US500-HX Ultrasonic Sensor

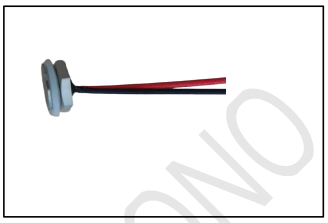
500mm Range / IP67 / Cost-effective /Split design/High Accuracy Distance output

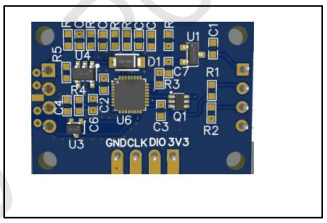
一、Product Overview

The US500-HX series Ultrasonic sensor can output Liquid level in real time.This sensor can be applied to Water dispensers, Coffee machines, Washing machines, Underwater robot and so on.

二、Features

- Ultrasonic sensor: Distance output
- Maximum Measuring Range：500mm
- Measuring Blind Zone：50 mm
- Accuracy：±2mm
- Resolution：0.1mm
- Operating Temperature：0℃~100℃
- Supply Voltage：5-12VDC
- Compact Size：Φ14





三、 Applications

- water heater
- Coffee Machine
- Washer
- Underwater Robot

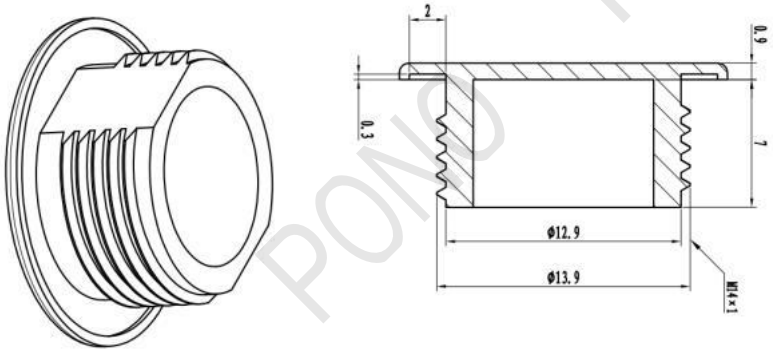
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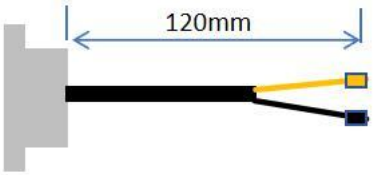
四、 Specifications

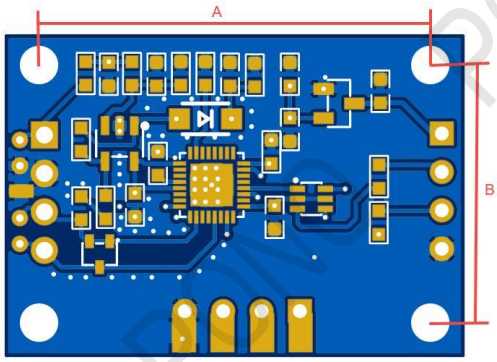
#	Model	Probe Unite-US500-HX
1	Range	50-500mm
2	Frequency	3.3M
3	Response	500ms
4	Accuracy	±2mm
5	Repeatability	±1mm
6	Protection Level	IP67
7	Output Rate	25Hz
8	FOV	±5°
9	Operating Temperature	0 ~ 100℃
10	Dimension	Φ14
11	Materials	304 stainless steel
#	**Model**	**Controller**
1	Supply Voltage	5-12VDC(3.3Vpp to Probe Unite)
2	Consumpition	75mW@5V
3	Communication Interface	TTL（UART Baud rate:9600）
4	Protection Level	N/A
5	Operating Temperature	-10~70℃
6	Dimension	30*20mm

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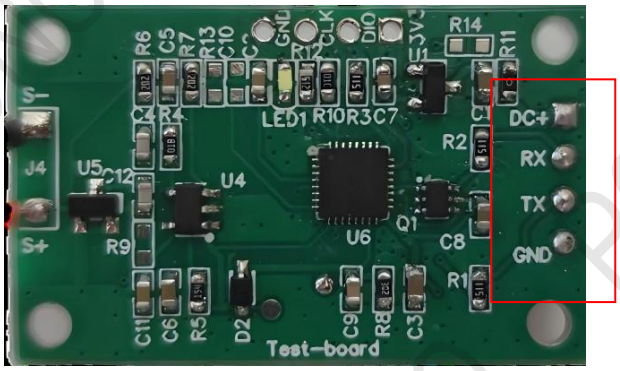
五、Dimensions







A=25.5mm,B=16.5mm



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六、Communication Protocol: UART

1. Communication Interface

UART	
Baud Rate	9600
Data Bit	8
Stop Bit	1
Parity Bit	None

2. UART Commands

3. Receive Data

Commander	
Check Measure data	5A 05 00 08 00 00 00 00 0D

Receive:**5A 05 00 88 02 00 00 00 XX YY ZZ**

SN	Data content	Explain
1	Head Code	Frame header, fixed value: 0x5A
2	Device Addr	Device address, two bytes, with the lower byte first, fixed value: 0x0005
3	CMD	Commands:0x88
4	Data Length	Data length: 4 bytes, with the lower bits first, fixed value: 0x0002
5	Distance	XX YY represents the distance information D1, consisting of two bytes. The lower byte comes first. The resolution is 0.1 millimeters, that is: D1 = YY * 256 + XX. For example, D = 119, indicating 1.19 centimeters.

6	Checksum	uint8_t GetCRC(uint8_t *nData,uint16_t nLen)
		{
		uint16_t i = 0;
		uint8_t nCRC = 0;
		
		for(i = 0;i < nLen;i++)
		{
		nCRC ^= nData[i];
		}

		return nCRC; }

七、Attention

1. US500-HX is Custom-design product, the Underwater range up to 50- 500mm. If you want difference range,please let SM know.
2. Please make sure the Ultrasonic sensor probe unite perpendicular to the object(around 90° ±5°) When the ultrasonic sensor measure the object. If the angle bigger than 90°±5°,the signal will lose.
3. Please keep the sensor probe fixed for the test and do not hold it with your hand.That would affect the signal.
4. The controller is not waterproof. Please do not submerge the controller in water.
5. This sensor is calibrated based on underwater measurement scenarios.Cannot be use in air measurement scenarios.

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