



Macromolecule Humidity Sensor

(Model: MS-Z3)

Manual

Zhengzhou Winsen Electronics Technology Co., Ltd

Statement

This manual copyright belongs to Zhengzhou Winsen Electronics Technology Co., LTD. Without the written permission, any part of this manual shall not be copied, translated, stored in database or retrieval system, also can't spread through electronic, copying, record ways.

Thanks for purchasing our product. In order to let customers use it better and reduce the faults caused by misuse, please read the manual carefully and operate it correctly in accordance with the instructions. If users disobey the terms or remove, disassemble, change the components inside of the sensor, we shall not be responsible for the loss.

The specific such as color, appearance, sizes &etc, please in kind prevail.

We are devoting ourselves to products development and technical innovation, so we reserve the right to improve the products without notice. Please confirm it is the valid version before using this manual. At the same time, users' comments on optimized using way are welcome.

Please keep the manual properly, in order to get help if you have questions during the usage in the future.

Zhengzhou Winsen Electronics Technology CO., LTD

MS-Z3 Macromolecule Humidity Sensor

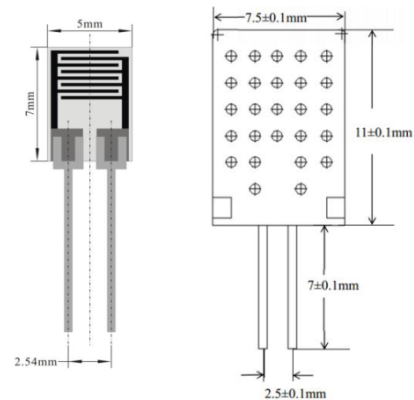
Overview

In wet conditions, water molecules are adsorbed by polar group on the surface of martial. And as the humidity increases, the quantity of water molecules will be changed accordingly. The adsorbed water is gradually condensing and coming into be liquid, which is electrolyte solution with 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 through testing the impedance.

Features

- Wide humidity detected rang
- Fast response
- Small Humidity hysteresis error
- Simple manufacture
- Easy integration



Application

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.

Technical specification Basic testing circuit

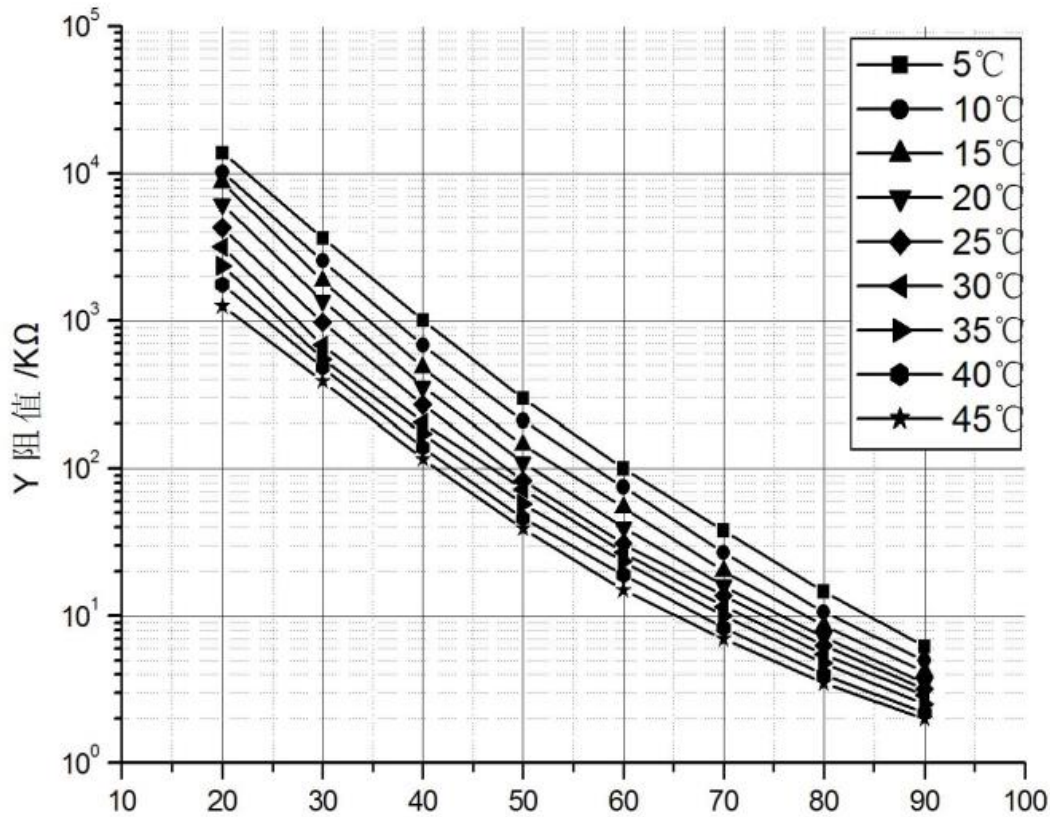
	Temperature	Humidity
Working range	0~60°C	20~90%RH
Storage range	-25~70°C	≤90%RH (non condensation)
Detection range	10~90%RH(0~60°C)	
Rated voltage	1.5V AC(MAX, sine wave)	
Rated power	0.2mW(MAX, sine wave)	
Working frequency	500Hz~2kHz	
Nominal value &range	31 (20~50) KΩ(60%RH, 25°C)	
Temperature Character	≤0.5%RH/°C	
Hysteresis	±2%RH	
Response time	Moisture absorption: ≤30s Dehumidification: ≤40s	
Stability	2%RH/year	
Accuracy	3%RH	

Impedance characters

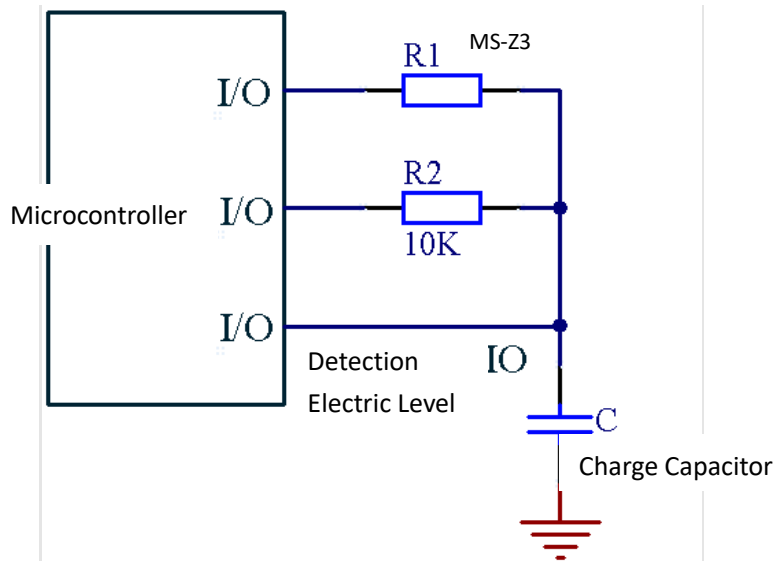
Test conditions: 1V, 1kHz

--	相对湿度/%RH							
	20	30	40	50	60	70	80	90
5°C	13817	3636	1006	296	100.1	38.06	14.67	6.2
10°C	10201	2552	680	210.3	75	27	10.6	5
15°C	8694	1860	480	144.6	54.5	20.3	8.6	4.2
20°C	6186	1367	355.1	110	40	16	7.2	3.5
25°C	4278	975	269.7	83	31	13.7	6.3	3.2
30°C	3170	683	204.3	72.5	27	11.6	5.5	2.9
35°C	2367	550	172.2	57.8	23.5	10	4.8	2.5
40°C	1763	481	139	46	19	8.3	4	2.2
45°C	1259	388.3	115.8	39.2	15	7	3.5	2

Temperature & Humidity Characteristic



Application Circuit



Note

- To avoid Polarization, the voltage or current driving the sensor should be AC
- Don't touch the sensor's surface
- Please using LCR AC bridge to measure, and multi-meter is prohibited.
- Avoid Water coagulation
- Putting the sensor under the High causticity place is prohibited
- Don't use reflow soldering method
- Recommended storage conditions:
Temperature: 10°C~ 40°C
Humidity: under 60%RH

NOTE: If the version of the manual update, Winsen doesn't notify.

Zhengzhou Winsen Electronics Technology Co., Ltd

Add: No.299, Jinsuo Road, National Hi-Tech Zone,
Zhengzhou 450001 China

Tel: +86-371-67169097/67169670

Fax: +86-371-60932988

E-mail: sales@winsensor.com

Website: www.winsen-sensor.com