

Humidity Sensors

BI2H, BI2HC

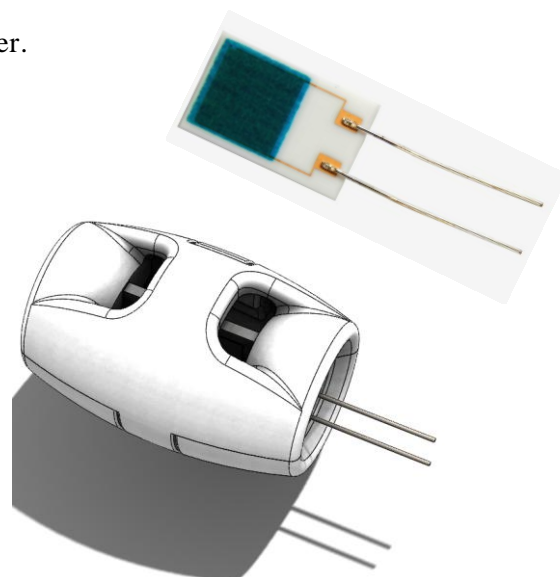
Humidity sensors BI2H (without case) and BI2HC (with case) are semiconductor sensors for measuring of relative humidity. Physical principle of the measuring is based on the properties of polymer semiconductors, change of their conductivity by the moisture.

Characteristic properties:

- Humidity sensor with a polymer semiconductor layer.
- Measuring range from 20 to 90% RH at temperatures from 0 to 60 °C.
- Simple evaluation.
- Compact dimensions.
- No calibration required.
- Economic performance / economic design.

Typical areas of application:

- Monitoring climate.
- Consumer applications.
- Office equipment.
- Building instrumentation.
- Refrigeration and air conditioning systems.
- Air humidifiers, air dryers.



Technical specification

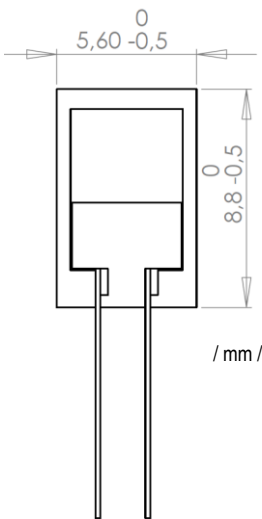
Humidity sensors - type BI2H, BI2HC	
Principle of measurement	polymer semiconductors
Humidity - operating range	20 to 90 % RH without condensation
Temperature - operating range	0 to 60 °C
Humidity accuracy	± 4 % RH
Hysteresis	< 2 % RH
Response time t_{90}	approx.120 s
Impedance	200 Ω to 3 M Ω
Measuring voltage	1 V _{eff}
Rated power	0,2 mW max.
Signal waveform	AC voltage (without DC offset)
Measuring frequency	1 kHz
Dimensions	5,5 x 8,8 x 0,6 mm
Outlets (connections)	Ag wire \varnothing 0.25 mm, length 10 ± 2 mm, or customer specifications
Caution recommendation for operation :	To avoid direct application of DC voltage on humidity sensor. To protect sensor from dewfall and drenching. To avoid any operation of humidity sensors in the following environmental ambient: Inorganic gas – Sulfide dioxide, Chlorine, Ammonia etc. , Organic gas – Alcoholic, Glycols, Aldehydes etc.

However, the suitability for a certain application should be checked by the user beforehand.

Humidity Sensors

BI2H, BI2HC, BI2HBx

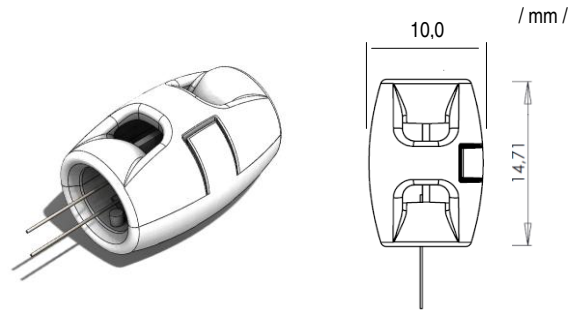
Type: **BI2H**



sensor without case,
outlets Ag wire, ϕ 0.25 mm,
length: 10 ± 2 mm,
or customer specification

Type: **BI2HC**

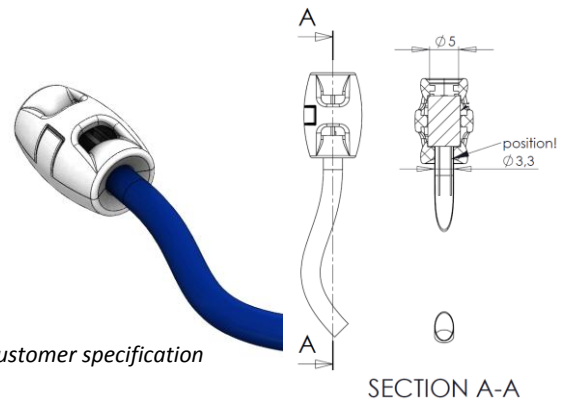
- sensor in plastic (ABS) case
- sensor outlets:
Ag wire ϕ 0.25 mm,
length: 10 ± 2 mm,
or customer specification



Type: **BI2HBC**

- sensor in plastic (ABS) case
- sensor outlets:
Ag wire ϕ 0.25 mm,
length: 10 ± 2 mm,
or customer specification

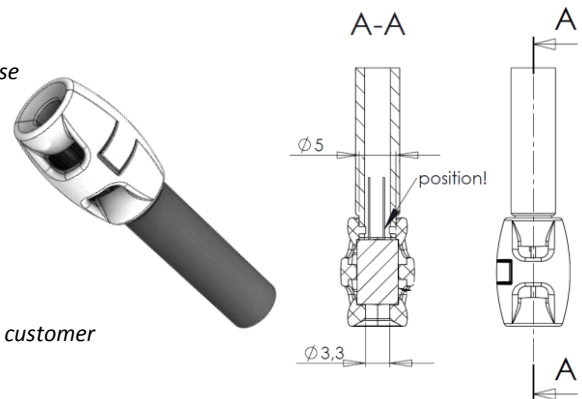
- case with cable:
cable length: 100 ± 10 mm or customer specification



Type: **BI2HBC T**

- sensor in plastic (ABS) case
- sensor outlets:
Ag wire ϕ 0.25 mm,
length: 10 ± 2 mm,
or customer specification

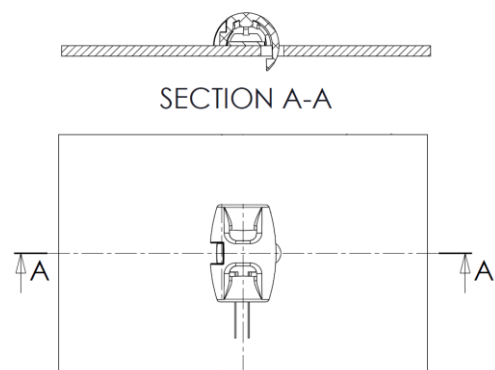
- case with steel tube:
cable length: 130 ± 10 mm
tube length: 100 ± 2 mm or customer
specification



Type: **BI2HBP**

- sensor in plastic (ABS) case
- sensor outlets:
Ag wire ϕ 0.25 mm,
length: 10 ± 2 mm,
or customer specification

- mounting on PCB

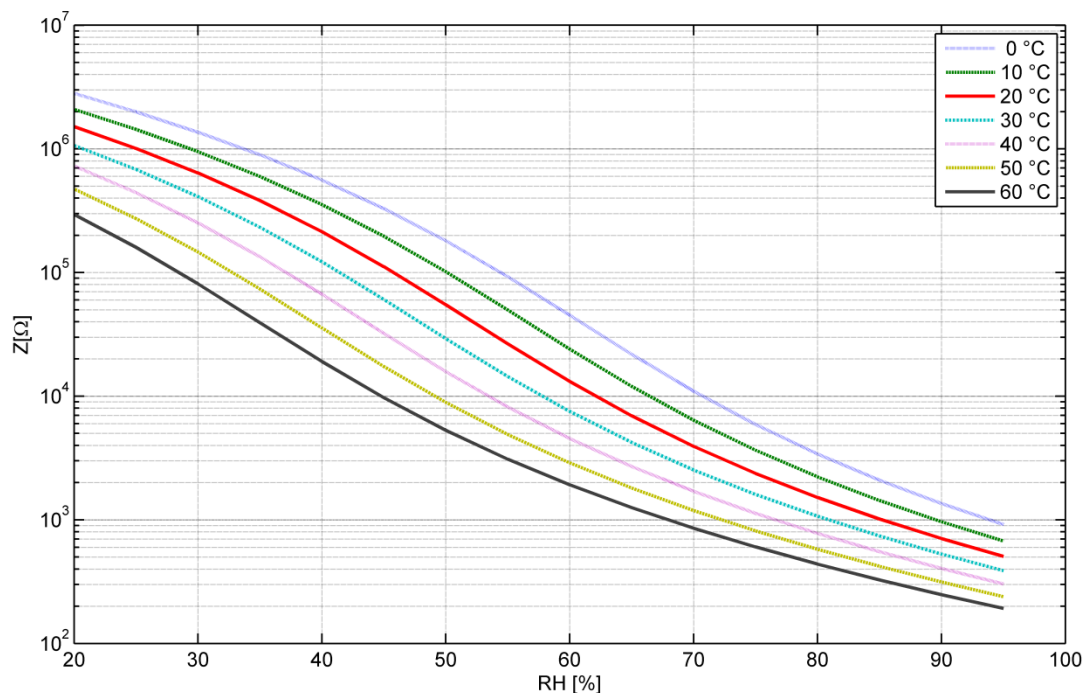


Humidity sensors - type BI2H, BI2HC, BI2HBx - impedance dependence

The table below describes the dependence of impedance [$k\Omega$] of the sensor element as a function of relative humidity and temperature.

	Temperature [°C]						
	0	10	20	30	40	50	60
20	2812.56	2090.66	1516.00	1067.60	726.23	474.19	295.27
25	1991.77	1438.16	1007.71	681.41	441.83	272.94	159.92
30	1363.33	950.35	638.70	411.18	251.97	146.41	80.97
35	895.46	598.04	382.20	232.30	133.88	73.55	39.25
40	559.37	354.83	213.89	122.27	66.76	35.56	19.07
45	329.01	196.68	111.54	60.56	32.22	17.35	9.70
50	180.62	101.64	54.91	29.20	15.79	8.90	5.29
55	92.53	49.76	26.48	14.40	8.18	4.90	3.09
60	45.09	24.03	13.14	7.52	4.54	2.89	1.92
65	21.81	12.00	6.93	4.22	2.70	1.81	1.25
70	10.98	6.39	3.92	2.53	1.70	1.19	0.86
75	5.90	3.65	2.37	1.61	1.13	0.81	0.60
80	3.40	2.23	1.52	1.07	0.78	0.58	0.44
85	2.09	1.43	1.02	0.74	0.55	0.42	0.33
90	1.35	0.96	0.71	0.53	0.40	0.31	0.25
95	0.92	0.67	0.51	0.39	0.30	0.24	0.19

Temperature humidity characteristics – sensors BI2H, BI2HC, BI2HBx



Order Information

Order code table

BI2H - - -				
Type of the construction				
sensor only	1	0	0	0
case	1	B	0	0
cable	1	B	C	0
tube	1	B	C	T
PCB	1	B	0	P
Length of the cable [mm]				
specify the required length				XXX
Length of the tube [mm]				
standard length				100
specify the required length				XXX

Example of the order code: BI2H – 1BCT – 150 - 100

Other specifications are available upon request.