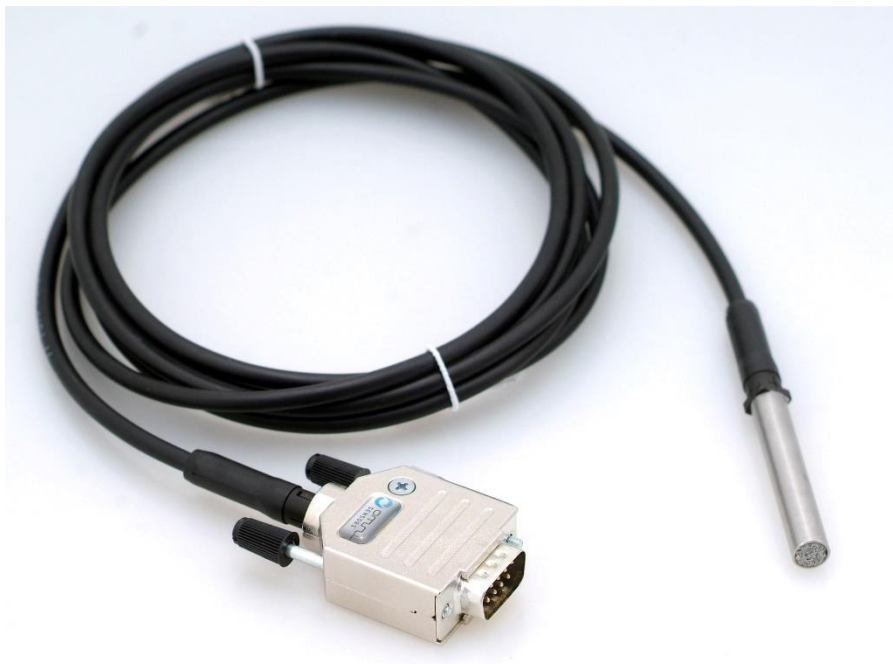

Technical Data Sheet

OFT020 Sensor



©2024 by Omni Elektronik GmbH
Druckerweg 13
51789 Lindlar
Germany
Tel.: +49 (0)2266 479994-0
www.omni-sensors.de

Transducer for industrial applications

The OFT020 sensor measures relative humidity and temperature. The OFT020 is equipped with two analogue outputs of 0...20 mA. The OFT020 is available in three different versions. The OFT020-A achieves accuracies up to $\pm 1.5\%$ RH and $\pm 0.1^\circ\text{C}$. Best precision is achieved with an integrated 32-bit processor and complex software. Due to its modular design, this sensor is a perfect fit for industrial use (subject to technical changes).

FEATURES

- Robust stainless steel housing with sintered filter
- Miniaturized Sensor
- Calibrated digital sensor
- High precision and high speed
- Data logging software
- Current outputs 0...20 mA
- Modular design, pluggable
- Replaceable sensor head*
- Absolute humidity and dew point optional
- DAkkS calibration certificate for an extra charge on request

** Damaged or aged sensor heads can be replaced if necessary.*

APPLICATIONS

- Climate Chamber & Air Conditioning
- Air- & Drying systems
- Industry & Engineering
- Laboratory & R&D
- Environmental engineering
- Weather stations
- Server Room Monitoring
- ISO 9000 Certifications
- Greenhouses

TECHNICAL DATA

HUMIDITY MEASUREMENT

| Parameter | | Unit | min | Value | max |
|---|----------|-------------|-----|-------|-----|
| Specified Range | | % RH | 0 | | 100 |
| Accuracy* at 25°C and 0...100% RH | OFT020-A | % RH | | ±1.5 | |
| | OFT020-B | % RH | | ±2.0 | |
| | OFT020-C | % RH | | ±3.5 | |
| Resolution | | % RH | | 0.01 | |
| Non linearity (in range 10...90% RH) | | % RH | | < 1 | 3 |
| Hysteresis within entire measuring range | | % RH | | ±0.8 | |
| Repeatability | | % RH | | ± 0.1 | |
| RH Response time, 1/e (63%) | | s | | 3 | |
| Long-term stability (Drift)** | | % RH / year | | <1 | |

* Calibration of the OFT020 sensor according to ISO/IEC 17025 at 25°C to 22%, 50% and 68% RH.

** If the sensor is exposed to extreme conditions (e.g. vapors from petrol, glue, dilution, vinegar, etc.) for a long time, this can accelerate the aging process. The durability is strongly dependent on the respective environmental conditions. Damaged or aged sensor heads can be replaced if necessary.

TEMPERATURE MEASUREMENT

| Parameter | | Unit | min | Value | max |
|-------------------------|---------------------------|------|-----|-------|------|
| Specified Range* | | °C | -25 | | +70 |
| Scaling | | °C | -50 | | +150 |
| Accuracy | OFT020-A (at +20...+60°C) | °C | | ±0.1 | |
| | OFT020-B (at 0...+70°C*) | °C | | ±0.2 | |
| | OFT020-C (at -10...+55°C) | °C | | ±0.3 | |
| Resolution | | °C | | 0.01 | |
| Repeatability | | °C | | ±0.1 | |
| Response time | | s | | 5 | |

* limited by connection cable

POWER SUPPLY

| Parameter | Unit | min | Value | max |
|---------------------------------|------|------|-------|------|
| Supply voltage | V | 21.6 | 24 | 26.4 |
| Supply current | mA | | | 50 |
| Short circuit protection | | | yes | |

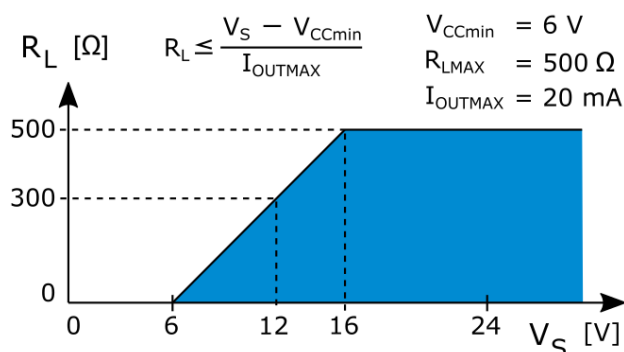
PRESSURE

| Parameter | Unit | min | Value | max |
|---------------------------|------|-----|-------|-----|
| Permissible over pressure | bar | | | 8 |

OUTPUTS

| Parameter | Unit | min | Value | max |
|------------------------------|----------|---|-------|-----|
| Current output rel. humidity | mA | 0 | | 20 |
| Current output temperature | mA | 0 | | 20 |
| Load | Ω | | 500 | |
| Current limitation | mA | not specified (short circuit protected) | | |

LOAD



CABLE CONNECTION*

| Parameter | Unit | min | Value | max |
|-----------------------|------|-----|-------------|-----|
| Cable Type | | | PVC (black) | |
| Protection class | | | IP40 | |
| Length (configurable) | m | | 2 | |
| Temperature range | °C | -25 | | +70 |

* Other versions are available for temperatures outside the specified measuring range on request.

DIMENSIONS

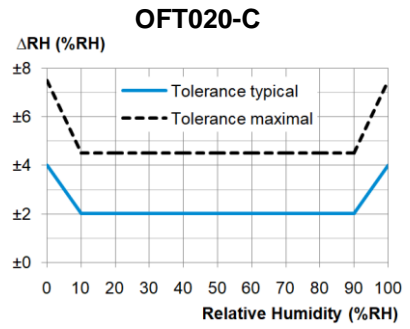
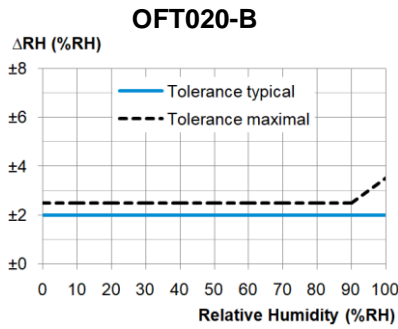
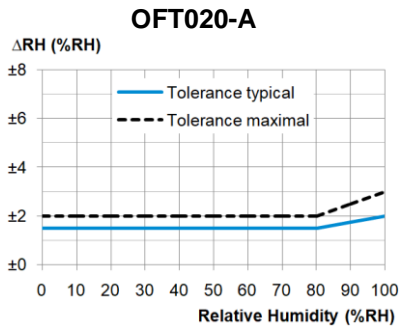
| Parameter | Value |
|--------------------|---------------------------------|
| Length | 51.5 mm |
| Diameter | 8.0 mm |
| Weight Sensor Head | about 10 g |
| Total Weight | 95 g |
| Connector | Plug, 4-pin |
| Housing | Stainless steel, sintered metal |

OFT020 Sensor

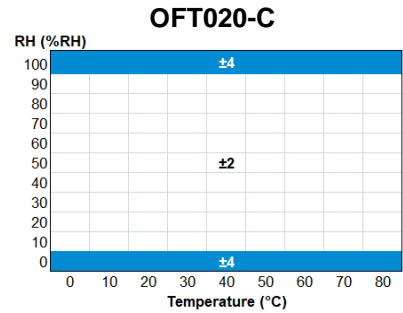
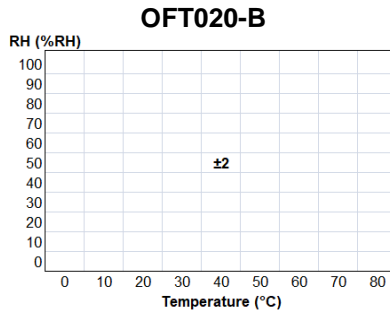
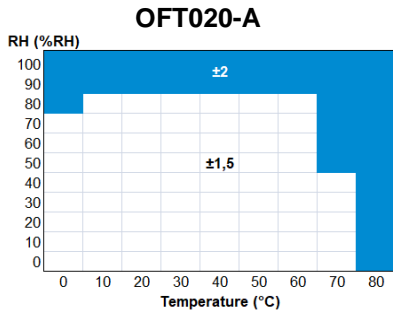


ACCURACY RELATIVE HUMIDITY

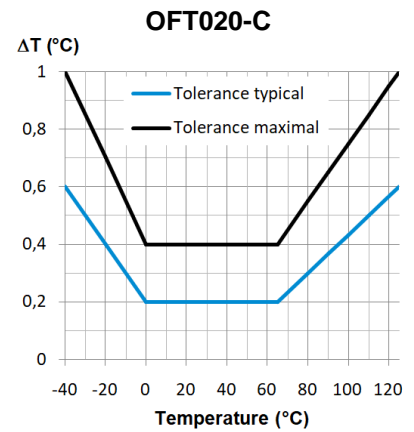
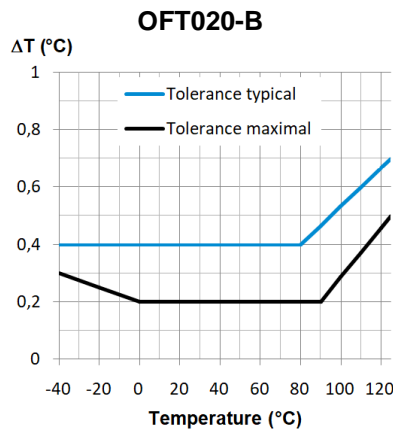
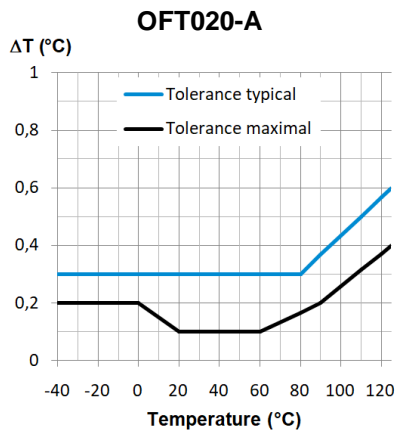
Typical Values at 25°C



Typical values at temperature range

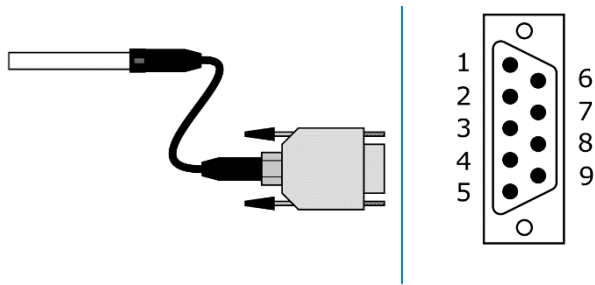


ACCURACY TEMPERATURE



OFT020 Sensor

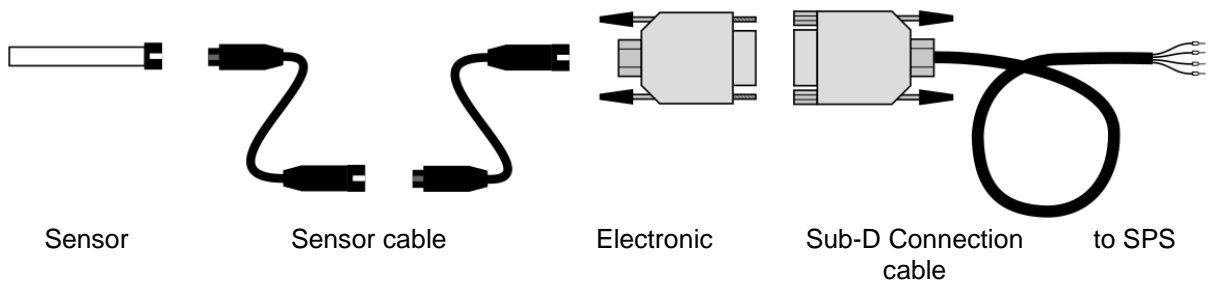
PIN ASSIGNMENT SUB-D SENSOR CABLE



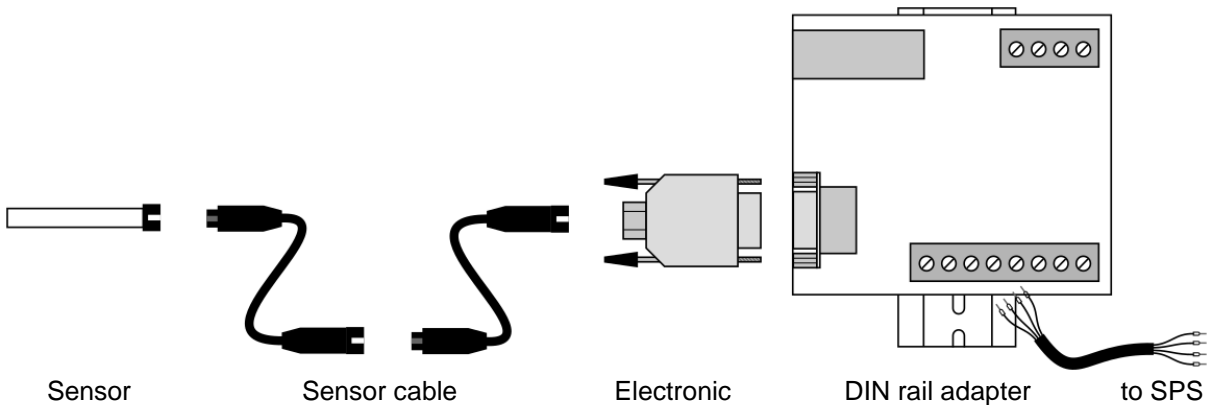
| Pin | Assignment |
|-----|----------------------------|
| 1 | (unused) |
| 2 | (unused) |
| 3 | (unused) |
| 4 | 24 V Supply voltage |
| 5 | 0 V GND |
| 6 | Current output humidity |
| 7 | Current output temperature |
| 8 | (unused) |
| 9 | (unused) |

SPS CONNECTION

Variant 1: Direct connection to SPS



Variant 2: Connection using DIN rail adapter



STORAGE AND ASSEMBLY

The sensor can be stored under the same conditions as during operation. If the sensor has been stored for a long time in hot or dry environments or exposed to aggressive substances, accelerated aging or damage to the sensor element is possible, which has a negative impact on the measurement result. The sensor can then be reactivated under certain circumstances by exposing it to a humidity of over 74% at a temperature of 20...30°C for at least 24 hours.

During installation, it must be ensured that the sensor element is installed in slowly flowing air. Since the relative humidity always relates to the temperature of the air, the sensor should also be attached to a representative location related to the temperature. Hot spots (e.g. on machines) can strongly influence the measurement result.

SAFETY NOTE

The OFT020 must not be used in applications where persons may be endangered or injured. It must also not be used as an emergency stop switch on systems and machines or in other safety-relevant areas!

OPTIONAL WITH DAKKS CALIBRATION CERTIFICATE

EU DECLARATION OF CONFORMITY


In the sense of the EMC directive 2014/30/EU

We, the **Omni Elektronik GmbH, Druckerweg 13, 51789 Lindlar, Germany**, herewith declare following products comply with the following European directives and standards.

| | | |
|--|---|--|
| Products, Variants | OFT020 Industrial humidity- and temperature-sensor | |
| EU Directives | EMV 2014/30/EU RoHS 2011/65/EU | |
| Representative for the compilation of technical documents | Thomas Breitbach (address as per above) | |
| Applied Standards | DIN EN 61000-6-1 | Generic standard - Immunity standard for residential, commercial and light-industrial environments |
| | DIN EN 61000-6-3 | Generic standard - Emission standard for equipment in residential environments |
| | DIN EN 55032:2022-08 | Electromagnetic compatibility of multimedia equipment - Emission requirements |
| | DIN EN 55035:2018-04 DIN EN 55035/A11:2022-06 | Electromagnetic compatibility of multimedia equipment - Immunity requirements |

Lindlar, 20.03.2024

Thomas Breitbach
Managing director



Signature