

HUMITTER® 50U/50Y(X) Integrated Humidity and Temperature Transmitter

HUMIDITY MEASUREMENT

Stable and reliable measurement of relative humidity is difficult to achieve. One of the many choices a designer is faced with when humidity measurement instruments have to be incorporated into a product or a system is whether to use a standard manufacturer's probe or to purchase a humidity sensor and design a suitable interface. The latter approach may look attractive but because of the difficulty to measure small output changes from the sensor, this can give rise to unstable readings and drift problems. The cost of designing, manufacturing, testing and calibrating the sensor and its interface electronics must also be taken into consideration.

EXPERIENCED OEM SUPPLIER

Vaisala has many years experience in manufacturing humidity sensors and the associated interface electronics. We have recognized the need for a simple and cost effective solution for measuring relative humidity and temperature in many applications such as:

- HVAC equipment
- humidifiers and dehumidifiers
- environmental monitoring
- food transportation and cabinets

HUMITTER® TRANSMITTER

To meet the demand for a low cost transmitter which is suitable for volume applications or integration into other manufacturers' equipment Vaisala has developed the HUMITTER®. It is a compact, easy to use transmitter. The 50U model only measures humidity, but the 50Y and 50YX models also measure temperature.

The HUMITTER® simply needs a 7...28 VDC supply and gives a 0...1 V output signal representing the relative humidity. The temperature output can be chosen between 0...1 V and a direct two-wire connection to the Pt1000 temperature element. The output can also be changed with user-provided external components to give another voltage or a 4...20 mA output.



The housing of the HUMITTER® transmitter is IP65 classified against sprayed water. The transmitter is also electromagnetically compatible.

EXCELLENT LONG-TERM STABILITY

In normal operating conditions the HUMITTER®'s accuracy at +20 °C is specified as better than ± 5 %RH for two years over the range of 10...90 %RH. Its hysteresis is very low and its repeatability is excellent.

NO CALIBRATION

The HUMITTER®s are fitted with Vaisala's INTERCAP® sensor - the world's first truly interchangeable capacitive humidity sensor. The INTERCAP® sensor can simply be replaced with another, and since the sensor characteristics are so alike, there is no need for recalibration.

TECHNICAL DATA

HUMITTER® 50U HUMITTER® 50Y/YX

RELATIVE HUMIDITY

Measuring range (for which accuracy is specified)	10...90 %RH
Operating range	0...100 %RH
Accuracy	see Figure 1
Temperature dependence	see Figure 2
Sensor	INTERCAP® humidity sensor, part no. 15778

TEMPERATURE

Y-model - active output

Measuring range	-10...+60 °C
Accuracy	see Figure 3
Sensor	Pt 1000 IEC 751 Class B

YX-model - passive output

2-wire connection wire resistance	2 x 0.08 Ω
Sensor	Pt 1000 IEC 751 Class B

GENERAL

Output signal	0...1 V, $R_L > 100 \text{ k}\Omega$ (equals 0...100 %RH and -40...+60 °C, i.e. 10 mV equals 1 %RH or 1 °C), other voltage outputs and 4...20 mA output available with external electronics
Power supply	7...28 VDC
Current consumption	2 mA typical
Operating temperature range	-10...+60 °C
Storage temperature range	-40...+60 °C
Operating humidity range	0...100 %RH
Sensor protection	membrane filter part no 17039
option	plastic grid part no 17038
Housing material	chromed ABS plastic
Housing classification	IP65

Fig. 1 Accuracy of humidity measurement

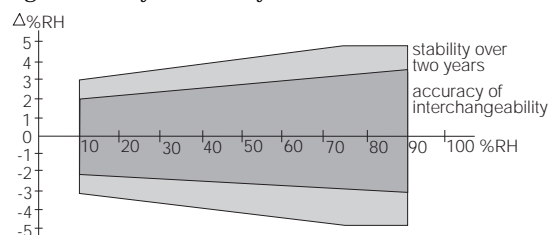


Fig. 2 Temperature dependence

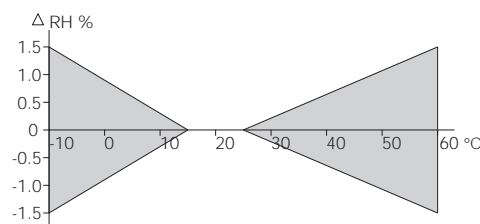
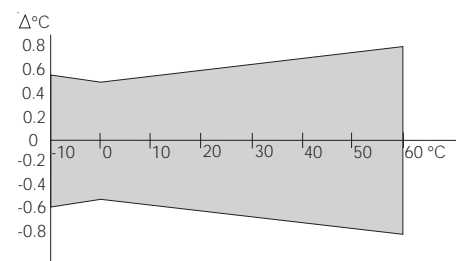
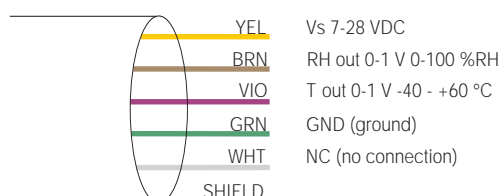


Fig. 3 Accuracy of temperature measurement



Cable connections

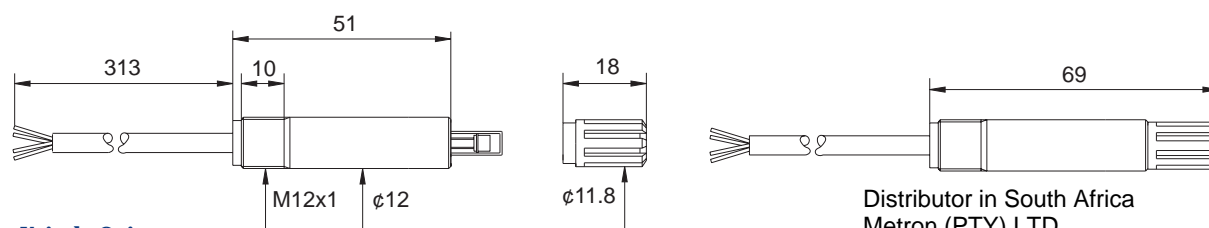


In the HUMITTER 50YX, the resistive temperature signal is available via the violet and white wires.

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Dimensions in mm



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