# SHD100/SHD101


## SPECIFICATIONS

Humidity sensor . . . . . capacitive polymer sensor
Output . . 0 to 10 VDC/4-20 mA (jumper selectable)
Accuracy (at 20 °C) . . . . . ± 2% RH
Mounting . . . . . .duct
Enclosure rating . . . . . IP 65
Weight . . . . . .165 g (0.364 lb)
Material (housing) . . . . . Polyamide plastic
Material (sensor protective filter) . . . . . .Bronze
Dimensions. . . . . see diagram
Temperature dependency. . . . . see diagram
Stability. . . . . ± 1% RH @ 50 % RH in 5 yrs
EMC. . . . . EN 50081-1, EN 50082-1

### Temperature thermistor

Type . . . . . see table
Accuracy . . . . . see table

### 0 to 10 VDC mode

Output signal . . . . . 0 to 10 VDC
Power input . . . . . 24 VAC±10 %, 16 to 32 VDC
Current consumption at 24 VAC . . . . . 11 mA
Load resistance . . . . . see diagram

### 4 to 20mA mode

Output signal . . . . . 4 to 20 mA
Power input . . . . . 16 to 32 VDC
Max. load resistance. . . . . see diagram

### Ranges

Humidity (operating) . .0-95 % RH, non-condensing
Humidity (storage). . . .0-90 % RH, non-condensing
Temperature (operating) . . . . . -10 °C to 60 °C
(14 °F to 140 °F)
Temperature (storage). . . . . -40 °C to 60 °C
(-40 °F to 140 °F)
Time constant . . 15 s in slowly moving air at 25 °C
(77 °F)

## PART NUMBERS

| Part Number | Model Number | Range (% RH) | Temp. Sensor (@ 25 °C (77 °F) | System |
|---|---|---|---|---|
| 006902321 | SHD100 | 0 - 95 | None | General |
| 006902331 | SHD100-T | | NTC 10 kΩ/1.8 kΩ | I/Net/Vista |
| 006902381 | SHD101-T5 | | NTC 10 kΩ/1.8 kΩ | Continuum/Vista |
| 006902411 | SHD101-T6 | | 'T' Type 5.02 kΩ | Satchwell |

## Duct Humidity Sensor with Temperature

This range of duct humidity/temperature sensors is designed to provide relative humidity measurement and temperature control in ventilation systems.

Each of these devices is an active sensor, which measures the relative humidity (%RH) and converts the measurement into an electric current (4–20 mA) or a voltage level (0–10 V).

Models are available with humidity sensing only or humidity sensing combined with temperature sensing using a 'T' Type thermistor or NTC thermistors.

The sensor comprises a sensing element fitted at the end of a probe, and an amplifier mounted in the main housing. A plastic bracket is supplied for mounting the unit onto a duct.

The SHD100-T has two different, user-selectable passive NTC temperature elements: NTC 1.8 kΩ (Vista), and NTC 10 kΩ (I/NET).

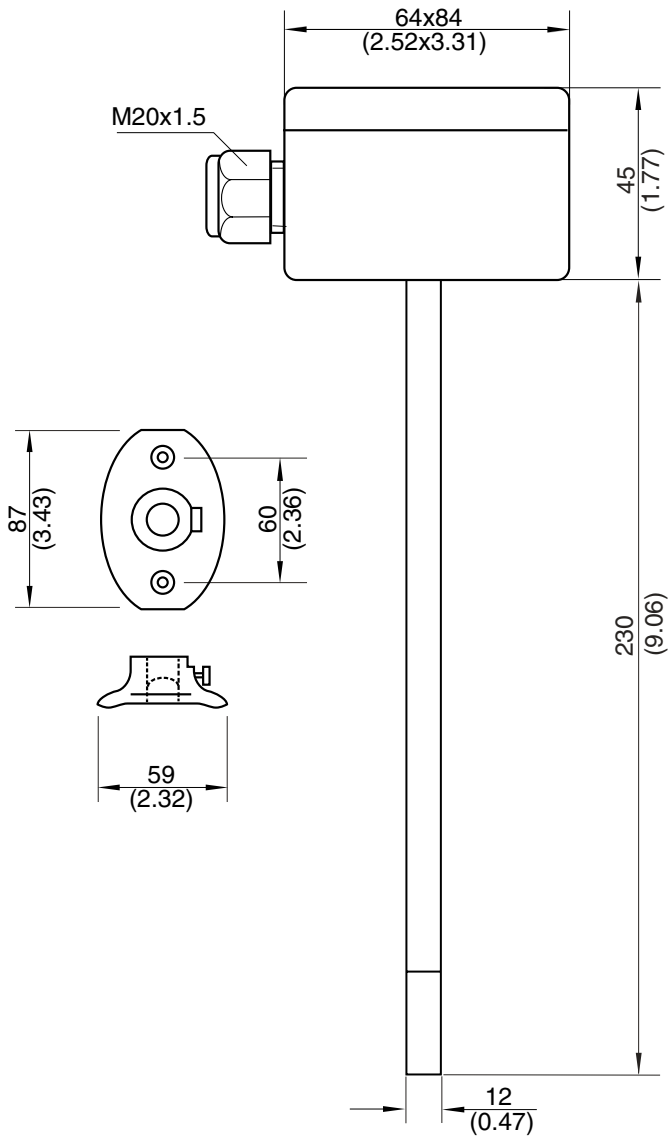
The SHD101-T5 has two different, user-selectable passive NTC temperature elements: NTC 1.8 kΩ (Vista), and NTC 10 kΩ (Continuum).

The SHD101-T6 incorporates the 5.02 kΩ NTC thermistor for use in Satchwell BMS systems.

All SHD100 products are intended for immersion installation and can be used for relative humidity measurement in air ducts.

Schneider Electric

## DIMENSIONS mm (in)




## THERMISTOR ACCURACY

### NTC 1.8 kΩ for Vista Products

–25 °C (–13 °F) . . . . . ±0.7 °C (±1.3 °F)
0 °C (32 °F) . . . . . ±0.5 °C (±0.9 °F)
25 °C (77 °F) . . . . . ±0.3 °C (±0.5 °F)
50 °C (122 °F) . . . . . ±0.6 °C (±1.1 °F)
75 °C (167 °F) . . . . . ±0.9 °C (±1.6 °F)
100 °C (212 °F) . . . . . ±1.3 °C (±2.3 °F)

### NTC 10 kΩ for I/NET® Products

–25 °C (–13 °F) . . . . . ±0.5 °C (±0.9 °F)
0 °C (32 °F) . . . . . ±0.2 °C (±0.4 °F)
25 °C (77 °F) . . . . . ±0.2 °C (±0.4 °F)
50 °C (122 °F) . . . . . ±0.2 °C (±0.4 °F)
70 °C (158 °F) . . . . . ±0.2 °C (±0.4 °F)
100 °C (212 °F) . . . . . ±0.5 °C (±0.9 °F)

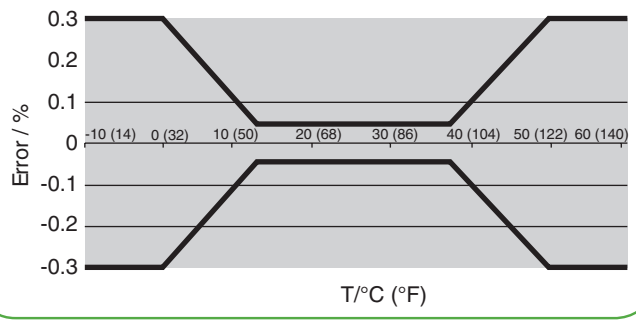
### NTC 10 kΩ for Continuum® Products

–25 °C (–13 °F) . . . . . ±0.5 °C (±0.9 °F)
0 °C (32 °F) . . . . . ±0.2 °C (±0.4 °F)
25 °C (77 °F) . . . . . ±0.2 °C (±0.4 °F)
50 °C (122 °F) . . . . . ±0.2 °C (±0.4 °F)
70 °C (158 °F) . . . . . ±0.2 °C (±0.4 °F)
100 °C (212 °F) . . . . . ±0.5 °C (±0.9 °F)

### NTC 5.02 kΩ for Satchwell™ Products

–25 °C (–13 °F) . . . . . ±0.6 °C (±1.0 °F)
0 °C (32 °F) . . . . . ±0.3 °C (±0.5 °F)
25 °C (77 °F) . . . . . ±0.2 °C (±0.4 °F)
50 °C (122 °F) . . . . . ±0.2 °C (±0.4 °F)
75 °C (167 °F) . . . . . ±0.3 °C (±0.5 °F)
100 °C (212 °F) . . . . . ±0.3 °C (±0.5 °F)

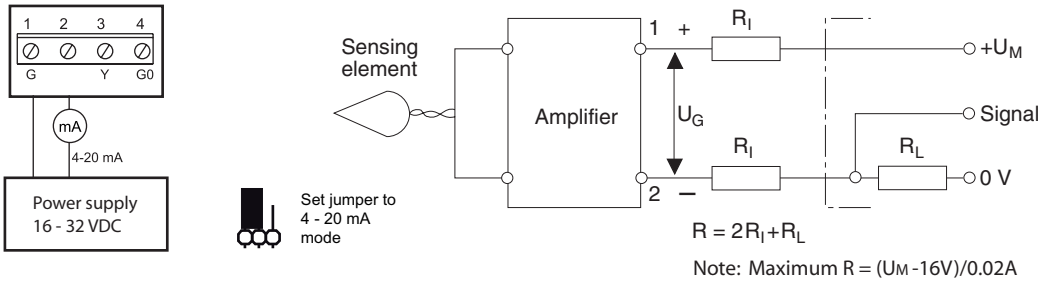
## TEMPERATURE DEPENDENCE



## WIRING

**Notes: Do not touch the sensor tip. Ensure correct wiring.**

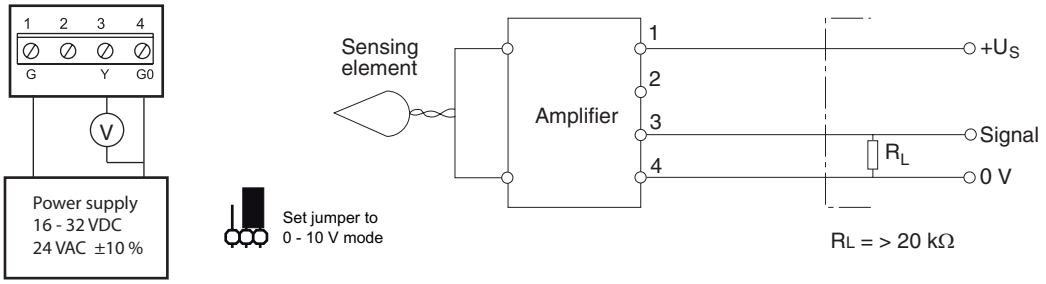
### 4-20 mA




Current is proportional to the measured humidity and is measured over an external load resistance $R_L$. The supply voltage $U_M$ is a function of the voltage across the sensor $U_G$ and the voltage drop across the load resistor and the wire resistances $R_I$.

$U_G$ Max. = 32 VDC, $U_G$ Min = 16 VDC. At 36 VDC accuracy drops by approximately 1 % RH.

### 0 –10 V




If another load is to be connected close to the sensor, this should be made with a separate G0, so that the measuring signal will not be affected.

### Temperature thermistor