



IRH 100RA

Redundant Relative Humidity, Temperature & Pressure Sensor

Self-monitoring capacitive, redundant humidity and temperature sensor with quality index and drift evaluation for the most demanding applications and very long maintenance and calibration intervals. Additionally, a piezo-resistive pressure sensor. All measurands protected in a light-robust housing with metal-mesh-filter cap.

Features

- Redundant [2x] humidity and [3x] temperature sensor
- Excellent humidity & temperature resistance
- Precise high humidity performance
- Integrated pressure sensor
- Precision rH/T measurement
 - **rH** 0 ... 100 % rH
 - Accuracy: ± 0.5 % rH typ.
 - Long-term stability ± 0.19 % rH/year typ.
 - **T** -40 ... +120 °C
 - Accuracy: ± 0.1 °C typ.
 - Long-term stability: ± 0.03 °C/year typ.
 - **Td** Dew point calculation
 - **p** 300 ... 1250 hPa
 - Accuracy: ± 0.5 hPa typ.
 - Long-term stability: ± 0.16 hPa/year typ.
- Output
 - RS485 Modbus-RTU
- Operating Voltage
 - 5 DC ($\pm 10\%$)
- 16mm tubing with 100mm length
- Metal mesh protection cap or various options
- Specific length cable connection with open end



Applications

- Weather stations
- Cooling applications
- Agricultural storage
- Greenhouse applications
- Datacenters
- Climate monitoring
- Smart Farming

Specifications

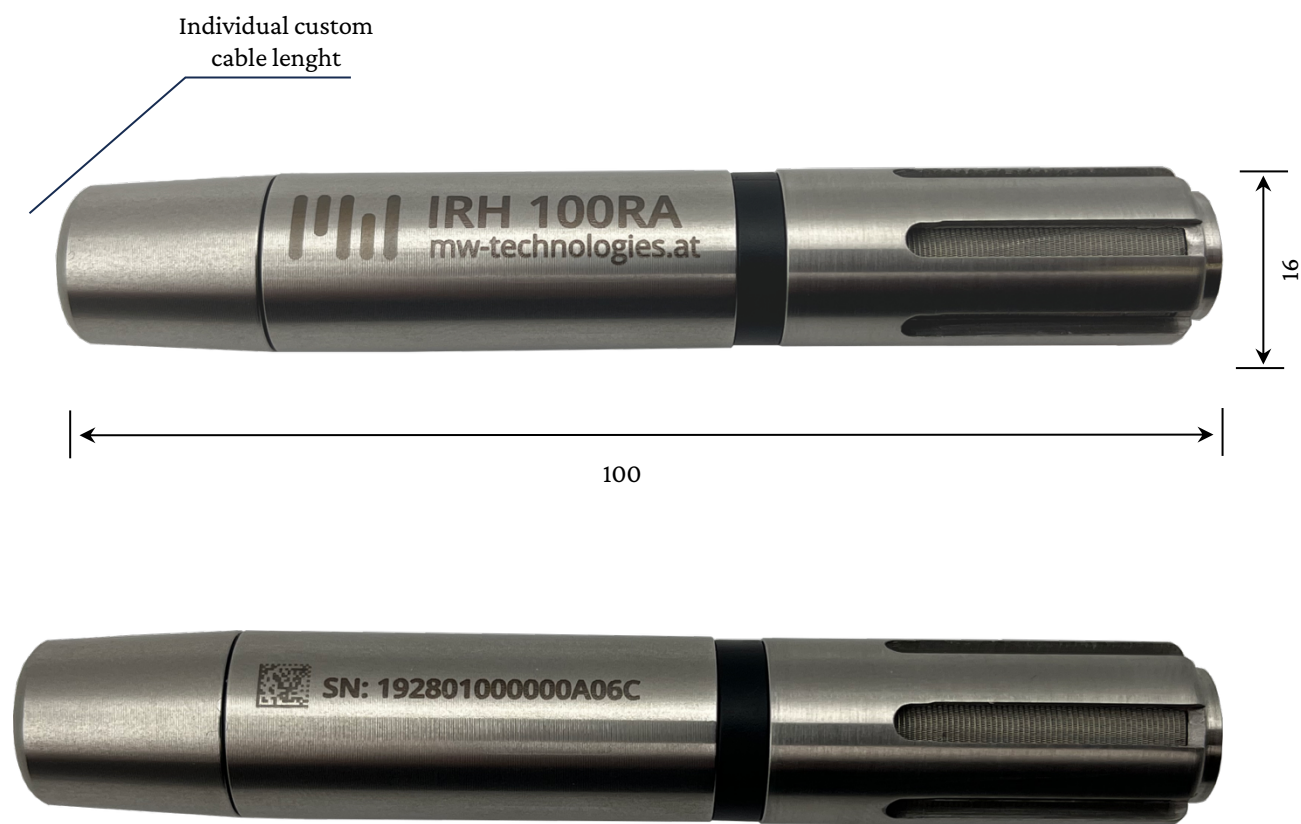
Electrical Data

All specifications at $T_A = 25\text{ °C}$ unless otherwise noted.

<i>Parameter</i>	<i>Min.</i>	<i>Typ.</i>	<i>Max.</i>	<i>Unit</i>	<i>Conditions/Comments</i>
Operating temperature	-40		120	°C	probe
Humidity					
rH accuracy		±0.5	±2	% rH	10...50% rH
		±1.0	±2	% rH	10...70% rH
		±1.0	±2.5	% rH	10...80% rH
		±1.5	±3.0	% rH	10...90% rH
rH repeatability		±0.02		%	
rH response time		4		secs	
Temperature					
T accuracy		±0,1	0,2	°C	0...50°C
		±0,1	0,3	°C	-40...100°C
		±0,1	0,4	°C	-40...125°C
Pressure					
Operating pressure range	300		1250	hPa	
p accuracy		±0,50		hPa	
Working environment humidity	0		100	% rH	no condensation
Storage temperature	-10		80	°C	
Storage humidity	20		60	% rH	
Power supply					
DC voltage	4.5	5	5.5	V	
Current consumption			4	mA	
Communication parameter					
Output		RS485			Modbus-RTU
EMC Standards					
Standard	Emission residential area			EN61000-6-3:2020	
	Suceptibility residential area			EN61000-6-1:20190	



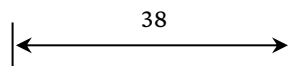
Mechanical Data



PTFE Protection Cap
Pore size 50µm



Metal Grid Protection Cap
Pore size 40µm



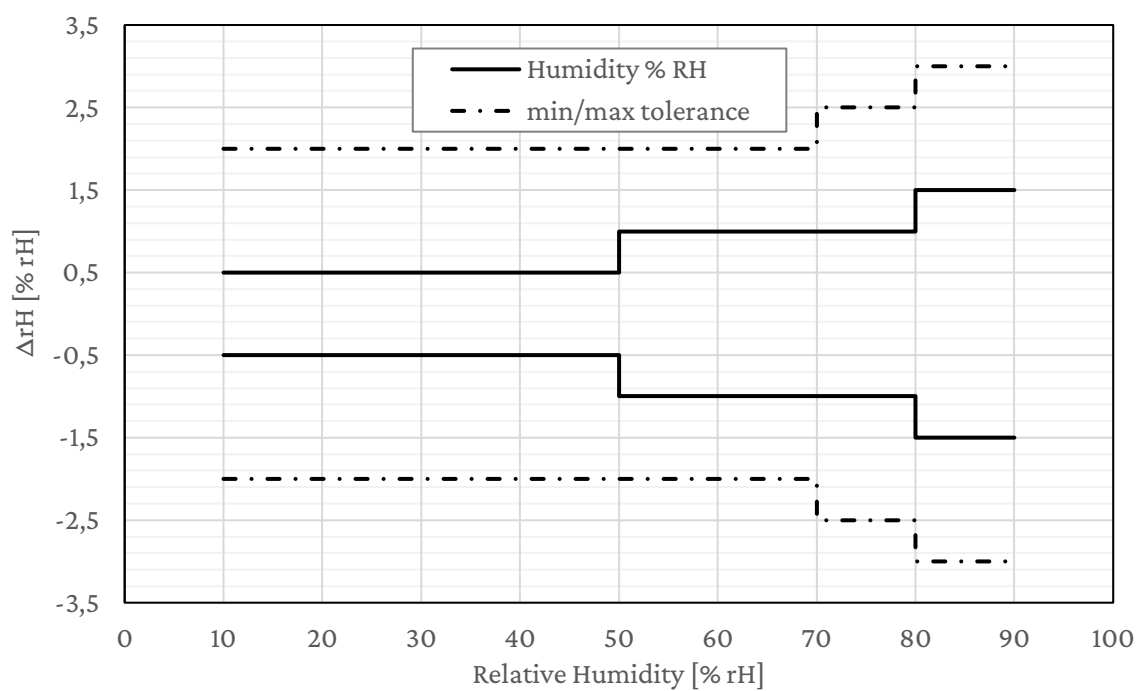
[1] All dimensions in millimeter
(tolerance : ± 0.2)

[2] Scale : freestyle

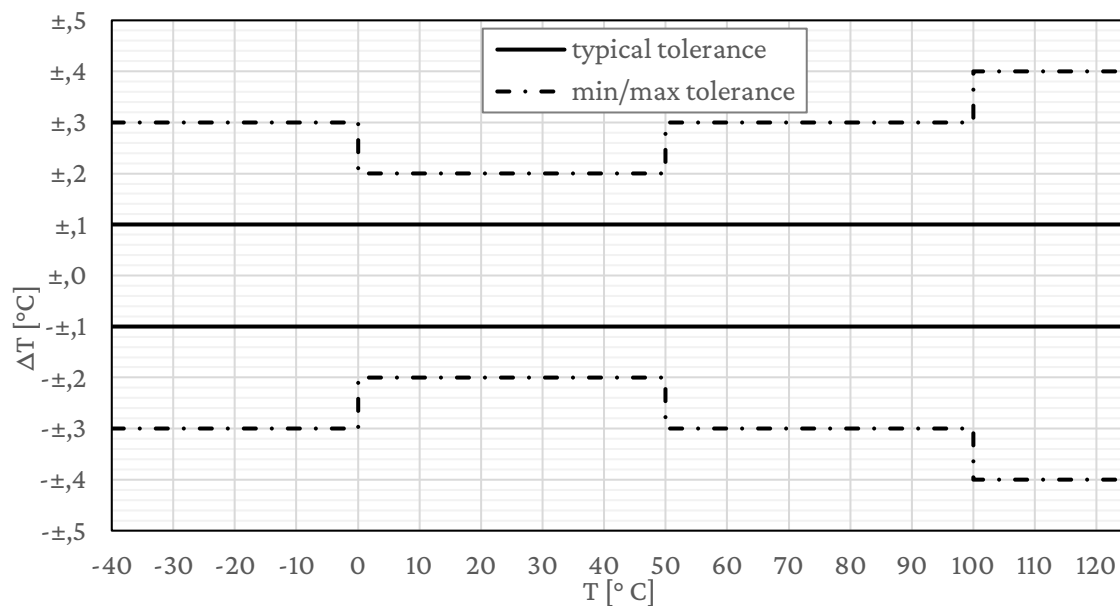


Typical Characteristics

Humidity



Temperature



Ordering

<i>Product/Replacement part</i>	<i>Order number</i>
IRH 100RA	720100
Filter cap 40µm metal grid plastic housing	530001
Filter cap 50µm PTFE housing	530002

Revision History

2025-10-15	Rev. 0: Initial Version

Disclaimer

All product, product specifications and data are subject to change without notice.

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