

HSM-20G HUMIDITY SENSOR MODULE

The module of HSM-20G is essential for those applications where the relative humidity can be converted to standard voltage output.

1. Applications

- 🕒 Humidifiers & dehumidifiers
- 🕒 Air-conditioner
- 🕒 Humidity data loggers
- 🕒 Automotive climate control
- 🕒 Other applications

2.Specifications

Characteristics		HSM-20G
Input voltage range		DC 5.0±0.2V
Output voltage range		DC 1.0—3.0 V
Measurement Accuracy		±5% RH
Operating Current (Maximum)		2mA
Storage RH Range		0 to 99% RH
Operating RH Range		20 to 95% (100% RH intermittent)
Transient Condensation		< 3%RH
Temperature Range	Storage	-20℃ to 70℃
	Operating	0℃ to 50℃
Hysteresis (RH @ 25℃)		MAX 2%RH
Long Term Stability(typical drift per year)		±1.5%
Linearity		Linearity
Time Response(63% step change)		1 min
Dimensions(L*W)		34mm*22mm

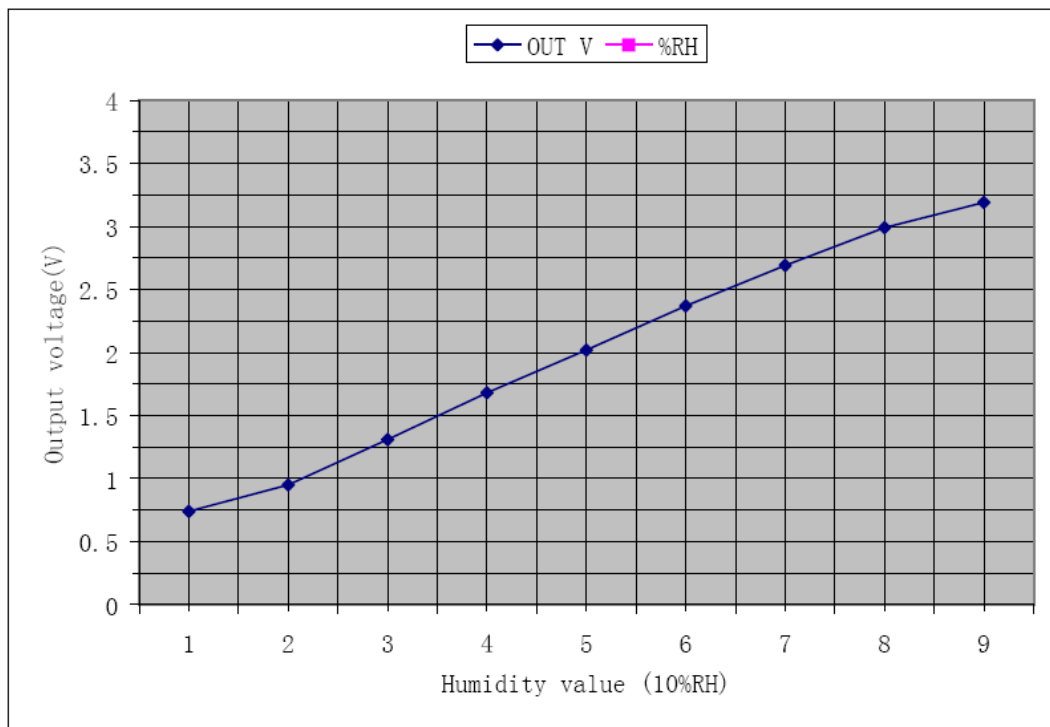
3.Reliability Test

No	Item	Method	Requirment
1	Impact test	To drop module 3times at random on to a hard wooden plate from 1meter above high	No breakge, nor racks Should be electrically normal
2	Vibration test	Vibration test in X-Y-Z axis for 30min .under 10 – 55Hz frequency,1.5mm (10-55-10Hz)	Within $\pm$ 5%RH
3	Heat Resistance	To leave module in an ambient of 55 $^{\circ}$ C and 30%RH max. for 48hours.	Within $\pm$ 5%RH
4	Cool Resistance	To leave module in an ambient of -10 $^{\circ}$ C and 30%RH max. for 48hours.	Within $\pm$ 5%RH
5	Humidity Resistance	To leave in an ambient of 40 $^{\circ}$ C and 95%RH for 48hours.	Within $\pm$ 5%RH
6	Temperature cycle test	5cycles.1cycle stands for leaving module under -10 $^{\circ}$ C for next 1hour. Then ,leave it another 1hours ,and lower temp. to -10 $^{\circ}$ C for next 1hour.	Within $\pm$ 5%RH

Remark :

- All standard figures are based on humidity variation under 60%RH (at 25 $^{\circ}$ C)
- Upon completion of all test, module will be left over under nominal environment
- And humidity for 24hours.

4. Typical Response of HSM-20G at 25 °C



STANDARD CHARACTERISTICS

%RH	10	20	30	40	50	60	70	80	90
OutputV	0.74	0.95	1.31	1.68	2.02	2.37	2.69	2.99	3.19

5. 0 Temperature Output Signal （HSM——20G）

$R(25^{\circ}\text{C}) = 47\text{k}\Omega \pm 1\%$, $B(25/85) = 3950 \pm 1\%$

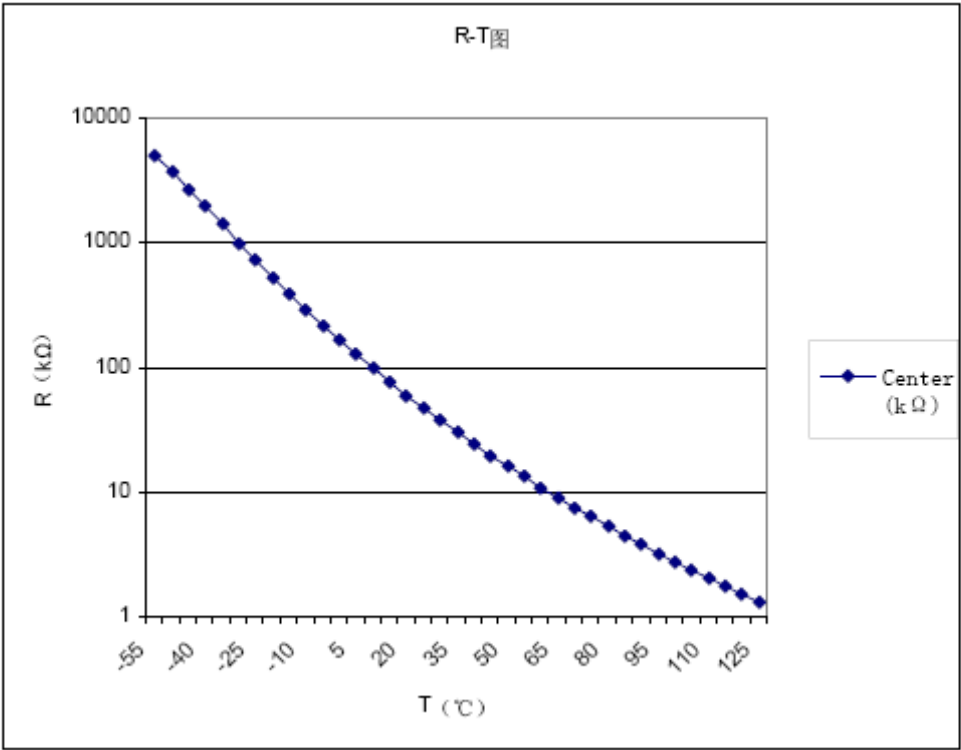
Temperature($^{\circ}\text{C}$)	0	10	20	25	30	40	50	60
Resistance($\text{k}\Omega$)	158.02	94.82	58.92	47.00	37.78	24.92	16.86	11.69

•Temperature Dependence (Reference)

$\pm 5\%$ RH($V_{\text{in}}=5\text{V DC}$, 40~80%RH, Temp Range 10~40 $^{\circ}\text{C}$ (based on 25 $^{\circ}\text{C}$)

•Voltage Dependence (Reference)

$\pm 5\%$ RH($V_{\text{in}}=5\text{V DC}$, 40~80%RH, Voltage Range 4.75~5.25V (based on 5V DC)



5. 1 Temperature Output Signal （HSM——20G）

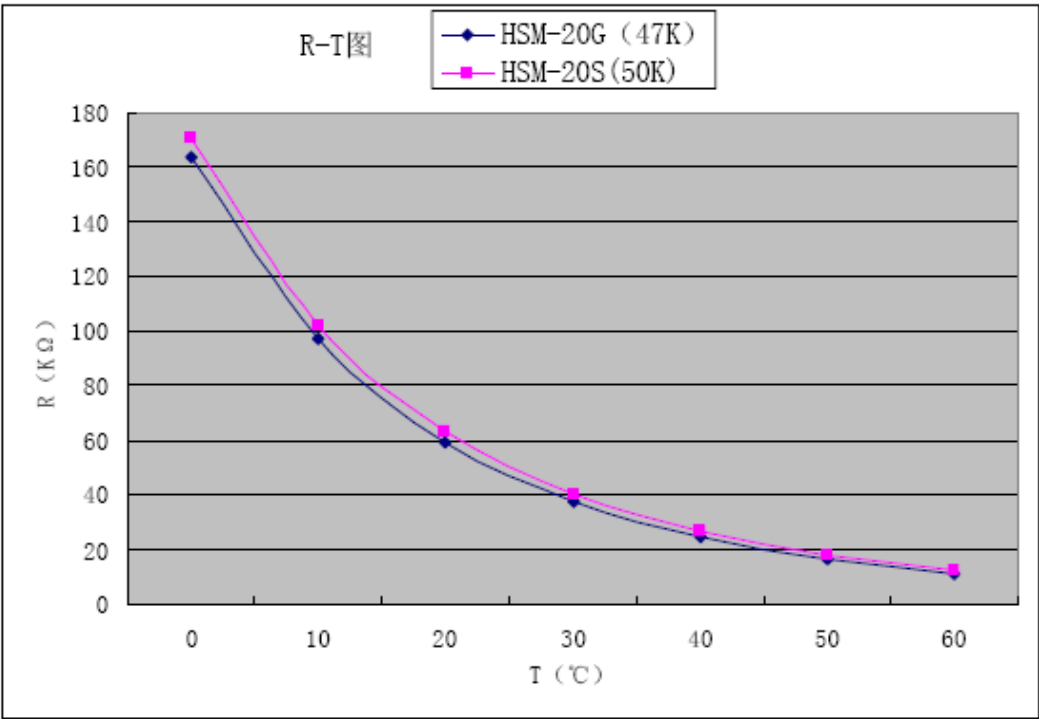
$R(25^{\circ}\text{C}) = 47\text{k}\Omega \pm 1\%$, $B(25/85) = 3950 \pm 1\%$

Temperature($^{\circ}\text{C}$)	0	10	20	25	30	40	50	60
Resistance($\text{k}\Omega$)	158.02	94.82	58.92	47.00	37.78	24.92	16.86	11.69

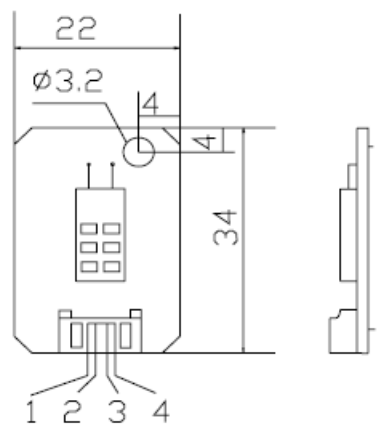
5. 2 Temperature Output Signal （HSM-20S）

$R(25^{\circ}\text{C}) = 50\text{k}\Omega \pm 1\%$, $B(25/85) = 4000 \pm 1\%$

Temperature($^{\circ}\text{C}$)	0	10	20	25	30	40	50	60
Resistance($\text{k}\Omega$)	170.70	101.78	62.86	50.00	40.08	26.30	17.71	12.21



6.Dimensions(For Reference only)



Pin	Function
1	Temperature Output
2	GND
3	Humidity Output
4	Vcc (+5.0V)

7. Recommended Circuit

