[Sensors & Input Devices]

SHO100/SHO101-T5

SPECIFICATIONS

Humidity sensor . . . . . .   capacitive polymer sensor
Output . . 0 to 10 VDC/4-20 mA (jumper selectable)
Accuracy (at 20 °C) . . . . ± 2% RH
Mounting . . . . outdoor
Enclosure rating . . . . IP 65
Weight . . . . 191 g (0.421 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 ºC to 60 ºC
(14 ºF to 140 ºF)
Temperature (storage). . . . . -40 ºC to 60 ºC
(-40 ºF to 140 ºF)
Time constant . . 15 s in slowly moving air at 25 °C
(77 ºF)

PART NUMBERS

Part Number	Model Number	Range (% RH)	Temp. Sensor (@ 25 °C (77 °F)	System
006902361	SHO100		None	General
006902371	SHO100-T	0 - 95	NTC 10 kΩ/1.8 kΩ	I/Net/Vista
006902401	SHO101-T5		NTC 10 kΩ/1.8 kΩ	Continuum/Vista

Outdoor Humidity Sensor with Temperature

This range of outdoor humidity/temperature sensors is designed to provide relative humidity measurement and temperature sensing outdoors or in indoor areas where a more robust design is required, e.g. warehouse, swimming pool.

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 NTC thermistors.

The humidity sensor comprises a sensing element fitted at the end of a short probe, and an amplifier mounted in the main housing.

The SHO100-T has two different, user-selectable passive NTC temperature elements: NTC 1.8 kΩ (Vista), and NTC 10 kΩ (I/NET).

The SHO101-T5 has two different, user-selectable passive NTC temperature elements: NTC 1.8 kΩ (Vista), and NTC 10 kΩ (Continuum).

Schneider Electric

DIMENSIONS mm (in)

84x45
(3.31x1.77)

64
(2.52)

30
(1.18)

12
(0.47)

M20x1.5
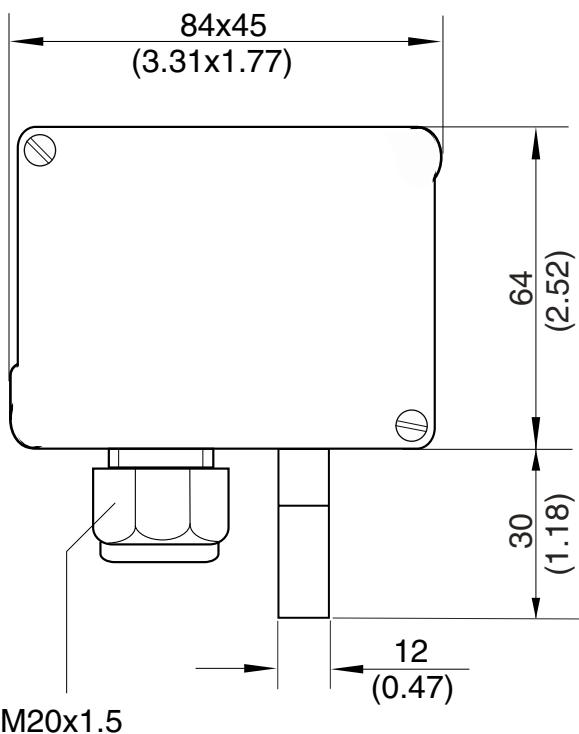
THERMISTOR ACCURACY

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)

TEMPERATURE DEPENDENCE

Error / %

0.3
0.2
0.1
0
-0.1
-0.2
-0.3

-10 (14)   0 (32)   10 (50)   20 (68)   30 (86)   40 (104)   50 (122)   60 (140)

T/°C (°F)
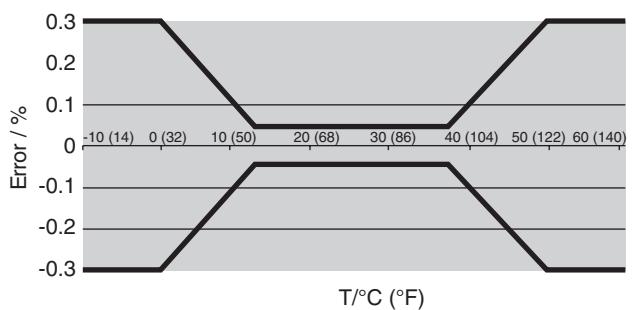
## WIRING

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

4-20 mA
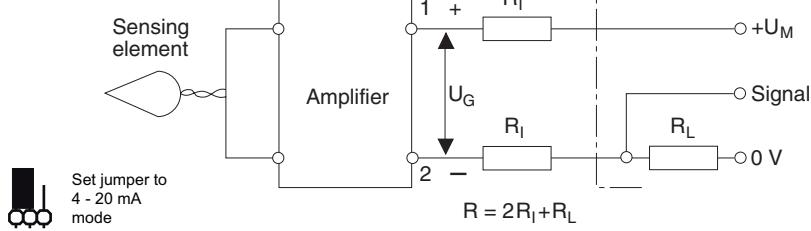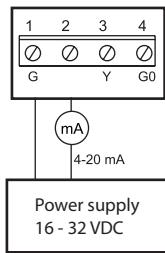
Current is proportional to the measured humidity and is measured over an external load resistance R_L. The supply voltage U_M is a function of the voltage across the sensor U_G and the voltage drop across the load resistor and the wire resistances R_I.

$R = 2R_I + R_L$

Note: Maximum $R = (U_M - 16V)/0.02A$

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

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0 –10 V

R_L = > 20 kΩ
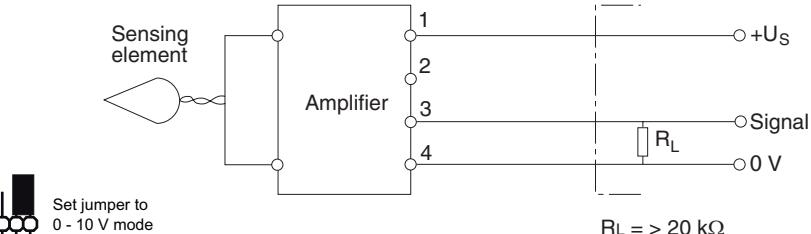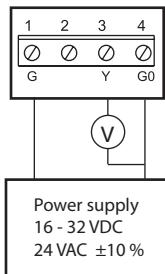
If another load is to be connected close to the sensor, this should be made with a separate G0, so that the measuring signal will not be affected.

Temperature thermistor

10 kΩ

1.8 kΩ