

1/8 DIN High-Performance Meters Alarm/Control Capabilities Temperature, Process Voltage and Current, Strain Gage

**OMEGA MONOGRAM™
SERIES**

DP41
Starts at



All Units Feature

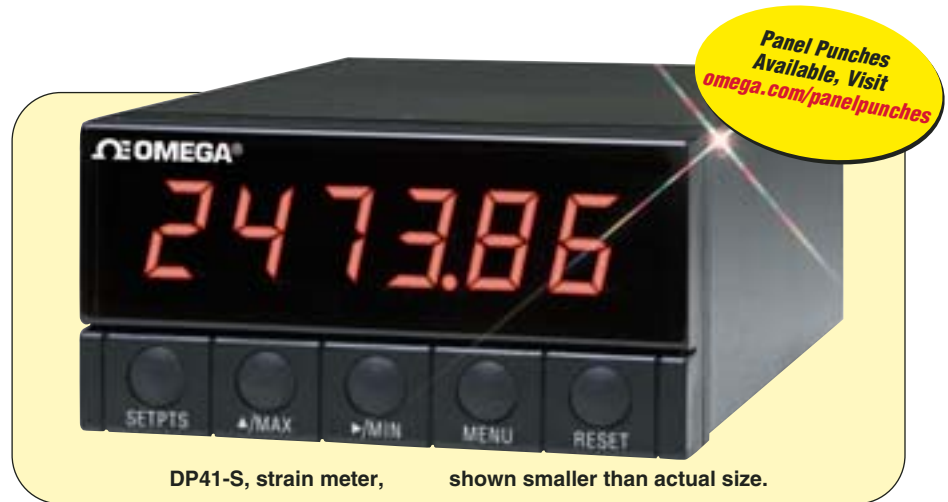
- ✓ 5-Year Warranty
- ✓ 6-Digit Display
- ✓ Min/Max Storage
- ✓ 4 Isolated Open-Collector Outputs
- ✓ NEMA 4 (IP65) Front Panel
- ✓ 12 Readings per Second
- ✓ Alarm/Control Capabilities
- ✓ Smart Filtering Detects the Difference Between a Spike or Process Change (Patent Applied for)
- ✓ Peak and Valley 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



DP41-S, strain meter, shown smaller than actual size.

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.

RESET2

14-segment LED

AESE72

7-segment LED



Specifications

Accuracy: ±0.005% rdg

Span Temperature Coefficient: ±20 ppm

Step Response: 1 s to 99.9%

Warm-Up to Rated Accuracy: 50 min

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: 17-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"); ½ 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

CE 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 repit. 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) µs 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 µV/m at 10 m 37 dB µV/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 µV q, peak 56 dB µV quasi peak 60 dB µV quasi peak	CISPR 22 Class B

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: 10V 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.

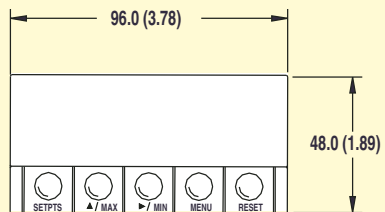
Input Type		Range, °C	Range, °F	Accuracy
J	Iron-constantan	-210 to 760	-346 to 1400	0.2°C/0.3°F
K	CHROMEGA®-ALOMEGA®	-270 to 1372	-454 to 2500	0.2°C/0.3°F
T	Copper-constantan	-270 to 400	-454 to 752	0.2°C/0.3°F
E	CHROMEGA®-constantan	-270 to 1000	-454 to 1832	0.2°C/0.3°F
R/S	Pt/Rh	-50 to 1768	-58 to 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	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

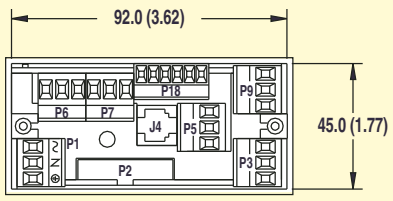




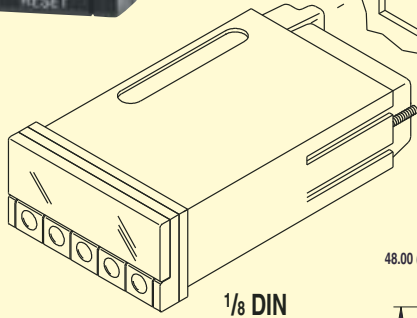
DP41-S,
shown smaller than
actual size.



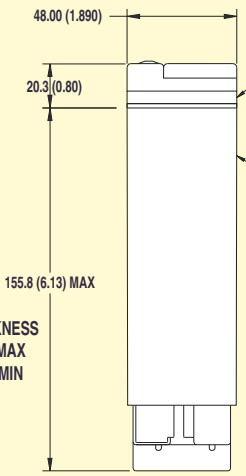
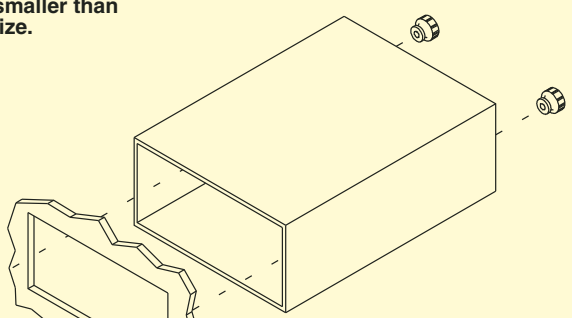
FRONT VIEW
TYP



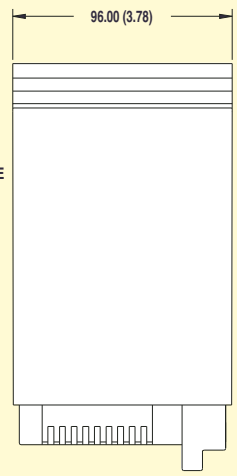
REAR VIEW
TYP



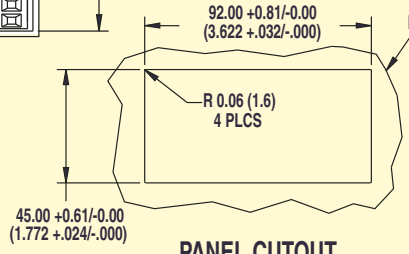
1/8 DIN



SIDE VIEW
WITH T/C COVER



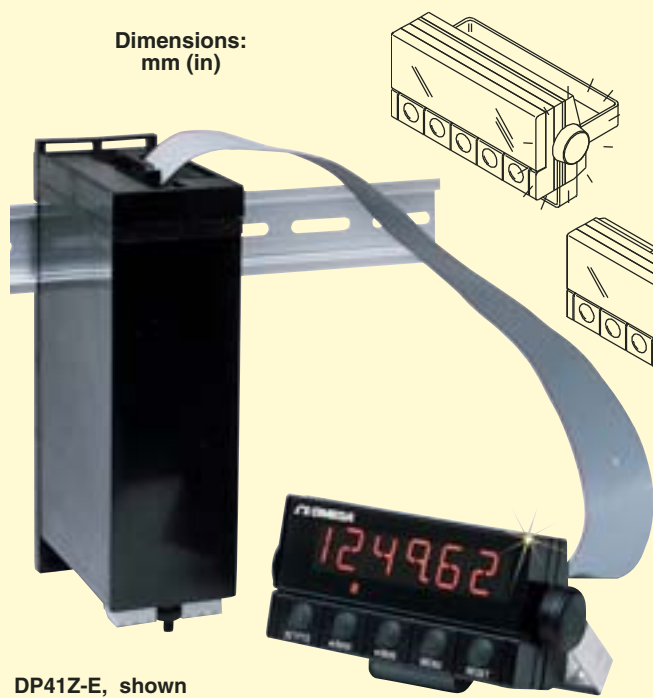
TOP VIEW
WITH T/C COVER



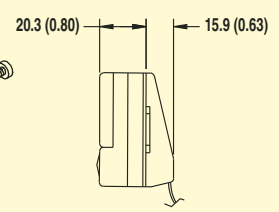
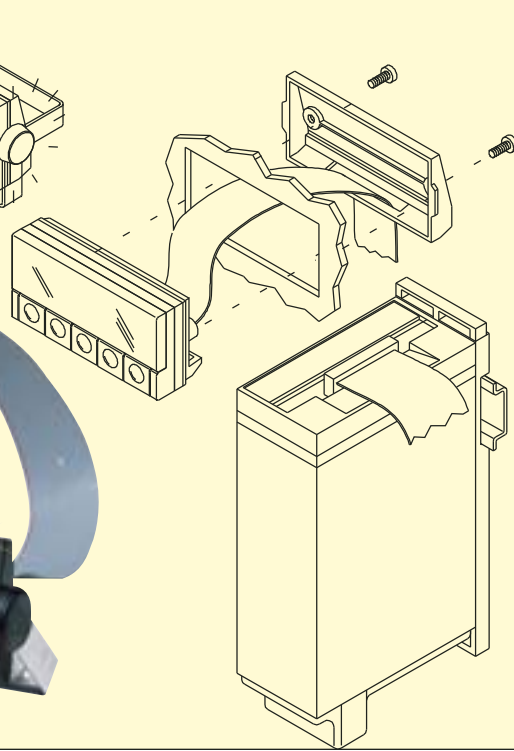
PANEL CUTOUT

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

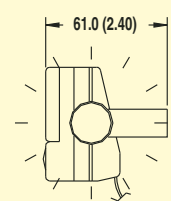
Dimensions:
mm (in)



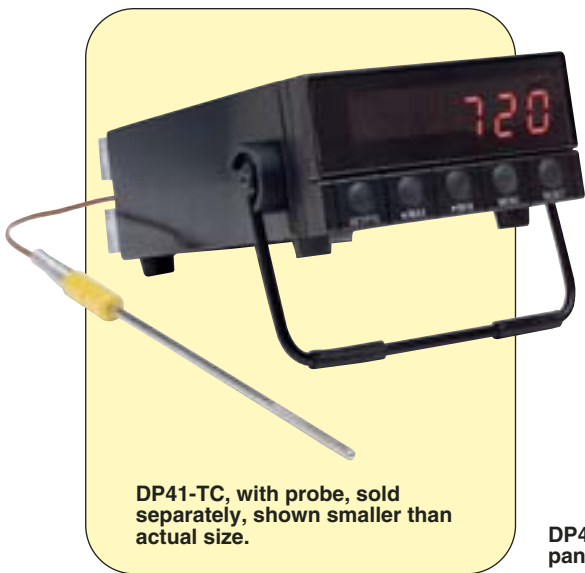
DP41Z-E, shown
smaller than actual size.



SIDE VIEW
THROUGH PANEL MOUNT



SIDE VIEW OF
SURFACE MOUNT



DP41-TC, with probe, sold separately, shown smaller than actual size.



DP41Z-E split meter with remote display, panel mount or surface mount with bracket, shown smaller than actual size.

MOST POPULAR MODELS HIGHLIGHTED!

To Order (Specify Model Number)

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

CUSTOM CONFIGURATIONS

Custom firmware and hardware available in quantity.

CUSTOM COLORS

Custom-color bezels and enclosures are available for original equipment manufacturers. Enhance the appearance of your equipment design with custom colors.

Consult the **OMEGA® OEM GROUP.**

1-800-82-66342®
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Analog Output/Computer Communications

Model No.	Description
DP40-A3	Analog output
DP40-S24	Isolated RS232/RS485 communications*

Comes complete with operator's manual.

* Both options cannot be used at the same time in a single unit. 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 on this page.

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**

** 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 Examples: DP41-TC-S24-A3-DC, DP41 unit for thermocouple inputs, with 10 to 32 Vdc power, RS232 communications, analog output and DP40-9SC2, 9-pin serial connector

Power and Display Options

Suffix	Description
-230	230 Vac power
-DC	9 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	½ DIN panel punch





UNITED STATES

www.omega.com
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