



Ultrasonic Level Transmitter



INTRODUCTION

The ultrasonic level transmitter is a non-contact, low-cost and easy-to-install measuring device. It can be applied to most industrial applications for liquids. Most important aspect of is that it is easy-to-install and low maintenance due to no moving parts.

WORKING PRINCIPLE

The ultrasonic pulse emitted by the transducer is reflected onto the surface of the measured medium. Part of the reflected echo is received by the transducer and converter into an electrical energy signal.

Ultrasonic pulses are generated at the speed of sound. The time interval from transmission to reception is proportional from the distance of the transducer to the surface of the medium. The relationship between the distance (D), the speed of sound (C) and the transmission time (T) can be expressed by the formula:

$$D=C \times T/2$$

As the emitted ultrasonic pulse has a certain width, the reflected wave in a small area close to the transducer overlaps with the emitted wave, making it unrecognizable. The distance cannot be measured. This area is called the “measurement blind spot”. The size of the blind spot is related to the operating frequency of the ultrasonic level transmitter.

The ultrasonic level transmitter is an integrated measurement system composed of electronic units and probes, with continuous 4~20mA output signal, and can be directly connected to PLC, DCS and SCADA systems.

FEATURES

- 4~20mA two-wire output.
- 24Vdc power supply.
- Casing protection IP67.
- With integrated structure.
- Probe material PVDF.
- False echo detection.
- 2" connection.
- Non-contact measurement. Easy installation.
- Fully isolated analog output.
- With temperature compensation feature, which can improve measurement accuracy.
- Beam angle: 5°
- Not affected by liquid temperature, S.G, viscosity
- Maximum measurement range 8m (26 ft).

COMPACT DESIGN

Compact size: equipped with 4 push buttons, Multi-parameters modes and a LCD display.

USER FRIENDLY OPERATION

Can be configured for feet or meter system units.

RAPID RESPONSE

Fast ultrasonic rate, and no risk of losing signal.

EXTENSIVE APPLICATIONS

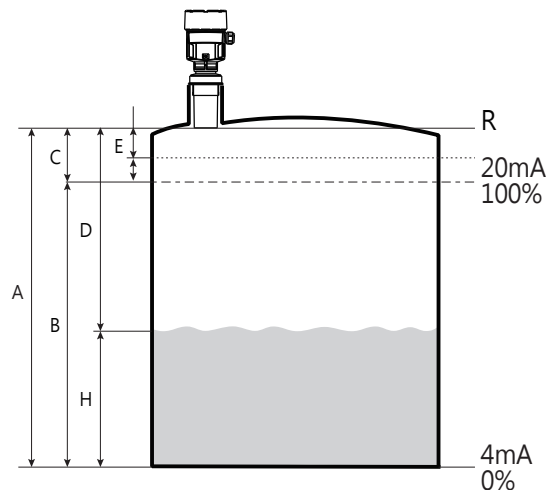
The PVDF transducer is ideal for use in corrosive applications.

FALSE ECHO

Function which enables the instrument to identify obstructions within the path of the ultrasonic beam, memorizes their position and ignores them during the measuring process.

MAIN FUNCTIONS

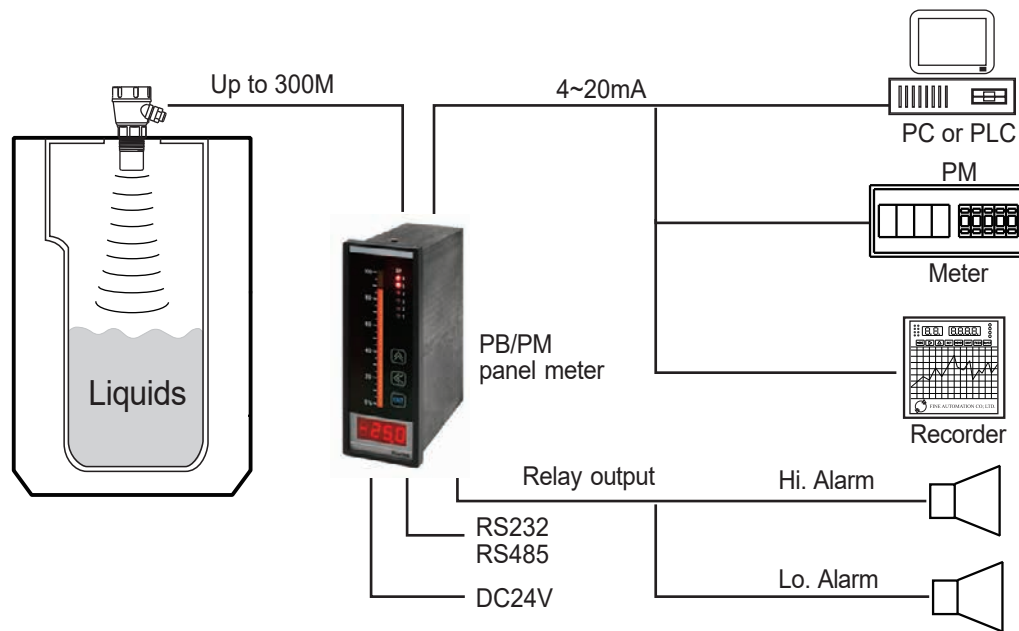
Level measurement
Object distance measurement
Indicate storage quantity



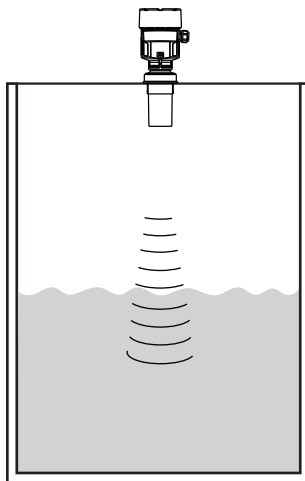
- A. Low level adjustment
- B. Measuring range
- C. High level adjustment
- D. Empty space
- E. Blind spot
- H. Material Level
- R. Measurement Reference Point

APPLICATIONS

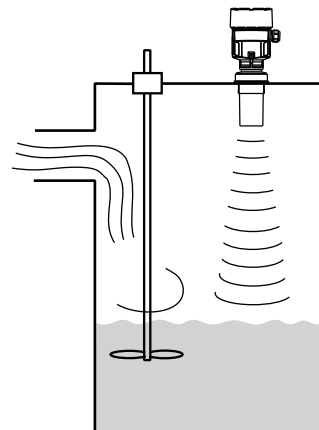
1. Water or waste water treatment equipment: pumps, open channels, dams and wells.
2. Edible-oils, sauces and beverages.
3. Chemicals: paints, carbons, water, crude oil, epoxy resin, lime slurry and wax.
4. Diesel, Petrochemicals, alcohols, solvents etc.



Liquid measurement



Silo with rotational aiming kit

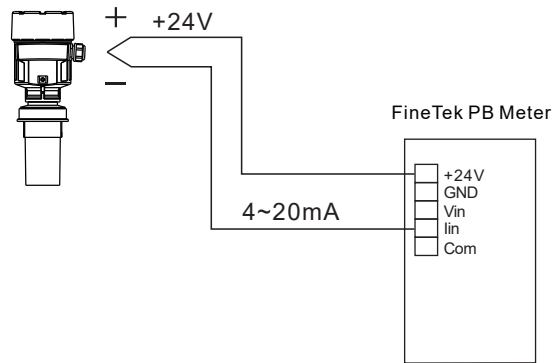


SPECIFICATIONS

Frequency	50KHz
Operating Voltage	24VDC
Power Consumption	Max. 22.5mA ,0.54W
Communications	4-20mA
Blanking Distance	300mm
Maximum Range	8m
Resolution	1mm
Accuracy	±0.25%(full scale)
Operating Temperature	-40~80°C
Maximum Operating Pressure	<0.1MPa
Beam Angle	5°
Antenna material	PVDF
Cover material	Aluminium
Cover seal	Fluorine rubber
Protection level	IP67
Cable Entries	One M20x1.5 inlet cable (cable outer diameter 6~9mm) One blind plug M20x1.5
Mounting	Thread G2"A
Typical Weight	1.4 kg
Shock resistance	Mechanical vibration 10m/s ²
Resolution	1.6 uA
Damping time	0~30s adjustable
Fault output	20.5mA ; 22mA ; 3.9mA

INSTALLATION

2-wires (power supplied by panel meter)



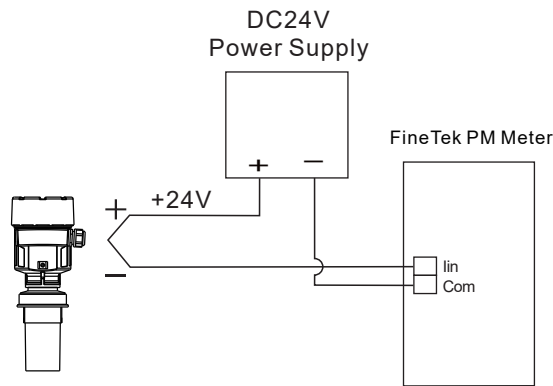
The ultrasonic transducer is mounted to the flange of the extension nozzle of the tank. Please refer to the instruction below:

Length For Dead Band
Dead band has to be 300mm over extension nozzle .
Dead band needs to be set as 300mm if extension nozzle is shorter than 500mm.

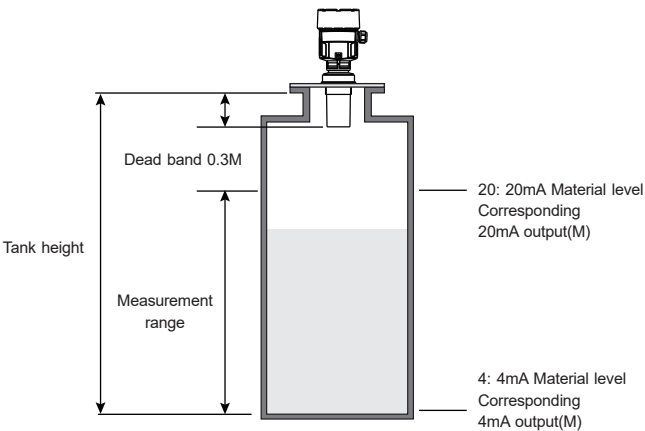
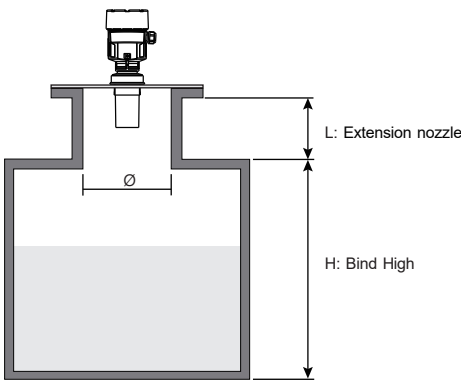
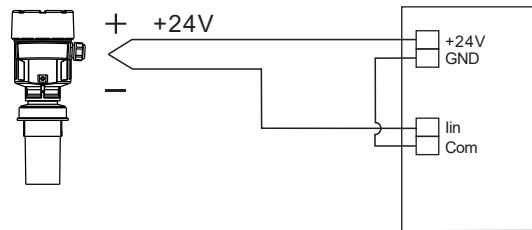
Extension Length
Please refer to below table and choose the suitable probe

Flange size	Diameter of extension nozzle (φ)Min	Diameter of extension nozzle (Max)
3"	75mm	300mm
4"	100mm	300mm
6"	150mm	400mm
8"	200mm	600mm
12"	300mm	600mm

2-wires power supply (external)

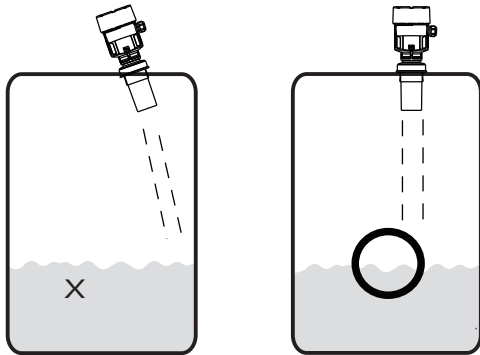


2-wire (PLC 4-wire to Loop powered)

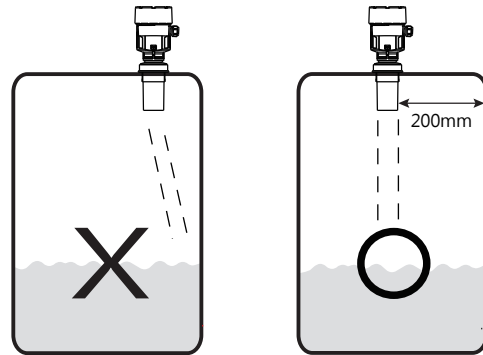


CAUTION BEFORE INSTALLATION

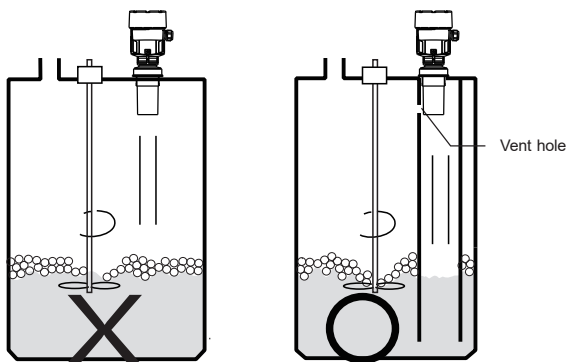
Keep the transducer perpendicular to the liquid surface.



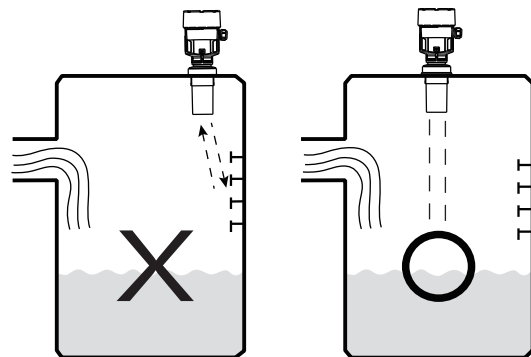
The transducer should not be installed too closely to the tank wall to avoid interference from the source of reflection. During installation, maintain a distance of at least 200mm from the tank wall. The recommended distance is above 500mm.



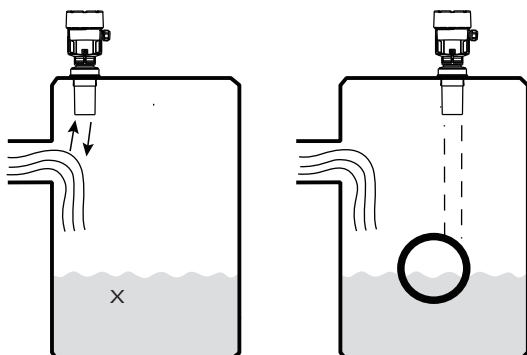
A pipe surrounding the detection path along the ultrasonic wave from emitting to receiving is Recommended. Installation can prevent false signals caused by turbulence and foam when an agitator is present. When the pipe is installed, a vent hole is required to balance the pressure difference between the inside and outside of the pipe...



Do not mount the device close to the tank wall.



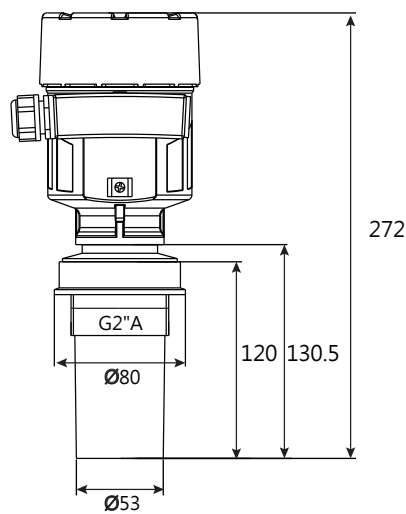
Mount the transducer away from the inlet to avoid interference with the medium.



DIMENSIONS / ORDERING INFORMATION

Dimensions

(Unit:mm)



Ordering information

EAX 4 0 0 0 0 -C ^⑩ ^⑪ ^⑫ ^⑬ ^⑭ ^⑮ C B A A

Connection

^⑩ ^⑪

AC:ANS
AD:DINI

^⑫ ^⑬

B2: 2"

^⑭ ^⑮

07: Male thread NPT
17: Male thread G

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