RusAutomation

XSON®

Ultrasonic level transmitter

Committed to process automation solutions

Datasheet

XSON-SUP-ZP

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The ultrasonic level transmitter is a low-cost, non-contact and easy-to-install measurement device. It is able to meet the every-day needs of commercial production, as well serving a more specialized role in the technologically advanced aerospace industry, thus placing it firmly in the category of high-level measurement technology. Unlike other level indicators with limited uses, the easy-to-install ultrasonic level indicator is a highly accurate device with enough specialized uses to ensure that the needs of the customer are met.

Applications

- Sewage/waste water/tap water treatment equipment. Such as silos, open tanks , dams and wells.
- Liquids such as edible-oils, sauces and beverages
- Chemical material such as solvent, paints, carbonic acid, water lime slurry and wax.
- Granular materials such as flour, wheat and corn
- Chemical fibers, petrochemical materials

XSON-SUP-ZP

Features

- Wide voltage range
- Backup and restore settings function
- Measure a variety of parameters
- Analog output can be adjusted arbitrarily
- Support custom serial data format
- With arbitrary setting of the start point and end point of the output range
- With value-added/difference ranging options, both distance and level can be measured
- With multilevel emission pulse intensity, which can be set according to working conditions
- OLED display (with backlight)

Principle

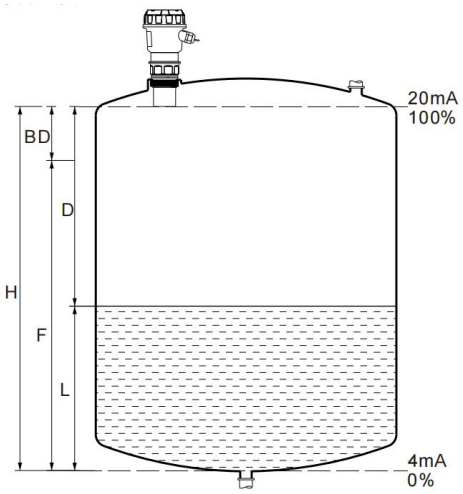
The principle of operation of the ultrasonic sensor system is to use the ultrasonic pulses which are transmitted by the transducer to the surface to be monitored and are reflected back to the transducer, the time period between transmission and reception of the sound pulses is directly proportional to the distance between the transducer and surface

The latest microcomputer technology and the proven processing software select the level echo from among any number of false echoes and calculate the exact distance to the product surface.

B = Blanking distance

D =Distance from transducer to material surface

L = Height in silo



The distance D is determined from the velocity of sound and the time period t by the formula:

$$D = V*T /2$$

Example:

With the velocity of sound = 334.1 M/s, a time period of 60m/s corresponds to a transmission path of 20.046M and thus to a distance of 10.023M.

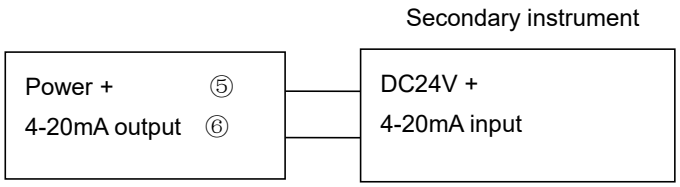
An integrated temperature sensor detects the temperature in the vessel and compensates the influence of temperature on the signal running time.

Parameters	
Type	XSON-SUP-ZP
Power supply	(18~28）VDC（2 wire）、（12~24）VDC、220VAC
Power consumption：	<1.5W（other can be customized）
Measure Range	5m、10m、15m
Accuracy	±0.3%FS
Blind zone	0.4m（5m） 0.5m（10m） 0.6m（15m）
Display resolution	1mm
Display	OLED（with Backlight）
Output (optional)	4～20mA RL>600Ω（standard） (0～5)V/(0～10)V RS485
Relay output	2-way relay (AC: 5A 250V DC: 10A 24V)
Working temperature	-20~60℃（high temp can be customized）
Ingress Protection：	IP65(IP68 optional)
Humidity	≤80%RH（without condensation）
Language	Chinese/English
Installation	Thread / Flange
Temperature compensation	Automatic
Measure type	Level / Distance
Launch angle	＜10°
Material	ABS、PP
Electrical Interface	M20X1.5-2
Installation interface	M60X2
Keyboard	Three touch keys

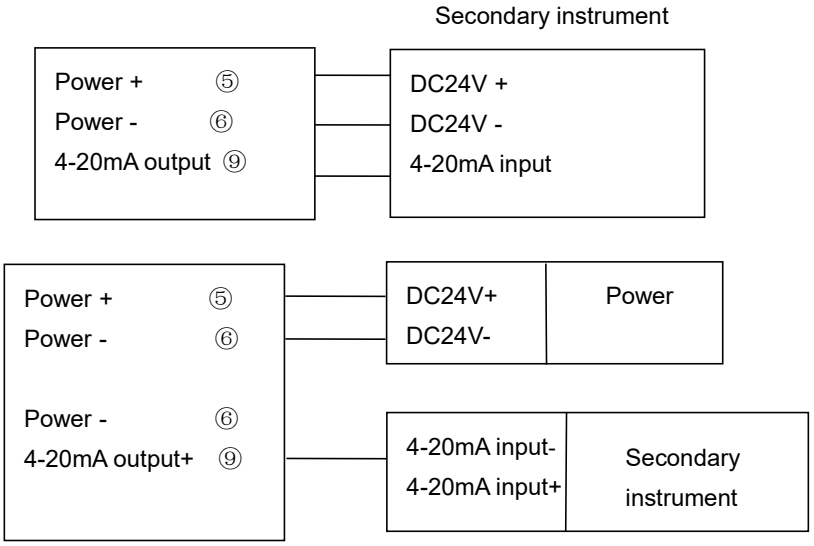
Wiring

1. Conventional wiring

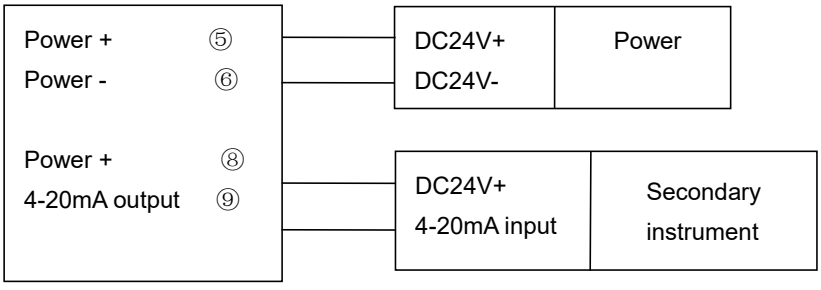
The number on the terminal of the machine should correspond to the number on the label on the product body.



Schematic diagram of the connection of two-wire

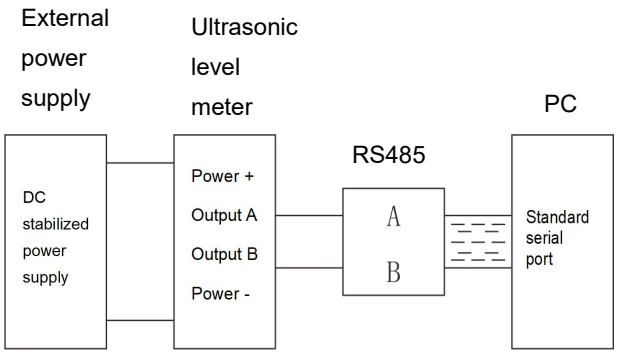


Schematic diagram of the connection of three-wire

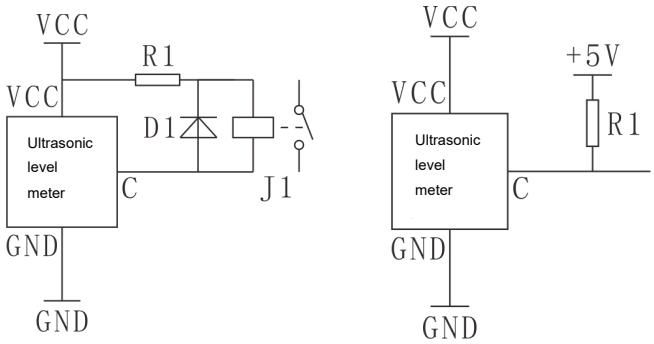


Schematic diagram of the connection of four-wire

2.Schematic diagram of serial port output connecting to PC



3.NPN output wiring diagram



Switch output control logic description:

The machine has three-way NPN switch output or two-way relay output. When using, it is necessary to set the switch control logic point, namely D value and H value. D is the switch start point, and H is the switch stop point. It works as shown in the following diagram (assuming the displayed value is X):

When the set D value is smaller than the H value:

X<D switch on	D point	D<X<H value hold	H point	X>H switch off

When the set D value is bigger than the H value:

X>D switch on	D point	D>X>H value hold	H point	X<H switch off

● Three (four) wire wiring definition

Please connect according to the characters marked on the terminal of the meter!

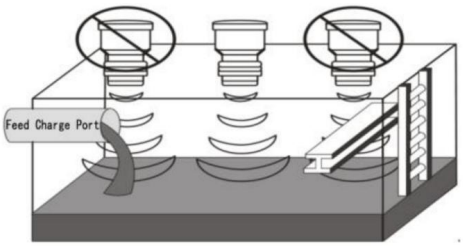
Wiring definition	Terminals		Use or not
Power supply	⑤DC12~24V+，⑥ DC12~24V-		❍Yes / ❍No
	⑩ AC220V(L)，⑪ AC220V(N)		❍Yes / ❍No
Current output	Three-wire	⑨ (4~20)mA	❍Yes / ❍No
	Four-wire	⑧ DC24V+ ⑨ (4~20)mA	❍Yes / ❍No
Voltage output	⑨ ❍0-5V❍0-10V❍Others_____		❍Yes / ❍No
Serial output	③ RS485(A)，④ RS485(B)		❍Yes / ❍No
Switch output	Relay	① J1_COM， ② J1_NO	❍Yes / ❍No
		⑩ J2_COM， ⑪J2_NO	❍Yes / ❍No
	NPN	① N1	❍Yes / ❍No
		② N2	❍Yes / ❍No
		❍⑦N3❍⑩N3❍⑪N3	❍Yes / ❍No

● Two-wire wiring definition

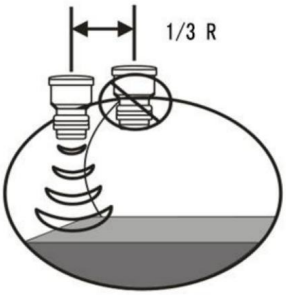
Please connect according to the characters marked on the terminal of the meter!

Wiring definition	Terminals	Use or not
Power supply	⑤ DC18-28V	❍Yes / ❍No
Output	⑥ (4~20)mA	❍Yes / ❍No
	⑥ HART	❍Yes / ❍No
Earthing	⑦ ⏚	❍Yes / ❍No

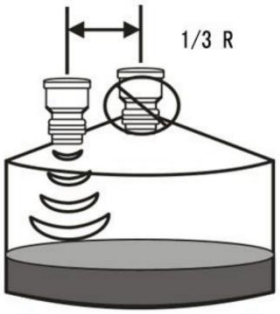
Installation



Figures 1



Figures 2



Figures 3

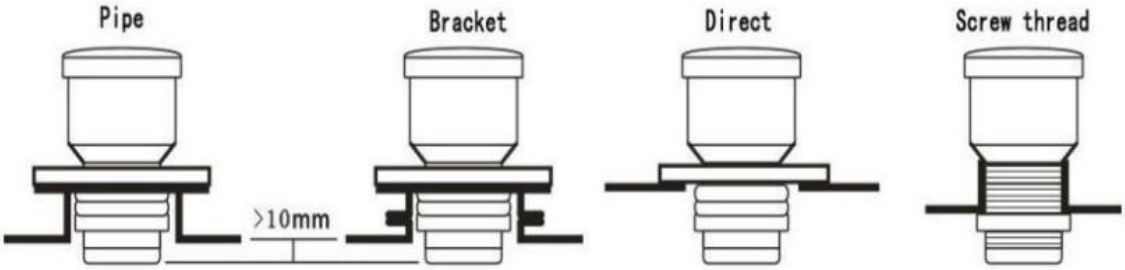
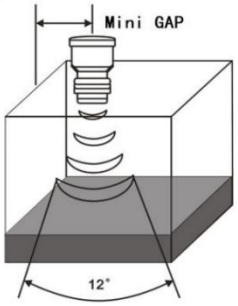
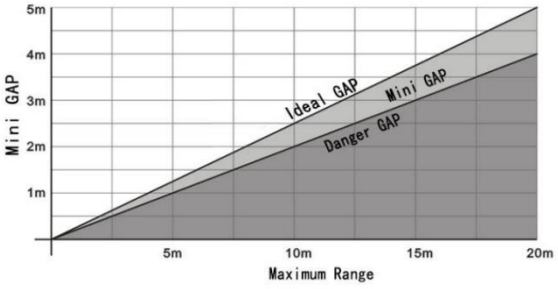
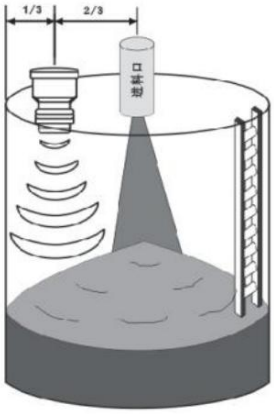


Figure 4

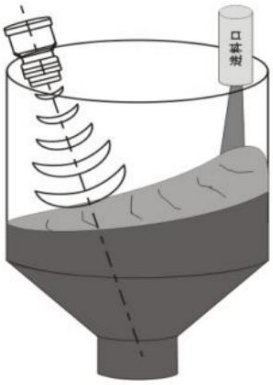




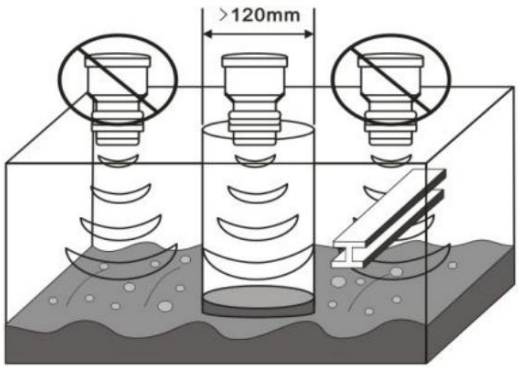
Figures 5



Figures 6

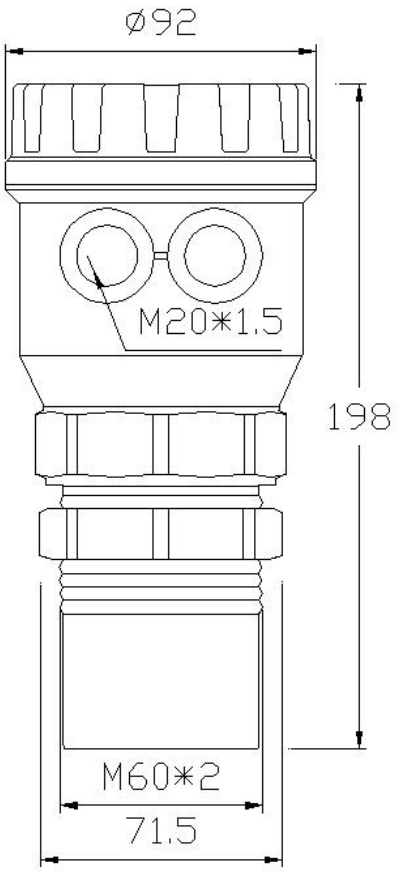


Figures 7



Figures 8

Dimension



XSON-SUP-ZP

Ordering code

XSON-SUP-ZP-RT1-ST1-J9-O0-D0-A0-V1															Description
XSON-SUP-ZP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Range	RT1														5m
	RT2														10m
	RT3														15m
	RT4														20m
Probe Type		ST1													ABS(standard）
		ST2													PTFE/PVDF
Accuracy			J1												0.3%
Transmit output				O1											Two wires 4 - 20mA outupt
				O2											Four wires 4 - 20mA outupt
Communication					D0										No
					D2										RS485
Relay output						A0									No
						A2									2 relay
Power supply							V1								24VDC
							V2								220VAC

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