

# SpaceLogic Sensors

## Temperature and Humidity Duct Sensors

### SHD100/SHD101



#### Product Description

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 k $\Omega$  (Vista), and NTC 10 k $\Omega$  (I/NET).

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

The SHD101-T6 incorporates the 5.02 k $\Omega$  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.

#### Available Products

Part Number	Model Number	Range (% RH)	Temp. Sensor @ 25 °C (77 °F)	System
006902321	006902411	0 to 95%	None	General
006902331	SHD100-T	0 to 95%	NTC 10 k $\Omega$ / 1.8 k $\Omega$	I/Net/Vista
006902381	SHD101-T5	0 to 95%	NTC 10 k $\Omega$ / 1.8 k $\Omega$	Continuum/Vista
5127000000	SHD101-T6	0 to 95%	'T' Type 5.02 k $\Omega$	Satchwell

#### Specifications

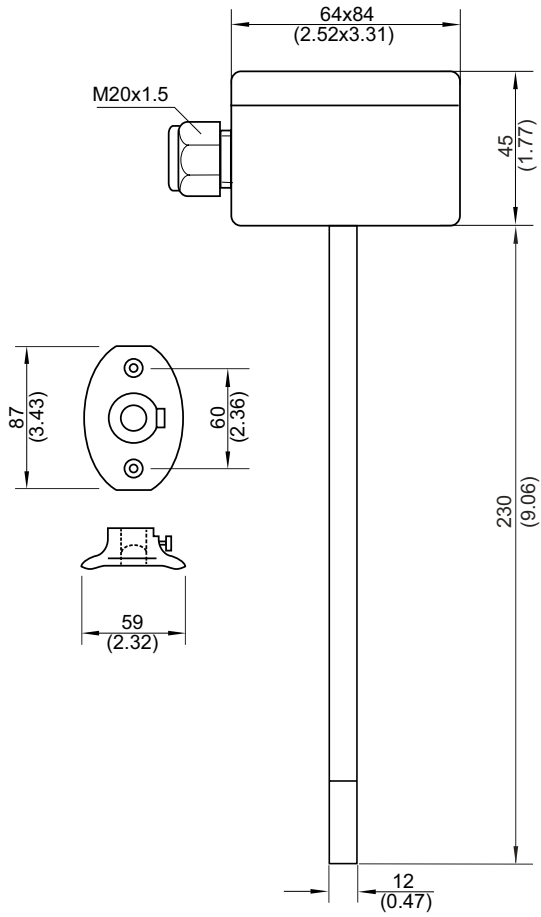
Humidity sensor	Capacitive polymer sensor
Output	0 to 10 VDC/4-20 mA (DIP switch selectable)
Accuracy (at 20 °C)	$\pm$ 2% RH
Mounting	duct
Enclosure rating	IP 65
Weight	165 g (0.364 lb)
Material (housing)	Polyamide plastic
Material (sensor protective filter)	Bronze
Dimensions	See diagram
Temperature dependency	See diagram
Stability	$\pm$ 1% RH @ 50 % RH in 5 yrs
EMC	EN 61326-1 and EN 61326-2-3
<b>Temperature Thermistor</b>	
Type	See table
Accuracy	See table
<b>0 to 10 VDC Mode</b>	
Output signal	0 to 10 VDC
Power input	24 VAC $\pm$ 10 % 16 to 32 VDC
Current consumption at 24 VAC	<10 mA
Load resistance	See diagram
<b>4 to 20 mA Mode</b>	
Output signal	4 to 20 mA
Power input	16 to 32 VDC
Max. load resistance	See diagram
<b>Ranges</b>	
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)

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Dimensions mm (in.)



Thermistor Accuracy

NTC 1.8 kW 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 kW for I/NET® Products

-25 °C (-13 °F)	±0.5 °C (±0.9 °F)
0 °C (32 °F)	±0.25 °C (±0.4 °F)
25 °C (77 °F)	±0.25 °C (±0.4 °F)
50 °C (122 °F)	±0.25 °C (±0.4 °F)
70 °C (158 °F)	±0.25 °C (±0.4 °F)
100 °C (212 °F)	±0.5 °C (±0.9 °F)

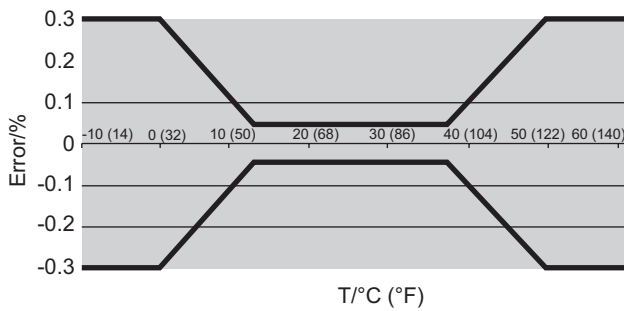
NTC 10 kW for Continuum® Products

-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 kW 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)	±0.3 °C (±0.4 °F)
50 °C (122 °F)	±0.3 °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

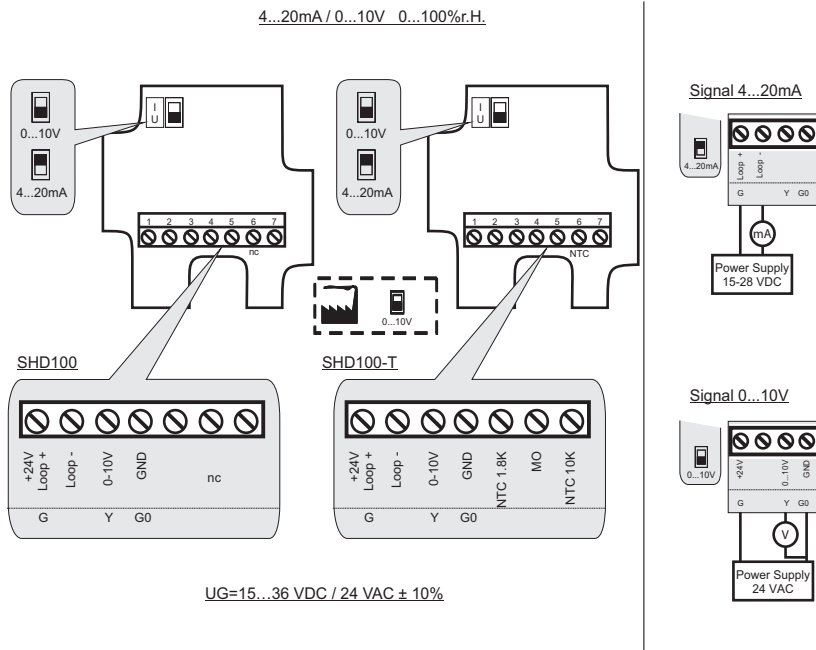


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## Wiring



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