

ROC800-Series Resistance Temperature Detector Module

The Resistance Temperature Detector (RTD) module for the ROC800-Series Remote Operations Controller (ROC800) provides the ROC with the ability to monitor various RTD sensors.

The RTD input module monitors the temperature signal from an RTD sensor within a fixed range. The RTD input module provides two channels for measuring the resistance of 2-wire, 3-wire, or 4-wire, 100-ohm, platinum RTD sensors with an alpha equal to 0.00385 or 0.00392 $\Omega/\Omega/^{\circ}\text{C}$.

The extensive use of current-limiting short-circuit protection and surge protection techniques eliminates the need for fuses on the Input/Output (I/O) modules. This reduces maintenance for remote locations. The I/O modules are self-resetting after a fault clears.

The modules each have their own integrated short-circuit protected isolated power supply. This power supply allows the field circuitry to be completely isolated from the backplane and the Central Processor Unit (CPU).

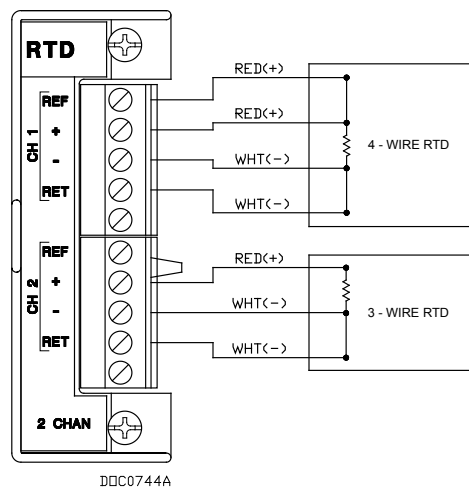
The RTD module provides 2500 Vdc of isolation from other modules and the backplane, including power and signal isolation.

Compatibility and Installation

RTD modules can be installed in any module slot on a ROC800 unit with a Series 1 or Series 2 CPU. The module can easily be installed or removed from the module slots at any time by removing the two captive screws accessible from the front of the unit.

Modules are both hot-swappable (they can be removed and another module of the same kind installed when the unit is powered) and hot-pluggable (they can be installed directly into unused module slots when the unit is powered). The modules are also self-identifying, which means that ROCLINK™ 800 Configuration Software recognizes the module without user intervention.

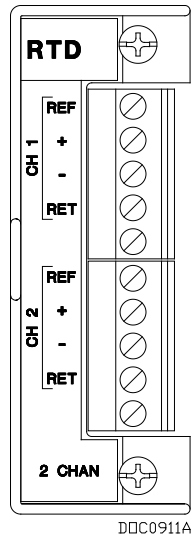
The RTD module has removable terminal blocks for convenient wiring and servicing. The terminal blocks can accommodate 12 to 22 American Wire Gauge (AWG).



RTD Wiring

ROC800-Series RTD Module

Field Wiring Terminals



Terminal	Label	Definition
1	REF	CH1 Constant Current +
2	+	CH1 Positive RTD
3	-	CH1 Negative RTD
4	RET	CH1 Constant Current -
5	N/A	Not Used
6	REF	CH2 Constant Current +
7	+	CH2 Positive RTD
8	-	CH2 Negative RTD
9	RET	CH2 Constant Current -
10	N/A	Not Used

Inputs

Quantity	Two channels
Type	2, 3, or 4-wire, 100 Ω, platinum type RTD, using a 24 bit A/D converter
Sensing Range	-50 to 350°C (-58 to 662°F)
Full Range Deflection	DIN 43760 standard
Maximum Overload	(Input + to Input -) ±6 Vdc, continuous
Temperature Coefficient	alpha of 0.00385 or 0.00392 (software selectable)
Minimum Scan Period	64 milliseconds, both channels
Absolute Accuracy ¹ at 25°C (77°F)	0.03% of reading, maximum
Absolute Accuracy ¹ Over Operating Temperature Range [-40 to 75°C (-40 to 167°F)]	0.38% of full scale

Power

Consumption	Main power supply loading at the Battery Terminals (at 12.0 Vdc)	65 mA maximum
Isolation	Field to Logic	2500 Vdc, 1 minute minimum
	Field to Power	2500 Vdc, 1 minute minimum
	Module to Module	2500 Vdc, 1 minute minimum

1. Absolute Accuracy Includes: Linearity, Hysteresis, Repeatability, Stability, Gain, and Offset error.

Physical

Dimensions	26 mm W by 75 mm H by 133 mm D (1.03 in. W by 2.96 in. H by 5.24 in. D)
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Weight	70 g (2.47 oz)
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Wiring	12–22 American Wire Gauge (AWG) at the removable terminal block
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Environmental

Same as the ROC800-Series unit in which it is installed

ApprovalsSame as the ROC800-Series unit in which it is installed

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