

Duct Temperature Sensor Installation Instructions

Description

Novar's Duct Temperature Sensor is a precision electronic sensing unit encased in an industrial enclosure. It is designed for use with Novar's Logic One[®] Input/Output Module (IOM/2), Executive Controller (EC), or Electronic Thermostat Module (ETM). The sensor uses a two-wire shielded signal cable for both receiving 24-VDC power and returning the 4-milliamp to 20-milliamp analog signal proportional to the duct temperature.

Each model of the Duct Temperature Sensor is designed to cover a different temperature range (see "Specifications" below). These sensors are usually connected to an IOM/2 or EC. The DTS-50 can also be connected to Novar Controls' ETM-2010, ETM-2020, ETM-2024, and ETM-2040.

Specifications

Ranges

DTS-30: 20 to 170 F

DTS-50: 20 to 120 F

Compliance Voltage

+16V to +35V

Output

4–20 mA

Accuracy

1 F over operating range

Mounting the Duct Temperature Sensor

The Duct Temperature Sensor is designed to be mounted directly to a duct with the probe in the airflow. The mounting location should provide sufficient space so that the signal cable can be adequately secured and protected during wiring. 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.



Step	Procedure
1	Drill a 13/16- to 1-inch diameter hole for the probe.
2	Position the sensor case against the mounting surface and mark the surface to show the location of the four mounting holes (see Figure 1).
3	Drill holes in the marked spots and insert the probe into the duct.
4	Insert screws (not included) in the mounting holes and tighten to seal the foam gasket.

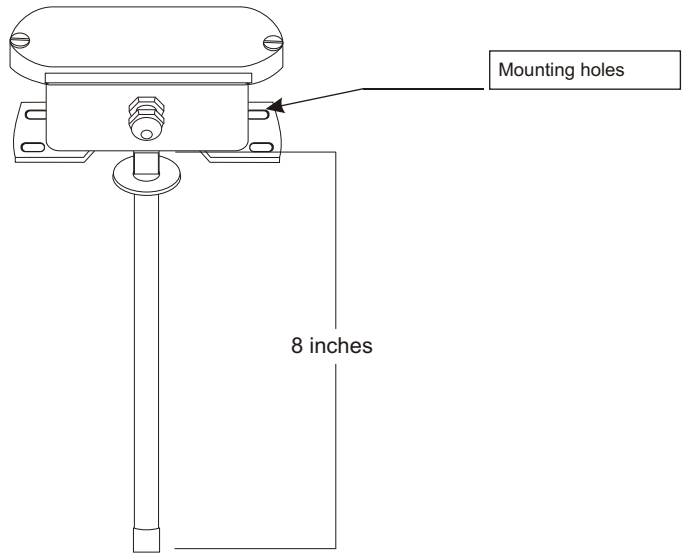


Figure 1. Duct Temperature Sensor mounting holes

Wiring the Duct Temperature Sensor

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 the wiring.

CAUTION! The duct temperature sensor 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 may indicate tampering, and the sensor may have to be returned to the factory for recalibration.

Step	Procedure
1	Remove the cover, run the cable into the box, and tighten the feedthrough connector.
2	Dress the shielded twisted-pair wires (Belden 8761, Novar WIR-1010, or equivalent). <hr/> <p style="text-align: center;">NOTE! Trim back the shield foil cleanly to avoid short circuits that could damage the sensor electronics.</p> <hr/>
3	Connect the two signal wires to either of the indicated terminals on the terminal strip. ■ The duct sensor is designed with an auto-polarity circuit.
4	Connect the shield/drain wire to the center terminal.
5	Connect the sensor wires at the IOM/2, EC, or ETM to a specific program-defined input on the input terminal strip. <hr/> <p style="text-align: center;">NOTE! To avoid confusion later, Novar recommends connecting the clear and black wires to the appropriate input's positive (+) and negative (-) terminals, respectively, even though the duct sensor has auto-polarity.</p> <hr/>
6	Connect the shield wire to a ground or shield terminal on the module's terminal strip.

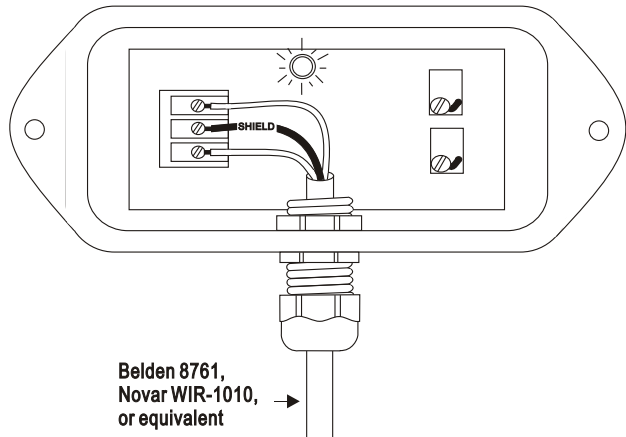


Figure 2. Wiring the Duct Temperature Sensor

Model and Part Numbers

The part numbers in Table 1 should be used to order the necessary Novar parts.

Table 1. Novar Part Numbers		
PRODUCT	MODEL NO.	PART NO.
Duct Temperature Sensor (20° to 170°F)Duct	DTS-30	712007000
Temperature Sensor (20° to 120°F)	DTS-50	712000000
Two-conductor shielded cable (Belden 8761equivalent)	WIR-1010	709001000

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