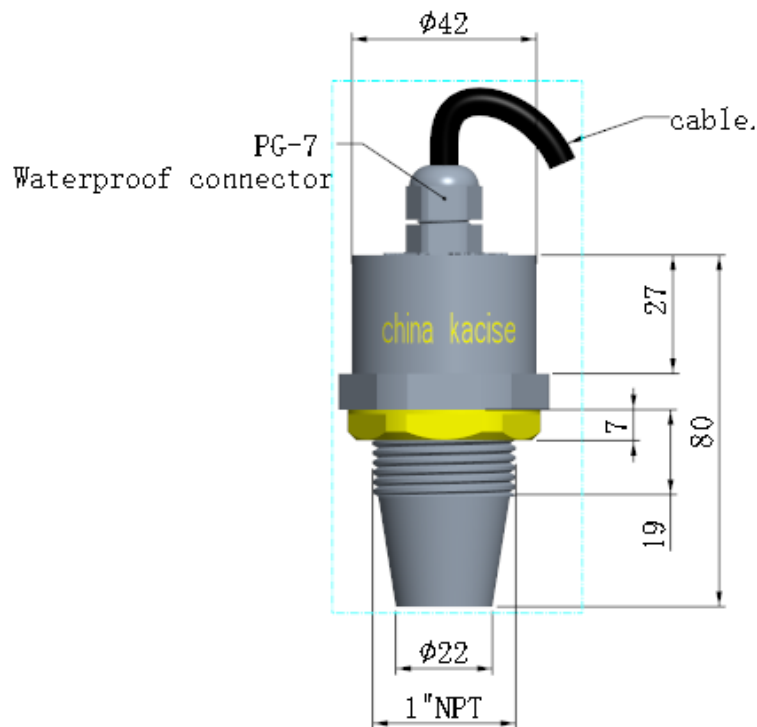# KUS600 Series Ultrasonic Sensor

## 1. Features

- Non-contact measurement
- PVDF casing for corrosion environment
- Low power consumption solution
- Various output options, wide voltage power supply

## 2. Dimension

Unit in the diagram is mm.



## 3. Electronic interface and signals definition

| Wire color | Pin | Description | Note |
|---|---|---|---|
| **Red** | 1 | Power supply | 3.3V-24V |
| **Black** | 2 | GND | |
| **Yellow** | 3 | Analogue output | Low power version hasn't analogue output |
| **Blue** | 4 | RS485A+ | |
| **Green** | 5 | RS485B- | |

## 4. Parameter

| Model：KUS600 | |
|---|---|
| Range | 0.6m-5m, low-power product supports wide voltage input, this range is for 3.3V power supply (6m range customizable) |
| Unusable area | 0 ...0.6m |
| Powe supply | 3.3V-24V |
| Power consumption | less than 0.3mA when sleep, less than 20mA when emitting, less than 5mA than when measurement |
| Output signal | 0-5V /4-20mA/NPN/PNP/RS485 |
| Electrical connection | 5-core cable (analog), 6-core cable (switch) |
| Ranging resolution | 1mm |
| Measurement accuracy | 0.5%-1 %F.S. |
| Temp. compensation | Yes |
| Working temperature | -25…70℃(233...358K) |
| Storage temperature | -40…85℃(233...358K) |
| Protection class | IP66 |
| Casing Material | PVDF |

## 5. Description of Sensor Functions

**Adjusting the analogue output.**

The analogue output can be programed as the user want. Such as working at switch output or working at liner output all the parameters can be set by the RS485 interface.

There are 8 types of output functions can be programed.

All the setting routine as follows,

step 1 set one pointed distance by the RS485,

step 2 set another pointed distance by the RS485.

Step3 set the output type liner or switch, and set the related output options

Step4 reboot the sensor.

1.  Window mode normally-open and liner mode positive slope output function.
2.  Window mode normally-closed and liner mode negative slope output function.
3.  Single switching point, normally-open function.
4.  Single switching point, normally-closed function.
5.  Single switch point with hysteresis gap normally-open function.
6.  Single switch point with hysteresis gap normally-closed function.
7.  Detection of object presence-normal open function.
8.  Detection of object presence-closed open function.

Switching point, Setting distance only after power on. The internal clock can assure can't be changed after 5 minutes after power on. If want to change the switching point, the user can only set the request distance after power restart.

**For the RS485 output type.**
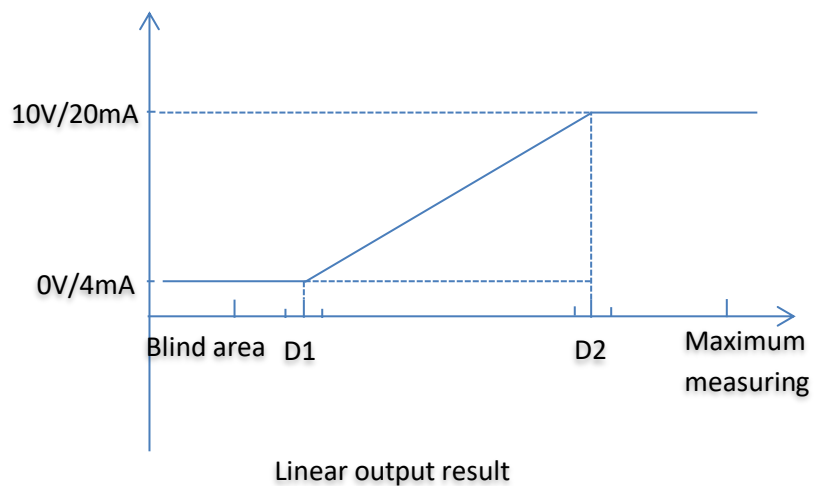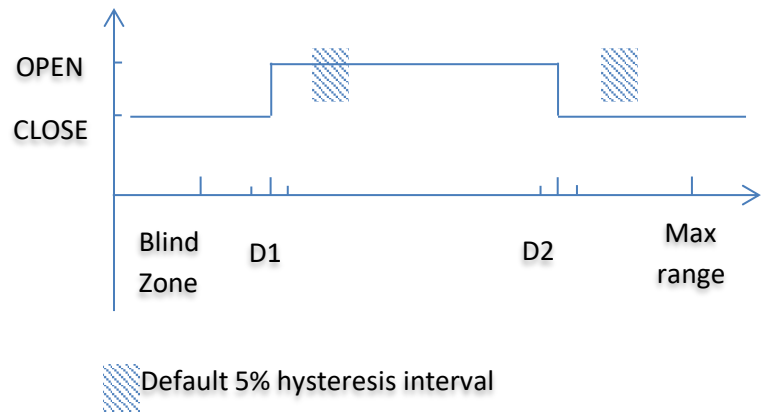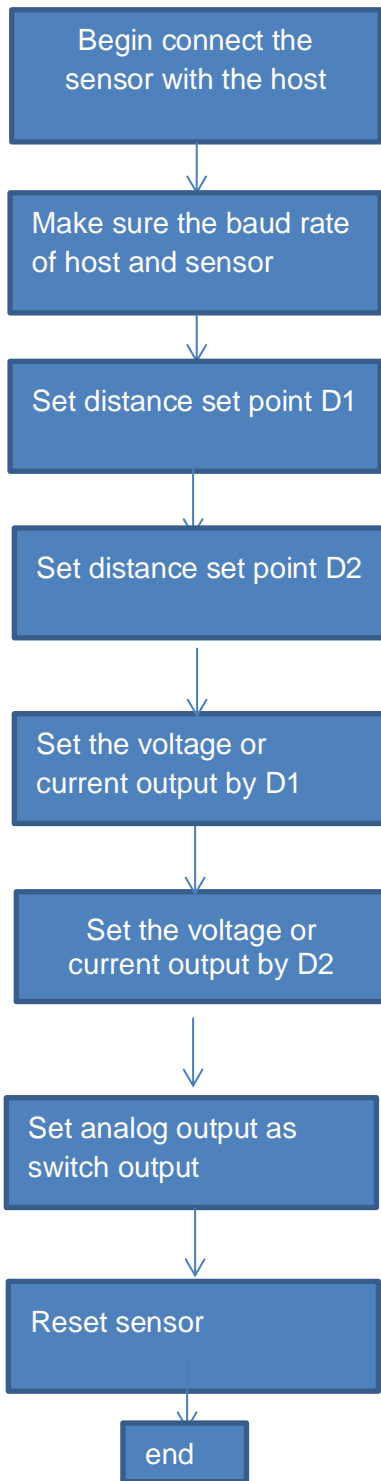
There are 2 kinds of working style,

One for auto measure, the sensor will measure the distance or level repeatedly, and the measurement period can be set by the UART. The measure result can be fetched every time.

The other style is power save mode when the sensor is sleep, until the sensor received the inquiry command with pre-code. Communication protocol is Modus-RTU.

For example the measure result can be read by access the register 0x101 by Modbus protocol.

For more information please contact us for the software engineering guide.

**Window mode normally-open and liner mode positive slope output function program routine diagram.**

Begin connect the sensor with the host

Make sure the baud rate of host and sensor

Set distance set point D1

Set distance set point D2

Set the voltage or current output by D1

Set the voltage or current output by D2

Set analog output as switch output

Reset sensor

end

OPEN

CLOSE

Blind Zone    D1    D2    Max range

Default 5% hysteresis interval

10V/20mA

0V/4mA

Blind area    D1    D2    Maximum measuring

Linear output result

## 6. 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 nuts, it has to be fixed at the middle of the housing thread.

## 7. Ordering information

| KUS | Body size | Output | Max range | Description |
|------|-----------|--------|-----------|-------------|
| | 600 | | | |
| | Customized | Customized | | |
| | | 4-20mA | 4-20mA mode output with RS485 MODBUS protocol | |
| | | 0-3.3V | The power supply range is 3.3 at least | |
| | | 0-5.0V | The power supply range is 5.0 at least | |
| | | RS485 | Power save mode with RS485 MODBUS protocol | |
| | | | XX m | XX m is the maxim range can be detected, the default length is 1 meter |
| KUS | 600 | RS485 | 3m | |