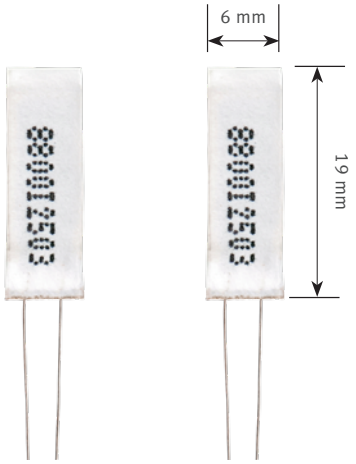
Humidity Sensor

HYGROMER IN-1



HM IN-1 Dimension

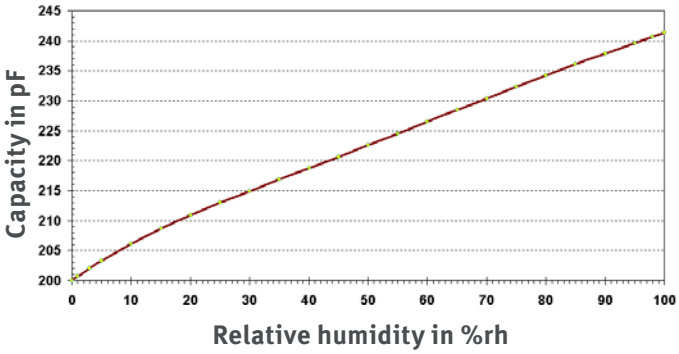
Advantages

- Best long-term stability
- Application range: -50...170 °C / 0...100 %rh
- Robust mechanical construction
- PTFE surface protection
- Response time < 15 s

Applications

- Pharmaceutical & Food industries
- Industrial high-temperature
- Chemical industries, processes and manufacturing

Standardised characteristic IN-1



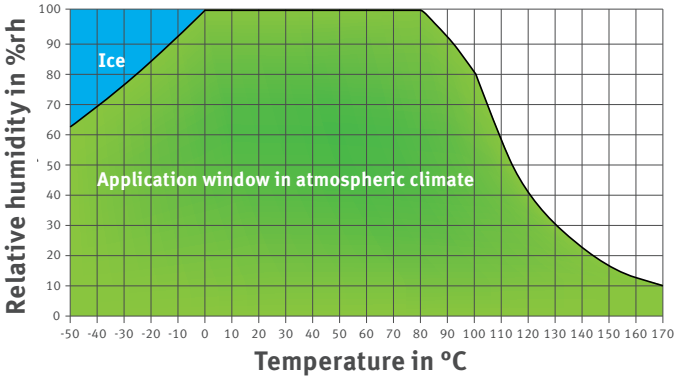
Characteristic polynomial

5th degree polynomial

Y = A0 + A1*x + A2*x2 + A3*x3 + A4*x4 + A5*x5

A0 = 2.00000E+02
A1 = 7.12550E-01
A2 = -1.19025E-02
A3 = 2.01789E-04
A4 = -1.59209E-06
A5 = 4.65615E-09

Temperature/Humidity/Parameters IN-1



Technical Data

Capacity	220 pF ±50 pF
Humidity operating range	0...100 %rh
Temperature operating	-50...170 °C
Accuracy at 23°C at optimal characteristic curve	±1.0 rh
Hysteresis (4 hours each at 15 %rh - 90 %rh - 15 %rh)	<0.5 %rh
Response time	<15 seconds (t_{63}, 23 °C and 1 m/sec. wind speed)
Long-term stability	<1 %rh / year
Uncompensated temperature deviation	Approximately -0.15 %rh / °C between 30...90 %rh
Frequency range	5...50 kHz
Max. Voltage	±12 VDC

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Contaminant/Pollutant	Formula	MAC value		Permissible constant concentration					
				IN-1		HH-1		HT-1	
		ppm	mg/m³	ppm	mg/m³	ppm	mg/m³	ppm	mg/m³
Acetone	CH_3COCH_3	1000	2400	3300	8000	3700	9000	3300	8000
Ammonia	NH_3	25	18	5500	4000	5500	4000	5500	4000
Petrol		300	1200		150000		150000		150000
Chlorine	Cl_2	0.5	1.5	0.7	2	1.5	4.5	0.7	2
Acetic acid	CH_3COOH	10	25	800	2000	1000	2500	800	2000
Ethyl acetate	$CH_3COOC_2H_5$	400	1400	4000	15000	4000	15000	4000	15000
Ethanol	C_2H_5OH	1000	1900	3500	6000	5800	10000	3500	6000
Ethylene glycol	$HOCH_2CH_2OH$	100	260	1200	3000	1200	3000	12000	3000
Formaldehyd	HCHO	1	1.2	2400	3000	2400	3000	2400	3000
Isopropanol	$(CH_3)_2CHOH$	400	980	4800	12000	6000	15000	4800	12000
Methanol	CH_3OH	200	260	3500	6000	6000	8000	3500	6000
Methyl ethyl keton	$C_2H_5COCH_3$	200	590	3300	8000	3300	8000	3300	8000
Ozone	O_3	0.1	0.2	1	2	1.5	3	1	2
Hydrochloric acid	HCl	5	7	300	500	300	500	300	500
Sulfur dioxide	SO_2	5	13	5	13	5	13	5	13
Hydrogen sulfide	H_2S	10	15	350	500	350	500	350	500
Nitrous gases	NOx	5	9	5	9	5	9	5	9
Toluene	$C_6H_5CH_3$	100	380	1300	5000	1800	7000	1300	5000
Hydrogen peroxide	H_2O_2	1	1.4	90	130	880	1200	90	130
Xylene	$C_6H_5(CH_3)_2$	100	440	1300	5000	1800	7000	1300	5000

The shown data are guide values. The resistance of the sensor strongly depends on the temperature and humidity conditions as well as on exposure duration to the pollutant. Allowed fault caused from the pollutant: ±2%rh (10...90 %rh)

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