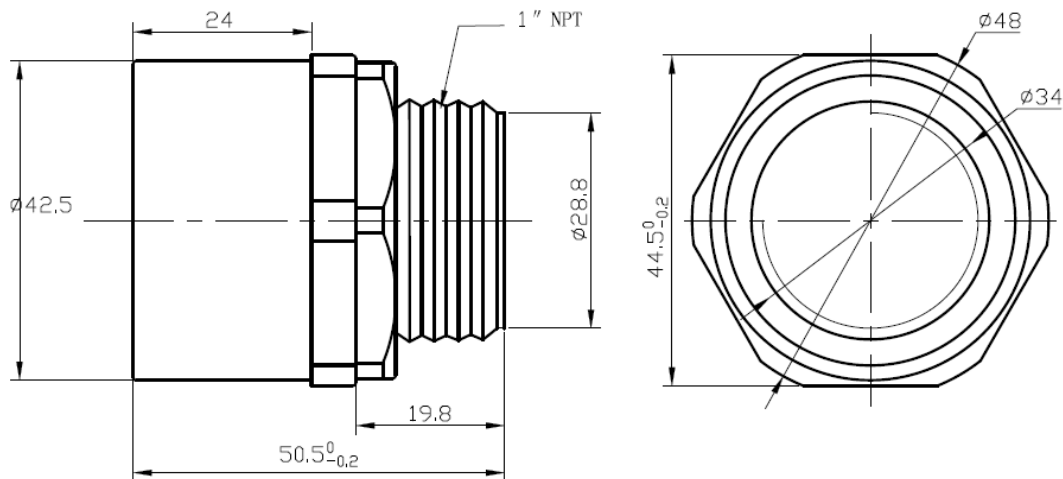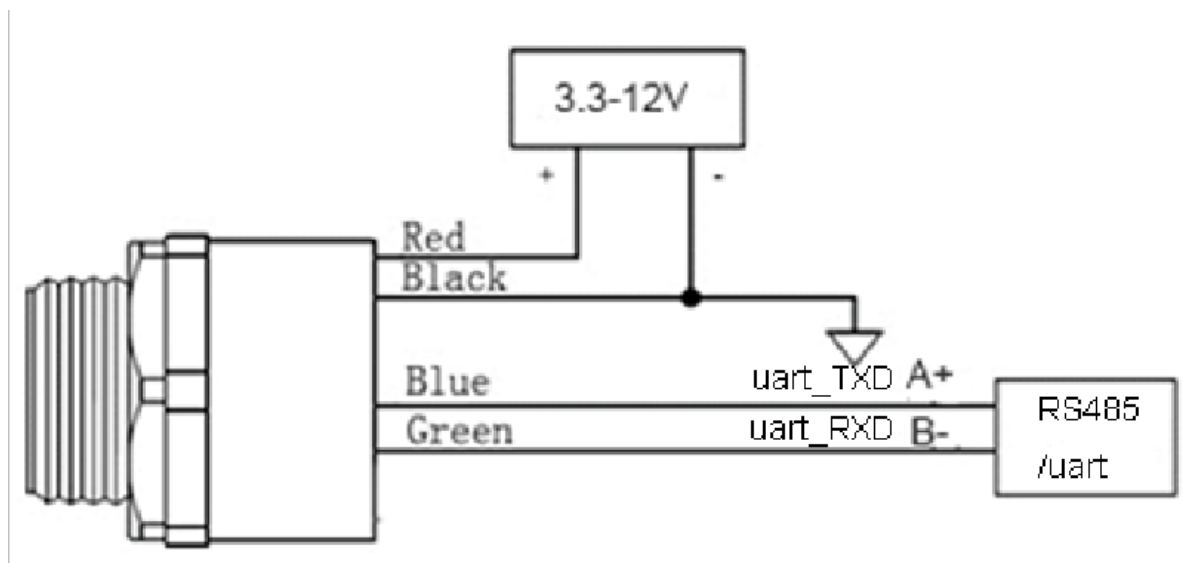# KUS 550L ultra low power consumption series ultrasonic transmitter

## 1. Dimensions

Unit in the diagram is mm.



## 2. Electronic interface and signals definition

## 3. Parameter

**General specifications**

| KUS550 | |
|---|---|
| Sensing range | 200... 2000 mm(default)  3000mm for customized |
| Adjustment range | 200….2000mm |
| Unusable area | 0 ... 200 mm |
| Standard target plate | 100 mm x 100 mm |
| Transducer frequency | approx.100 kHz |
| Response delay | approx. 40 ms (default) |

**Electrical specifications**

| Operating voltage $U_B$ | 3.3V-12V  ripple 10 %SS |
|---|---|
| No-load supply current $I_0$ | 10 mA during sound transition around 10ms, 0.18mA during sleep mode. 3.2mA during standby mode |

**Output**

| Output type | 1:UART-TTL Modbus-RTU 2 RS485 output. Modbus-RTU |
|---|---|
| Repeat accuracy | ≤1 % |
| Temperature influence | ±1.5% of full-scale value |

**Ambient conditions**

| Ambient temperature | -25…70℃(248...343K) |
|---|---|
| Storage temperature | −40…85℃(233...358K) |

**Mechanical specifications**

| Connection | 5-wire cable |
|---|---|
| Protection degree | IP68 |
| Material Housing | PVC PVDF PTFE |

## 4. Description of Sensor Functions

There is 3 kinds of working mode,

**1: Ultrasound normal measuring mode**

The KUS550L ultra low power consumption ultrasound waterproof sensor will keep measuring for a determined period, the default period is 200ms, and the smallest period is around 25ms. The KUS550L ultra low power consumption ultrasound waterproof sensor will keep transmitting the ultrasound to measure the distance. this mode is usually used to measure when the application field ask quick response for the distance change. Or during the system adjustment and match. also the limitation of this mode is only 1 sensor for one place and direction, on the same RS485 bus.

**2: ultrasonic standby measuring mode**

The sensor will standby till the distance inquiry command sent from the host. The same to say, we can control the senor when and how to transmit ultrasound to measure, so it is very useful when there are more than 2 sensor in a limited space to measure the different direction and position. It's very easy to use during this kind of application field, it's acceptable for 254 sensors in one RS485 bus with the different address 0x01-0x254.

**3: Sleep and waken able for measuring mode**

This is the lowest power consumption mode, the sensor will be sleep after power on, the sensor will be wakened up when there is high to low or low to high change on the RXD pin of the sensor, and the sensor will receive the UART frame to process. If the command is distance inquiry command the sensor will trigger a measuring and response to the host and then go to sleep. The sensor will keep wakened around

10ms, so the host must send 2 parts signals to the senor , lead code and then  the Modbus-RTU command In 10 ms.

## 5.  Installation conditions

If the sensor is installed at the environment temperature fall below 0℃, It should do well on the

protective measures. In case of direct mounting of the sensor in a through hole using the steel nuts,

it has to be fixed at the middle of the housing thread.

## 6. Ordering information

| GXUS | Body size | OUTPUT | Max range | Description |
|------|-----------|--------|-----------|-------------|
| | 550M | For 550L body. The max range is 2000mm. | | |
| | Customized | Customized | | |
| | | TTL | Output is UAT TTL  Modbus-RTU | |
| | | RS485 | Output is RS485 Modbus-RTU | |
| | | | XXX mm | Xxx mm is the maxim range can be detected<br><br>For M18 the max range is 1000mm<br><br>For M30 the max range is 6000mm<br><br>For KUS600 max range is 6000mm<br><br>For KUS800 max range is 8000mm |
| GXUS | 550M | RS485 | 2000mm | |