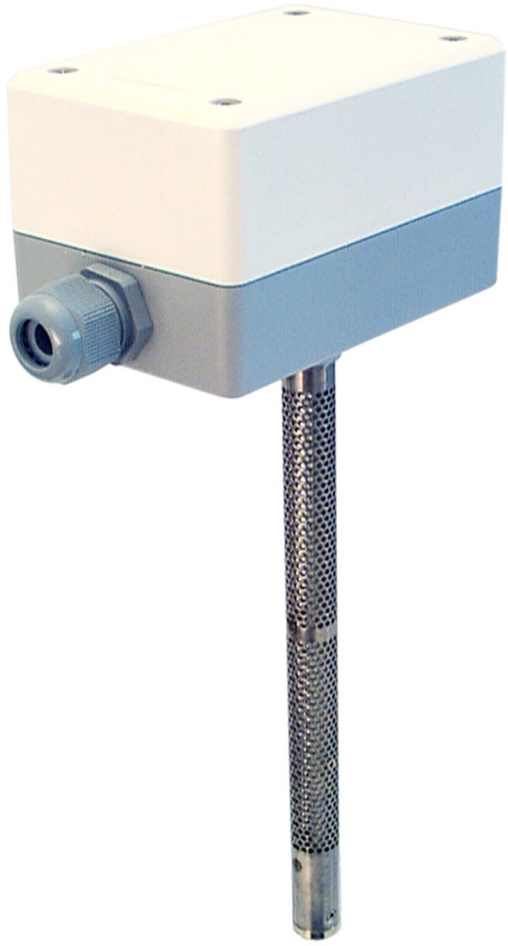


Humidity Temperature Sensor TFG80 Duct version with Polyga measuring element

- For semi-industrial and industrial use up to 80°C and 100 % rh.
- High accuracy in the high humidity range
- Long term stability
- Robust, resistant to high humidity, with washable measuring element
- Energy saving: the TFG80H with resistance output does not require its own power supply

POLYGA® transmitters demonstrate excellent measuring properties and accuracy in high humidity. They can be adjusted and cleaned in water. Their outstanding durability, reliability and robustness make them the classic choice for applications with extended high humidity.
The TFG80 temperature and humidity sensor in duct design is ideal for use in ventilation ducts and climatic chambers, industrial buildings and containers, and is suitable for indoor and outdoor applications.
Galltec offers the relevant accessories for the variety of applications.

Accessories

Order no.		Description
20.009		wall console of plastic, for mounting sensors Ø 20 mm with mounting sleeve 00.502 also suitable for sensor tubes Ø 15 mm
20.008		fixing flange for duct mounting of HG80 and FG80 *optional attachment for a quicker removal of the sensor*
20.024		canvas blind for outdoor applications, aluminium sheet, available with solar cell to supply the sensor
20.022		Ventilated sensor tube for improved air flow, 24V DC
23.063		PTFE filter, two-part, *recommended for extreme operating conditions*
20.011		protector tube for external mounting, for protection against rain and sun
20.014		protective tube made of gauze *recommended for air speeds between 8 and 15 m/s*

Type survey passive sensors

Type	Order no.	Measuring range		Conductor system	Outputs	
		Humidity	Temperature		Humidity	Temperature
FG80H	44010300	0 … 100 % rh	-	2-pin	0 … 1000 Ω linear	-
	44010400	0 … 100 % rh	-	2-pin	100 … 138,5 Ω lin.	-
	44010100	0 … 100 % rh	-	2-pin	0 … 100 Ω lin.	-
	44010200	0 … 100 % rh	-	2-pin	0 … 200 Ω linear	-
TFG80H	44700350	0 … 100 % rh	Pt100	2-pin	0 … 1000 Ω linear	Pt100
	44700450	0 … 100 % rh	Pt100	2-pin	100 … 138,5 Ω linear	Pt100
	44700150	0 … 100 % rh	Pt100	2-pin	0 … 100 Ω linear	Pt100
	44700250	0 … 100 % rh	Pt100	2-pin	0 … 200 Ω linear	Pt100
	44732666	0 … 100 % rh	NTC	2-pin	0 … 48 kΩ non-linear	NTC

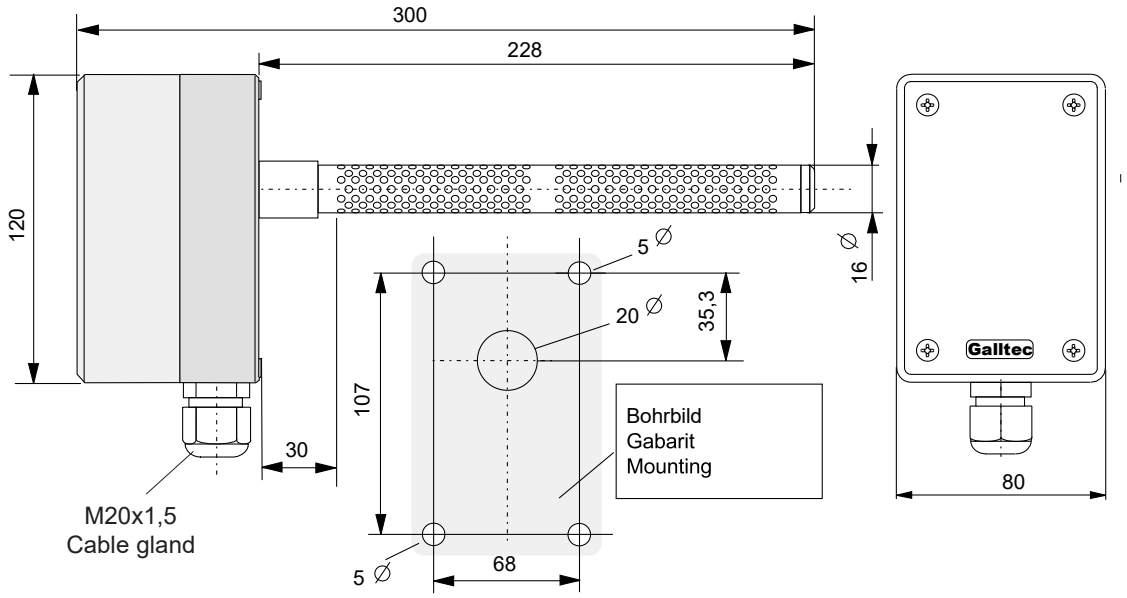
Further resistance ranges on request.

Type survey active sensors

Type	Order no.	Measuring range		Outputs		Conductor system	Supply voltage
		Humidity	Temperature	Humidity	Temperature		
FG80J FG80AC	44014700	0 … 100 % rh	-	0 … 10 V DC	-	3/4-wire	15 … 30 V DC/ 24 V AC ±10 %
	44014800	0 … 100 % rh	-	4 … 20 mA	-	2-wire	15 … 30 V DC
	44013000	0 … 100 % rh	-	0 … 20 mA	-	3/4-wire	15 … 30 V DC
	44014200	0 … 100 % rh	-	0 … 20 mA	-	3/4-wire	24 V AC
TFG80J TFG80AC	44514747	0 … 100 % rh	0 … 40°C	0 … 10 V DC	0 … 10 V DC	3/4-wire	15 … 30 V DC/ 24 V AC ±10 %
	44574747	0 … 100 % rh	-30 … 60°C	0 … 10 V DC	0 … 10 V DC	3/4-wire	15 … 30 V DC/ 24 V AC ±10 %
	44544747	0 … 100 % rh	0 … 100°C	0 … 10 V DC	0 … 10 V DC	3/4-wire	15 … 30 V DC/ 24 V AC ±10 %
	44624747	0 … 100 % rh	-10 … 90°C	0 … 10 V DC	0 … 10 V DC	3/4-wire	15 … 30 V DC/ 24 V AC ±10 %
	44514848	0 … 100 % rh	0 … 40°C	4 … 20 mA	4 … 20 mA	2-wire	15 … 30 V DC
	44574848	0 … 100 % rh	-30 … 60°C	4 … 20 mA	4 … 20 mA	2-wire	15 … 30 V DC
	44544848	0 … 100 % rh	0 … 100°C	4 … 20 mA	4 … 20 mA	2-wire	15 … 30 V DC
	44624848	0 … 100 % rh	-10 … 90°C	4 … 20 mA	4 … 20 mA	2-wire	15 … 30 V DC
	44513030	0 … 100 % rh	0 … 40°C	0 … 20 mA	0 … 20 mA	3/4-wire	15 … 30 V DC
	44573030	0 … 100 % rh	-30 … 60°C	0 … 20 mA	0 … 20 mA	3/4-wire	15 … 30 V DC
	44543030	0 … 100 % rh	0 … 100°C	0 … 20 mA	0 … 20 mA	3/4-wire	15 … 30 V DC
	44623030**	0 … 100 % rh	-10 … 90°C	0 … 20 mA	0 … 20 mA	3/4-wire	15 … 30 V DC
	44514242	0 … 100 % rh	0 … 40°C	0 … 20 mA	0 … 20 mA	4-wire	24 V AC
	44574242	0 … 100 % rh	-30 … 60°C	0 … 20 mA	0 … 20 mA	4-wire	24 V AC
	44624242	0 … 100 % rh	-10 … 90°C	0 … 20 mA	0 … 20 mA	4-wire	24 V AC
	44544242	0 … 100 % rh	0 … 100°C	0 … 20 mA	0 … 20 mA	4-wire	24 V AC
FG80JPt100	44704750	0 … 100 % rh	Pt100	0 … 10 V DC	Pt100	3/4-wire	15 … 30 V DC/ 24 V AC ±10 %
	44703050	0 … 100 % rh	Pt100	0 … 20 mA	Pt100	3/4-wire	15 … 30 V DC
	44704850	0 … 100 % rh	Pt100	4 … 20 mA	Pt100	2-wire	15 … 30 V DC

**suitable for EDJ_MIC regulator

Dimensions diagram



Technical Data

Humidity

Measuring range		0..100%rh
Measuring accuracy	>40%rh <40%rh	±2.5%rh acc. to tolerance diagram
Working range		30...100%rh
Medium temp. coefficient		-0.1%/K at 20°C and 50%rh
Half-life period at v=2m/sec		1.2min

Temperature

Measuring element	Pt100 ref. DIN EN 60751
Working range	-30...+80°C
Measuring accuracy	±0.5°C

Electrical data

Connecting terminals	for conductor cross sections 0.5mm²
Cable connection	via twist nipple M20x1.5
Working range	30...100%rh

Directive about electromagnetic compatibility 2014/30/EU

DIN EN 61326-1 ..... issue 07/13
DIN EN 61326-2-3 ..... issue 07/13

Electrical data for passive sensors

Permissible load of signal outputs	
Humidity output	250 mW
Temperature output (Pt100)	1 mA at air speeds of 1 m/s

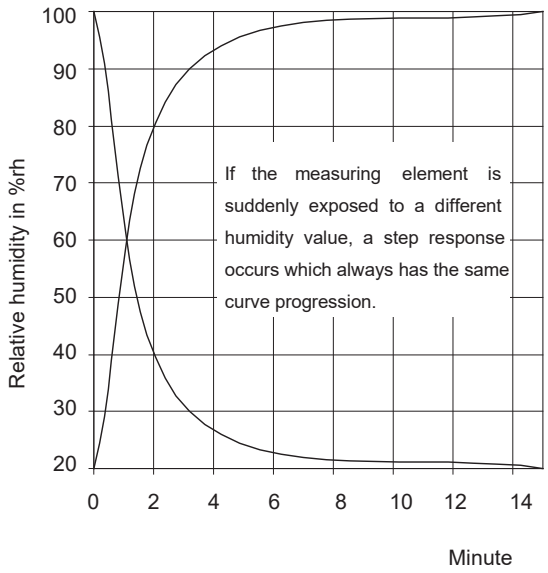
Electrical data for active sensors

Max. load for current output	500 Ohm
Min. load resistance for voltage output	10k Ohm
Consumption per measuring range	5 mA DC version
Consumption per measuring range	10 mA AC version
Linearity distortion of the temperature output	<0.5%

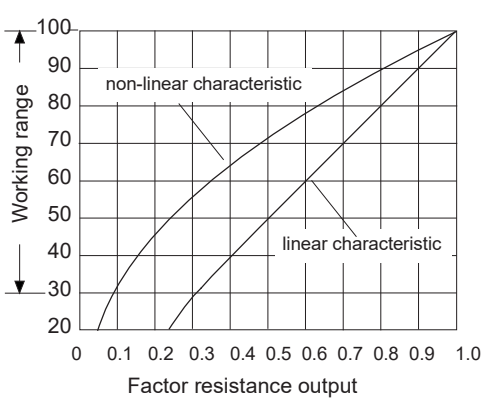
General data

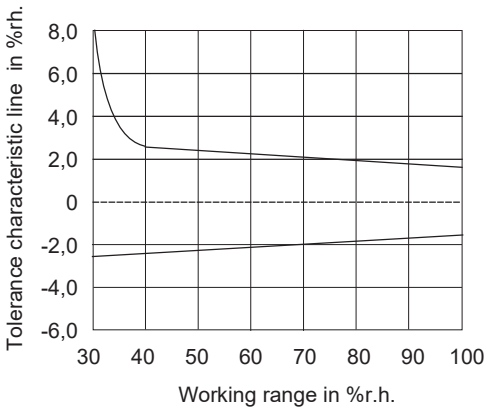
Measuring medium	air, pressureless, non-aggressive
Adjustment	at average air pressure 430m NN
Permissible air speed with protective gauze (order no. 20.014)	8m/sec 15m/sec
Permissible ambient temperature at the housing at the sensor	 -20...60°C -40...+80°C
Fixing	slots in housing base for channel mounting console for wall mounting
Housing	ABS light grey
Sensor length; Sensor material	220mm; high-grade steel
Protective system	IP64
Weight	approx. 0.4 kg

Half-life period

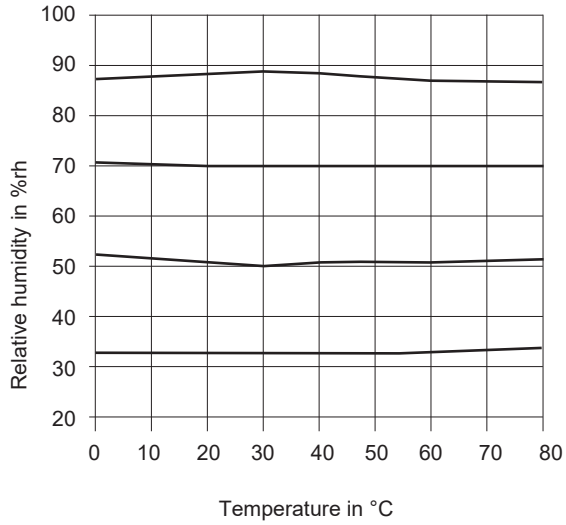


Humidity and tolerance diagram

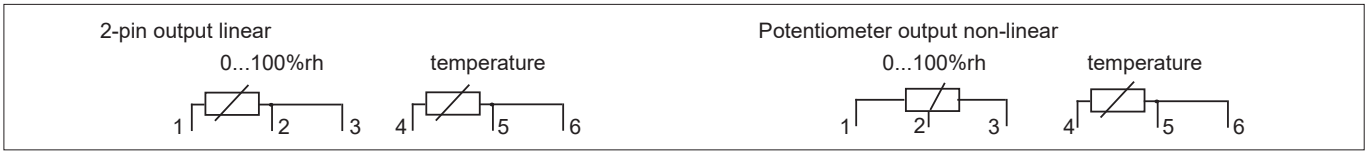




Thermalbehaviour

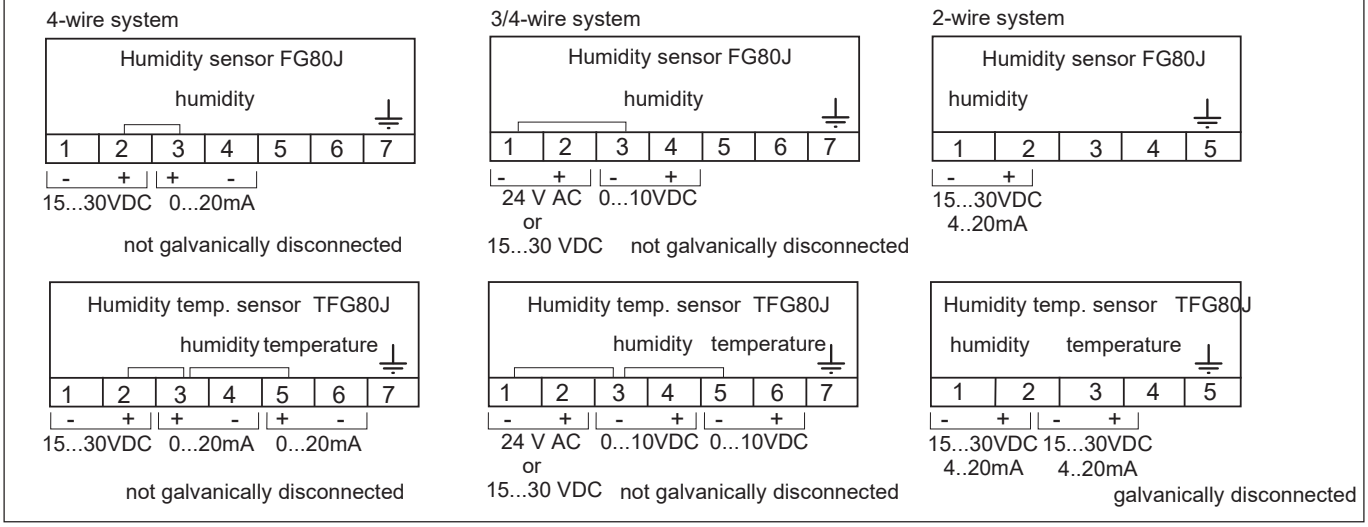


Connection diagram for passive sensors with resistance output

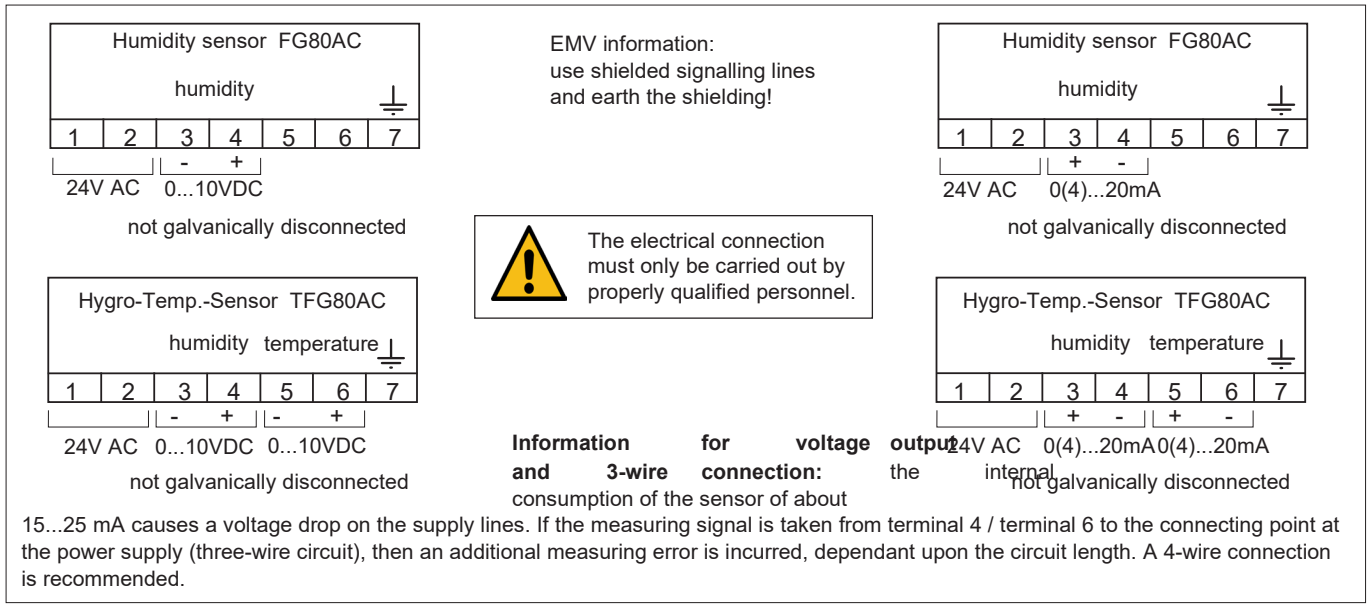


Connection diagramfor active sensors 15...30V DC

EMV information: use shielded signalling lines and earth the shielding!



Connection diagramfor active sensors 24V AC (± 10 %)



Information for voltage output and 3-wire connection: the internal consumption of the sensor of about 15...25 mA causes a voltage drop on the supply lines. If the measuring signal is taken from terminal 4 / terminal 6 to the connecting point at the power supply (three-wire circuit), then an additional measuring error is incurred, dependant upon the circuit length. A 4-wire connection is recommended.

Mounting instructions

Position	Sensor vertically downwards or horizontal. Avoid positions where water can enter. Avoid places exposed to the sun. In the mounting positions described above, a blanking plate in the sensor tube with a 0.8mm diameter hole will prevent water getting in.
Connection	Always use screened cables for data and signal cables, with the screening connected to the earth terminal. Ensure that no impermissible ground loops are created by a second earth connection, thereby leading to fault currents. Data and signal cables must not be routed alongside control leads, power cables or mains supply cables.

User instructions

Maintenance	The measuring element is maintenance-free in pure ambient air. A special process ensures that Galltec sensors have good long-term stability. Regeneration is not necessary, but is also not harmful.
Calibration	Ensure that the ambient humidity and the ambient temperature are constant. If possible, use a Galltec® sensor check for testing. Leave the equipment to be checked for at least 1 hour in *a* **constant** checking climate. All Galltec sensors are equipped with an adjustment facility. In most cases this is an adjuster screw fixed with screw securing lacquer. After removing the lacquer, the adjuster screw can be moved in the area of ±2.0%rh. Never make a readjustment several times in the same direction; this could have a cumulative effect. After calibration, the adjuster screw should again be secured. Note: Immersing the measuring element (i.e. the sensor tube) into water also provides an ideal fixed point for checking the sensors.
	Warning: Contact with the inner parts nullifies the warranty.
Dew formation	Dew formation and splashes do not damage the sensor. The Polyga® measuring element is water resistant.
Cleaning	The water-resistant property of the Polyga® measuring elements allows cleaning to be carried out with water: Immerse the sensor tube in water and gently move back and forth. Water must not be allowed to penetrate the header casing. Do not use solvents. We recommend the use of a mild detergent. Rinse thoroughly after, to remove any residues.
Damaging influences	Aggressive media containing solvent can cause measuring errors depending on the type and concentration. Deposits which eventually form a water-repellent film over the measuring element are harmful (such as resin aerosols, lacquer aerosols, smoke deposits etc.).