








Humidity Temperature Sensor ITFG80 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 ITFG80H 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 ITFG80 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. We offer 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 IHG80 and IFG80 <i>optional attachment for a quicker removal of the sensor</i> |
| 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 |  | IPTFE filter, two-part, <i>recommended for extreme operating conditions</i> |
| 20.011 |  | protector tube for external mounting, for protection against rain and sun |
| 20.014 |  | protective tube made of gauze <i>recommended for air speeds between 8 and 15 m/s</i> |

Type survey passive sensors

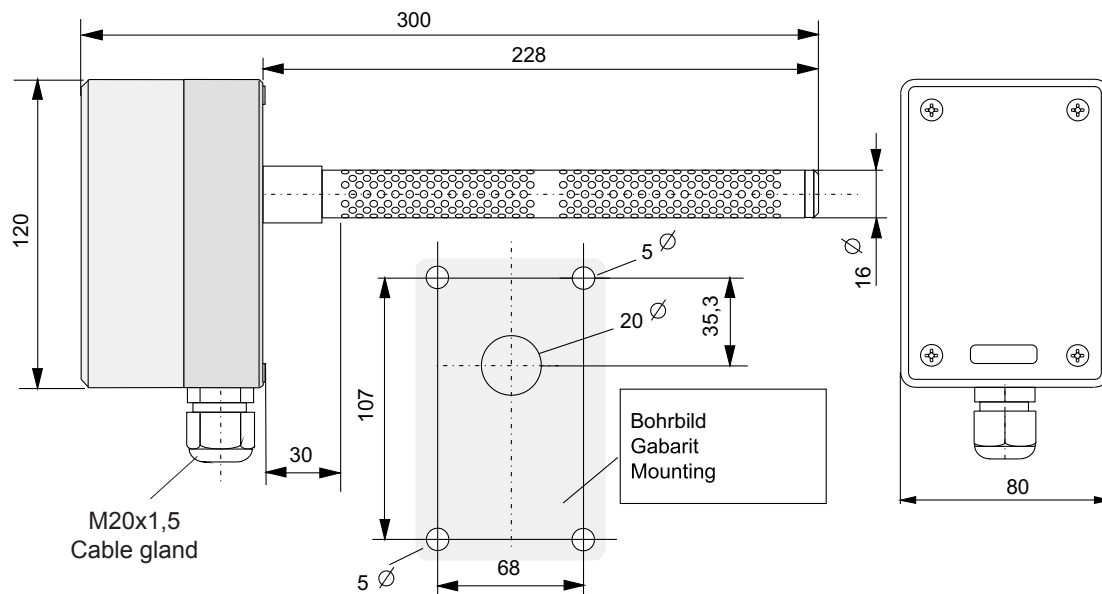
| Type | Order no. | Measuring range | | Conductor system | Outputs | |
|---------|-----------|-----------------|-------------|------------------|------------------------|-------------|
| | | Humidity | Temperature | | Humidity | Temperature |
| IFG80H | 44010300 | 0 ... 100 % rh | - | 2-pin | 0 ... 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 | - |
| ITFG80H | 44700350 | 0 ... 100 % rh | IPt100 | 2-pin | 0 ... 1000 Ω linear | Pt100 |
| | 44700450 | 0 ... 100 % rh | IPt100 | 2-pin | 100 ... 138,5 Ω linear | Pt100 |
| | 44700150 | 0 ... 100 % rh | IPt100 | 2-pin | 0 ... 100 Ω linear | Pt100 |
| | 44700250 | 0 ... 100 % rh | IPt100 | 2-pin | 0 ... 200 Ω linear | Pt100 |
| | 44732666 | 0 ... 100 % rh | INTC | 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 | | |
| IFG80J IFG80AC | 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 |
| ITFG80J ITFG80AC | 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 | |
| IFG80JPt100 | 44704750 | 0 ... 100 % rh | IPt100 | 0 ... 10 V DC | Pt100 | 3/4-wire | 15 ... 30 V DC/ 24 V AC ±10 % |
| | 44703050 | 0 ... 100 % rh | IPt100 | 0 ... 20 mA | Pt100 | 3/4-wire | 15 ... 30 V DC |
| | 44704850 | 0 ... 100 % rh | IPt100 | 4 ... 20 mA | Pt100 | 2-wire | 15 ... 30 V DC |

Dimensions diagram



Technical Data

Humidity

| | | |
|------------------------------|---------------------------|---------------------------|
| Measuring range | 0..100%rh | |
| Measuring accuracy | >40%rh | ±2.5%rh |
| | <40%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 | IPt100 ref. DIN EN 60751 |
| Working range | -30...+80°C |
| Measuring accuracy | ±0.5°C |

Electrical data

| | |
|----------------------|---|
| Connecting terminals | for conductor cross sections 0.5mm ² |
| 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 (IPt100) | 1 mA at air speeds of 1 m/s |

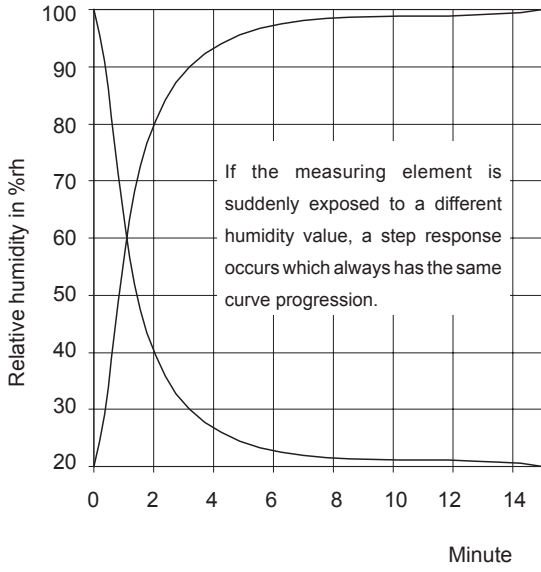
Electrical data for active sensors

| | |
|--|------------------|
| 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% |

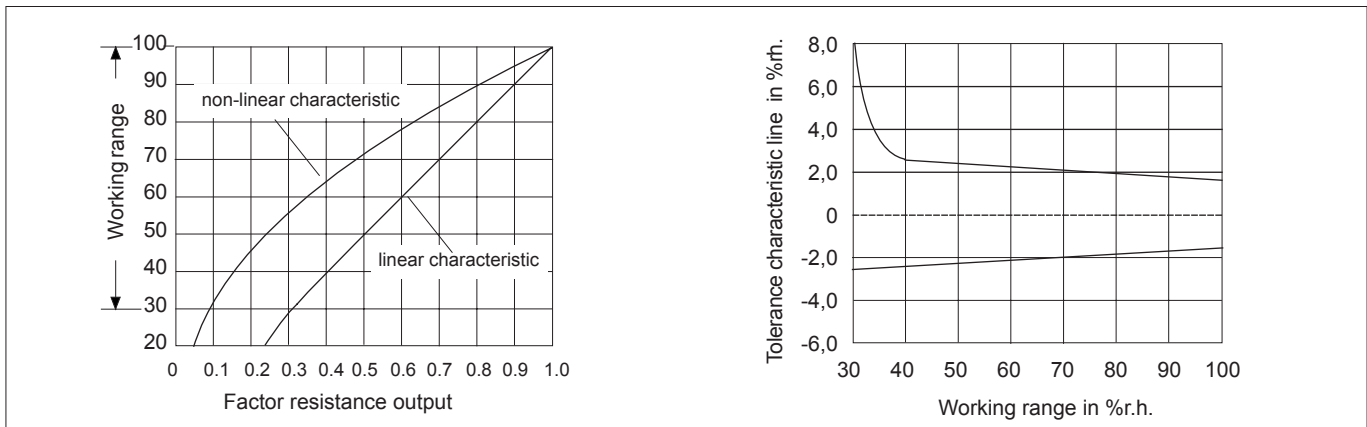
General data

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

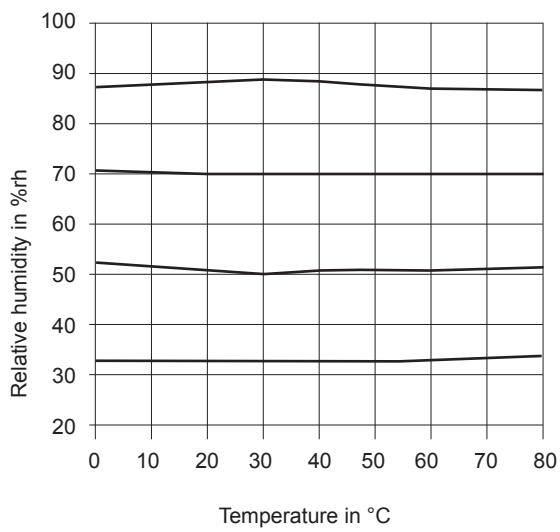
Half-life period



Humidity and tolerance diagram



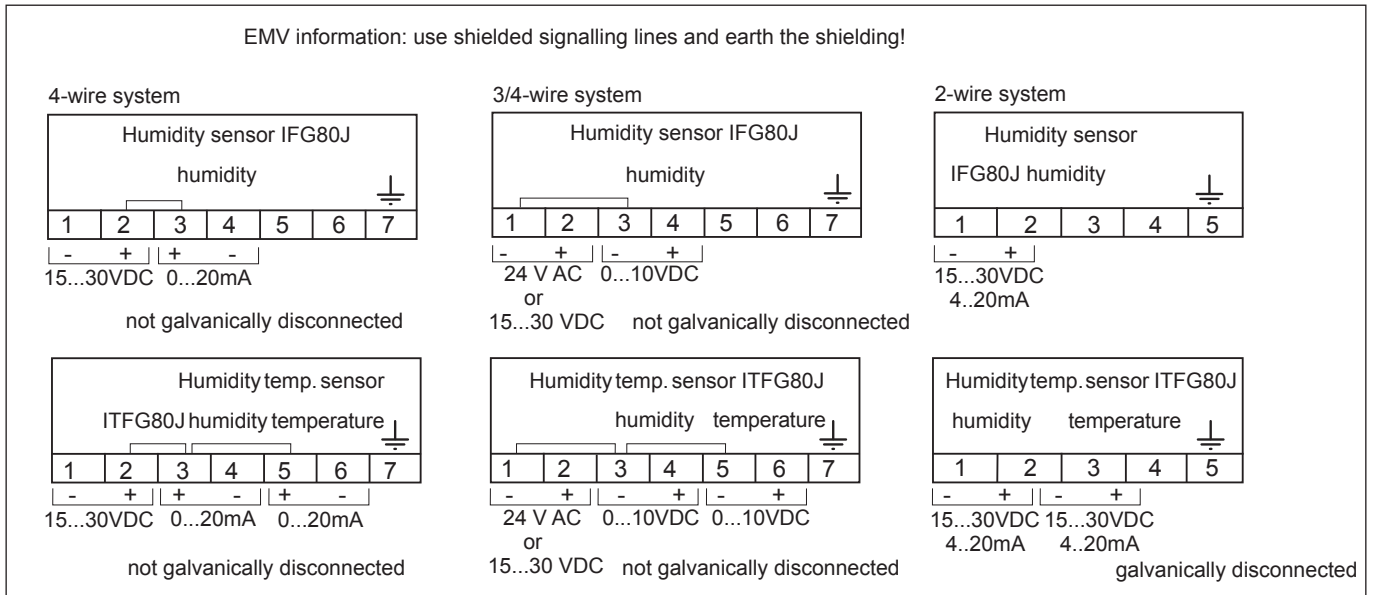
Thermal behaviour



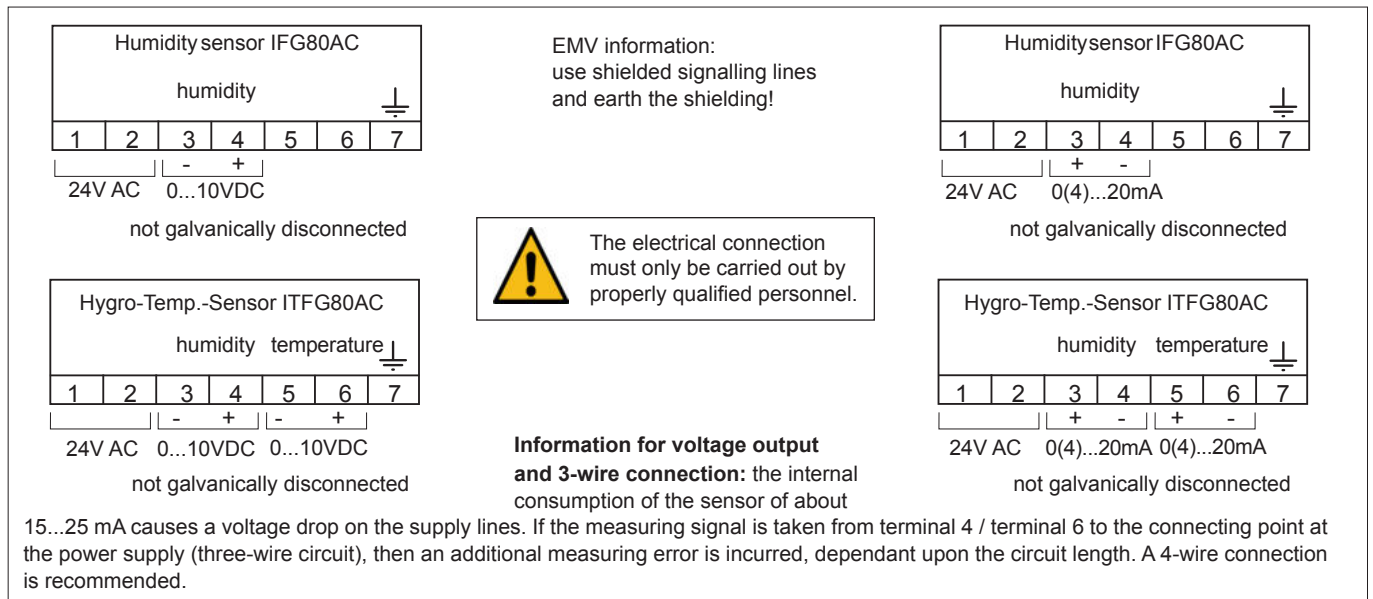
Connection diagram for passive sensors with resistance output



Connection diagram for active sensors U=15...30V DC



Connection diagram for active sensors U_B=24V AC (± 10 %)



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 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 sensor check for testing. Leave the equipment to be checked for at least 1 hour in a constant checking climate. All sensors are equipped with an adjustment facility. In most cases this is an adjuster screw fixed with screw securing lacquer. After removing ng the lacquer, , the adju- After removing the lacquer, the adjuster screw can be moved in the area of $\pm 2.0\%$ 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.). |
| Further Informationen | <ul style="list-style-type: none">› Relative humidity - Definitions - physical laws› Humidity sensor in accordance with the absorption principle› Maintenance instructions› Humidity measuring technology |