Installation Instructions

Space Temperature Transmitter

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Important User Information

Solid state equipment has operational characteristics differing from those of electromechanical equipment. *Safety Guidelines for the Application, Installation and Maintenance of Solid State Controls* (Publication SGI-1.1 available from your local Rockwell Automation sales office or online at http://www.literature.rockwellautomation.com) describes some important differences between solid state equipment and hard-wired electromechanical devices. Because of this difference, and also because of the wide variety of uses for solid state equipment, all persons responsible for applying this equipment must satisfy themselves that each intended application of this equipment is acceptable.

In no event will Rockwell Automation, Inc. be responsible or liable for indirect or consequential damages resulting from the use or application of this equipment.

The examples and diagrams in this manual are included solely for illustrative purposes. Because of the many variables and requirements associated with any particular installation, Rockwell Automation, Inc. cannot assume responsibility or liability for actual use based on the examples and diagrams.

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Throughout this manual, when necessary, we use notes to make you aware of safety considerations.

WARNING 	Identifies information about practices or circumstances that can cause an explosion in a hazardous environment, which may lead to personal injury or death, property damage, or economic loss.
IMPORTANT	Identifies information that is critical for successful application and understanding of the product.
ATTENTION 	Identifies information about practices or circumstances that can lead to personal injury or death, property damage, or economic loss. Attentions help you identify a hazard, avoid a hazard and recognize the consequences.
SHOCK HAZARD 	Labels may be located on or inside the equipment (e.g., drive or motor) to alert people that dangerous voltage may be present.
BURN HAZARD 	Labels may be located on or inside the equipment (e.g., drive or motor) to alert people that surfaces may be dangerous temperatures.

About Space Temperature Transmitter

The unit is designed to convert a 1000 ohm RTD signal and provide a 4 to 20 mA analog output with ±0.15°C Class A, ±0.30°C Class B and 0.1% FSO accuracy for the board.

Designed for temperature measurement of occupied spaces. Featuring several enclosure styles to accommodate various job requirements.

Install Space Temperature Transmitter

Transmitters are mounted directly on a wall or to a wall box. For the most accurate results, units should be mounted on an inside wall to a wall box, approximately 3 to 5 feet from the floor, away from any supply air exhausts and other sources of heat or cold. The enclosure cover is held in place with a locking tab located to the left of center at the bottom of the enclosure. Remove the setpoint knob before removing the cover. Use a set screw (1/16" or 1.5 mm) to lock the cover at the bottom of the enclosure after installation.

Wire and Connect Space Temperature Transmitter

Connect the transmitter to the controller using 18 to 22 AWG twisted pair wiring. The transmitter requires two wires for DC 4 to 20 mA loop-powered operation. The use of shielded cable is optional but recommended for the highest noise immunity. Do not route signal wires in the same conduit with power cables as signal degradation may occur. The controller Analog Input (AI) must be selected to match the transmitter output before power is applied. The AI type must be a current input with 250 or 500 ohm impedance. All transmitters have an operating range of 0 to 70 °C (32 to 158 °F). The transmitter board should not be mounted where temperatures exceed these values. See the connection diagram for more details.

Options, if included on your unit, are wired at the Setpoint and Override terminals. The Return terminal is used as the common for both of these options. The LCD display is powered by the same supply as the transmitter.

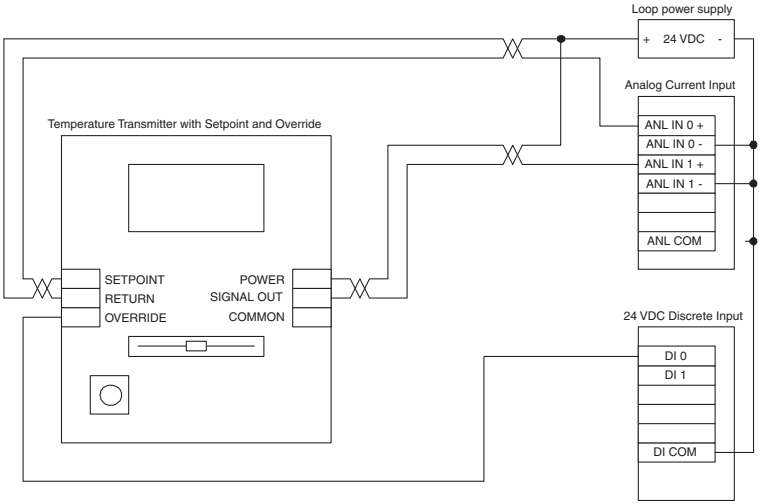
Wire to a Programmable Controller

This section indicates typical wiring connections to a programmable controller.

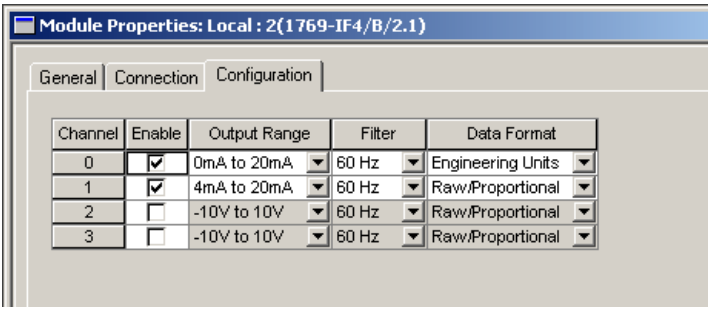
When you use this connection scheme, the nominal setpoint is wired to a 0 to 20 mA analog input. The setpoint current signal is reverse acting with respect to the position of the setpoint slider. The setpoint current varies from 1.2 mA at the minimum position to 0.8 mA at the maximum position. An analog input with 14-bit resolution provides a resolution of 0.06°F over a range of 60 to 80°F. Analog

module configuration or user programming in the controller is required to scale the raw analog signal to engineering units.

The temperature transmitter is wired to a 4 to 20 mA analog input. The 'Common' terminal is only wired when the transmitter is used in a 3-wire connection. A 2-wire, loop-powered connection is shown.



This is the configuration of a 1769-IF4 analog input for the example.

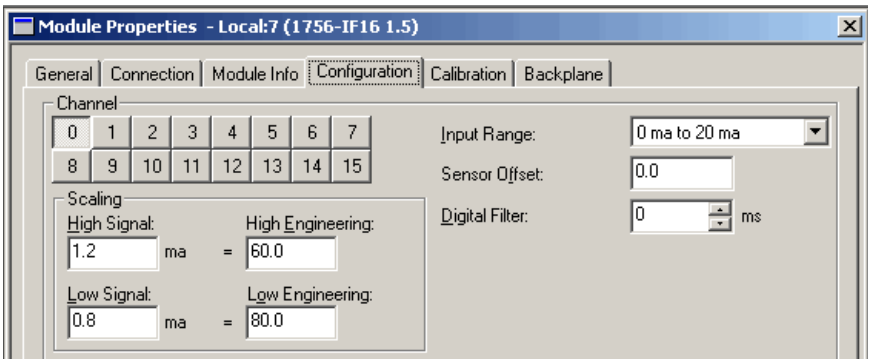


Setpoint Input Data Range

Slider Position	Temperature Setpoint	Engineering Units
Minimum	60°F	1200 (1.2 mA)
Maximum	80°F	800 (0.8 mA)

This example rung converts the analog input engineering value into the setpoint in degrees F.

This is the configuration of a 1756-IF16 analog input for the example. The module's channel data expresses the setpoint in degrees F withouit further converstion.



Specifications

Space Temperature Transmitter Specifications

Specification	Value
Transmitter Accuracy	0.1% FSO
Temperature Sensor Type	1000 ohm platinum RTD 0.15°C, 0.3°C
Output Signal	4…20 mA current loop

Space Temperature Transmitter Specifications

Operating Temperature	0 … 70°C (32 … 158°F)
Operating Humidity	0 … 95% RH (non-condensing)
4-20 mA Loop Power Supply	18 … 35 Vdc (with 250 ohm load and no LCD)
	22 … 35 Vdc (with 250 ohm load and LCD)
Loop Current (Minimum)	2 mA nominal (occurs with shorted sensor)
Loop Current (Maximum)	22.5 mA nominal (occurs with open sensor)
Maximum Loop Load	> 600 ohms at 24 Vac/dc with no LCD, > 325 ohms with LCD
Protection Circuitry	Reverse voltage protected and output limited
Display Accuracy	±0.2°F over full range with respect to the output signal
Display Units	°F (Factory set)
Display Range	32.0 … 95°F
Display Resolution	0.1°F for display of 00.0 to 99.9
Slide-pot	20 – 30K (L-R)
Switch	Normally open pushbutton, 0.4 VA at 24 Vac/dc standard

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