

Resistive humidity sensor, Model: HR202L

HR202L is a new kind of humidity-sensitive resistor made from organic macromolecule materials, it can be used in occasions like: hospitals, storage, workshop, textile industry, tobaccos, pharmaceutical field, meteorology, etc.

1. Features:

Excellent linearity, low power consumption, wide measurement range, quick response, anti-pollution, high stability, high performance-price ratio.

2. Technical Specification:

Operating range:	humidity(20-95%RH) temperature(0-60Celsius)
Power supply:	1.5V AC(Max sine)
Operating frequency:	500Hz-2kHz
Rated power:	0.2mW(Max sine)
Central value:	31kΩ(at 25Celsius, 1kHz ,1V AC, 60%RH)
Impedance range:	19.8-50.2kΩ(at 25Celsius, 1kHz ,1V AC, 60%RH)
Accuracy:	+/-5%RH
Hysteresis:	+/-1%RH
Long-term stability:	+/-1%RH/year
Response time:	<10s

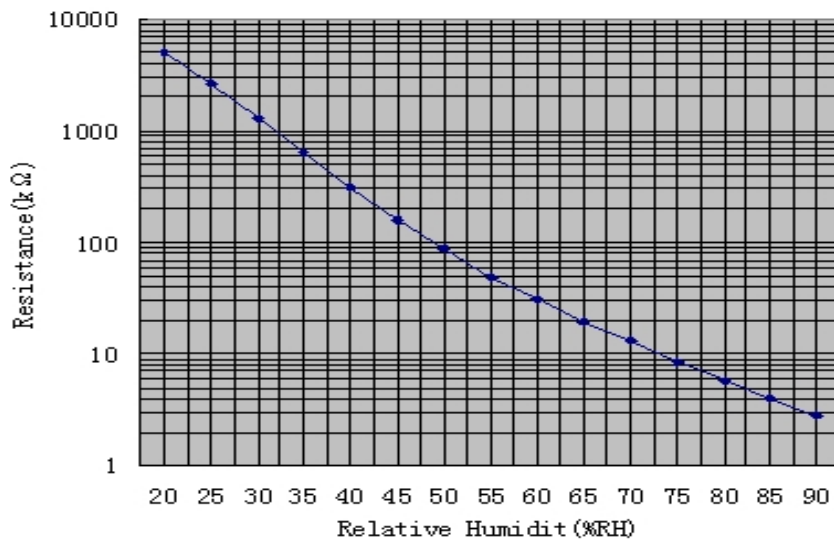
3. Main parts

Item.	Part	Reference
1	Sensor case	Polycarbonate
2	Substrate	PCB board
3	Sensing material	Polymer organic materials
4	Electrode	Copper clad laminate with immersion gold
5	Lead time	Phosphor bronze

4. Performance parameter(at 1KHz) Unit: ohm

	0℃	5℃	10℃	15℃	20℃	25℃	30℃	35℃	40℃	45℃	50℃	55℃	60℃
20%RH				10M	6.7M	5.0M	3.9M	3.0M	2.4M	1.75M	1.45M	1.15M	970K
25%RH		10M	7.0M	5.0M	3.4M	2.6M	1.9M	1.5M	1.1M	880K	700K	560K	450K
30%RH	6.4M	4.6M	3.2M	2.3M	1.75M	1.3M	970K	740K	570K	420K	340K	270K	215K
35%RH	2.9M	2.1M	1.5M	1.1M	850K	630K	460K	380K	280K	210K	170K	130K	150K
40%RH	1.4M	1.0M	750K	540K	420K	310K	235K	190K	140K	110K	88K	70K	57K
45%RH	700K	500K	380K	280K	210K	160K	125K	100K	78K	64K	50K	41K	34K
50%RH	370K	26K	200K	150K	115K	87K	69K	56K	45K	38K	31K	25K	21K
55%RH	190K	140K	110K	84K	64K	49K	39K	33K	27K	24K	19.5K	17K	14K
60%RH	105K	80K	62K	50K	39K	31K	25K	20K	17.5K	15K	13K	11K	9.4K
65%RH	62K	48K	37K	30K	24K	19.5K	16K	13K	11.5K	10K	8.6K	7.6K	6.8K
70%RH	38K	30K	24K	19K	15.5K	13K	10.5K	9.0K	8.0K	7.0K	6.0K	5.4K	4.8K
75%RH	23K	18K	15K	12K	10K	8.4K	7.2K	6.2K	5.6K	4.9K	4.2K	3.8K	3.4K
80%RH	15.5K	12.0K	10.0K	8.0K	7.0K	5.7K	5.0K	4.3K	3.9K	3.4K	3.0K	2.7K	2.5K
85%RH	10.5K	8.2K	6.8K	5.5K	4.8K	4.0K	3.5K	3.1K	2.8K	2.4K	2.1K	1.9K	1.8K
90%RH	7.1K	5.3K	4.7K	4.0K	3.3K	2.8K	2.5K	2.2K	2.0K	1.8K	1.55K	1.4K	1.3K

5. Impedance performance (at25℃ 1V AC 1kHz)

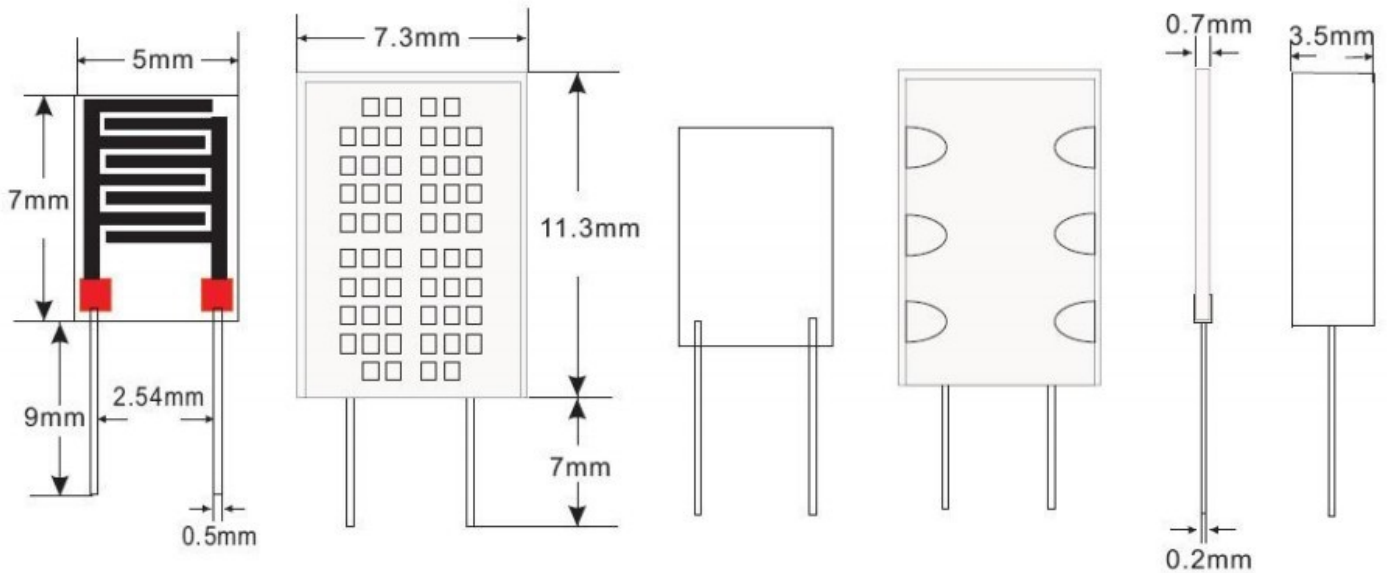


6. Stability test

No.	Item	Description	Consequence
1	Strength of terminations	0.5KG & 10 seconds in the axial direction of lead terminal	No abnormal change in terms of appearance & electrical characteristics
2	Shock resistance	Drop down 3 times from height of 1meter	No abnormal change in terms of appearance & electrical characteristics
3	Vibration resistance	2 hours each in the directions of X-Y-Z, at the frequency of 10-55Hz & amplitude of 1.5mm	No abnormal change in terms of appearance & electrical characteristics
4	Resistance to soldering heat	The lead terminal shall be Immersed by 3 mm from the	No abnormal change in terms of appearance & electrical characteristics

		substrate for 3 seconds in solder bath of $260\pm 5^{\circ}\text{C}$	
5	Heat resistance	1000 hours@ 70°C	< $\pm 5\% \text{RH}$
6	Cool resistance	1000 hours@ -30°C	< $\pm 5\% \text{RH}$
7	Humidity resistance	1000 hours@ 40°C	< $\pm 5\% \text{RH}$
8	Humidity cycle	Repeat 100 cycles Each cycle: 30 minutes@ -30°C 30 minutes@ 85°C	< $\pm 5\% \text{RH}$
9	Voltage resistance	3000 hours@1KHz, 1Vrms	< $\pm 5\% \text{RH}$

7. Dimensions



Cautions:

- (1) Avoid polarization, driving voltage or current should be 100% alternative.
- (2) Please measure the sensor with LCR alternative-current bridge, don't use multimeter.
- (3) Avoid dew condensation.
- (4) Recommended storage conditions: temperature 0-60Celsius; humidity <80%RH