MHTC1B

MHC1B

Capacitive humidity sensor

Humidity and temperature sensor module

Data sheet

Manufacturer: Ningbo Jiangbei Junrong Electron Technology Co., Ltd
Phone: 86-574-87386939, 87386839, 87386739
Web site: http://www.humidjr.com
Email: jr@nbjrdz.com
Address: no.7 nijiayan road, jiangbei district, Ningbo China

Name	**Humidity and temperature sensor module**	**Ningbo jiangbei junrong electron technology Co., ltd product developed department**	Frame	2006. 6. 18.
			Emend1	2006. 08. 06.
Model	**MHTC1B MHC1B**		Emend 2	2007. 02. 28.
			Emend 3	

1：Summarization

MHTC1B series humidity and temperature sensor testing module is designed base capacitive humidity and temperature sensor by Ningbo Junrong Electron. This product utilizes humidity sensor capacitor (HS1101, France Humirel) and temperature sensor (LM35, America).It use parts of an apparatus of industry, orbit to orbit, low power consume, high capability, with the characteristics of high testing, good interchange, small bulk, use convenience, quick response, low power consume and it also use craftwork of SMD, and it has stable and reliably performance. The quality guarantee time is 12 months.

2：Application

electron、pharmacy、foodstuff process、keep fresh、desiccation、storage、tobacco、spin、chemistry industry、biology engineering、crockery metallurgy、weather、library、museum

3：Shape

	Model	encapsulation	Shape
	MHTC1B **humiture sensor module**	**without shell**	Chart1
		with shell	Chart1

4：Model (humiture: humidity and temperature)

MHTC1B series bases on the type of the temperature sensor, humidity export precision and export voltage range, it can fractionize to 12models.

MHC1B-I single **humidity measuring module，without the temperature testing element，**export 0-3V，±4%RH

MHC1B-H single **humidity measuring module，without the temperature testing element，**export 0-3V，±3%RH

MHC1B1-I single **humidity measuring module，without the temperature testing element，**export 1-4V，±4%RH

MHC1B1-H single **humidity measuring module，without the temperature testing element，**export 1-4V，±3%RH

MHTC1B1-I Humiture **measuring module，**the **temperature element** is NTC heat sensitive resistance, export 0-3V，±4%RH

MHTC1B1-H Humiture **measuring module，**the **temperature element** is NTC heat sensitive resistance, export 0-3V，±3%RH

MHTC1B2-I Humiture **measuring module，** the **temperature element** is LM35 temperature sensor, export 0-3V，±4%RH

MHTC1B2-H Humiture **measuring module，** the **temperature element** is LM35 temperature sensor, export 0-3V，±3%RH

MHTC1B3-I Humiture **measuring module，**the **temperature element** is NTC heat sensitive resistance, export 1-4V，±4%RH

MHTC1B3-H Humiture **measuring module，**the **temperature element** is NTC heat sensitive resistance, export 1-4V，±3%RH

MHTC1B4-I Humiture **measuring module，** the **temperature element** is LM35

temperature sensor, export 1-4V, ±4%RH

MHTC1B4-H Humiture **measuring module**, the **temperature element** is LM35 temperature sensor, export 1-4V, ±3%RH

5: Electric **parameter**

(1) **Power supply (vin)** DC 5V±5%

(2) **Electrical current** 0.5mA (MAX 0.8mA)

(3) **Temperature operating range:** -30～85℃

(4) **Humidity operating range:** 0～100%RH (**dew point**)

(5) **Humidity measuring range:** 1～99%RH

(6) **Temperature storing range** -40～100℃

(7) **Humidity storing range** 95%RH (no **dew point**)

(8) **Humidity measuring Accuracy** ±3%RH or ±4%RH(condition:at25℃,60%RH)

(9) **Typical humidity data responding to output** (condition:at25℃,Vin=5.0V)

Relative humidity (%RH)	0	10	20	30	40	50	60	70	80	90	100
Export voltage (0-3V)	0	0.497	0.568	0.82	1.065	1.314	1.578	1.868	2.23	2.568	3.0
Relative humidity (%RH)	0	10	20	30	40	50	60	70	80	90	100
Export voltage (1-4V)	1.03	1.325	1.592	1.842	2.084	2.331	2.593	2.88	3.203	3.573	4.00

(Standard speciality picture is on the page 6 of chart 4.)

(10) **Temperature testing feature**

MHTC1B2、MHTC1B4 ±1.5℃ (LM35 integration temperature sensor)

Standard data table is on the page 7 of chart 5.

MHTC1B1、MHTC1B3 ±2% 10K 3950 heat sensitive resistance

Standard data table is on the page 7 of chart 2.

(11) **Temperature dependence (reference):** ±2%RH(Vin=5.00V DC, 0-100%RH 25℃ is the benchmark, 0-50℃range)

(12) **Voltage dependence (reference):** <±3%RH

6: **Testing condition**

At atmosphere 25℃, power supply 5.0V DC

Put the humiture sensor module in dry air at 25℃/20%RH environment 5 minutes before testing, then put it into testing container keeping the **Humidity 60%RH, 5 minutes later, measure the voltage.**

《Testing equipment》 diffluence type humidity occurring device: SHR-1 type

Testing device : Fuluke45

7：Stable testing

No.	Item	Testing Method	Specification
1	Impact-resistance	Drop from 1 meter into hardwood floor, repeat 3 times	No damage, no element break off, normal electric feature
2	Aseismatic	10~55Hz, swing 1.5mm(10~55Hz~10Hz)along X-Y-Z direction 2 hours	No damage, no element break off, normal electric feature
3	Heat-resistant	Place it below 80℃, 30%RH environment 1000 hours	Within ±4%RH
4	Cold-resistant	Place it below 10℃, 70%RH environment 1000 hours	Within ±4%RH
5	Humidity-resistant	Place it at 40℃, 90%RH environment 1000 hours	Within ±4%RH
6	Temperature loop	Place at below 0℃ environment 30 minutes, than put it at 50℃ environment 30 minutes, and last place again at below 0℃ environment 30 minutes, and repeat 5 times.	Within ±4%RH
7	Acid-resistant	At Normal temperature Ethanol gas: 30 minutes Acetone gas: 30 minutes	Within ±4%RH

Remark: 1. Specification based on 60%RH

2. Place the product at normal temperature and humidity 4 hours after all testing is over, than measure the humidity.

8 Notes

(1) Please be careful when connecting (no protecting supply power.)

(2) Make sure Supply power according to the stipulate range

(3) Storage condition

Temperature range 10 ~ 50℃

Humidity range 80%RH

Chart1：MHTC1B series shape

MHTC1B

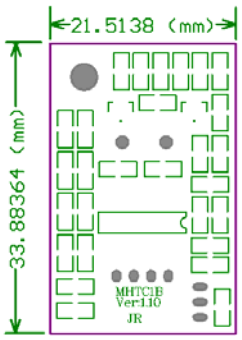


Table1. Electric connecting

Electric tie-in	Content
1	Power supply DC 5V±5%
2	Humidity output
3	cathode （GND）
4	Temperature output

Chart2. Connection example.

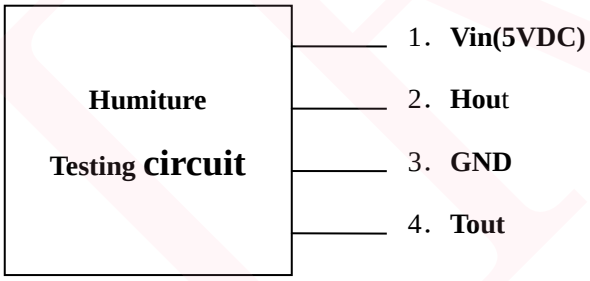


Chart3. Electric connecting line

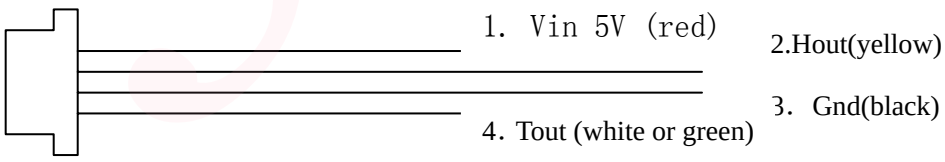
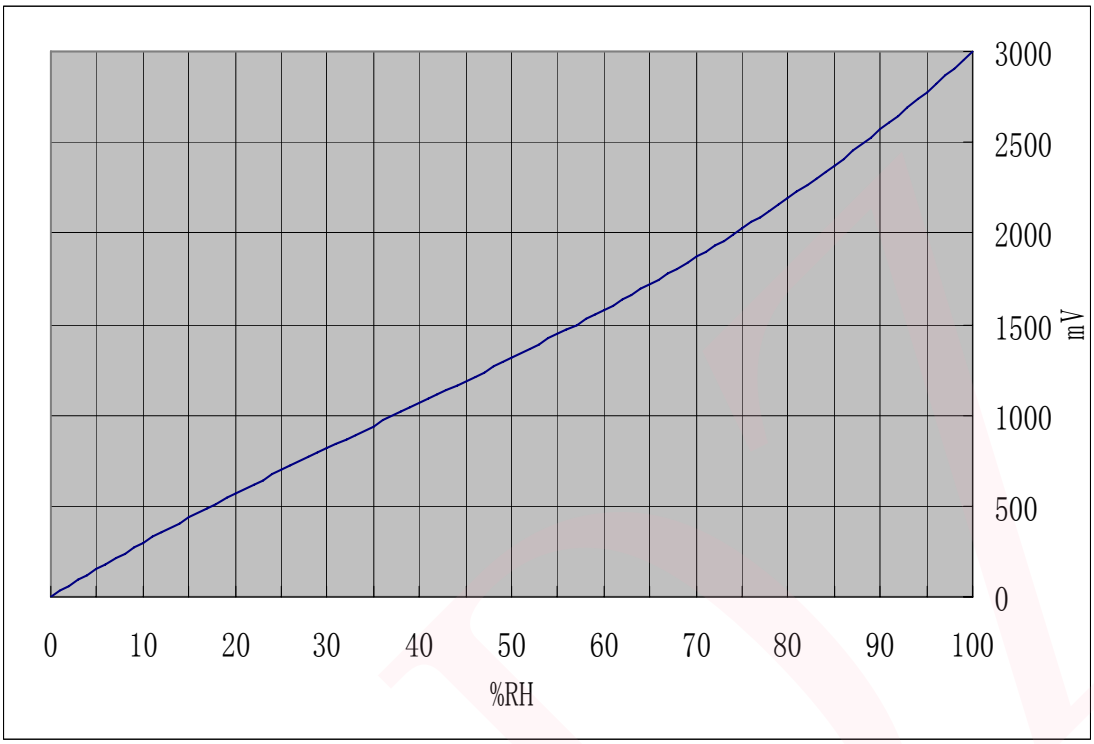
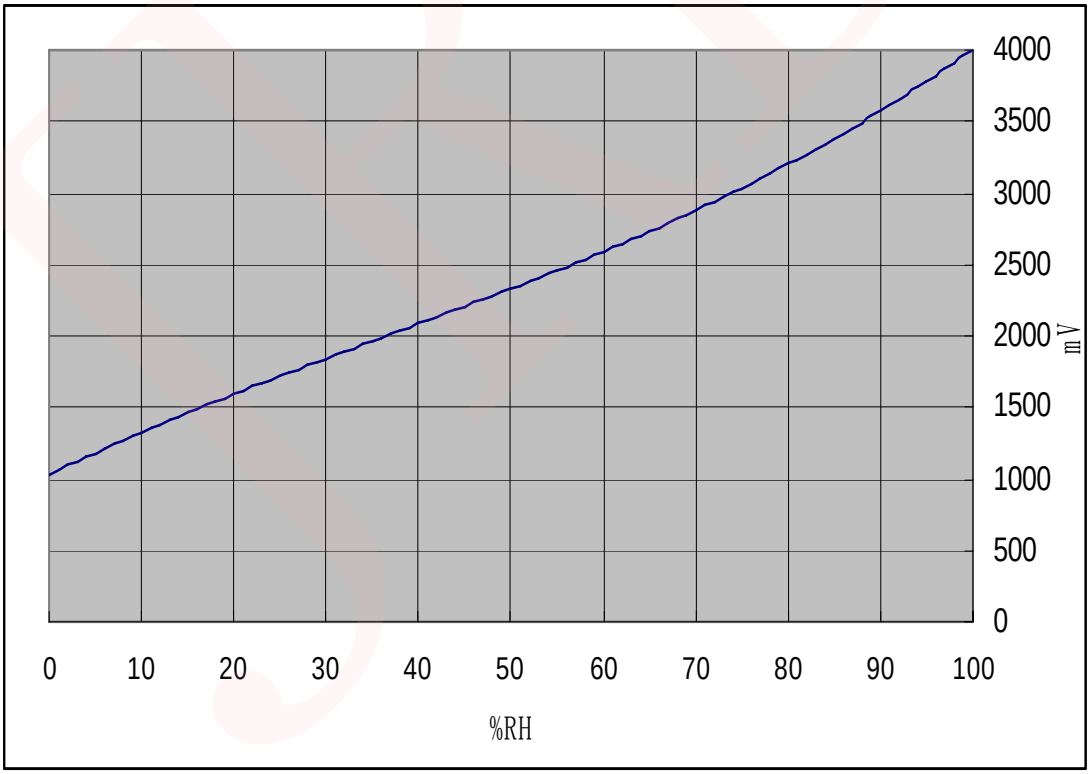


Chart4. Humidity standard characteristic picture

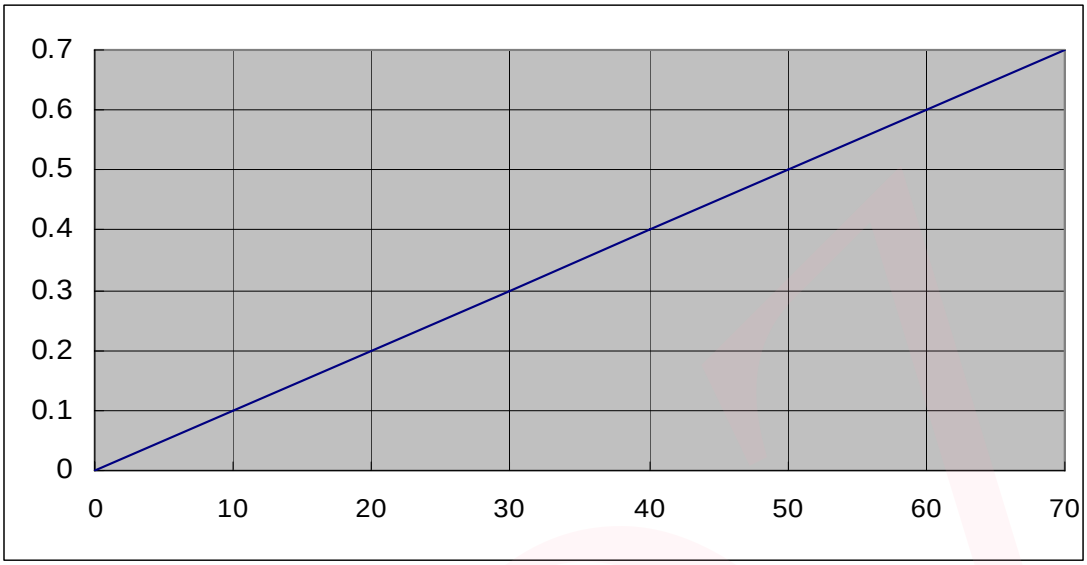


Output voltage 0-3V DC



Output voltage 1-4V DC

Chart 5.**Temperature** standard characteristic picture (LM35)



Output voltage 0-0.7V DC

Table2. 10KΩ 3950 R-T table

::10KΩ 3950:: R-T table							
T	R	T	R	T	R	T	R
0	32.7421	20	12.5005	40	5.315	60	2.476
1	31.1138	21	11.9485	41	5.1053	61	2.388
2	29.5759	22	11.4239	42	4.905	62	2.304
3	28.1229	23	10.9252	43	4.7136	63	2.223
4	26.7496	24	10.451	44	4.5307	64	2.146
5	25.4513	25	10	45	4.3558	65	2.071
6	24.2234	26	9.5709	46	4.1887	66	2
7	23.0618	27	9.1626	47	4.0287	67	1.931
8	21.9625	28	8.7738	48	3.8758	68	1.865
9	20.9218	29	8.4037	49	3.7294	69	1.802
10	19.9364	30	8.0512	50	3.5893	70	1.741
11	19.0029	31	7.7154	51	3.4553	71	1.683
12	18.1184	32	7.3954	52	3.3269	72	1.626
13	17.28	33	7.0904	53	3.2039	73	1.572
14	16.4852	34	6.7996	54	3.0862	74	1.52
15	15.7313	35	6.5223	55	2.9733	75	1.47
16	15.0161	36	6.2577	56	2.8652	76	1.422
17	14.3375	37	6.0053	57	2.7616	77	1.376
18	13.6932	38	5.7645	58	2.6622	78	1.331
19	13.0815	39	5.5345	59	2.5669	79	1.288