

TT 184 Temperature Transmitter

Product Description

The TT 184 Temperature Transmitter senses temperature and transmits a proportional pneumatic signal to a remotely located receiver gauge and/or receiver-controller.

Product Numbers

Table 1.

Model	Range °F (°C) (3 -15 psig) (21 -103 kPa)	Product Number
Rigid Bulb Transmitter 1/4-inch x 9-inch (6.4 mm x 229 mm) Bulb	35 to 135°F (1.7 to 57.2°C)	184-0001
	50 to 100° F (10 to 37.8°C)	184-0002
	80 to 240°F (27 to 116°C)	184-0003
	0 to 100°F (-18 to 37.8°C)	184-0028
Remote Bulb Transmitter 3/32-inch x 20 feet (2.4 mm x 6.1 m) Averaging Bulb 12-inch (0.305 m) Capillary	35 to 135°F (1.7 to 57.2°C)	184-0004
	0 to 100°F (-18 to 37.8°C)	184-0048
Remote Bulb Transmitter 1/4-inch x 4-inch (6.4 mm x 102 mm) Bulb, 3-foot (0.92 m) Capillary	-40 to 120°F (-40 to 48.9°C)	184-0005
	50 to 100°F (10 to 37.8°C)	184-0018
	80 to 240°F (27 to 116°C)	184-0014
	0 to 100°F (-18 to 37.9°C)	184-0036
	35 to 135° (1.7 to 57.2°C)	184-0034
	-40 to 120° (-40 to 48.9°C)	184-0006
Remote Bulb Transmitter 1/4-inch x 4-inch (6.4 mm x 102 mm) Bulb, 3 ft. (0.92 m) Armored Capillary		
Room Transmitter (with 180-443A Wall Plate and 192-256 Cover)	50 to 100°F (10 to 37.8°C)	184-0340

Table 2. Accessories.

Description	Model	Product Number
Well mounting bracket kit	Remote Bulb	184-105
Copper well	Remote Bulb	184-119
Stainless steel well	Remote Bulb	184-118
Outdoor bulb shield	Remote Bulb	929-043
Spring clip mtg. kit	Room Transmitter	182-685
Tubing kit	Room Transmitter	180-896

Troubleshooting

Table 3. Troubleshooting Chart.

Complaint	Check	Probable Cause	Corrective Action
Low temperature indication	Restrictor	Plugged restrictors	Clean and replace if clogged
		Wrong size restrictor	Replace restrictor
	Receiver gauge temperature indication vs. temperature at sensing element	Receiver gauge out of calibration	Adjust receiver gauge
	Fittings and tubing	Leak in transmitter line	As necessary
	Filters	Dirty Filter	Replace filter
	Supply pressure	Low supply pressure	As necessary
High temperature indication	Receiver gauge temperature indication vs. temperature at sensing element	Receiver gauge out of calibration	Adjust receiver gauge
	Restrictor used	More than one restrictor used. Both internal (in receiver-controller) restrictor and external restrictor installed	Remove all but one restricted air supply
		Defective gasket on receiver-controller restrictor	Replace restrictor
		Wrong size restrictor	Replace restrictor

Installation

- Temperature Transmitters may be mounted in any position on a vertical surface.
- Installation may be made inside or outside of ducts and near fans, compressors, ducts, and air conditioning equipment. Transmitters, generally, are not affected by light vibration.

Room transmitters

The TT 184 Room Temperature Transmitter can be mounted to existing rough-in devices or to the wall, using various tubing terminal kits. See *TB 145 (Product Number 155-210P25)* for all the mounting options.

Typical installation procedures for a finished drywall, plywood, paneling, or other type of sheathing material are as follows (*Figure 1*):

1. Place the template provided with the wall plate on the wall at the desired location.
2. Drill two 5/32-inch diameter holes for #6 wall plate mounting screws.
3. Use a 1-1/4-inch diameter hole saw to drill an access hole in the drywall where indicated on the template.

4. Insert the clips from the Spring Clip Mounting Kit 182-685 with the long leg going through the 1-1/4-inch access hole and resting flat against the back surface of the drywall. Align the screw holes in the clips with the holes on the wall.
5. Fish the air lines through the 1-1/4-inch access hole. Using tubing kit 180-896, or any tubing kit suitable for finished wall installation, connect 5/32-inch tubing to the bottom port on the back of the wall plate and secure the connection using tube retainers.
6. Install the wall plate on the wall using mounting screws furnished with the transmitter. The wall plate has slotted holes to allow leveling of the wall plate.
7. Carefully plug the transmitter into the wall plate.

NOTE: To facilitate plugging the transmitter into the O-rings in the wall plate, wet or moisten the supply and return ports. This wetting or moistening will lubricate and allow the unit to slip through the O-rings more easily.

8. Secure the transmitter to the wall plate using the two captive screws.
9. Place the cover over the transmitter and fasten it with the two cover screws.

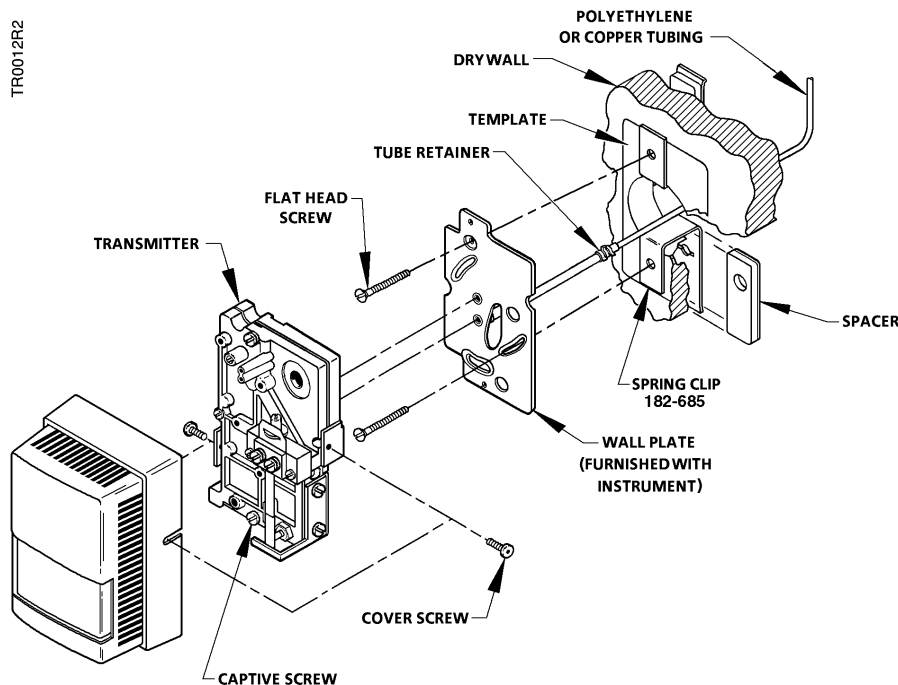


Figure 1. Room Transmitter Mounting in a Finished Wall Using the Spring Clip Mounting Kit.

Installation, Continued

Rigid bulb

Figure 2 shows mounting the Rigid Bulb Transmitter. The transmitter is secured to the flange by a set screw.

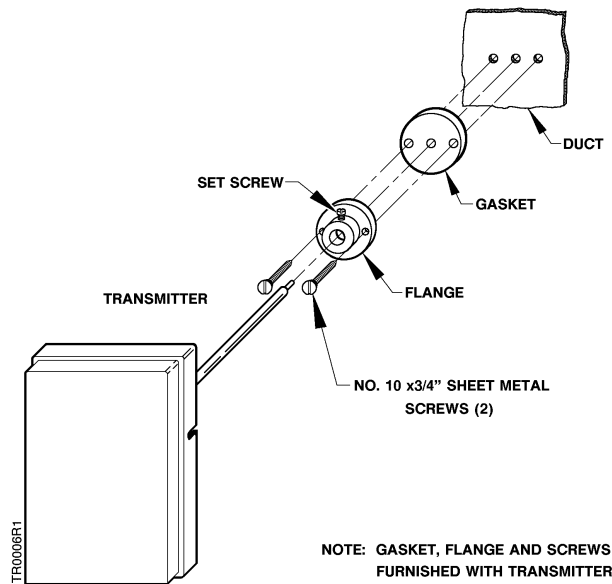


Figure 2. Rigid Bulb Mounting.

When installing rigid bulb temperature transmitters on insulated ducts, the insulation must not cover any portion of the bulb (See Figure 3). Incorrect installation of the rigid bulb can create a 16% of span error (for example, 8°F error using the 50 to 100°F transmitter).

NOTE: If it is not possible to properly install a rigid bulb transmitter, then you must use a remote bulb transmitter.

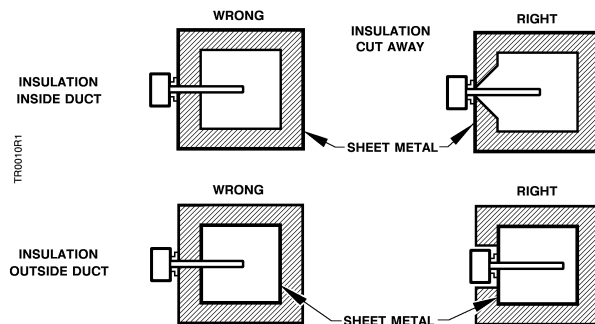


Figure 3. Installation on Insulated Ducts.

Remote averaging bulb

Figure 4 shows two methods for mounting the Remote Averaging Bulb.

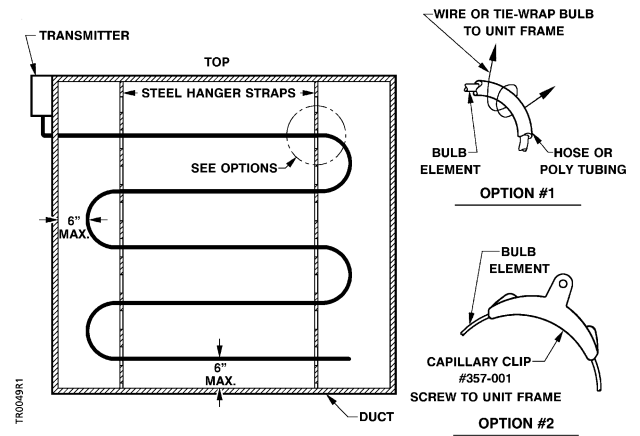


Figure 4. Mounting the Averaging Bulb in Large Ducts.

1. Uncoil the averaging bulb carefully. Avoid sharp bends or kinks in the sensing element.
2. Attach the bulb to the strap hangers with wire ties as shown in Figure 4 or with plastic tie wraps.

Remote bulb

Figure 5 shows mounting the Remote Bulb transmitter. Secure the transmitter to the flange by tightening the set screw.

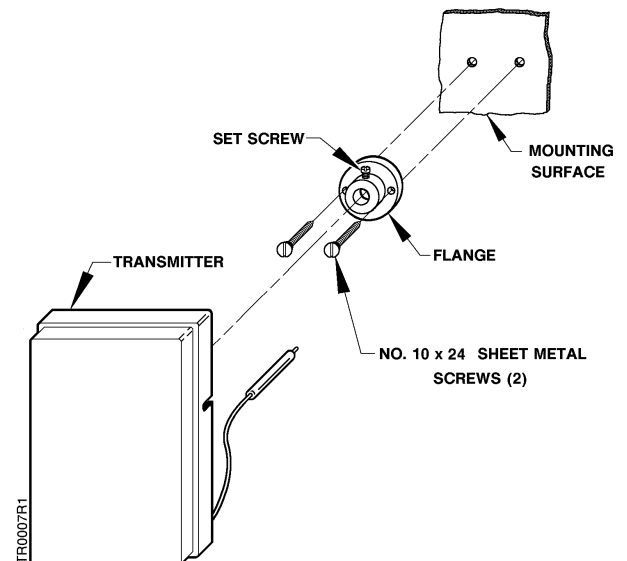


Figure 5. Remote Bulb Mounting.

Figure 6 shows the well mounting of the remote bulb transmitter. The set screw on the well secures the well to the mounting plate.

Installation, Continued

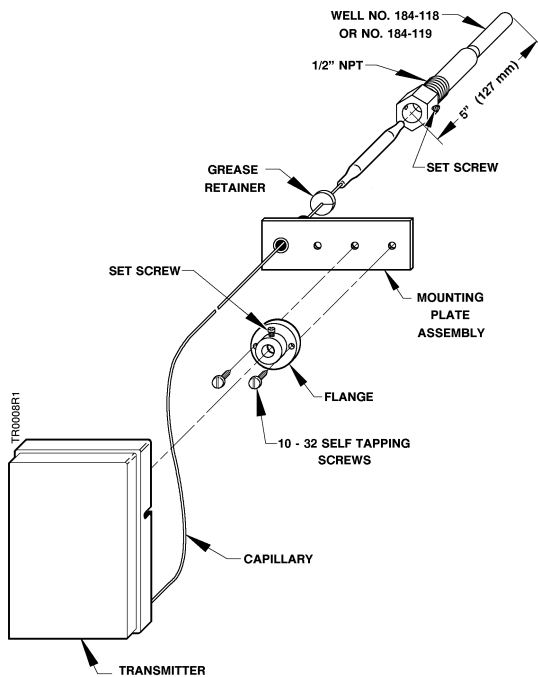


Figure 6. Remote Bulb Mounting in a Well.

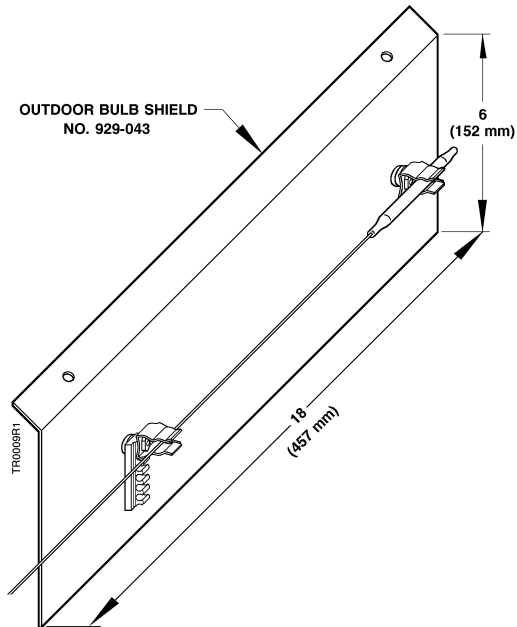


Figure 7. Outdoor Bulb Shield.

Calibration

This transmitter is factory calibrated. The transmitter should not be calibrated in the field. The only way to determine if the temperature transmitter is out of calibration (either span adjust or zero adjust) is with an accurate two-temperature bath and an accurate pressure gauge. Span adjustment or zero adjustment cannot be made in the field because of the equipment and time required.

Because of variations in lengths of pneumatic tubing, airflow through restrictors, ambient temperatures, and so on, there will be small errors between actual temperature at sensing element and gauge indication. For minor improvements in accuracy, adjust the pointer on the receiver gauge to agree with the temperature at the sensing element. Additional suggestions are given in the *Table 3 Troubleshooting Chart*.

Preventive Maintenance

The temperature transmitter does not require lubrication.

Periodically clean dust from the transmitter body using a soft hairbrush.

Check yearly to ensure that temperature at sensing element agrees with temperature at gauge.

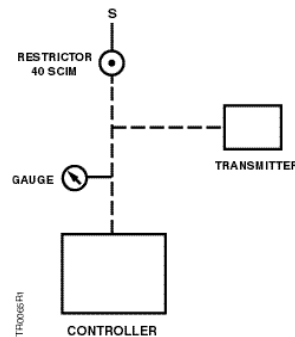


Figure 8. Typical Connections.

References

Technical Instructions	
TT 184-1	155-077P25
Technical Bulletin	
TB 145	155-210P25

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