

# Remote Temperature Sensor Installation Instructions

## Description

Novar's Remote Temperature Sensor (RTS) is a precision electronic sensing unit in a rugged industrial enclosure with a remote sensor on a 6-foot cable. It is designed for use with the Logic One<sup>®</sup> Input/Output Module (IOM/2) or an executive module. It uses a two-wire shielded signal cable to receive 24-volt direct current power from the IOM and to return the 4-mA to 20-mA analog signal proportional to the remotely sensed temperature.

Each model of the RTS is designed to cover specific temperature range (see "Specifications" below). All of these sensors are typically connected to an IOM/2 or executive module. The RTS-30 and RTS-50 can also be connected to the ETM-2010, ETM-2020, ETM-2024, and ETM-2040.

## Specifications

### Compliance Voltage

+16V to +35V

### Ranges

Model RTS-10:	-40 to 70 F (-40° to 21°C)
Model RTS-30:	20 to 170 F (-6° to 77°C)
Model RTS-40:	70 to 220 F (21° to 104°C)
Model RTS-50:	20 to 120 F (-6° to 49°C)

### Output

4mA to 20 mA

### Accuracy

1 F over operating range

## Mounting the RTS

The sensor's case should be mounted in a convenient, practical location that provides sufficient space for wiring. The signal and sensor cables must be adequately secured and protected. The sensor's probe can be strapped to a pipe, mounted in a thermowell, or placed in a severe environment away from the sensor's electronic circuitry. A light-emitting diode (LED) in the case indicates when the unit is operating properly.

The following procedure should be used to mount the sensor. Refer to Figure 1, as necessary, during mounting.

Step	Procedure
1	Position the RTS case against the mounting surface and mark the surface to show the location of the four screw holes.
2	Drill four holes in the mounting surface at the marked locations.
3	Position the case over the holes and insert and tighten a screw in each hole until the sensor is secure.
4	Mount the probe securely in close or direct contact with the medium being sensed.



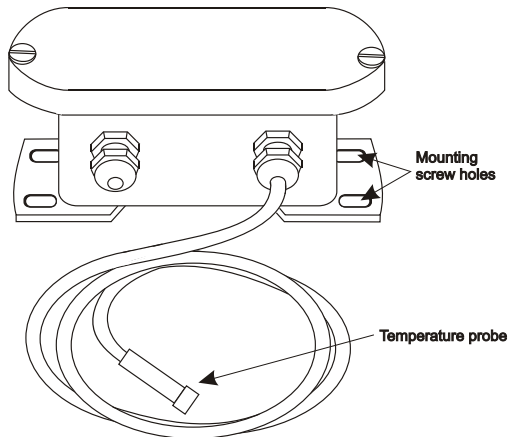


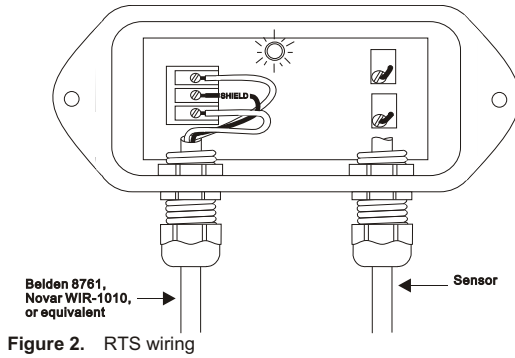
Figure 1. Remote Temperature Sensor

## Wiring the RTS

Maximum recommended sensor wire length for connecting the temperature sensor is 1,000 feet, 22-gauge wire.

The following procedure should be used to wire the sensor. Refer to Figure 2, as necessary, during wiring.

Step	Procedure
1	Remove the RTS cover.
2	Run the shielded, twisted-pair cable (Belden 8761, Novar Controls WIR-1010, or equivalent) into the box and tighten the feedthrough connector.
3	Trim back the shield foil cleanly to avoid short circuits that could damage the sensor's electronics.
4	Connect the two signal wires to either of the outer terminals. <ul style="list-style-type: none"> <li>■ The RTS is designed with an auto-polarity circuit.</li> </ul>
5	Connect the shield/drain wire to the center terminal.
6	Connect the sensor wires at the IOM/2 or executive module to a specific program-defined input on the input terminal strip. <ul style="list-style-type: none"> <li>■ To avoid later confusion, connect the clear wire to the input's positive (+) terminal and the black wire to the input's negative (-) terminal.</li> </ul>
7	Connect the shield wire to a ground or shield terminal on the module's terminal strip.



**CAUTION!** The RTS is permanently calibrated at the factory using the miniature adjusting potentiometers on the circuit board. These potentiometers are then sealed and must not be adjusted in the field. A broken seal can indicate tampering. The sensor may have to be returned to the factory to be recalibrated

**Model and Part Numbers**

Use the part numbers provided in Table 1 to order the necessary Novar Controls parts.

<b>Table 1. Novar Part Numbers</b>		
<b>PRODUCT</b>	<b>MODEL NO.</b>	<b>PART NO.</b>
Remote Temperature Sensor (-40° to 70°F; -40° to 21°C)	RTS-10	712004000
Remote Temperature Sensor (20° to 170°F; -6° to 77°C)	RTS-30	712006000
Remote Temperature Sensor (70° to 220°F; 21° to 104°C)	RTS-40	712008000
Remote Temperature Sensor (20° to 120°F; -6° to 49°C)	RTS-50	712010000
Two-conductor shielded cable (Belden 8761 equivalent)	WIR-1010	709001000

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