



# Series BTT Temperature Transmitter

## Specifications - Installation and Operating Instructions



Duct mount



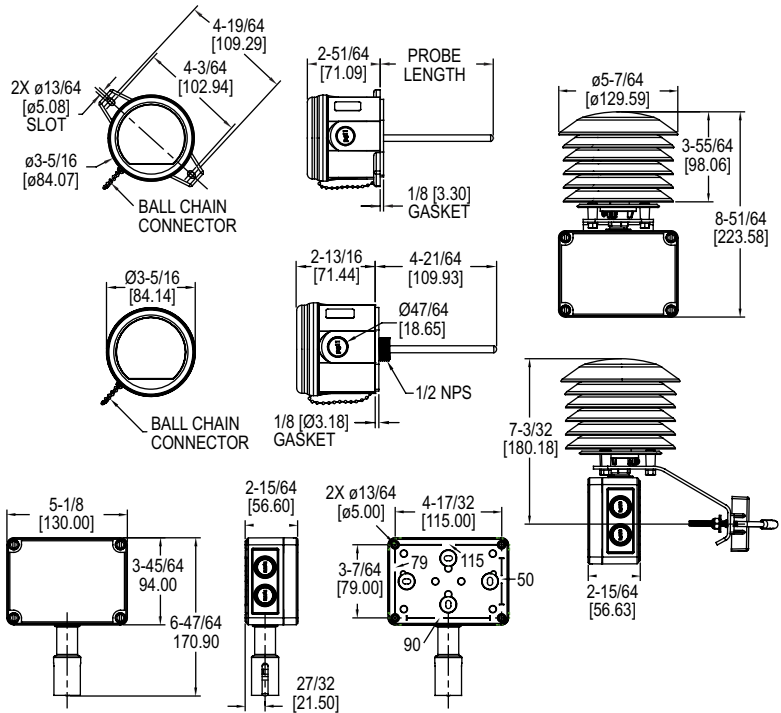
Outside air with radiation shield



Immersion mount



Outside air without radiation shield



The **Series BTT Temperature Transmitter** can be used for the following applications: monitoring the temperature inside air ducts for HVAC, transmitting temperature inside water lines for chillers, or measuring the outside air temperature of any new or existing facility. Mounting configurations include duct, immersion, and outside air. For duct and immersion models, probes can be ordered from 2.5" up to 18" in length. The OSA models can be ordered with an optional radiation shield that allows the sensor to be mounted in direct sunlight.

MODEL CHART					
<b>Example</b>	BTT	-D	04	-1	BTT-D04-1
<b>Series</b>	BTT				Temperature transmitter
<b>Mounting Configuration</b>		D I O R			Duct mount Immersion mount Outside air Outside air with radiation shield
<b>Probe Length*</b>			25 04 06 08 12 18		2.5" (required for "O" and "R" models) 4" 6" 8" 12" 18"
<b>Output</b>				1 2	4-20 mA 0-10 V
<b>Options</b>				Blank FC NIST	None Factory calibration certificate NIST calibration certificate

\*For BTT-I models, actual probe length is approximately 0.75" longer than listed probe length to ensure maximum immersion into thermowells.

### SPECIFICATIONS

**Temperature Sensor:** Pt1000 RTD.  
**Range:** -40 to 140°F (-40 to 60°C) or 32 to 212°F (0 to 100°C) depending on model.  
**Temperature Limits:** Ambient: -40 to 140°F (-40 to 60°C); Process: -40 to 140°F (-40 to 60°C) or 32 to 212°F (0 to 100°C) depending on model.  
**Accuracy:** ±0.5°C @ 25°C.  
**Thermal Effect:** ±0.01%/°C.  
**Response Time:** 100 msec.  
**Wetted Materials:** All models: 304 SS (probe), polycarbonate (housing); Duct and immersion models: Neoprene (gasket); Outside air models: Nylon (insert), silicone (O-ring).  
**Process Connection:** 1/2" NPS (immersion models only).

**Electrical Connection:** Removable terminal block.  
**Conduit Connection:** PG11 and PG16 knockout.  
**Probe Lengths:** 2.5 to 18" (depending on configuration).  
**Power Requirements:** 13-36 VDC for current models, 13-36 VDC or 16-28 VAC for voltage models.  
**Output Signal:** 4-20 mA or 0-10 VDC (depending on model).  
**Enclosure Rating:** NEMA 4X (IP66) (immersion models require thermowell).  
**Weight:** 5.11 oz (145 g) (duct/immersion); 8.4 oz (238 g) (OSA without radiation shield); 1 lb 7.4 oz (663.4 g) (OSA with radiation shield).  
**Agency Approvals:** CE.

### INSTALLATION

**WARNING** Disconnect power supply before installation to prevent electrical shock and equipment damage. Make sure all connections are in accordance with the job wiring diagram and in accordance with national and local electrical codes. Use copper conductors only.

Use electrostatic discharge precautions (e.g., use of wrist straps) during installation and wiring to prevent equipment damage.

Avoid locations where severe shock or vibration, excessive moisture or corrosive fumes are present. NEMA Type 4X (IP66) housings are intended for outdoor use primarily to provide a degree of protection against wind-blown dust, rain, and hose-directed water.

Do not exceed ratings of this device, permanent damage not covered by warranty may result. The 4-20 mA models are not designed for AC voltage operation.

The Series BTT Temperature Transmitters offer multiple conduit openings. When removing the appropriate knock out, take care not to damage any circuit components.

### Duct Mount

The transmitter should be mounted in a location that receives adequate air flow for proper operation. The transmitter should be mounted such that the conduit connection points down to prevent moisture from entering.

1. Drill a 0.26" diameter hole into the duct at the desired location.
2. Insert the transmitter probe through the hole such that the mounting flange is flush to the duct.
3. Use two #8 x 1/2" pan head sheet metal screws to attach the mounting flange to the duct. Do not over tighten.
4. Twist off the top cover to access wiring terminals.
5. Proceed with wiring according to Figure 1 or Figure 2.
6. Replace top screw cover.

### Immersion Mount

The transmitter should be mounted to a thermowell since the process connection is not sealed against water ingress. It should also be mounted such that the conduit connection points down to prevent moisture from entering.

1. Before mounting the transmitter, mount the thermowell to the pipe.
2. Slide the temperature sensor into the thermowell.
3. Hand tighten the plastic threaded connection of the sensor into the thermowell.
4. Twist off the top cover to access the wiring terminals.
5. Proceed with wiring according to Figure 1 or Figure 2.
6. Replace top screw cover.

### OSA (Outside Air)

The transmitter should be mounted under an eave, shield, or in an area that is out of the elements or direct sunlight. The transmitter should be mounted with the sensor pointing down to prevent water collection in the sensor cavity.

1. Remove the cover plugs from the face of the unit and the top cover.
2. Position the transmitter where it is to be mounted and mark the mounting holes in each corner of the housing.
3. Drill or punch out marked locations.
4. Place the transmitter box over mounting holes on wall and align. Install wall mount screws (not provided) in mounting holes.
5. Proceed with wiring according to Figure 1 or Figure 2.
6. Replace cover and cover plugs on the face of the unit.

### OSA (Outside Air with Radiation Shield)

1. Position the transmitter where it is to be mounted and mark the mounting holes.
2. Drill or punch out marked locations.
3. Place the transmitter box over mounting holes on wall and align. Install wall mount screws (not provided) in mounting holes.
4. Remove the cover plugs from the face of the unit and the top cover.
5. Proceed with wiring according to Figure 1 or Figure 2.
6. Replace cover and cover plugs on the face of the unit.

### Wiring

The Series BTT Temperature Transmitter can be ordered for current or voltage outputs. For current output models, the supply power must be between 13-36 VDC and the unit should be wired as shown in Figure 1.

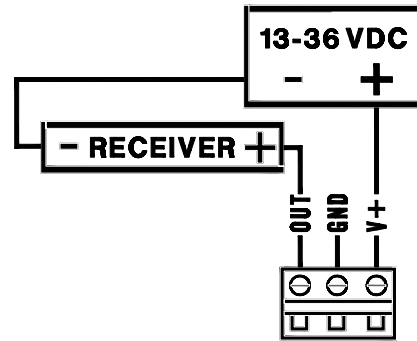


Figure 1

For voltage output models, the power requirement must be between 13-36 VDC or 16-28 VAC. The unit should be wired as shown in Figure 2.

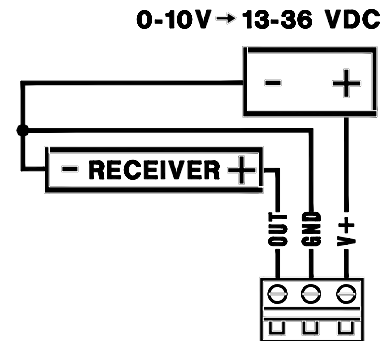


Figure 2

### MAINTENANCE/REPAIR

Upon final installation of the Series BTT Temperature Transmitter no routine maintenance is required. The Series BTT Temperature Transmitter is not field serviceable and should be returned if repair is needed. Field repair should not be attempted and may void warranty.



This symbol indicates waste electrical products should not be disposed of with household waste. Please recycle where facilities exist. Check with your Local Authority or retailer for recycling advice.

### WARRANTY/RETURN

Refer to "Terms and Conditions of Sales" in our catalog and on our website. Contact customer service to receive a Return Goods Authorization number before shipping the product back for repair. Be sure to include a brief description of the problem plus any additional application notes.