EA Ultrasonic Level Transmitter

FineTek
Your Made-To-Order Solutions

PRODUCT INTRODUCTION

The ultrasonic level transmitter is a non-contact, low-cost and easy-to-install measuring device. The advanced aeronautic technology now is applied to industrial applications with high capability, robustness and applicability on demand. Most important is the ultrasonic level indicator is an easy-to-install device that make the less maintain requirement.

PRINCIPLE

During in operation, the ultrasonic wave firstly emit to the measured medium level. When the ultrasonic wave reaches the surface and reflects back to the transducer, the time interval between transmission and reception will be converted to the physical parameter like the medium level or distance between the ultrasonic level indicator and medium surface. The formula is $D = (334.1+0.6t) \times T/2$, where the D = the transmission distance; t = temperature; and T = transmission time.

ZMICROFLEX-C is a compact device which consists of electronic component and transducer. With 4~20mA output, it can be connected to the PLC,DSC and SCADA system. Besides that, it is also equipped with exclusive PULSE and AGC (Auto Gain Control) echo tracking technology to ensure accuracy and precision even in the harsh environment.

FEATURES

- ℤ 4~20mA 2 wire output
- ℤ 13~30Vdc power supply
- ℤ IP67 protection casing
- ℤ Compct structure
- ℤ Detector material: PVDF
- ℤ False echo detection
- ℤ Standard 2" Pipe Connection
- ℤ Non-contact measurement, easy installation
- ℤ Fully isolated analog output
- ℤ With internal temperature compensation.
- ℤ Beam angle: 6
- ℤ Not affected by liquid characters such as temperature, S.G, viscosity.

MAIN FUNCTIONS

- ℤ Level measurement
- ℤ Object distance measurement
- ℤ Volume measurement
- ℤ Differential level measurement
- ℤ Pump control

COMPACT STRUCTURE DESIGN
The compact structure design equips with 3 push buttons and operated in 8 parameters mode and LCD display.

USER FRIENDLY OPERATION
It can be configured for level or distance in meters, unit in feet or inch with zero and span calibration at any two points.
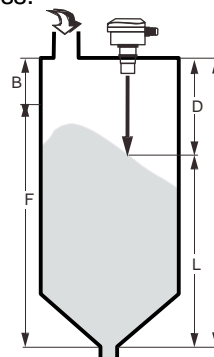
RAPID RESPONSE
Conventional loop powered ultrasonic level transmitters are generally slow to respond and hard to detect the rapid moving target. The ZMICROFLEX-C compensates the Doppler's effect internally and makes the difference with other competitor's products; it can detect level moving up to 10 m / min without signal lose, . ZMICROFLEX-C is the fastest response of ultrasonic level indicator state-of-the-art.
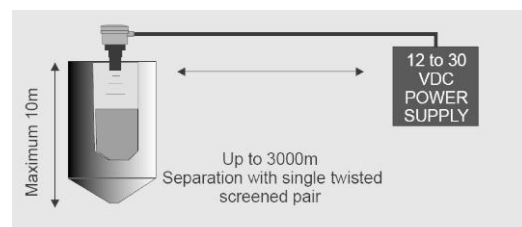
EXTENSIVE APPLICATIONS
ATEX Hazardous area approved units are available for use in Zone Zero environments. The PVDF transducer is ideal for use in corrosive applications.

FALSE ECHO
Selectable FER function which enables the instrument to identify two fixed obstructions within the path of the ultrasonic beam, memories their position and ignores them during the measuring process.
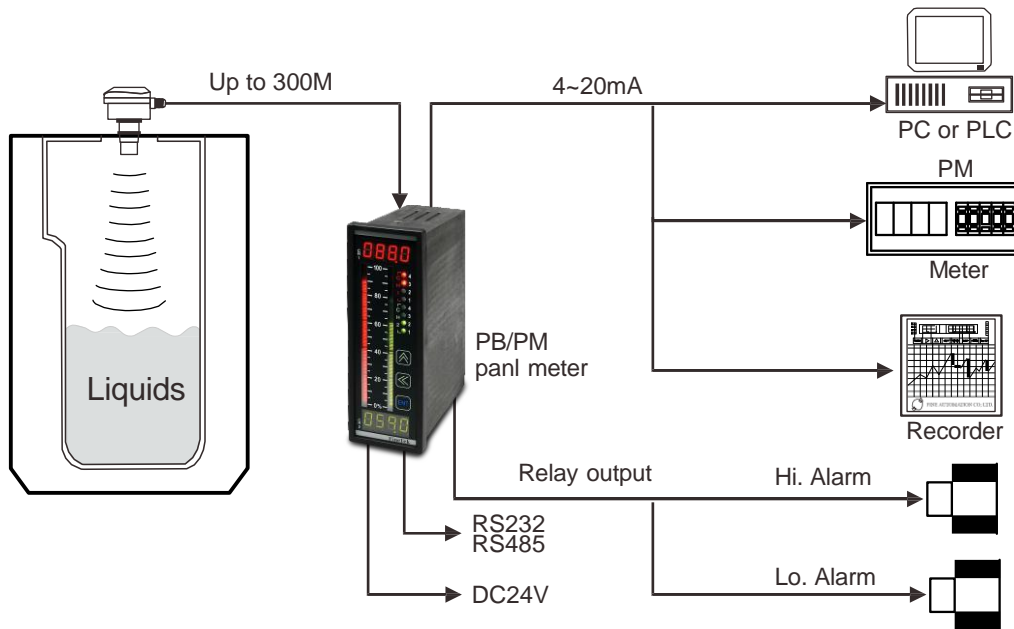
B = Blanking distance

D = Distance from transducer to material surface

L = Height in silo

12 to 30 VDC POWER SUPPLY

Maximum 10m

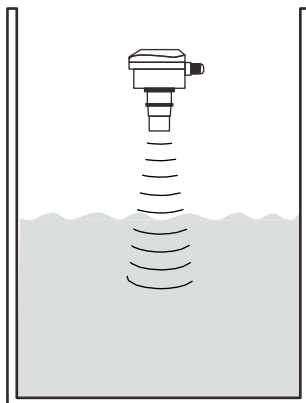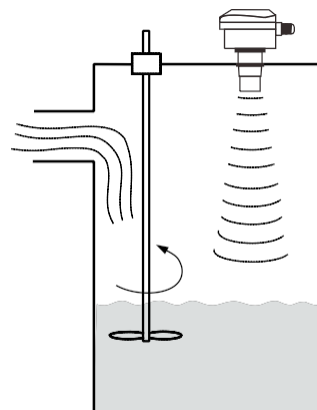Up to 3000m Separation with single twisted screened pair

FineTek

APPLICATIONS

1. Water or waste water treatment equipment: for instance, pump, open channel, dams and wells.
2. Liquid such as edible-oils, sauces, diesel oils and beverages.
3. Chemical material such as solvent, paints, carbonic, water, crude oil, epoxy resin, lime slurry and wax.

Liquids

Up to 300M

PB/PM panl meter

4~20mA

PC or PLC

PM

Meter

Recorder

Relay output

Hi. Alarm

Lo. Alarm

RS232
RS485

DC24V

Liquid measurement

Silo with rotational aiming kit

FineTek

SPECIFICATIONS / DIMENSIONS

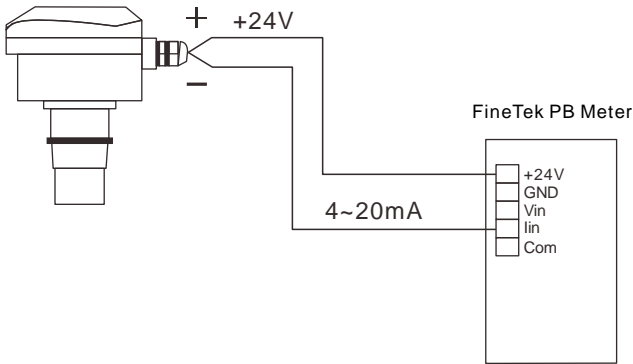| Type Specifications	ZMICROFLEX-C	ZMICROFLEX-CER	ZMICROFLEX-CIS
Measuring Range	8M(0.3~8M)	10M(0.45~11M)	10M(0.45~11M)
Accuracy	<1.0m K5mm. >1.0m K0.5%*	<1.0m K2.5mm. >1.0m/3.3ft K0.25%*	<1.0m K2.5mm. >1.0m/3.3ft K0.25%*
Resolution	1mm	1mm	1mm
Dead Band	300mm	450mm	300mm
Ambient temperature	-20₿C~70₿C	-40₿C~60₿C	-40₿C~60₿C
Operating temperature	-20₿C~70₿C	-30₿C~70₿C	-30₿C~70₿C
Operating pressure	-0.25~3Bar	-0.25~3Bar	-0.25~3Bar
Power supply	2 wire 12~30Vdc	2 wire 12~30Vdc	2 wire 12~30Vdc
Analog output	4~20mA(750 Ohm)	4~20mA(750 Ohm)	4~20mA(750 Ohm)
Relay output	None	2XSPST/1A 24V DC	None
Communication Protocol	None	HART	HART
Display	4 digital 12mm LCD	4 digital 12mm LCD	4 digital 12mm LCD
Electrical entry	2XM20X1.5	2XM20X1.5	2XM20X1.5
Transducer material	PVDF	PVDF	PVDF
Beam Angle	A6₿(3dB)	A6₿(3dB)	A6₿(3dB)
Casing material	Nylon	Nylon	Nylon
Process connection	2" BSPT/NPT	2" BSPT/NPT	2" BSPT/NPT
Protection rating	IP67	IP67	IP67
Electromagnetic compatibility	CE EN 50081-1 CE EN 50082-2	CE EN 50081-1 CE EN 50082-2	CE EN 50081-1 CE EN 50082-2
Explosion rating	None	None	EEx ia ll C T4~T6
Weight	850g	1200g	1200g

M20 Blanking Plug

M20 Cable Gland
(cable DIA. 4-8MM)
60mm A/F

60mm A/F

Materials
Housing-glass Filled Nylon
Wetside-PVDF

FineTek
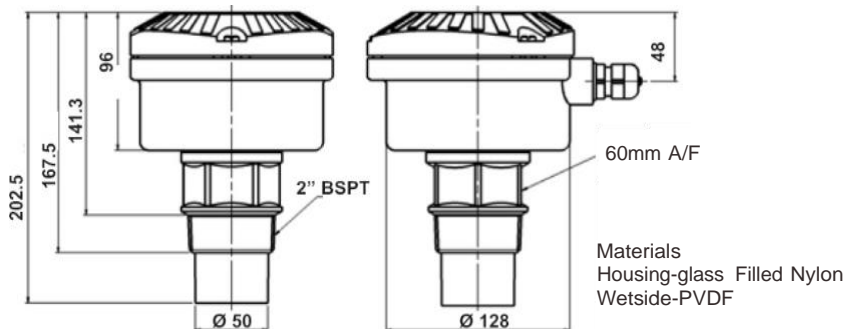
INSTALLATION

2-wires (Power Supplied by panel meter)

+24V

FineTek PB Meter

+24V
GND
Vin
Iin
Com

4~20mA

2-wires Power Supply (External)

DC24V
Power Supply

F   G

FineTek PI Meter

+24V

Iin
Com

4-wire (PLC)

+24V

PLC

+24V
GND

Vin
Iin
Com

The ultrasonic transducer is mounted to the flange of the extension neck of the tank. Please refer to the instruction below:
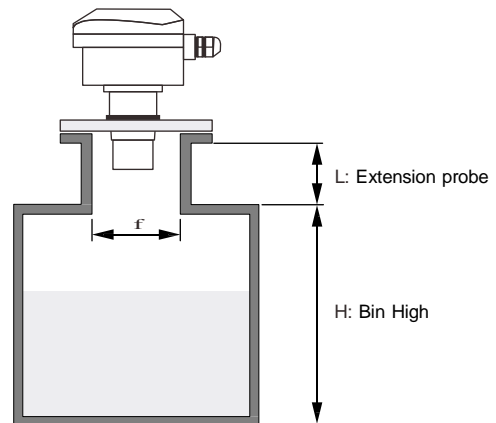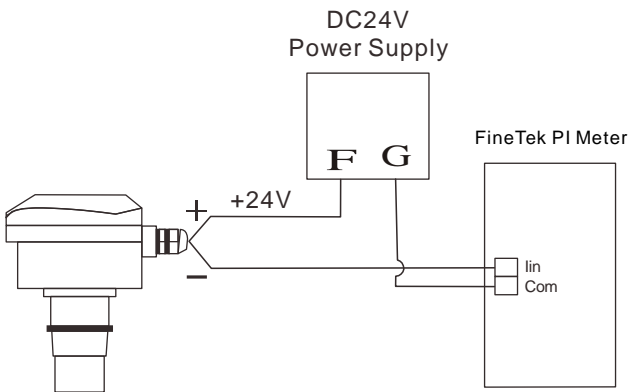
Length for dead band:
Dead band has to be 150mm over extension neck. Dead band needs to be set as 500mm if extension neck is shorter than 500mm.
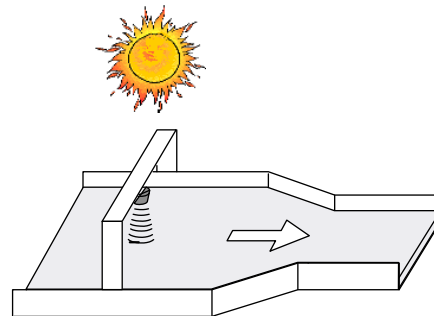
Extension length:
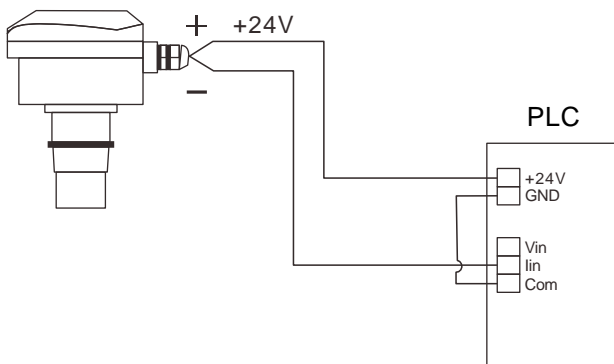Please refer to below table and choose the suitable fixed probe

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

L: Extension probe

f

H: Bin High

Keep the transducer away from sunshine

FineTek

SET UP PROCEDURE

for>10s

Toggle Units → Toggle Units → Default Units

Level (Default) → Distance → Echo Size → Level

	Default Values	Site Settings

b.rEF → Display Bottom Ref → Edit Bottom Ref → Display Bottom Ref → **b.rEF** | 8.000 |
To save

4 → Display 4mA Level → Edit 4mA Level → Display 4mA Level → **4** | 0.000 |
To save

20 → Display 20mA Level → Edit 20mA Level → Display 20mA Level → **20** | 7.5 |
To save

d → Display Damping → Edit Damping → Display Damping → **d** | 10 |
To save

AL → Display Alarm Current Action → Scroll Hi/Lo/Hold → Display Action → **AL** | Hold |
To save

S-4 → Display level for 4mA → Flash"4" with Level → Display level for 4mA → **S-4** | 0.000 |
To save

S-20 → Display level for 20mA → Flash"20" with Level → Display level for 20mA → **S-20** | 7.500 |
To save

Lrn → Display"Lrnx" → Flash"Lrn" with Level → Display "Lunx" → **Lrn** | Lrn0 |
For>5s
For>10 to clear
To save

Level

Parameter Function Statement

| Item	Parameter	Function Statement
1	Level	Set the showing value corresponds to the level or distance
2	b.rEF	Set the bin high
3	4	Set the showing value on 4~20mA (solid, distance, volume...)
4	20	Set the showing value on 20mA (solid, distance, volume...)
5	D	Set damping time (When the value is getting big which means that the number is more stable but the responding time becomes slow)
6	AL	Set the alarming current (when it is abnormal, the output current can set as 22mA /maintenance/3.5mA)
7	S-4	Set the low point at 4mA (general is low level)
8	S-20	Set the height point at 20mA (general is high level)
9	Lrn	Exclude the obstacles(excluding the false signal reflected from obstacles)

FineTek

CAUTION BEFORE INSTALLATION

Keep the transducer perpendicular to the liquid surface.
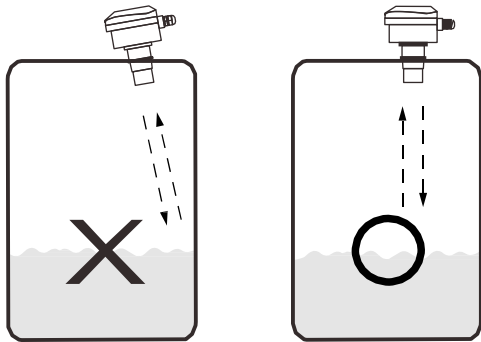
The transducer should not be mounted too close to the tank wall to avoid interference caused by the tank wall.
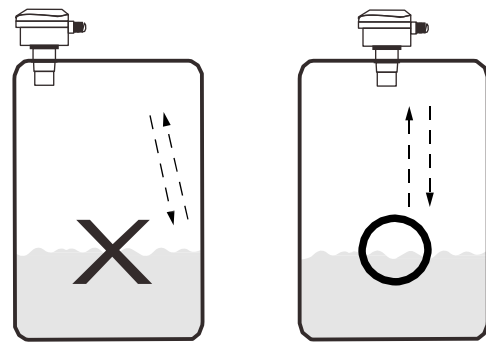

A pipe surrounding the detection path along the ultrasonic wave from emitting to receiving is recommended, thus installation can prevent fake signal caused by turbulence and foam when agitator is equipped in the tank. When the pipe is installed, a vent hole is required to balance the pressure difference between the inside and outside of pipe..
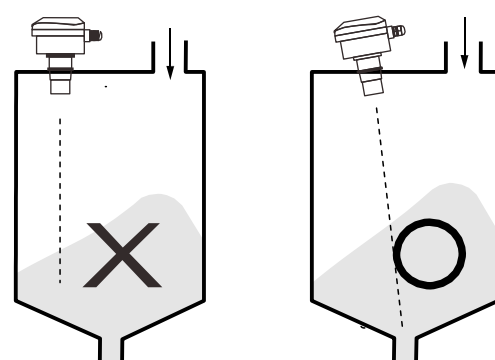

vent hole
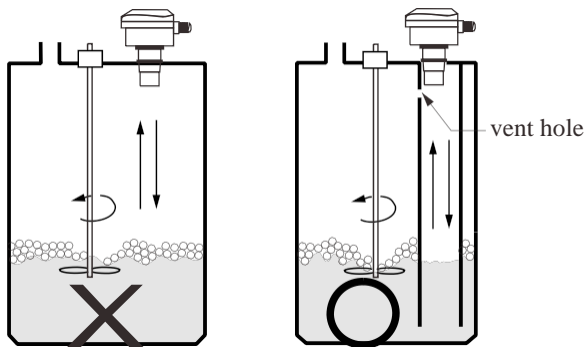
Do not mount the device close to the tank wall in case the fake signal caused by the bracket.
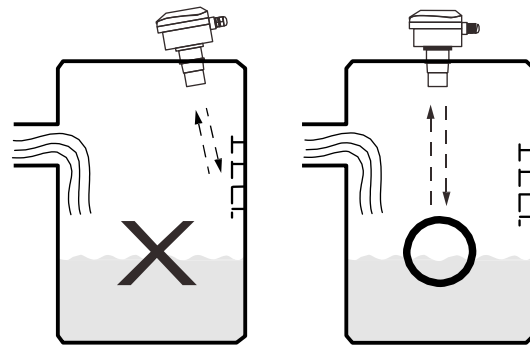
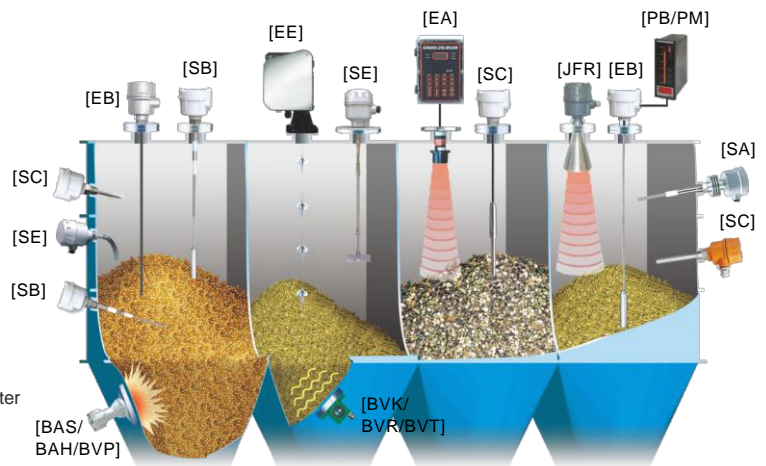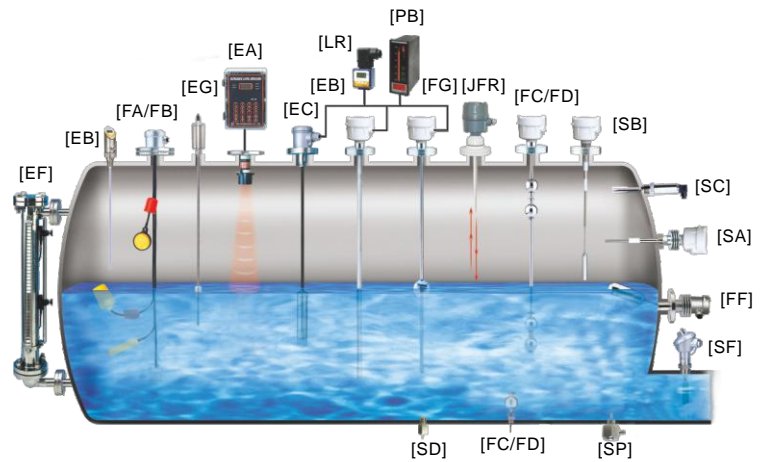Mount the transducer away from the inlet to avoid interfere by medium.
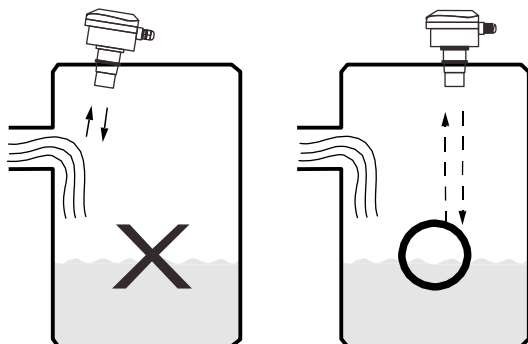
When user mount the transducer on the solid tank, the transducer must point to the outlet of tank.

FineTek

EXAMPLES OF TANK MOUNTING

[FC/FD]	Mini Float/Magnetic Float Level Switch
[FG]	Magnetic Float Level Transmitter
[FF]	Side Mounting Float Switch
[FA/FB]	Cable Float Level Switch
[SP]	Thermal Dispersion Flow Switch
[SF]	Paddle Flow Switch
[SD]	Optical Level Switch
[SE]	Rotary Paddle Level Switch
[SA]	Capacitance Level Switch
[EC]	Pressure Level Transmitter
[LR]	Loop Power Indicator
[SC]	Vibrating Probe Level Switch
[SC]	Tuning Fork Level Switch
[EB]	RF-Capacitance Level Transmitter
[SB]	RF-Capacitance / Admittance Level Switch
[EG]	Magnetostrictive Level Transmitter
[EF]	By-Pass Level Transmitter
[MEF]	Mini By-Pass Level Transmitter
[EA]	Ultrasonic Level Transmitter
[JFR]	FMCW Radar Level Transmitter
[EE]	Electromechanical Level Measuring System
[ED]	Speed Monitor
[SRT/SRS]	Conveyer Belt Misalignment Switch & Safety Cable Pull Switch
[PB/PM]	Microprocessor Based Bargraphic Display Scaling Meter
[BRD/AE]	Valve and Controller for Dust Collector System
[BAS/BAH/BVP]	Air Hammer
[BVK/BVR/BVT]	Pneumatic Vibrator

FineTek
Your Made-To-Order Solutions

NivoTech
Trading Company

08-ZEA-B0-EP, 01/17/2012