



# ***DATASHEET***

## **A05 Series Sensor Module**



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# Product Description

## 1. General

The A05 module series is a high-performance rangefinder module designed with four enclosed integrated waterproof probes. It can measure distances from objects in four different directions, with a certain level of dust and water resistance, and is suitable for wet and harsh measurement occasions. It is a commercial-grade functional module with simple operation and high performance and high reliability.

## 2. Features

- 9-36V power input
- Four probes measure distances from objects in four different directions
- UART, RS485 and Relay output optional
- Closed integrated waterproof probe
- Operating temperature from -15°C to +60°C
- Storage temperature -25°C to +80°C
- Anti-static electricity design in accordance with IEC61000-4-2 standard

## 3. Advantages

Strong anti-interference ability

Reliable and stable data output

Fast response time

Strong anti-static electricity ability

Operating temperature from -15°C to +60°C

## 4. Applications

Horizontal distance sensing

Car Parking system

Robot avoidance and automatic control

Object proximity and presence awareness

# Module Specification

## 1. Operating specification

Item	UART ouput	RS485 Output	Replay output	Unit	Remark
Operating voltage	9~36	9~36	9~36	V	
Average operating current	≤25	≤35	≤45	mA	(1)
Peak current	400	400	400	mA	(1)
Blind zone	≤25	≤25	≤25	cm	
Measuring range of flat object	25~450	25~450	25~450	cm	(2)
Working cycle	300	Controlled	300	ms	
Output interface	Serial interface	RS485	Dry contact on/off		(3)
Response time	300~1500	70~400	1000	ms	
Accuracy	$\pm(1+S*0.3\%)$	$\pm(1+S*0.3\%)$	$\pm(1+S*0.3\%)$	cm	(4)
Beam angle of 100cm distance	≈60°	≈60°	≈60°	°	(5)
ESD	±4/±8	±4/±8	±4/±8	KV	(6)
Temp. compensation	Support	Support	Support	-	

Remarks: (1) Normal temperature and humidity, 1 standard atmosphere, 12V power supply, 300ms working cycle typical data

(2) Data measured on a 50cm\*60cm flat carton at room temperature

(3) UART serial port/RS485/relay is optional output mode, which needs to be specified before ordering. A module can only be configured into one of the three output modes, and two or more output modes cannot coexist.

(4) Data measured on a 50cm\*60cm flat carton at room temperature, S means measuring distance

(5) Measured data of φ75mm\*1000mm PVC pipe moving in parallel at normal temperature

(6) The output pin complies with the IEC61000-4-2 standard.

## 2.Environment

Item	Minimum value	Typical value	Max value	Unit	Remark
Storage Temp	-25	25	70	℃	
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	9	12	36	V	
Input Ripple			50	mV	Peak value
Input Noise			100	mV	Peak value
ESD			±4K/±8K	V	(1)

Note:

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



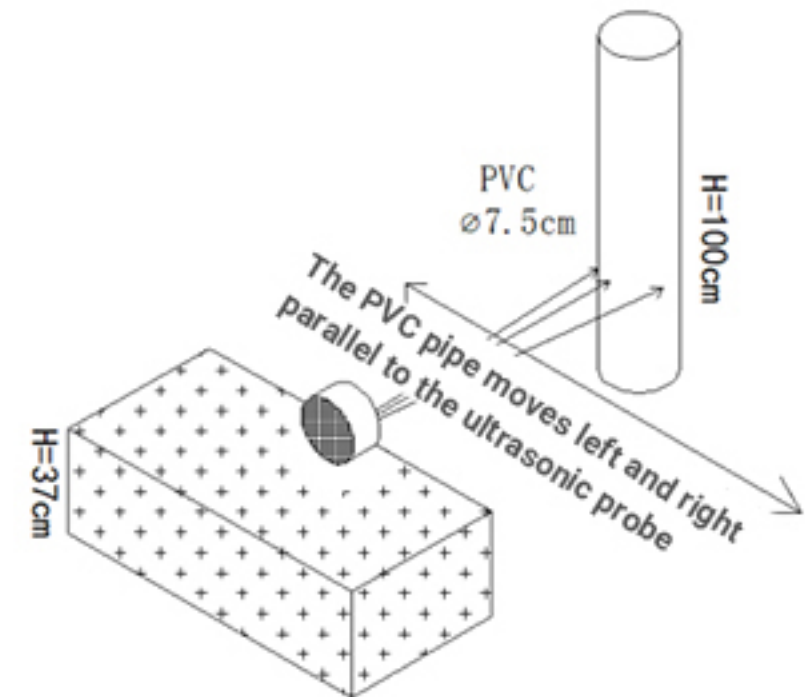
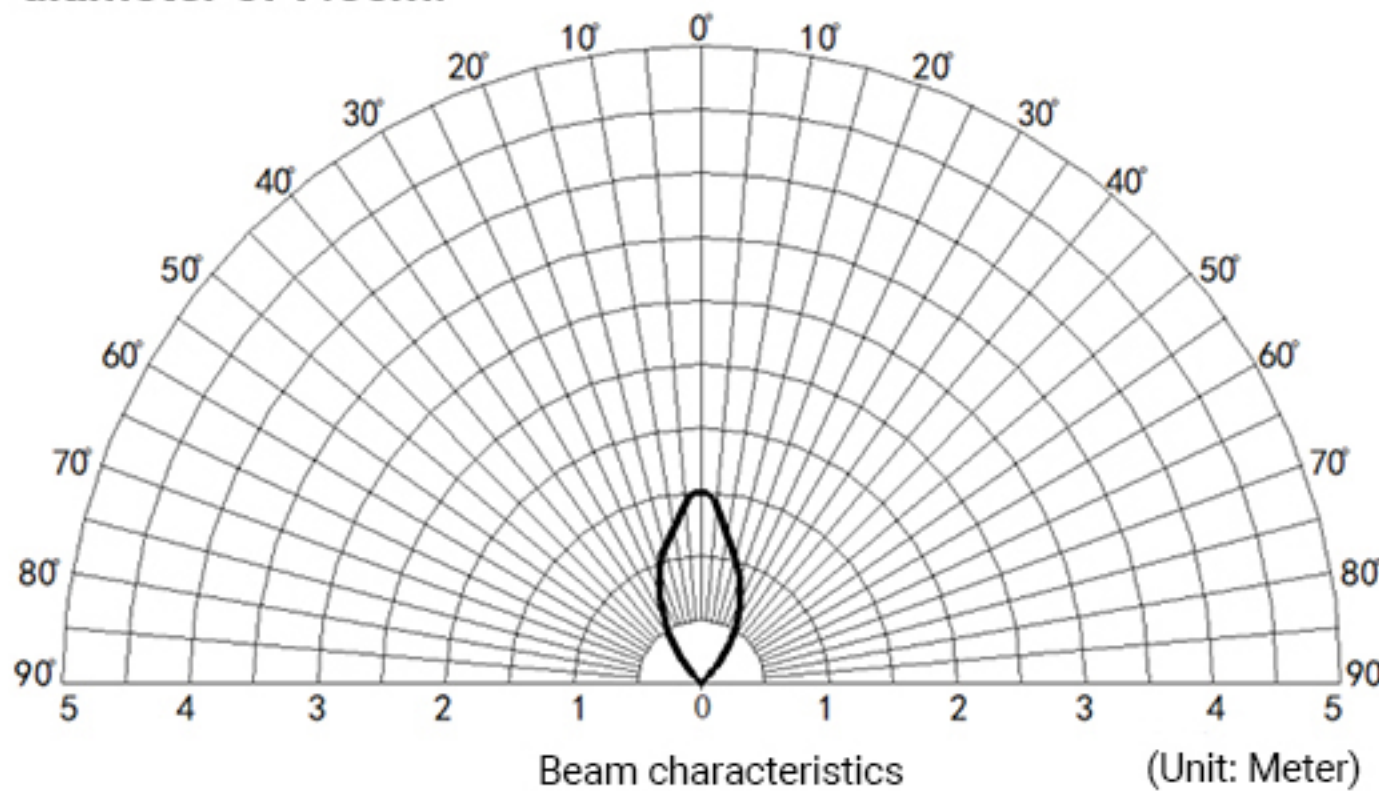
# Sensor Selection Instruction

A05 series module including 3 types according to different output methods and functions. Users can choose the corresponding model according to actual application requirements. Customized development can be carried out according to customer needs.

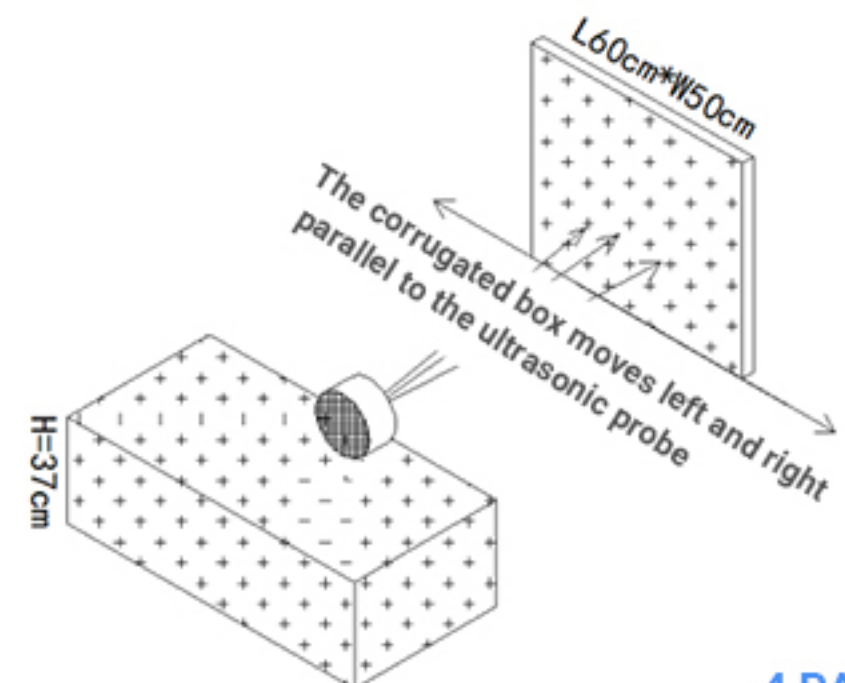
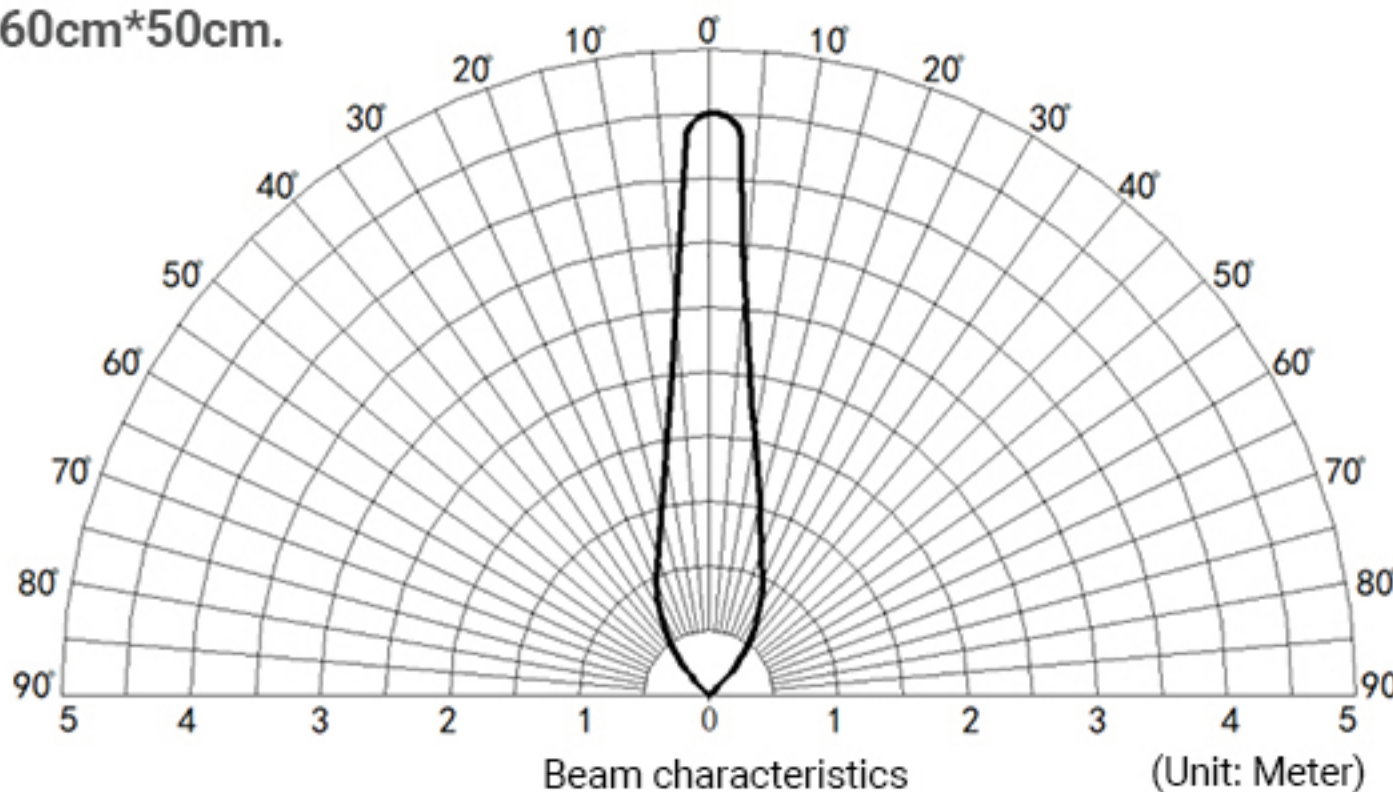
No.	Model No.	Function	Output interface	Remark
1	DYP-A05LYU-V1.1	Serial interface	UART	
2	DYP-A05LY4-V1.1	RS485 Controlled output	RS485	
3	DYP-A05LYJ-V1.1	Relay output	Relay	

## 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.



**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°C, 85%RH, Power ON@5V, 72hrs	3	
2	low temperature	-20°C, Power ON@5V,72hrs	3	
3	High temperature and humidity storage	80°C, 80%RH, storage, 72hrs	3	
4	Low temperature storage	-30°C, 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  $\leq 10\%$ .

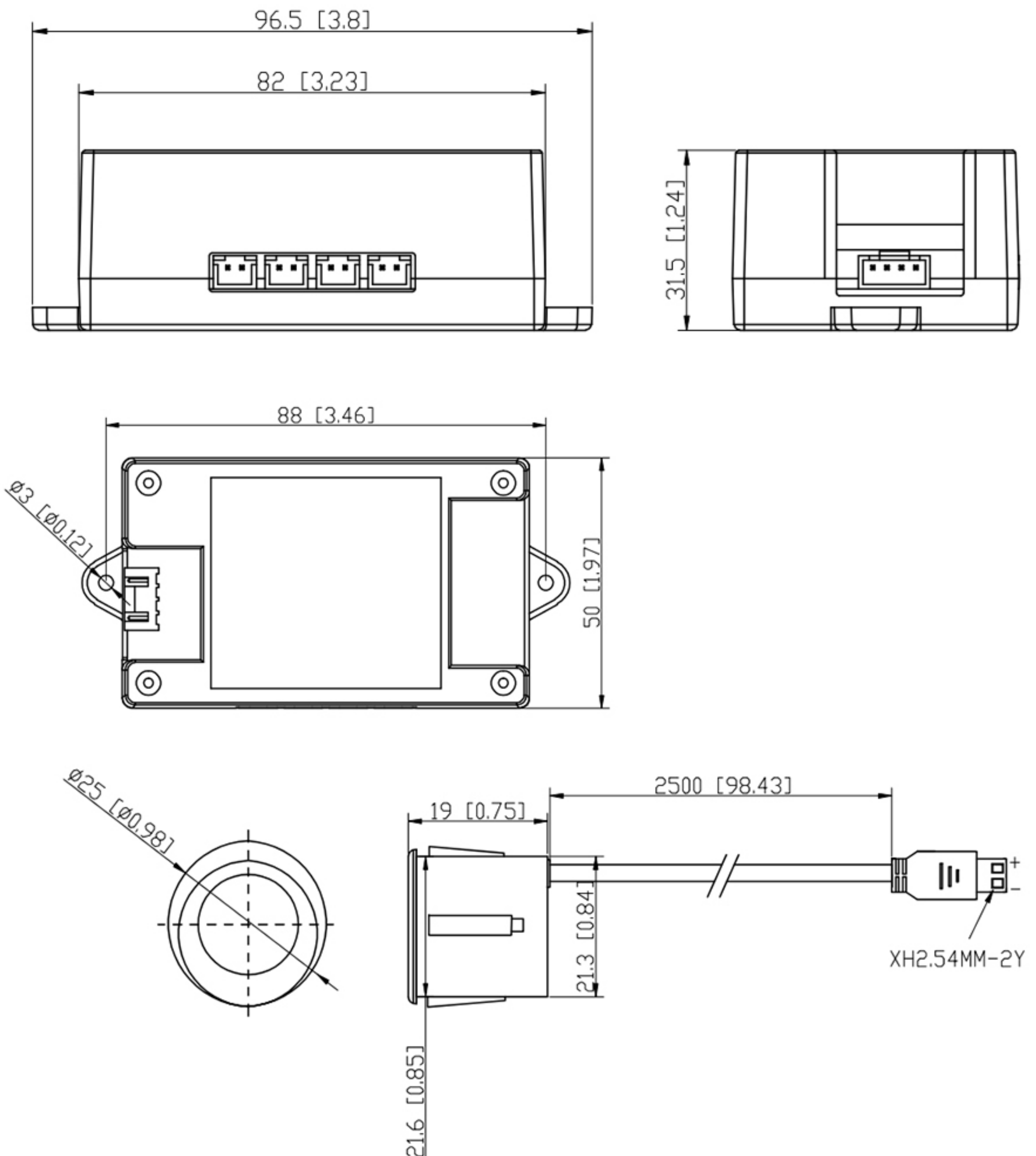
## Notice

- (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.



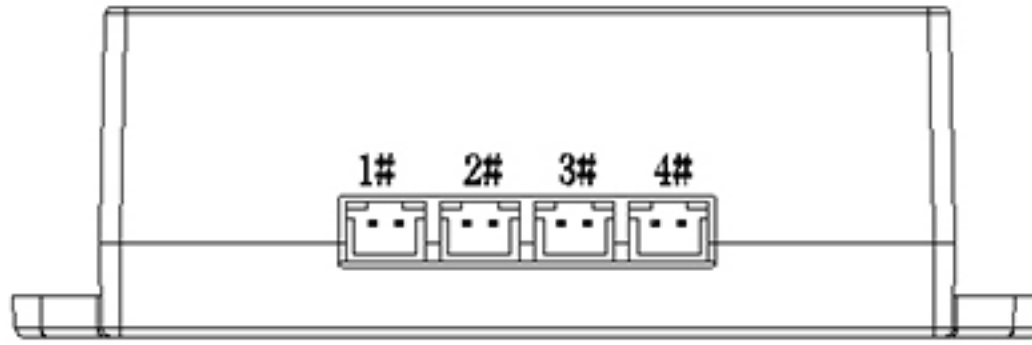
# Mechanics

## 1. Mechanical Dimensions ( mm-inch)





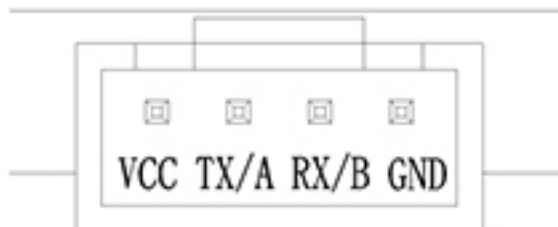
## 2. Definition of Probe interface



Name	Description	Remark
1#	Connect No. 1 probe	
2#	Connect No. 2 probe	
3#	Connect No. 3 probe	
4#	Connect No. 4 probe	

## 3. Pin Out

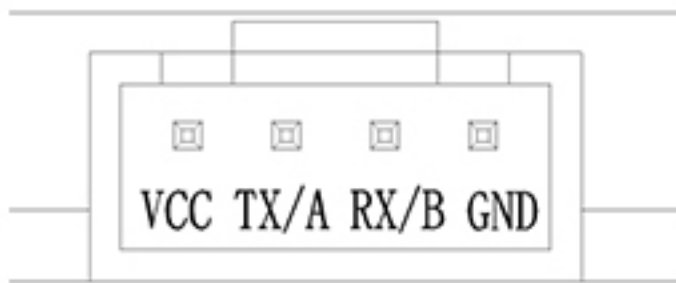
(1) UART output



Pin No.	Mark	Description	Remark
①	VCC	Positive power inputs	
②	TX/A	UART output	
③	RX/B	Processing value and Real time value output, UART input	
④	GND	Negative power input	

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

## (2) RS485 Output

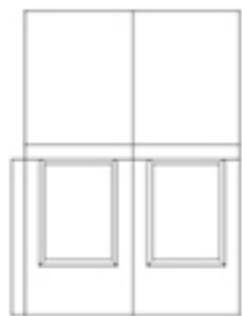


Pin No.	Mark	Description	Remark
①	VCC	Positive power inputs	
②	TX/A	RS485 Data+	
③	RX/B	RS485 Data-	
④	GND	Negative power input	

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

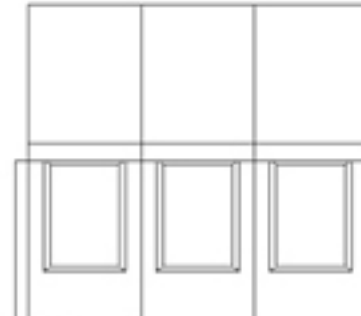
## (3) Relay Output

Power input



Positive Negative

Reply Dry contact output



NO Com NC

Pin No.	Mark	Description	Remark
①	NO	NO dry contact	
②	Com	COM	
③	NC	NC dry contact	
④	Positive	Power Positive input	
⑤	Negative	Power Negative input	

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