

1/8 DIN High Performance Meters with Alarm/Control Capabilities

Temperature, Process Voltage & Current, Strain Gauge



As seen at www.newportUS.com



DP41 Series
£447
Basic Unit

All Units Feature:

- ✓ 6-Digit Display
- ✓ Min/Max Storage
- ✓ 4 Isolated Open Collector Outputs
- ✓ Optional DC Power
- ✓ IP65 (NEMA-4) Front Panel
- ✓ 12 Readings Per Second Max.
- ✓ 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 Analogue Output
- ✓ Optional RS-232/RS-485 Communications
- ✓ Optional Mechanical Relays

Thermocouple Input:

- ✓ 0.01° Resolution
- ✓ 0.2° Accuracy
- ✓ 9 Thermocouple Types
- ✓ °C/°F/Kelvin Units

RTD Input:

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

Voltage/Current Inputs:

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



The OMEGA®

DP41 family of digital panel meter/controllers represents the world standard for accuracy and quality in industrial instrumentation. Select from instruments designed for: process (dc voltage and current), strain gauge measurements, temperature (thermocouple and RTD), or choose the DP41-U, one meter which covers all the input types. The DP41-W meter is a strain meter with enhanced features.

DP41 meters can measure a broad spectrum of dc voltage and current ranges, nine thermocouple types, a variety of RTD's, a multitude of inputs from pressure transducers, load cells, strain gauges as well as potentiometric inputs. Six full digits make this meter ideal for demanding process control applications. On-board excitation is included so you can power virtually any sensor or transmitter, and four standard setpoints give the flexibility to control or alarm your system completely. The various setpoints can be configured as active above or below, latching or non-latching, as either high deviation, low deviation or band deviation, as well as numerous other possibilities. The meter is delivered configured for

the input type you choose. The

meter can be easily reconfigured using the front pushbuttons or via either of the optional serial communications boards. All options are field installable, so you can easily upgrade as your needs change. Programming the DP41 is accomplished through the five front panel keys. If the optional RS-232 or RS-485 communications are installed, the operator can set the display parameters remotely. Options for the DP41 include analogue and BCD outputs, alarm/control outputs, and RS-232 or RS-485 communications. Analogue outputs are configurable for any one of the following outputs: 0 to 20 mA, 4 to 20 mA, 0 to 5 Vdc or 0 to 10 Vdc. The RS-232 or RS-485 communications options are bi-directional, allowing the user to configure the DP41 as well as read the current, max and min values. Each DP41 comes with four open collector outputs as standard. The optional DP40-R board provides dual 7 A mechanical relays, which are activated by the selected setpoint.

Specifications

Accuracy: ±0.005% rdg

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 makes operating and programming simpler and easier.

RESET2

14-segment LED

AESE72

7-segment LED



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



Span Temperature Coefficient: ± 20 ppm
Step Response: 1 sec to 99.9%
Warmup to Rated Accuracy: 50 min
Operating Ambient: 0 to 50°C (32 to 122°F), 95% RH, non-condensing
Storage Ambient: -40 to 85°C (-40 to 185°F)
Power: 230 or 115 Vac, 49-400 Hz; 10 to 32 Vdc
Power Consumption: 6 W nominal, 10 W max.
Normal Mode Rejection: 60 dB
Common Mode Rejection: 120 dB
Common Mode Voltage: 1500 V peak per Hv test
Resolution: 17-bit
Conversion: dual-slope technique
Reading Rate: 3/sec or 13/sec, 60 Hz; 3/sec or 12/sec, 50 Hz
Display: red or green 6-digit, 14-segment, 13.7 mm (0.54"); 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: four, isolated open collector; rated 150 mA at 1 V sink, 30 V open
BCD Output: isolated, tri-state, TTL/CMOS compatible; external 5 V supply required for isolated; internal 5 V supply for non-isolated
Dual Relays: form C, 7 A at 30 Vdc or 230 Vac
Four Relay Option: dual 7 A relays and dual 1 A relays

Analogue Output: 0-5 V/1-5 V/0-10 V/0-20 mA/4-20 mA, user selectable; 354 Vp isolation; 15-bit resolution; 0.1% accuracy, 50 msec step response
RS-232 Communications: 300/600/1200/2400/4800/9600/19.2 k baud; RJ11 4-wire connection; programmable to transmit current display, alarm status, min/max, actual measured input value and status
RS-485 Communications: 300/600/1200/2400/4800/9600/19.2 k baud; RJ12 6-wire connection; addressable from 0 to 199
Voltage Input Ranges: 0-100 mV, 0-1 V, 0-5 V, 1-5 V, 0-10 V, 0-100 V, ± 50 mV, ± 500 mV, ± 5 V, ± 50 V

Current Input Ranges: 0-20 mA, 4-20 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: upscale or downscale, programmable
Sensor Excitation: 10 V at 30 mA; 24 V at 25 mA

The DP41 thermocouple meter offers very high accuracy ensured by an advanced (patent applied for) thermocouple linearising system. Accuracy for most thermocouple types is 0.2°C. 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 minimise self-heating errors and maximise stability.

Input Type		Range, °C	Range, °F	Accuracy
J	Iron-Constantan	-210 to 760	-346 to 1400	0.2°C/0.3°F
K	CHROMEGLA™-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	CHROMEGLA™-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	Nicrosil-Nisil	-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

The following LVD (Low Voltage Directive/Safety) requirements have been met to comply with EN 61010-1, 1993 (Electrical equipment for measurement, control and laboratory use)

1. Pollution Degree 2 2. Installation Category II 3. Double Insulation
 DP41 complies with the following EMC Immunity Standards as tested per EN 50082-2, 1995 (Industrial environment)

Phenomena	Test Specification	Basic Standard
Electrostatic Discharge	± 4 kV contact discharge ± 8 kV air discharge	IEC 1000-4-2 Perf. Criteria B
Radio Frequency electromagnetic field	27 - 1000 MHz 10 V/m 80% AM (1 KHz)	IEC 1000-4-3 Perf. Criteria A
Fast Transients	± 2 kV (ac mains) ± 1 kV (dc, signal I/O) 5/50 ns Tr/Th, 5 KHz repet. Freq.	IEC 1000-4-4 Perf. Criteria B
Radio Frequency conducted	0.15 - 80 MHz 10 V/m 80% AM (1 KHz)	IEC 1000-4-6 Perf. Criteria A
Surges	± 2 kV line to earth ± 1 kV line to line 1/2/50 (8/20) μ s Tr/Th	IEC 1000-4-5 Perf. Criteria B
Voltage Dips	30% reduction 10 ms 60% reduction 100 ms	IEC 1000-4-11 Perf. Criteria B
Voltage Interruption	>95% reduction 5000 ms	IEC 1000-4-11 Perf. Criteria C

DP41 comply with the following EMC Emission Standards as tested per EN 50081-1, 1997 (Residential, Commercial and Light Industrial)

Phenomena	Frequency Range	Limits	Basic Standard
Radiated Emission	30 - 230 MHz 230 - 1000 MHz	30 dB μ V/m at 10 m 37 dB μ V/m at 10 m quasi peak	CISPR 22 Class B
Conducted Emission	0.15-0.5 MHz 0.5-5 MHz 5-30 MHz	66-56 dB μ V q, peak 56 dB μ V quasi peak 60 dB μ V quasi peak	CISPR 22 Class B

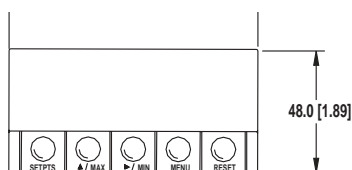


Models DP41-T and DP41-RTD

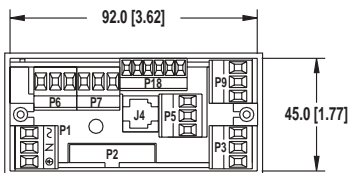


1/8 DIN High Performance Process Indicators— DP41 Series

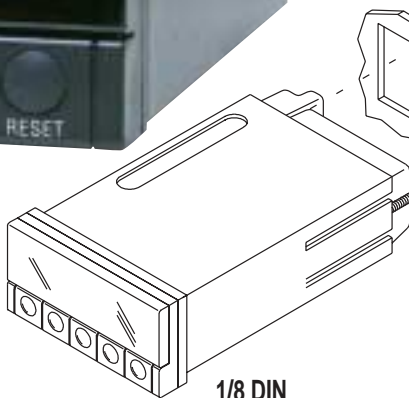
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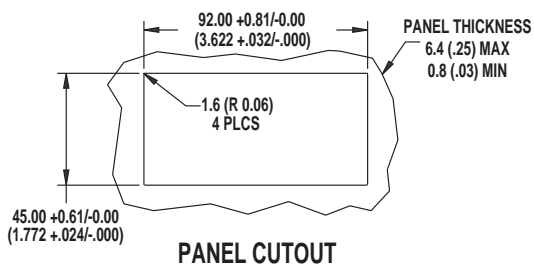
FRONT VIEW



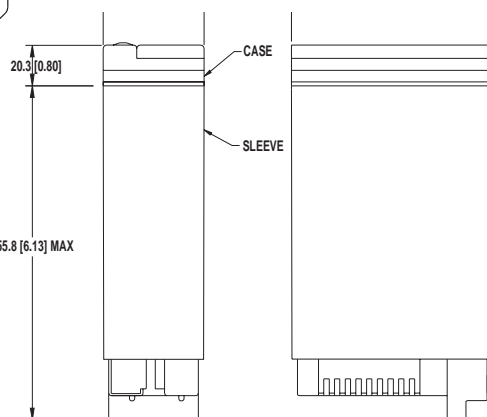
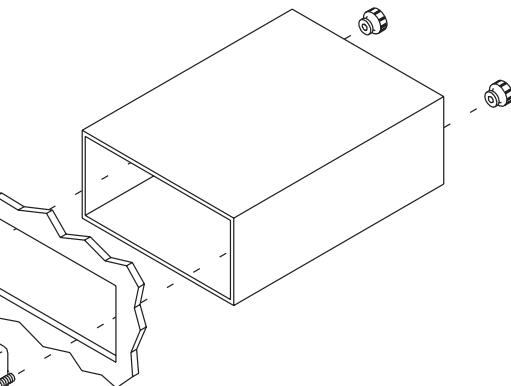
REAR VIEW



1/8 DIN



PANEL CUTOUT

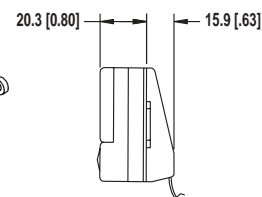
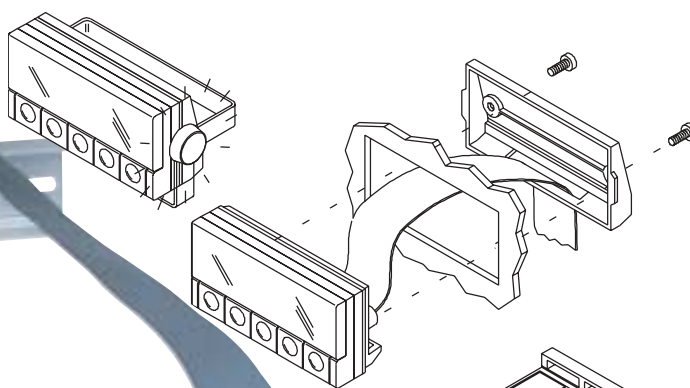


SIDE VIEW
WITH T/C COVER

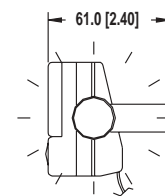
TOP VIEW
WITH T/C COVER



Dimensions in mm [inches]



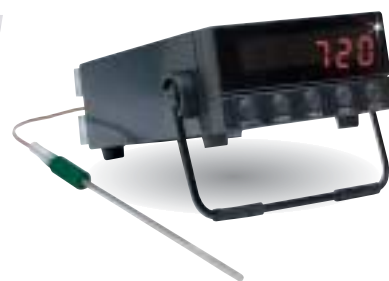
SIDE VIEW
THROUGH PANEL MOUNT



SIDE VIEW
SURFACE MOUNT



DP41Z Split Meter with Remote Display - Panel Mount or Surface Mount with Bracket



DP41-TBS

£20⁵⁰

Optional bench-top stand

To Order (Specify Model Number)

Model No.	Price	Description
DP41-TC-230	£488	Thermocouple indicator
DP41-RTD-230	488	RTD indicator
DP41-E-230	447	Voltage/current indicator
DP41-S-230	447	Strain gauge indicator
DP41-U-230	530	Universal input indicator
DP41-W-230	488	Weight indicator
DP41Z-TC-230	530	Split display thermocouple indicator
DP41Z-RTD-230	530	Split display RTD indicator
DP41Z-E-230	488	Split display voltage/current indicator
DP41Z-S-230	488	Split display strain gauge indicator
DP41Z-U-230	570	Split display universal input indicator
DP41Z-W-230	570	Split display weight indicator

CUSTOM CONFIGURATIONS

Custom firmware and hardware available in quantity

CUSTOM COLOURS

Custom colour bezels and enclosures are available for Original Equipment Manufacturers.

Enhance the appearance of your equipment design with custom colours.

Consult our Website
www.omega.co.uk



Analogue Output/Computer Communications

Model No.	Price	Description
DP40-A	£90	Analogue output
DP40-S2	90	Isolated RS-232 communications*
DP40-S4	90	Isolated RS-485 communications*

**Note: Both options cannot be used at the same time in a single unit. Both DP40-S2 and DP40-S4 options come with 3.5 set-up/programming disks, and 2m communications cable with RJ11 termination. For proper termination to a computer, 9-pin and 25-pin connectors are offered on this page.*

Control/BCD Outputs

Model No.	Price	Description
DP40-B	£90	Isolated BCD output board*
DP40-R	62	Dual 7 A mechanical relays*
DP40-R4	144	Dual 7 A and Dual 1 A relays*

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

Ordering Examples: DP41-TC-S2A-DC, with DP40-9SC2, DP41 unit for thermocouple inputs, with 10-32 Vdc power, RS-232 communications, analogue output, and 9-pin serial connector.

Power & Display Options

Suffix	Price	Description
-DC	£90	9 to 32 Vdc Isolated power. (Also remove ("-230"))
-GN	N/C	Green LED display

To order for 115 Vac power, remove "-230" suffix from part number. No extra charge.

Accessories for Computer Communications

Model No.	Price	Description
DP40-9SC2	£24.50	9-pin serial connector for RS-232
DP40-9SC4	24.50	9-pin serial connector for RS-485
DP40-25SC2	24.50	25-pin serial connector for RS-232
DP40-25SC4	24.50	25-pin serial connector for RS-485

Accessories for DP41 Meters

Model No.	Price	Description
SPC4	£24.50	IP65 heavy duty splashproof lens, screw clamp
SPC18	24.50	IP65 splashproof lens, spring clip
DP41-TBS	20.50	Economical bench stand