

Ultrasonic distance Sensor User Manual

Model No.: KUS600 Series

1. Features

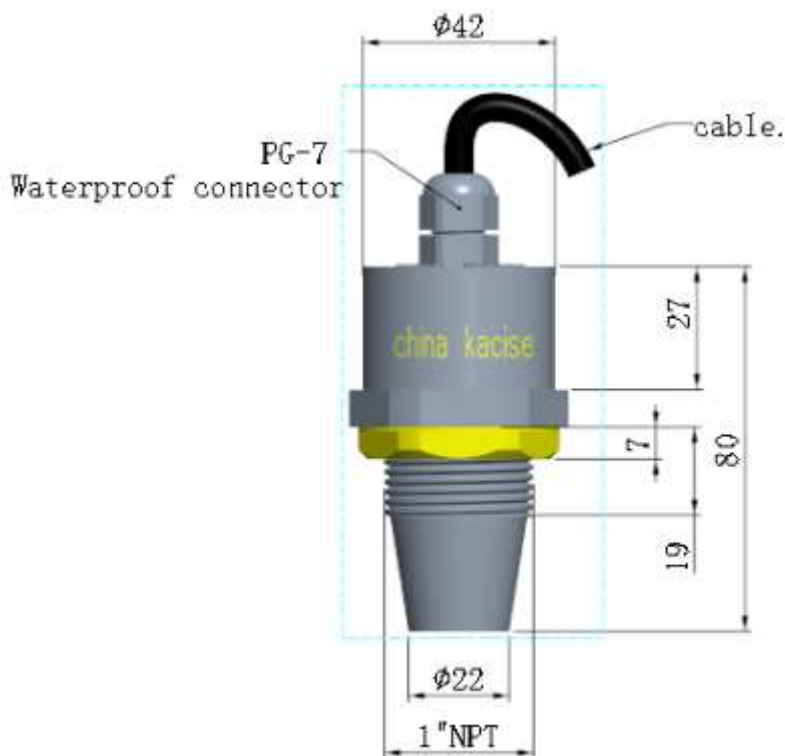
- Non-contact measurement
- PVDF casing for corrosion environment
- Low power consumption solution
- Various output options, wide voltage power supply

2. Drawings of the sensor

2.1 Sensor picture

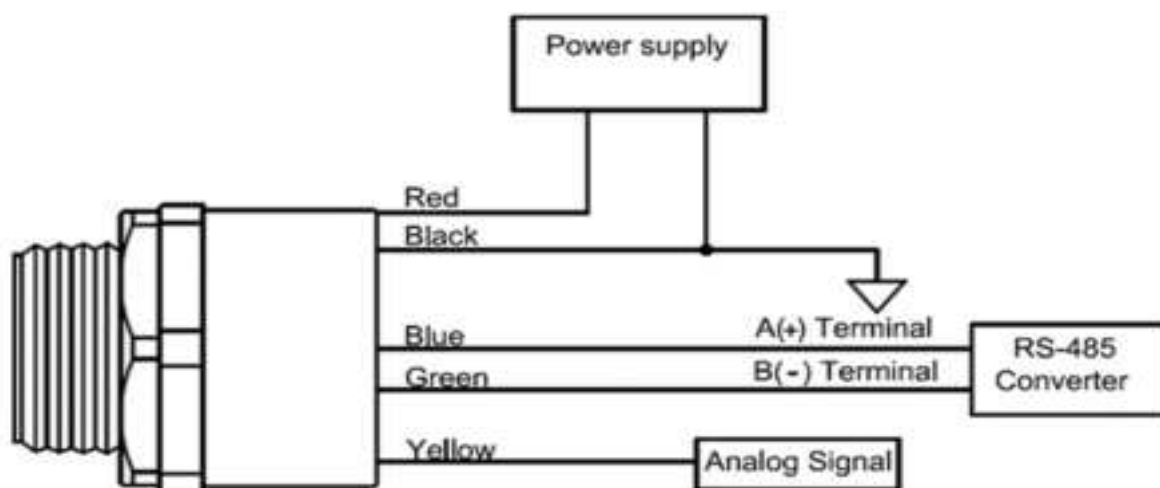


2.2 Drawing of the sensor (unit mm)



3. Electrical connections

Cable color	PIN No	Definition	Note
Red	1	Power supply	3.3V~24V
Black	2	GND	
Yellow	3	Analogue output	Low power version hasn't analog output
Blue	4	RS485A+	
Green	5	RS485B-	



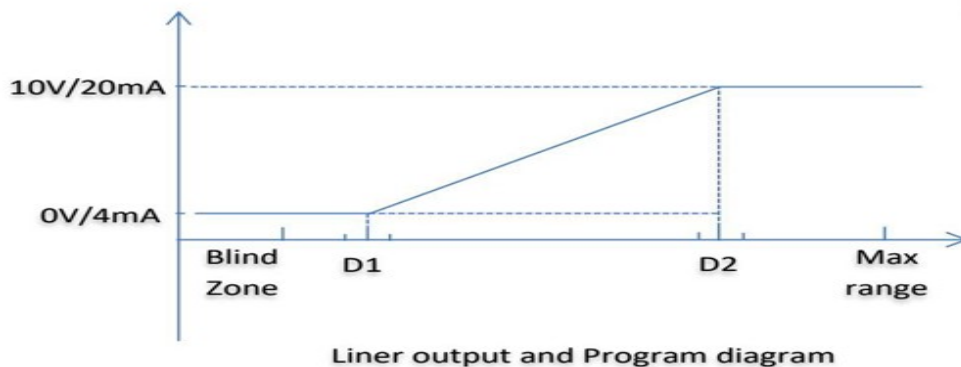
4. Parameter

General parameters		Mechanical Properties	
Model No	KUS600	Connection	5-core cable(analog) 6-core cable(switch)
Detection Range ¹	0.6~5m	IP grade	IP67
Blind zone	0~0.6m,		
Ranging resolution	1mm	Weight	0.3kg
Measurement accuracy	≤1%F.S	Single package	21X16X8 cm
Transducer frequency	220 kHz	Single gross weight	1kg
Response Time	approx. 10 ms		
Beam Angle	7°±2		
Temp. Compensation	inside/outside/fix temp		

Electrical Parameters		
Operating Voltage	3.3~24VDC ripple 10 %SS	
Power consumption	$\leq 20\text{mA}$ active period, $\leq 0.3\text{mA}$ during sleep time, $\leq 5\text{mA}$ detection status	
Circuit Protection	short-circuit protection, overload protection	
Output	Digital Output	RS485
	Analogue Output	4~20mA/ 0~3.3V/ 0~5V
	Switch Output	NPN/PNP
Ambient Environment		
Operating Temp.	-25°C ~ $+70^{\circ}\text{C}$ ($-40\sim 85^{\circ}\text{C}$, $-55\sim 125^{\circ}\text{C}$, etc, customizable)	
Storage Temperature	-40°C ~ $+85^{\circ}\text{C}$	

5. Description of Sensor Functions

5.1 Analogue output



The analog output can be set through RS485 interface, the setting procedure is as follows,

Step 1: connect the sensor to the computer through serial port debugging assistant or Modbus debugging assistant.

Step 2: set a near distance point through RS485

Step 3: set a far distance point through RS485

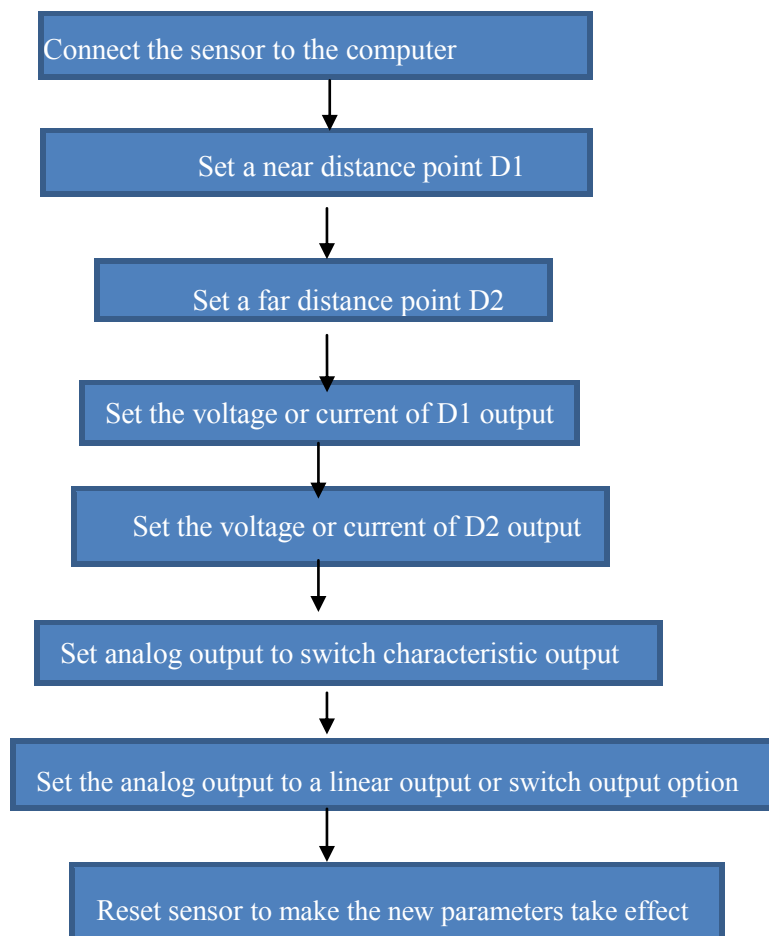
Step 4: set the output voltage or current of the near distance point

Step 5: set the output voltage or current of the far distance point

Step 6: set the analog output to the switch characteristic option

Step 7: set the analog output to a linear output or switch output option

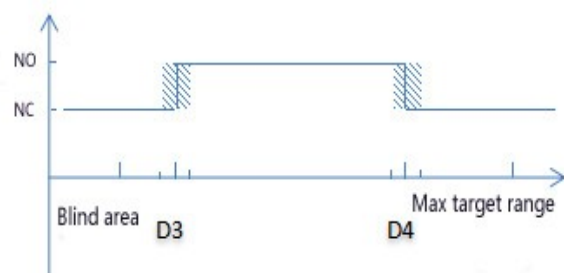
Step 8: reset the sensor to make the new parameters take effect



5.2 Switch output

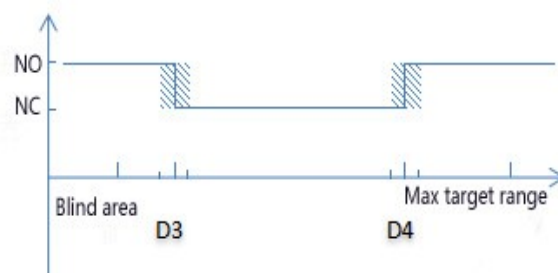
There are 8 different functions

- 1: Default window mode normally open
- 2: Default window mode normally closed
- 3: Default single point switch mode normally open
- 4: Default single point switch mode normally closed
- 5: Default single point hysteresis mode normally open
- 6: Default single point hysteresis mode normally closed
- 7: Default object detection mode normally open
- 8: Default object detection mode normally closed



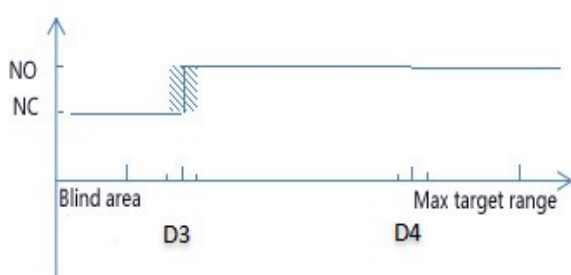
Default 5% hysteresis interval

1. Window mode normally open



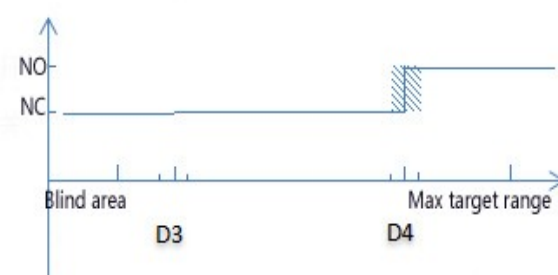
Default 5% hysteresis interval

2. Window mode normally closed



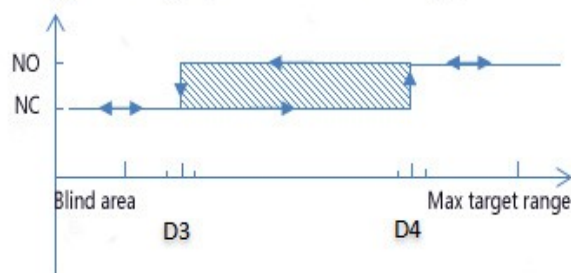
Default 5% hysteresis interval

3. Single point switch mode normally open



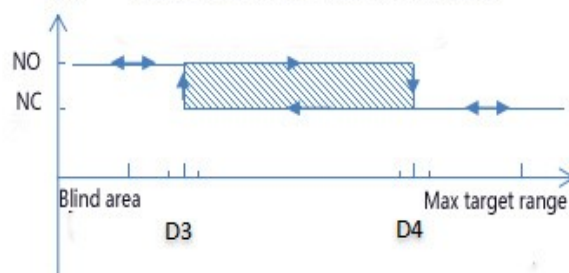
Default 5% hysteresis interval

4. Single point switch mode normally closed



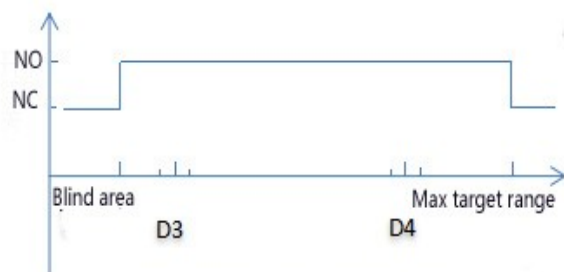
Default 5% hysteresis interval

5. Single point hysteresis interval mode normally open

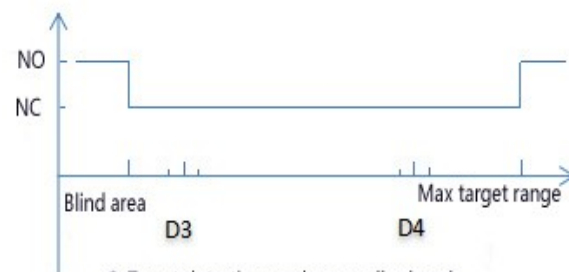


Default 5% hysteresis interval

6. Single point hysteresis interval mode normally closed



7. Target detection mode normally open



8. Target detection mode normally closed

8 output logic diagrams of switch output

5.3 Digital output : RS485

Communication protocol is Modbus-RTU.

For more information please contact us for the software engineering guide

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. Order information

Model No.	Output	Max range	Description
KUS600	Switch output	5m	1.2m connection cable
	Analog output	5m	1.2 connection cable
	RS485	5m	1.2 connection cable

8. Contact us

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Getting more info & supports from <http://www.top1sensor.com>