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.
**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 (1.77 x 3.62") ; 1/8 DIN
Weight: 574 g (1.27 lb)
Setpoint Outputs: 4 isolated open collector; rated 150 mA at 1V sink, 30V open

**Thermocouple Input Types:**
- J: Iron-constantan
- K: CHROMEGA®-ALOMEGA®
- T: Copper-constantan
- E: CHROMEGA®-constantan
- R/S: Pt/Rh
- B: Pt/30% Rh-Pt/6° Rh
- N: OMEGALLOY®
- J DIN: Iron-constantan

**RTD Input:** Any 6Ω to 6 kΩ NIST or DIN platinum and any linear RTD

- Offset Adjustment: 0 to 999,999 or 0 to -99,999, programmable
- 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 | -210 to 760 | -346 to 1400 | 0.2°C/0.3°F
K | -270 to 1372 | -454 to 2500 | 0.2°C/0.3°F
T | -270 to 400 | -454 to 752 | 0.2°C/0.3°F
E | -270 to 1000 | -454 to 1832 | 0.2°C/0.3°F
R/S | -50 to 1768 | -58 to 3214 | 0.2°C/0.3°F
B | 100 to 1820 | 212 to 3300 | 0.3°C/0.5°F
N | -270 to 1300 | -454 to 2372 | 0.2°C/0.3°F
J DIN | -200 to 900 | -328 to 1652 | 0.6°C/1.0°F

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°/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°/0.3°F/0.2 K

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

**Offset Adjustment:** 0 to 999,999 or 0 to -99,999, programmable
**Sensor Break Protection:** Up-scale or down-scale, programmable
**Sensor Excitation:** 10 V at 30 mA; 24V at 25 mA

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**Specifications for the DP41:**
- **Input Configuration:** Single-ended
- **Polarity:** Unipolar/bipolar, programmable
- **Span Adjustment:** 0.00001 to 500,000, programmable

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**Notes:**
- 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 (1.77 x 3.62") ; 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, ±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
**ANALOG OUTPUT/COMPUTER COMMUNICATIONS**

<table>
<thead>
<tr>
<th>MODEL NO.</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>DP40-A3</td>
<td>Analog output</td>
</tr>
<tr>
<td>DP40-S24</td>
<td>Isolated RS232/485 communications</td>
</tr>
</tbody>
</table>

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**

<table>
<thead>
<tr>
<th>MODEL NO.</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>DP40-B</td>
<td>Isolated BCD output board*</td>
</tr>
<tr>
<td>DP40-R</td>
<td>Dual 7 A mechanical relays*</td>
</tr>
<tr>
<td>DP40-R4</td>
<td>Dual 7 A and Dual 1 A relays*</td>
</tr>
</tbody>
</table>

*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.

**To Order**

<table>
<thead>
<tr>
<th>MODEL NO.</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>DP41-E</td>
<td>Process voltage/current indicator</td>
</tr>
<tr>
<td>DP41-S</td>
<td>Strain gage indicator</td>
</tr>
<tr>
<td>DP41-W</td>
<td>Weight NTEP strain indicator</td>
</tr>
<tr>
<td>DP41-TC</td>
<td>Thermocouple indicator</td>
</tr>
<tr>
<td>DP41-RTD</td>
<td>RTD indicator</td>
</tr>
<tr>
<td>DP41-U</td>
<td>Universal input indicator</td>
</tr>
<tr>
<td>DP41Z-E</td>
<td>Split-display voltage/current indicator</td>
</tr>
<tr>
<td>DP41Z-S</td>
<td>Split-display strain gage indicator</td>
</tr>
<tr>
<td>DP41Z-W</td>
<td>Split-display weight NTEP strain indicator</td>
</tr>
<tr>
<td>DP41Z-TC</td>
<td>Split-display thermocouple indicator</td>
</tr>
<tr>
<td>DP41Z-RTD</td>
<td>Split-display RTD indicator</td>
</tr>
<tr>
<td>DP41Z-U</td>
<td>Split-display universal input indicator</td>
</tr>
</tbody>
</table>

**POWER AND DISPLAY OPTIONS**

<table>
<thead>
<tr>
<th>SUFFIX</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>-230</td>
<td>230 Vac power</td>
</tr>
<tr>
<td>-DC</td>
<td>10 to 32 Vdc isolated power</td>
</tr>
<tr>
<td>-GN</td>
<td>Green LED display</td>
</tr>
</tbody>
</table>

**ACCESSORIES FOR COMPUTER COMMUNICATIONS**

<table>
<thead>
<tr>
<th>MODEL NO.</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>DP40-9SC2</td>
<td>9-pin serial connector for RS232</td>
</tr>
<tr>
<td>DP40-9SC4</td>
<td>9-pin serial connector for RS485</td>
</tr>
<tr>
<td>DP40-25SC2</td>
<td>25-pin serial connector for RS232</td>
</tr>
<tr>
<td>DP40-25SC4</td>
<td>25-pin serial connector for RS485</td>
</tr>
</tbody>
</table>

**ACCESSORIES FOR DP41 METERS**

<table>
<thead>
<tr>
<th>MODEL NO.</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPC4</td>
<td>NEMA 4 (IP65) heavy-duty splashproof lens, screw clamp</td>
</tr>
<tr>
<td>SPC18</td>
<td>NEMA 4 (IP65) splashproof lens, spring clip</td>
</tr>
<tr>
<td>DP41-TBS</td>
<td>Economical bench stand</td>
</tr>
<tr>
<td>DPP-5</td>
<td>1⁄8 DIN panel punch</td>
</tr>
</tbody>
</table>
1/8 DIN HIGH-PERFORMANCE PROCESS INDICATORS

DP41 SERIES

DP41-Z shown smaller than actual size.

DP41-S shown smaller than actual size.

1/8 DIN panel punches are available from OMEGA.

Dimensions:

mm (in)

1/8 DIN

TOP VIEW

SIDE VIEW

SIDE VIEW THRU PANEL MOUNT

SIDE VIEW SURF MOUNT

DP41-Z-E shown smaller than actual size.