

AIR TEMPERATURE AND RELATIVE HUMIDITY

Combined sensor

t026 TTEPRH



Long-term stability in harsh environmental conditions

It measures dew and frost point

Naturally ventilated protection shield

Description

TTEPRH is a combined sensor for measuring air temperature and relative humidity. Temperature measurement is taken using a platinum Pt100 resistance thermometer with a response curve compliant with the DIN 43760 Class 1/3 standard and with a 4-wire connection. The humidity measurement is obtained using a laser-cut capacitive polymer transducer connected to an electronic signal conditioning board. The sensor is offered either in the TTEPRH-N version with natural output for temperature (4-wire Pt100) and 0-1 V output for humidity, or in the I, V, S, 12 versions (respectively in current, tension, serial Modbus and serial SDI -12 outputs). Serial versions (Modbus or SDI-12) can provide, in addition to the air temperature and humidity measurements, the values of dew and frost points as well. The sensor body is made out of corrosion-resistant aluminum alloy and stainless steel screws. A non-hygroscopic and UV-stabilized plastic screen protects the sensing element, generating at the same time a ventilated environment. This allows the sensor to have a proper functioning not affected by sunlight. TTEPRH is supplied with power and signal cable (4 m).



Main features

- **It measures dew and frost points**
- **High accuracy**
- **Naturally ventilated protection shield**
- **Protect against overvoltages**

Technical Specifications*

Measurement performance

Temperature [°C]

Transducer	Pt100 1/3 DIN 43760
Measurement range	-30 ÷ +60
Accuracy (natural output)	1/3 DIN 43760
Accuracy (serial output, tension output, current output)	1/3 DIN 43760 ± 0.1
Resolution	0.03

Relative Humidity [%]

Transducer	Capacitive
Measurement range	0 ÷ 100
Accuracy (Temperatures -20 ÷ 60°C)	±2
Resolution	0.01
Repeatability	0.15
Long-term stability (maximum variability of the measured value)	< 0.25 a year

Other indicators

Dew and frost points	Just on serial version
----------------------	------------------------

Operating conditions

Temperature	-30°C ÷ +60°C
Humidity	0% ÷ 100%

Outputs

Natural	Pt100 4-wires		
	0 ÷ 1 V ↔ 0% ÷ 100%		
RS485-Modbus	Temperature, relative humidity, dew and frost points		
SDI - 12	Temperature, relative humidity, dew and frost points		
Tension	0 ÷ 2 V ↔ -30 ÷ 60 °C		
	0 ÷ 1 V ↔ 0% ÷ 100%		
Current	4 ÷ 20 mA ↔ -30 ÷ 60 °C		
	4 ÷ 20 mA ↔ 0% ÷ 100%		

Power supply and Consumption

Voltage supply	7 ÷ 30 Vdc		
Power consumption (mA)	Min	Typical	Max
Natural / RS485-Modbus / SDI - 12 / 0 ÷ 2 V	-	1	3
4 ÷ 20 mA	5	-	25

Mechanical specifications

Protective body	Plastic material (ABS) and stainless steel screws
Weight	1.4 kg
Dimensions	Ø = 240 mm; Heigh = 275 mm
Electrical connections	IP67 / 7 pole male connector

Ordering codes

Natural output	t026-TTEPRH-N
Current output	t026a-TTEPRH-I
Tension output	t026b-TTEPRH-V
RS485-Modbus serial output	t026c-TTEPRH-S
SDI-12 serial output	t026h-TTEPRH-12

*Changes on technical performances can be applied upon request of specific calibration