⅛ DIN HIGH-PERFORMANCE METERS ALARM/CONTROL CAPABILITIES
STRAIN GAGE, PROCESS VOLTAGE AND CURRENT, TEMPERATURE

CE OMEGA™

DP41 Series

5-YEAR WARRANTY

c UL us

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.

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.
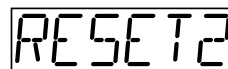
14-segment LED

7-segment LED

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

HIGH-PERFORMANCE METERS

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
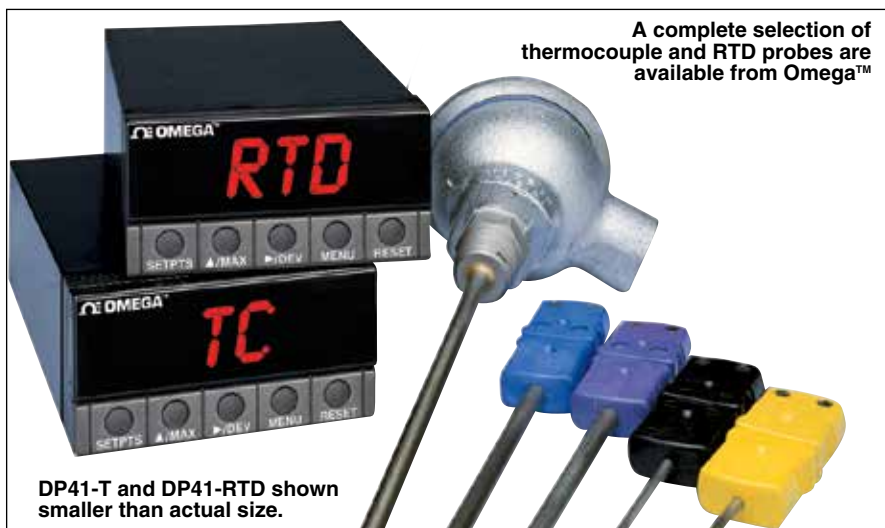**RTD Connection:** 2-, 3- or 4-wire

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 (3.6ºF). 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.

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.

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.*

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

ACCESSORIES FOR COMPUTER COMMUNICATIONS

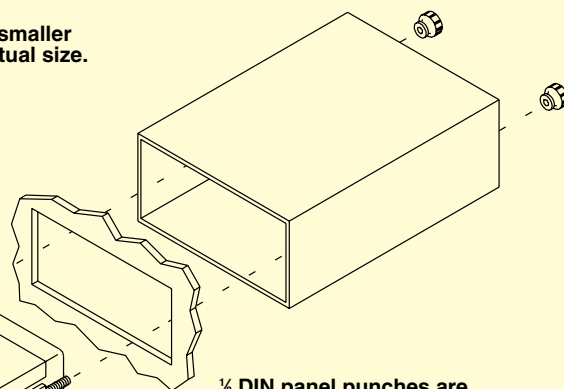| MODEL NO.	DESCRIPTION
DP40-9SC2	9-pin serial connector for RS232
DP40-9SC4	9-pin serial connector for RS485
DP40-25SC2	25-pin serial connector for RS232
DP40-25SC4	25-pin serial connector for RS485

ACCESSORIES FOR DP41 METERS

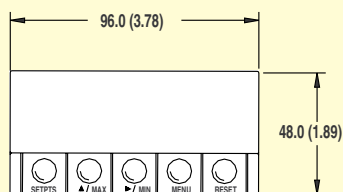| MODEL NO.	DESCRIPTION
SPC4	NEMA 4 (IP65) heavy-duty splashproof lens, screw clamp
SPC18	NEMA 4 (IP65) splashproof lens, spring clip
DP41-TBS	Economical bench stand
DPP-5	⅛ DIN panel punch

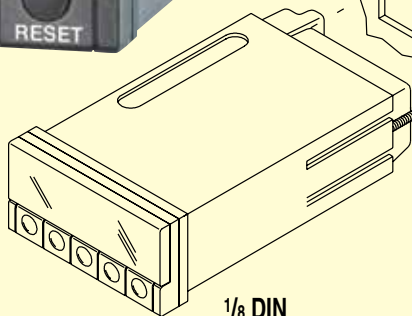# ⅛ DIN HIGH-PERFORMANCE PROCESS INDICATORS
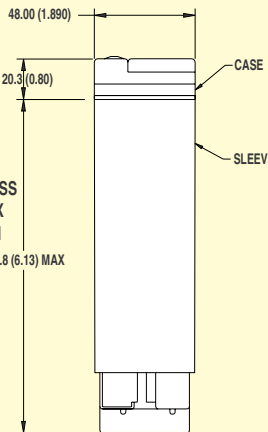## DP41 SERIES

DP41-S shown smaller than actual size.
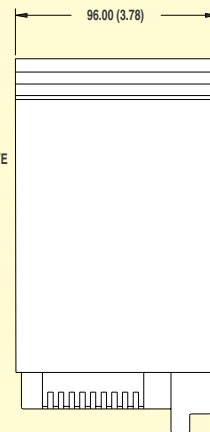
⅛ DIN panel punches are available from Omega.

⅛ DIN

96.0 (3.78)

48.0 (1.89)

FRONT VIEW
TYP

SETPTS   ▲/MAX   ▶/MIN   MENU   RESET

92.0 (3.62)

P6   P7   P18   P9
J4   P5
P1   P2   P3

45.0 (1.77)

REAR VIEW
TYP

Dimensions: mm (in)

92.00 +0.81/-0.00
(3.622 +.032/-.000)

R 0.06 (1.6)
4 PLCS

45.00 +0.61/-0.00
(1.772 +.024/-.000)

PANEL CUTOUT

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

48.00 (1.890)

20.3 (0.80)

155.8 (6.13) MAX

CASE

SLEEVE

SIDE VIEW
WITH T/C COVER

96.00 (3.78)

TOP VIEW
WITH T/C COVER

20.3 (0.80)   15.9 (0.63)
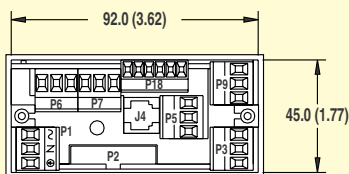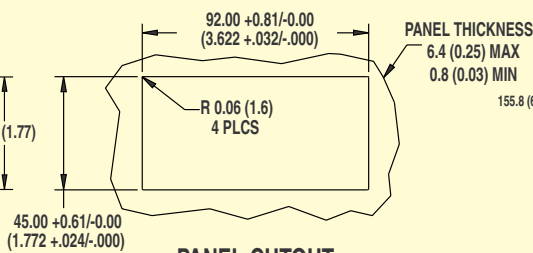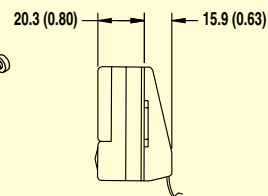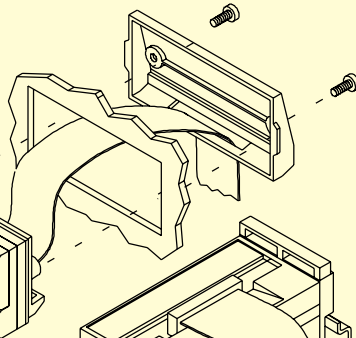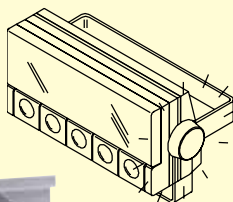
SIDE VIEW THROUGH PANEL MOUNT

61.0 (2.40)

SIDE VIEW OF SURFACE MOUNT

DP41Z-E shown smaller than actual size.