

US4000LSG-M20-TTL Under water Ultrasonic Sensor

IP68 / 4000mm Range / Short Size Design / Under-water USE /TTL Output

Product Overview

US4000LSG-M20-TTL Ultrasonic Sensor is a measurement sensors based on the principle of ultrasonic. With its compact design, widely used in Underwater robot and other fields. This product is easy to use, flexible to install, convenient for expansion, and extremely cost-effective.

Features

- Short Size Design
- 4000mm High Accuracy Range
- IP68 Protection Level
- Temperature compensation
- TTL Output
- Accuracy: 1% full range

Applications

- Underwater Robots Obstacle Avoidance
- Water/Oil Level Measure



Specification

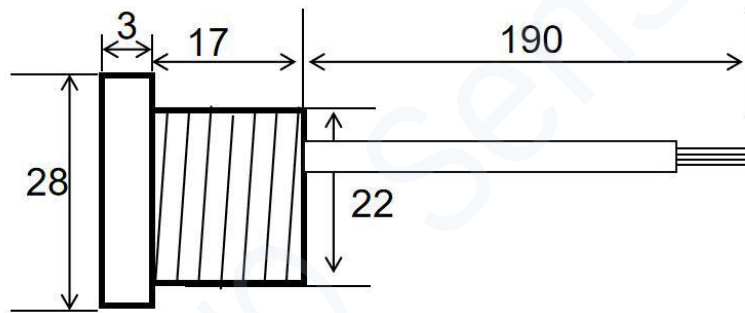
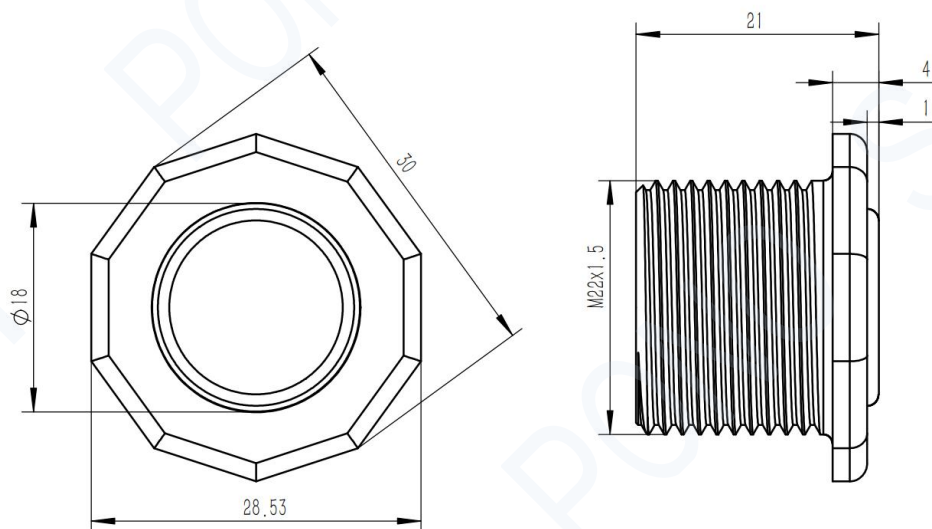
#	Model	US4000LSG-M20-TTL
1	Range	50-4000mm
2	Blank size	0-50mm
3	Frequency	1000±100KHz
4	Response	< 100ms
5	Accuracy	1% full range
6	Temperature drift	0.1%/C(Built-in temperature compensation)
7	Linearity	<2%
8	FOV	±4°
9	Operating Temperature	-10℃-+60℃(253-343K)
10	EMC	GB/T17626.2-2006
11	Supply Voltage	5V, 10%Vpp
12	Operating Current	≤20mA
13	Communication Interface	TTL-232(3.3V)
14	Protection Level	IP68
15	Dimension	M28*M22mm
16	Weight	17g
17	Materials	PBT
18	Operating environment	Under water

Definitions

Sensor	RED (红色)	+UB Power +(12v)
	White (白色)	TTL-Tx
	YELLOW (黄色)	TTL-Rx
	BLACK (黑色)	-UB Power -(Ground)



Dimensions



Quick Start

1. Installation

Because ultrasonic sensors are directional, the installation position should be Carefully considered. It is recommended that the installation position be Perpendicular to the measured object to obtain better relative accuracy.

2. Communication Protocol: TTL ,Baud rate:115200

TTL	
Baud Rate	115200
Data Bit	8
Stop Bit	1
Parity Bit	None

3. Commands

Commander	
Check Distance data	5A 0A 00 08 00 00 00 0002
Check Temperature data	5A 0A 00 0A 00 00 00 00 00
Start Measure	5A 0A 00 7B 00 00 00 00 71
Stop Measure	5A 0A 00 7A 00 00 00 00 70

4. Receive Data

- Receive Distance data: **5A 0A 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: 0x000A
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 1 mm, that is: $D1 = YY * 256 + XX$. For example, D = 119, indicating 119 cm.
6	Checksum	ZZ: Checksum (DeviceAddr^CMD^DataLength^Data0...^DataN

- Receive Temperature data: **5A 0A 00 8A 04 00 00 00 AA BB CC DD 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: 0x000A
3	CMD	Commands: 0x8A
4	Data Length	Data length: 4 bytes, with the lower bits first, fixed value: 0x0004
5	Temperature	AA BB CC DD represents the Temperature information T1, data type: int32_t. The lower byte comes first. The resolution is 0.1 °C, that is: $T1 = (DD \ll 24) + (CC \ll 16) + (BB \ll 8) + AA$. For example, T = 223, is 22.3°C .
6	Checksum	ZZ :Checksum (DeviceAddr^CMD^DataLength^Data0...^DataN

Attention

- Do not input a voltage other than the normal working voltage to avoid burning out the sensor.
- Do not connect the wiring incorrectly to avoid burning out the sensor.
- Please avoid pulling the sensor lead to prevent damage to the electrical connection of the sensor.
- Do not cover the surface of the sensor probe to avoid affecting the sensor detection range.
- The sensor should be used without strong mechanical vibration, and the working environment should not have strong electromagnetic interference and rapid air circulation.
- Please do not disassemble the sensor without permission. If the sensor cannot work normally, please contact the after-sales service immediately to solve the problem.