Technical Data Sheet

OHT20T Sensor

Druckerweg 13
51789 Lindlar
Germany
Tel.: +49 (0)2266 479994-0
www.omni-sensors.de

OHT20T Sensor

Universal USB humidity and temperature sensor plus in miniature design for increased temperature range

The OHT20T sensor measures relative humidity, temperature, dew point and absolute humidity. It is intended to operate directly at the USB port of a PC. The OHT20T is available in three different versions. The OHT20T-A achieves accuracies up to ±1.5% RH and ±0.1°C. In combination with the supplied data acquisition software, the OHT20T forms a very flexible and precise measuring system with data logging and evaluation (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
- USB 2.0 CDC interface
- Integration by Embedded DLL or direct query
- Accessible in LabView
- Power supply by USB*
- Replaceable sensor head**
- DAkkS calibration certificate for an extra charge on request

** If many sensors are connected simultaneously, a Power HUB with its own power supply may be required.*

*** 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

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TECHNICAL DATA

HUMIDITY MEASUREMENT

Parameter		Unit	min	Value	max
Specified Range		% RH	0		100
Accuracy* **at 25°C and 0...100% RH**	OHT20T-A	% RH		±1.5	
	OHT20T-B	% RH		±2.0	
	OHT20T-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 OHT20T 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	-40		+125
Scaling		°C	-50		+150
Accuracy	OHT20T-A (at +20...+60°C)	°C		±0.1	
	OHT20T-B (at 0...+70°C*)	°C		±0.2	
	OHT20T-C (at -10...+55°C)	°C		±0.3	
Resolution		°C		0.01	
Repeatability		°C		±0.1	
Response time		s		5	

POWER SUPPLY

Parameter	Einheit	min	Wert	max
Supply voltage (supplied by USB)	V		5	
Supply current	mA			20

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PRESSURE

Parameter	Unit	min	Value	max
Permissible over pressure	bar			8

OUTPUTS

Parameter	Value
USB	USB 2.0 CDC for PCs with Windows operating system Win7, Win8, Win10

CABLE CONNECTION

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

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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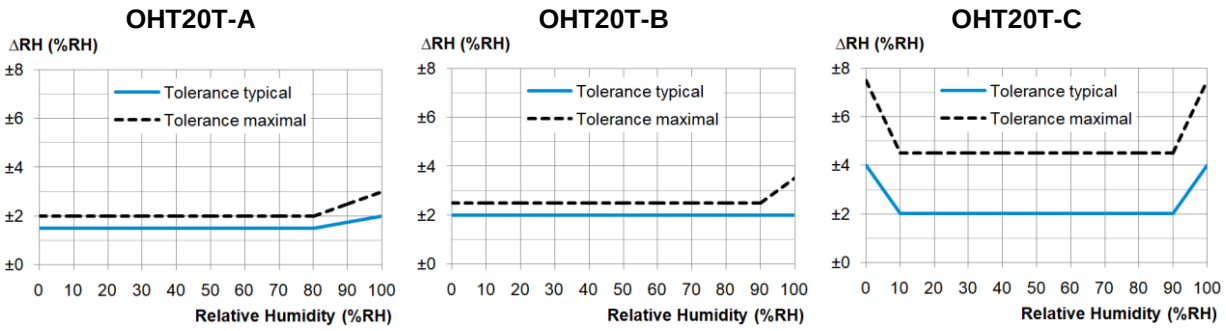
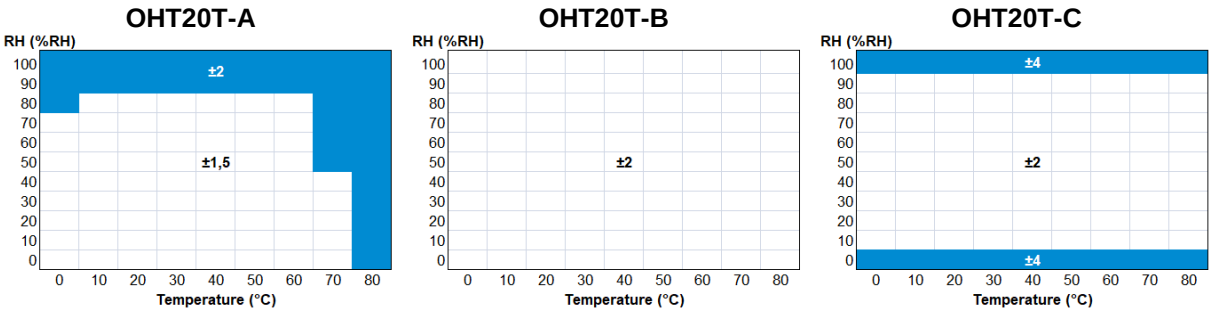
ACCURACY RELATIVE HUMIDITY

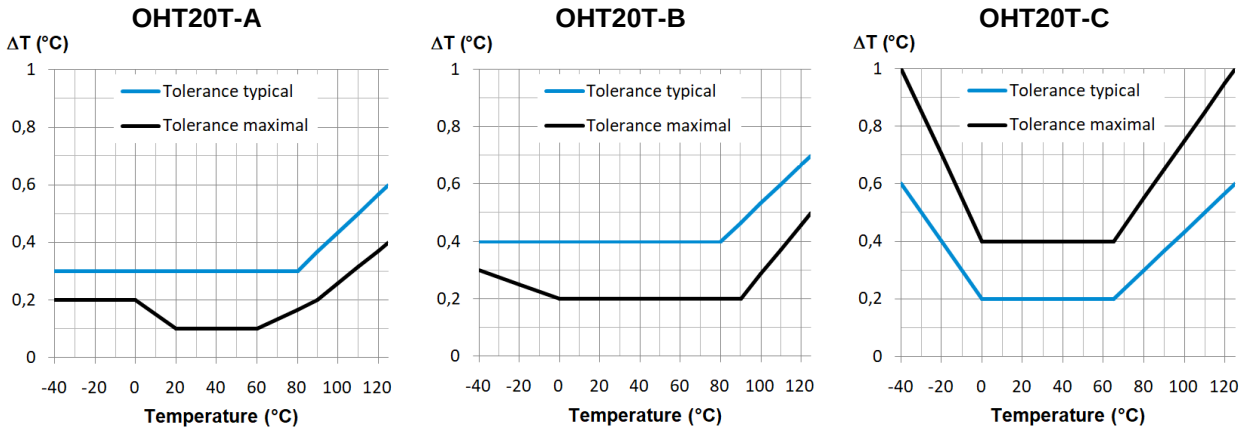
Typical Values at 25°C



Typical values at temperature range



ACCURACY TEMPERATURE



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.

To connect to a PC simply insert the plug into a USB port on the PC. If there are not enough USB ports available, or if several sensor devices are to be connected, expand the USB port using one or more USB HUB.

SAFETY NOTE

The OHT20T 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

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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	OHT20T-A OHT20T-B OHT20T-C Humidity- and temperature-sensor plus with USB connection	
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