

4½ Digit (Pt100) RTD Meters

1/8 DIN



DP3002-M



DP3002-MF, shown
larger than actual size.

- ✓ Platinum 100 RTD Input
- ✓ 1 mA Excitation Current
- ✓ 2-, 3- or 4-Wire Connection
- ✓ 0.1°C or 0.1°F Resolution
- ✓ °C or °F, Jumper-Selectable
- ✓ Platinum Curve Linearization
- ✓ 120 dB CMR, 70 dB NMR
- ✓ 1 mV/deg Linearized Analog Output
- ✓ Bright, 14.2 mm (0.56") LED Display
- ✓ Display Hold and Test
- ✓ 115/230 Vac Power
- ✓ EMI/RFI Filter for AC Power
- ✓ Screw-Terminal Barrier Strip
- ✓ Short 104 mm (4.1") Deep 1/8 DIN Case
- ✓ RoHS 2 Compliant

Options

- ✓ Isolated 9 to 32 Vdc or 26 to 56 Vdc Power
- ✓ NEMA 4 (IP65) Splash-Proof Lens Cover

The DP3002-M is a low-cost 4½ digit ($\pm 19,999$ count) temperature indicator for use with platinum 100 RTD's with alpha of 0.00385. It is complete with 1 mA sensor excitation, sensor-break detection, and platinum curve linearization. Resolution is 0.1°. Readout can be in °C or °F, as selected by push-on jumpers. The electrical connection can be by 2-, 3-, or 4-wires. High accuracy is provided by positive current feedback and matched, graded components.

STANDARD FEATURES

Mechanical features include a bright 14 mm (0.56") display, a screw-terminal barrier strip for signal and power, and a compact 1/8 DIN case that requires less than 104 mm (4.1") behind the panel. Electrical features include jumper selection of °C or °F, a linearized recorder output of 1 mV per degree, and 1 mA current excitation. The current source is tied to the reference of the A/D converter for true ratiometric operation and immunity to changes in line voltage.

OPTIONS

Power options include isolated 9 to 32 Vdc and 26 to 56 Vdc. A splash-proof lens cover which meets NEMA 4 (IP65) requirements allows the DP3002 to be used in harsh industrial environments.

Specifications

Analog Input

RTD Type: 100 Ω platinum with alpha of 0.00385

Calibration: IEC 751 (IPTS-68)

Configuration: 2-, 3- or 4-wire connection

Polarity: Bipolar

Zero: Adjustable $\pm 20^{\circ}\text{C}$ ($\pm 36^{\circ}\text{F}$)

Zero Tempco: ± 0.05 deg/deg

Sensor-Wire Resistance Tempco

Effect Per Conductor:

2-wire: 20 mdeg/ Ω /deg, up to 3.8 Ω

3-wire: 50 μ deg/ Ω /deg, up to 100 Ω

4-wire: 5.0 μ deg/ Ω /deg, up to 100 Ω

Sensor-Excitation Current: 1 mA

Sensor-Break Indication: Meter displays overrange

Overvoltage Protection: 25 Vp

Noise Rejection

NMR, SIG HI to SIG LO:

70 dB, 50/60 Hz

CMR, ANA GND to PWR GND:

120 dB, DC to 60 Hz

CMV, ANA GND to PWR GND:

1500 Vp per HV test, 354 Vp per IEC spacing.

Analog Output (Linearized)

Voltage: 1 mV/deg

Calibration Error: Same as given under accuracy

Current: 1 mA maximum

Source Resistance: 68 Ω

Analog-to-Digital Conversion

Technique: Dual-slope, average value

Signal Integration Period: 100 ms

Read Rate: 2.5/s

Display

Type: 7-segment, red LED

Height: 14 mm (0.56")

Symbols: -1.8.8.8.8

Decimal Points: Four positions, programmable by jumpers behind lens or at connector

Overrange Indication: Four least-significant digits flash

Accuracy at 25°C

Span Tempco: $\pm 0.005\%$ R/ $^{\circ}\text{C}$ on all models plus $\pm 0.05^{\circ}\text{C}/^{\circ}\text{C}$ for -RC from -200 to -130°C

Celsius/Fahrenheit:

Jumper-selectable

Full-Scale Step Response: 1 s

Warmup to Rated Accuracy: 20 min

Digital Inputs

Level: TTL or 5V CMOS compatible

Power

AC Voltages: 115 or 230 Vac, $\pm 15\%$

AC Frequency: 49 to 440 Hz

DC Voltages: 9 to 32 Vdc, isolated to 300 Vp; 26 to 56 Vdc, isolated to 300 Vp

Power Consumption: 3.7 W nominal

Output Voltages: 4.7 Vdc and

-4.7 Vdc $\pm 5\%$, 10 mA max

Environmental

Operating Temperature: 0 to 60°C

Storage Temperature: -40 to 85°C

Relative Humidity: 95% at 40°C (non-condensing)

Mechanical

Bezel: 96 W x 48 H x 5.1 mm D (3.78 x 1.89 x 0.20")

Depth Behind Bezel: 104 mm (4.09")

Panel Cutout: 92 W x 45 mm H (3.62 x 1.77")

Weight: 15 oz (425 g)

Case Material: 94V-0 UL-rated polycarbonate

Model	Range	Error	Resolution
DP3002-MC	-200 to 820°C	$\pm 0.3^{\circ}\text{C}$ / $\pm 0.2\%$ R	0.1°C
DP3002-MF	-328 to 1508°F	$\pm 0.5^{\circ}\text{F}$ / $\pm 0.2\%$ R	0.1°F

To Order				
Model No.				Description
DP3002				4½ digit (Pt100) RTD meters
	-MC			-200 to 820°C
	-MF			-328 to 1508°F
		*		(Nothing, leave field blank) 115 Vac, 50/60 Hz power
		-C1		230 Vac, 50/60 Hz
		-C3C		Isolated 9 to 32 Vdc
		-C3E		Isolated 26 to 56 Vdc
			*	(Nothing, leave field blank) red LED display
			-G	Green LED display

NOTE: All combinations may not be valid, check online for valid part numbers.

Ordering Examples: DP3002-MC, 4½ digit (Pt100) RTD meter, 115 Vac power, -200 to 820°C input range.