承 认 书

SPECIFICATION FOR APPROVAL

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奥迪威料号 137118000001 客户料号 _____
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品 名 UM0001-000 日 期 _____
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QUANTITY

超声波传感器明细 ULTRASONIC SENSOR SPECIFICATIONS
Product Description Features Application Electrical Specification Detect angle Control Interface Signaling protocol Output Mode Formulas used for verification

	承认 APPD.	承认章 COMPANY CHOP
客户签认 CUSTOMER APPROVAL		

	制作 DWN.	审核 CHK.	核准 APPD.
出图 DRAWING			

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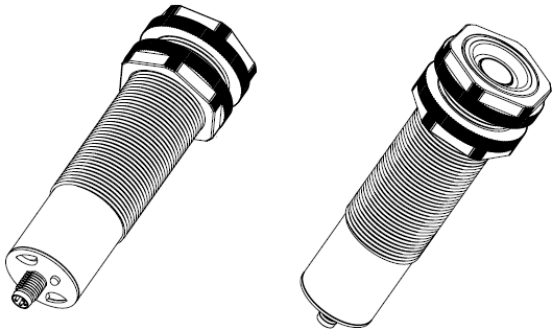
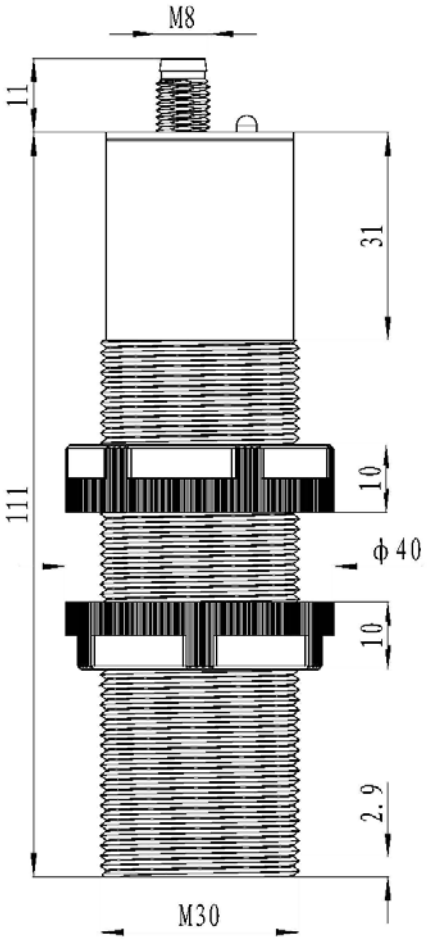
ULTRASONIC SENSOR
UM0001-000

● Introduction

UM0001-000 Ultrasonic sensors is high frequency sensor, be triggered by user. It can measure the object of non-contact accurately, ranging accuracy can reach 0.40 mm, Directional concentration; High sensitivity, reliable, stable, High and low temperature resistance, Waterproof etc. Penetration ability, Do not suffer motes influence, Widely used in the thing location, liquid level measurement and used for various instruments of proximity switch.





● Features

- detect range: 10.0～80.0cm;
- Measurement Mode：direct reflect;
- blind zone：10cm;
- Power protection in opposite direction;
- Anti interference design;
- Integration compact structure design;
- Simple maintenance and high reliability.

● Application

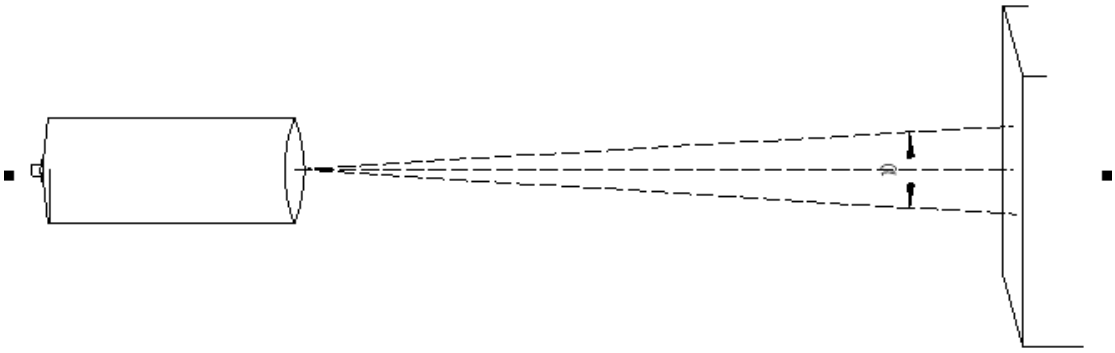
- Water supply and water treatment - reservoir and ponds, open channel;
- Chemical and pharmaceutical - storage tanks and material feeding control system;
- Mining and oil - storage and repacking;
- Food manufacturing - milk products and wine products, production of drinks;
- Agriculture and transport - irrigation systems and goods transportation control;
- Industrial automation - line control and locate objects.

• Electrical Specification

Measure mode	
Principle	Ultrasonic
Typical Applications	Measuring liquid level or thing location
Specifications	
Frequency of operation	220KHz
Detect range	10.0～80.0cm
Accuracy	0.40mm
Blind zone	10cm
Output	
Digital value	pulse
Operating environment	
Work environment	Indoor/outdoor
Ambient temperature	-10 ～50
Relative humidity	≤95%
Design	
Material	ABS
Weight	About100g
Power supply	
Input power	DC 20-30V
Operating current	≤35mA

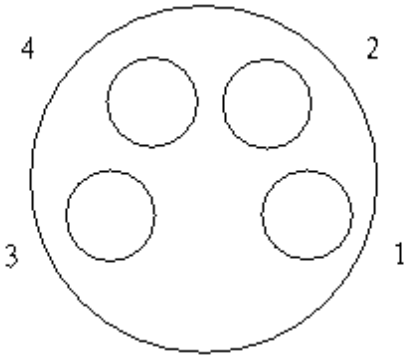
•Detect angle

angle：α=7°±1°



Angle range

• Control Interface



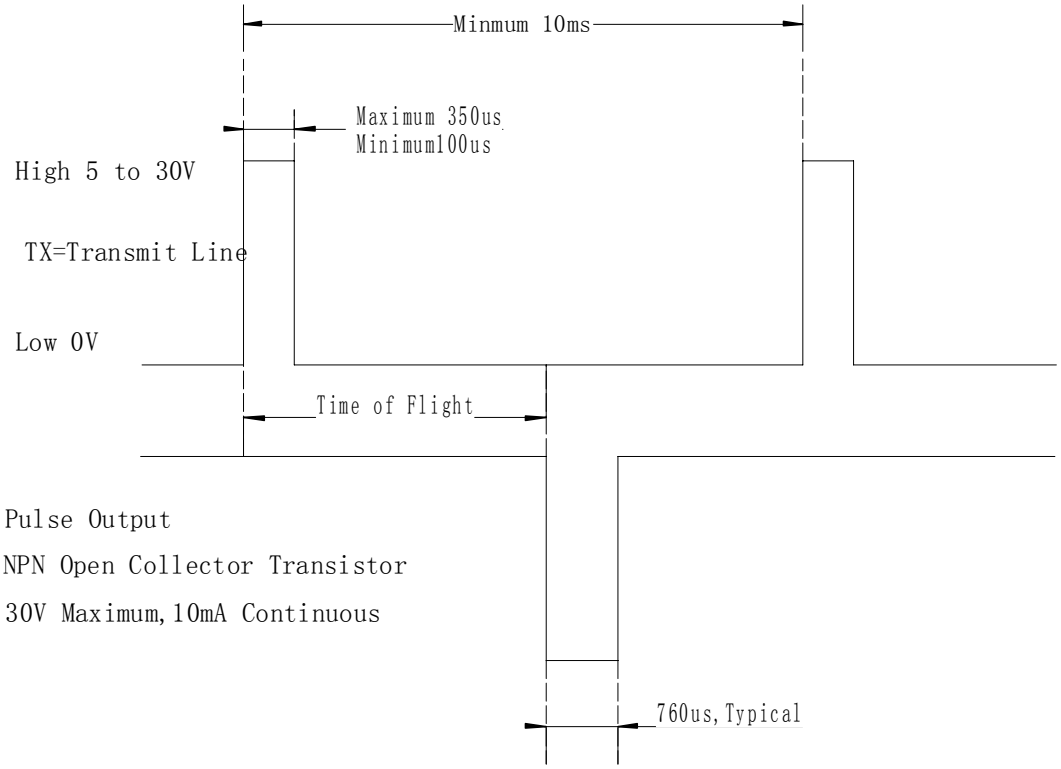
Interface label figure

Interface electric provisions

label	Pins electric provisions
1	GROUND
2	TX
3	20-30VDC
4	NPN,30V max,10mA

● Signaling protocol

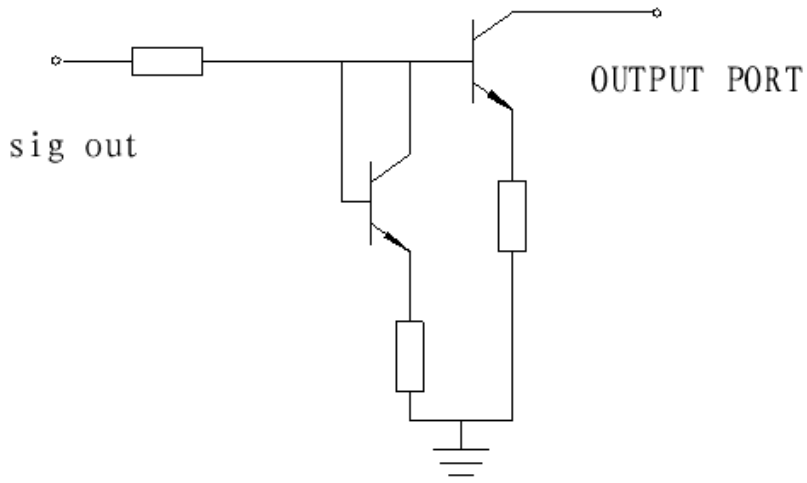
The smallest interval triggered signals for 10ms, Trigger signals pulse width:100us to 350us;
Triggered signals high-level voltage range: 5V to 30V, Low-level voltage value of 0V;
Detect echo, output port immediately output a low level signals;
The output pulse width typical values 760us;
NPN Open Collector Transistor,30V Max,10mA Max.



Signaling protocol Diagram

● Output Mode

NPN Open Collector Transistor,30V Max,10mA Max.



The output circuit schematic diagram

● Formulas used for verification

$$\text{Velocit(In./Sec)} = 789.3701 \times \text{sqrt(Temperature(in Kelvin))}$$

$$\text{Measurement(In.)} = \text{V(In/Sec)} \times \text{TimeOfFlight(Sec)}$$

$$\text{True Distance} = \text{Measurement(In.)} \div 2$$

(Sound travels from sonar to object and back)