

Humidity/ temperature probe with voltage output

Description



Characteristic features

- Compact stainless steel probe housing, 17 mm, with connection cable 2 m
- Protection cage with PE sinter filter
- Standard signal 0...10 V for 0 ... 100 % RH
- High grade, capacitive polymer sensor
- Linearised and temperature compensated
- High long term stability by the use of innovative technique
- Operating voltage 12...24 V DC
- Optional with active (Typ-TE1/-T1) or passive (Typ TEPT/-TP) temperature measurement
- Universal and economically prices model
- Supplied in ready-to-connect and calibrated condition

Areas of application

- Building automation
- Industrial measurement and regulation systems
- Climate recording
- Drying systems
- Customised regulation devices

Application range

The universal humidity probe delivers output voltage of 0...10 V proportional to relative air humidity of 0...100 % RH, so that it can be further processed as standard signal in regulation and measuring systems.

Optionally a model with temperature signal 0...10 V (Type -TE1/-T1) is also available. The measuring range is scaled from -30...+70 °C. Alternatively, the probe can also be supplied with a passive Pt1000 (Type -TEPT/-TP) for temperature measurement.

The electronics is integrated in the shaft shaped probe housing of stainless steel (Ø17 mm), and because of this, it has very compact dimensions with simple mounting. The PE sintered filter integrated in the head protects the sensor against dust and from high air currents.

The measurement of relative humidity is done with a precise and long term stable capacitive polymer sensor element of industrial grade. The processing of measured value is linearised and temperature compensated.

The supply voltage range from +12 to 24 V DC with a current consumption as less than 10 mA. The probe is supplied with two meters connection cable which results in a simple assembly.

Technical data

Humidity measurement with FF-GLT-10V-K

Humidity application range	10...90 % RH without condensation
Accuracy at 23 °C	±2 % RH (from 20 % RH to 90 % RH)
Output scaling	0...10 V ~ 0...100 % RH

Temperature measurement

Temperature measuring range	-30...+70 °C (Typ -TE1/-T1)
Accuracy bei 23 °C	±0,3 K
Output scaling	0...10 V ~ -30...+70 °C

General

Connection impedance	>10 kΩ
Operating voltage	+12...24 V DC
Operating current	<10 mA
Dimensions	(Including protection cage and tension relief) approx. Ø17 x 225 mm
CE-conformance	2014/30/EU
EMV-noise emission	EN 61000-6-3:2011
EMV-noise withstanding	EN 61000-6-1:2007
Scope of supply	Calibrated humidity probe (with temperature measurement) with protection cage, sintered filter and 2m connection cable

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Calibration

The measuring sensors are calibrated with reproducibility of PTB National standard. Calibration certificate as per ISO 9000 standard is also available with some extra charges .

The sensors are long term stable and maintenance free in a clean environment. Hence, a re-calibration is not required as per practice.

For re-confirming the measuring accuracy by end user, reference cells are available for specific humidity values. We recommend check-up at regular intervals for ensuring conformance to specifications.

Protection filter

The humidity probe is supplied with a 25 µm PE sinter filter as a standard package. Precipitations on the filter or sensor element can deteriorate the response behaviour. Contaminated filters should be replaced.

Connections

The connection cable attached to the probe is shielded. The shielding should be grounded at the regulation device: this should be essentially taken care of in an EMI-disturbed environment. For also an extension to the connection cable, a shielded connection wire should be used.

Check before connection whether the supply voltage is as per operating voltage specification mentioned in the data sheet.

Mounting of measuring probes

The measuring location must show representative climate conditions. Air currents or heat radiation should be avoided. The mounting should be done with probe cap upside down so that there is no measuring error due to self heating of electronics. A slight airflow in the area of probe is of advantage.

For mounting of external measuring probes, commercially available compression fitting or mounting flanges can be used. The probes are not suitable for compressed air, for this special designs are available!

For outdoor applications, a special weather protection housing with mast/wall holder as well as a special hydrophobic PE sintered filter is recommended.

Guarantee

On our high quality measuring probes, you get a guarantee of 24 months. Mechanically damaged sensors or tampering into electronics makes the sensors devoid of guarantee claims. Calibration services are not covered in the guarantee.

Temperature measuring unit

Type -TE0/-T0: Without additional temperature measurement

Type -TE1/-T1: With second measuring amplifier for temperature measurement, conversion also to 0...10 V

Type -TEPT/-TP: Temperature measurement over passive Pt1000 measuring resistance, potential free

Ordering number format

Humidity probe with voltage output 0...10 V, compact model	
FF-GLT-10V-K-TE0	without temperature measurement
FF-GLT-10V-K-TE1	with temperature measurement
FF-GLT-10V-K-TEPT	with Pt1000
Accessories	Ordering No.
Reference cells, Set 33 % and 75 %	REFZ-12Z-SET1
Sintered filter, PE, 25 µm	0133 0011

Attention

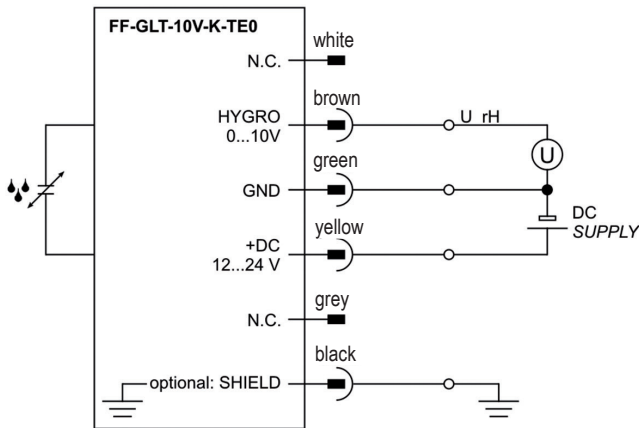
Please avoid extreme mechanical and inappropriate exposure.

The device/product is not suitable for potential explosive areas and medical-technical applications.

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Connection layout

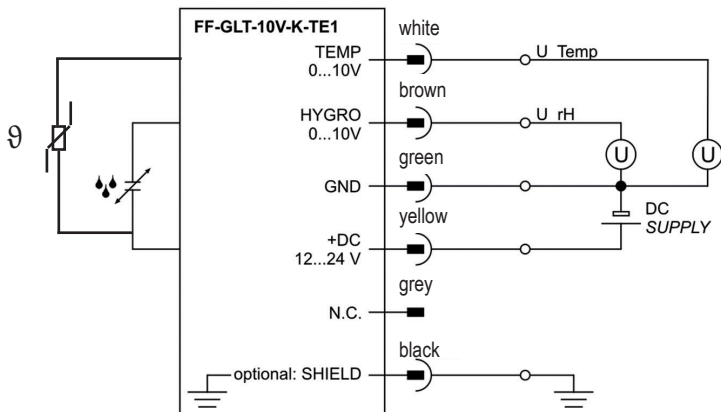
Humidity measurement 0...10 V, without temperature measurement, Type –TE0/-T0



Colour	Function	Description
white	N.C.	unoccupied
brown	HYGRO	Humidity voltage output
green	GND	Supply and analog ground
yellow	VCC	Operating voltage +12...24 V DC
grey	N.C.	unoccupied
black (network)	----	Shielding of cables

The measurement of the output signal should be done with separate signal ground, in order to avoid measuring error due to voltage drop at the supply ground.

Humidity measurement 0...10 V and temperature measurement 0...10 V, Type –TE1/-T1

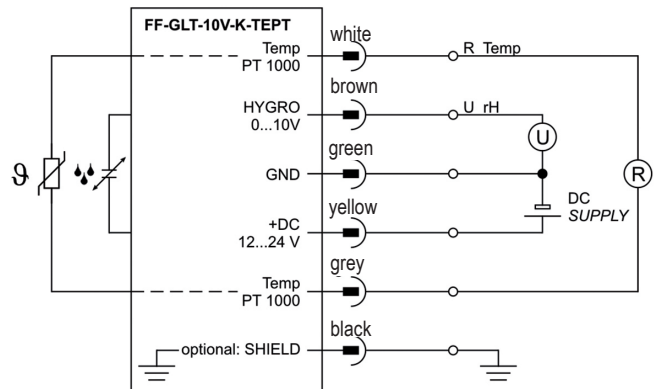


Colour	Function	Description
white	TEMP	Temperature voltage output
brown	HYGRO	Humidity voltage output
green	GND	Supply and analog ground
yellow	VCC	Operating voltage +12...24 V DC
grey	N.C.	unoccupied
black (network)	----	Shielding of cables

Temperature and humidity is always with reference to GND, operating voltage +12...24 V DC is common for both instrument transformers .

The measurement of the output signal should be done with separate signal ground, in order to avoid measuring error due to voltage drop at the supply ground.

Humidity measurement 0...10 V and passive Pt1000 for temperature measurement, Type –TEPT/-TP



Colour	Function	Description
white	PT1000	Temperature sensor (passive)
brown	HYGRO	Humidity voltage output
green	GND	Supply and analog ground
yellow	VCC	Operating voltage +12...24 V DC
grey	PT1000	Temperature sensor (passive)
black (network)	----	Shielding of cables

The Pt1000 is brought out potential free with 2-wire connection. The output resistance is to be compensated, if necessary. Other type of measuring resistances, for example, NTC resistance are also possible, if required! The measurement of the output signal should be done with separate signal ground, in order to avoid measuring error due to voltage drop at the supply ground.

For further information, please visit our website:
www.bb-sensors.com