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Measuring Quality

PM-THC & PM-RTD Temperature Meters: Thermocouple & RTD Input

The Series PM-THC & PM-RTD 1/8 DIN Temperature Meters, with Jumper-Selectable Thermocouple or RTD Input are designed for various process temperature monitoring and control applications. This PM Series is a versatile product line with a multitude of input and output selections. PM-THC units can be set to accept J, K, T, E, N, R and S thermocouples each with 2 calibrated ranges in degrees Fahrenheit or Celsius with selectable 1° or 0.1° resolution. PM-RTD models can accepts four platinum, two nickel and two copper RTD ranges in degrees Fahrenheit or Celsius with adjustable 1°, 0.1° or 0.01° resolution. Displaying in Rankin or Kelvin can be easily programmed with an offset in the menu. Universal AC or DC power options enable flexibility with usage in various power situations. These meters offer optional 8 A contact or 120 mA solid state relay outputs, plus an analog process signal output with 4 user-selectable current or voltage ranges. To provide a higher level of communication and integration into a system's network, several communication protocols such as RS-232, RS-485 and even USB options are available. These process meters possess exceptionally quick read rates to 60 conversions per second, while integrating the signal over a full power cycle. This fast read rate feature is ideal for peak or valley capture, on/off setpoint alarm or control applications.

These features and options make the PM-THC & PM-RTD Temperature Meters with Thermocouple or RTD input extremely versatile and able to be utilized in a multitude of temperature monitoring automation applications.

Features

- *Factory calibrated over the entire sensor range for thermocouple types J, K, T, E, N, R, S (PM-THC); RTD types Pt 100 Ω, Ni 120 Ω, Cu 10 Ω (PM-RTD)*
- *Bright, red 5 digit LED display*
- *Selectable resolutions in Celsius, Fahrenheit, Kelvin or Rankin: PM-THC 1° or 0.1°; PM-RTD 1°, 0.1° or 0.01°*
- *Universal power range of 85-264 V ac / 90-300 V dc or 10-48 V dc / 12-32 V ac power eliminates need to purchase country specific models*
- *Variety of output and communication options:*
  - *Choice of 2 relays or 2 solid state relays*
  - *Analog signal option provides: 4-20 mA, 0-20 mA, 0-10 V or -10 V to +10 V outputs*
  - *Serial data communication of either USB, RS485 or RS232*
- *Digital filtering is menu-selectable for electrically noisy environments*
- *Peak and valley values are automatically captured and may be displayed via a pushbutton, control signal input, or be transmitted as serial data if a communication option was ordered*
- *High read rates at up to 60 or 50 conversions per second*
- *When panel mounted, NEMA 4X (IP65) front cover protection keeps fluids out; enables installation in environments exposed to wash-downs*
- *PM-RTD possesses flexible 2, 3 or 4 wire RTD connection capability, allowing usage in any existing wiring setups*

PM-THC & PM-RTD Specifications

Input Signal Ranges (Jumper Selectable)	See model chart
Display Range	-99999 to 99999
Accuracy @ 77°F (25°C) Over Entire Range	PM-THC: ±0.01% of full span + conformity error (See range chart); PM-RTD: See range chart
Reference Junction Accuracy (PM-THC Only)	0.9°F from 50 to 104 °F (0.5°C from 10 to 40°C)
Display Update Time	3.5/s at 60 Hz, 3/s at 50 Hz
Relay Output (Optional)	Mechanical Relays: 8 A @ 250 V ac or 24 V dc; SSR: 120 mA @ 140 V ac or 180 V dc
Analog Signal Output (Optional)	Jumper Selectable: 4-20 mA, 0-20 mA, 0-10 V, -10 V to 10 V
Communication: (Optional)	RS-232, RS-485, USB
Power Requirement	85-264 V ac / 95-300 V dc; Optional 10-48 V dc / 12-34 V ac
Ambient Temperature	32-131°F (0-55°C)
Dimensions	1.89 x 3.78 x 4 in. (48 x 96 x 102 mm) 1/8 DIN. Panel Cutout: 1.77 x 3.62 in. (45 x 92 mm); Max. Panel Thickness: 0.18" (4.5 mm)
Product Weight	7.4 oz (210 g)
Package Weight	15.9 oz (450 g)
Approvals	CE & RoHS
Warranty	1 year

Ordering Details

Series	Signal Input (Jumper Select)	Input Power	Relay Output	Analog Output	Comm.
PM	**-THC**	**-X**	**X**	**X**	**CX**
	See Range Chart	**0** = 85 - 264 V ac or 95 - 300 V dc	**R** = Relay Output Two 8A Form C contact relays	**A** = 4-20 mA, 0-20 mA 0-10 V, -10 to +10 V	**C1** = RS-232
	-RTD	**1** = 12 - 34 V ac or 10 - 48 V dc	**S** = SSR Output Two 120 mA solid state relays	**0** = No Output	**C2** = RS-485
	See Range Chart		**0** = No Output		**C5** = USB
					C0 = No Comm. Output

Ex: PM-THC-0RAC1: Thermocouple input with jumper selectable range, standard high voltage power, relay contact outputs, analog output and RS-232 communication.

PM-THC Range Chart

Type	Range	Conformity Error
J	-210 to 760°C -347 to 1400°F	±0.09°C (±0.16°F)
K	-244 to 1372°C -408 to 2501°F	±0.1°C (±0.17°F)
T	0 to 400°C (32 to 752°F) -257 to 0°C (-430 to 32°F)	±0.03°C (±0.05°F) ±0.02°C (±0.36°F)
E	-240 to 1000°C -400 to 1830°F	±0.18°C (±0.32°F)
N	-245 to 1300°C -410 to 2370°F	±0.10°C (±0.17°F)
R	45 to 1768°C -49 to 3214°F	±0.17°C (±0.31°F)
S	-46 to 1768°C -51 to 3213°F	±0.12°C (±0.22°F)

PM-RTD Range Chart

Type	Range	Max Error
Platinum Pt100	-202°C to 850°C -331°F to 1562°F	±0.03°C ±0.01% of reading ±0.05°F ±0.01% of reading
Platinum Pt100	-202°C to 631°C -331°F to 1168°F	±0.04°C ±0.01% of reading ±0.07°F ±0.01% of reading
Nickel Ni120	-80°C to 260°C -112°F to 500°F	±0.05°C ±0.01% of reading ±0.09°F ±0.01% of reading
Copper Cu10	-97°C to 260°C -143°F to 500°F	±0.05°C ±0.01% of reading ±0.09°F ±0.01% of reading