

## Warranty

Telaire warrants equipment of its manufacture to the original buyer against defective materials or workmanship, for a period of one year.

## Calibration

All Telaire RH and Temperature Products are fully tested and calibrated in accordance with the National Institute of Standards and Technology (NIST) prior to shipment. This is the highest quality calibration standard available.

## Power Requirements

12–30 VDC power supply (furnished by the customer).

## Specifications

### Environmental Conditions

|                             |  |
|-----------------------------|--|
| <b>Operating Range:</b>     | –40°F to 140°F (–40°C to 60°C)<br>0-99% RH non-condensing. |
| <b>Storage Temperature:</b> | –67°F to +185°F (–55°C to +85°C)                           |

## Humidity

|   |  |
|---|--|
| <b>Sensing Element:</b>                 | Capacitive Sensor  |
| <b>Accuracy*</b><br>[at 71.6°F (22°C)]: | ±2% Version: ±2% 10-90% RH and<br>±5% 0-10% & 90-99% RH<br>±3% Version: ±3% 10-90% RH and<br>±5% 0-10% & 90-99% RH<br>5% Version: ±5% RH @ 0-99% RH<br><i>*Includes hysteresis, linearity and repeatability.</i> |
| <b>Long Term Stability:</b>             | Less than 1% drift per year, typical.  |
| <b>Temperature Effect:**</b>            | Delta %RH =<br>(0.0014 x %RH + 0.1325) x T°C –<br>(0.0317 x %RH + 3.0876)<br><i>**Not needed for Signal-Conditioned Temperature units.</i>   |
| <b>Repeatability:</b>                   | See Accuracy.  |
| <b>Linearity:</b>                       | See Accuracy.  |
| <b>Hysteresis:</b>                      | < ±1.5% RH (30%RH 1h →70%RH 1h<br>→90%RH 1h →30%RH, V <sub>air</sub> = 2m/sec)   |
| <b>Signal Outputs:</b>                  | 4-20 mA, 0-5V or 0-10V (user selectable)   |
| <b>Supply Voltage:</b>                  | 12 to 30 VDC   |
| <b>Maximum Load:</b>                    | (Current Output Only)<br>$\Omega = \frac{\text{Supply Voltage} - 10}{0.02}$  |

## Temperature - Thermistor

### Direct Connection

|                         |   |
|-------------------------|---|
| <b>Sensing Element:</b> | 10kΩ thermistor at 77°F (25°C)<br>3kΩ thermistor at 77°F (25°C) |
| <b>Signal Output:</b>   | Direct Connection, user selectable<br>3k or 10k (see Figure 3). |
| <b>Accuracy:</b>        | Refer to DC95F103W(10k)&DC95F302W<br>(3k) from Telaire.         |

## Temperature - RTD

### Signal Conditioning

|                                   |   |
|-----------------------------------|---|
| <b>Sensing Element:</b>           | Band-Gap Sensor   |
| <b>Accuracy at 71.6°F (22°C):</b> | ±0.9°F (±0.5°C)   |
| <b>Long Term Stability:</b>       | Less than 0.2°F per year.   |
| <b>Sensor Interchangeability:</b> | ±0.9°F (±0.5°C)   |
| <b>Signal Outputs:</b>            | 4-20mA, 0-5V, 0-10V (user selectable)                                       |
| <b>Supply Voltage:</b>            | 12 to 30 VDC  |
| <b>Maximum Load:</b>              | (Current Output Only)<br>$\Omega = \frac{\text{Supply Voltage} - 10}{0.02}$ |

HumiTrac products are designed to be used with power from building HVAC control systems.

## Certification

CE Marked  
Complies with EMC Directive 2004/108/EC and 2006/95/EC.  
IP 42 rating for Duct Mount and Outside Air Transmitters.

## Contact Information

To contact the factory, use the following information:

[www.telaire.com](http://www.telaire.com)

## HumiTrac Information

For information specific to the HumiTrac, see the website [www.humitrac.com](http://www.humitrac.com).

## Installation

For your convenience, the transmitters can be mounted using the base as a mounting template (see Figure 1 or 2).

### Wall Mount

Locate the transmitter where it will be exposed to an unrestricted air circulation that is representative of the average humidity and/or temperature of the controlled space. Avoid locations where excessive moisture, corrosive fumes, vibration, or high ambient temperatures are present.

The wall mount transmitter is designed to install onto a standard electric switch box. Mount the transmitter on an indoor wall approximately 4 to 6 feet above the floor. The base assembly should be positioned with the letters FR/ABS located on the left side.

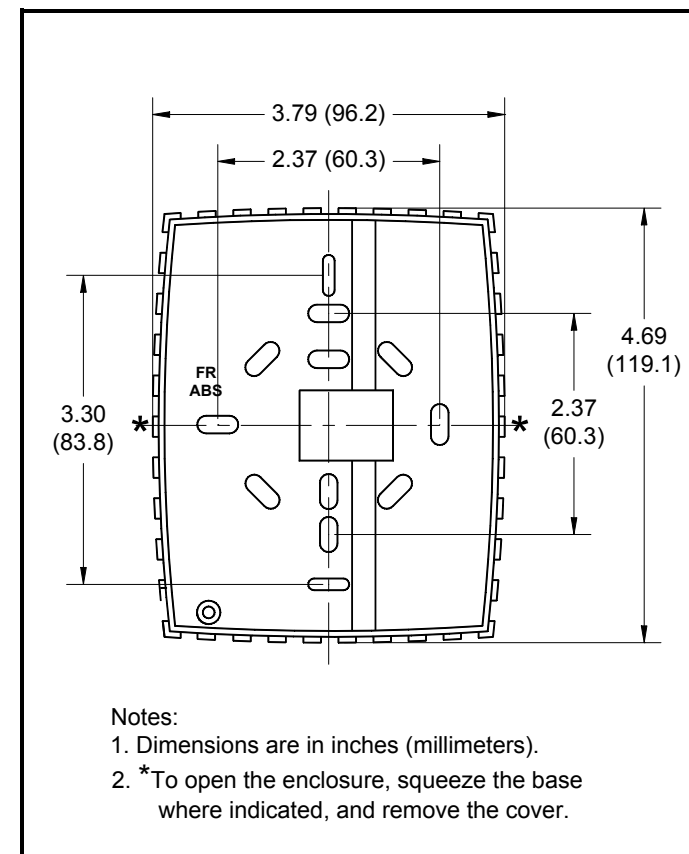


Figure 1: Wall Mount - Mounting Dimensions

### Duct Mount

The transmitter should be mounted away from fans, corners, heating and cooling coils, and other equipment that will affect the measurement of relative humidity. It should be mounted in a location that receives adequate air flow for proper operation. The duct mount transmitter should be mounted so that the sensor probe is in the center of the duct.

### Outside Air Mount

The transmitter should be mounted in a sheltered area that is protected from rain. Ideally, the transmitter should be located on the north side of the building (under an eave) to prevent sun-heated air from rising up the building's wall and affecting the relative humidity of the sensor.

The outside air mount transmitter should be mounted with the sensor pointing down to prevent water collection in the sensor cavity.

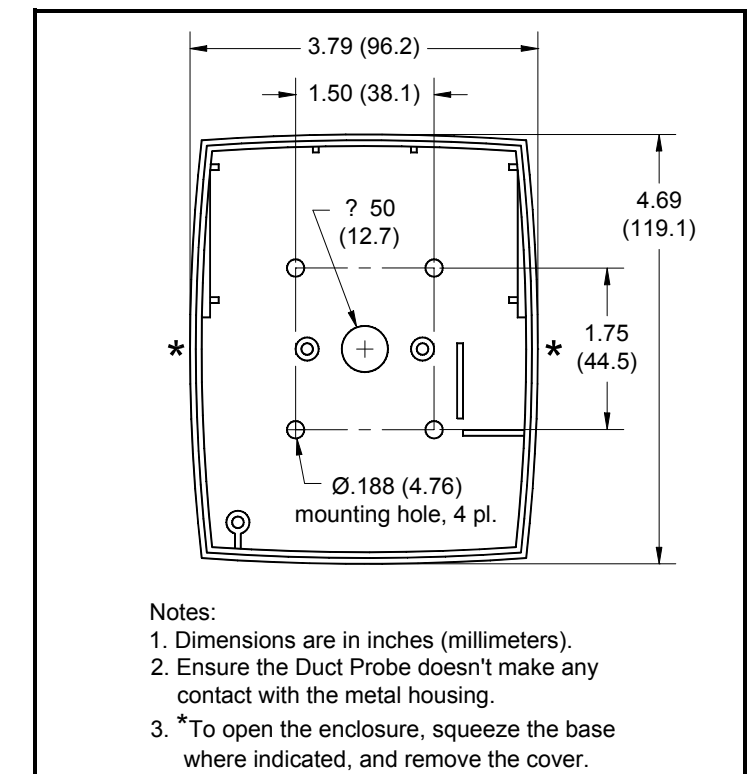


Figure 2: Duct / Outside Air - Mounting Dimensions

## Wiring

Match your transmitter with the corresponding diagrams (Figure 4 through Figure 11), set the switches and wire accordingly. (See Figure 3 below for switch and terminal block locations.) Ensure that all the installation and wiring is in compliance with all national and local codes.

**Note:** All Voltage Outputs are measured with respect to the POWER SUPPLY / CONTROLLER GROUND.

Wiring for the transmitter should be in a single shielded twisted pair cable or multiple pairs if needed. Use only copper conductors. Do not run transmitter wires and AC power wires together in the same conduit or wire bundle.

### Caution!

Running transmitter wires and AC power wires, including earth ground, in the same conduit or wire bundle may cause malfunction due to electrical noise.

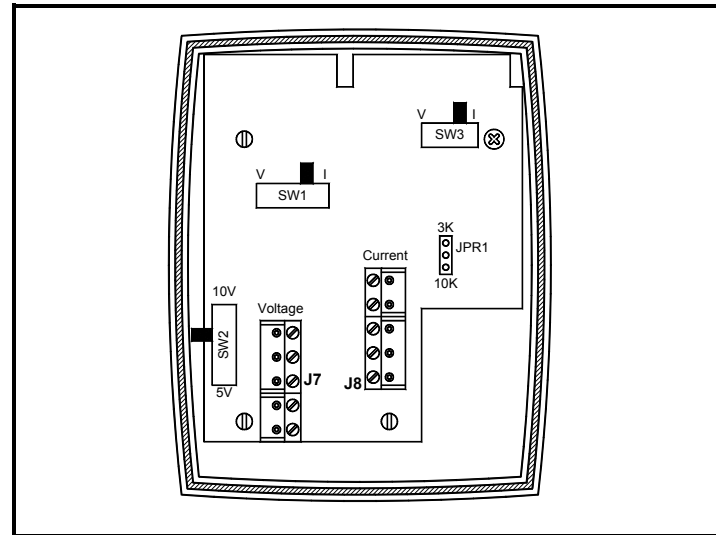


Figure 3: Connector/Switch Locations - Inside Cover



Figure 4: Switch Positions for Voltage Mode

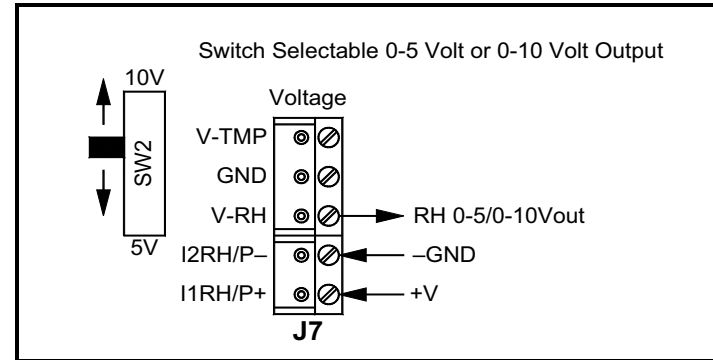


Figure 5: RH Only - Voltage

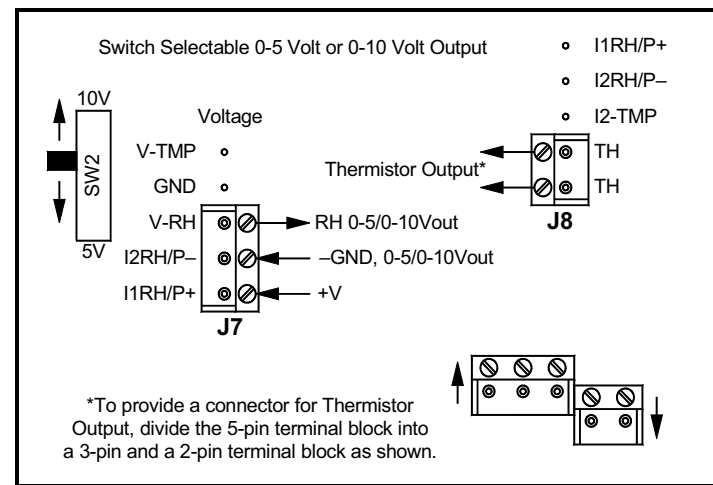


Figure 6: RH and Temp. (Direct Connection) - Voltage

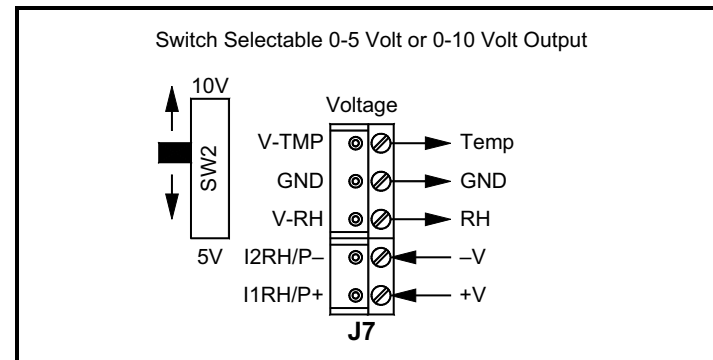


Figure 7: RH and Temp. (Signal Condition) - Voltage

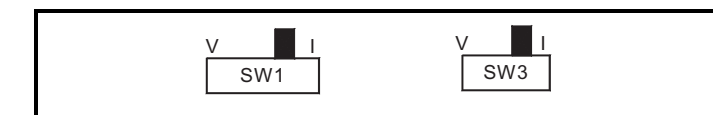


Figure 8: Switch Positions for Current Mode

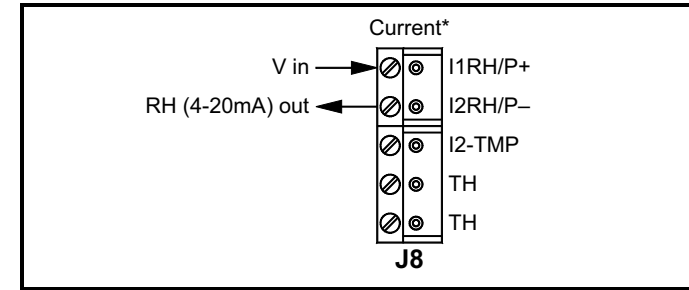


Figure 9: RH Only - Current

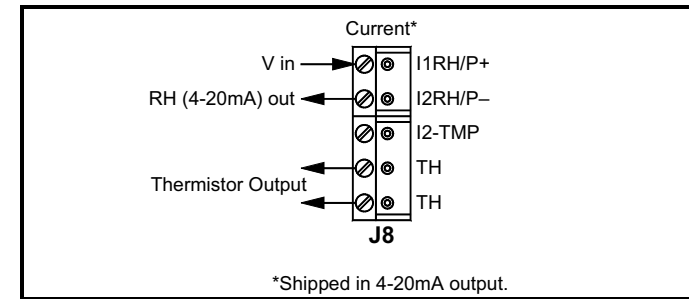


Figure 10: RH and Temp. (Direct Connection) - Current

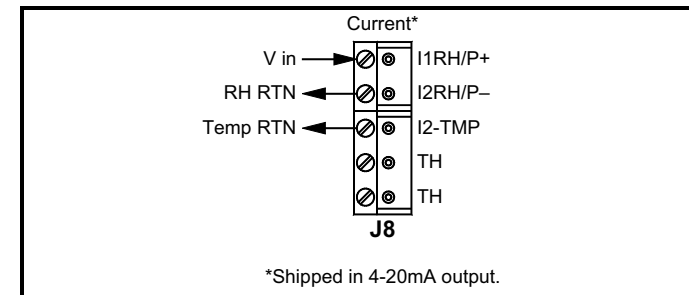


Figure 11: RH and Temp. (Signal Condition) - Current

### CE COMPLIANCE

1. Ensure that the probe earth ground wire (for Duct and Outside Air units only), the shield wire and the PCB earth ground wire are connected to the mounting screw or the NEAREST (<1.5m) earth ground.
2. The other end of the shield wire MUST be connected to the power supply /controller earth ground ONLY.



## HumiTrac Ordering Information

| Model              | Accuracy                                |           |           |                          |           |
|--------------------|---|-----------|-----------|--------------------------|-----------|
|                    | 5%                                      | 3%        | 2%        | 2% with NIST Certificate |           |
| Space (Wall) Mount | RH Only                                 | P40250121 | P40250181 | P40250109                | P40250139 |
|                    | RH & 3/10K Ω Thermistor                 | P40250122 | P40250182 | P40250110                | P40250141 |
|                    | RH & Band gap Temp sensor (0 to 50°C)   | P40250123 | P40250183 | P40250111                | P40250142 |
|                    | RH & Band gap Temp sensor(-40 to 60°C)* | P40250125 | P40250184 | P40250112                | P40250143 |
| Duct Mount         | RH Only                                 | P40250129 | P40250190 | P40250117                | P40250147 |
|                    | RH & 3/10K Ω Thermistor                 | P40250130 | P40250191 | P40250118                | P40250149 |
|                    | RH & Band gap Temp sensor (0 to 50°C)   | P40250131 | P40250192 | P40250119                | P40250150 |
|                    | RH & Band gap Temp sensor(-40 to 60°C)* | P40250133 | P40250193 | P40250120                | P40250151 |
| Outside Air        | RH Only                                 | P40250126 | P40250185 | P40250113                | P40250144 |
|                    | RH & 3/10K Ω Thermistor                 | P40250127 | P40250186 | P40250114                | P40250145 |
|                    | RH & Band gap Temp sensor(-40 to 60°C)* | P40250128 | P40250189 | P40250115                | P40250146 |
|                    | Sensor Tip                              | P40254276 |           | P40254275                | 3 PT CERT |

\*Signal conditioned temperature output corresponding to 4-20mA, 0-5V or 0-10V (user selectable)