

# TEMPERATURE TRANSMITTER -WALL (4-20 mA)



## Product Specification/Installation Guide

The Liebert TW420 transmitter incorporates a 1,000  $\Omega$  platinum RTD. This device provides an accurate and predictable two-wire, 4 to 20 mA output over a specified range. It is specifically designed for temperature sensing and transmission over long distances without degradation of the 4-20 mA signal. The transmitter can operate with a supply voltage of 12 to 30VDC. The Liebert TW420 is first calibrated with simulated RTD values for the specified range. The sensor is then connected to the transmitter and tested at one temperature.

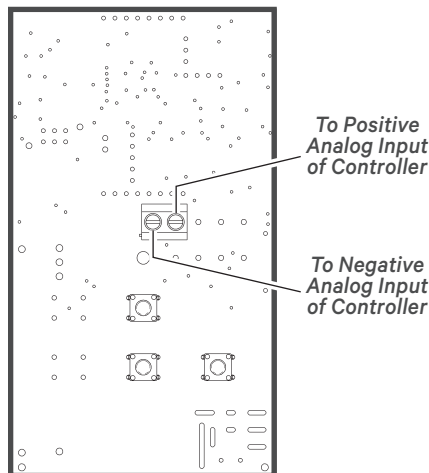
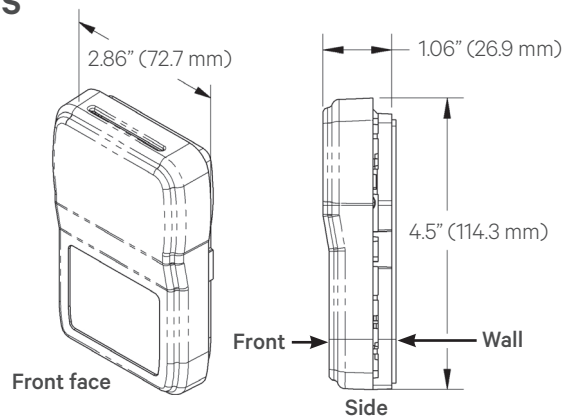
### Termination

The Liebert TW420 transmitter must be powered from a 12-30V DC supply and is polarity-sensitive

Though interference from external sources is not a major problem with current transmitters, Liebert recommends separating the wiring from line voltage wiring and from wiring used to supply highly inductive loads such as motors, generators and coils. Vertiv also recommends making power connections with twisted pair wire of at least 22 AWG and crimp-type connectors.



### DIMENSIONS



### TERMINATIONS

### SPECIFICATIONS

Output	4 to 20 mA
Sensor	1000 $\Omega$ platinum RTD
Supply Voltage	12-30 VDC
Tolerance of Resistance (Accuracy)	$\pm 0.82^\circ \text{ F}$ ( $\pm 0.459^\circ \text{ C}$ )
Temperature Coefficient	0.00385 $\Omega/\Omega/^\circ \text{ C}$
Environmental Operating Range (Transmitter)	45° F to 96° F (7° C to 35° C)

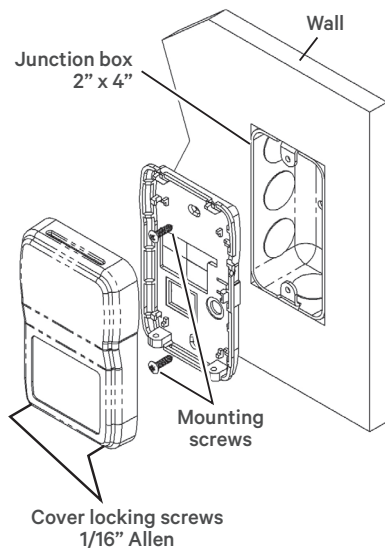
## MOUNTING

Mounting hardware is provided for both junction box and drywall installation.

1. Pull the wires through the opening in the base plate.
2. For junction box installation: Secure the base to the box using the #6-32 x 1/2" mounting screws provided.

For drywall installation: Drill two 3/16" holes 3-1/4" apart on center. Insert the drywall anchors and secure the base using the #6 x 1" sheet metal screws provided.

3. Terminate the unit according to the guidelines in Termination on page 1.
4. Attach the cover by latching it to the top of the base, rotating the cover down and snapping it into place.
5. Secure the cover by backing out the lock-down screws using a 1/16" allen wrench until they are flush with the bottom of the cover.



## TROUBLESHOOTING

1. Measure the voltage by placing a voltmeter (V) across the transmitter's (+) and (-) terminals. This voltage should be between 12 and 30VDC.
2. Measure the current by placing an ammeter (A) in series with the controller input.

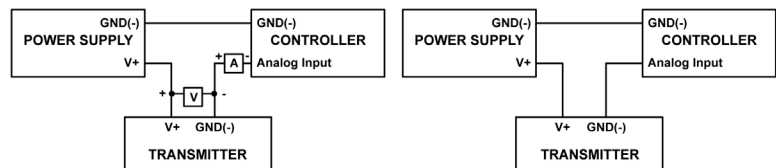
The current should read according to the equation in the gray box below.

3. The temperature surrounding the transmitter must be between 45°F and 96°F (7°C and 35°C).

**Variables in equation:**

$$\frac{(A - 4) \times T_{span}}{16} + T_{low} = T$$

*A* = Ammeter reading in mA  
*T<sub>span</sub>* = # of degrees in the temperature span  
*T<sub>low</sub>* = Low end of the temperature span  
*T* = Temperature at the sensor



## TROUBLESHOOTING GUIDE

The following table lists common problems and possible solutions. For more information, consult your local dealer, Liebert representative or the Liebert Worldwide Support Group.

PROBLEMS	POSSIBLE SOLUTIONS
Unit will not operate	<ul style="list-style-type: none"> <li>• Check +24 VDC power supply at controller.</li> <li>• Disconnect the sensor and check power wires for +VDC.</li> </ul>
Temperature sensor in front end software is reading high	<ul style="list-style-type: none"> <li>• Determine if the input is set up correctly in the front end software.</li> <li>• Check if the transmitter wires are physically shorted.</li> <li>• Check wiring for proper termination.</li> </ul>
Temperature sensor in front end software is reading low	<ul style="list-style-type: none"> <li>• Determine if the input is set up correctly in the front end software.</li> <li>• Check if the transmitter wires are physically shorted.</li> <li>• Check wiring for proper termination.</li> </ul>

## ORDERING INFORMATION

PART #	DESCRIPTION
TW420	Temperature Transmitter Wall 4-20 mA @ 45°F to 96°F

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