

Relative Humidity Transmitters

MODEL	DESCRIPTION	SENSING ELEMENT	APPLICATION
TU-A22-1A	Flush mounting charcoal 4-20 mA humidity transmitter	Not present	Ambient
TU-A22-1B	Flush mounting white 4-20 mA humidity transmitter		
TU-A22-2A	Wall mounting charcoal 4-20 mA humidity transmitter		
TU-A22-2B	Wall mounting white 4-20 mA humidity transmitter		
TUT-D32N10	0-10 V DC humidity and temperature transmitter	NTC10K	Duct
TUTD32P1		PTC1K	
TUTD32		Balco	
TU-D32	0-10 V DC humidity transmitter	Not present	
TU-D22	4-20 mA humidity transmitter		



TU-A22-xx



TUxD

APPLICATION AND USE

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

TECHNICAL CHARACTERISTICS

DESCRIPTION	TU-A22-XX	TUXD32XX	TUXD22
Power supply	See "Installation" (for use 4-20 mA)	15-25 V DC or 24 V AC \pm 10% (0-10 V)	See "Installation" (for use 4-20 mA)
Power consumption	1 VA		
Humidity accuracy	\pm 3% between 40% and 70% U.R. \pm 5% from 0 to 40% and from 70% to 100% (wall mount version)	\pm 3% between 10% and 90% U.R. \pm 5% from 0 to 10% and from 90% to 100%	
Temperature accuracy	\pm 1°C	See sensing elements specifications	
Output signal	4-20 mA	0-10 V	4-20 mA
Maximum load	1 mA on output 0-10 V (20 mA short circuit)		
	600 Ω output for 4-20mA	600 Ω output for 4-20mA	
Humidity operating range	0-100%		
Operating temperature range	0-50°C		
Operating ambient temperature	-10T 60°C		
Ambient temperatures for storage	-25T 65°C		
Terminal	2.5 mm ² wire sizing (see wiring)		
Cable gland	Gland PG9		
Housing protection degree	IP30	IP55	
Mass (weight)	0.08 kg	0.2 kg max	

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

DESCRIPTION	TU-A22-XX	TUXD32XX	TUXD22
Time constant (s)	5 s		
Standard	Emission/Immunity EMC 2004/108/CE		

OPERATION

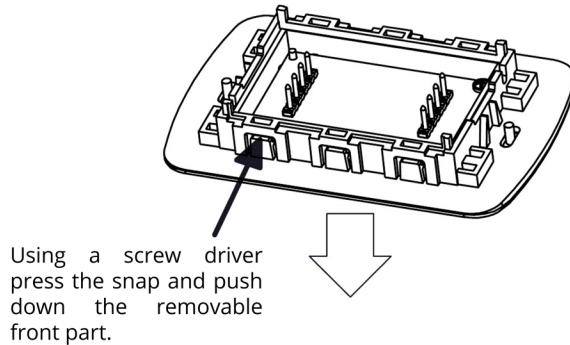
All the transmitters detect the humidity value to be measured through a capacitive sensing element, whose signal, linearized and amplified, is transformed into either a voltage output signal (0-10 V-) or a current (4-20 mA) output signal. In the models equipped with temperature sensors, a Balco, NTC or PTC resistance is the sensing element.

MANUFACTURING CHARACTERISTICS

Room humidity transmitters TU-A22-xx can have two different types of installation: flush-mounting using box 503E or wall mounting with relevant back-plate. They are composed by a removable front part where you have the electronics, a supporting frame and the back plate if required. The removable front part is compatible with BTicino supporting frame (included) for LivingLight (square) or Living International (round) cover plates and with Vimar supporting frames for Plana cover plates.

The finishing plates (not included) are supplied as an optional (see accessories); in case of order of wall mounting models, BTicino Living International (round) white cover plate is included.

If you need to mount Vimar components, the supporting frame can be replaced as shown in the next picture:



TUXD 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.

ACCESSORIES

- 54609-02 BTicino LightLight cover plate (square)
- 54609-03 BTicino Living International cover plate (round)

TEMPERATURE SENSOR CHARACTERISTICS

Balco Sensing Element (Model TUTD32)

Sensing element: BALCO 1 kOhm 21.1°C
 Average variation: 6.2 Ohm/°C
 Accuracy: ± 0.8°C

PTC 1K Sensing Element (Model TUTD32P1)

Sensing element: PTC 1kOhm 25°C
 Average variation: 8 Ohm/°C
 Accuracy: ± 1°C

NTC 10K Sensing Element (Model TUTD32N10)

Sensing element: NTC 10kOhm 25°C
 Accuracy: ± 1°C
 $\beta @ 25^\circ = 3435$

Humidity Sensor

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.

POSSIBLE COMBINATIONS AND CONNECTIONS

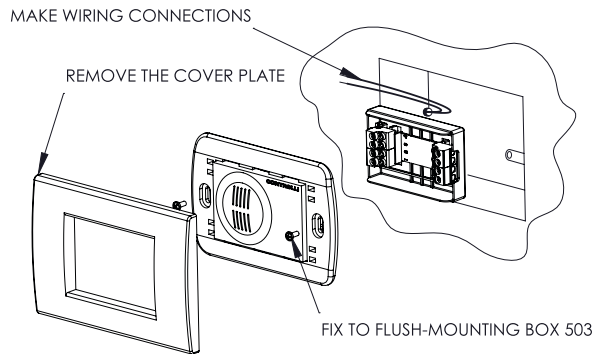
Transmitters may be connected to any controller, provided it accepts an input signal compatible (both as regards type and range) with the transmitter signal.

INSTALLATION AND MOUNTING

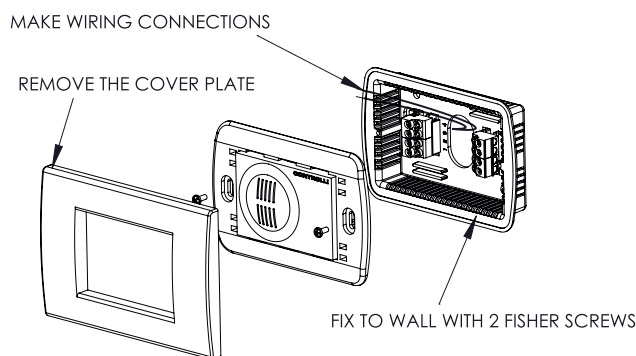
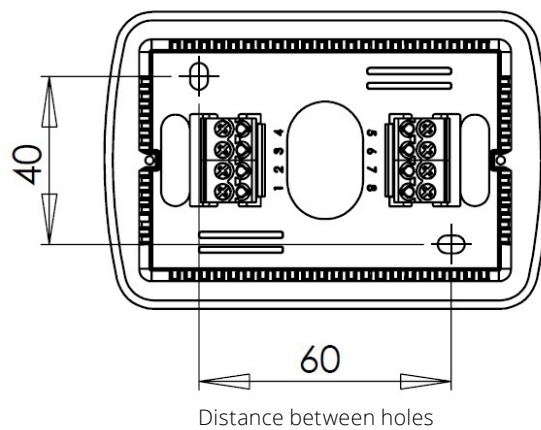
Transmitters Environment

Mount the transmitter on a wall at approximately 1.5m 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.

Flush-mounting Procedure (TU-A22-xx)



Wall Mounting Procedure (TU-A22-2x)



Duct 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

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.

TERMINALS

Room transmitters TU-A22-xx (for wall and flush mounting) have 1 pluggable terminal block connector with 4 poles each.
 For using of 4-20 mA please refers to the following wiring diagram:

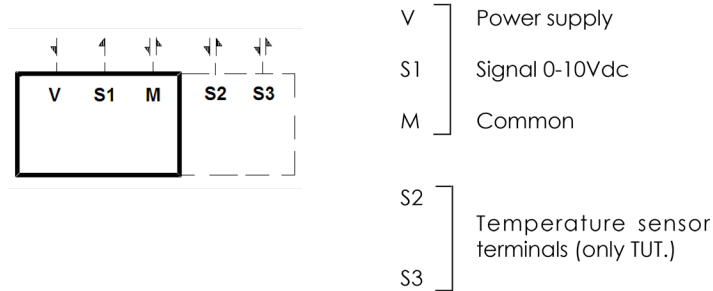
Room Transmitters (Connection 4-20 mA)

TU-A22-xx



Duct transmitters have "fixed" terminals block for 2.5 mm² wiring size connection.

Duct Transmitters (0-10 V DC Connection)



Duct Transmitters (4-20 mA Connection)



DIMENSIONS [mm]

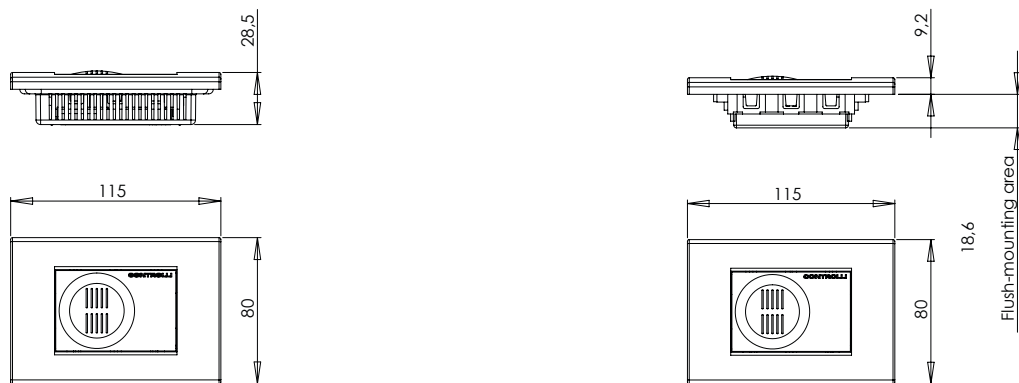


Fig. 1

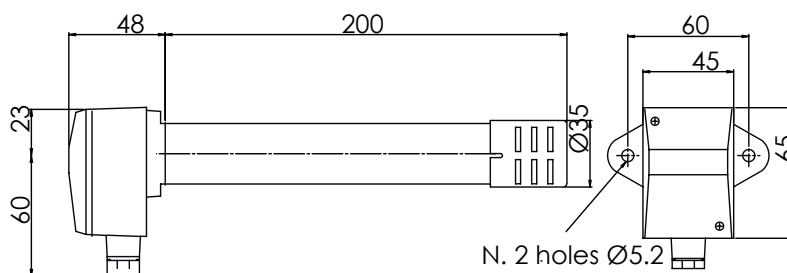


Fig. 2