

Combined air temperature and relative humidity sensor



Description

The sensor combines in a single body the air temperature and the relative humidity transducers which makes it compact and cost saving.

The sensor body is made of anodized aluminium corrosion resistant. The protection shield is made of polycarbonate added with glassfiber, material with high resistance to ultraviolet radiation and atmospheric corrosion.

The two transducers are mounted on the top of a support made of plastic material due to minimize heat transfer from the base towards the measure elements.

The sensor body is inserted inside a natural ventilation shield made of a pile of wedge-shaped plates drilled in the middle (so to have space for sensor housing) and air circulation is guaranteed by thermodynamic characteristics of the structure.

The three plates mounted on the top are not drilled in order to protect the transducer from direct and diffuse solar radiation, atmospheric agents as rain, hail and in general dust or dirt contamination.

The humidity sensor is made up of a transducer with hygroscopic polymers. The element is inserted on an electronic circuit giving a voltage signal output proportional to relative humidity.

Temperature measurement is done using a Pt100 transducer with a response curve according to the class 1/3 DIN - 43760 standard. Also in this case an electronic circuit will transform resistance variations in a voltage signal output proportional to the temperature.

At the bottom of the sensor body there is a waterproof connector for power supply and measurement signal. It's a push pull self latching connector providing security against pull on the cable. Sensor installation doesn't require particular adjustments.

For the installation it's available a support to be fixed with a bracket to masts with external diameter of 50 or 60 mm.

For the calibration of the sensor, a certified instrument is used (reference ACCREDIA). The calibration based on comparison allows to maintain continuity with the metrological chain and assigns a scientific value to the measurement.



Thermohygrometer with natural ventilation shielding

Technical specifications may be varied without prior notice

Technical specifications

GENERAL CHARACTERISTICS	
Power supply	10 ... 24Vdc
Typical power consumption	≤10mA @ 12Vdc (+ electrical signal output versions 4-20mA)
Operating temperature	-30 ... +70°C
Sensor dimensions	H = 250mm max. diameter = 40mm
Weight	0,6 kg
Protection rate	IP65
Protezione transienti elettrici	Fast zener diodes
Maintenance	Annual cleaning of the shield
Calibration (suggested)	Annual periodicity
Technical specifications anti-radiation screen	H = 190mm - Diameter = 120mm - weight = 0,5Kg
RELATIVE HUMIDITY SENSOR	
Sensor type	Hygroscopic polymer
Measuring principle	Change in electrical capacity
Measuring range	0 ... 100%UR
Accuracy	±1,5%UR @ 23°C (range 5-95%)
Resolution	0,03%UR
Long-term instability	<1% / year
Electrical output	0 ... 1V; 0...2V; 0...5V; 4 ... 20mA; RS485 (Modbus)
Temperature sensor	
Sensor type	Platinum thermoresistance (Pt100) class 1/3 DIN
Measuring principle	Resistance variation
Measuring range	-30...+70 °C
Accuracy	±0,1 °C (@0°C) ≤±0,2°C in the range -30 ... +50°C ≤±0,3°C for temperatures lower than -30°C or over +50°C
Resolution	0,03°C (output 4...20mA)
Long-term stability	0,05% / year
Electrical output	0 ... 1V; 0...2V; 0...5; 4 ... 20mA; RS485 (Modbus)
Response time	< 1min.

Ordering codes

Air temperature and relative humidity sensor with electrical output 0...1V; 0...2V; 0...5V (to define at the order) with naturally ventilated radiation shield	FAR024AA
Air temperature and relative humidity sensor with electrical output 4-20mA with naturally ventilated radiation shield	FAR024BA
Air temperature and relative humidity sensor with electrical output Modbus-RTU naturally ventilated radiation shield	FAR024FA
Air temperature and relative humidity sensor with electrical output 0...1V; 0...2V; 0...5V (to define at the order) with forced ventilation shielding	FAR024CA
Air temperature and relative humidity sensor with electrical output 4-20mA with forced ventilation shielding	FAR024DA

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