Macromolecule Humidity Sensor

1. Working principle:

In wet conditions, water molecules are adsorbed by polar group on the surface of martial. And as the humidity increase, the quantity of water molecules will be changed accordingly. The adsorbed water is gradually condensing and coming into be liquid, which is electrolyte solution having current channel quality.

With the humidity increasing, macromolecule will swell, interior free volume will be bigger, carrier will be increased and the activated energy of macromolecule polyelectrolyte counter-ions will decrease, drift mobility will increase and impedance will decrease. And then when humidity decreases, water molecules are released from ion polymer and the resistor of material will increase. The environment humidity can be monitored though testing the impedance.

2. Application Area:

Humidity sensor, as an important chemical sensor, which is widely used in fields of warehousing, industry production, and process control, environmental monitoring, home appliances and meteorology etc.

3. Product feature:

Wide humidity detected rang

Fast response

Small Humidity hysteresis error

Simple manufacture

Easy integration

4. Specification:

Parameter Type	MSZ-1	MSZ-2
Operating Voltage	1V AC (50~2K Hz)	1V AC (50~2K Hz)
Operating humidity range	20~95%RH	10~95%RH
Accuracy	≤±5%RH	≤±3%RH
Operating temperature range	0°C~ 60°C	0°C~ 60°C
Nominal value & range	31 (21~50) KΩ (60%RH, 25°C) 23 (15~35) KΩ (60%RH, 25°C)	31 (21~50) KΩ (60%RH, 25°C) 23 (15~35) KΩ (60%RH, 25°C)
Response time	Moisture absorption: ≤20S (20%~90%) Dehumidification: ≤40S (20%~90%)	Moisture absorption: ≤20S (20%~90%) Dehumidification: ≤40S (20%~90%)
Humidity drift	≤±2%RH/year	≤±2%RH/year
Humidity hysteresis	≤±1.5%RH	≤±1.0%RH
Size	10×8×0.6mm	7×5×0.6mm