



SHD100/SHD101

Humidity Transmitter for Duct Mounting

0-10 V/4-20 mA

SHD100 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.

The transmitter is delivered as a complete unit, comprising an aluminum mounting flange with the sensing element and an amplifier mounted in a separate housing.

The SHD100-T is equipped with passive temperature elements - user selectable NTC 1.8 or 10 k Ω . The NTC 1.8 k Ω is for Vista products, while the NTC 10 k Ω is for I/NET products.

The SHD100-T5 is equipped with passive temperature elements - user selectable NTC 1.8 or 10 k Ω . The NTC 1.8 k Ω is for Vista products, while the NTC 10 k Ω is for continuum products.

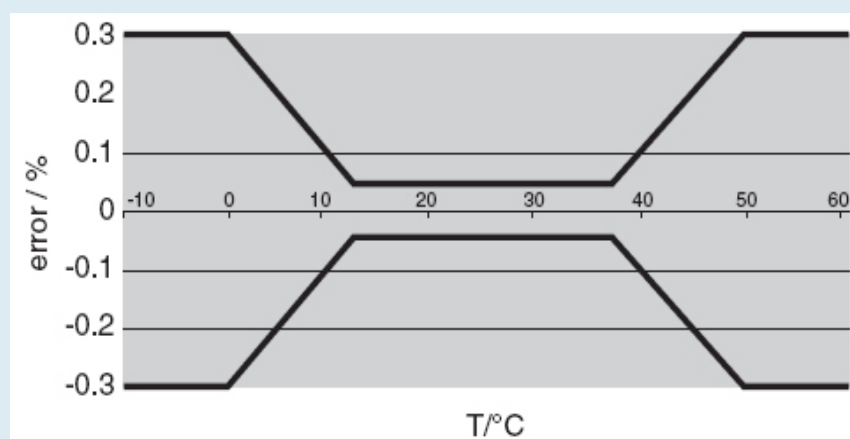
The SHD100-T6 incorporates the 5.02 k Ω NTC network (@ 25°C) for use with Satchwell products and BMS systems.

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

FEATURES

- Selectable 4-20 mA, 0-10V
- +/- 2% accuracy
- 24Vac / 15...36 Vdc power
- Optional selectable NTC 1.8 and 10 k Ω for TAC Vista, I/NET and continuum
- Optional NTC 5.02 k Ω (@ 25°C) for Satchwell products and BMS systems
- M20 gland nut supplied for conduits

TEMPERATURE DEPENDENCE



ACCURACY

NTC 1.8 kohm 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 kohm 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 kohm for Continuum™ Products

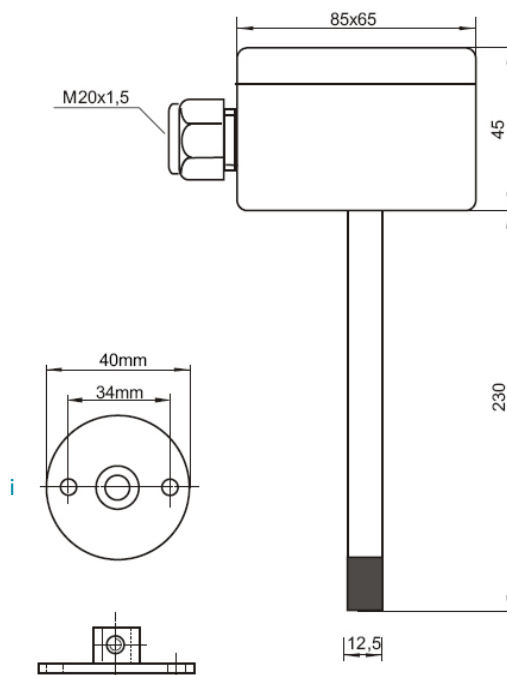
-25 °C / -13 °F	±0.5 °C / ±0.9 °F
±0 °C / 32 °F	±0.2 °C / ±0.4 °F
25 °C / 77 °F	±0.2 °C / ±0.4 °F
50 °C / 122 °F	±0.2 °C / ±0.4 °F
70 °C / 158 °F	±0.2 °C / ±0.4 °F
100 °C / 212 °F	±0.5 °C / ±0.9 °F

NTC 5.02 kohm 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

DIMENSIONS

Dimensions in mm (in.)



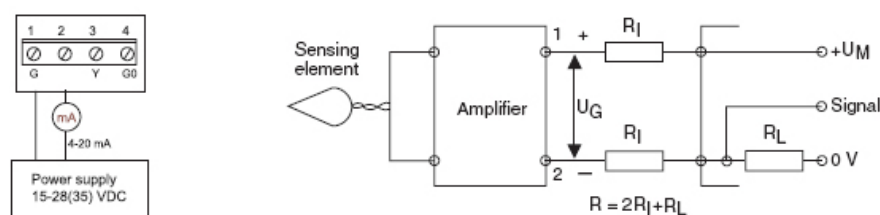
INSTALLATION

4-20mA

Note! The wires must be connected in the correct way.

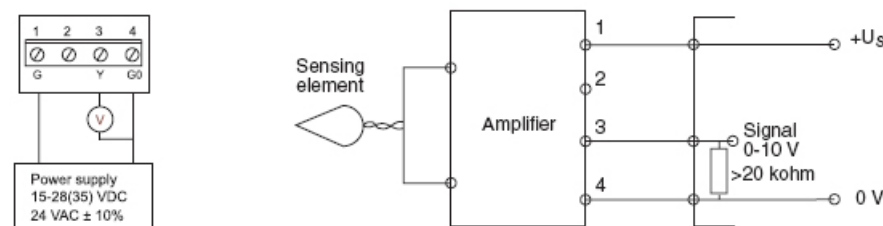
The sensor must not be touched since it is sensitive to mechanical damage and to grease etc. from the fingers.

The transmitter is connected with a 2-wire cable. The current is proportional to the measured humidity and it is measured over an external load resistance R_L . The supply voltage U_M is a function of the voltage across the room transmitter U_G and the voltage drop across the load resistor and the wire resistances.



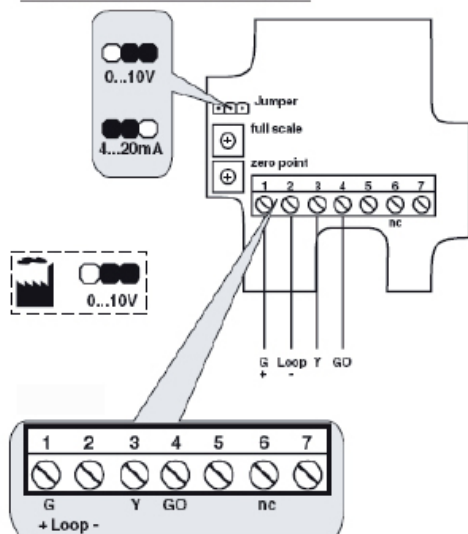
0-10 V

The transmitter is connected with a 3-wire cable. If another load is to be connected close to the sensor, this should be made with a separate G_0 , so that the measuring signal will not be affected.



SHD100

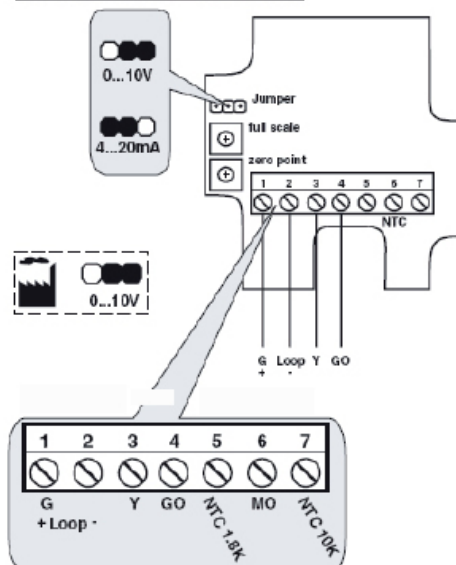
4...20mA / 0...10V 0...100%r.H.



$U_G = 15 \dots 36 \text{ VDC} / 24 \text{ VAC} \pm 10\%$

SHD100-T and SHD101-T5

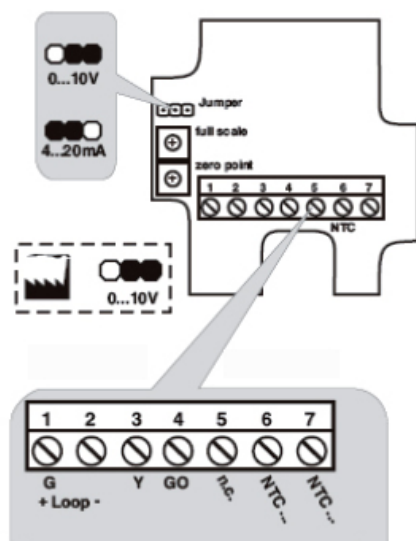
4...20mA / 0...10V 0...100%r.H.



$U_G = 15 \&36 \text{ VDC} / 24 \text{ VAC} \pm 10\%$

SHD100-T6 and SHD101-T6

4...20mA / 0...10V 0...100%r.H.



$U_G = 15 \dots 36 \text{ VDC} / 24 \text{ VAC} \pm 10\%$

SPECIFICATIONS

SHD 100/SHD 101

Time Constant	<15 s (depending on air circulation)
Accuracy	± 2% RH
Temp dep, - 10 to + 60 °C (figure on page 1)	< ± 0.3% RH (worst case, at 90% RH, D %RH will be less at lower %RH)
Max. Inaccuracy After 5 Years	< ± 3% RH
Operating Range	0-95% RH
Operating Temperature	-10 to 60 °C (14 to 140 °F)
Storage Temperature	-40 to 60 °C (14 to 140 °F)
Sensor Element for SHD100-T and SHD 101-T5	NTC, 1.8 kΩ at 25 °C (77 °F) and NTC, 10 kΩ at 25 °C (77 °F)
SHD101-T6	NTC, 5.02 kΩ at 25 °C (77 °F)
Immersion Well and Housing	Polyamide Plastic
Protective Filter for Sensor	Bronze
Enclosure Rating	IP 65
Weight	165 g (0.364 lb.)
EMC Standard	EN 50081-1, EN 50082-1

4-20 mA	
Current Output 0-100% RH	0-20 mA
Voltage Across Sensor	UG max. 28 (36) V DC, UG min. 15 V DC At a 36 V DC supply accuracy decr. with about 1% RH.
Maximum Load (Ω)	$R = (U_M - 15)/0.02$

0-10 V	
Voltage Output 0-100% RH	0-10 V
Power Supply	15-35 V DC or Alternating $24 \pm 10\%$ V AC
Current Consumption, Typical	10 mA
Load Resistance	>20 kΩ

ORDERING INSTRUCTIONS

MODEL	PART NUMBER
SHD100	0-069-0232-0
SHD100-T	0-069-0233-0
SHD101-T5	0-069-0238-0
SHD101-T6	0-069-0241-0

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