

PRODUCT	Temperatur & Humidity Transmitter Module	SHINYEI KAISHA Electronic Instruments div.			Issued	APR. 20, 2006
		Approval	Check	Drawer	Rev. 1	
MODEL NO.	RHI-120D				Rev. 2	
					Rev. 3	
					Rev. 4	
					Rev. 5	

1, Scope:

This specification is applied to the Temperatur & Humidity Sensing Module Type RHI-120D.

2, Configuration:

	Model No.	Connector Type	Drawing
1	RHI-120D	Connector (S4B-PH-K-S(LF)(SN))	Page7, Fig.1

3, Electrical characteristics

(3 - 1)	Supply Voltage (Vin):	3.15 ~ 5.5VDC
(3 - 2)	Current Consumption:	2mA (5mA max.)
(3 - 3)	Operating Range:	0 to 60deg.C below 95%rh (no condensation)
(3 - 4)	Humidity Detecting Range:	10 to 90%rh (no condensation)
(3 - 5)	Storage:	-20 to 70deg.C below 95%rh (no condensation)
(3 - 6)	Accuracy (Humidity):	+/-3%rh (at 25deg.C, 50%rh, Vin=3.15 ~ 5.5VDC)

(3 - 7) Humidity Output Signal (Reference): at 25 deg. C, Vin=3.15 ~ 5.5VDC

Humidity (%rh)	10	20	30	40	50	60	70	80	90
Digital Output (HEX)	064	0C8	12C	190	1F4	258	2BC	320	384

An output serves as serial data to relative humidity.

Output Impedance approx.: 5 k

Standard characteristics: Page8 /Fig. 2

(3 - 8) Accuracy Humidity (Reference): at 25 deg. C, Vin=3.15 ~ 5.5VDC

Humidity (%rh)	30	40	50	80
Accuracy (%rh)	(+/-5)	(+/-4)	+/-3	(+/-6)

(3 - 9) Temperature Output (Reference): at 25 deg. C, Vin=3.15 ~ 5.5VDC

Temperature(deg .C)	5	15	25	35	45	55
Digital Output (HEX)	3C	50	64	78	8C	A0

An output serves as serial data to temperature.

Range: 0-60 degrees C

Accuracy: 25 degrees C +/-1.5 degrees C

4, Standard measurement condition

Test condition: Ambient temp. 25deg.C, Supply Voltage 5.00VDC

The output voltage of modules to be measured after leaving modules under 0%rh circumstance for 15min. and 50%rh circumstance for another 15min..

<Measurement instruments>

*Divided flow type accurate Humidity Generator Model SRH-1 (SHINYEI).

*Voltage meter.

5, Reliability test

No.	ITEM	METHOD	REQUIREMENT
1	Impact test	Drop module 3times at random on to a hard wooden plate from 1 meter above high.	No breakage, nor cracks. Should be electrically normal.
2	Vibration test	Vibration test in X-Y-Z axis for half an hour. Under10-55Hz frequency, 1.5mm(10-55-10Hz) amplitude.	No breakage, nor cracks. Should be electrically normal.
3	Heat resistance	Leave module in an ambient of 70 deg. C and 30%rh max. for 1000 hours.	Within +/-5%rh
4	Cool resistance	Leave module in an ambient of -20 deg. C and 30%rh max. for 1000 hours.	Within +/-5%rh
5	Humidity resistance	Leave module in an ambient of 40 deg. C and 95%rh for 1000 hours.	Within +/-5%rh
6	Temperature cycle test	300 cycles. The 1 cycle is to leave module under 0 deg. C for 1hour and raise ambient temp. 60 deg. C in next 1hour, then, after leaving another 1hour under 60 deg. C, lower temp. 0 deg. C in next 1hour.	Within +/-5%rh

Remark: 1) All standard figures are based on humidity variation under 50%rh (25deg.C)

2) Upon completion of all tests, module should be left under normal room air condition for 24hours.

6, Inspection method

(6 - 1) Method: Sampling inspection (Sampling size 9pcs/3000pcs.maximum Lot qty.)

(6 - 2) Inspection Items

A. Appearance Inspection

Article	Method	Standard
Appearance	Visual check	<ul style="list-style-type: none"> • No rough dirt • Sensor cap attached properly. • No loose parts
Dimension	Slide calipers Scales	Dimensional specification in Fig.1 of page 7.

B. Characteristic inspection

Inspection method

Check output signal in an ambient of 50%rh and 25 deg. C

Test equipment: Divided flow type Humidity Generator type SRH-1, SHINYEI.

Standard specs.

Monitored output value on Thermistor should stay within the specified accuracy.

Humidity : $\pm 3\%$ rh at 50%rh, 25deg.C (standard :*** ~*** HEX)

Inspection data

The measured voltage and resistance values should be filled in inspection report.

7. Packaging

(1) 40pcs of modules are placed in a tray.

(2) 25sheets (1000pcs of Module) to be packed in a shipping carton box (size :370 × 290 × 330mm).

In case of fractional packing, the above bag and carton box may not be used.

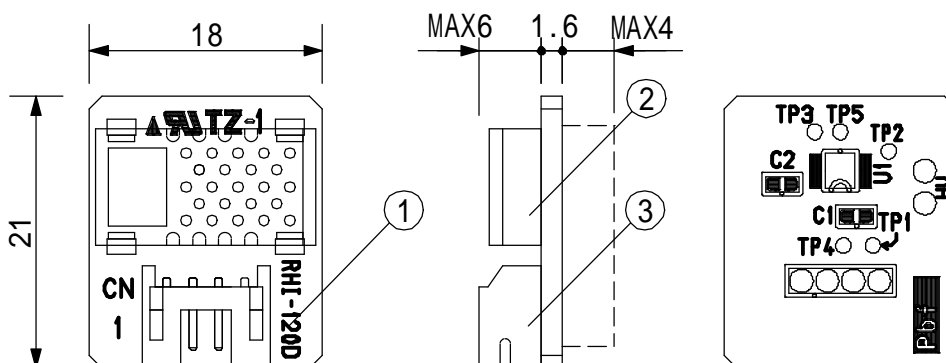
8. Caution remarks on operation

- (1) Please keep sensors away from dewfall and drenching.
- (2) Please do not use humidity sensors in the following environment.
 - (a) Saline gas
 - (b) Inorganic gas Sulfide dioxide , Chlorine , Ammonium , etc.
 - (c) Organic gas Alcoholic , Glycols , Aldehydes , etc.
- (3) Recommendable storage condition
 - Temperature range 10 to 40deg.C
 - Humidity range 60%rh max.
- (4) Please do not store humidity sensors for long period of time in over 60deg.C ambient due to some degradation on sensor housing might be caused.

9. Specific Material

- (1) The specific material as Mercury, Lead, Cadmium and Hexavalent Chromium are not contained.
Remark: The lead in glass is excluded as on the RoHS exemption ANNEX.
- (2) Possibility of any specific material which bromine flame resistant materials
The following materials are also excluded in this product.
 - Subject material
 - PBBOs: PBDO, PBDPO, PBDE, PBDPE
 - PBBs

Fig.1 Configuration & Parts (Model :RHI-120D)



指定のない寸法精度 ±0.5mm (UNIT: mm)
Tolerance is ±0.5mm unless otherwise specified.

Main parts

No.	Parts	Reference
1	Printed board	Material: P.P, 1.6mm thk.
2	Humidity sensor HPR-MQ-M53R FC-6 Sensor case	Material: ABS
3	S4B-PH-K-S(LF)(SN) Connector	JST

Terminal Connection

Terminal	Content
1	Power source 5VDC
2	Temperature & Humidity output (Serial data I/O)
3	GND
4	Serial clock input

Application

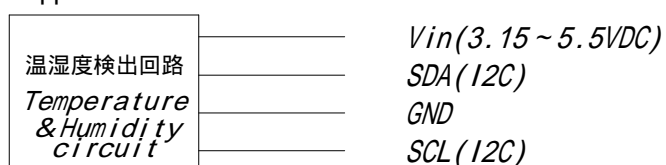


Fig.2 Relative humidity- digital output characteristics

