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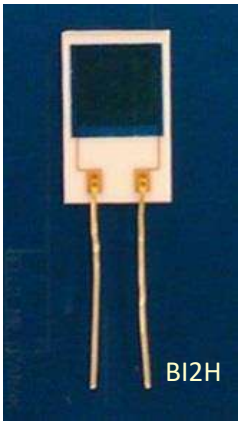
Humidity Sensor BI2H

Humidity sensor BI2H is a semiconductor sensor for measuring relative humidity. Physical measuring principle is based on the properties of polymer semiconductors. which influence of moisture changes its conductivity.



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 BI2H	
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 MΩ
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
Connections	Ag wire ø 0.25 mm. 10 ± 2 mm. or customer specifications

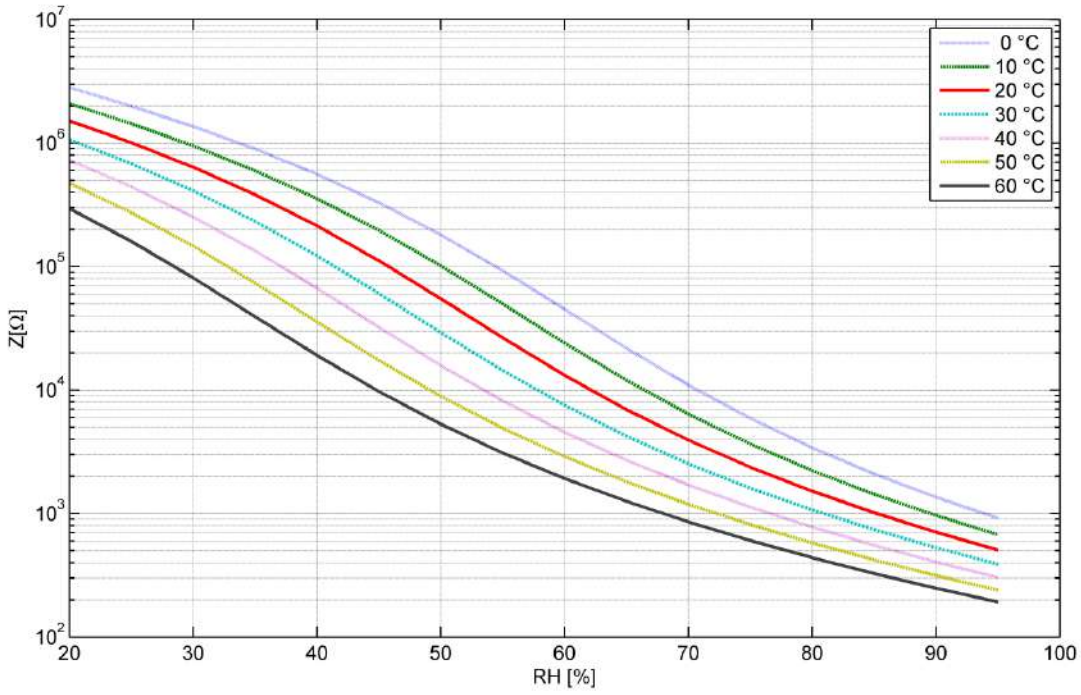
TESLA BLATNÁ, a.s., Palackého 644, 388 15 Blatná, Czech Republic
Phone: +420 383 415 366, E-mail: ozanak@tesla-blatna.cz

Humidity sensors - impedance dependence

The table below describes the dependence of impedance **[kΩ]** of the sensor element as a function of relative humidity and temperature.

Relative Humidity [RH %]	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 – BI2H



Caution remarks on 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 user should check the suitability for a particular application beforehand.