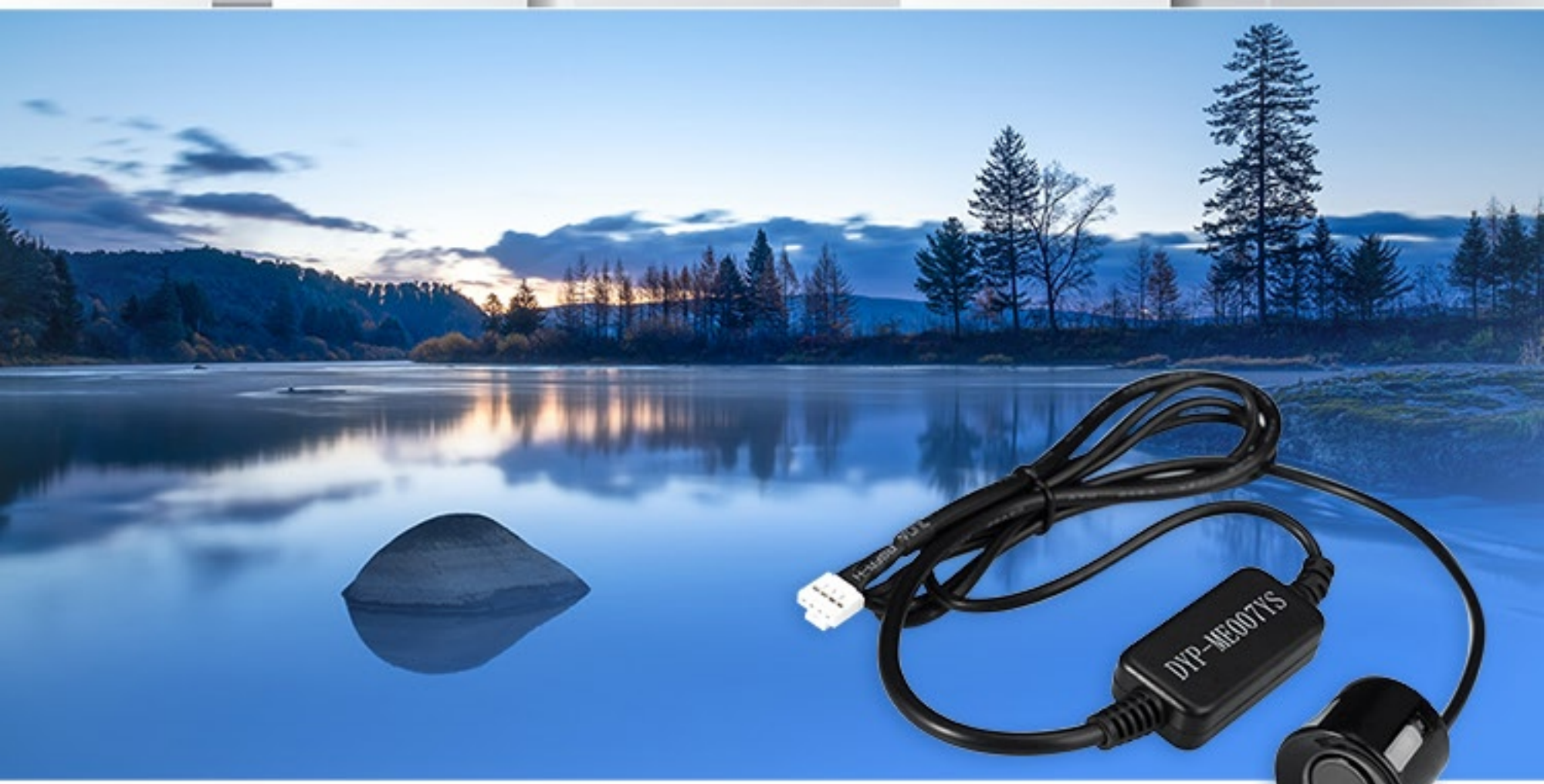
电应普
BEST SENSOR



DATASHEET

ME007YS Series Sensor Module

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Product Description

1. General

YS sensor module that uses ultrasonic sensing technology for distance measurement. It's a closed waterproof transceiver probe design with cable with a certain level of dust and water resistance, strong adaptability to the working environment. The module has a built-in high-precision ranging algorithm and power management program, with high ranging accuracy and low power consumption.

2. Features

- Intelligent signal process circuit, small blind zone
- Build-in high accuracy distance sensing algorithm
- Multiple output interfaces optional, PWM, UART Auto, UART Controlled, Switch
- Internal temperature compensation function,stable measurement from -15℃ to +60℃
- Low power consumption design, standby current ≤10uA, operating current ≤8mA(12V input voltage)
- Wide voltage power supply, 3.3-12VDC
- Anti static electricity design in accordance with IEC61000-4-2 standard
- Operating temperature from -15℃ to +60℃

3. Applications

Horizontal distance sensing

Solid level monitoring

Car parking management system

Robot obstacle avoidance, automatic control

Object proximity and presence awareness

Module Specification

Item	ME007YS PWM	ME007YS TX	ME007YS TX1	ME007YS KG	Unit	Remark
Operating voltage	3.3~12	3.3~12	3.3~12	3.3~12	V	DC
Standby current	≤10	-	≤10	-	uA	

Average current	≤8	≤8	≤8	≤8	mA	(1)
Blind zone	28	28	28	28	cm	
Measuring range	28～450	28～450	28～450	28～450	cm	
Output interface	PWM	UART	UART	TTL level	-	
Working cycle	Controlled	100	Controlled	100	ms	
Response time	≤9	100～500	≤50	100～500	ms	
Beam angle	≈60°	≈60°	≈60°	≈60°	-	(3)
Accuracy	±(1+S*0.3%)				cm	(4)
Temp. compensation	Support				-	

Note:

(1) Typical data obtained from a test with a temperature of about 25°C, power supply of 5V, 500ms duty cycle.

(2) The temperature is about 25℃, the measured object is a 50cm×60cm flat carton, and the transducer must be as vertical as possible to the measured object.

(3) The measured object is the reference data obtained from the test of a φ75mm×100cm white PVC pipe with a distance of 100cm.

(4) The temperature is about 25℃, and the indoor environment without wind, the measured object is a 50cm×60cm flat carton, and S means the measuring distance.

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	3.1	5	14	V	
Peak current			80	mA	Peak value
Input Ripple			50	mV	Peak value
Input Noise			100	mV	Peak value
ESD			±4K/±8K	V	(1)

Remark:The probe shell and output comply with the IEC61000-4-2 standard.Contact static electricity ±4KV, air static electricity ±8KV

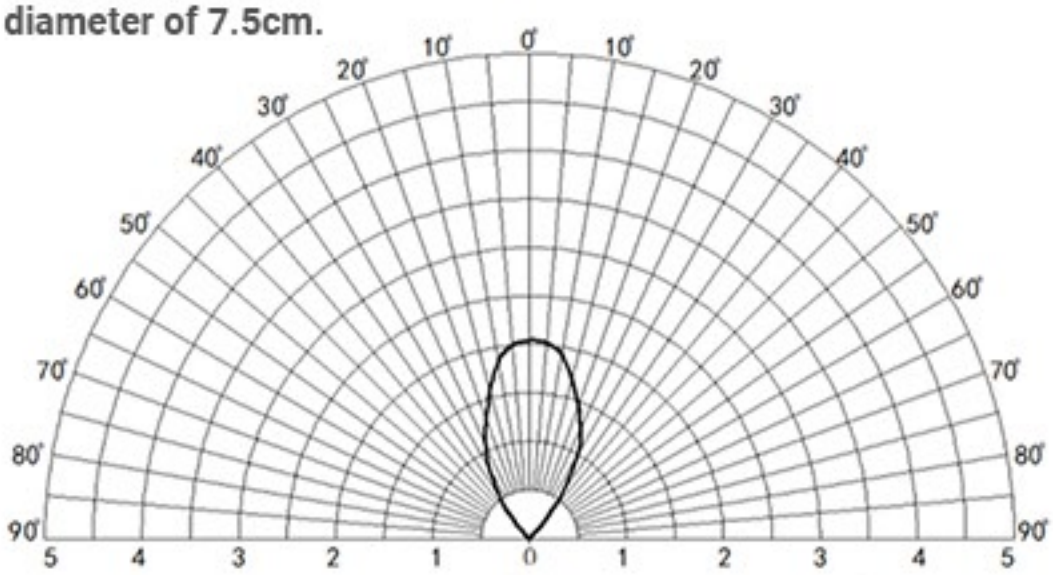
Sensor Selection Instruction

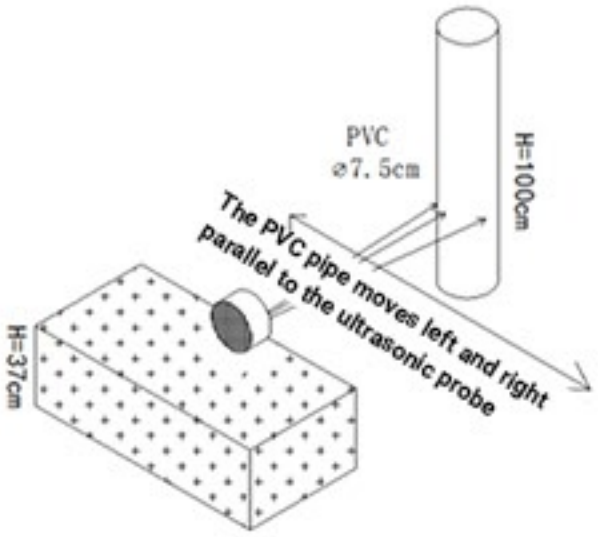
The YS Sensor module providing variety of output formats, customer can choose the corresponding model according to actual application needs.

Series	Model No.	Output interface
YS Sensor module	DYP-ME007YS-PWM V2.0	PWM
	DYP-ME007YS-TX V2.0	UART Auto
	DYP-ME007YS-TX1 V2.0	UART Controlled
	DYP-ME007YS-KG V2.0s	Switch

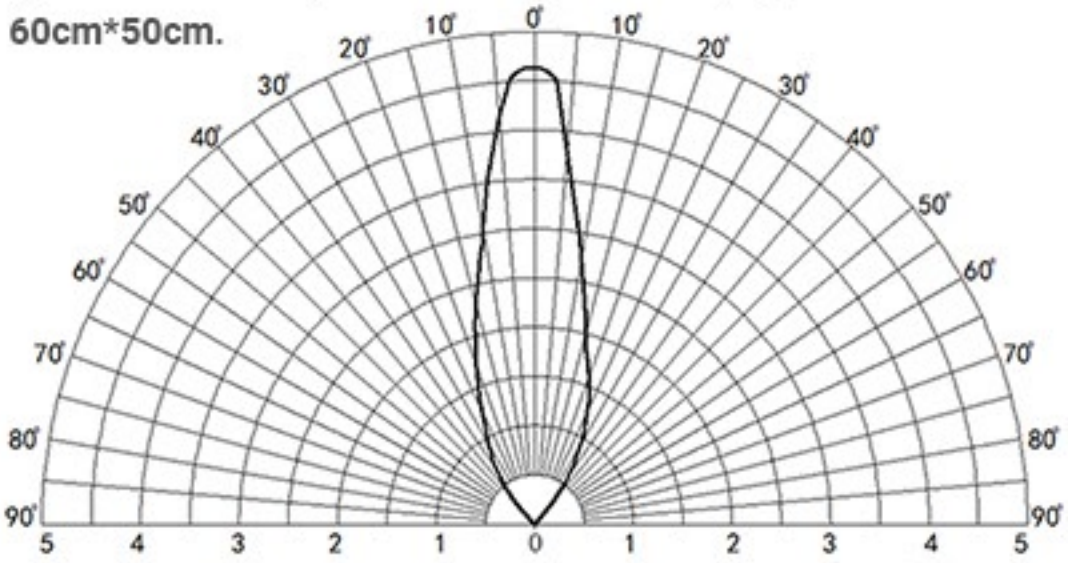
Beam Pattern

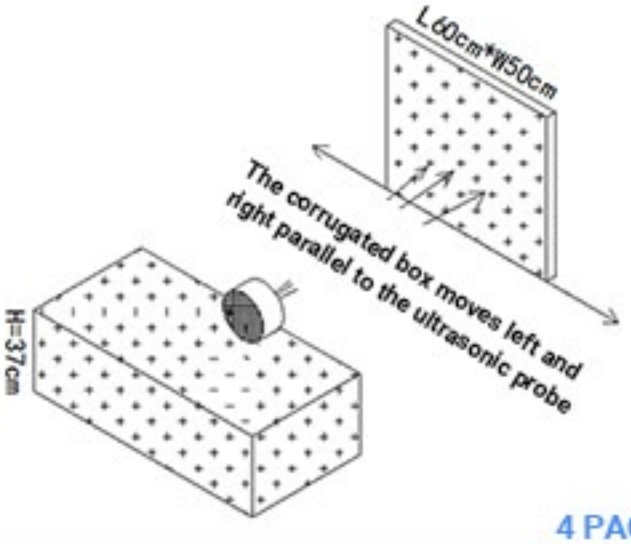
(1) The tested object is a white cylindrical tube made of PVC material, with a height of 100cm and a diameter of 7.5cm.



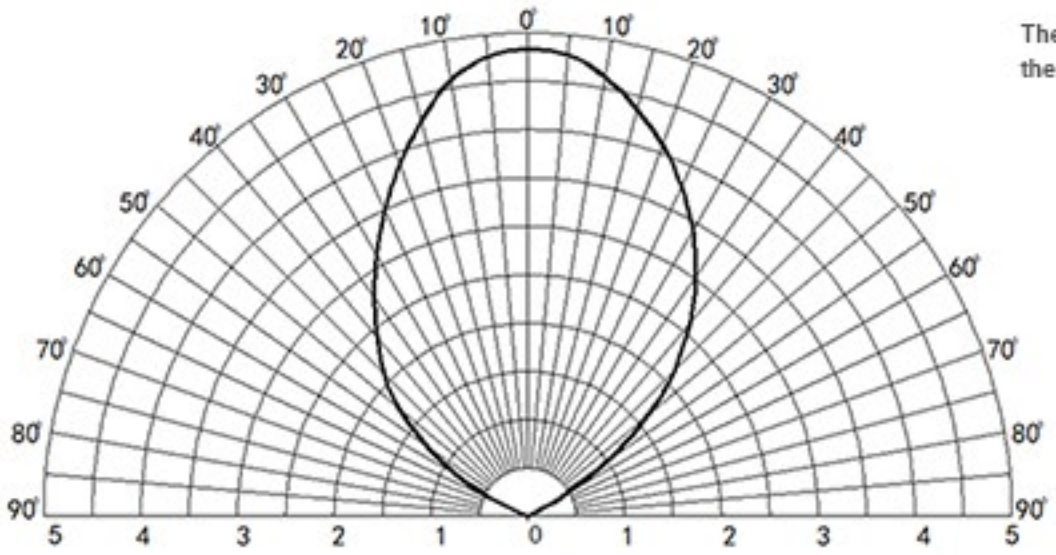


(2) The tested object is a corrugated box perpendicular to the 0° central axis, with a length * width of 60cm*50cm.

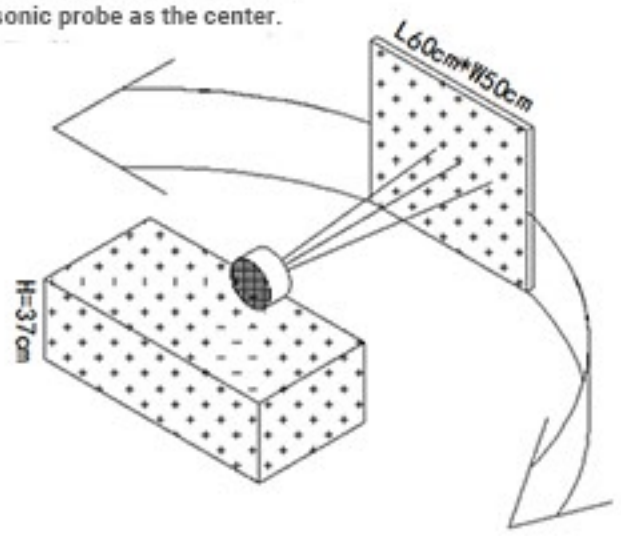




(3) The tested object is a corrugated box tangent to the arc, length * width is 60cm*50cm.



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



Reliable testing condition

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%.

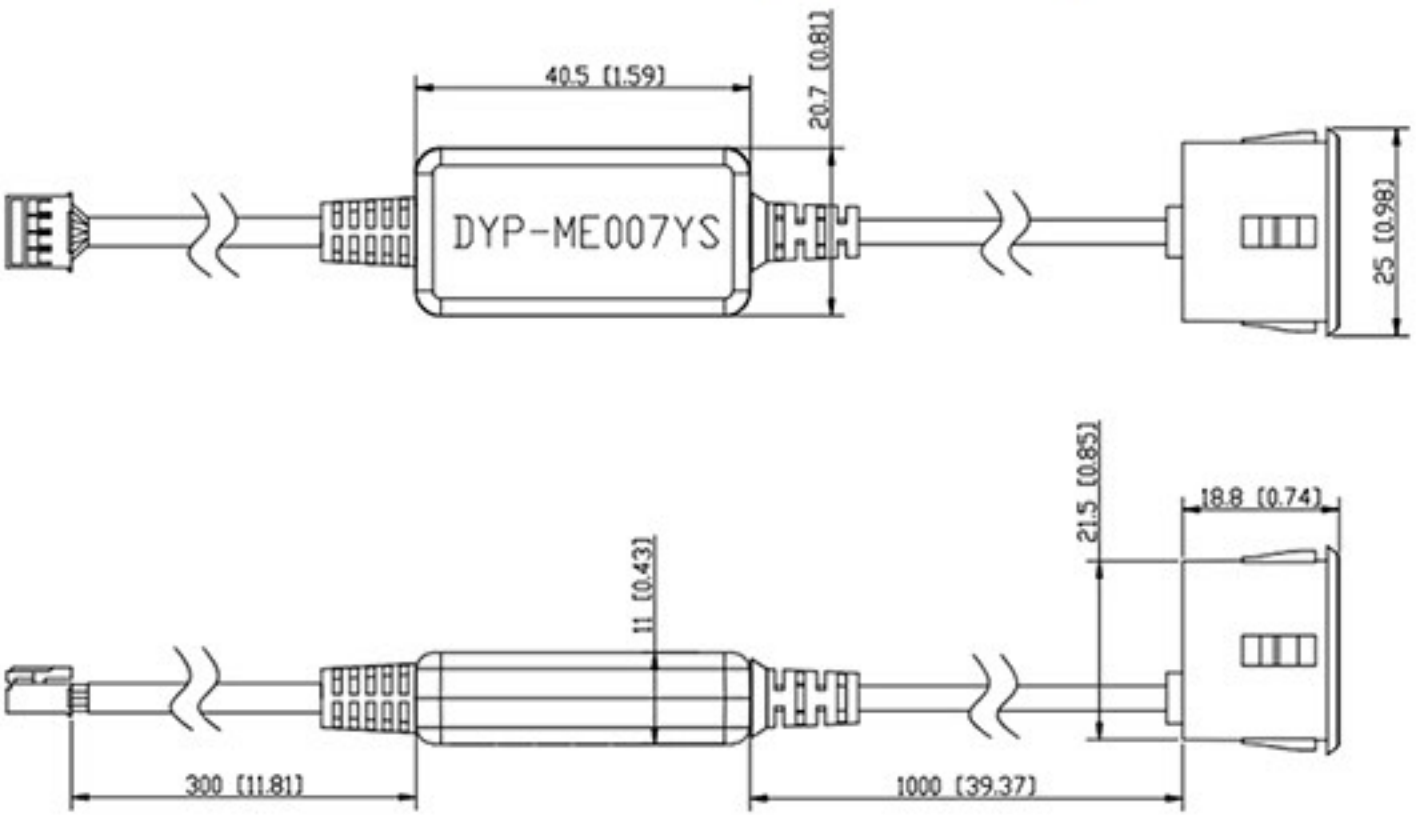
Notice

1. The company reserves the right to change this document and update the functions without prior notice.
2. In an environment with fast wind speed, the measurement and accuracy of the module will be affected. You can contact our sales to confirm related matters.
3. Please pay attention to structural tolerances when designing. Unreasonable structural design may cause transient abnormalities.
4. Please pay attention to the evaluation of electromagnetic compatibility when designing. Unreasonable system design may cause malfunction of the module.

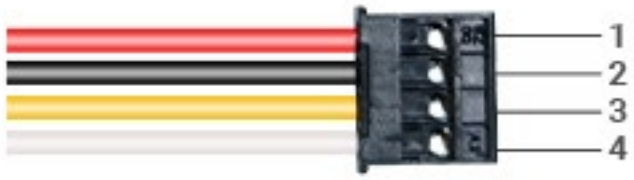
5. When it comes to the application of the module limit parameter boundary, you can contact our engineer to confirm the relevant precautions.

Mechanics

1. Mechanical Dimensions (mm-inch)



2. Pin out



Pin No.	Mark	Description	Remark
①	VCC	Power Input	
②	GND	GND	
③	RX	Functional PIN	Different output modes have different functions
④	TX	Functional PIN	Different output modes have different functions

Note:

The pin function setting followed customer's order, can't coexist with other output modes.

Pin RX and TX maximum allowable voltage is 5V