



Specifications

| | |
|----------------------------|--|
| Accuracy | +/- 2,3,5 % RH |
| Power Supply | 24Vac/dc |
| Wiring Connections | Screw connectors (18-24 awg) |
| Output (jumper selectable) | 4-20mA, 0-1, 0-5, 0-10 Vdc |
| Operating Temperature | 0-70 °C (Duct/Space), -40-85 °C (OSA) |

Mounting

Room - Unit should be mounted away from any supply air exhausts or other sources of heat or cold. Mount the unit to an electrical box on an inside wall approximately 3 to 5 feet from the floor.

Duct - Drill a 5/8" (or larger) hole in the return air duct. Remove the protective plastic sleeve from the probe and place it through the hole and secure the enclosure to the duct with sheetmetal screws. Orientation of the enclosure and probe will have no effect on the operation of the device.

Outside Air – For best results locate the sensor on the north side of the structure high under an eave to prevent incorrect readings from direct sunlight and damage due to the elements. Mount the OSA enclosure with the sensor module facing down to prevent the accumulation of dirt or

Relative Humidity Transmitter

The Relative Humidity transmitter uses a capacitive type humidity sensor and microprocessor temperature compensation for reliable, accurate readings.

NOTE: The humidity sensor used in these devices is static sensitive. Anti-static precautions should be followed to prevent damage to the sensor.

Electrical Connection

The transmitter should be connected to the controller using 18 to 22 AWG wire and requires three wires for voltage and AC operation while only two wires are required for DC 4-20mA 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 high impedance voltage input for use with 0-1, 0-5 or 0-10 Vdc transmitters, or a current input with 250 or 500 ohm impedance. All transmitters have an operating range of 0 - 70 °C (32 – 158 °F) except the O.S.A. which is -40 – 85 °C (-40 – 185 °F). The transmitter board should not be mounted where temperatures will exceed these values. See the connection diagram for more details.

If the unit is equipped with an optional temperature sensor (RTD or thermistor), the sensor output is available through the 'TEMP' terminals as a resistive signal.

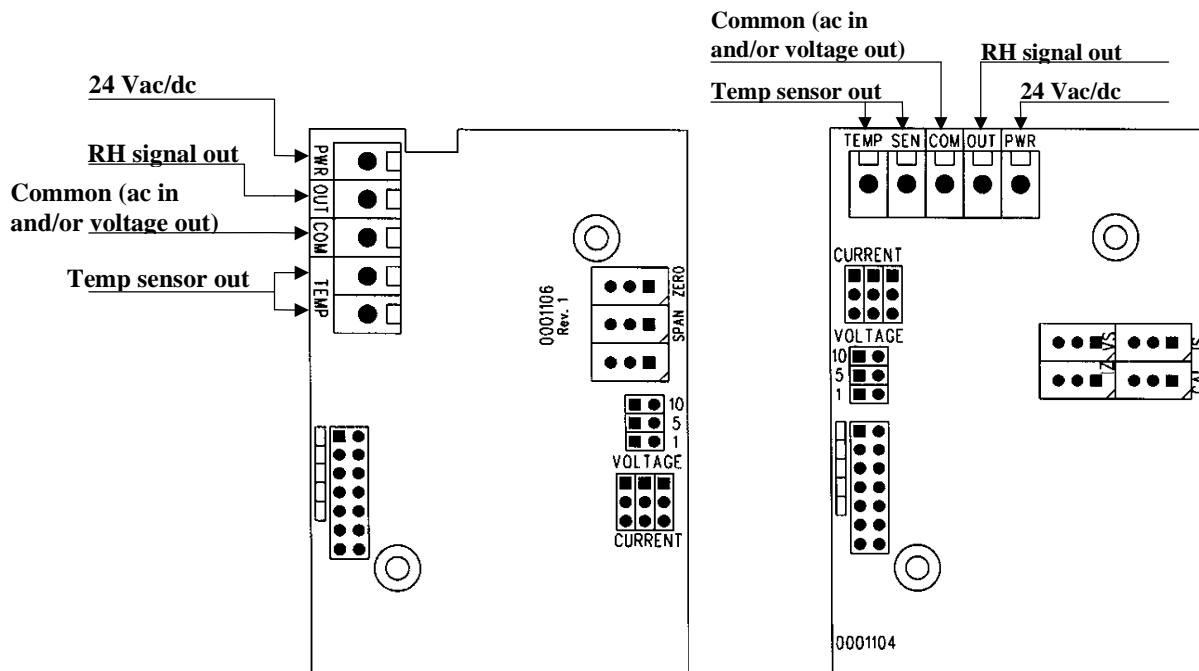
If the unit comes with a remote sensor (Duct or O.S.A.), the sensor is connected to the transmitter board by a 5-pin plug to a 14-pin connector. Should this plug become disconnected, it is to be reconnected to the pins indicated by the markings on the board, with the green stripes on the plug facing the middle of the board. Do not mix and match sensors and boards as the boards are calibrated to the sensor it is shipped with. Changing sensors will have a significant effect on the accuracy of the product.

Output Selection (for jumper selectable devices)

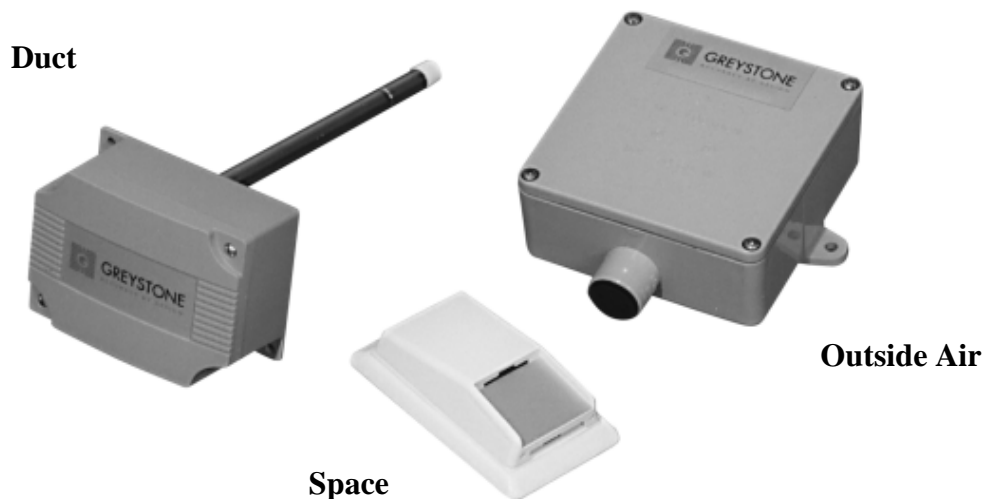
Remove power to the transmitter before changing between voltage and current output signal types. Ensure the wiring is correct for the selected output signal type. Use caution when changing jumper positions as not to damage the circuit board, any components or the sensing elements.

The unit comes factory set for current output. To change the output signal to a voltage, carefully remove the 3-position shorting jumper and replace it in the 'VOLTAGE' position. Place the two-position shorting jumper in the correct position for the required span (10 - 0 to 10 Vdc, 5 - 0 to 5 Vdc, 1 - 0 to 1 Vdc). NOTE: the voltage span jumper does not function when the output signal is set to 'CURRENT'.

WIRE CONNECTIONS FOR RELATIVE HUMIDITY BOARDS



ENCLOSURE OPTIONS





RH100A shown with optional display.

Relative Humidity Transmitter

The Relative Humidity transmitter uses a capacitive type humidity sensor for reliable, accurate readings.

NOTE: The humidity sensor used in this device is static sensitive. Anti-static precautions should be followed to prevent damage to the sensor.

Installation

Transmitters can be 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. The knob for the setpoint must be removed before removing the cover. After installation the cover can be locked on with the set screw (1/16" or 1.5 mm) at the bottom of the enclosure.

Specifications

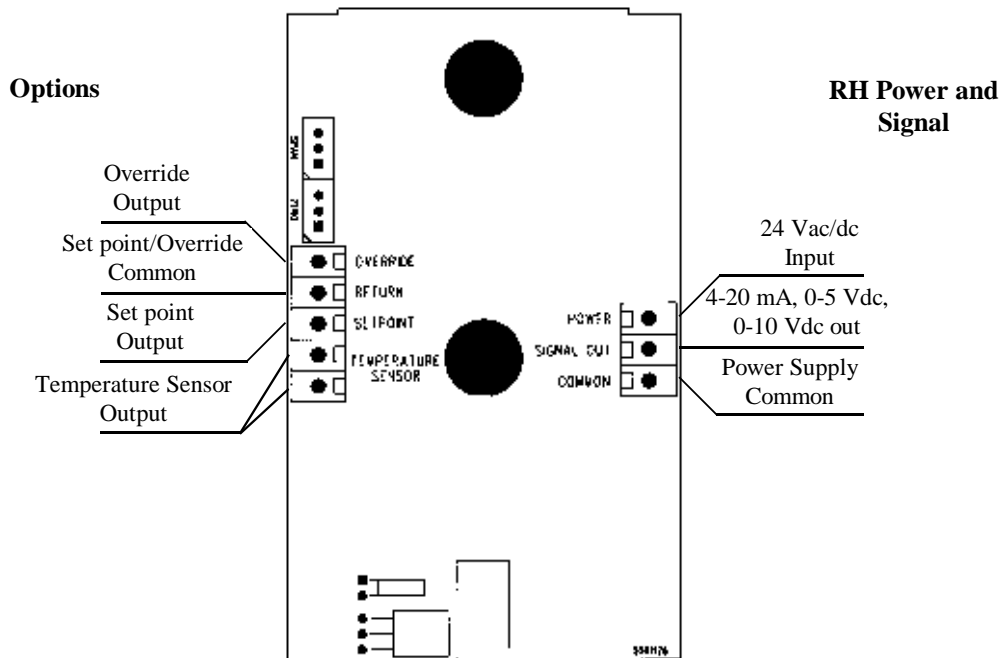
| | | | |
|-----------------------------|--|------------------------------|---|
| Transmitter Accuracy @ 25°C | +/-2, 3 or 5% RH, 5 to 95% RH | Power Supply (0-10 Vdc) | 15 to 35 Vdc or 15 to 32 Vac |
| Sensor Type | Thermoset Polymer based capacitive | Voltage Mode Maximum Current | < 3 mA with no LCD 15 mA nominal with LCD |
| Output Signal | 4-20 mA current loop, 0-5 Vdc or 0-10 Vdc (factory configured) | Voltage Mode Maximum Output | Limited to < 5.5 Vdc for 0-5 model and < 10.5 Vdc for 0-10 model & 0-5 with LCD |
| Operating Temperature | 0 to 70°C (32 to 158°F) | Input Voltage Effect | Negligible over specified operating range |
| Operating Humidity | 0 to 95% RH (non-condensing) | Protection Circuitry | Reverse voltage protected and output limited |
| 4-20 mA Loop Power Supply | 18 to 35 Vdc or 18 to 32 Vac (with 250 ohm load and no LCD) | Display Accuracy | ±0.5% RH over full range with respect to the output signal |
| | 22 to 35 Vdc or 22 to 32 Vac | Display Units | %RH |
| Loop Current (Minimum) | 2.5 mA nominal | Display Range | 0 to 100% RH |
| Loop Current (Maximum) | 22.5 mA nominal | Display Resolution | 0.1% RH for display of 00.0 to 99.9 |
| Maximum Loop Load | > 600 ohms at 24 Vac/dc with no LCD, > 325 ohms with LCD | Slide-pot | 20 – 30K (L-R) standard, other values available |
| Power Supply (0-5 Vdc) | 10 to 35 Vdc or 10 to 32 Vac, 15 Volts minimum with LCD | Switch | Normally open pushbutton, 0.4 VA at 24 Vac/dc standard |

Electrical Connection

The transmitter should be connected to the controller using 18 to 22 AWG wire and requires three wires for voltage and AC operation while only two wires are required for DC 4-20 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 high impedance voltage input for use with 0-1, 0-5 or 0-10 Vdc transmitters, or a current input with 250 or 500 ohm impedance. All transmitters have an operating range of 0 - 70 °C (32 - 158 °F). The transmitter board should not be mounted where temperatures will exceed these values. See the connection diagram for more details.

If the unit is equipped with an optional temperature sensor (RTD or thermistor), the sensor output is available through the 'TEMPERATURE SENSOR' terminals as a resistive signal.

If there are options included on the device, they 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.



Typical Wire Resistance Values

When using a voltage output transmitter long wire runs can add significant error to the readings. Use the following chart to determine errors due to wire resistance or consider using a 4-20 mA transmitter for better accuracy. Locate the type of wire being used. Multiply the total length of the wire (distance from the controller to the sensor and back) by the number found in the following chart for total resistance.

| GAUGE WIRE TYPE | 18 AWG | 22 AWG | 24 AWG |
|----------------------|---------|----------|----------|
| STRANDED (OHMS/FOOT) | 5.85 mΩ | 14.75 mΩ | 23.29 mΩ |
| SOLID (OHMS/FOOT) | 6.4 mΩ | 15.85 mΩ | 25.72 mΩ |