SSR characteristic is a small leakage current across the output when the relay is open. Because of this, a voltage will always exist on the load side of the device

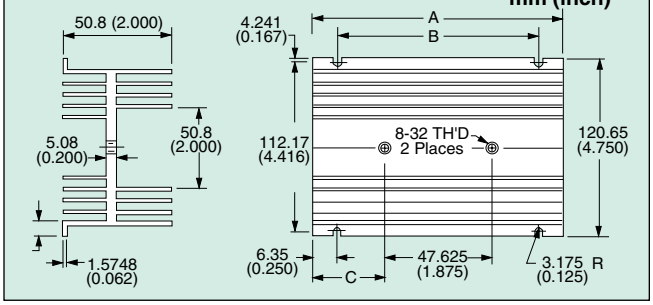
In comparing SSR's with mechanical contactors, the SSR has a cycle life many times that of a comparably priced contactor. However, SSR's are more prone to failure due to overload and improper initial wiring. Solid state relays can fail, contact closed, on overload circuits. It is essential that a properly rated, fast blowing I^2T fuse be installed to protect the load circuit

Finned heat sinks are anodized fabrications that come complete with tapped mounting holes and screws. See thermal rating curves and ordering instructions for proper selection.

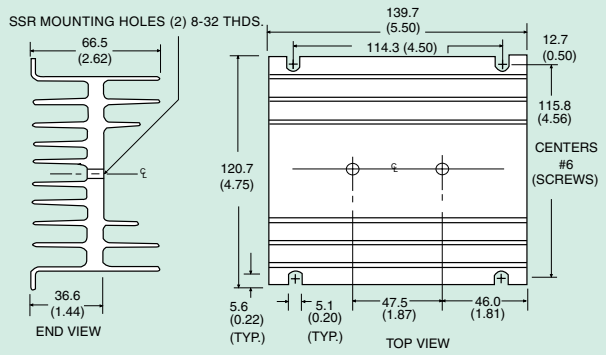
SSRL240DC50 solid state relay shown smaller than actual size with FHS-2 heat sink. See P-114 for more information.

FHS Heat Sink Dimensions and Specifications

FHS-1 and FHS-2 Heat Sink — **Dimensions: mm (inch)**



FHS-6 Heat Sink — **Dimensions: mm (in)**

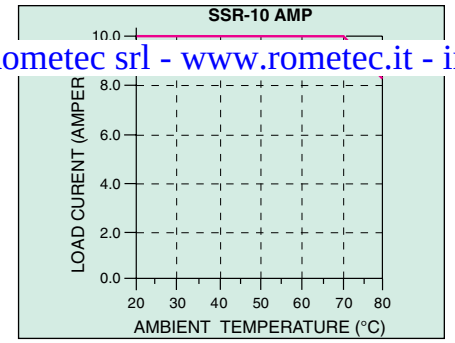


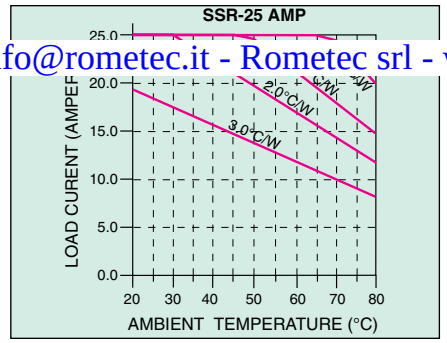
Model No.	A	B	C	Thermal Rating
FHS-1	3.00"	2.50"	0.56"	2°C/W
FHS-2	5.50"	5.00"	1.81"	1.2°C/W

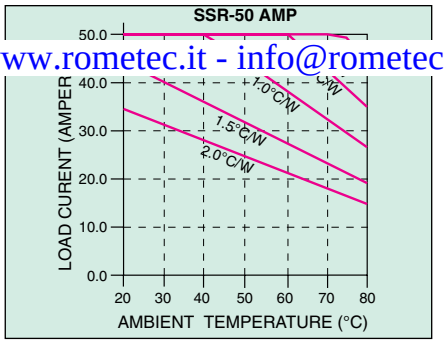
SSR240 Series Electrical Specifications

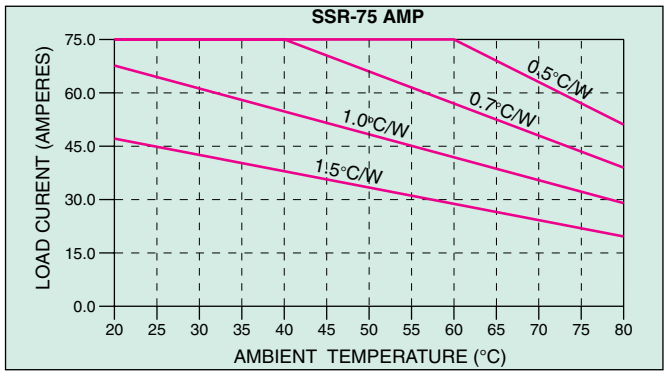
Model No.	Type	Input-Control Signal				Output
		Control Signal Voltage	Control Signal Turn-On	Control Signal Turn-Off	Max Input Current	Peak Voltage* (60 s Max)
SSRL240AC10 SSRL240AC25 SSRL240AC50 SSRL240AC75 SSRL240AC100	AC control signal	90 to 280 Vac	90 Vac	10 Vac	10 mA	800V
SSRL240DC10 SSRL240DC25 SSRL240DC50 SSRL240DC75 SSRL240DC100	DC control signal	3 to 32 Vdc	3 Vdc	1 Vdc	14 mA	800V
SSRL660AC50 SSRL660AC75 SSRL660AC100	AC control signal	90 to 280 Vac	90 Vac	10 Vac	10 mA	1200V
SSRL660DC50 SSRL660DC75 SSRL660DC100	DC control signal	4 to 32 Vdc	4 Vdc	1 Vdc	14 mA	1200V

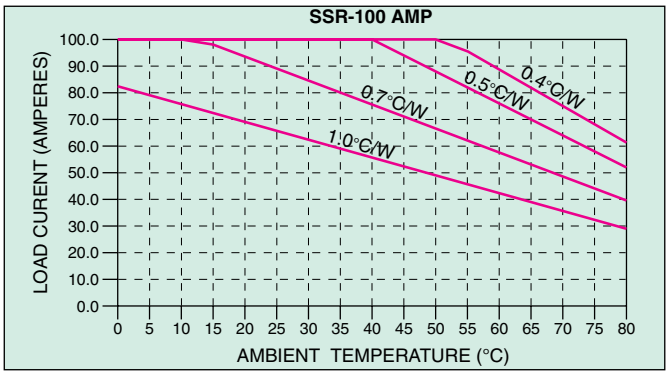
** Transients above table value should be suppressed.*

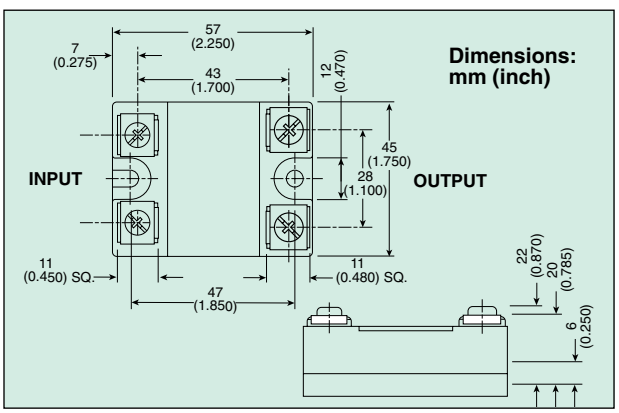


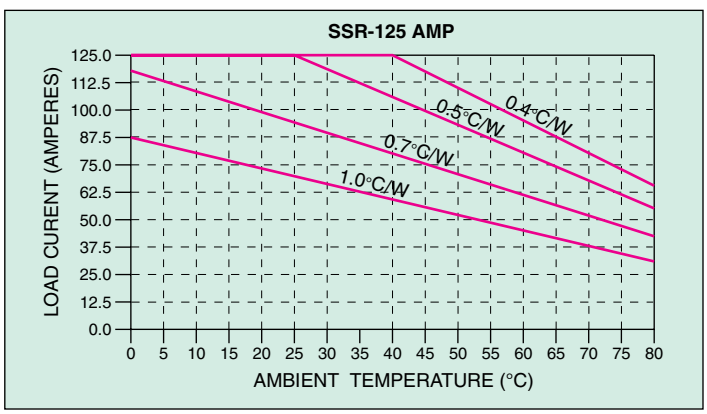












SSR240 Series Output-Vac Load Specifications

Model Number	Nominal AC Line Voltage	Nominal Load Current	Maximum Contact Voltage Drop	Maximum Off-State Leakage (25°C Maximum Ambient)		
				120 Vac	240 Vac	440 Vac
SSRL240AC10 **SSRL240AC25** **SSRL240AC50** **SSRL240AC75** **SSRL240AC100**	24 to 280 Vac	10 A 25 A 50 A 75 A 100 A	1.6V	0.1 mA	0.1 mA	N/A
SSRL240DC10 **SSRL240DC25** **SSRL240DC50** **SSRL240DC75** **SSRL240DC100**	24 to 280 Vac	10 A 25 A 50 A 75 A 100 A	1.6V	0.1 mA	0.1 mA	N/A
SSRL660AC50 **SSRL660AC75** **SSRL660AC100**	48 to 660 Vac	50 A 75 A 100A	1.6V	0.25 mA	0.25 mA	0.25 mA
SSRL660DC50 **SSRL660DC75** **SSRL660DC100**	48 to 660 Vac	50 A 75 A 100 A	1.6V	0.25 mA	0.25 mA	0.25 mA

All models shown smaller than actual size.

BS-101 fuse blockshown with KAX-50 fuse.

FB-1, FB-2, and FB-3 fuse blocks shown with KAX-25 fuses.

Fuses

To Order		
Model No.	**Capacity**	**Dimensions (Dia. x L)**
KAX-10	10 A	14 x 51 mm (0.6 x 2")
KAX-25	25 A	14 x 51 mm (0.6 x 2")
KAX-30	30 A	14 x 51 mm (0.6 x 2")
KAX-50	50 A	21 x 81 mm (0.8 x 3.2")
KAX-70	70 A	31 x 92 mm (1.2 x 3.6")
KBH-50	50 A	18 x 81 mm (0.7 x 3.2")
KBH-70	70 A	19 x 92 mm (0.7 x 3.6")

Fuse Blocks

To Order		
Model No.	**No. of Fuses**	**Compatible Fuses**
FB-1	1	KAX-10, KAX-25, KAX-30
FB-2	2	KAX-10, KAX-25, KAX-30
FB-3	3	KAX-10, KAX-25, KAX-30
BS-101	1	KAX-50, KAX-70, KAX-100, KBH (all models)

Shunt Resistors for Controllers with AC SSR (Triac) Output

To Order	
Model No.*	**Value**
SSRR20-12	2000 Ω, 12 watts
SSRR20-50	2000 Ω, 50 watts
SSRR15-12	1500 Ω, 12 watts
SSRR15-50	1500 Ω, 50 watts

***** *12 W versions for 120 V circuits; 50 W for 240 V.*

How to Order:

1) Select solid state relay based on type of control signal (AC or DC) and current switching requirements for resistive load.
2) Select fast blow (I^2T) fuse and fuse block. It is essential that a fuse be installed to protect the load circuit.
3) Select required finned heat sink based on max ambient temperature and thermal rating curve on previous page.

To Order		
Model No.	**Description**	**Nominal Rating**
SSRL240AC10	AC control signal (280 Vac line)	10 A
SSRL240AC25		25 A
SSRL240AC50		50 A
SSRL240AC75		75 A
SSRL240AC100		100 A
SSRL240DC10	DC control signal (280 Vac line)	10 A
SSRL240DC25		25 A
SSRL240DC50		50 A
SSRL240DC75		75 A
SSRL240DC100		100 A
SSRL660AC50	AC control signal (660 Vac line)	50 A
SSRL660AC75		75 A
SSRL660AC100		100 A
SSRL660DC50	DC control signal (660 Vac line)	50 A
SSRL660DC75		75 A
SSRL660DC100		100 A
FHS-1	Finned heat sink	2°C/W
FHS-2		1.2°C/W
FHS-6		0.7°C/W

Accessory

Model No.	Description
SSRL-DINRAIL-ADAPT	DIN rail adaptor for 10 A models only

Comes complete with operator's manual.

Note: *Reference SSR330 Series for additional heat sinks.*

Ordering Examples: SSRL240DC25*, solid state relay,* ***FHS-2,*** *finned heat sink,* ***KAX-25,*** *fuse, and* ***FB-1,*** *fuse block.*

SSRL240AC10, *solid state relay,* ***FHS-1,*** *finned heat sink,* ***KAX-10,*** *fuse, and* ***FB-1,*** *fuse block.*

P

High Current Terminal Block Relays

XRU1H Series

- 14 mm (0.55") Wide
- Pluggable Relay Allows for Field Replacement
- Convenient Plug-In Bridge System
- LED Status Indication
- DIN Rail Mount
- IP67 Protected Optical Electronics
- Wear-Resistant and Bounce-Free Switching
- Insensitive to Shock and Vibration
- Integrated Protection Circuit
- Zero Voltage Switch at AC Output
- Environmentally Friendly, Cadmium Free Contact Material
- Electrical Isolation Between Input and Output

XRU1H120U shown slightly larger than actual size.

The XR Series relays include products designed to meet high continuous current and/or long electrical service life applications. The XR Series relays are plug-in interfaces that connect to basic terminal blocks that use screw connection technology. Overall width is 14 mm (0.55").

These relays are best suited for applications that require higher continuous load currents than miniature relays can carry and switch. They can withstand inrush currents or brief overloads without damage, and allow for continuous load currents of up to 10 A. The XR Series Relay boasts an average service life of the contacts that is two or three times the normal life of a less powerful relay, resulting in service cost savings.

Accessories

Power Terminal Block

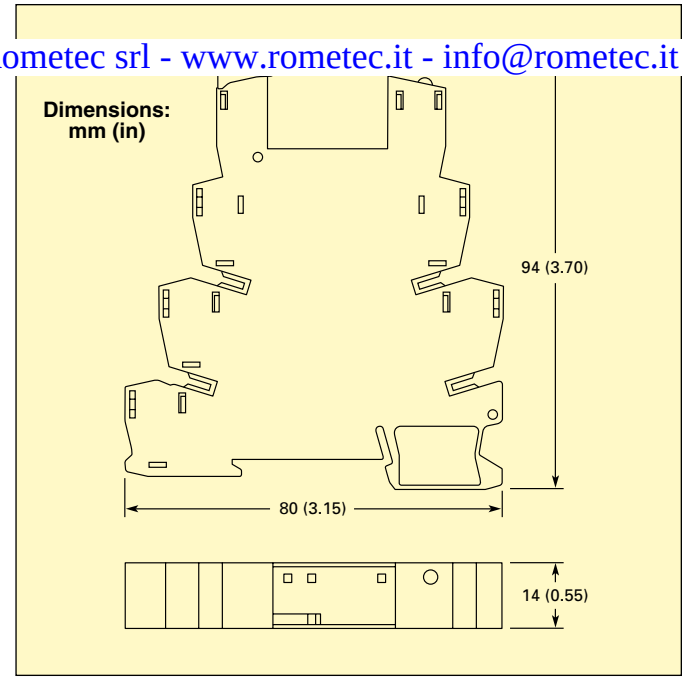
The XRAPLCESK power terminal block has the same shape as the relay modules and is used to feed in the bridging potentials. The nominal current is 32 A. When the total current is less than or equal to 6 A, supply can take place directly at the connecting terminal blocks of one of the connected relays.

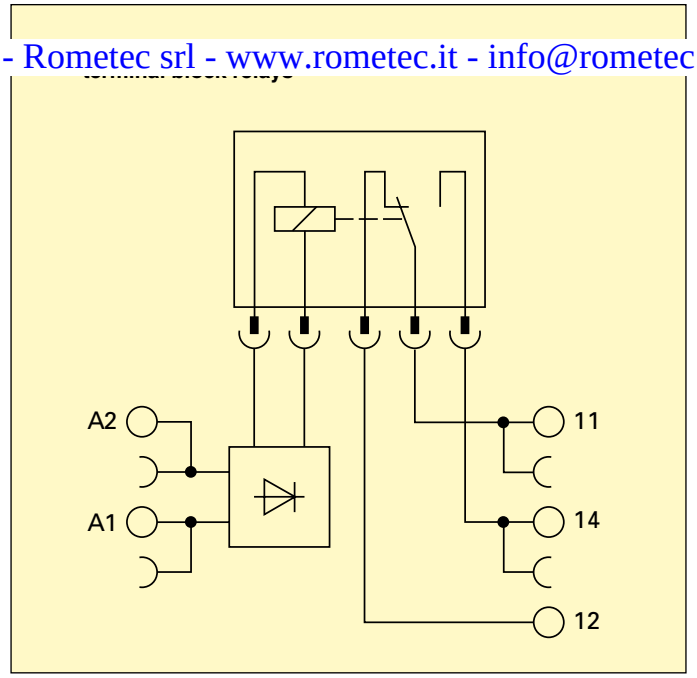
End Cover

The XRAATPBK end cover is required at the start and stop of a relay strip. It can also be used for visual separation of groups of relays as well as separating relays with voltages greater than 250V and separating neighboring bridges with different potentials. It is equipped with pre-scored break out points at the bridging positions so that individual bridges can be passed through as needed. It may also be necessary to use the end cover between adjacent relays when three phases (L1, L2, L3) are used on the contact side of the relay.

Bridges

The XRAFBST colored, insulated plugin bridge system reduces wiring time by up to 70% compared to conventionally wired relays. The XRAFBST2, 2-position bridges, are suited for bridging a smaller number of relays and total currents < 6A. When a circuit is supplied from both sides, the circuit can be opened at any point, allowing all other modules to continue being supplied at the same time. The XRAFBST500 allow up to 80 modules to be bridged at one time. If bridges with different potentials meet in neighboring modules, the end cover XRAATPBK should be used. All bridges are equipped with a groove for removal with a standard screwdriver.





Specifications

Connection Data:
Rigid Solid AWG (mm²):
26 to 14 (0.14 to 2.5)
Flexible Stranded AWG (mm²):
26 to 14 (0.14 to 2.5)
Input Voltage:
XRU1H24U: 24 Vac/Vdc
XRU1H120U: 120 Vac/110 Vdc
Typical Input Current:
XRU1H24U: 17.5 mA
XRU1H120U: 4.5 mA (120 Vac)/ 4.2 mA (110 Vdc)
Typical Response Time:
XRU1H24U: 8 mS
XRU1H120U: 7 mS
Typical Release Time: 10 mS
Input Protection: Bridge rectifier

OUTPUT DATA

Contact Type: Single contact, 1 PDT
Contact Material: AgNi
Max Switching Voltage: 250 Vac/Vdc[1]
Min Switching Voltage: 12 Vac/Vdc
Limiting Continuous Current:
10 A (6 A)[2]
Max Inrush Current: 30 A (300 mS)
Min Switching Current: 100 mA
Min Switching Power: 1.2 W

MISCELLANEOUS DATA

Test Voltage I/O: 4 kV, 50 Hz, 1 min
Ambient Temp Range: -20 to 60°C (-4 to 140°F)
Rated Operating Mode: 100% Operating Factor
Inflammability Class: V0, in Accordance with UL 94
Mechanical Service Life: 3 x 107 cycles

__1__ The separating plate, XRAPLCESK, should be installed for voltages greater than 250V (L1, L2, L3) between identical terminal points of adjacent modules. Potential bridging is then possible with the XRAFBST bridge system.
__2__ The current rating for the normally open contact (#14) is 10 A. The current rating for the normally closed contact (#12) is 6 A and can be increased to 10 A by bridging the two #12 contact connections.

To Order

Model No.	Description
XRU1H120U	1 PDT high current relay with 120 Vac/110 Vdc coil voltage
XRU1H24U	1 PDT high current relay with 24 Vac/Vdc coil voltage

Ordering Example: XRU1H120U, *relay.*

Replacement Relays and Accessories

Model No.	Description
XRR1H120U	Replacement relay for XRU1H120U
XRR1H24U	Replacement relay for XRU1H24U
XRAPLCESK	Power terminal block
XRAATPBK	Black end cover
XRAFBST2RD	2-position red snap in jumper
XRAFBST2BU	2-position blue snap in jumper
XRAFBST2GY	2-position gray snap in jumper
XRAFBST500RD	80-position red snap in jumper
XRAFBST500BU	80-position blue snap in jumper
XRAFBST500GY	80-position gray snap in jumper