RTD Meter, Indicator/Controller
⅛ DIN

Q2000-MR Series

Q2000-RDC1
Meter shown smaller than actual size.

- **100 Ω Platinum RTD Input**
- **2, 3 or 4-Wire Connection**
- **±1999 or ±9999 Count Display Span**
- **1° or 0.1° Resolution**
- **Sensor-Break Detection**
- **1 mV/deg Linearized Analog output**
- **LED or LCD Display**
- **Display Hold and Test**
- **Screw-Terminal Barrier Strip**

The Q2000/9000-M and Q2000-R are low-cost indicator/controllers for 100 platinum RTD's with alpha of 0.00385. They are complete with sensor excitation and break detection. Resolution can be 1° (Q2000-M) or 0.1° (Q9000-M or Q2000-R). Readout can be in °C or °F.

Power and Display Options
Six types of power supplies are available: 120 Vac, 240 Vac, 24 Vac, 5 Vdc, isolated 9 to 32 Vdc and isolated 26 to 56 Vdc. An LED display is standard, an LCD display is optional and is recommended for viewing in bright ambient light. A NEMA 4 (IP65) splash-proof lens cover is available.

Signal input and power connections are made via a rear barrier terminal strip. The motherboard rear edge connector provides access to hold and test, polarity, clock, and the standard analog output and optional analog outputs. Decimal point positions can be selected by jumpers.

Analog Output Options
A 1 mV/count (±2V full-scale) or 0.1 mV/count (±1V full-scale) analog output is standard and is ideal for driving a strip-chart recorder. An additional analog output can be provided by an optional vertical plug-in board. Available output signals are 0 to 5 Vdc, 0 to 10 Vdc, 0 to 1 mA (source or sink) and 4 to 20 mA (source or sink). The top and bottom of each output range can be scaled to fit a user-selected display span.

Control Output Options
Additional outputs can be provided by a horizontal upper board. Available options include single-setpoint control with one 10 A relay, dual-setpoint control with two 10 A relays, 4 to 20 mA proportional control (source or sink), time-proportional 2 A solid-state relay control, and isolated, parallel BCD output.

M, R Series RTD Inputs (Pt100 Ω)

CODE*	ALPHA	Q2000 RANGE	Q9000 RANGE	ACCURACY (±1/2 COUNT)	ZERO TEMPCO
MDC1	0.00385	-200 to 830°C -328 to 1526°F	-200.0 to 830.0°C -328.0 to 999.9°F	±0.3°C ±0.2% rdg ±0.5°F ±0.2% rdg	0.05 °/°
MDF1					
RDC1	0.00385	-199.9 to 199.9°C -199.9 to 199.9°F	-99.99 to 99.99°C -99.99 to 99.99°F	±0.1°C ±0.05% rdg ±0.2°F ±0.05% rdg	0.005 °/°
RDF1					

Temperature Coefficient, Span: *±0.006% rdg/°C*
Excitation Current: *0.42 mA for M, 4.2 mA for R models*
Lead Resistance: *20 Ω max for 3- or 4-wire input, within specified error; for 2-wire input, add 2.6°C or 4.7°F per change to specified error*
Curve: *Alpha = 0.00385, DIN 43760*

Specifications

Analog Input

RTD Type: 100 Ω platinum with alpha of 0.00385

Calibration: To DIN 43760, October 1980

Excitation Current: 0.42 mA (Q2/9M), 4.2 mA (Q2R)

Sensor Connection: 2, 3 or 4 wires

Maximum Lead Resistance: 20 Ω for 2, 3 or 4-wire connection

Zero Adjustment: ±5°C (±9°F)

Overvoltage Protection: 15 Vp

Analog-to-Digital Conversion

Input Configuration: Differential, Bipolar

Technique: Dual-slope, average-value

Polarity: Automatic

Signal Integration Period: 100 ms, nominal

Read Rate: 2.5/s

Display

LED: Red, 14.2 mm (0.56"), 7-segment

LCD: 12.7 mm (0.50"), 7-segment

Power

AC Models: 120, 240 or 24 Vac 10%/-15%, 49 to 440 Hz

DC Models: 9 to 32 Vdc, isolated to 300 Vp; 26 to 56 Vdc, isolated to 300 Vp; 5 Vdc ±5%, non-isolated

Common Mode

Voltage: 1500 Vp test (354 Vp per IEC spacing)

Rejection: 120 dB

Environmental

Operating Temperature: 0 to 60°C (32 to 140°F)

Storage Temperature: -40 to 85°C (-40 to 185°F)

Humidity: 95% RH, non-condensing @ 40°C (104°F)

Mechanical

Bezel: 96 W x 48 H x 8 mm D (3.78 x 1.89 x 0.31")

Depth Behind Bezel: 139.8 mm (5.50")

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

Weight: 17 oz (480 g)

Case Material: 94V-0 UL-rated polycarbonate

To Order *Visit newportUS.com/q2000m for Pricing and Details*

Model No.						Description
Q2	3½-Digit for ±1999 Count					
Q9	4-Digit for ±9999 Count					
	0	0	0	-X		A. Power and Display
	0					LED; 120 Vac (50/60 Hz)
	1					LCD; 120 Vac (50/60 Hz) (Q2000 only)
	2					LED; 240 Vac (50/60 Hz)
	3					LCD; 240 Vac (50/60 Hz) (Q2000 only)
	4					LED; 9 to 32 Vdc, isolated
	5					LCD; 9 to 32 Vdc, isolated (Q2000 only)
	6					LED; 5 Vdc
	7					LCD; 5 Vdc (Q2000 only)
	8					LED; 24 Vac
	9					LCD; 24 Vac (Q2000 only)
	A					LED; 26 to 56 Vdc, isolated
	B					LCD; 26 to 56 Vdc, isolated (Q2000 only)
						B. Analog Outputs
		0				1 mV/count (Q2000) or 0.1 mV (Q9000) (supplied on all units)
		1				0 to 5 Vdc
		2				0 to 10 Vdc
		3				0 to 1 mA (internally driven)
		4				4 to 20 mA (internally driven)
		5				4 to 20 mA (externally driven)
		6				4 to 20 mA (isolated)
						C. Control Outputs
			0			None
			1			Dual setpoint, 10 A relay (SPDT)
			2			Proportional 4 to 20 mA
			3			Proportional/time proportioning, 2 A relay
			4			Parallel BCD, isolated
			5			Single setpoint, 10 A relay (SPDT)
						D. Signal Conditioner Inputs
				-M(*)		RTD, 1° resolution (Q2000) or 0.1° (Q9000)
				-R(*)		RTD, 0.1° resolution
						Additional Options
					,G	Green LED display
					,BL	Lens without Newport logo in lieu of standard lens

** Refer to chart on previous page for thermocouple code.*

***Ordering Example: Q2101-MDF1,** 3½ digit RTD meter, LCD, 120 Vac power, dual setpoint (10 A relay), 1.0°F resolution, -328 to 1526°F.*
***Q2000-MDC1,** 3½ digit RTD meter, red LED, 120 Vac power, 1.0°C resolution, -200 to 830°C.*