

## HMZ-333A Humidity module specifications

### 1. Application range :

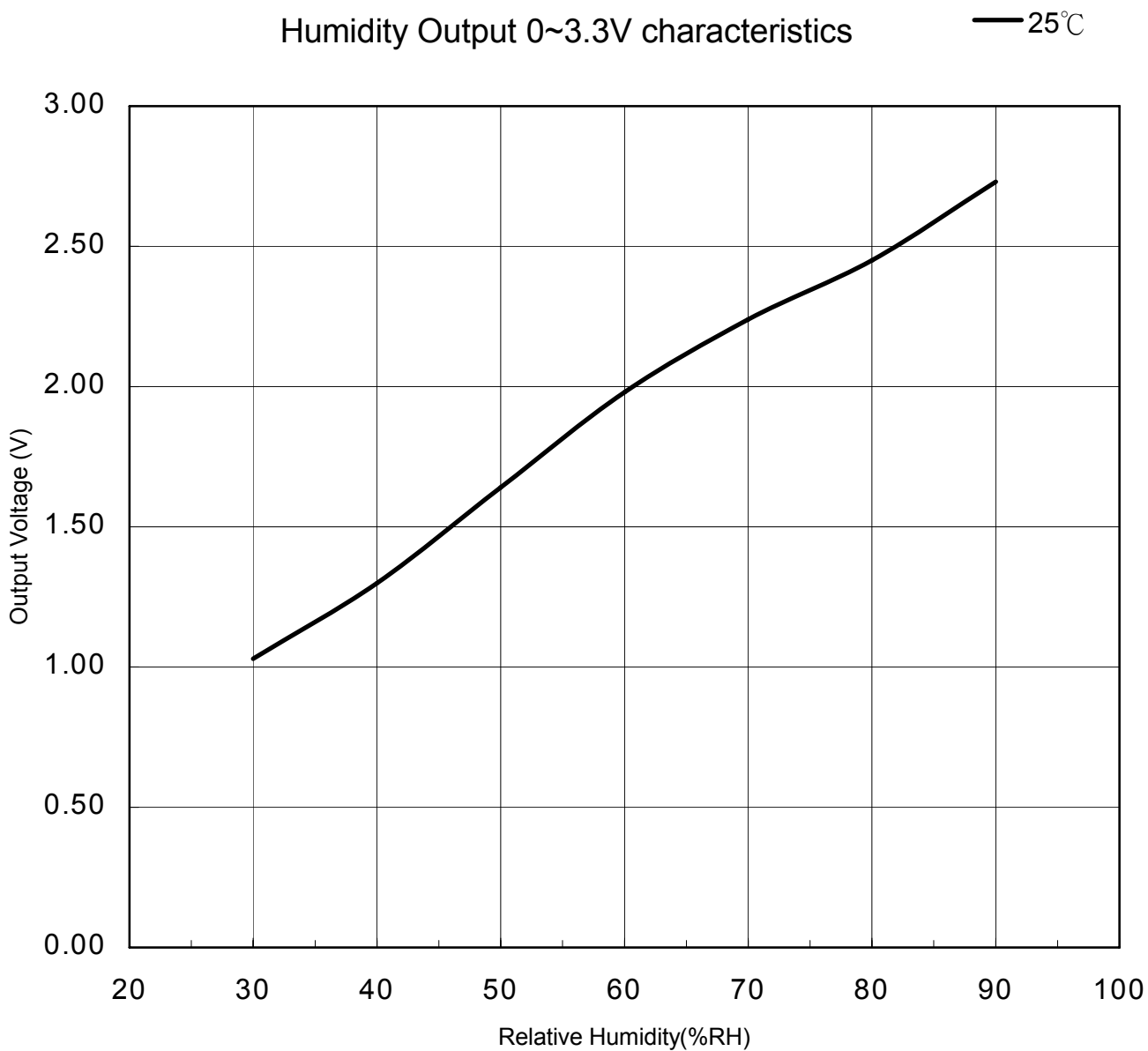
The HMZ-333A module consist of an HCZ-H6A sensor and integrated circuit to provide a linear DC Voltage for 0-100%RH to enable easy user application of the HCZ-H6A sensor. They are specifically designed for use appliances and controllers.

| Feature                       | Application                                |
|-------------------------------|--------------------------------------------|
| Wide humidity operation range | Air condition, humidifier, Dehumidifier.   |
| Linear DC Output              | Humidity controller, Humidity transmitter. |
| Easy operation                | Hygrometer, Hygro-recorder.                |
| Long-term stability           | Copying machine.                           |
| Small and economical          | Clock, Weather-forecast barometer.         |

### 2. Electrical characteristics :

- 2.1 Sensing element (Humidity) : HMZ-333A Humidity sensor “ GHITRON HCZ-H6A”
- 2.2 Supply Voltage (Vin) : 5VDC $\pm$ 5%
- 2.3 Current Consumption : 5mA max: (2mA avg.)
- 2.4 Operating Range
- Temperature : 0 to 60°C
- Humidity : 95%RH or less
- 2.5 Storage:
- Temperature : -20 to 60°C
- Humidity : 95%RH or less
- 2.6 Humidity transmitting
- Range : 30 to 90%RH
- 2.7 Accuracy
- Humidity :  $\pm$ 5%RH at (25 $\pm$ 0.5, 60 $\pm$ 1%RH, Vin=5.00V $\pm$ 5%DC)
- 2.8 Humidity Output 0~3.3V
- At 25°C, Vin=5.00VDC
- Signal(Reference) : (Output Impedance approx:5K $\Omega$ )

| Humidity(%RH)     | 30   | 40   | 50   | 60   | 70   | 80   | 90   |
|-------------------|------|------|------|------|------|------|------|
| Output Voltage(V) | 1.00 | 1.32 | 1.65 | 1.98 | 2.31 | 2.64 | 2.97 |

**2.9 Humidity Output 0~3.3V characteristics**


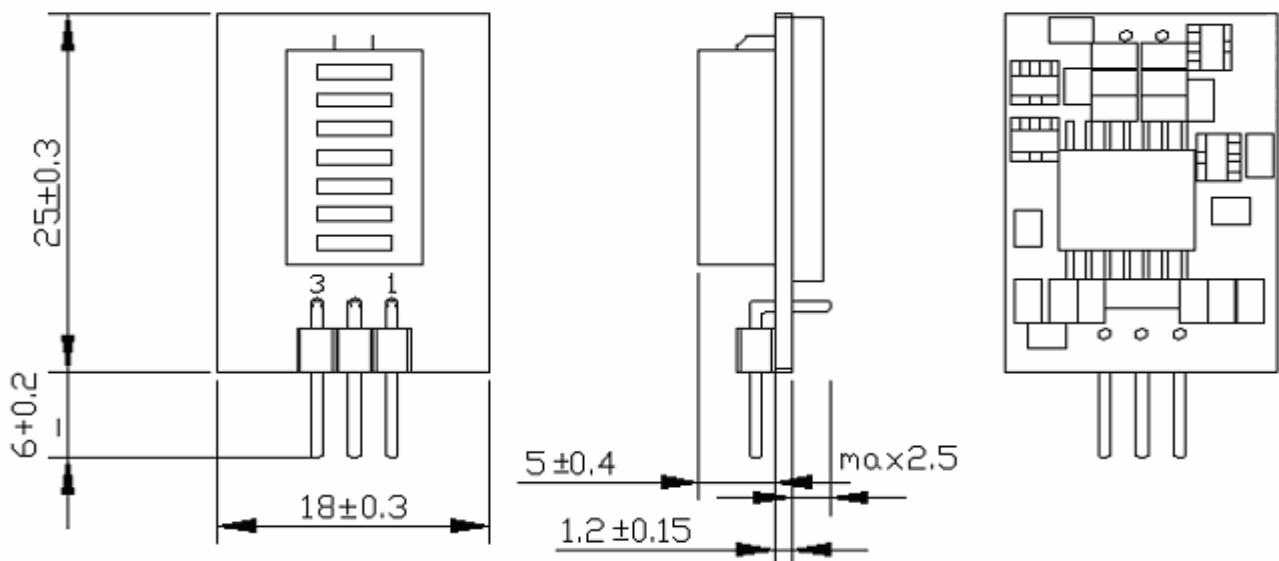
2.10 HMZ module Humidity Output 0~3.3V v.s Temperature characteristics

|       | 15°C | 20°C | 25°C | 30°C | 35°C | 40°C |
|-------|------|------|------|------|------|------|
| 30%RH | 1.23 | 1.09 | 1.03 | 0.94 | 0.83 | 0.78 |
| 40%RH | 1.39 | 1.32 | 1.30 | 1.20 | 1.14 | 1.13 |
| 50%RH | 1.65 | 1.65 | 1.64 | 1.60 | 1.58 | 1.62 |
| 60%RH | 2.01 | 2.00 | 1.98 | 1.97 | 1.94 | 1.95 |
| 70%RH | 2.28 | 2.21 | 2.24 | 2.22 | 2.15 | 2.16 |
| 80%RH | 2.47 | 2.46 | 2.45 | 2.41 | 2.42 | 2.42 |
| 90%RH | 2.82 | 2.77 | 2.73 | 2.71 | 2.70 | 2.67 |

Remark: Accuracy :  $\pm 5\%$  RH at ( $25 \pm 0.5^\circ\text{C}$ ,  $60 \pm 1\%$  RH,  $V_{in} = 5.00\text{V} \pm 5\%$  DC)

Output range : 1.815~2.145V(0~3.3V Output)

3. Configuration & Dimensions (Units :mm) : Model No. HMZ-333A Drawing



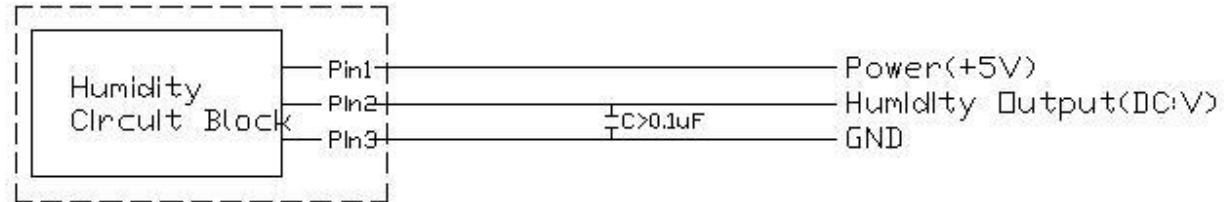
Terminal Connection :

| Terminal | Content. (3Pin Pitch : 2.54mm) |
|----------|--------------------------------|
| 1        | Power Source 5V DC.            |
| 2        | Humidity Output.               |
| 3        | GND.                           |

Remark : Please pay attention to the power source and GND polarity position.

#### 4. Typical Applications :

##### 4.1 Pin2 Humidity output (DC:V)



#### 5. Order From :

HMZ-333A is standard module with 3 pins of terminal Connector of voltage output for humidity .

| HMZ-333A Configure of definition. |                                       |
|-----------------------------------|---------------------------------------|
| Input Voltage                     | 5V                                    |
| Humidity Output Voltage           | 0~3.3V                                |
| Temperature Output                | NA                                    |
| Terminal Connector                | 3 pins(2211R-03G-LP, Pitch = 2.54mm). |
| Accuracy                          | ±5%RH(at 25±0.5℃, 60±1%RH)            |
| Sensing element (Humidity) :      | Humidity sensor " GHITRON HCZ-H6A"    |
| Output scale(A type)              | 30~90%RH                              |

#### 6. Reliability test :

| No. | ITEM            | METHOD                                                                                       | REQUIREMENT                                                |
|-----|-----------------|----------------------------------------------------------------------------------------------|------------------------------------------------------------|
| 6.1 | Impact test     | To drop Module 3time at random on to a hard wooden plate from 1meter above high.             | No breakage, nor cracks.<br>Should be electrically normal. |
| 6.2 | Vibration test  | Vibration test in X-Y-Z axis for 30min. under 10-55Hz frequency, 1.5mm(10-55-10Hz)amplitude. | No breakage, nor cracks.<br>Should be electrically normal. |
| 6.3 | Heat resistance | To leave module in an ambient of 55 ℃ and 30%RH max. for 48hours.                            | Within ±5%RH                                               |
| 6.4 | Cool resistance | To leave module in an ambient of -10℃ and 30%RH max. for 48hours.                            | Within ±5%RH                                               |

|                                                                                                                                                                                                      |             |             |
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|     |                        |                                                                                                                                                                                         |              |
|-----|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| 6.5 | Humidity resistance    | To leave module in an ambient of 40°C and 95%RH for 48hours.                                                                                                                            | Within ±5%RH |
| 6-6 | Temperature cycle test | 5 cycles. 1cycle stands for leaving module under -10°C for 1hour,and raise ambient temp. up to 55°C for next 1hour.Then,leave it another 1hour,and lower temp. to -10°C for next 1hour. | Within ±5%RH |

**Remarks :**

- (1) All standard figures are based on humidity variation under 60%RH(25°C)
- (2) Upon completion of all tests. The module will be left over under nominal environment and humidity for 24hours.

**7. Packing :**

There are 50 pieces of modules to be packed in one tray.

**8. Caution remarks on operation :**

8.1 To avoid direct application of DC voltage on humidity sensor.

8.2 To protect sensor from dewfall and drenching.

8.3 To avoid and operation of humidity sensors in the following environmental ambient.

8.3.1 Salt

8.3.2 Inorganic gas Sulfide dioxide, Chlorine, Ammonium, etc.

8.3.3 Organic gas Alcoholic, Glycols, Aldehydes, etc.

**8.4 Recommendable storage condition**

Temperature range 10~40°C

Humidity Range 90%RH or Less.

8.5 Do not store humidity sensors long period of time in an 60°C ambient, due to some occasion of degradation on sensor housing case.

Remark : We have the right to revise specification and product configurations without notice.

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