电应普
BEST SENSOR

DATASHEET

H03 Series Sensor Module

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Product Description

1. General

H03-Height measurement module is a module that uses ultrasonic sensing technology for distance measurement. The module adopts high-performance processor and high-quality components, the product is stable and reliable, and has a long life span. This module is a high-performance, high-reliability commercial-grade functional module specially developed and developed for customers' height measurement solutions. The stable distance of the module to measure the human head is 10~120cm.

2. Features

- 5mm High stability , Repeatability smaller than 5mm
- 3cm small blind zone of flat objects
- Low power consumption, average operating current lower than 10mA
- High precision, 1cm at room temperature
- Temperature compensation function, automatic correction of temperature deviation, stable ranging from -10℃ to +50℃
- Electrostatic protection design, I/O pins are added with electrostatic protection devices, in line with the IEC61000-4-2 standard
- Operating temperature -10℃ to +50℃

3. Applications

Human body Height measurement

Level distance measurement

Module Specification

1. Specification

Item	Description	Unit	Remark
Input voltage	3.3~5	V	DC
Static current	≤8	mA	

Operating current	≤10	mA	(1)
Boot time	1	S	(2)
Blind zone	0~3	cm	(3)
Measuring range of flat objects	3~250	cm	(3)
Output interface	UART controlled output	-	
Response time	250	ms	-
Accuracy	±(1cm+S*0.3%)	cm	(3)
Temperature compensation	support	-	

Remarks:

(1) Typical data obtained from a test with a temperature of 25°C, a humidity of 65% RH, a power supply of 5.0V, and a 500ms duty cycle (the lower the power supply, the lower the power consumption).

(2) There is a stable time of 1S when the module is powered on, and it cannot be triggered to work during the period.

(3) The temperature is 25℃, the humidity is 65% RH, the measured object is a 50cm×60cm flat carton, and S represents the measuring distance.

2.Environment

Item	Minimum value	Typical value	Max value	Unit	Remark
Storage Temp	-25	25	75	℃	
Storage Humidity		65%	90%	RH	(1)
Operating Temp	-15	25	60	℃	
Operating Humidity		65%	80%	RH	(2)

Remark:

1.Environment temperature is 0-39℃, max humidity is 90%(Non-condensation)

2.Environment is 40-50℃, max humidity is the highest at current temperature in nature

3.Electronics

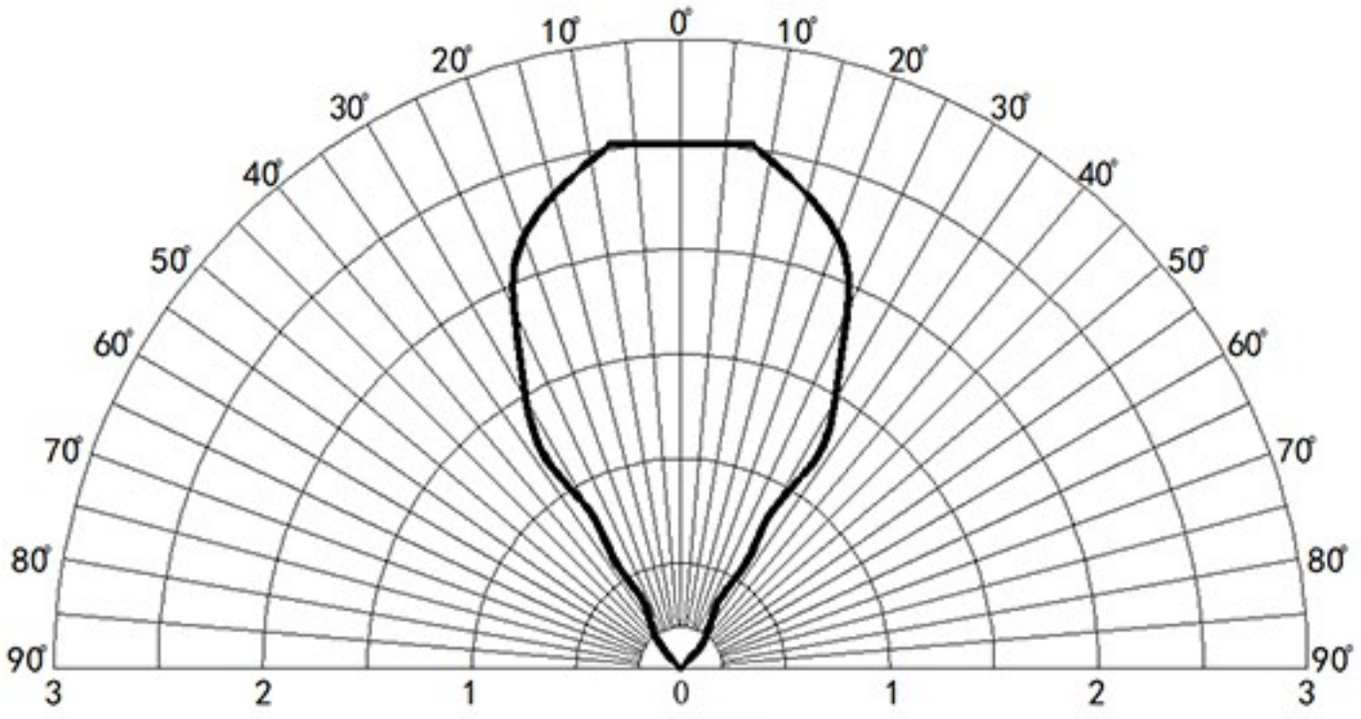
Item	Minimum value	Typical value	Max value	Unit	Remark
Operating voltage	3.3	5	5.25	V	
Peak current			100	mA	Peak value
Input Ripple			50	mV	Peak value
Input Noise			100	mV	Peak value
ESD			±200/±2K	V	(1)
ESD			±4K/±8K	V	(2)

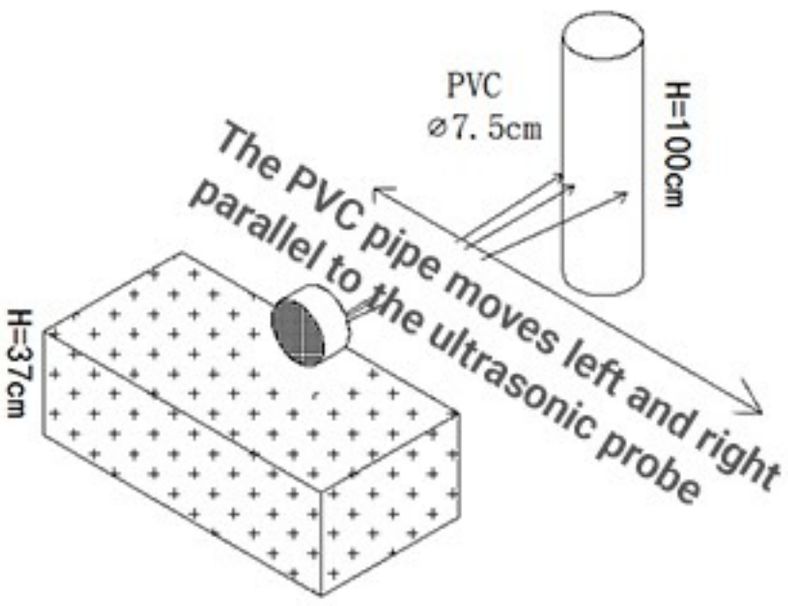
The static electricity specification of the assembly line, contact static electricity should not be higher than ±200V, and air static electricity should not be higher than ±2KV.

The probe shell and output pin comply with the IEC61000-4-2 standard.

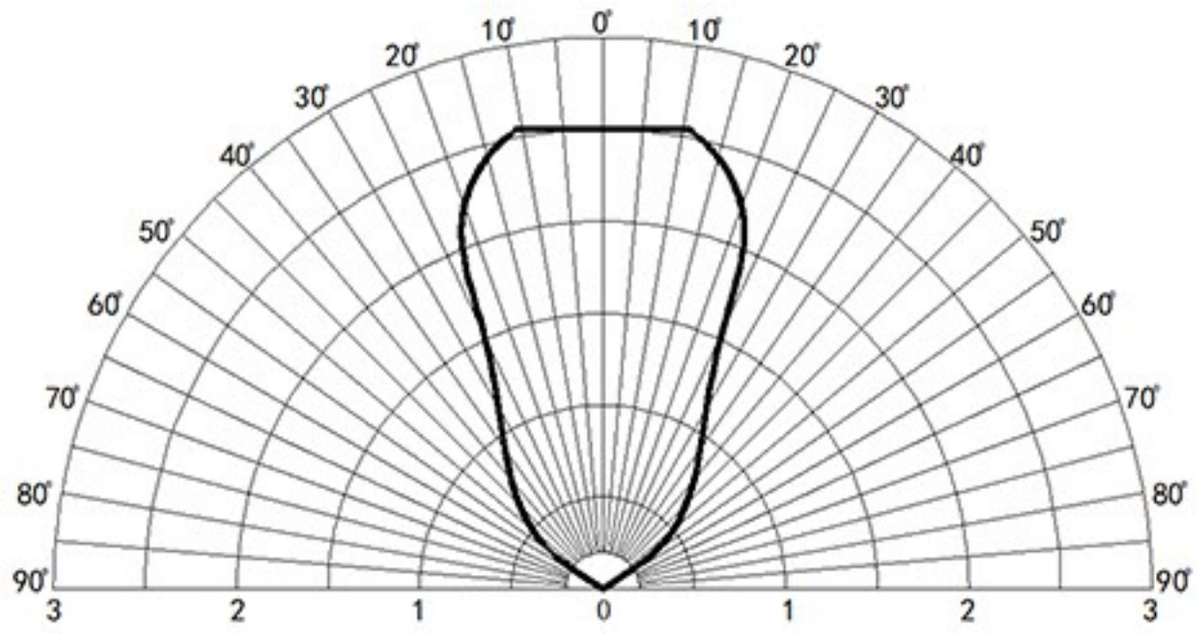
Beam Pattern

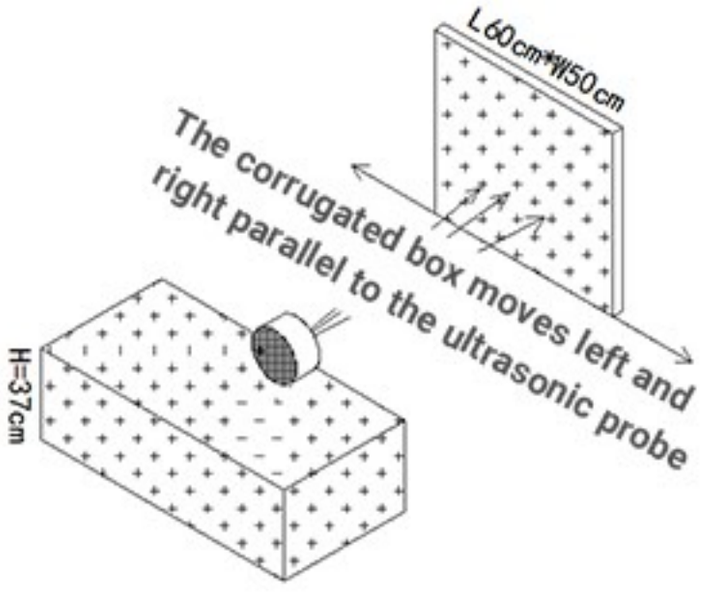
(1) The tested object is a white cylindrical tube made of PVC material, with a height of 100cm and a diameter of 7.5cm.



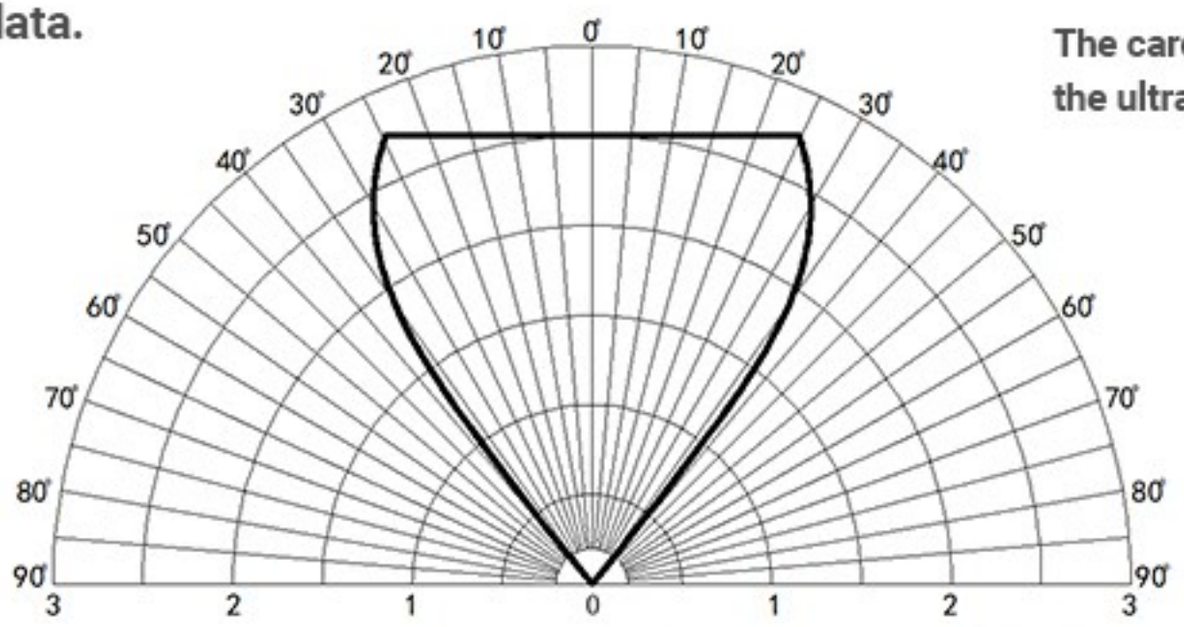


(2) The tested object is a corrugated box perpendicular to the 0° central axis, with a length * width of 60cm*50cm.

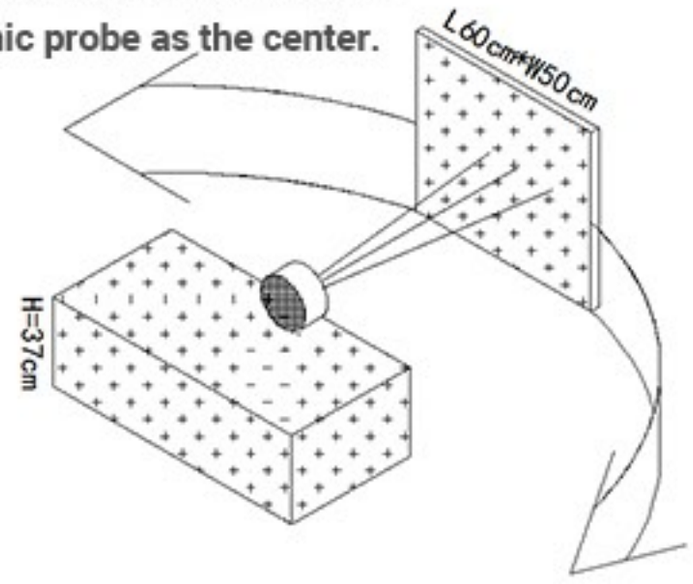




(3) The tested object is a corrugated box tangent to the arc, length * width is 60cm*50cm, the solid line in the figure below is the module's default angle test data; the dotted line is the small angle mode test data.



The cardboard moves in an arc with the ultrasonic probe as the center.



Note: The above is the laboratory test data of Dianyingpu company. In actual use, various factors such as product installation method and use environment may be different from the laboratory data. Please refer to the actual application environment test.

Reliable testing Instruction

No.	Description	Testing condition	sample QTY	remark
1	High temperature and humidity	65℃, 85%RH, Power ON@5V, 72hrs	3	
2	low temperature	-20℃, Power ON@5V,72hrs	3	
3	High temperature and humidity storage	80℃, 80%RH, storage, 72hrs	3	
4	Low temperature storage	-30℃, storage, 72hrs	3	
5	Vibration test	10-200Hz,15min,2.0G, XYZ three axes, each axis is 0.5 hours	3	
6	Drop test	50cm free fall, 5 times on wooden floor	3	

Note: After the test, the module is determined to be OK after the function test, and the performance degradation rate is ≤10%.

Notice

1. Please pay attention to the structural tolerances when designing. Unreasonable structural design may cause temporary abnormalities in module functions.

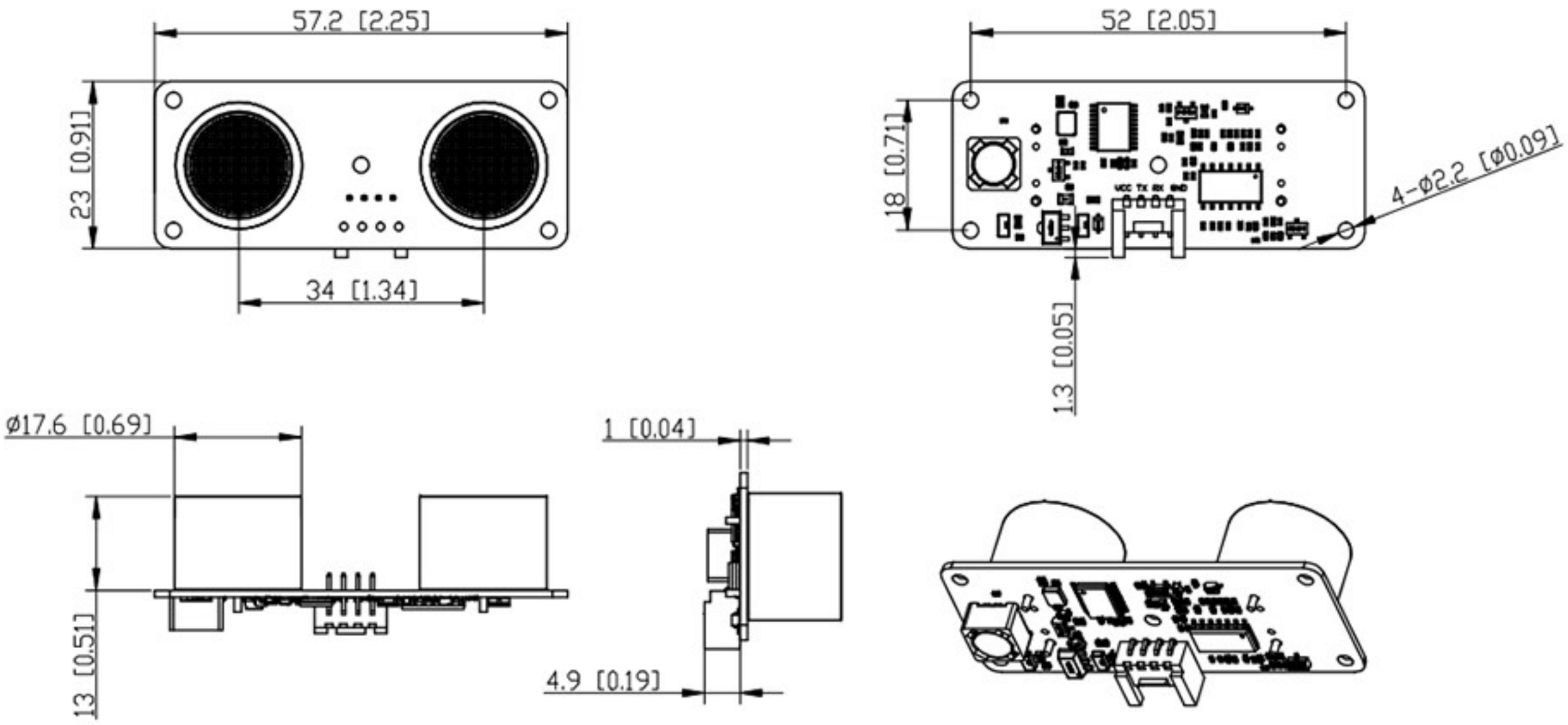
2. Please pay attention to the evaluation of electromagnetic compatibility when designing. Unreasonable system design may cause malfunction of the module.

3. When the boundary application of the product limit parameter is involved, you can contact after sale service dept. to confirm the relevant precautions.

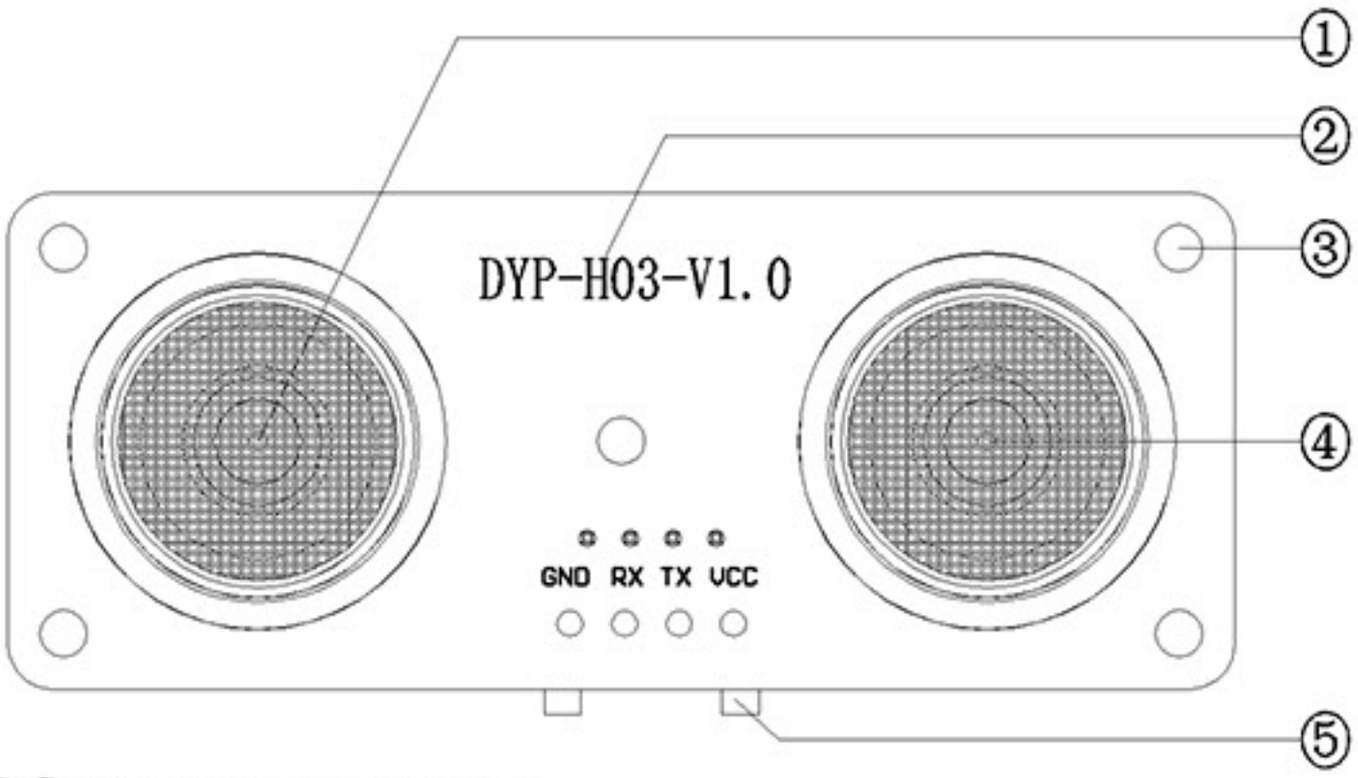
4. The company reserves the right to change this document and update the functions without prior notice.

Mechanics

1. Mechanical Dimensions (mm-inch)



2. Parts Description



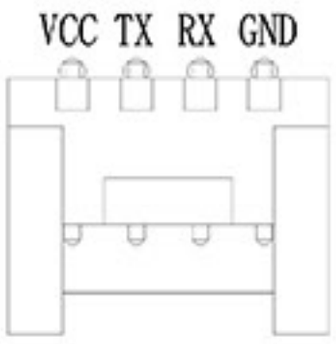
①④Ultrasonic transducer

② Model No.

③Fixing Hole

⑤HY2.0*4P connector

3. Pin out



Pin No.	Mark	Description	Remark
①	VCC	Power input	
②	TX	UART Output	
③	RX	UART trigger input	
④	GND	GND	

Remarks: The pin function corresponds to the output mode selected before ordering, and cannot coexist with the functions of other output modes