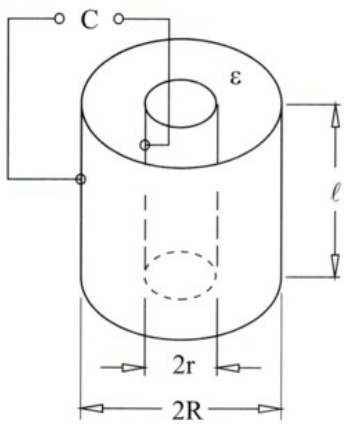
PRODUCT INTRODUCTION

■ PRINCIPLE

The capacitance level sensor measuring principle is based on the physical properties of a capacitor formed by the sensor and the vessel wall, the electric capacity is affected by the dielectric value of products. When the sensor is not covered, the dielectric constants =1 (Air is usually =1) when the sensor is covered, the dielectric constant will increase in capacity, the electronic oscillator (1 MEGA Hz radio frequency) will create a resonating signal, which will turn the unit on or off for level control purpose.



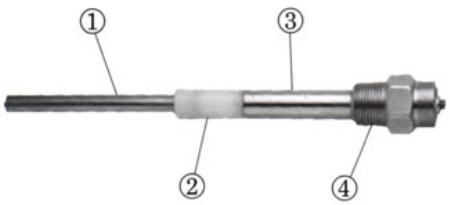
$C = \varepsilon \ell / \log(R/r)$

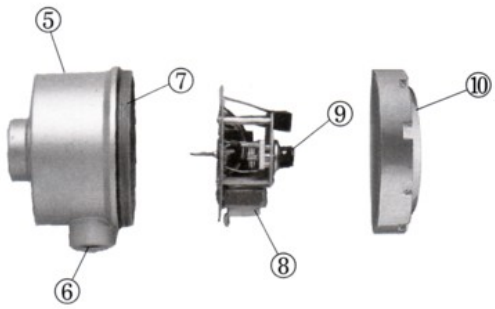
■ FEATURES AND APPLICATIONS

Because the Capacitance Level Sensor has no moving parts inside the device, it is will not be affected by friction. It is suitable for powder or liquid application easy to install. The customer can choose the types below to suit his requirements.

1. **Standard Type (SA110 & SA111 A/B/C)**
   Suitable for general use.
2. **Hi-Temp Type (SA120 & SA128 A/B/C)**
   Suitable for high temperature environment.
3. **Corrosion-Proof Type (SA130 & SA132 A/B/C)**
   Suitable for corrosive environment.
4. **Remote Probe Type (SA140 A/B/C)**
   For use with vibrator equipped tank.
5. **Wire-Probe Type (SA150 A/B/C)**
   Suitable for silo or deeper tank.
6. **Plate-Probe Type (SA160 A/B/C)**
   Suitable for granules and at lower position of tank side.
7. **Explosion-Proof Type (SA170D ~ SA178D)**
   With SA-75U can be use in hazardous areas.
8. **Anti-Static Type (SA180 & SA181 A/B/C)**
   Suitable for electrostatic environment
   (It won't be damaged by the electrostatic discharge)

■ CONSTRUCTION

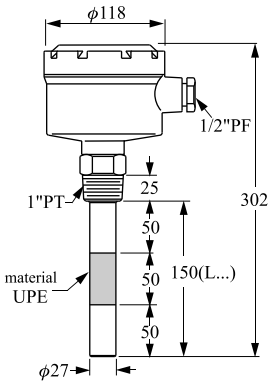
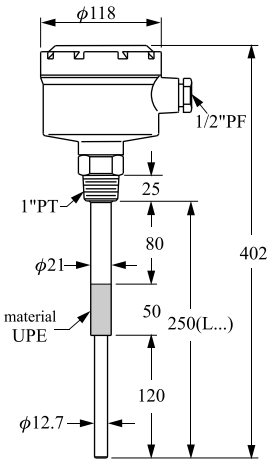
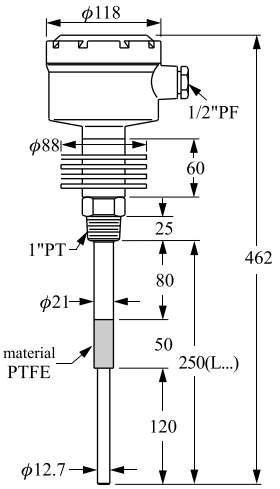




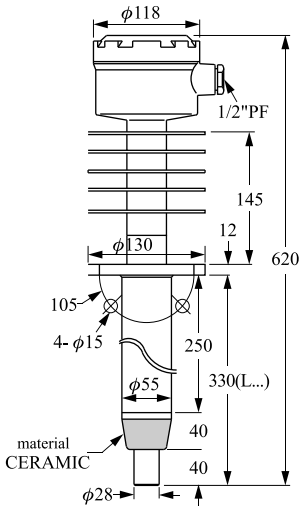
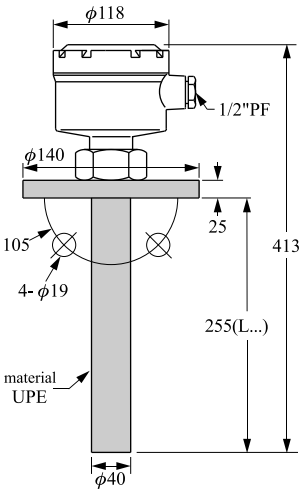
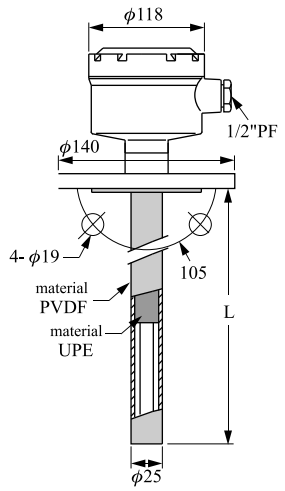
1. **Probe :** *SUS304 or SUS316*
2. **Insulation :** *UPE or PTFE*
3. **Grounding Sleeve :** *SUS304 or SUS316*
4. **Connection :** *SUS304 or SUS316*
   1"PT or 3/4"PT
5. **Housing :** *ADC-12 Aluminum IP65*
6. **Conduit opening :** *1/2"PF or 3/4"PF*
7. **O-RING :** *NBR*
8. **PC board :** *A, B, C, D Type*
9. **Sensitivity adjustment :** *10pf, 20pf, 40pf*
10. **Cover** : ADC-12 Aluminum

FineTek

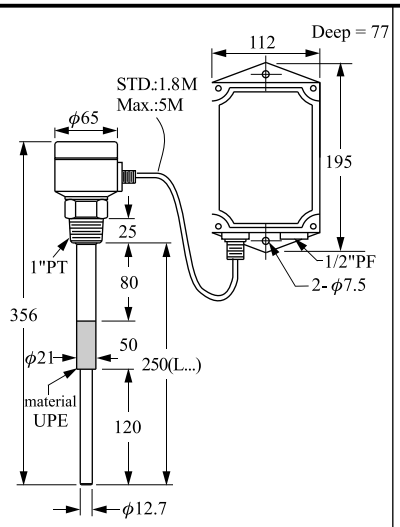
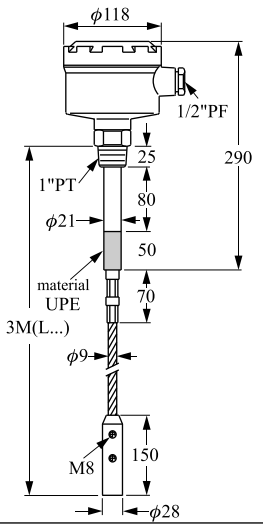
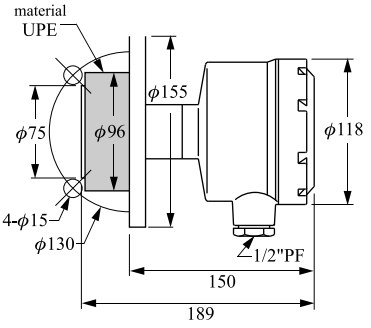
STANDARD TYPE

Dimension			
Model	**ME10 A/B/C** **[STANDARD TYPE]**	**ME11 A/B/C** **[STANDARD TYPE]**	**ME20 A/B/C** **[HI-TEMP. TYPE]**
Operating Temp.	-20°C~80°C	-20°C~80°C	-20°C~200°C
Probe Material	SUS 304	SUS 304	SUS 304
Insulated Material	UPE	UPE	PTFE
Connection	1"PT screw (SUS)	1"PT screw (SUS)	1"PT screw (SUS)
Sensitivity Range	10pf, 20pf, 40pf	10pf, 20pf, 40pf	10pf, 20pf, 40pf
Weight	Approx. 1.9kg	Approx. 1.9kg	Approx. 2.4kg
Housing Spec.	Aluminum IP65		
Supply Voltage	110/220VAC ± 10% or 24VDC		
Delay Time	0~6 seconds		
Power Consumption	2W		
Contact Rating	5A/240VAC or 5A/30VDC, SPDT or NPN 100mA		

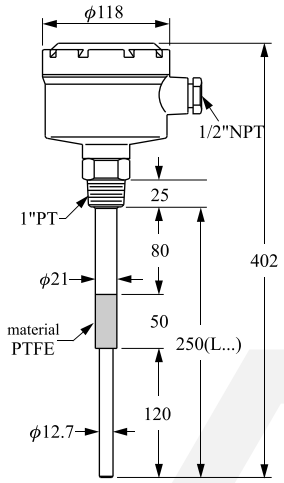
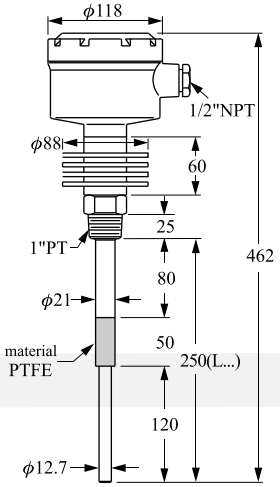
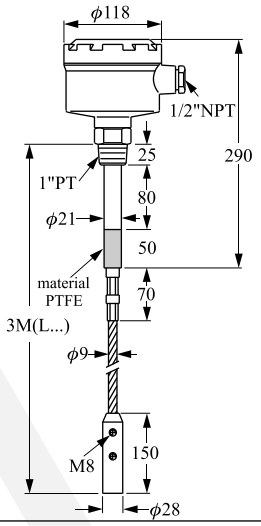
STANDARD TYPE

Dimension			
Model	**ME28 A/B/C** **[SUPER HI-TEMP. TYPE]**	**ME30 A/B/C** **[CORROSION-PROOF TYPE]**	**ME32 A/B/C** **[CORROSION-PROOF TYPE]**
Operating Temp.	-20°C~800°C	-20°C~80°C	-20°C~120°C
Probe Material	SUS 304	SUS 304	Wetted part: PVDF coating
Insulated Material	CERAMIC	Wetted part: UPE coating	UPE
Connection	2-1/2"x5kg/cm^2 Flange (SUS)	1-1/2"x10kg/cm^2 Flange (UPE)	1-1/2"x10kg/cm^2 Flange (SUS) with PVDF Washer (5mm)
Sensitivity Range	10pf, 20pf	10pf	10pf, 20pf
Weight	Approx. 6.5kg	Approx. 2kg	Depend on the length
Housing Spec.	Aluminum IP65		
Supply Voltage	110/220VAC ± 10% or 24VDC		
Delay Time	0~6 seconds		
Power Consumption	2W		
Contact Rating	5A/240VAC or 5A/30VDC, SPDT or NPN 100mA		

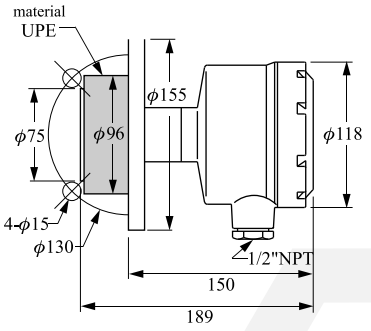
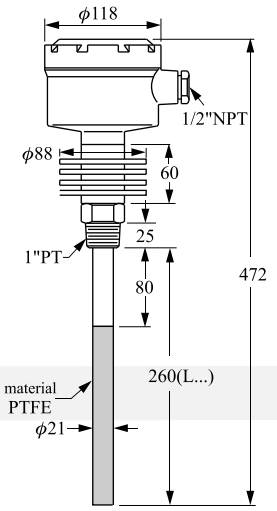
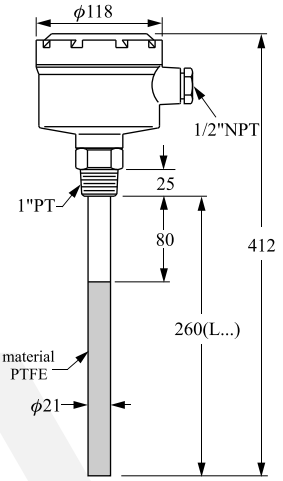
STANDARD TYPE

Dimension			
Model	**ME40 A/B/C** **[REMOTE PROBE TYPE]**	**ME50 A/B/C** **[WIRE-PROBE TYPE]**	**ME60 A/B/C** **[PLATE TYPE]**
Operating Temp.	-20°C~100°C	-20°C~80°C	-20°C~80°C
Probe Material	SUS 304	SUS304 cable	SUS 304
Insulated Material	UPE	UPE	UPE
Connection	1"PT Screw (SUS)	1"PT Screw (SUS)	2-1/2"x 5kg/cm^2 Flange (SUS)
Sensitivity Range	10pf	10pf, 20pf, 40pf	10pf, 20pf, 40pf
Weight	Approx. 3kg	Approx. 4.1kg	Approx. 3.2kg
Housing Spec.	Aluminum IP65		
Supply Voltage	110/220VAC ± 10% or 24VDC		
Delay Time	0~6 seconds		
Power Consumption	2W		
Contact Rating	5A/240VAC or 5A/30VDC, SPDT or NPN 100mA		

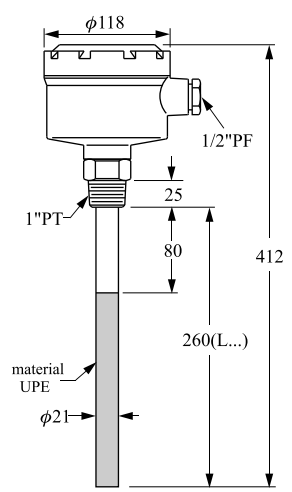
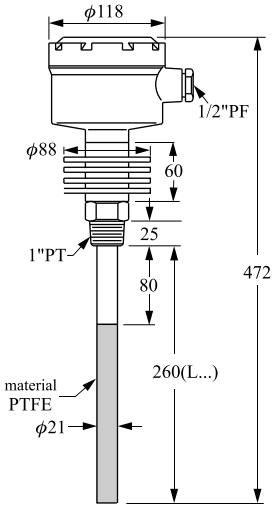
EXPLOSION PROOF TYPE

Dimension			
Model	EXPLOSION PROOF **ME70D (with EX-75U)** **[STANDARD TYPE]**	EXPLOSION PROOF **ME72D (with EX-75U)** **[HI-TEMP. TYPE]**	EXPLOSION PROOF **ME75D (with EX-75U)** **[WIRE-PROBE TYPE]**
Operating Temp.	-20°C~80°C	-20°C~200°C	-20°C~80°C
Probe Material	SUS 304 / SUS 316	SUS 304 / SUS 316	SUS 304 / 316 cable
Insulated Material	PTFE or UPE	PTFE or UPE	PTFE or UPE
Connection	1"PT Screw (SUS)	1"PT screw (SUS)	1"PT Screw (SUS)
Sensitivity Range	10pf, 20pf, 40pf	10pf, 20pf, 40pf	10pf, 20pf, 40pf
Weight	Approx. 1.9kg	Approx. 2.4kg	Approx. 4.1kg
Housing Spec.	Aluminum IP65		
Supply Voltage	16~24VDC		
Enclosure Protection	Ex (ia) IIC		
Power Consumption	2W		
Contact Rating	NPN 100mA		

EXPLOSION PROOF TYPE

Dimension			
Model	EXPLOSION PROOF **ME76D (with EX-75U)** **[PLATE TYPE]**	EXPLOSION PROOF **ME77D (with EX-75U)** **[ANTI-STATIC TYPE] HI-TEMP.**	EXPLOSION PROOF **ME78D (with EX-75U)** **[ANTI-STATIC TYPE]**
Operating Temp.	-20°C~80°C	-20°C~200°C	-20°C~80°C
Probe Material	SUS 304 / SUS 316	PTFE or UPE coating	PTFE or UPE coating
Insulated Material	PTFE or UPE	PTFE or UPE	PTFE or UPE
Connection	2-1/2"x 5kg/cm^2 Flange (SUS)	1"PT Screw (SUS)	1"PT Screw (SUS)
Sensitivity Range	10pf, 20pf, 40pf	10pf, 20pf	10pf, 20pf
Weight	Approx. 3.2kg	Approx. 3.1kg	Approx. 2kg
Housing Spec.	Aluminum IP65		
Supply Voltage	16~24VDC		
Enclosure Protection	Ex (ia) IIC		
Power Consumption	2W		
Contact Rating	NPN 100mA		

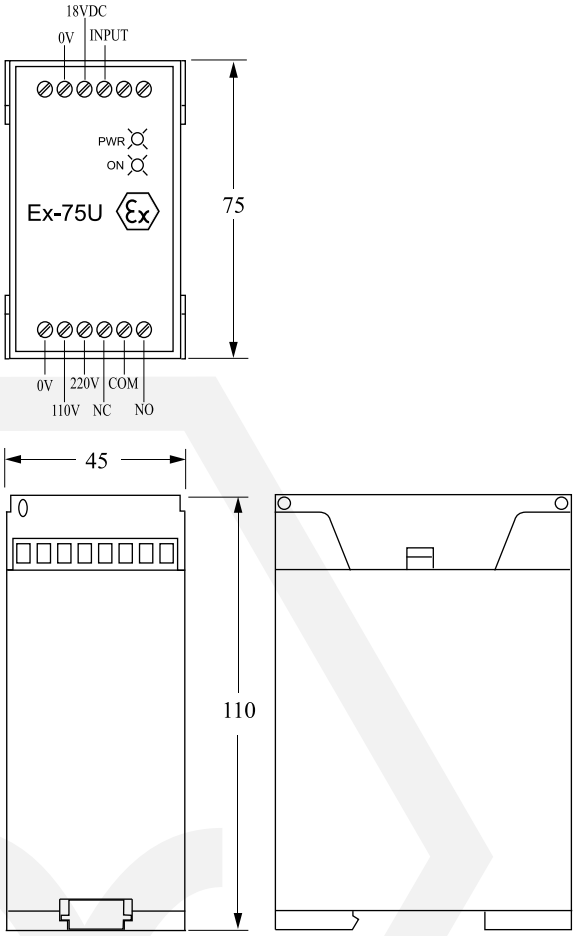
ANTI-STATIC TYPE

Dimension		
Model	**ME80 A/B/C** **[ANTI-STATIC TYPE]**	**ME81 A/B/C** **[ANTI-STATIC TYPE] HI-TEMP.**
Operating Temp.	-20°C~80°C	-20°C~200°C
Probe Material	UPE coating	PTFE coating
Insulated Material	UPE	PTFE
Connection	1"PT Screw (SUS)	1"PT Screw (SUS)
Sensitivity Range	10pf, 20pf	10pf, 20pf
Weight	Approx. 2kg	Approx. 2.5kg
Housing Spec.	Aluminum IP65	
Supply Voltage	110/220VAC ± 10% or 24VDC	
Delay Time	0~6 seconds	
Power Consumption	2W	
Contact Rating	5A/240VAC or 5A/30VDC, SPDT or NPN 100mA	

EX-75U INTRINSICALLY SAFE RELAY

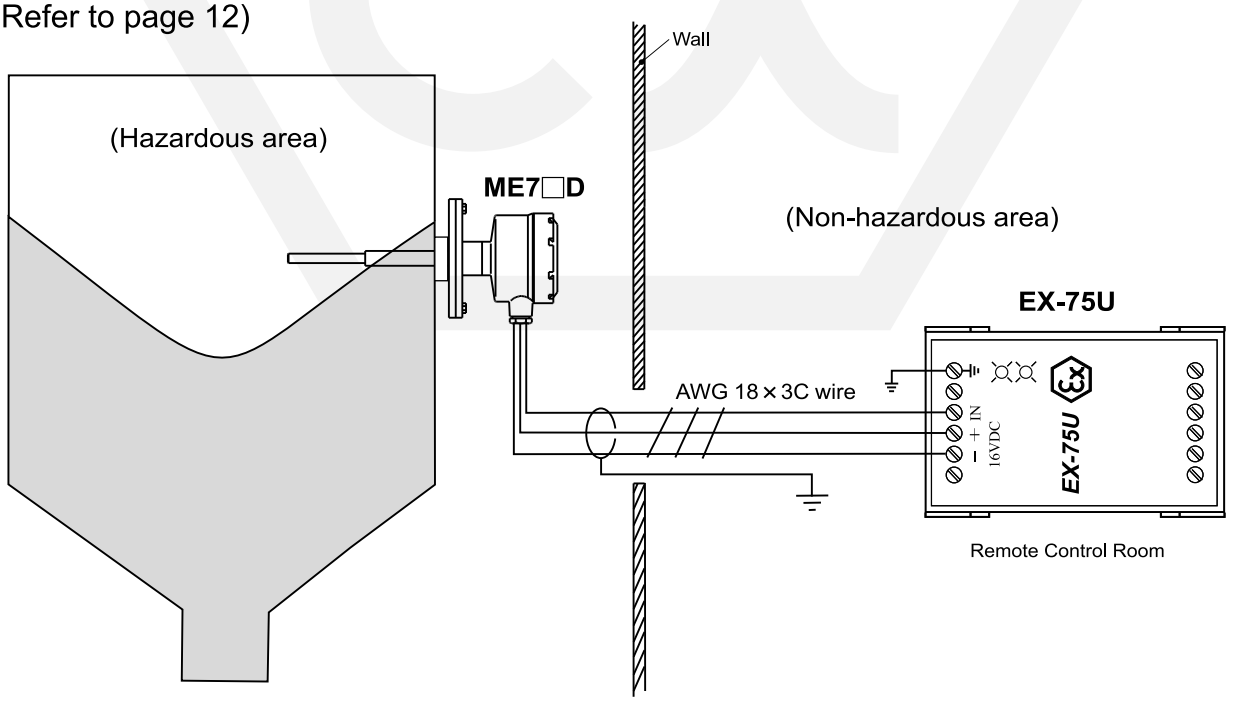
EX-75U Zener barriers inside provide intrinsic safety to ME7□D type level sensor. The design works via a current-limiting feature which protects the device from damage by emission of sparks.

1. Supply voltage : *110 / 220VAC*
2. Power consumption : *2W*
3. Input signal : *NPN transistor resistance Ri= 500Ω*
4. Output voltage : *16~24 VDC*
5. Short circuit current : *25mA max.*
6. Relay output : *SPDT 10A /30VDC 10A /220VAC*
7. Operating temp. : *-20°C ~ 60°C*
8. Weight : *0.3 kg*
9. Enclosure rating : *Ex (ia) IIC T6*



■ WIRING CONFIGURATION

(Refer to page 12)



ADJUSTMENT

■ COARSE CALIBRATION

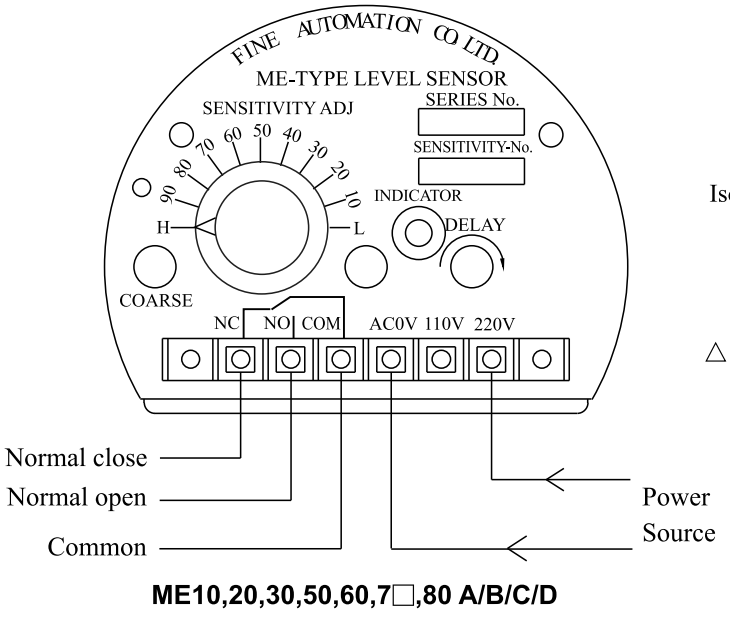
Set the "Sensitive Adj " to the "H" position. Then use a screw driver to adjust the "Coarse" unit indicator is lighted. At last adjust check "Indicator" is light or not by adjust the "Sensitivity Adj" knob, if not, repeat procedure.

■ SENSITIVITY ADJUSTMENT

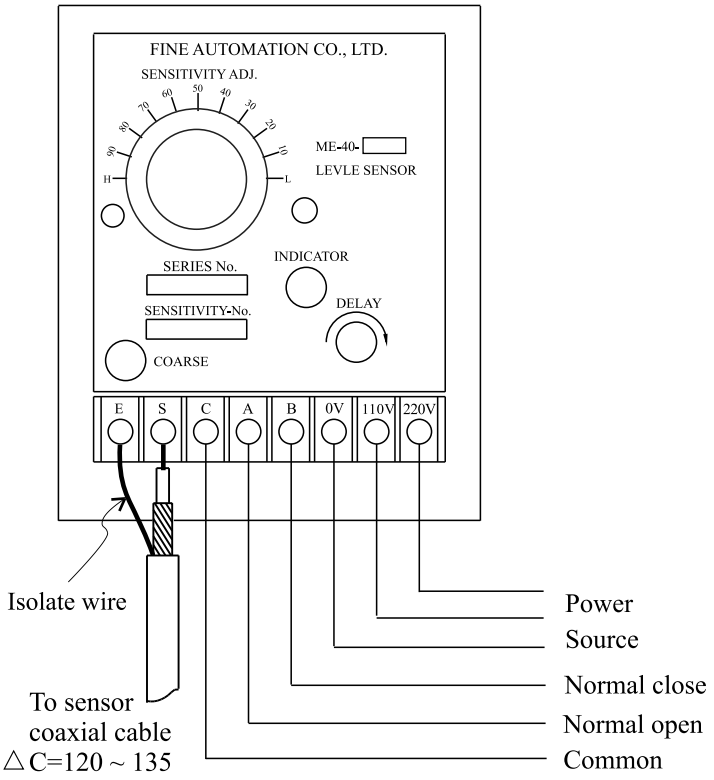
When the material is out of contact with probe will extinguish the "Indicator". When the material is in contact with probe will illuminated the "Indicator " lamp, at this time please adjust "Sensitivity Adj" unit lamp is in extinction. And then set "Sensitivity Adj" in the middle between "H" and extinction position. e.g. If capacitance is 10p, you should set "Sensitivity Adj" in "80" position.

■ DELAY FUNCTION CALIBRATION

The default setting is 0 second, here at the material is in contact with probe will illuminate "Indicator" lamp and energize relay. When the user need to use this delay function, please set timer in clockwise. The relay will energized after "Indicator" illuminate for several seconds if set timer more than 0 second. The delay function is suitable for variable material level. e.g. liquid tank equip with agitator.

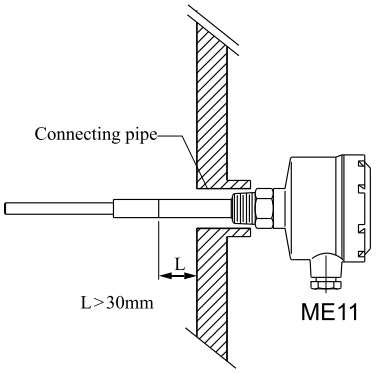


ME10,20,30,50,60,7□,80 A/B/C/D

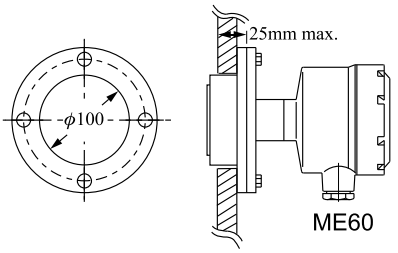


Remote Probe Type (ME40 A/B/C)

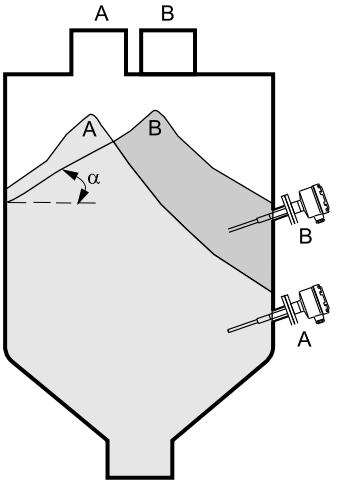
INSTALLATION NOTICE



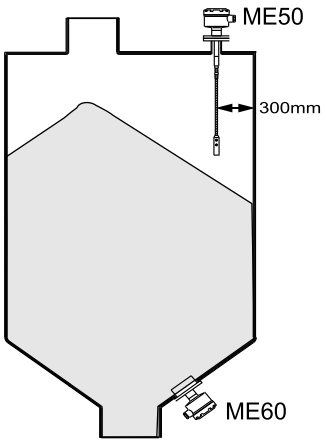
The insensible portion should be mounted to protrude 30mm from the vessel wall. That's to prevent malfunction from a fill material or an insufficient clearance between probe and connection pipe.



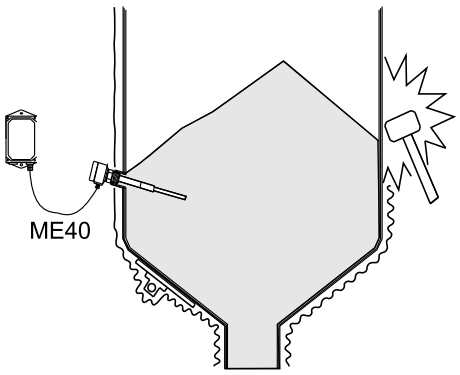
ME60 to be mounted properly, the vessel walls should not exceed 25mm.



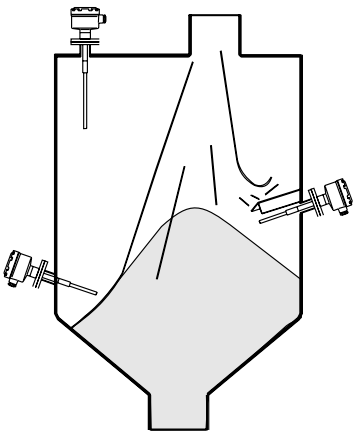
To prevent false readings, users have to make sure the material flows symmetrically. If the inlet is not located in the center portion of the tank roof, check the flow pattern (α angle) of your material and place the probe in the appropriate location.



If the probe is mounted on the top, make sure the length of probe long enough to touch the highest level of raw material.
ME50 type must have at least 300mm from the electrode probe to the silo wall.
ME60 type is usually installed at the lower of tank side.

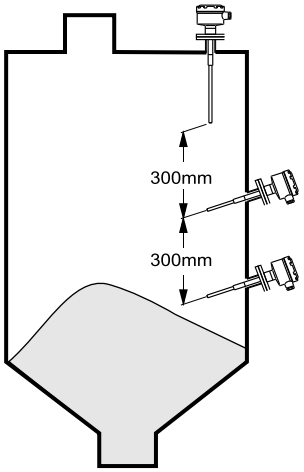


For Non-Stationary or vibrating environment, a separate control unit such as the ME40 is suggested.

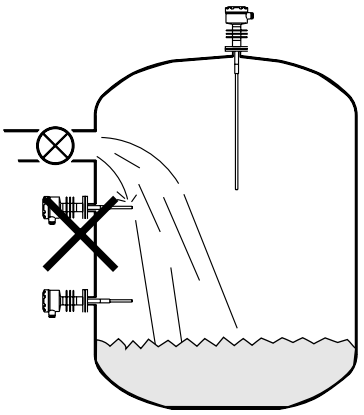


It is suggested to install the probe away from the inlet to reduce the risk of inflowing material damaging the probe. If the probe is near an inlet, it is recommended to place a protective cover 200mm above the probe. The cover should be parallel to the probe and the same length .

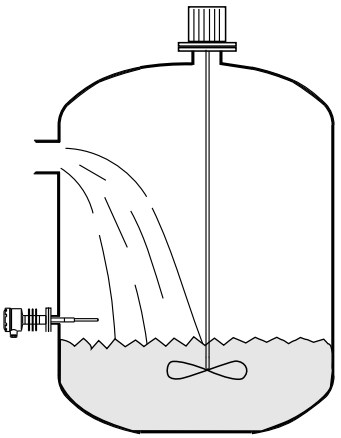
INSTALLATION NOTICE



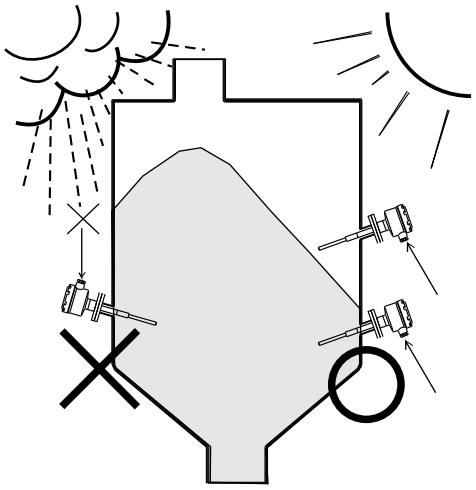
If two parallel probes are mounted, they must be installed separately at least 300 mm to minimize interference .



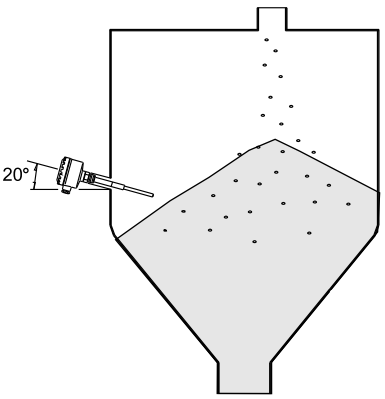
The probe should not be mounted underneath a liquid inlet, otherwise it will switch on erroneously.



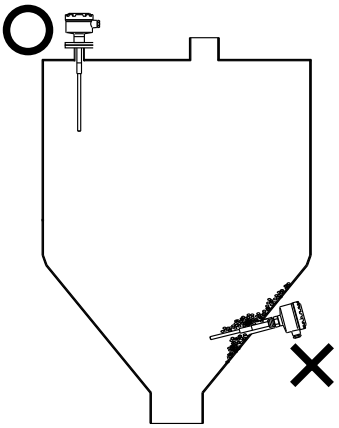
If the tank equips with agitator, please use the time-delay type (ME□□ -A~D) to prevent fault level detection.



The cable inlet should face downward to avoid rain damage. Tighten the cable with the connecting part.



Mounting the probe at a 20° incline will optimize the results and increase sensitivity. It also won't be damaged by the inflowing material.



Mounting the probe at top of tank can avoid material bridges from forming. It's helpful to record accurate measurements.

ORDER INFORMATION

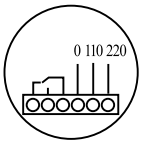
ME 10 A DQ 0250

Model

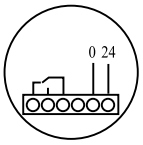
10 --- Standard Type
20 --- Hi-temp. Type
30 --- Corrosion Proof Type
40 --- Remote Probe Type
50 --- Wire Probe Type
60 --- Plate Type
70 --- Explosion Proof Type
80 --- Anti-static Type

Terminal Arrangement

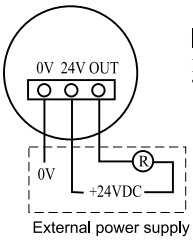
A---110/220VAC
B---DC24V, Relay output
C---DC24V, NPN transistor output
D---Designed for use with EX-75U



ME-□□-A
110V/220VAC
Relay output

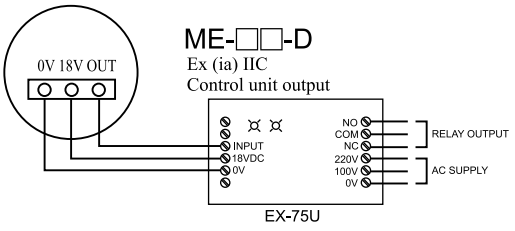


ME-□□-B
DC24V
Relay output



External power supply

ME-□□-C
DC24V
Transistor npn output



EX-75U

ME-□□-D
Ex (ia) IIC
Control unit output

Connection

C---3/4"(20A)
D---1"(25A)
E---1-1/2"(40A)
F---2"(50A)
G---2-1/2"(65A)
H---3"(80A)
I ---4"(100A)
J---5"(125A)
K---6"(150A)
S---Others

M---5kg/cm^2
N---10kg/cm^2
O---150 Lbs
P---300 Lbs
Q---PT
R---PF
T---BSP
U---NPT
S---Others

W---PN 10
X---PN 16
Y---PN 25
Z---PN 40

Probe Length (mm)

* Tolerance of the total product length is ±5mm.
* Characteristics, specifications and dimensions are subject to change without notice.
* Please contact your nearest distributor office for further informations.