

# Model SRH: Duct Mount Relative Humidity Sensor

## Features

- Passive or active temperature outputs
- Durable capacitive sensor
- Suitable for harsh environments
- Active temperature with jumper selectable range
- Robust capacitive sensor design
- Low cost of ownership
- $\pm 2\%$ ,  $\pm 3\%$  and  $\pm 5\%$  FS accuracy
- Replaceable sensor tip
- Quick mount, 2 screw install with plug-in terminal wiring
- 5 year warranty on electronics
- 2 year warranty on sensor module
- CE and RoHS compliant

## Applications

- HVAC/R Control
- Indoor Air Quality (IAQ)
- Laboratories
- Antique Preservation

Setra's SRH duct mount humidity sensor offers optional active temperature with choice of 4 to 20 mA or user-selectable 0 to 5 and 0 to 10 VDC output and passive temperature with choice of thermistor or RTD output. The sensor is housed in a polycarbonate 94 V-0, NEMA 4 enclosure making it suitable for harsh environments. The SRH duct mount sensor gives the user the choice of 2%, 3% and 5% RH accuracy to meet the requirements of typical HVAC applications. It features a removable sensor tip, NIST traceability and a durable capacitive sensor capable of a 0 to 99% full scale RH measurement and recovery of 100% saturation.

## Replaceable sensor tip for easy calibration

The SRH offers the industry's easiest replaceable sensor tip. Removing it requires no special training and can be easily replaced by the end user. No calibration is needed because each sensor module is factory calibrated before shipping, reducing downtime during service intervals.

## Active & passive temperature outputs

The SRH can be ordered with either a passive (RTD Thermistor) or Active (Analog) temperature output, enabling 2 measurements from 1 device. Units configured with the active temperature options feature jumper selectable Tspan ranges of 40oC, 50oC, and 60oC.

## Worry free 5 year warranty

The SRH comes with a 5 year warranty on the electronics and a 2 year warranty on the sensor module, giving the user peace of mind over the life of the product.



## Specifications

### RH performance data

|                                 |                                |
|---------------------------------|--------------------------------|
| <b>Sensing element</b>          | Capacitive polymer             |
| <b>Humidity operating range</b> | 0 to 99% RH (non-condensing)   |
| <b>Accuracy @ 68°F (20°C)</b>   | ±2%, ±3%, ±5% FS <sup>1</sup>  |
| <b>Hysteresis</b>               | <1.5%                          |
| <b>Non-repeatability</b>        | 0.5% FS                        |
| <b>Long term stability</b>      | <1%/Year @ 68°F (20°C), 50% RH |

### Electrical data

|  |  |
|--|--|
| <b>Signal outputs</b>                    |  |
| <b>Current (2-wire)</b>                  | 4 to 20mA  |
| <b>Field-selectable voltage (3-wire)</b> | 0 to 5 VDC, 0 to 10 VDC  |
| <b>Excitation</b>                        | 13.5 to 30 VDC (10 VDC Output)<br>12 to 30 VDC (4 to 20 Ma, 5 VDC Output)<br>24 VAC ±20% |
| <b>Maximum load (current only)</b>       | =(Supply - 10) - 0.02  |
| <b>Electrical termination</b>            | Pluggable terminal block (5mm pitch)   |
| <b>Wiring protection</b>                 | Reverse excitation   |

### Environmental data

|                                      |                                   |
|--------------------------------------|-----------------------------------|
| <b>Operating temperature °F (°C)</b> | -40 to 140 (-40 to 60)            |
| <b>Storage temperature °F (°C)</b>   | -40 to 158 (-40 to 70)            |
| <b>Moisture resistance</b>           | IP65, NEMA-4 (duct & outside air) |
| <b>Solar</b>                         | UV resistant (outside air)        |
| <b>Flammability rating</b>           | 94-V0                             |
| <b>Compliance</b>                    | CE, RoHS                          |

<sup>1</sup> Long term exposure to high humidity may temporarily offset the RH signal (e.g. +3% RH after 60H at >80% RH)

<sup>2</sup> Excitation 24 VDC

Specifications subject to change without notice.

### Temperature sensing options (passive)

**T1: Thermistor** NTC 10K ohm 77°F/25°C (direct connect) Type II

**T2: RTD output** 1000 ohm 32°F/0°C (direct connect)

**T6: Thermistor** NTC 10K ohm 77°F/25°C Type III

### Temperature sensing options (active)

**T3: Ranges °F (°C)** -58 to +140 (-50 to +60)  
**Accuracy @ 68°F (20°C)** Typ @ 50% ±1.1 (±0.6)<sup>2</sup>

**T5: °F (°C)** +14 to +140 (-10 to +60)  
**Accuracy @ 68°F (20°C)** Typ @ 50% ±0.7 (±0.4)<sup>2</sup>

### Signal Output Options (includes humidity output)

**Current** 4 to 20mA

**Field-selectable voltage** 0 to 5 VDC, 0 to 10 VDC

### Physical description

#### Enclosure materials

**Wall mount** VA 94-V0

**Duct & outside air** Polycarbonate 94-V0

**Probe (duct & outside air)** Aluminum

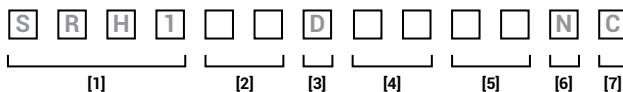
**Weather shield** Porous polyethylene

**Sensor tip filter** 70 micron polypropylene

**Dimensions** See dimensions drawings

## Ordering information

Example part number: SRH12PD11T0NC; Model SRH, 2% Accuracy, Duct Mount, 4 to 20 mA Output, RH only, No Display, NIST Certificate of Conformance:



| [1]                   | [2]             | [3]                  | [4]  | [5]  | [6]            | [7]                                      |
|-----------------------|-----------------|----------------------|--|--|----------------|--|
| <b>Model</b>          | <b>Accuracy</b> | <b>Configuration</b> | <b>Outputs</b>   | <b>Temperature outputs</b>                                   | <b>Display</b> | <b>Options</b>                           |
| <b>SRH1</b> Model SRH | <b>2P</b> 2%    | <b>D</b> Duct Mount  | <b>11</b> 4 to 20 mA   | <b>T0</b> None (RH only)                                     | <b>N</b> None  | <b>C</b> NIST certificate of performance |
|                       | <b>3P</b> 3%    |                      | <b>2C</b> 0 to 5 or 0 to 10 VDC <sup>2</sup> (user selectable) | <b>T1</b> 10K ohm Type II thermistor (passive)               |                |  |
|                       | <b>5P</b> 5%    |                      |  | <b>T2</b> 1000 ohm RTD (passive)                             |                |  |
|                       |                 |                      |  | <b>T3</b> -58 to 140°F (-50 to 60°C) (active) <sup>3,4</sup> |                |  |
|                       |                 |                      |  | <b>T5</b> 14 to 140°F (-10 to 60°C) (active) <sup>3,4</sup>  |                |  |
|                       |                 |                      |  | <b>T6</b> 10K ohm Type III thermistor (passive)              |                |  |

### Replacement sensor assembly:

| [1]                   | [2]             | [3]  |
|-----------------------|-----------------|--|
| <b>Model</b>          | <b>Accuracy</b> | <b>Temperature outputs</b>                                 |
| <b>SRH3</b> Model SRH | <b>2P</b> 2%    | <b>T0</b> None (RH only)                                   |
|                       | <b>3P</b> 3%    | <b>T1</b> 10K ohm Type II thermistor (passive)             |
|                       | <b>5P</b> 5%    | <b>T2</b> 1000 ohm RTD (passive)                           |
|                       |                 | <b>T3</b> -58 to 140°F (-50 to 60°C) (active) <sup>3</sup> |
|                       |                 | <b>T5</b> 14 to 140°F (-10 to 60°C) (active) <sup>3</sup>  |
|                       |                 | <b>T6</b> 10K ohm Type III thermistor (passive)            |

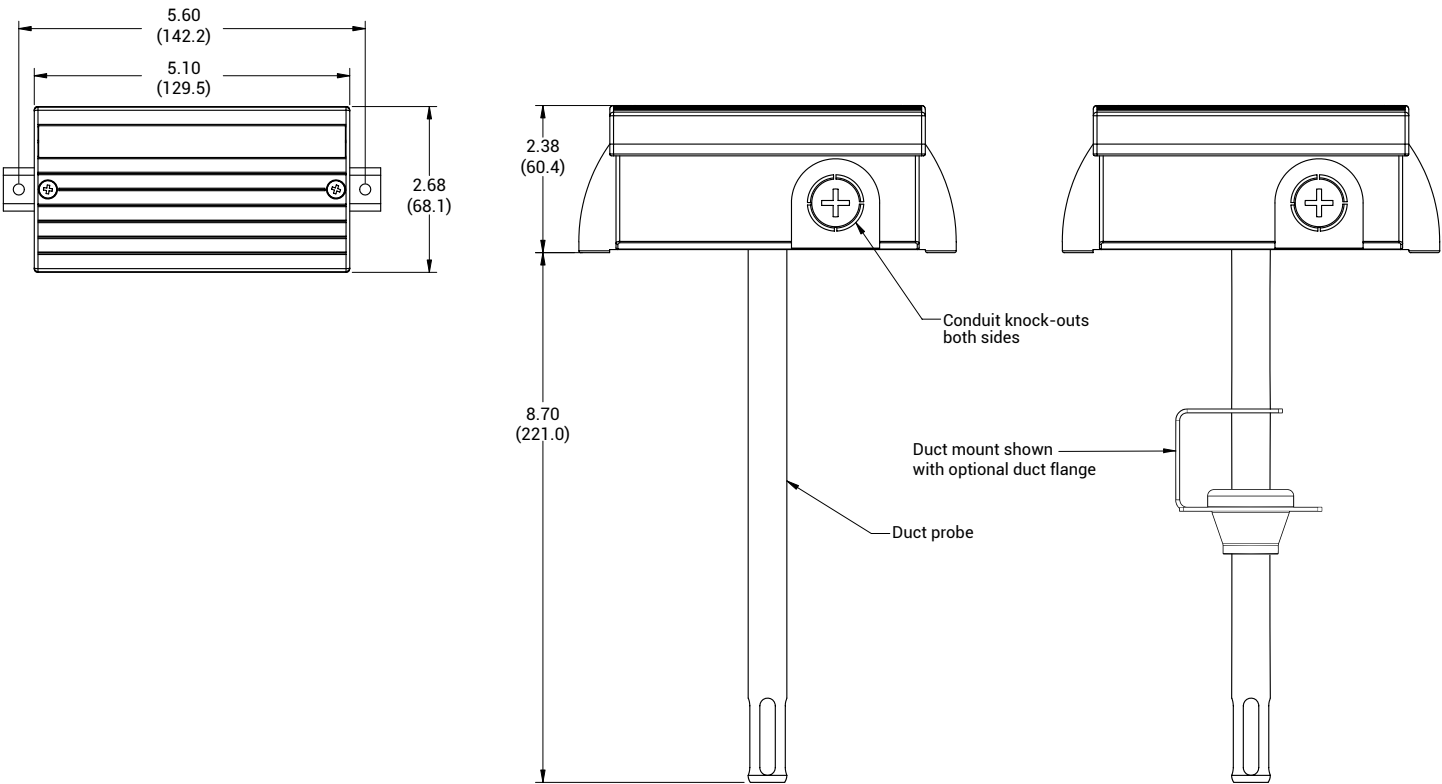
<sup>1</sup> 5% units available only with passive temperature option

<sup>2</sup> Voltage outputs (2C) are factory configured for 0 to 5 VDC operation. User-selectable jumper for 0 to 10 VDC operation.

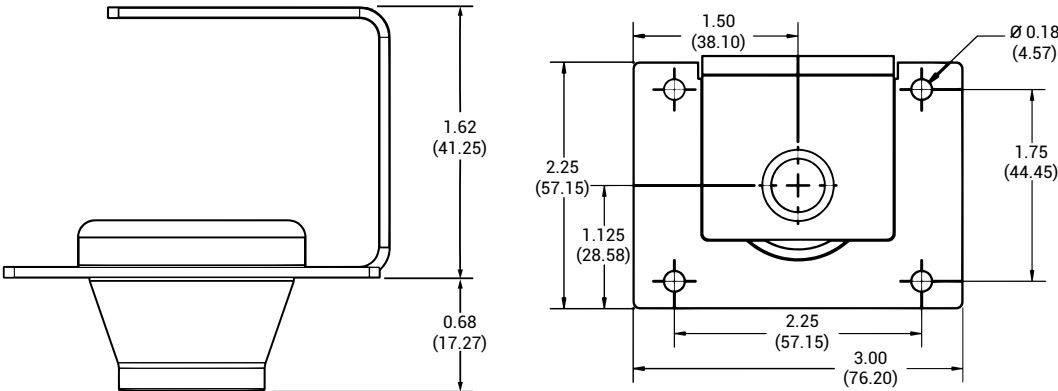
<sup>3</sup> Tspan jumper factory configured for 60°C. User-selectable Tspan for 40°C and 50°C option provided.

<sup>4</sup> SRH1 units originally ordered with either a T3 or T5 temperature option must be replaced with the same T(x) version.

Dimensions



Optional duct flange:



inches (mm)