

Product overview

Combined sensor for measuring relative humidity and temperature in rooms (e.g. office or conference rooms). Designed for locking on control and display systems. Additionally, the device can be supplied with a passive temperature sensor e.g. PT100, PT1000, NTC10k etc.



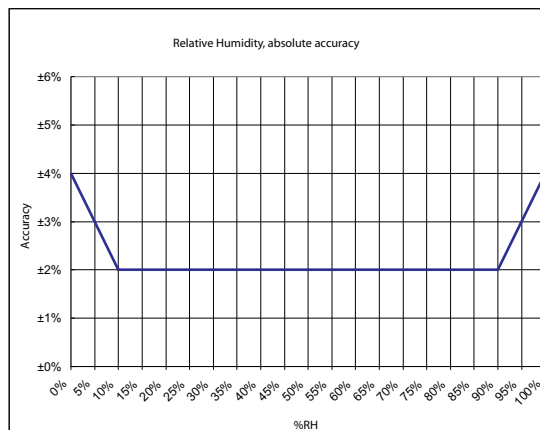
Types available


Type code	Type	Description
EXT-TN-1066715	FTW04 AS PT1000	- 4...20mA, humidity - PT1000, temperature

Technical data

Standards	CE conformity	- 2004/108/EEC EMC directive - 2001/95/EG Product safety
	EN conformity	- EN60730-1:2002 EMC - EN60730-1:2002 Product safety
	General Data	
	Measuring range	Relative humidity : 0...100%
	Accuracy	Relative humidity : refer to diagram below
	Clamps	Terminal screw max. 1.5mm ²
	Housing	ABS, colour white similar to RAL 9010
	Protection	Connection head IP20 according to EN60529
	Cable entry	From behind or side-mounted entry from top / below
	Ambient temperature	-20...+60°C
	Weight	80g
Type AS	Operating voltage	DC 15-24V(±10%)
	Power consumption	Max. 20mA / DC 24V
	Measuring current	Temperature : typical <1mA
	Measuring element	Temperature sensor according to customer's request
	Measuring range	Depending on sensor used
	Output	Relative humidity : 4...20mA, max. load 800Ω Temperature : passive
	Accuracy@21°C	Temperature : depending on sensor used

Accuracy



Security advice 

The installation and assembly of electrical equipment may only be performed by a skilled electrician. The modules must not be used with equipment that supports, directly or indirectly, human health or life or with applications that can result in danger for people or animals.

Electrical connection

The devices are constructed for the operation of protective low voltage (SELV). For the electrical connection, the technical data of the corresponding device is valid. With regard to passive sensors (e.g. PT100 etc.) in 2 wire conductor versions, the wire resistance of the supply wire has to be considered. It is likely that the same has to be compensated by the following electronics. Due to the self heating, the wire current affects the accuracy of the measurement. Therefore it should not exceed 1mA.

The devices must be operated at a constant supply voltage ($\pm 0.2V$). When switching the supply voltage on/off, power surges must be avoided on site.

Mounting advice

The devices are supplied in an operational status. Installation is made by means of rawl plugs and screws (accessory) to the smooth wall surface. For wiring, the snap-on lid must be separated from the base plate.

Installation must be made on representative places for the room temperature, to avoid a falsification of the measuring result. Solar radiation and draught should be avoided. If the device is mounted on standard flush box, the end of the installation tube in the flush box must be sealed, so as to avoid any draught in the tube falsifying the measuring result.

Application notice

Refrain from touching the sensitive humidity sensor. Any tampering will result in an expiration of the warranty.

With normal environmental conditions we recommend a recalibration interval of around 1 year to maintain the indicated accuracy.

At high ambient temperature and high humidity, or when using the sensor in aggressive gases, an early recalibration or a change of the humidity sensor can become necessary. Such a recalibration or a probable sensor change do not come under the general warranty.

Location and accuracy of room sensor

Besides a suitable representative mounting place, corresponding to the room temperature, the accuracy of the temperature measurement also depends directly on the temperature dynamics of the wall. It is important that the flush socket is completely closed at the wall side, so that the circulation of air may take place through the gaps in the cover. Otherwise, deviations in temperature measurement will occur due to uncontrolled air circulation. Furthermore, the temperature sensor should not be covered by furnitures, etc. A mounting place next to doors (occurring draught) or windows (colder outside wall) should be avoided.

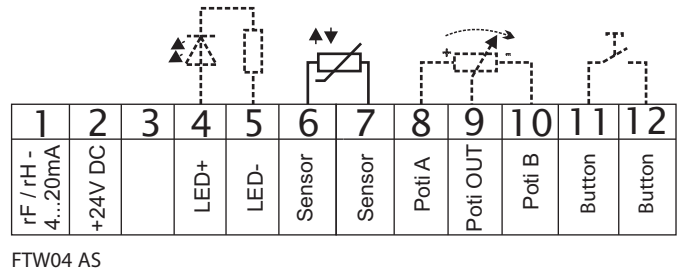
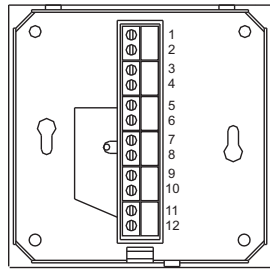
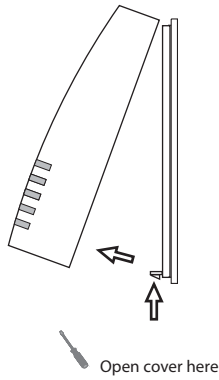
Surface and flush mounting

The temperature dynamics of the wall influence the measurement result of the sensor. Various wall types (brick, concrete, dividing and hollow brickwork) have different behaviour with regard to thermal variations. A solid concrete wall responds to thermal fluctuations within a room in a much slower way than a light-weight structure wall. Room temperature sensors installed in flush boxes have a longer response time to thermal variations. In an extreme case, they detect the radiant heat of the wall even if the air temperature in the room is lower. The quicker the dynamics of the wall (temperature acceptance of the wall) or the longer the selected inquiry interval of the temperature sensor, the smaller are the deviations limited in time.

Build up of self heating by electrical dissipated power

Room temperature sensors with electronic components always have a dissipated power, which affects the temperature measurement of the ambient air. The dissipation in active temperature sensors shows a linear increase with rising operating voltage. This dissipated power has to be considered when measuring temperature. In case of a fixed operating voltage ($\pm 0.2V$), this is normally done by adding or reducing a constant offset value. As the transducers work with a variable operating voltage, only one operating voltage can be taken into consideration, for reasons of production engineering. Transducers 0-10V / 4-20mA have a standard setting at a operating voltage of DC 24V. Therefore at this voltage, the expected measuring error of the output signal will be the least. As for other operating voltages, the offset error will be increased or lowered by a changing power loss of the sensor electronics. If a re-calibration should become necessary later directly on the sensor, this can be done by means of a trimming potentiometer on the sensor board. Remark: Occurred draft leads to a better carrying-off of dissipated power at the sensor. Thus, temporal limited fluctuations might occur upon temperature measurement.

Terminal connection plan



FTW04 AS

Offset adjustment



offset relative humidity
FTW04 AS

Dimensions (mm)

