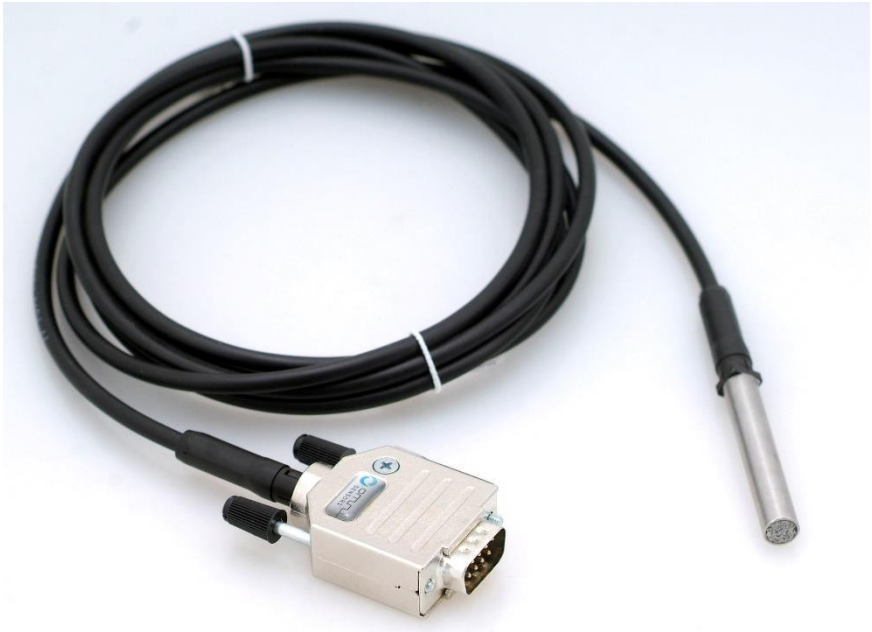
Technical Data Sheet

OFT420 Sensor



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OFT420 Sensor

Transducer for industrial applications

The OFT420 sensor measures relative humidity and temperature. The OFT420 is equipped with two analogue outputs of 4…20 mA. The OFT420 is available in three different versions. The OFT420-A achieves accuracies up to ±1.5% RH and ±0.1°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 4…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

OFT420 Sensor

TECHNICAL DATA

HUMIDITY MEASUREMENT

Parameter		Unit	min	Value	max
Specified Range		% RH	0		100
Accuracy* at 25°C and 0...100% RH	OFT420-A	% RH		±1.5	
	OFT420-B	% RH		±2.0	
	OFT420-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 OFT420 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	OFT420-A (at +20...+60°C)	°C		±0.1	
	OFT420-B (at 0...+70°C*)	°C		±0.2	
	OFT420-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		

OFT420 Sensor

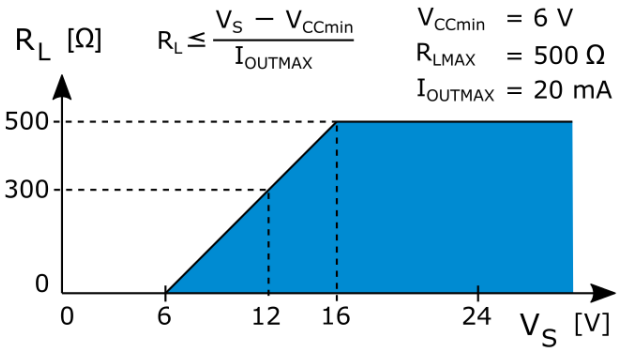
PRESSURE

Parameter	Unit	min	Value	max
Permissible over pressure	bar			8

OUTPUTS

Parameter	Unit	min	Value	max
Current output rel. humidity	mA	4		20
Current output temperature	mA	4		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

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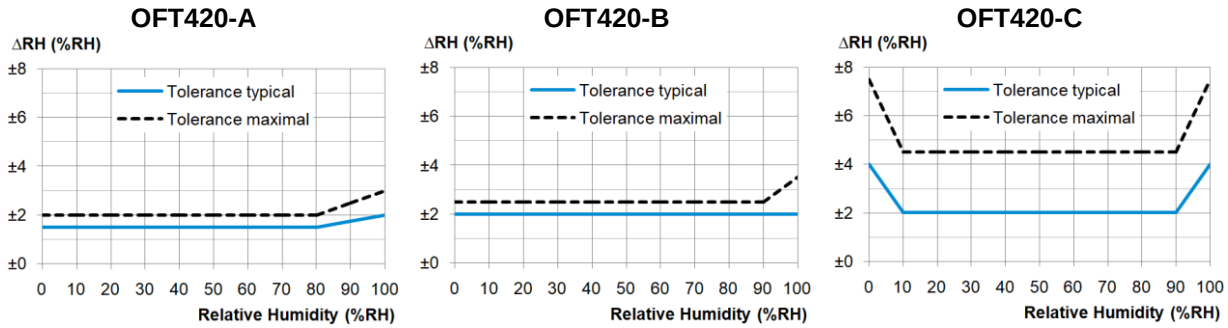
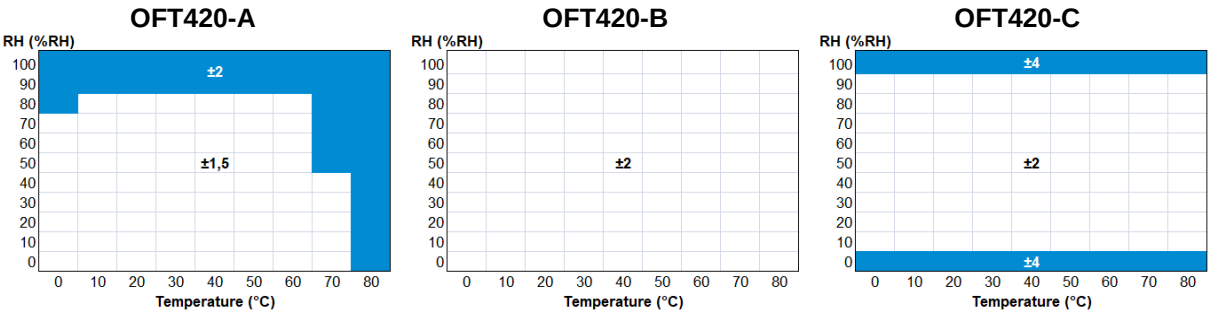
ACCURACY RELATIVE HUMIDITY

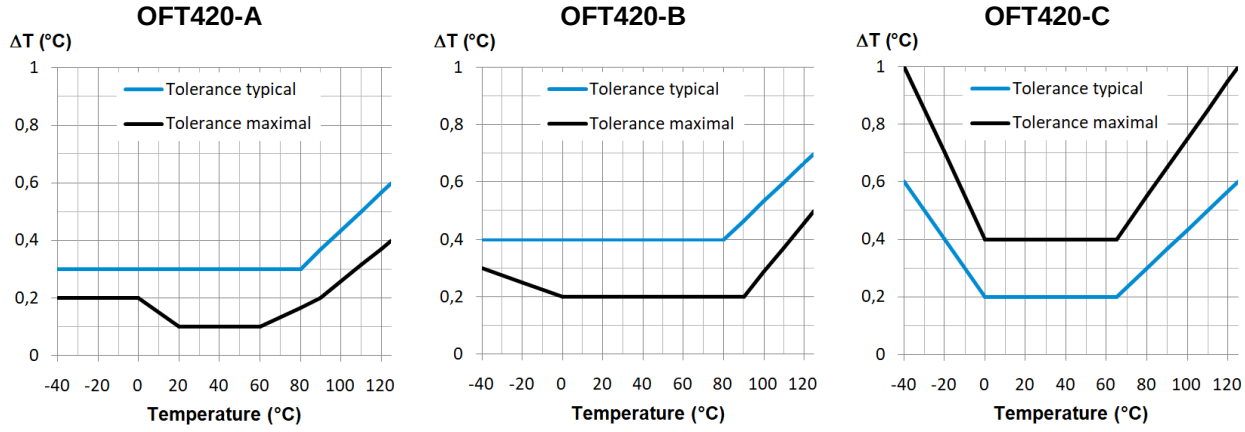
Typical Values at 25°C



Typical values at temperature range

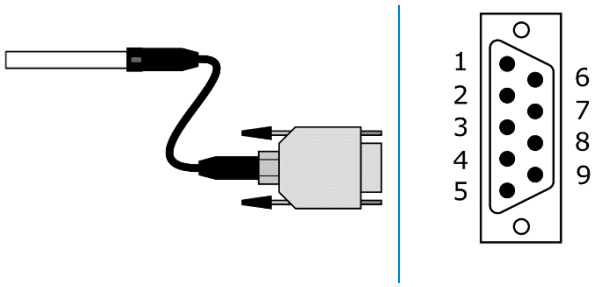


ACCURACY TEMPERATURE



OFT420 Sensor

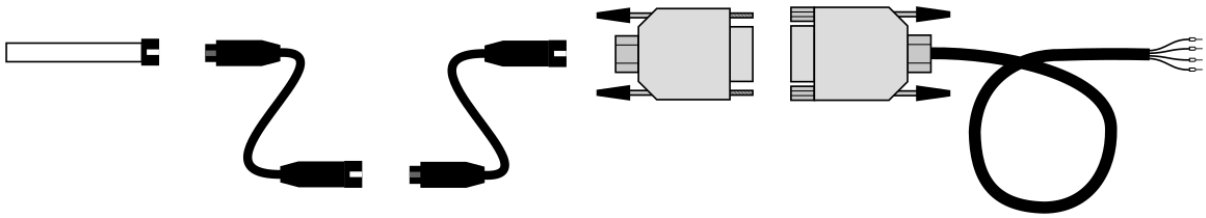
PIN ASSIGNMENT SUB-D SENSOR CABLE



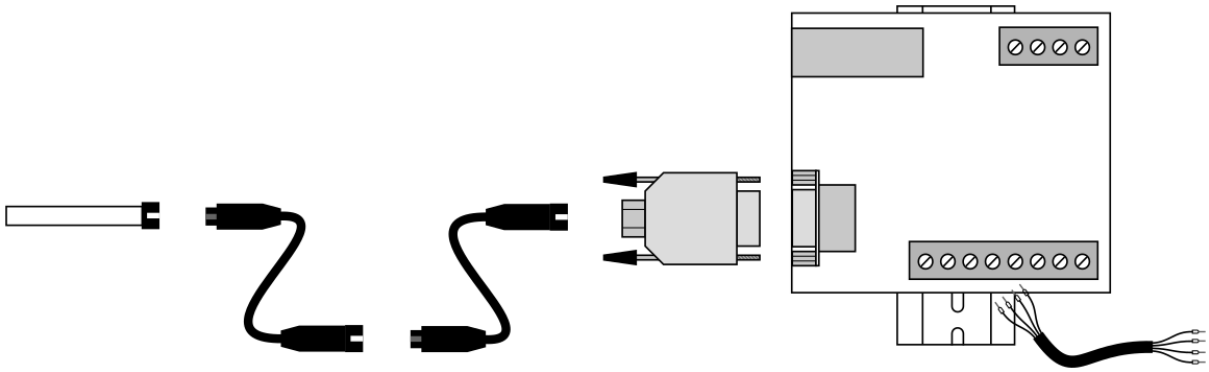
Pin	Assignment
1	(unused)
2	(unused)
3	(unused)
4	24 V Supply voltage
5	0 V GND
6	Current output humidity
7	Current output temperature
8	(unused)
9	(unused)

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.

OFT420 Sensor

SAFETY NOTE

The OFT420 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	OFT420 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