电应普
BEST SENSOR

DATASHEET

H01 Series Sensor Module

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Product Description

1. General

The H01 module is a high-performance ranging module designed with a capacitive electrostatic transducer probe. The product can accurately detect the distance to a flat object in the range of 100mm to 8000mm, and can accurately detect the human body in the range of 100mm to 3000mm. The module is equipped with accurate temperature output and temperature compensation function. It is a high-performance, high-reliability commercial-grade functional module specially developed and developed for height measurement.

2. Features

- High sound pressure output
- UART serial interface output
- PWM processing value output
- Integrated open type metal probe
- Temperature compensation function
- 5V-12V wide power input
- PWM output
- RS485 output
- 50KHz frequency
- Operating temperature from -10℃ to +50℃
- Storage temperature from -20℃ to +65℃
- Anti static design, in accordance with IEC61000-4-2 standard

3. Advantages

High anti-interference ability

Reliable and stable data output

Fast responsibility

High measurement accuracy, long detecting distance range

Capacitive electrostatic transducer probe, high sensitivity, stainless steel shell protection, suitable to harsh environments

4. Applications

High precision Height scale machine

Artificial intelligence

Car parking management system

Object proximity and presence awareness

Module Specification

Item	PWM	UART	PWM Processing value	RS485	Unit	Remarks
Power input	5～12	5～12	5～12	5～12	V	DC
Average current	<10	<10	<10	<25	mA	(1)
Peak current	≤100	≤100	≤100	≤100	mA	
Blind zone	0～100	0～100	0～100	0～100	mm	(2)
Measuring range of flat object	100～8000	100～8000	100～8000	100～8000	mm	(2)
Output interface	PWM Pulse width	UART Controlled	PWM Processing value	RS485		
Operating cycle	＞75	＞70	＞160	＞70	ms	
Accuracy	±(8mm+ S*0.2%)	±(5mm+S*0.2%)			mm	(2)
Temperature	N/A	Support			-	
Frequency	50K±1.0K				Hz	
ESD	±4/±8				KV	(3)
Operating temp.	-10~50				℃	
Storage Temp.	- 20~65				℃	
Operating humidity	≤80%				RH	(4)
Storage humidity	≤90%				RH	(4)

Remarks: (1) DC12 power supply, typical data of 500ms working cycle.

(2) Data measured on a 50cm*60cm flat carton at room temperature, S represents the measured distance.

(3) The probe shell and output pins conform to the IEC61000-4-2 standard.

(4) a. When environment temperature is 0-39℃, the maximum humidity is 90% (non-condensing).

b. When environment temperature is 40-50℃, the highest humidity is the highest humidity in nature (non-condensing) at the current temperature.

2.Environment

Item	Minimum value	Typical value	Max value	Unit	Remark
Storage Temp	-25	25	80	℃	
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	3.0	3.3	5	V	
Peak current			80	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.

Sensor Selection Instruction

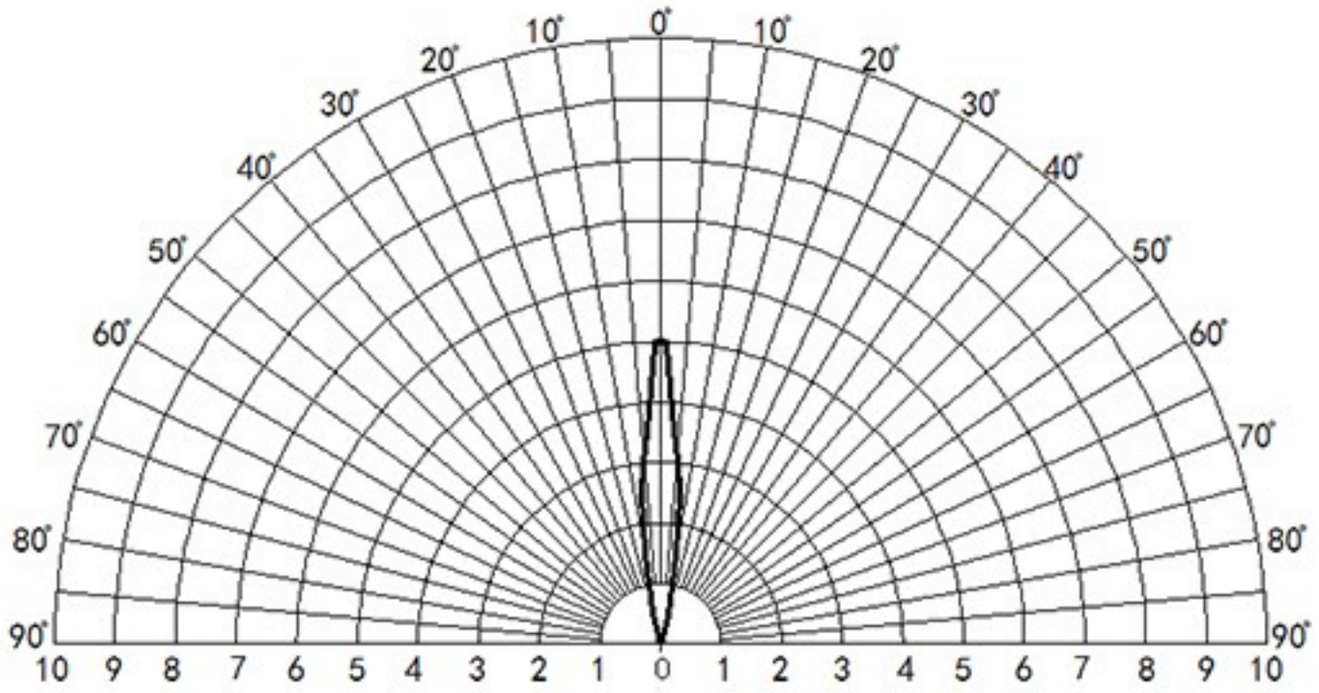
This series of modules is including 4 types according to the output format, and the user can choose the corresponding model according to the actual use needs. These 4 kinds output format is selected before shipment, and the same module does not support two or more formats to output at the same time.

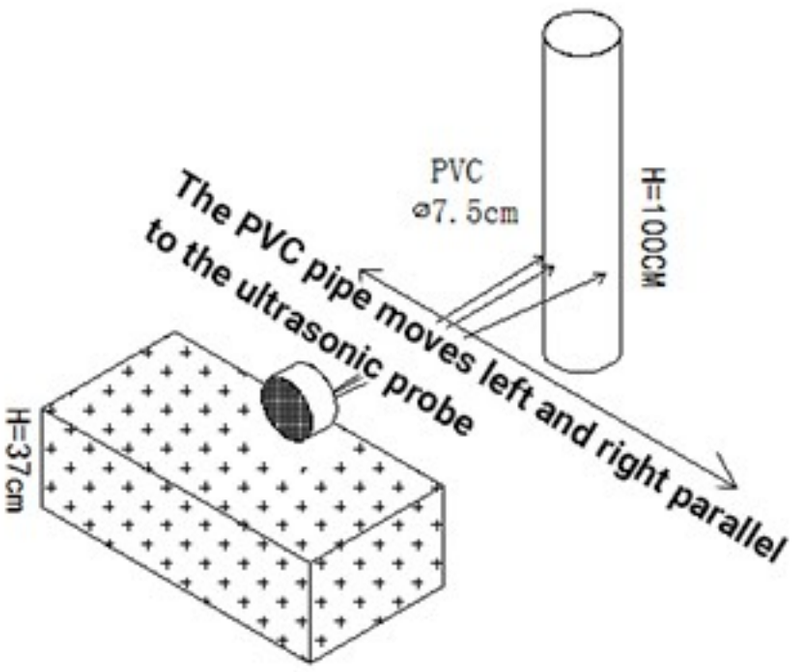
Series	Model No.	Output interface	Remarks
H01	DYP-H01IOU-V1.0	UART	
	DYP-H01IO4-V1.0	RS485	
	DYP-H01IOW-V1.0	Processing value	(1)
	DYP-H01IOM-V1.0	PWM Controlled	(1)

Remarks: (1) Explanation of the difference in output mode: PWM processing value output mode has temperature compensation, data stability algorithm, slow response time, factory default is this mode. PWM Controlled output mode has no temperature compensation, and response time is fast.

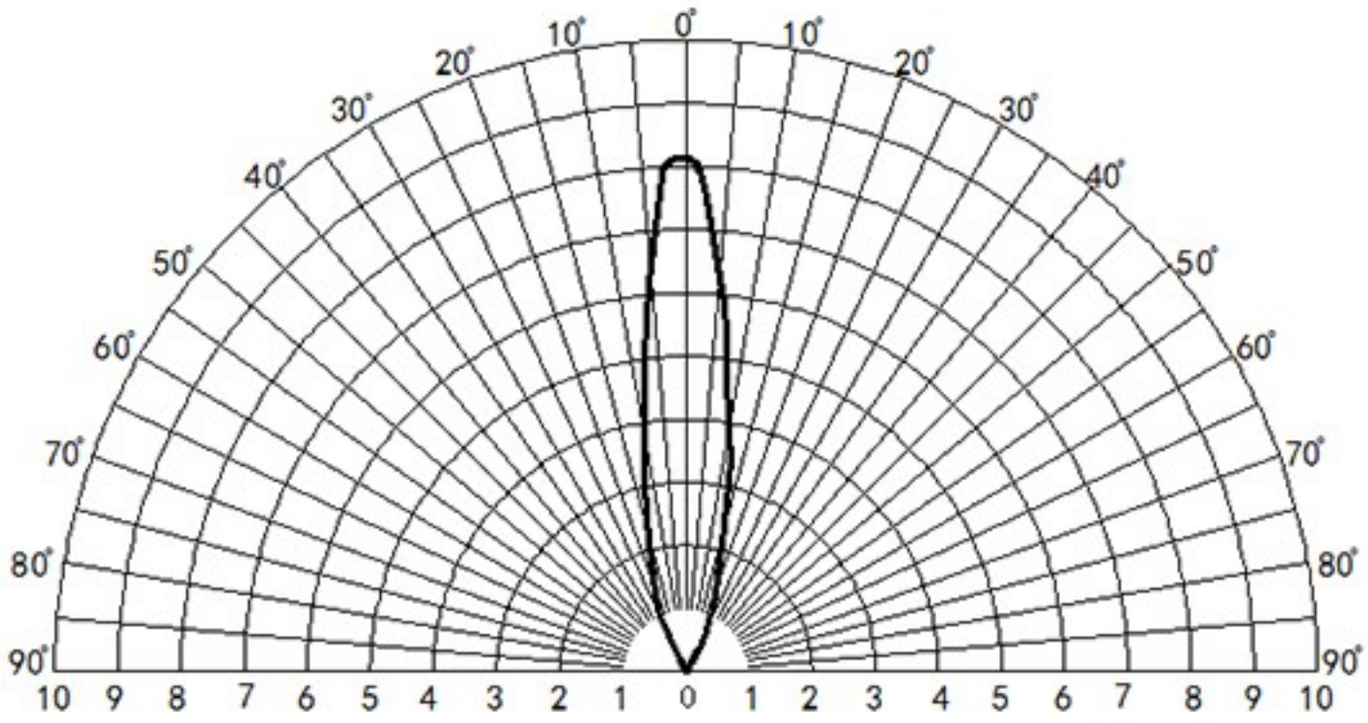
Beam Pattern

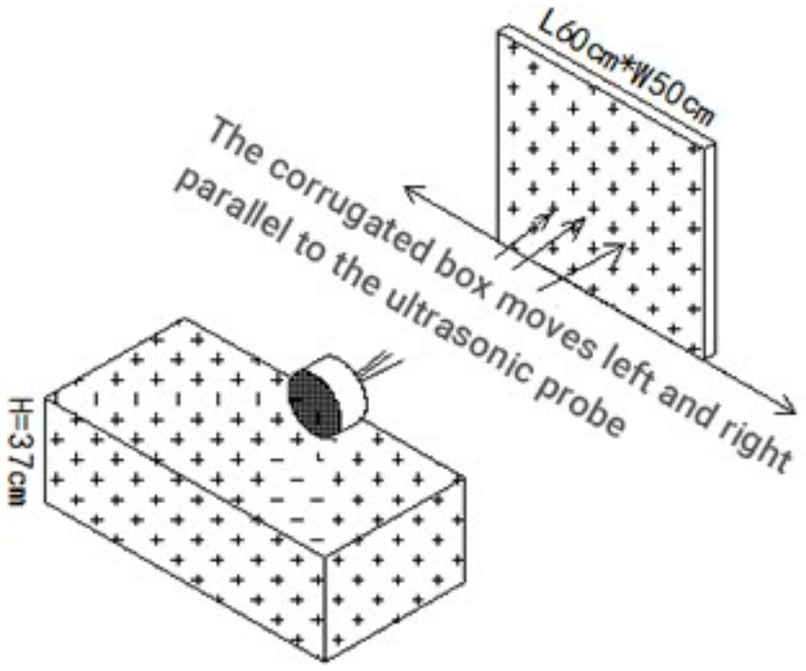
(1)The tested object is a white cylindrical tube made of PVC material, with a height of 100cm and a diameter of 7.5cm.



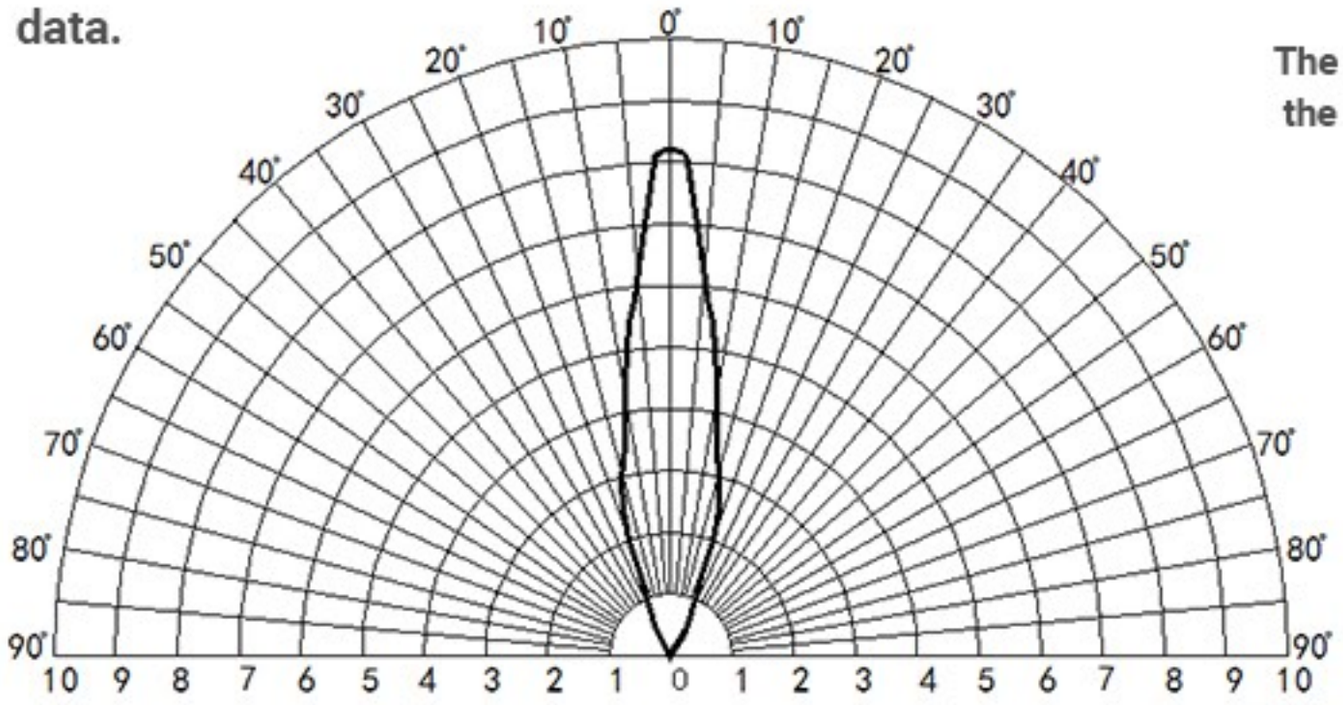


(2) The tested object is a corrugated box perpendicular to the 0° central axis, with a length * width of 60cm*50cm.

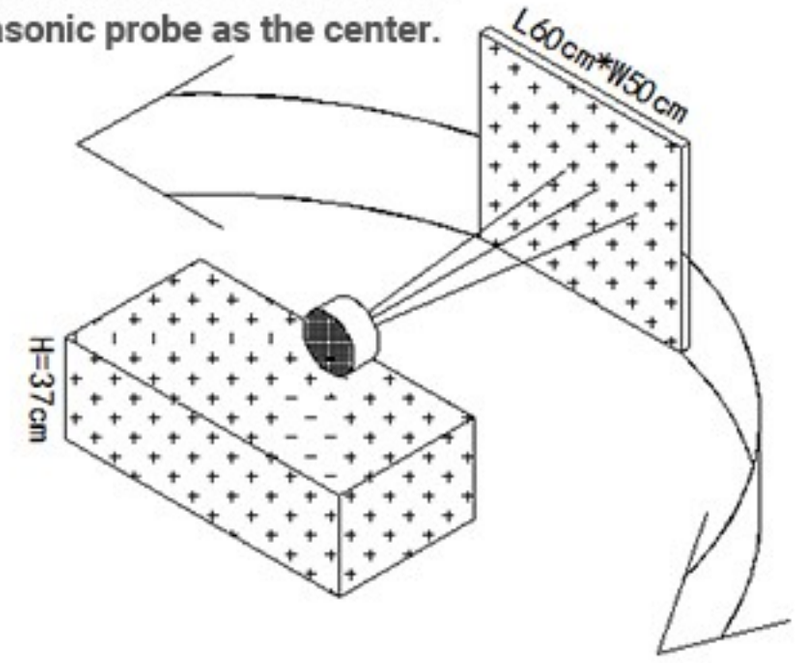




(3)The tested object is a corrugated box tangent to the arc, length * width is 60cm*50cm, the solid line in the figure below is the module's default angle test data; the dotted line is the small angle mode test data.



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



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	120cm 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.

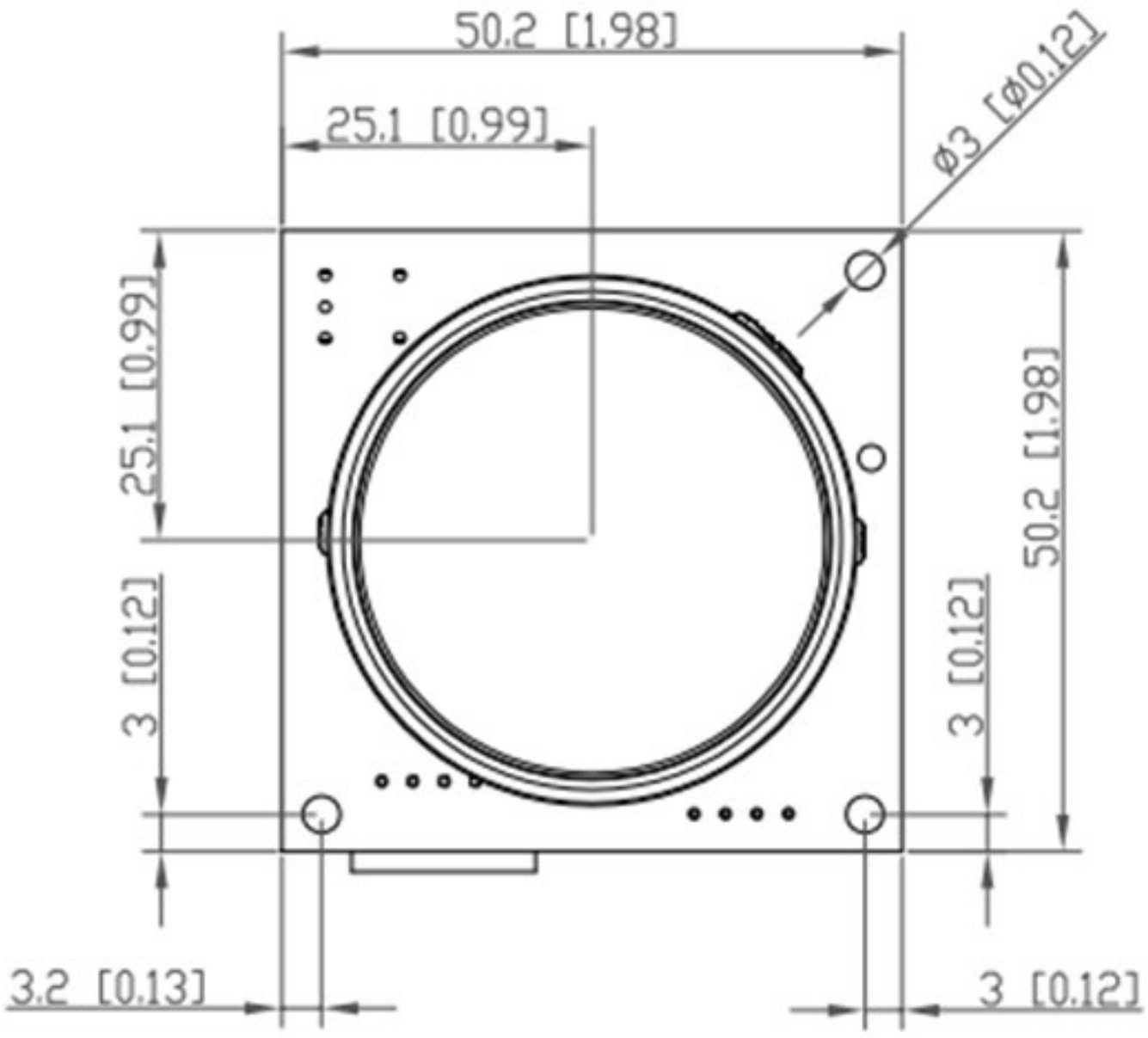
2. Please pay attention to the evaluation of electromagnetic compatibility when designing. Unreasonable system design may cause malfunction of the module.

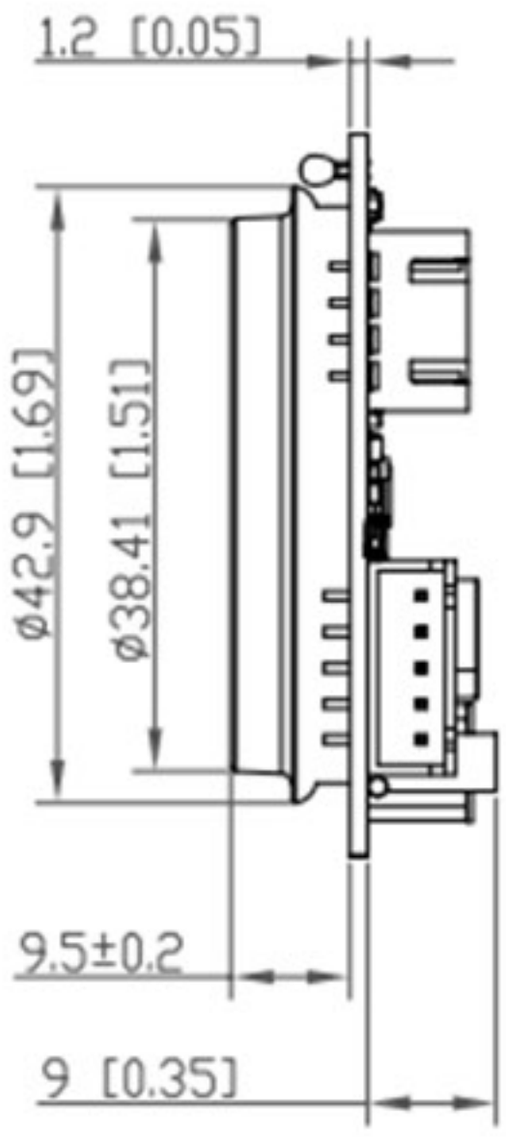
3. When the boundary application of the product limit parameter is involved, you can contact after sale service dept. to confirm the relevant precautions.

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

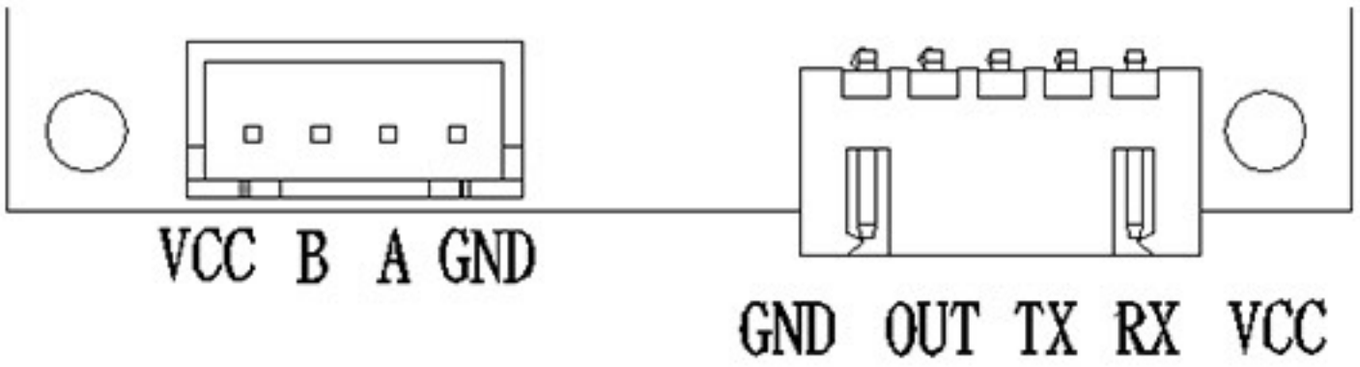
Mechanics

1. Mechanical Dimensions (mm-inch)





2. Pin out



Pin No.	Mark	Description	Remark
①	VCC	Power input	DC
②	RX	Trigger input	
③	TX	UART/PWM Output	
④	OUT	Empty	
⑤	GND	GND	
⑥	A	RS485 DATA+	
⑦	B	RS485 DATA-	