HumiTrac™ Relative Humidity/Temperature Transmitters

Features

• National Institute of Standards and Technology (NIST) traceable, field-replaceable sensor
• Full Scale (FS) 0 to 100% RH measurement
• NIST traceable factory calibration
• User selectable RH and temperature outputs
• Robust, proven capacitive sensor technology
• Attractive and rugged packaging
• 2%, 3% or 5% RH accuracy
• NIST certification available
• Versatile temperature measurement
• Temperature compensated
• Low cost of ownership
• Two year warranty

Applications

• HVAC/building controls
• Energy Management Systems (EMS)
• Enthalpy control
• Indoor Air Quality (IAQ)
• Clean rooms
• Museums/archives
• Hospitals/labs
• Refrigeration control
• Pharmaceutical
• Swimming pools
• Animal rooms

Amphenol Advanced Sensors
Enhanced Field Serviceability

HumiTrac features a National Institute of Standards and Technology (NIST) traceable, field-replaceable sensor tip module that allows the end user to replace the sensor on-site while maintaining ±2% RH accuracy and NIST traceability. The user simply powers off the unit, installs the new sensor module and powers back the unit. All necessary calibration constants are stored in the memory of the sensor module and uploaded to the transmitter instantly. This virtually eliminates the need for time consuming and costly factory calibration, while reducing downtime during service intervals to near zero.

Unsurpassed Sensor Performance

HumiTrac utilizes a rugged capacitive sensor that provides full-scale 0-100% RH measurement with unsurpassed response times, linearity and stability. Recovery to condensation and chemicals is excellent and an integrated filter, plus conformal-coated module electronics ensure long life. All sensors undergo a ten hour digital calibration, certified against a primary NIST reference standard. Signal conditioned temperature versions maintain specified RH accuracy across the full operating range of -40°F to 140°F (-40°C to 60°C).

Maximum Flexibility

HumiTrac is designed to be highly configurable in the field or in your warehouse. By minimizing the necessary number of configurations, Telaire reduces distributor inventory costs and provides maximum flexibility to the installer. All versions feature field-selectable outputs (0 to 5V, 0 to 10V, 4 to 20mA) and passive temperature versions incorporate both a 3K and 10K Ω thermistor. Simple adjustment of slide switches is all that is required. Signal-conditioned temperature versions are available scaled from 32°F to 122°F (0°C to 50°C) or -40°F to 140°F (-40°C to 60°C). Custom ranges are available upon request for high volume applications.

HumiTrac is available in humidity accuracies of ±2%, ±3% or ±5%, and offered in wall mount, duct mount and outdoor air configurations.

Rugged, Attractive Enclosures

All HumiTrac configurations feature rugged flame retardant, UL-94V ABS plastic. Duct and outdoor air versions provide excellent weather resistance (IP42 rated). Special care has been taken in the design of the wall mount enclosure to provide enhanced airflow, increasing sensor response time and virtually eliminating the potential of “self-heating” by transmitter electronics that can lead to decreased accuracy measurements.

Simple, Fast Installation

All HumiTrac models feature large removable, pluggable terminal blocks, eliminating the need to wire in a confined space and allow the unit to be pre-wired separate from the electronics—an especially attractive feature in unfinished construction, where exposed sensors and electronics could be damaged by moisture, drywall dust and paint. All models incorporate a retaining wire that attaches the cover to the base, allowing the installer to wire the unit without using an extra hand to hold the cover.

Lowest Cost of Ownership

With a two-year warranty*, simplified inventory management, reduced installation times and field-serviceability, HumiTrac sets the standard in reduced cost of ownership and performance-to-price ratio.

*Transmitter only, one year warranty on replaceable sensor.
HumiTrac Specifications

Environmental Conditions

Operating Range
- -40°F to 140°F (-40°C to 60°C)
- 0% to 99% RH (non-condensing)

Storage Temperature
-67°F to 185°F (-55°C to 85°C)

Humidity

Sensing Element
Capacitive polymer sensor

Accuracy at 71.6°F (22°C)
- ±2% version: ±2% 10 to 90% RH
- ±5% 0 to 10% & 90-99% RH
- 3% version: ±3% @ 10 to 90% RH
- 5% version: ±5% RH @ 0 to 99% RH
*Includes hysteresis, linearity and repeatability

Long Term Stability
Less than 1% drift per year, typical

Temperature Effect**
Delta %RH = (0.0014 x %RH + 0.1325) x T°C -
(0.0317 x %RH + 3.0876)
**Not applicable to signal-conditioned temperature units.

Repeatability
See accuracy statement

Linearity
See accuracy statement

Hysteresis
- < ±1.5% RH (30%RH 1h ->70%RH 1h
- ->90%RH 1h ->30%RH, Vair = 2m/sec)

Signal Outputs
4 to 20mA, 0 to 5V or 0 to 10V (user selectable)

Outside Air Mount
Case: ABS flame retardant IP42 rated
Outside Air Mount
Case: ABS flame retardant IP42 rated
Probe: Stainless steel

Space (Wall) Mount
Case: ABS flame retardant

Duct Mount
Case: ABS flame retardant IP42 rated
HumiTrac Specifications

Temperature-Direct Connection Thermistor

Sensing Element
- 10K Ω thermistor at 77°F (25°C)
- 3K Ω thermistor at 77°F (25°C)

Signal Output
Direct connection, user selectable between 3K or 10K

Accuracy
Refer to DC95F103W (10K) and DC95F302W (3K) from Telaire

Active Temperature Output

Calibration Accuracy at 71.6°F (22°C)
±0.5°F (±0.3°C)

Long Term Stability
Less than 0.2°F drift per year

Sensor Interchangeability
±0.5°F (±0.3°C)

Signal Outputs
4 to 20mA, 0 to 5V or 0 to 10V (user selectable)

Power Requirements

Supply Voltage
12 to 30 VDC

Maximum Load (current output only)
\[ \Omega = \text{Supply Voltage} - 10 \frac{0.02}{\text{Supply Voltage}} \]

General

Protection
IP42 rating for Duct Mount and Outside Air Transmitters

Ordering Information

<table>
<thead>
<tr>
<th>Model</th>
<th>Accuracy</th>
<th>5%</th>
<th>3%</th>
<th>2%</th>
<th>2% with NIST Certificate</th>
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<tr>
<td>RH only</td>
<td>P40250121</td>
<td>P40250181</td>
<td>P40250109</td>
<td>P40250139</td>
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<tr>
<td>RH and 3/10K Ω thermistor</td>
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<td>P40250182</td>
<td>P40250110</td>
<td>P40250141</td>
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<tr>
<td>RH and Active Temperature</td>
<td>32°F to 122°F (0°C to 50°C)*</td>
<td>P40250123</td>
<td>P40250183</td>
<td>P40250111</td>
<td>P40250142</td>
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<tr>
<td>RH and Active Temperature</td>
<td>-40°F to 140°F (-40°C to 60°C)*</td>
<td>P40250125</td>
<td>P40250184</td>
<td>P40250112</td>
<td>P40250143</td>
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</table>

Duct Mount

| RH only        | P40250129| P40250190| P40250117| P40250147  |
| RH and 3/10K Ω thermistor | P40250130| P40250191| P40250118| P40250149  |
| RH and Active Temperature | 32°F to 122°F (0°C to 50°C)* | P40250131| P40250192| P40250119| P40250150  |
| RH and Active Temperature | -40°F to 140°F (-40°C to 60°C)* | P40250133| P40250193| P40250120| P40250151  |

Outside Air

| RH only        | P40250126| P40250185| P40250113| P40250144  |
| RH and 3/10K Ω thermistor | P40250127| P40250186| P40250114| P40250145  |
| RH and 1000 PRTD | -40°F to 140°F (-40°C to 60°C)* | P40250128| P40250189| P40250115| P40250146  |

Replaceable Sensor Tip (RH Only)

| P40254276| P40254277| P40254275| N/A |

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