

RTD Input Module

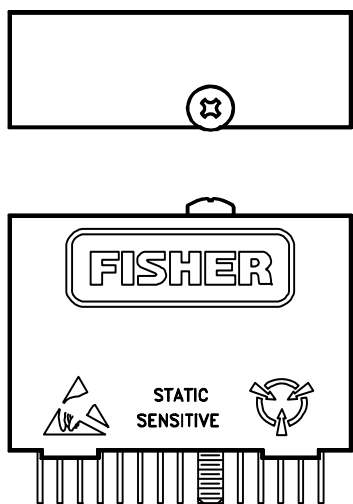
The Resistance Temperature Detector (RTD) Input Module plugs into a ROC300-Series Remote Operations Controller or a FloBoss™ 407 Flow Manager and is used for monitoring the temperature signal from an RTD sensor within a fixed range. The module can accommodate the signal from a 2-wire, 3-wire, or 4-wire RTD; however, the design of the module does not permit a 4-wire RTD to provide any more accuracy than a 3-wire RTD.

An RTD is a precision, temperature-dependent resistor, whose resistance increases with temperature. The RTD input module works by supplying a small current to the RTD and measuring the voltage drop across it. The voltage is converted to temperature in the ROC or FloBoss firmware according to the temperature curve of the RTD.

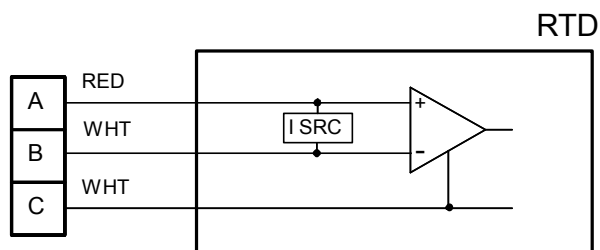
To avoid a loss in accuracy and possible damage to the RTD input module from induced voltages, sensor wires should be of equal length and kept as short as possible (typically 100 feet or less).

Because the RTD module uses low voltages, the possibility of lightning damage is increased. Although a Lightning Protection Module does not protect the RTD module, it does help protect the I/O module rack and other I/O modules installed in the rack.

Field wiring connections are made through a separate terminal block that plugs in next to the module. This design facilitates replacement of the module without disconnecting field wiring.



RTD Input Module



Simplified Input Schematic

RTD Input Module Specifications

<p>FIELD WIRING TERMINALS</p> <p>A: RTD “Red” Input. B: RTD “White” Input. C: RTD “White” Input (3- or 4-wire).</p> <p>INPUT</p> <p>RTD Type: 100 Ω, platinum, with a temperature coefficient of 0.003850*, 0.003902, 0.003916, 0.003923, or 0.003926 Ω/°C.</p> <p>Temperature Range: Fixed at –50 to 100°C (–58 to 212°F).</p> <p>Excitation Current: 0.8 mA. Impedance: 4 MΩ minimum. Filter: Single pole, low pass, 4 Hz corner frequency.</p> <p>RESOLUTION</p> <p>12 bits.</p> <p>ACCURACY</p> <p>± 0.1% of Input Temp. Range at Operating Temp. from 23 to 27°C (73.4 to 80.6°F). ± 0.45% of Input Temp. Range at Operating Temp. from 0 to 70°C (32 to 158°F). ± 0.8% of Input Temp. Range at Operating Temp. from –20 to 0°C (–4 to 32°F).</p> <p>LINEARITY</p> <p>± 0.03% ± 1 LSB independent conformity to a straight line.</p>	<p>POWER REQUIREMENTS</p> <p>11 to 30 V dc, 38 mA maximum, supplied by ROC or FloBoss power supply.</p> <p>VIBRATION</p> <p>20 Gs peak or 0.06 in. double amplitude, 10 to 2,000 Hz, per MIL-STD-202, method 204, condition F.</p> <p>MECHANICAL SHOCK</p> <p>1500 Gs 0.5 millisecond half sine, per MIL-STD-202, method 213, condition F.</p> <p>ENVIRONMENTAL</p> <p>Meets the Environmental specifications of the ROC or FloBoss in which the module is installed, including temperature and humidity specifications.</p> <p>WEIGHT</p> <p>37 grams (1.3 oz).</p> <p>CASE</p> <p>Solvent-resistant thermoplastic polyester, meets UL94V-0. Dimensions are 15 mm D by 32 mm H by 43 mm W (0.60 in. D by 1.27 in. H by 1.69 in. W), not including pins.</p> <p>APPROVALS</p> <p>Approved by CSA for hazardous locations Class 1, Division 2, Groups A, B, C, and D.</p>
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*Available as an accessory.

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