

MODEL	RANGE %R.H. ⁽¹⁾	TYPE	OUTPUT SIGNAL
TU-A22	0...100	Room	4...20 mA
TU-A32	0...100	Room	0...10 V-
TUTA32 ⁽²⁾	0...100	Room	0...10 V-
TUTA32N ⁽³⁾	0...100	Room	0...10 V-
TU-D22	0...100	Duct	4...20 mA
TU-D32	0...100	Duct	0...10V-
TUTD32 ⁽²⁾	0...100	Duct	0...10 V-
TUTD32N ⁽³⁾	0...100	Duct	0...10 V-



(1) Range extremes corresponding to output signal extremes
For real operation range see "working temperature" at TECHNICAL CHARACTERISTICS chapter.

(2) Models equipped with temperature sensing element Balco

(3) Models equipped with temperature sensing element NTC.

APPLICATION AND USE

Humidity transmitters, also available with temperature sensing element, are used in air conditioning for the measurement of % Relative Humidity.

OPERATION

All the transmitters detect the humidity value to be measured through a capacitive sensing element, whose signal, linearized and amplified, is transformed into either a voltage output signal (0...10 V-) or a current (4 .. 20 mA) output signal.

In the models equipped with temperature sensors, a Balco or NTC resistance is the sensing element.

MANUFACTURING CHARACTERISTICS

TU.A humidity transmitters consist of a thermoplastic case containing the electronic card with terminals for electrical connections.

TU.D duct humidity transmitters also consist of a thermoplastic case; the electronic card is placed at the end of a tube with vents coming out from the rear side of the casing. Sensing element has very high sensibility features and ultra-fast response. The sensing element is not effected by condensation, it may be immersed in distilled water without degrading the calibration accuracy.

Case cover is fastened by screws and in room models (TU.A) is slotted for air circulation.

Both humidity and temperature sensing elements are directly connected to the electronic card. Circuits are protected against both shorts and polarity error.

TECHNICAL CHARACTERISTICS

Power supply	
TU..3	either 15...25 V- or 24~ +10...-15% (50...60 Hz)
TU..2	See "Installation"
Power consumption	1 VA
Range	See available models
Precision	± 3% between 10% and 90% R.H. ± 5% from 0 to 10% and 90 to 100% R.H.
Sensing element	
humidity	capacitive
temperature	Balco 1000 ohm at 21,1 °C (TUTx32) NTC 5000 ohm at 25 °C (TUTx32N)
Outup signal	
TU..3	0...10 V -
TU..2	4...20 mA
Max. load	
TU..3	1 mA (20 mA short circuit)
TU..2	600 ohm
Operation range	
humidity	0...100% R.H.
temperature (TUT..)	T50 °C
Room temperature	
working	-10T 60 °C
storage	-25T 65 °C
Terminal strips	screw-type for 2,5 mm ² max leads
Conduit openings (TU.D)	PG9 cable glands
Casing protection degree	
TU.A	IP 30
TU.D	IP 55
Mass (weight)	0,2 Kg max
Time constant	5 s (33...76% R.H.)

In compliance with EMC 89/336 directive:
- EN 50081-1 for emission - EN 50082-1 for immunity

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ISO 9000

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POSSIBLE COMBINATIONS AND CONNECTIONS

Transmitters may be connected to any controller, provided it accepts an input signal compatible (both as regards type and range) with the transmitter signal.

In particular, TU..3 temperature transmitters may be connected to Controlli WH572, WH574, WM557, WV539 and WV511 controllers; TUT. transmitters may be connected to WE593 enthalpy controller.

INSTALLATION

Models with current output (TU..2) are supplied by the same S4 and S5 terminals from which they output their signal. A direct voltage must be present at S4 (S5) terminal; this voltage will not be lower than the value - in Volts - given by the following formula:

$$V = (0,02 \times Z) + 8.2$$

where Z is the input impedance of the controller, in Ohms. Do not use leads with cross-section lower than 1 mm². Carry out the connections in compliance with existing standards.

TU.A transmitters

Mount the transmitter on a wall at approximates 1.5 m from floor level, in a place where it will be affected by room average temperature and humidity. Avoid installation near doors, windows, heat sources and in places where there is no air circulation. Remove the lid and fasten the transmitter to the wall by screws, using the two holes provided for this purpose on the case bottom (see fig. 1).

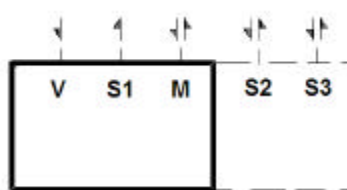
TU.D transmitters

Mount the transmitter by fastening the relevant flange (see fig. 2) to duct wall (if possible-in a central position with respect to the duct).

In order to guarantee a long-lasting performance, clean the filter from time to time, using compressed air (avoid brushes, abrasive and cleansing fluids which might damage the filter). Frequency of this maintenance depends of air quality.

WIRING CONNECTIONS

TU..3. Transmitters

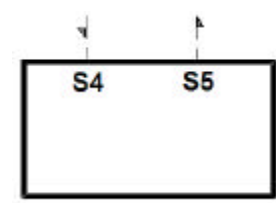


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LEGEND

- V Power supply
- S1 Signal 0...10V
- M Common
- S2 Temperature sensor terminals (only TUT.)
- S3 Temperature sensor terminals (only TUT.)

TU..2. Transmitters

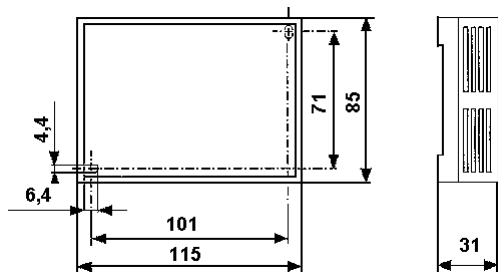


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LEGEND

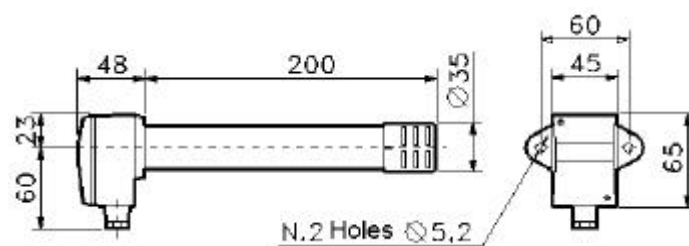
- S4 Signal 4...20 mA
- S5 Signal 4...20 mA

OVERALL DIMENSIONS (mm)



N4125

Fig. 1



N4007

Fig. 2

The performances stated on this sheet can be modified without any prior notice due to design improvement.

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DBL120E

CONTROLLI

Automatic control systems for:
air conditioning/heating/industrial thermal process.

ISO 9000