

1/8 DIN HIGH-PERFORMANCE METERS

ALARM/CONTROL CAPABILITIES

STRAIN GAGE, PROCESS VOLTAGE AND CURRENT, TEMPERATURE



DP41 Series



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.

DP41-S strain meter shown actual size.

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: $\pm 0.005\%$ 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"); $\frac{1}{8}$ 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, ± 5 V, ± 50 V

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 k Ω NIST or DIN platinum and any linear RTD

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

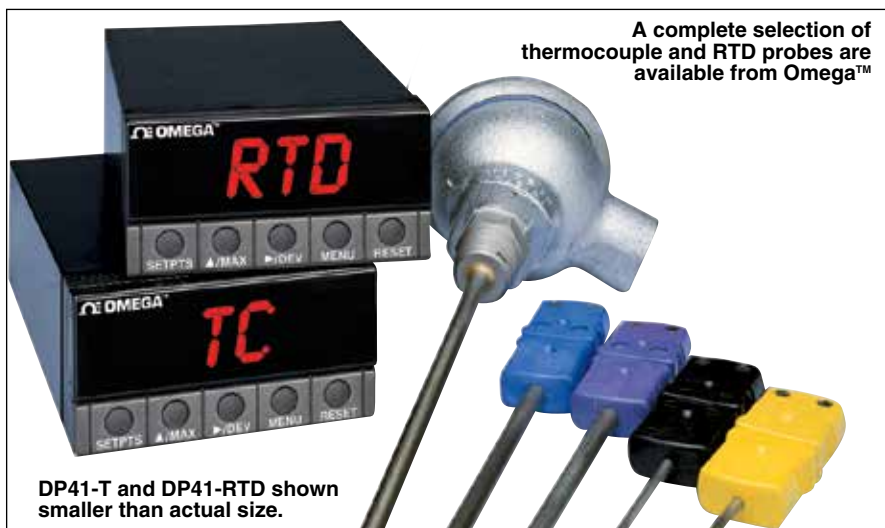
Sensor Break Protection: Up-scale or down-scale, programmable

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/0.3°F
B	Pt/30% Rh-Pt/6° Rh	100 to 1820	212 to 3300	0.3°C/0.5°F
N	OMEGALLOY™	-270 to 1300	-454 to 2372	0.2°C/0.3°F
J DIN	Iron-constantan	-200 to 900	-328 to 1652	0.6°C/1.0°F
RTD	All curves	-200 to 850	-328 to 1562	0.2°C/0.3°F

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



HIGH-PERFORMANCE METERS

DP41Z-E split meter with remote display, panel mount or surface mount with bracket 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

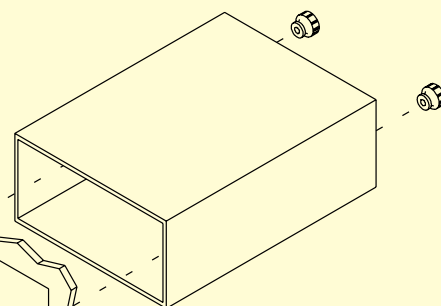
ACCESSORIES FOR DP41 METERS

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	1/8 DIN panel punch

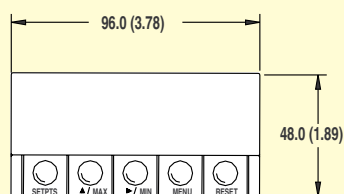
1/8 DIN HIGH-PERFORMANCE PROCESS INDICATORS DP41 SERIES



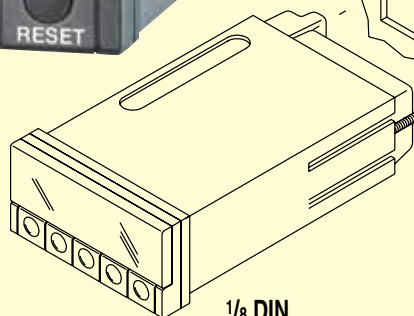
DP41-S
shown smaller
than actual size.



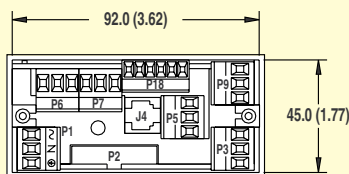
1/8 DIN panel punches are
available from Omega.



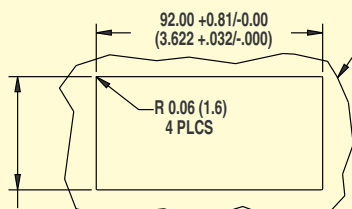
FRONT VIEW
TYP



1/8 DIN

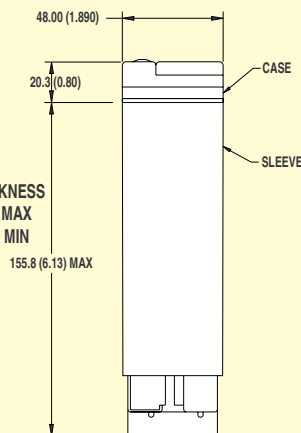


REAR VIEW
TYP

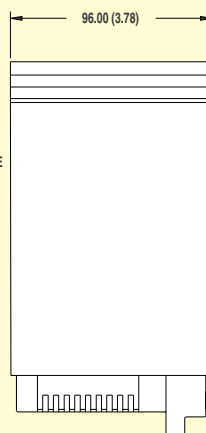


PANEL CUTOUT

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

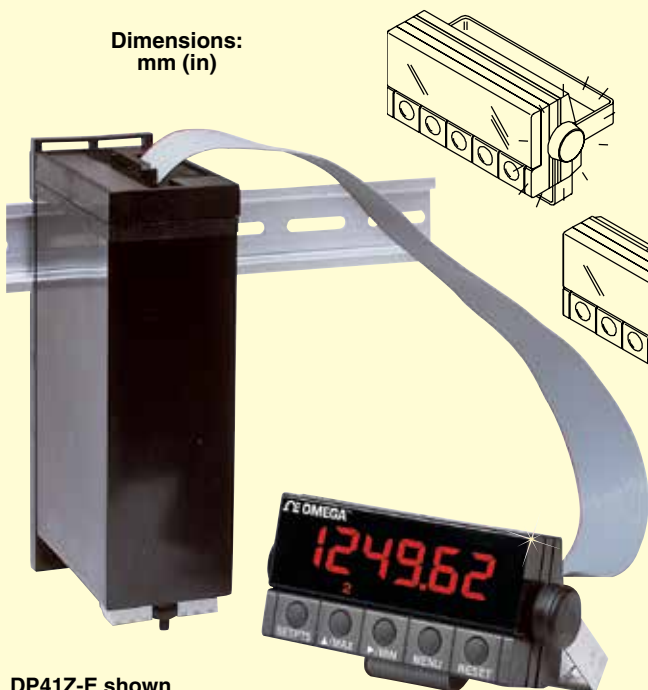


SIDE VIEW
WITH T/C COVER

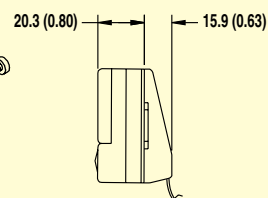
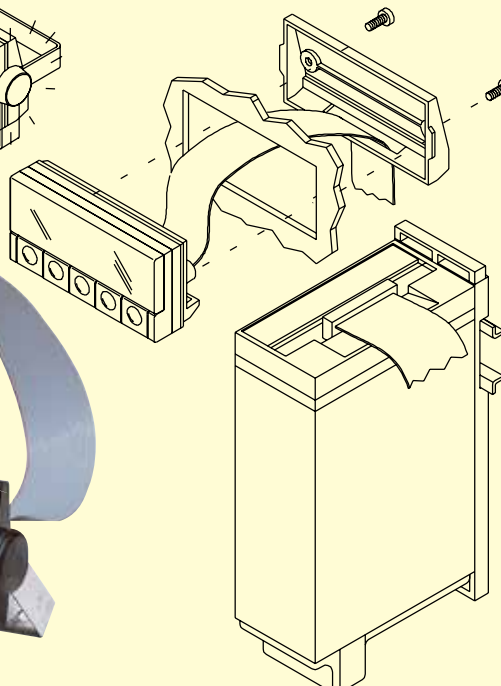


TOP VIEW
WITH T/C COVER

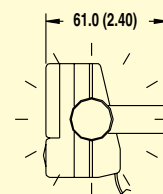
Dimensions:
mm (in)



DP41Z-E shown
smaller than actual size.



SIDE VIEW
THROUGH PANEL MOUNT



SIDE VIEW OF
SURFACE MOUNT