TU.D33/34

CE

CODE	DESCRIPTION	RANGE % R.H. *
TU-D33	Duct humidity transmitter	0 ÷ 100
TUTD34	Duct humidity transmitter with combined temperature NTC sensor	

* Range ends corresponding to the output signal. For real operation range see the TECHNICAL CHARACTERISTICS chapter under "operating range".

APPLICATION AND USE

TU.D33/34 transmitters are active sensors that measure relative humidity (R.H.) and convert this measurement into a signal that can be selected through a switch placed on the board in voltage 0-10 V or current 4-20 mA.
The TU-D transmitters are presented as a complete unit, which includes a plastic mounting flange with sensing element and an amplifier mounted in a separate housing.
TU-D transmitters are used for the measurement of relative humidity in air duct. The sensor has negligible hysteresis and is not sensitive to dust and chemicals.
TUTD34 model includes an NTC temperature sensor.

OPERATION

All transmitters detect the humidity value to be measured by means of a capacitive sensitive element whose signal, linearized and amplified, is transformed into a voltage output signal (0...10 V-) or into a current output signal (4..20 mA).
In the model equipped with a temperature sensor, the sensitive element is an NTC resistor.

MANUFACTURING CHARACTERISTICS

TU-D duct transmitter has a thermoplastic housing, the electronic board is positioned at the end of a tube with slots on the rear side of the housing.
The sensitive element is characterized by a strong sensitivity and a rapid response.
The housing cover is fixed by screws. Both the humidity and temperature sensitive elements are directly connected to the electronic board.
Circuits are protected against both shorts and polarity errors.

TECHNICAL CHARACTERISTICS

Time constant	<15 s (depending on air circulation)
Accuracy	± 2% R.H.
Effect of temperature on R.H.% measurement	% error between 10 and 60 °C (fig. page 2) ...<± 0.3% R.H. (at the same temperature, the maximum possible% error occurs at 90%, decreasing as the R.H.% decreases)
Max. inaccuracy	after 5 years < ± 1% R.H.
R.H. operating range	0÷95% R.H. (non condensing)
R.H. storage	0÷95% R.H. (non condensing)
Operationg temp.	–10÷60 °C
Storage temp.	–40÷60 °C
Temperature sensor	NTC (only TUTD34)
Protection	Sheath and plastic case polyamide
Probe protective filter	Bronze
Protection degree	IP 65
Weight	165 g
Standards	EMC2014/30/UE EN 61321-1 E EN 61326-2-3

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The device contains electrical and electronic components and is not allowed to be disposed of as household refuse. All locally valid regulations and requirements must be observed.

4–20 mA	
Current output 0–100% R.H.	4–20 mA
Voltage across the probe	U_G max. 32 Vdc U_G min. 16 Vdc At 36 Vdc supply accuracy decr. with about 1% R.H.
Maximum load	Ohm R = (U_M –16)/0.02

0–10 V	
Voltage output 0–100% R.H.	0–10 V
Power supply output 0–10 V	16–32 Vdc or 24±10% Vac
Current consump-tion	typical 11 mA
Load resistance	>20 kOhm

INSTALLATION

Note! The wires must be connected correctly.
The sensor must not be touched, since it is sensitive to mechanical damage and to grease etc. from the fingers.

4–20 mA

The transmitters are connected with a 2-wire cable.
The current is proportional to the measured humidity and is generally measured based on an external load resistance (R L).
The supply voltage (UM) is therefore a function of the voltage across the room transmitter (UG) and the voltage drop across the load re-sistor and cable resistance (see 4...20 mA connections on page 3).

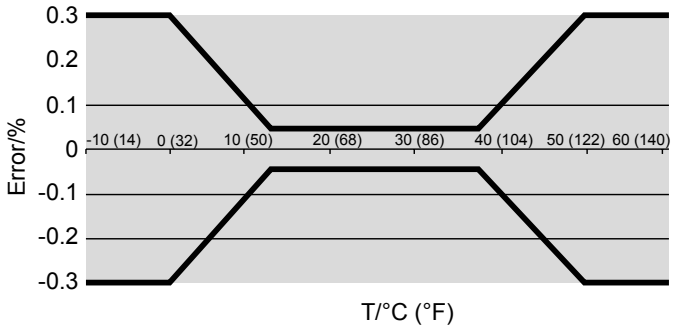
0–10 V

The transmitter is connected with a 3-wire cable.
If another load is to be connected near the probe, this should be done with a separate ground, so that the measurement signal is not altered (see 0...10 Vdc connections on page 3).

MOUNTING

See DIM089.

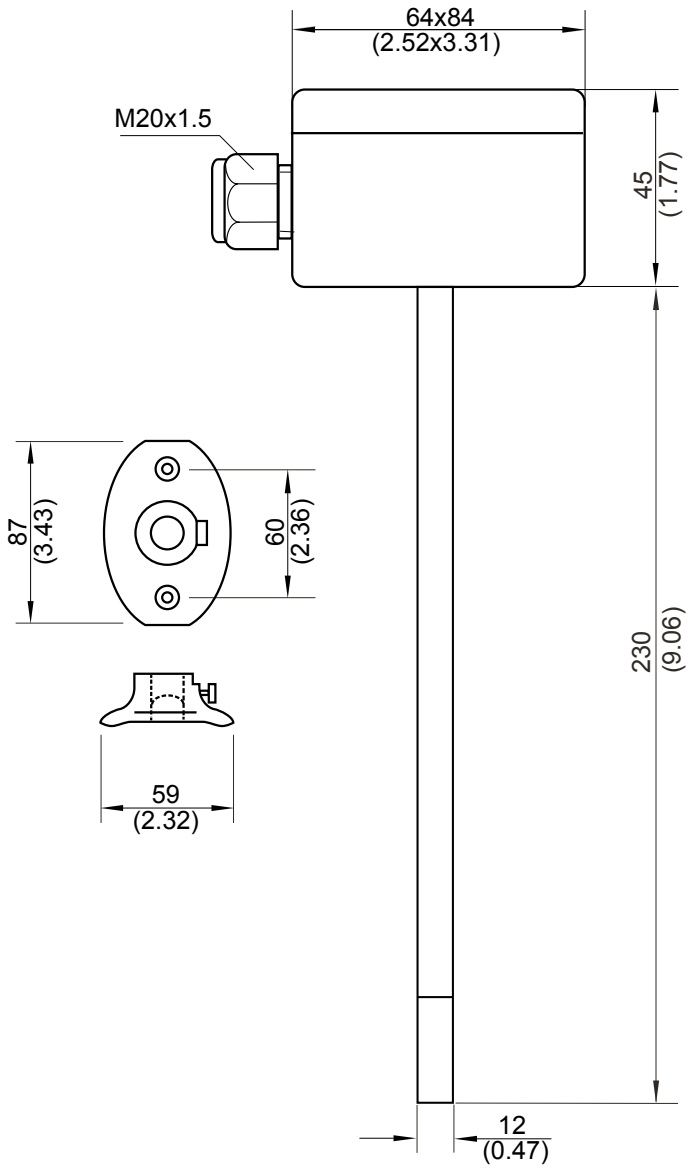
TEMPERATURE DEPENDENCE



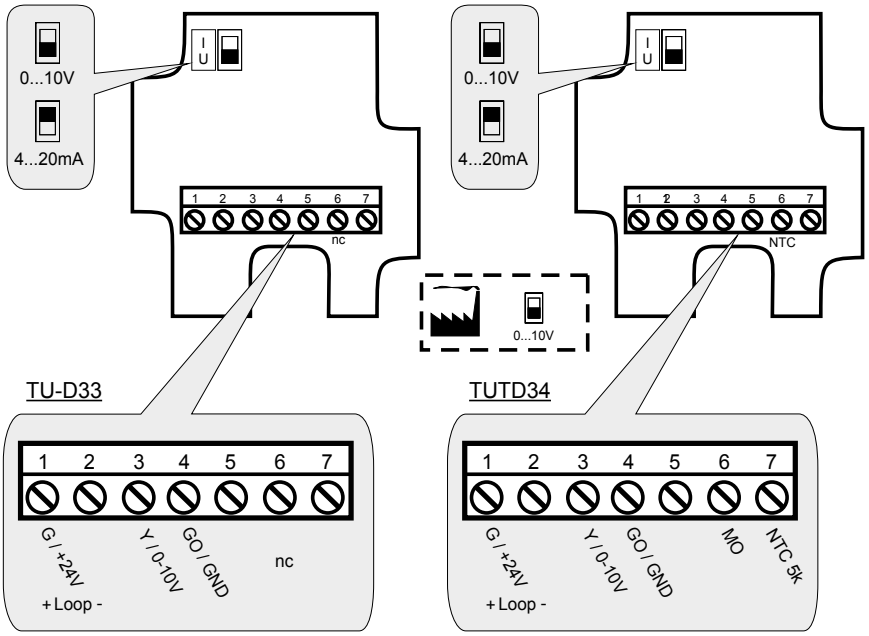
Thermistor accuracy

NTC 5.02 kOhm
-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 [mm]

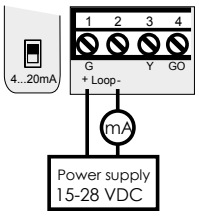


4...20mA / 0...10V 0...100% r.H.

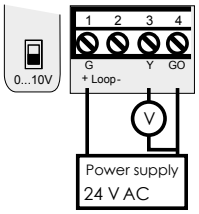


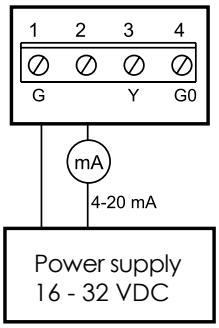
U_G=15…36 VDC / 24 VAC ± 10%

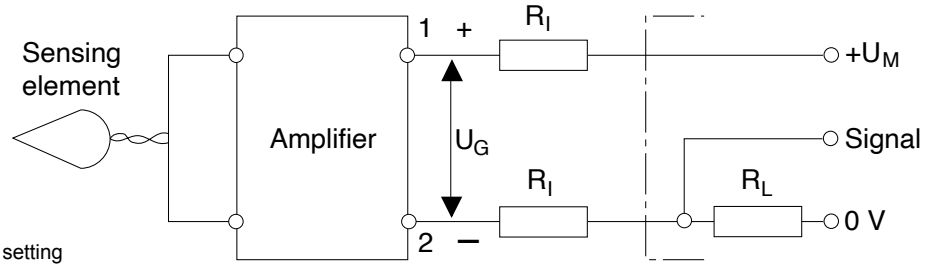
Signal 4...20mA



Signal 0...10 V



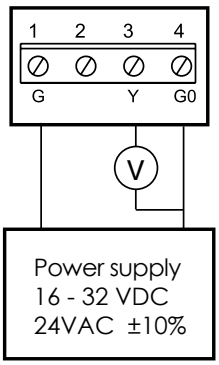


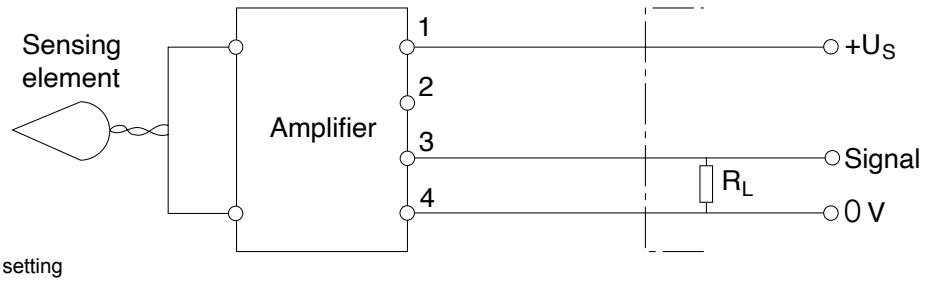


Switch setting
4-20 mA

$R = 2R_I + R_L$

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





Switch setting
0-10 V

R_L = > 20 kΩ

The performances stated in this sheet can be modified without any prior notice