

电应普  
BEST SENSOR



# ***DATASHEET***

## **A07 Series Sensor Module**

<https://dypsensord.en.alibaba.com>  
SHENZHEN DIANYINGPU TECHNOLOGY CO., LTD.



# TABLE OF CONTENTS

<b>1</b>	<b>Product Description.....</b>	<b>1</b>
	General .....	1
	Features .....	1
	Applications .....	1
<b>2</b>	<b>Module Specification.....</b>	<b>3</b>
	Operating specification .....	3
	Environment .....	4
	Electronics .....	4
<b>3</b>	<b>Sensor Selection Instruction.....</b>	<b>5</b>
<b>4</b>	<b>Beam Pattern.....</b>	<b>5</b>
<b>5</b>	<b>Reliable testing Instruction.....</b>	<b>5</b>
<b>6</b>	<b>Instruction manual.....</b>	<b>5</b>
<b>7</b>	<b>Notice.....</b>	<b>6</b>
<b>8</b>	<b>Mechanics.....</b>	<b>7</b>
	Mechanical Dimensions .....	7
	Parts Description.....	7
	Pin Out.....	8



# Product Description

## 1. General

The A07 sensor module 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 service life. The module uses a waterproof ultrasonic transducer, has a built-in high-precision ranging algorithm and power management program, with high ranging accuracy, low power consumption, long measurement distance, and small measurement angle.

## 2. Features

- Adopts intelligent signal processing circuit, small blind zone and long measuring range
- Build-in high precision algorithm, minimum error <10mm
- Controllable measuring angle, high sensitivity and strong anti-interference ability
- Build-in true target recognition algorithm, high target recognition accuracy
- Multiple output interface optional, PWM, UART, SWITCH
- Internal temperature compensation, stable value output from -15°C to +60°C
- Low power consumption design, operating current <15mA Static current <10uA
- 3.3-5.0V power input
- Anti-static electricity design in accordance with IEC61000-4-2 standard
- The ultrasonic transducer is anti-corrosive, high degree protection.
- Support remote upgrade, flexible adjustment of software algorithm.
- Operating temperature from -15°C to +60°C

## 3. Applications

Narrow beam angle distance sensing.

Smart detection system.

Object proximity and presence awareness.

Sewer water level monitor.

# Module Specification

## 1. Operating specification

Item	Specification	Unit	Remark
Operating voltage	DC3.3~5.0	V	
Static current	<10	uA	
Operating current	<15	mA	(1)
Blind zone	≤25	cm	(2)
Measuring range of flat object	25~800	cm	(2)
Beam angle	≈15°	-	(3)
Accuracy	±(1+S×0.3%)	cm	(2)
Response time	0.9~2.5	S	
Resolution	1	cm	
Temp. compensation	Support	-	

### Remark:

- (1) Typical data obtained by testing with a temperature of about 25°C, 65% RH humidity, a power supply of 5V, and a 900ms duty cycle.
- (2) Temperature 25°C, humidity 65% RH, 50cm\*60cm flat carton measured data, the detection starting point defaults to the probe surface, if the detection starting point is calculated based on the horn plane, 3.5cm should be subtracted. The range measurement distance change is less than 2cm, keep the last measured value
- (3) The temperature is 25°C, the humidity is 65% RH, and the reference data obtained from the test of a φ75mm\*100cm white PVC pipe with a distance of 100cm. The measurement distance is also different at different angles.

The above test data are all carried out in an open room, and the installation height of the detection module is 30cm from the ground

## 2.Environment

Item	Minimum value	Typical value	Max value	Unit	Remark
Storage Temp	-25	25	70	°C	
Storage Humidity		65%	90%	RH	(1)
Operating Temp	-15	25	60	°C	
Operating Humidity		65%	80%	RH	(2)

Remark:

- (1) Environment temperature is 0-39°C, max humidity is 90%(Non-condensation)
- (2) Environment is 40-50°C, max humidity is the highest at current temperature in nature.

## 3.Electronics

Item	Minimum value	Typical value	Max value	Unit	Remark
Operating voltage	3.2	5.0	5.25	V	
Peak current	50		75	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)

Note:

- (1) The probe shell and output pin conform to the IEC61000-4-2 standard.
- (2) Assembly line contact static electricity ±200V, air static electricity ±2KV.



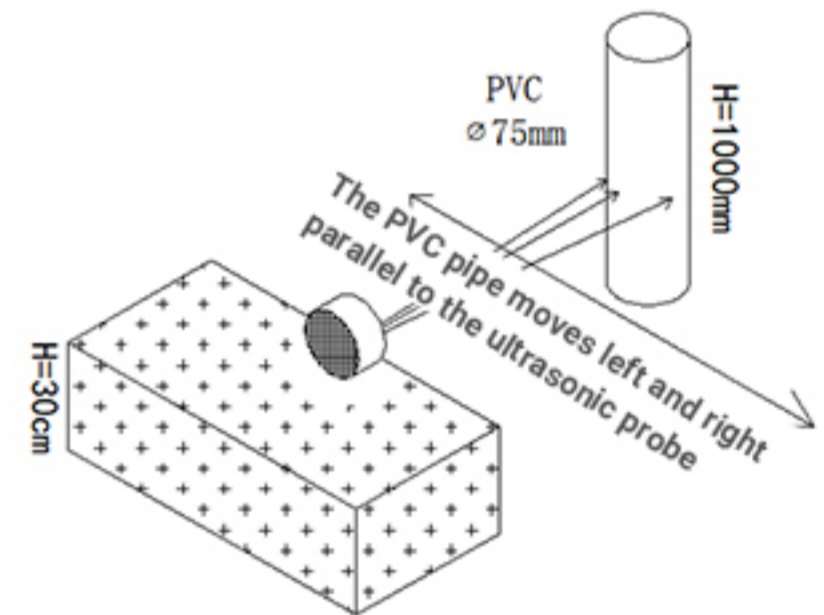
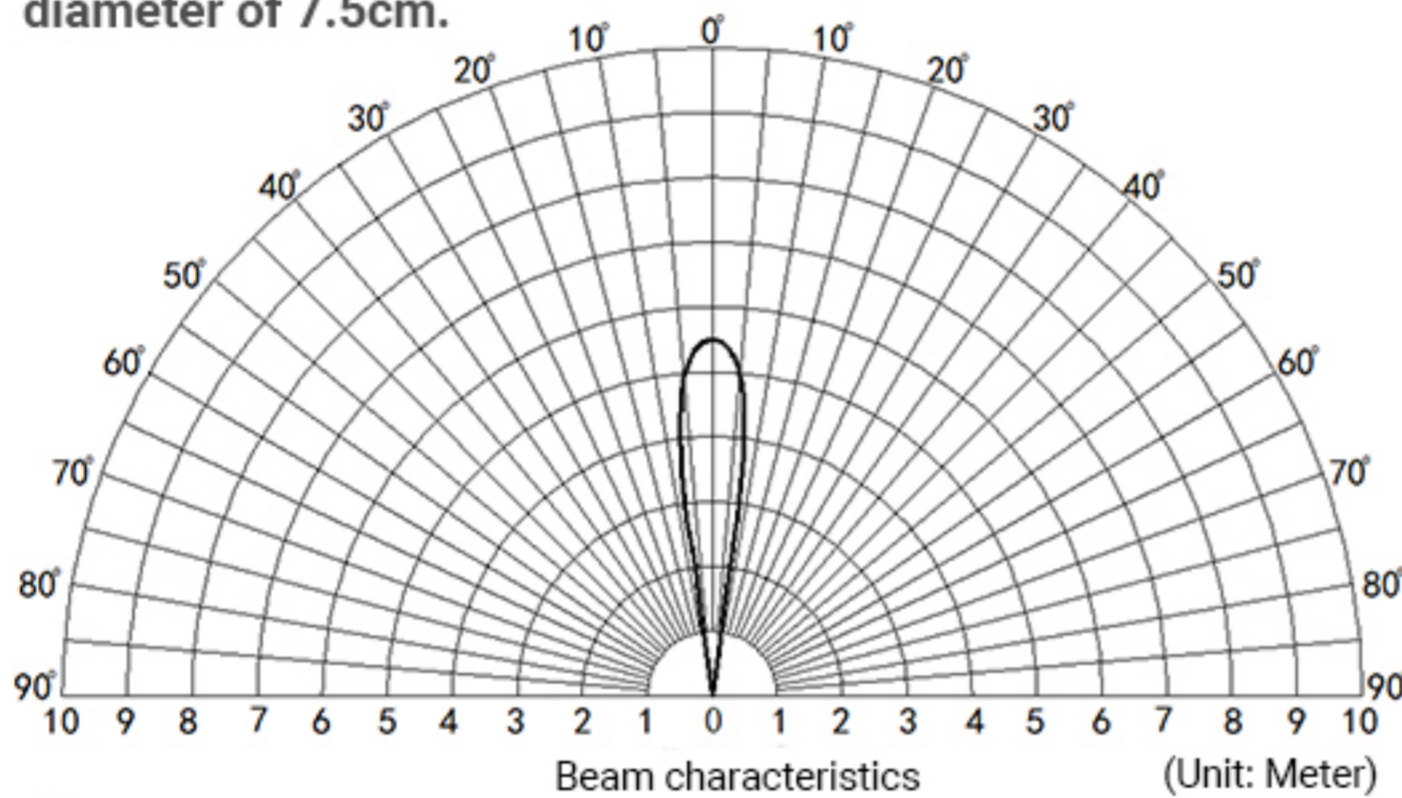
# Sensor Selection Instruction

A07 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.

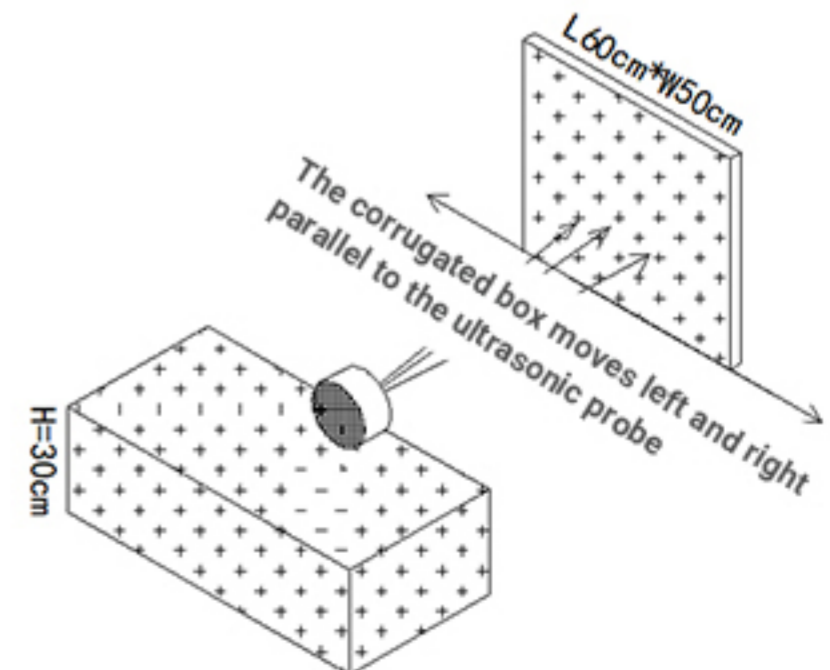
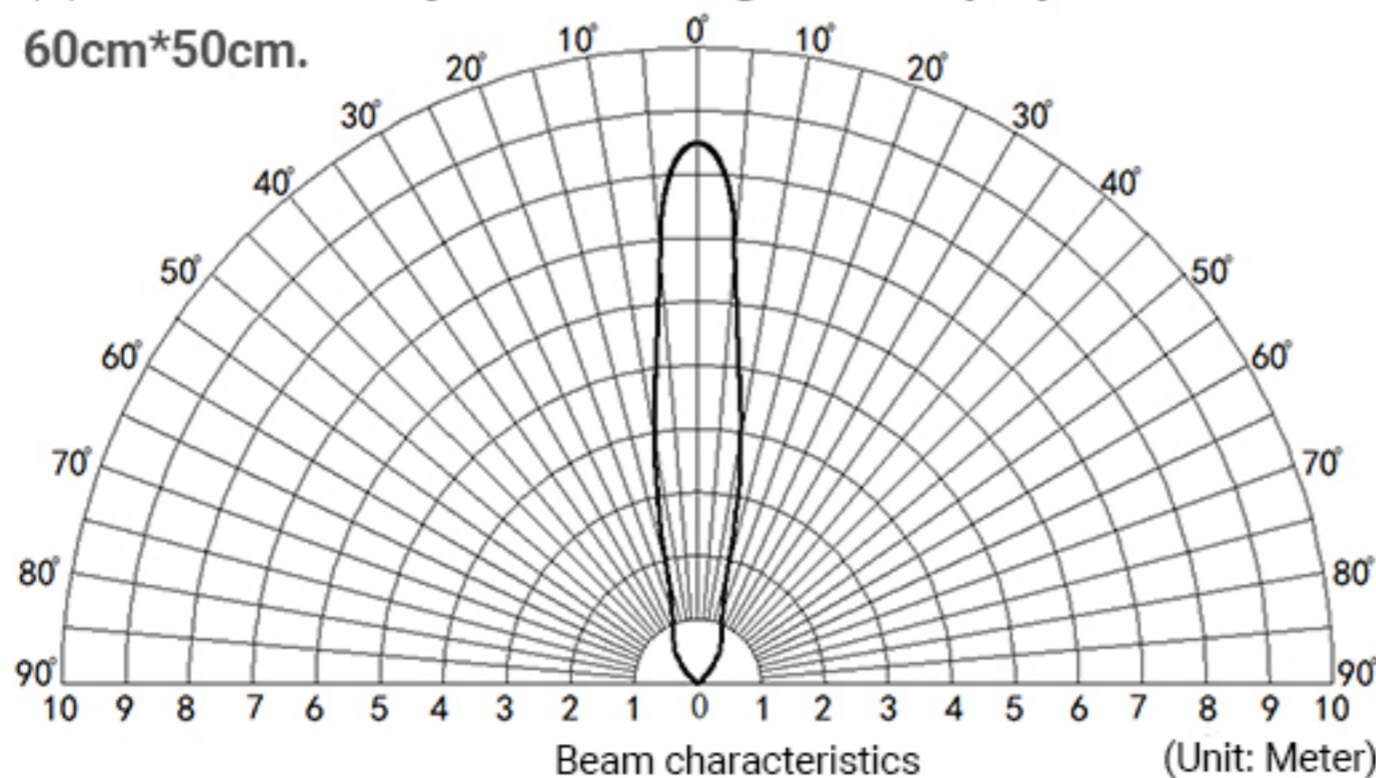
Series	Model No.	Function	Output interfaces	Remark
A07	DYP-A07NYUB-V1.0	Sewer water level	UART Auto	
	DYP-A07NYTB-V1.0		UART Controlled	
	DYP-A07NYWB-V1.0		PWM process value	

## 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  $\leq 10\%$ .

## Instruction manual

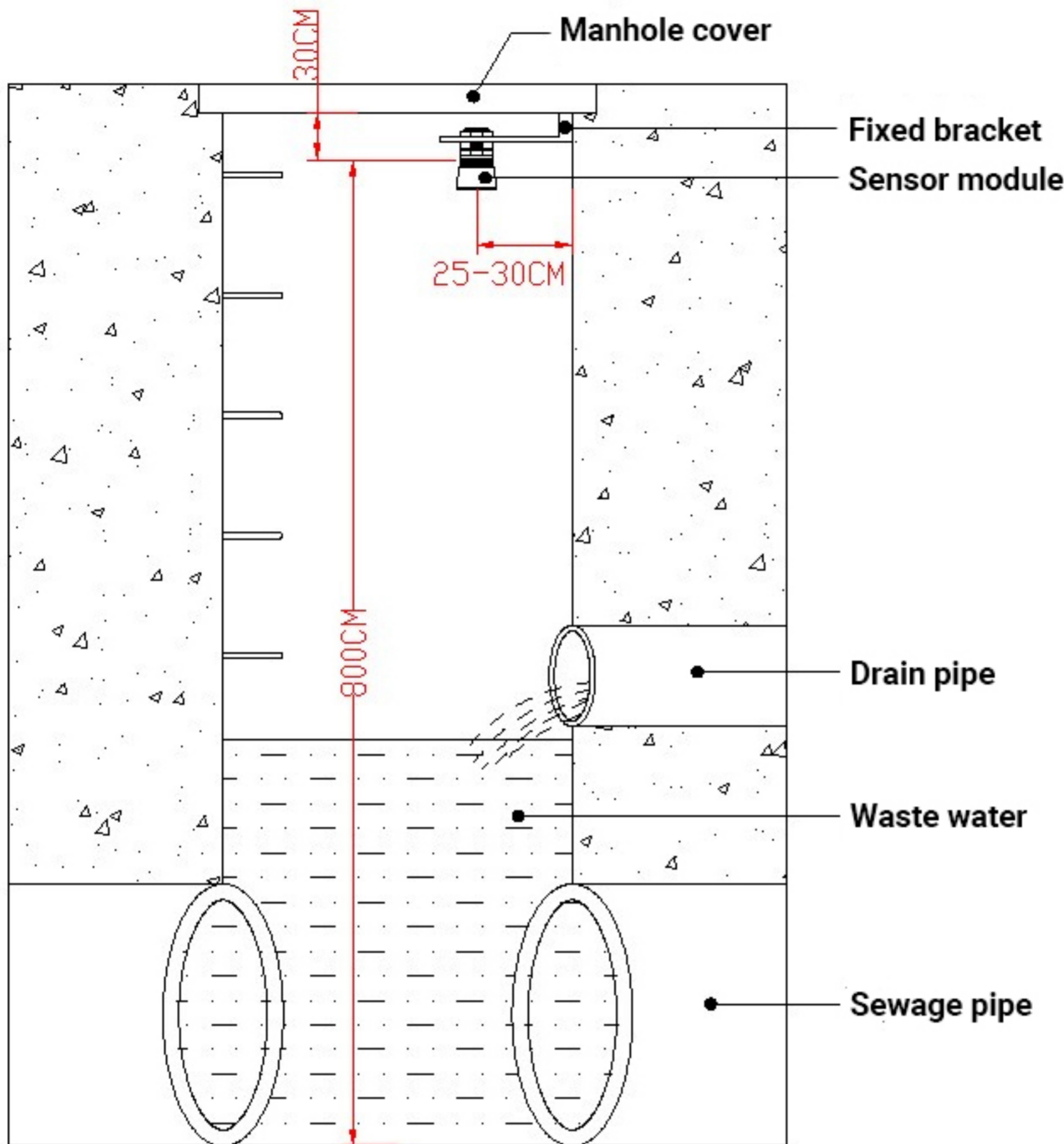
### 1. Product advantage

The design of algorithm of sensor module is based on the sewer structure. The module can effectively filter the interference of conventional facilities in the well (stairs, protruding bricks and stone walls, inlet and outlet pipes, small hanging objects on the well wall, etc.). Accurately obtain the current water level to prevent the accumulation of water from overflowing.

### 2. Installation requirements

Well water level application shown in the figure below. The best position of the module should be far away from the protruding object (stairs) of the well wall, and the flattest side of the well wall is selected as the installation support. The fixed module should be vertical to the water surface, Parallel to the well wall. The best installation distance between the module and the well wall on the same side is 25cm-30cm.





## Installation diagram

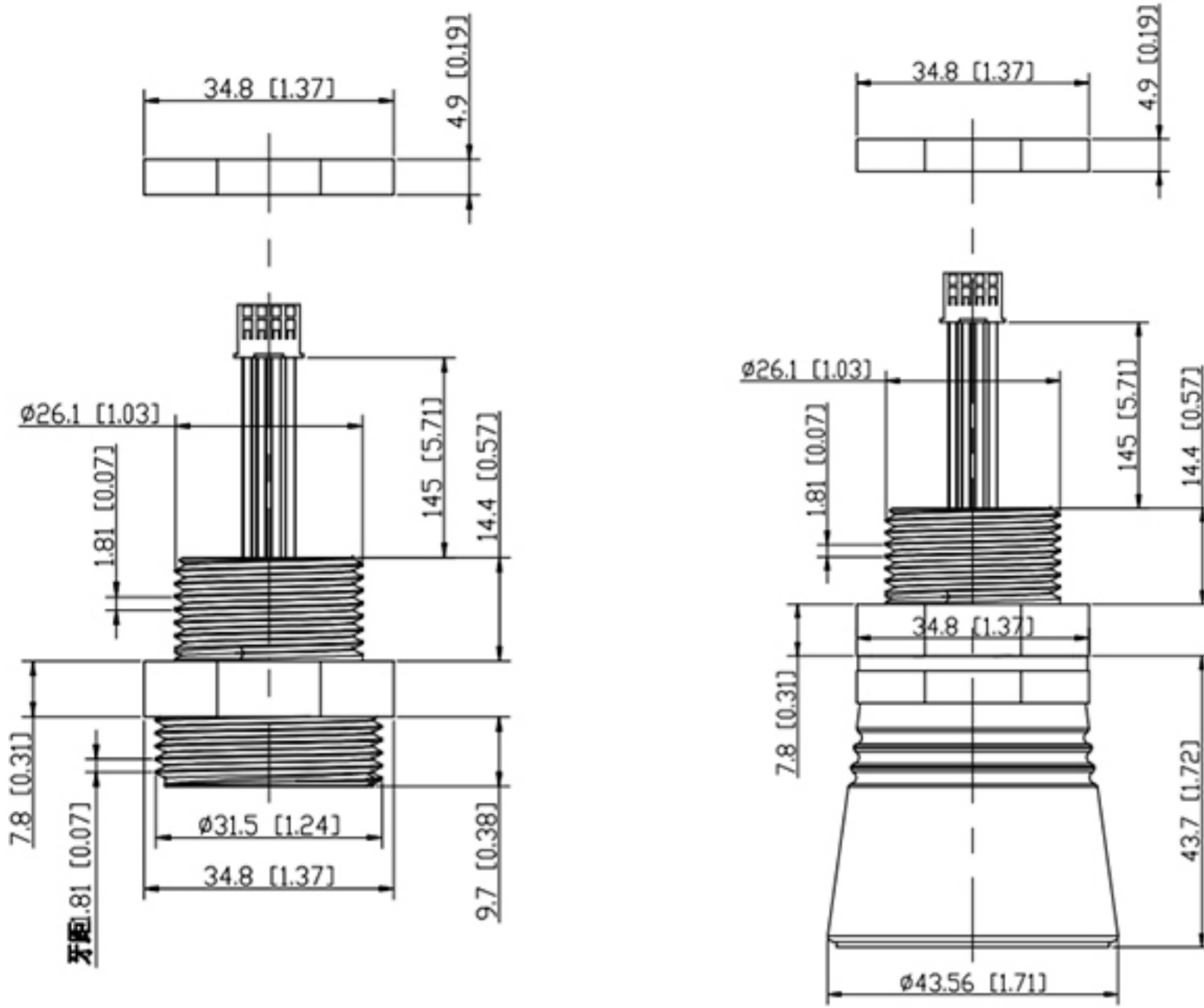
## Notice

- (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.

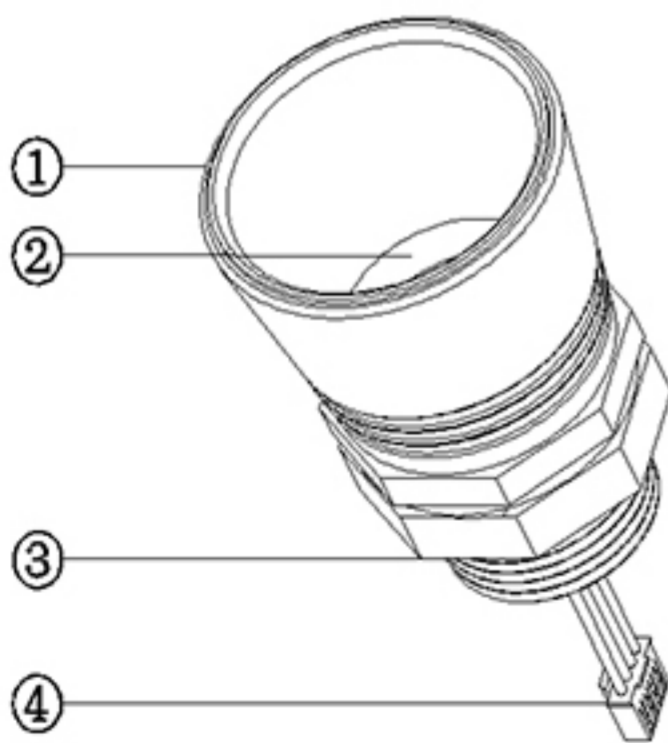


# Mechanics

## 1. Mechanical Dimensions ( mm-inch)



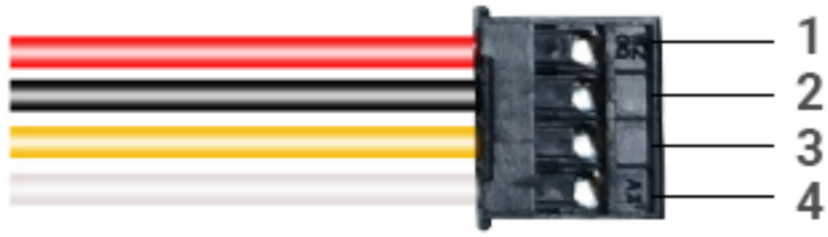
## 2. Parts Description



- ① Horn
- ② Ultrasonic transducer
- ③ Waterproof case
- ④ HY2.0mm-4P connector with lock
- ⑤ Fixing Nut



### 3. Pin out



Pin No.	Mark	Description	Remark
①	VCC	3.3V-5V 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