

1/8 DIN HIGH-PERFORMANCE METERS

ALARM/CONTROL CAPABILITIES

STRAIN GAGE, PROCESS VOLTAGE AND CURRENT, TEMPERATURE

DP41 Series



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.

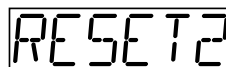
Standard features include 6-digit display; 5 front-panel pushbutton keys; 4 open-collector outputs; and alarm/control, BCD, and analog outputs. Configurable analog output ranges are 0 to 20 mA, 4 to 20 mA, 0 to 5 Vdc, and 0 to 10 Vdc.

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.

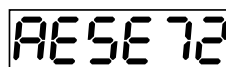
With the RS232/485 serial communications option, the user can set the display parameters and read the current, max, and min values remotely. The DP40-R board option provides dual 7 A mechanical relays, activated by the selected setpoint.

Ω 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.

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

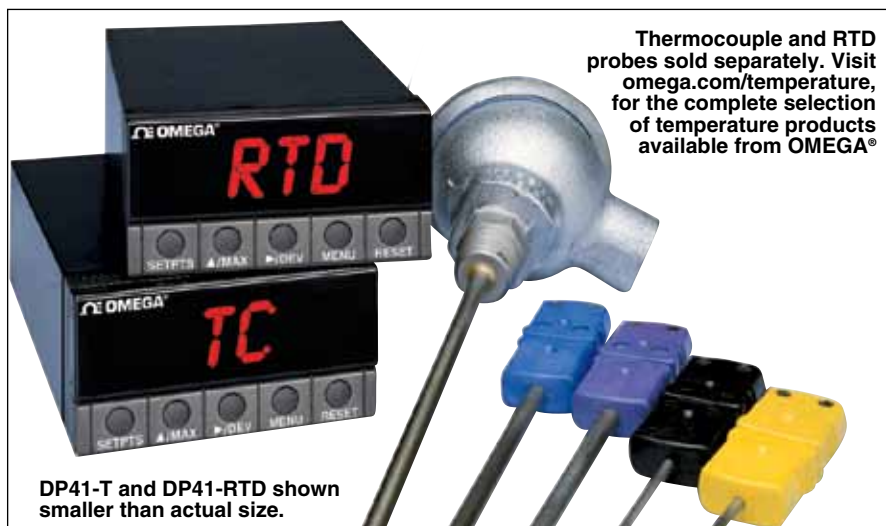
Sensor Break Protection: Up-scale or down-scale, programmable

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/0.3F |
| 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 |



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, 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 Visit omega.com/dp41 for Pricing and Details

| 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 |

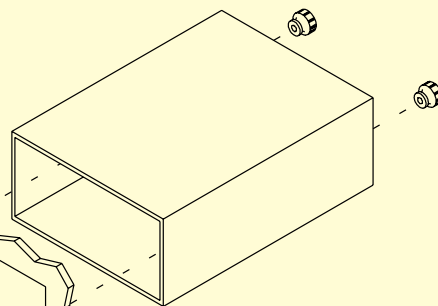
ACCESSORIES FOR DP41 METERS

| 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 |

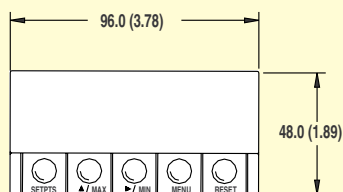
1/8 DIN HIGH-PERFORMANCE PROCESS INDICATORS DP41 SERIES



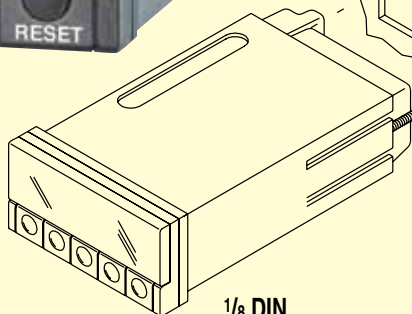
DP41-S
shown smaller
than actual size.



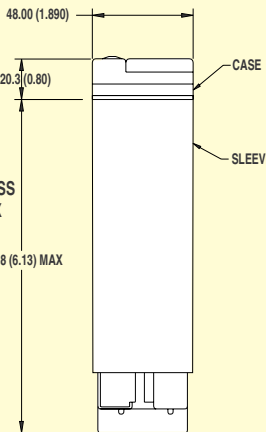
Visit omega.com/panelpunches
for 1/8 DIN panel punches.



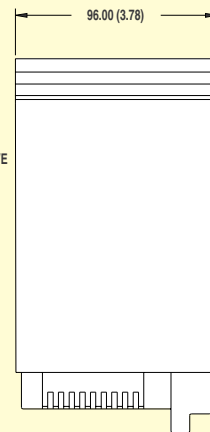
FRONT VIEW
TYP



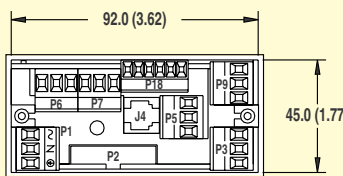
1/8 DIN



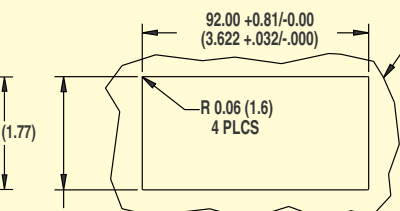
SIDE VIEW
WITH T/C COVER



TOP VIEW
WITH T/C COVER



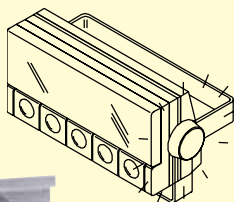
REAR VIEW
TYP



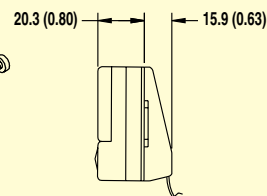
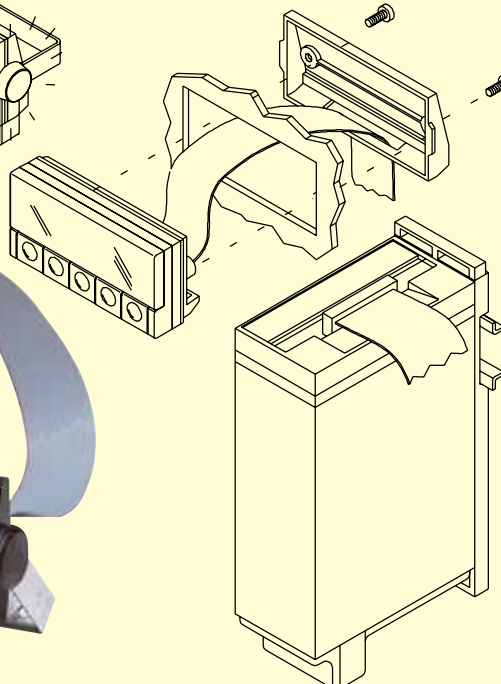
PANEL CUTOUT

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

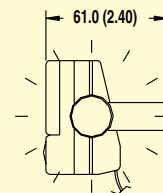
Dimensions:
mm (in)



DP41Z-E shown
smaller than actual size.



SIDE VIEW
THROUGH PANEL MOUNT



SIDE VIEW OF
SURFACE MOUNT