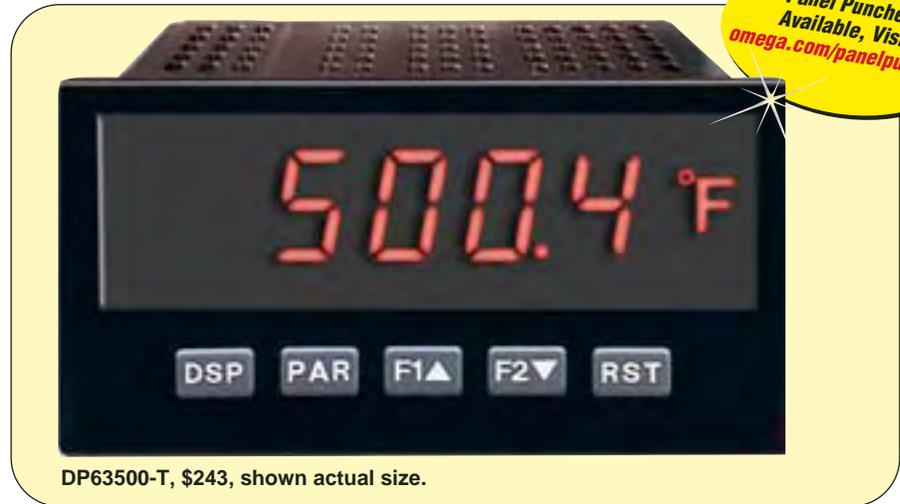


# 1/8 DIN Digital Panel Temperature Meters For Thermocouple and RTD Inputs



DP63500-T Series  
Starts at  
**\$243**

Panel Punches Available, Visit [omega.com/panelpunches](http://omega.com/panelpunches)



DP63500-T, \$243, shown actual size.

- ✓ Thermocouple and RTD Panel Meter
- ✓ 5-Digit, 14.2 mm (0.56") LED
- ✓ Green or Red Sunlight Readable Display
- ✓ Conforms to ITS-90 Standards
- ✓ °F or °C Unit Overlay With Backlight
- ✓ Field Upgradeable Option Cards
- ✓ NEMX 4X (IP65)

The DP63500-T Series panel meters offer many features and performance capabilities suitable for a wide range of industrial applications. These meters accept thermocouple or RTD inputs. The optional plug-in output cards allow the opportunity to configure the meter for present applications, while providing easy upgrades for future needs.

The meters have a bright, 14.2 mm (0.56") LED display. The unit is available with a red, sunlight-readable or a standard green LED. The intensity of display can be adjusted from dark room to sunlight readable, making it ideal for viewing in variable light applications.

The meters provide a maximum and minimum reading memory with programmable capture time. The capture time is used to prevent detection of false max or min readings which may occur during start-up or unusual process events. The meters have 4 setpoint outputs, implemented on plug-in option cards.

The plug-in cards provide dual form "C" relays (5 A), quad form "A" (3 A), or either quad-sinking or quad-sourcing open collector logic outputs. The setpoint alarms can be configured to suit a variety of control and alarm requirements. Communication and bus capabilities are also available as option cards; these include RS232, RS485, and MODBUS®.

## Specifications

**Display:** 5-digit, 14.2 mm (0.56") red sunlight-readable or standard green LEDs, (-19999 to 99999)

### Power:

#### AC Versions:

**AC Power:** 85 to 250 Vac, 50/60 Hz, 15 VA

**Isolation:** 2300 Vrms for 1 minute to all inputs and outputs

**DC Power:** 11 to 36 Vdc, 11 W (derate operating temperature to 40°C if operating <15 Vdc and 3 plug-in option cards are installed)

**AC Power:** 24 Vac, ± 10%, 50/60 Hz, 15 VA

**Isolation:** 500 Vrms for 1 minute to all inputs and outputs (50V working)

**Keypad:** 3 programmable function keys, 5 keys total

**A/D Converter:** 16-bit resolution

### Update Rates:

**A/D Conversion Rate:** 20 readings/s

**Step Response:** 200 ms max to within 99% of final readout value (digital filter and internal zero correction disabled), 700 ms max (digital filter disabled, internal zero correction enabled)

**Display Update Rate:** 1 to 20 updates/s

**Setpoint Output On/Off Delay Time:** 0 to 3275 seconds

**Analog Output Update Rate:** 0 to 10 s

**Max/min Capture Delay Time:** 0 to 3275 s

**Ice Point Compensation:** User value (0.00 to 650.00 μV/°C)

**Memory:** Non-volatile EEPROM retains all programmable parameters and display values

### Environmental Conditions:

#### Operating Temperature Range:

0 to 50°C (32 to 122°F) [0 to 45°C (32 to 113°F) with all 3 plug-in cards installed]

#### Storage Temperature Range:

-40 to 60°C (-40 to 140°F)

#### Operating and Storage Humidity:

0 to 85% max RH non-condensing

#### Altitude:

Up to 2000 m (6563')

#### Connections:

High-compression, cage-clamp terminal block

#### Construction:

This unit is rated for NEMA 4X (IP65) outdoor use, IP20 touch-safe, Installation Category II, Pollution Degree 2, 1-piece bezel/case, flame-resistant, synthetic rubber keypad—panel gasket and mounting clip included

**Weight:** 295 g (10.4 oz)





## Thermocouple Inputs

**Resolution: Variable:** 0.1, 0.2, 0.5, or 1, 2, or 5 degrees  
**Scale:** °F or °C

**Offset Range:** -19,999 to 99,999 display units

**Input Impedance:** 20 MΩ

**Lead Resistance Effect:** 0.03 μV/Ω

**Maximum Continuous Overvoltage:** 30 V

Input Type	Range	Accuracy* (18 to 28°C)	Accuracy* (0 to 60°C)
T	-200 to 400°C (-328 to 752°F) -270 to -200°C (-454 to -328°F)	1.2°C**	2.1°C
E	-200 to 871°C (-328 to 1600°F) -270 to -200°C (-454 to -328°F)	1.0°C**	2.4°C
J	-200 to 760°C (-328 to 1400°F)	1.1°C	2.3°C
K	-200 to 1372°C (-328 to 2502°F) -270 to -200°C (-454 to -328°F)	1.3°C**	3.4°C
R	-50 to 1768°C (-58 to 3214°F)	1.9°C	4.0°C
S	-50 to 1768°C (-58 to 3214°F)	1.9°C	4.0°C
B	100 to 300°C (100 to 572°F) 300 to 1820°C (572 to 3308°F)	3.9°C 2.8°C	5.7°C 4.4°C
N	-200 to 1300°C (-328 to 2372°F) -270 to -200°C (-454 to -328°F)	1.3°C**	3.1°C
C	0 to 2315°C (32 to 4199°F)	1.9°C	6.1°C

\* After 20 minute warm-up. Accuracy is specified in 2 ways—accuracy over an 18 to 28°C (64 to 82°F) in a 15 to 75% RH environment and accuracy over a 0 to 50°C (32 to 122°F) in a 0 to 85% RH (non-condensing) environment. Accuracy specified over the 0 to 50°C (32 to 122°F) operating range includes meter tempco and ice point tracking effects. The specification includes the A/D conversion errors, linearization conformity, and thermocouple ice point compensation. Total system accuracy is the sum of meter and probe errors. Accuracy may be improved by field calibrating the meter readout at the temperature of interest.

\*\* The accuracy over the interval -270 to -200°C (-454 to -328°F) is a function of temperature, ranging from 1°C at -200°C and degrading to 7°C at -270°C. Accuracy may be improved by field calibrating the meter readout at the temperature of interest.

## RTD Inputs

**Type:** 3- or 4-wire, 2-wire can be compensated for lead wire resistance

**Excitation Current:**

**100 Ω Range:** 165 μA

**10 Ω Range:** 2.6 mA

**Lead Resistance:**

**100 Ω Range:** 10 Ω/lead max

**10 Ω Range:** 3 Ω/lead max

### RTD Inputs Table

Input Type	Range	Accuracy* (18 to 28°C)	Accuracy* (0 to 50°C)
100 Ω Pt alpha = 0.00385	-200 to 850°C (-328 to 1562°F)	0.4°C	1.6°C
100 Ω Pt alpha = 0.003919	-200 to 850°C (-328 to 1562°F)	0.4°C	1.6°C
120 Ω Nickel alpha = 0.00672	-80 to 260°C (-112 to 1562°F)	0.2°C	0.5°C
10 Ω Copper alpha = 0.00427	-100 to 260°C (-148 to 500°F)	0.4°C	0.9°C

\* After 20 minute warm-up. Accuracy is specified in 2 ways—accuracy over an 18 to 28°C (64 to 82°F) in a 15 to 75% RH environment and accuracy over a 0 to 50°C (32 to 122°F) in a 0 to 85% RH (non-condensing) environment. Accuracy specified over the 0 to 50°C (32 to 122°F) operating range includes meter tempco and ice point tracking effects. The specification includes the A/D conversion errors, linearization conformity, and thermocouple ice point compensation. Total system accuracy is the sum of meter and probe errors. Accuracy may be improved by field calibrating the meter readout at the temperature of interest.

## Custom Range

**Custom Range:** Up to 16 data point pairs

**Input Range:** -10 to 65 mV

**0 to 400 Ω:** High range

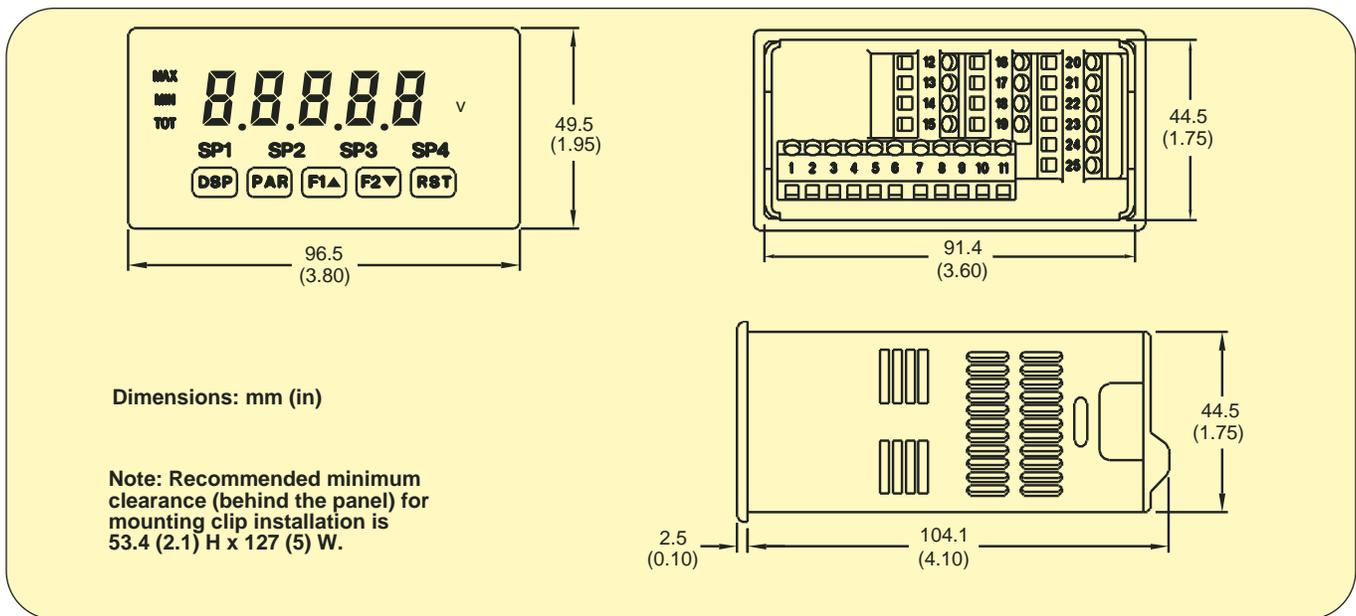
**0 to 25 Ω:** Low range

**Display Range:** -19999 to 99999

### Custom Range Table

Input Type	Range	Accuracy* (18 to 28°C)	Accuracy* (0 to 50°C)
Custom mV Range	-10 to 65 mV (1 μV res)	0.02% of rdg + 4 μV	0.12% of rdg + 5 μV
Custom 100 Ω Range	0 to 400 Ω (10 MΩ res)	0.02% of rdg + 0.04 Ω	0.12% of rdg + 0.05 Ω
Custom 10 Ω Range	0 to 25 Ω (1 MΩ res)	0.04% of rdg + 0.005 Ω	0.20% of rdg + 0.007 Ω

\* After 20 minute warm-up. Accuracy is specified in 2 ways—accuracy over an 18 to 28°C (64 to 82°F) in a 15 to 75% RH environment and accuracy over a 0 to 50°C (32 to 122°F) in a 0 to 85% RH (non-condensing) environment. Accuracy specified over the 0 to 50°C (32 to 122°F) operating range includes meter tempco and ice point tracking effects. The specification includes the A/D conversion errors, linearization conformity, and thermocouple ice point compensation. Total system accuracy is the sum of meter and probe errors. Accuracy may be improved by field calibrating the meter readout at the temperature of interest.



**MOST POPULAR MODEL HIGHLIGHTED!**

To Order (Specify Model Number)		
Model No.	Price	Description (Display Meter Only, No Outputs)
DP63500-T	\$243	Red display, 85 to 250 Vac, 50/60 Hz
DP63500-T-LV	270	Red display, 11 to 36 Vdc, 24 Vac
DP63500-T-GN	259	Green display, 85 to 250 Vac, 50/60 Hz
DP63500-T-GN-LV	287	Green display, 11 to 36 Vdc, 24 Vac

**Optional Plug-in Output Cards (Field Installable)**

Model No.	Price	Description
<b>Setpoint Alarms (Only 1 Alarm Card Can Be Installed Into Base Meter)</b>		
LDP6-CDS10	\$37	Dual setpoint relay output card
LDP6-CDS20	48	Quad setpoint relay output card
LDP6-CDS30	37	Quad setpoint sinking open collector output card
LDP6-CDS40	37	Quad setpoint sourcing open collector output card
<b>Analog Output</b>		
LDP6-CDL10	\$74	Analog output card
<b>Communications (Only 1 Communications Card Can Be Installed Into Base Meter)*</b>		
LDP6-CDC10	\$48	RS485 serial communications output card with terminal block
LDP6-CDC1C	48	Extended RS485 serial communications output card with dual RJ11 connector
LDP6-CDC20	48	RS232 serial communications output card with terminal block
LDP6-CDC2C	48	Extended RS232 serial communications output card with 9-Pin D connector
LDP6-CDC40	58	MODBUS communications card
LDP6-CDC4C	58	Extended MODBUS communications card with dual RJ11 connector



\* Free software available at [omega.com/dp63500-T](http://omega.com/dp63500-T)

Comes with complete operator's manual.

**Note:** Adding option cards—meters can be fitted with up to 3 optional plug-in cards, however, only 1 card from each function type can be installed at a time. The function types include setpoint alarms, analog output and communications. The cards can be installed initially or at a later date. Each optional plug-in card is shipped with installation and programming instructions.

**Ordering Examples:** DP63500-T-GN, green display, 85 to 250 Vac, 50/60 Hz, LDP6-CDL10 analog output card, \$259 + 74 = \$333.

DP63500-T, red display, 85 to 250 Vac, 50/60Hz, \$243.

**Accessories**

Model No.	Price	Description
DPP-5	\$525	1/8 DIN panel punch
OP-4	12	Reference Book: Thermocouple Elements



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