Datasheet

Ultrasonic level transmitter

SUP-ZPM

Supmea®

Committed to process automation solutions

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Datasheet

Ultrasonic level transmitter
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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

SUP-ZPM

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

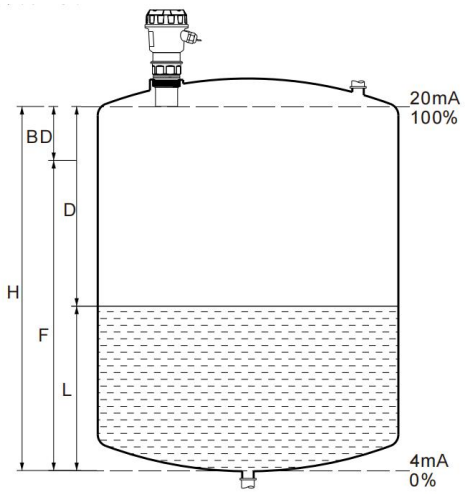
The principle of operation of the ultrasonic sensor system is to use the ultrasonic pulses which are transmitted by the transducer to the surface to be monitored and are reflected back to the transducer, the time period between transmission and reception of the sound pulses is directly proportional to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

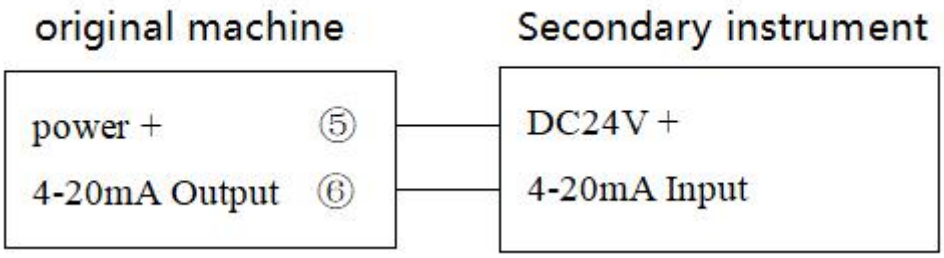
An integrated temperature sensor detects the temperature in the vessel and compensates the influence of temperature on the signal running time.

Parameters	
Type	SUP-ZPM
Power supply	12~24 VDC
Power consumption：	<1.5W（other can be customized）
Measure Range	1m、2m
Accuracy	±0.5%FS
Blind zone	≤0.06m（1m） ≤0.15m（2m）
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: 2A 250V DC: 5A 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	＜6°
Material	Cast Aluminum, 304 Stainless Steel (Optional PVDF)
Electrical Interface	M20X1.5-2
Installation interface	M30X1.5
Keyboard	Three touch keys

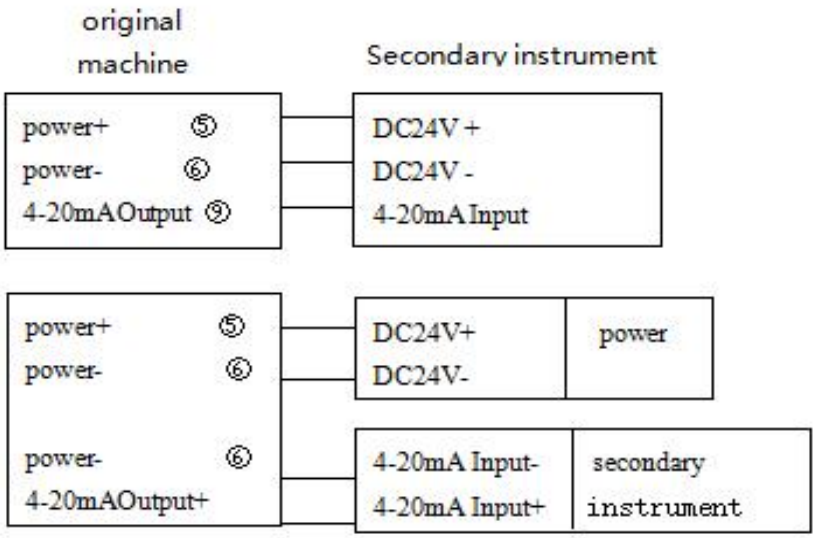
Wiring

1. Conventional wiring

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

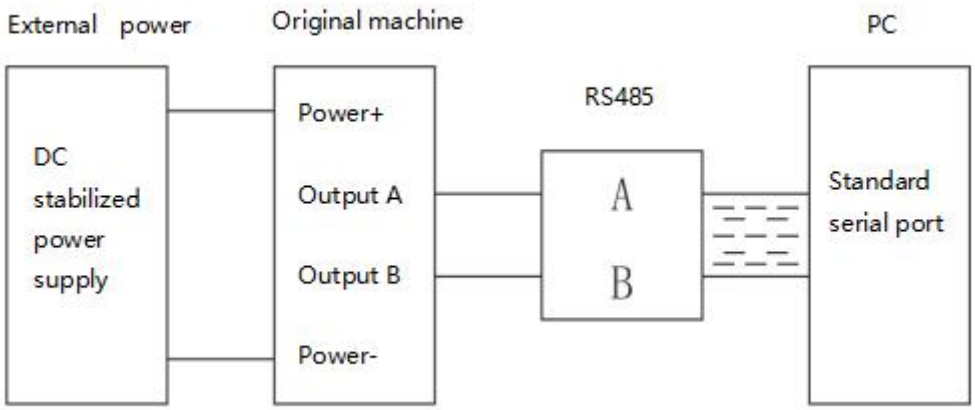


Schematic diagram of the connection of two-wire

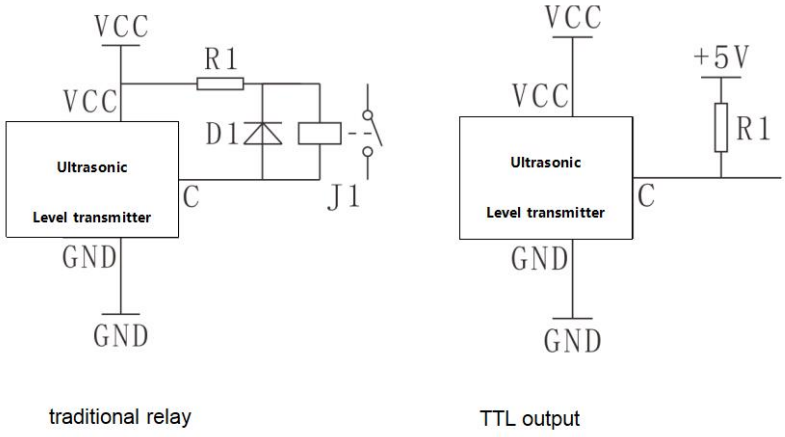


Schematic diagram of the connection of three-wire

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):

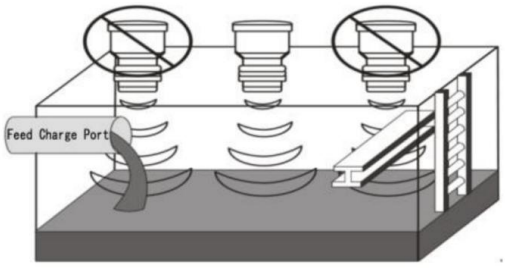
When the set D value is smaller than the H value:

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

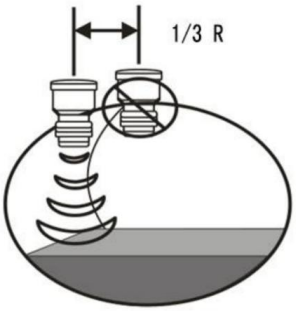
When the set D value is bigger than the H value:

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

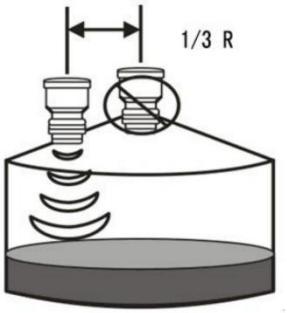
Installation



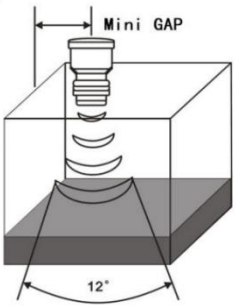
Figures 1

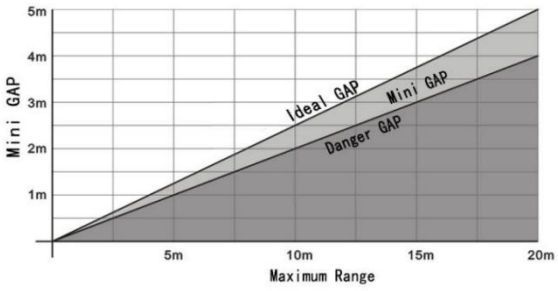


Figures 2



Figures 3





Figures 5

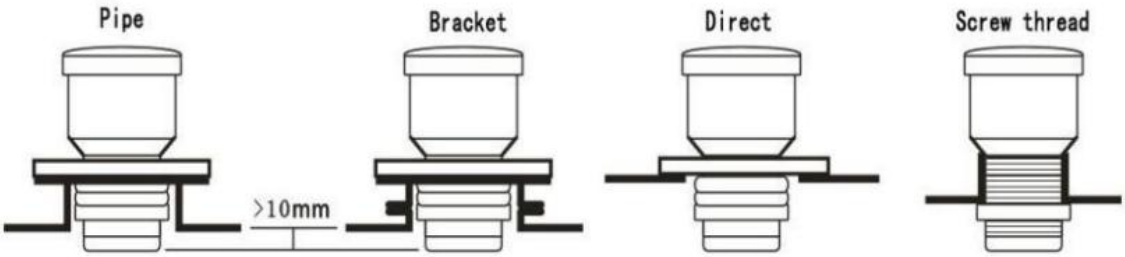
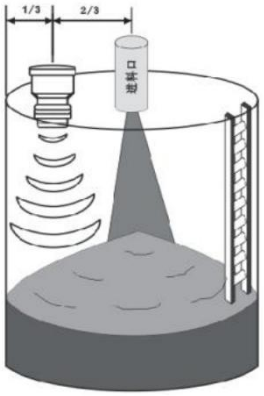
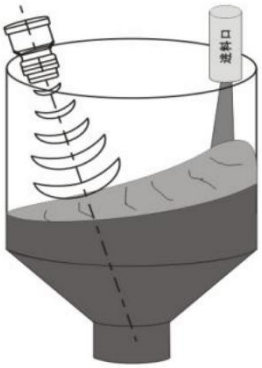


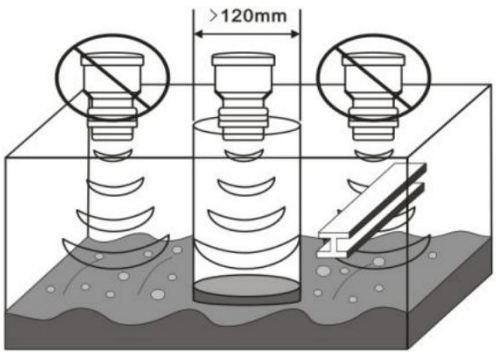
Figure 4



Figures 6

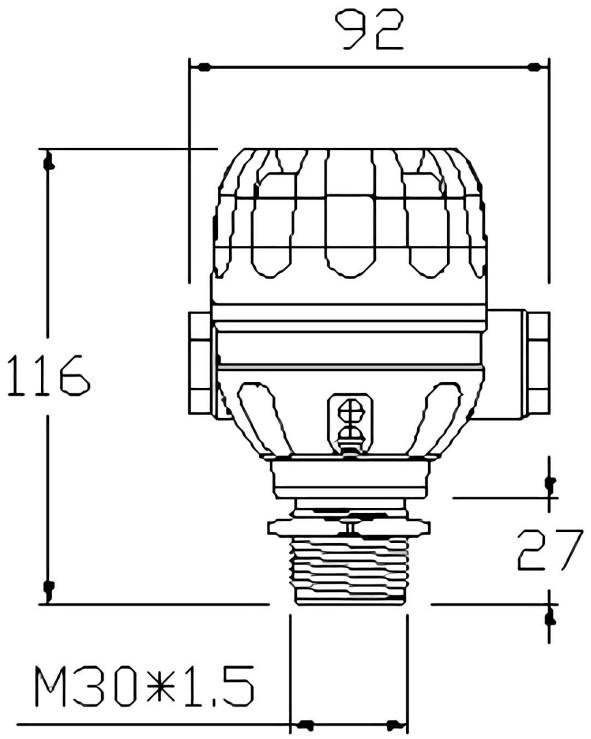


Figures 7



Figures 8

Dimension



SUP-ZPM

Ordering code

SUP-ZPM -RT1-ST1-J3-O0-D0-A0-V1															Description
SUP-ZPM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Measurement Range and Thread Type	A														1m，M30×1.5
	B														2m，M30×1.5
	X														Other
Probe Material		M1													304SS
		N6													Polytetrafluoroethylene (PTFE)
Accuracy			K												0.5 Class
Output and Power Supply				A1											2-Wire 4-20mA
				SA											4-20mA，24VDC
				SH											4-20mA+Dual SPDT，24VDC
				SE											4-20mA+RS485，24VDC
				SQ											4-20mA+Dual SPDT+RS485，24VDC
				XX											Other
Electrical Interface, Housing Material, and Ingress Protection					WG										M20×1.5 Cable Gland, Aluminum Alloy, IP65
					XX										Other