

Duct Averaging Sensors, Short Rigid Probe, 4 to 20 mA

Product Description

The temperature transmitter equipped Duct Averaging Sensor assemblies sense the average air temperature in ductwork where mixing baffles are not provided or where stratification occurs. Each sensor assembly mounts on sheet metal ducts.


Contents

- Short, rigid platinum RTD averaging element
- 4 to 20 mA transmitter
- Two wire nuts
- Electrical box for wiring connections

Product Numbers

Product Number	Sensing Element	Range
535-490-XX	100Ω Pt (385α)	20°F to 120°F (-7°C to 49°C)
XX	Probe Length in Inches (cm)	
18	18 (46)	
24	24 (61)	
36	36 (91)	
48	48 (122)	

Caution Notations

CAUTION:		Equipment damage or loss of data may occur if you do not follow a procedure as specified.
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Required Tools

- Wire cutters
- Small 1/8-inch flat-blade screwdriver
- Medium flat-blade screwdriver
- Four No. 10 x one-inch sheet metal screws
- Electric drill and one-inch drill bit
- No. 27 drill bit for screw holes

Expected Installation Time

535-490-18 or 535-490-24	1.5 hours
535-490-36 or 535-490-48	2.0 hours

Prerequisite

Field wiring must be pulled to installation site.

Installation

1. Mark the location of four holes on the duct at the place where the unit is to be mounted (see Figure 3). Mark the location in the center of the four mounting holes for a one-inch clearance hole.
2. Drill the one-inch clearance hole. Switch drill bit to the No. 27 bit and drill the four sheet metal mounting screw holes in the duct.
3. Remove the 2-inch x 4-inch electrical box cover on which the transmitter is mounted.
4. Pierce the rubber gasket for all four mounting screw locations with the small screwdriver. Push the mounting screws through the holes in the gasket from the inside of the 2-inch x 4-inch electrical box.
5. Place the unit on the duct into position and fasten it in place with the four mounting screws.

CAUTION:

The 36-inch and 48-inch probes must be supported within six inches of the tip of the probe.

6. Connect the conduit to the utility box.
7. Pull Field wiring to utility box.
8. Strip the field wires with wire cutters and connect the positive (+) 26V lead wire to the transmitter's PWR wire. Connect the signal lead wire to the transmitter's SIG wire. See Figure 1 and Table 1.
9. Replace the 2-inch x 4-inch electrical box cover on the transmitter assembly box.

The installation is now complete.

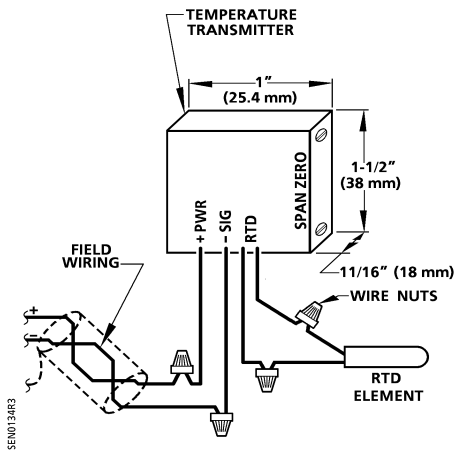


Figure 1. Analog Temperature Transmitter Wiring Connections.

Table 1. Transmitter Lead Wire Color Codes.

Terminal	PWR	SIG	RTD	
Option 1	Red	Brown	Black	Orange
Option 2	Red	Black	White	White

NOTES: 1. For individual panel wiring details, see the appropriate hardware manual.

2. Wire colors vary by transmitter supplier.

Hanger Straps

One possible method of supporting the probe 535-490-36 or 535-490-48 is to use 3/4-inch x 20 gauge perforated steel hanger straps, which have

1/4-inch holes centered every 1/2-inch along the strip.

This strap can be easily aligned so that a hole is present in the correct position to support the probe. Use No. 10 x one-inch sheet metal screws to secure the strap to the ductwork.

With internal access to the duct, only two holes must be drilled in the duct. Without internal access to the duct, two holes and two one-inch slits must be cut in the duct as shown in Figure 2. Before cutting holes for the screws (and slits, if necessary), string the hanger strap through the duct and place the probe tip in a strap hole.

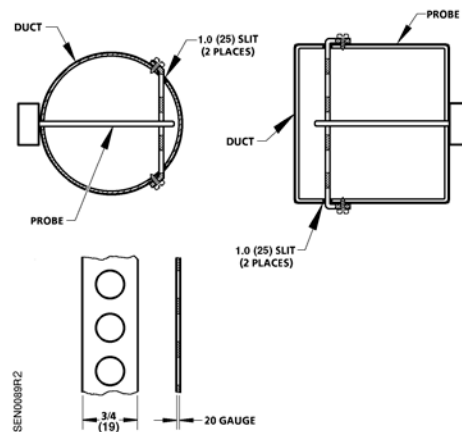


Figure 2. Steel Hanger Used to Support Sensor Probe Tip.

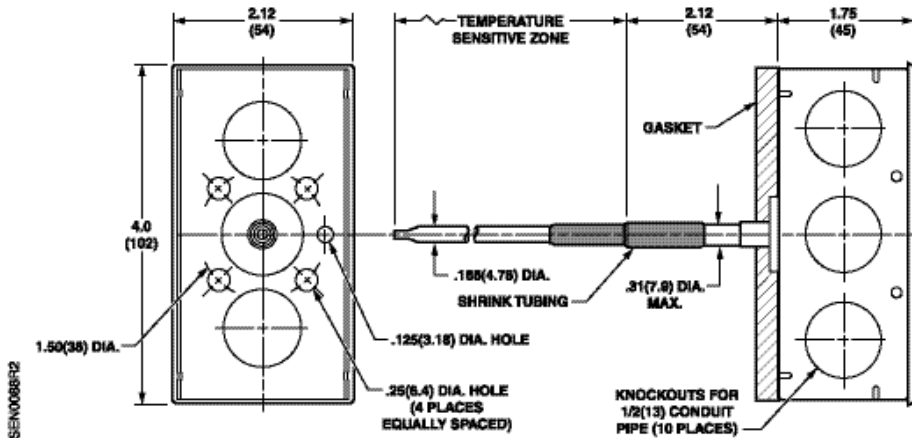


Figure 3. Platinum RTD Duct Averaging Temperature Sensor Mounting Hole Locations.

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