RF-CAPACITANCE LEVEL TRANSMITTER

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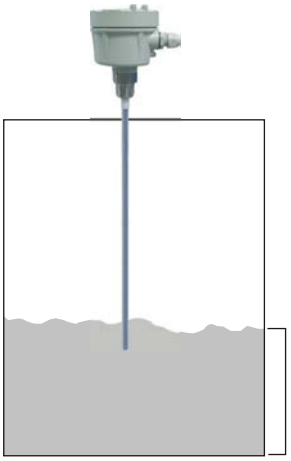
PRINCIPLE

RF-Capacitance level Transmitter utilizes the capacitance formed between the sensing probe and the reference probe which is the metallic vessel wall to calculate the level of the liquid/medium inside the vessel according to the capacitance theory that the capacitance and vessel are proportional increased.

RF-Capacitance level Transmitter utilizes RC oscillating circuit to create a high frequency signal in which the frequency is reverse proportionate to the capacitance C where the microprocessor is applied to measure the frequency for calculating the capacitance and corresponding to the level in order to control the current volume of 2 wire loop power.



FEATURES

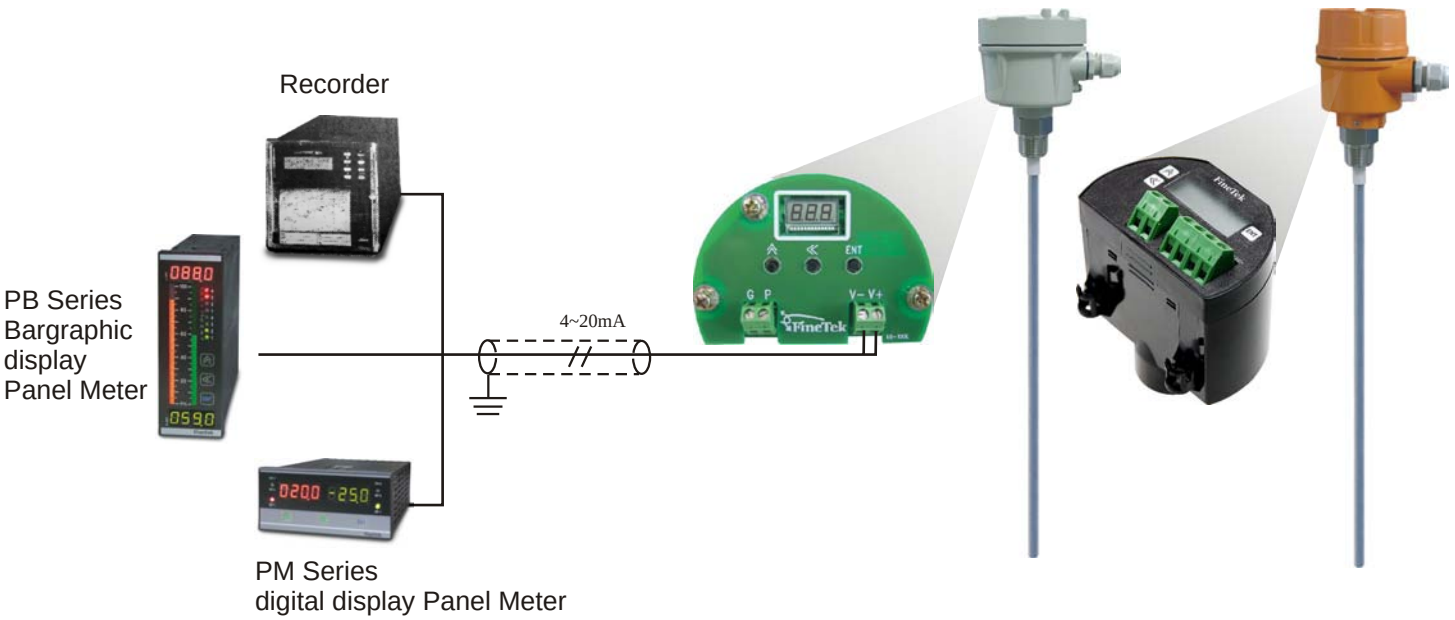
EB2□□□ Series

- 4~20mA 2 wire Loop power
- Low consumption of power (20mA Max)
- High accuracy of linearity (±1% FS)
- Temperature compensation, low temperature effect (±1% FS / 30°C).
- Easy calibration (Any 2 points for calibration)
- Wide measuring range for capacitance (0~5000PF)
- No blind distance, ideal for different tanks.
- Suitable for high temperature, high pressure and corrosive environment.

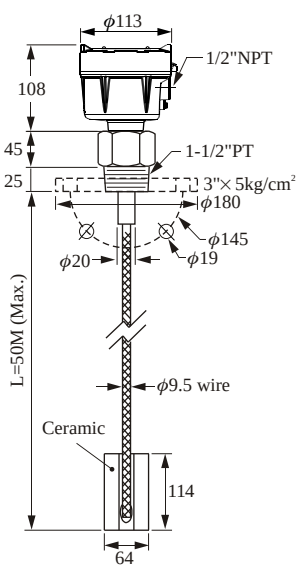
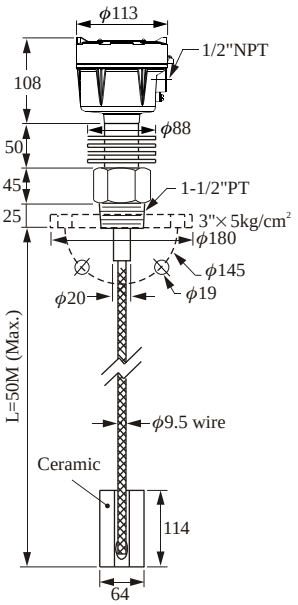
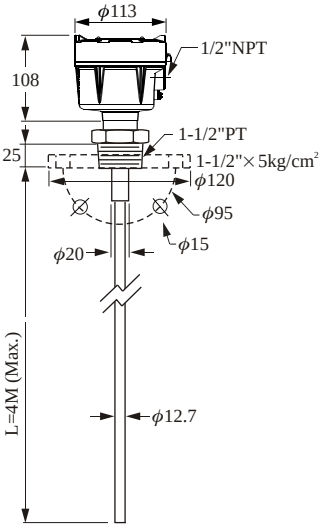
EB3□□□ Series

- Dual insulation prevents fog in damaging PCB.
- LCD indication is easy for observation from top of view.
- Power Supply: 10~36Vdc
- Transistor Output
- Protective Housing with high stability prevents from any damages during transportation, installation and operation.
- Measuring accuracy is not affected by temperature and pressure.
- Wiring design enhances the reliability.

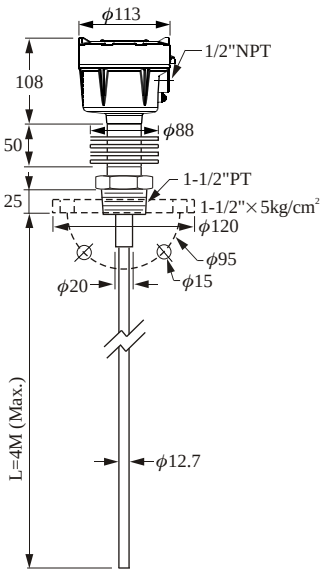
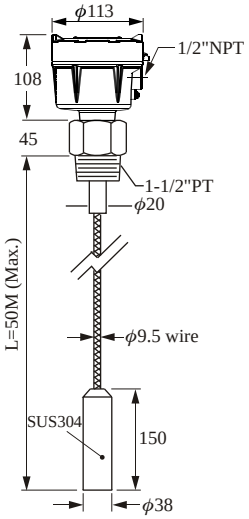
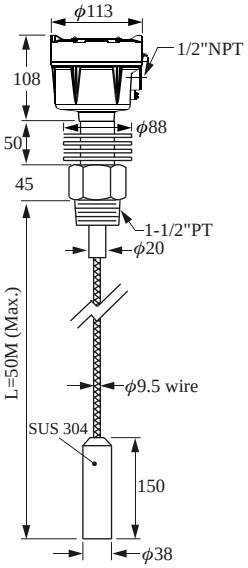
EB2□□□ EB3□□□



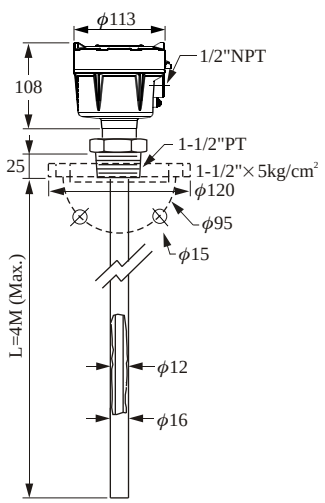
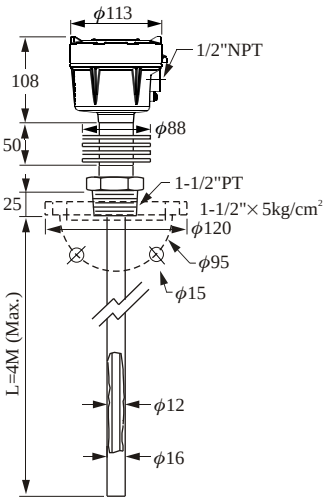
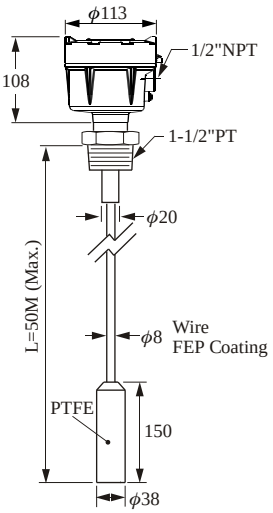
STANDARD SPECIFICATION

Dimensions (unit:mm)			
Model No.	**EB2100 Wire Probe**	**EB2101 Hi-Temp Wire Probe**	**EB2200 Rod Probe**
Probe material	SUS304	SUS304	SUS304/316
Weight material	CERAMIC	CERAMIC	————
Ambient Temperature	-40~80°C	-40~80°C	-40~80°C
Operating temperature	-40~100°C	-40~200°C	-40~100°C
Tensile strength	3500Kgf	3500Kgf	————
Operation voltage	12~36Vdc	12~36Vdc	12~36Vdc
Output current	4 ~20mA	4 ~20mA	4 ~20mA
Measuring Range	0~5000pF	0~5000pF	0~5000pF
Accuracy	±1%FS	±1%FS	±1%FS
Housing IP Degree	IP65	IP65	IP65
Connection	3"x5kg/cm² or 1-1/2"PT Screw	3"x5kg/cm² or 1-1/2"PT Screw	1-1/2"x5kg/cm² or 1-1/2"PT Screw
Weight	Approx. 3.7kg(1M)	Approx. 4.2kg(1M)	Approx. 2.3kg(1M)
Operating pressure	15kg/cm²	15kg/cm²	15kg/cm²

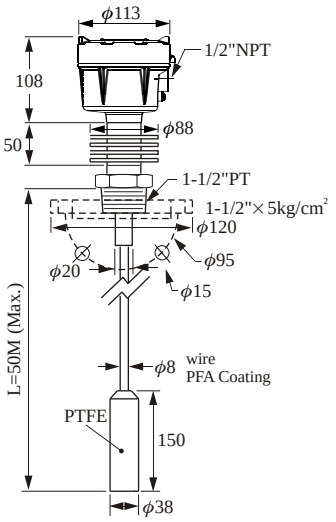
STANDARD SPECIFICATION

Dimensions (unit:mm)			
Model No.	**EB2201 Hi-Temp Rod Probe**	**EB2300 Wire Probe**	**EB2301 Hi-Temp Wire Probe**
Probe material	SUS304/316	SUS304	SUS304
Weight material	————	SUS304	SUS304
Ambient Temperature	-40~80°C	-40~80°C	-40~80°C
Operating temperature	-40~200°C	-40~100°C	-40~200°C
Tensile strength	————	3500Kgf	3500Kgf
Operation voltage	12~36Vdc	12~36Vdc	12~36Vdc
Output current	4 ~20mA	4 ~20mA	4 ~20mA
Measuring Range	0~5000pF	0~5000pF	0~5000pF
Accuracy	±1%FS	±1%FS	±1%FS
Housing IP Degree	IP65	IP65	IP65
Connection	1-1/2"x5kg/cm² or 1-1/2"PT Screw	1-1/2"PT	1-1/2"PT
Weight	Approx. 2.8kg(1M)	Approx. 2.3kg(1M)	Approx. 2.8kg(1M)
Operating pressure	15kg/cm²	15kg/cm²	15kg/cm²

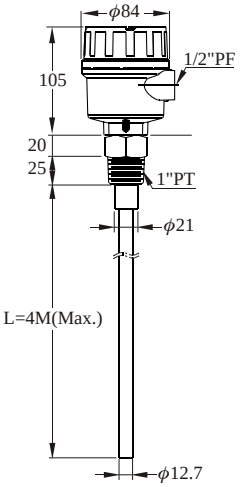
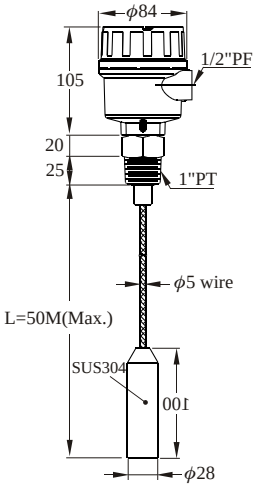
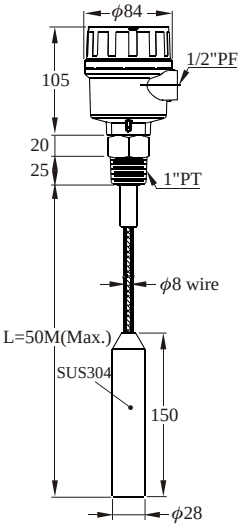
STANDARD SPECIFICATION

Dimensions (unit:mm)	 EB2400 --- PVDF Coating EB2420 --- PP Coating EB2430 --- FEP Coating		 EB2510 --- Nylon Coating EB2520 --- PP Coating EB2530 --- FEP Coating
Model No.	**EB2400/20/30 Anti-Corrosion**	**EB2431 Hi-temp Anti-Corrosion**	**EB2510/20/30 Anti-Corrosion Hi-Temp Wire Probe**
Probe material	SUS304+Coating	SUS304+Coating	SUS304+Coating
Weight material	———	———	SUS304+PTFE
Ambient Temperature	-40~80°C	-40~80°C	-40~80°C
Operating temperature	-40~100°C	-40~200°C	-40~100°C
Tensile strength	———	———	1200Kgf
Operation voltage	12~36Vdc	12~36Vdc	12~36Vdc
Output current	4 ~20mA	4 ~20mA	4 ~20mA
Measuring Range	0~5000pF	0~5000pF	0~5000pF
Accuracy	±1%FS	±1%FS	±1%FS
Housing IP Degree	IP65	IP65	IP65
Connection	1-1/2"x5kg/cm²	1-1/2"x5kg/cm²	1-1/2"PT
Weight	Approx. 2.3kg(1M)	Approx. 2.3kg(1M)	Approx. 2.3kg(1M)
Operating pressure	15kg/cm²	15kg/cm²	15kg/cm²

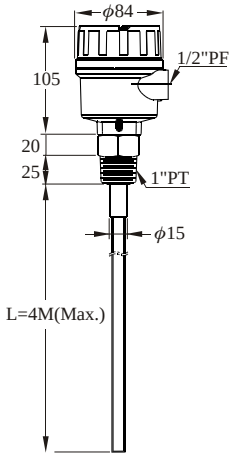
STANDARD SPECIFICATION

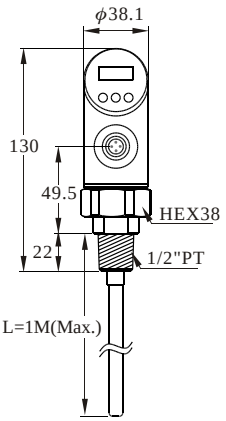
Dimensions (unit:mm)	
Model No.	**EB2531 Anti-Corrosion Hi-Temp Wire Probe**
Probe material	SUS304+Coating
Weight material	SUS304+PTFE
Ambient Temperature	-40~80°C
Operating temperature	-40~100°C
Tensile strength	1200Kgf
Operation voltage	12~36Vdc
Output current	4 ~20mA
Measuring Range	0~5000pF
Accuracy	±1%FS
Housing IP Degree	IP65
Connection	1-1/2"PT
Weight	Approx. 2.3kg(1M)
Operating pressure	15kg/cm²

STANDARD SPECIFICATION

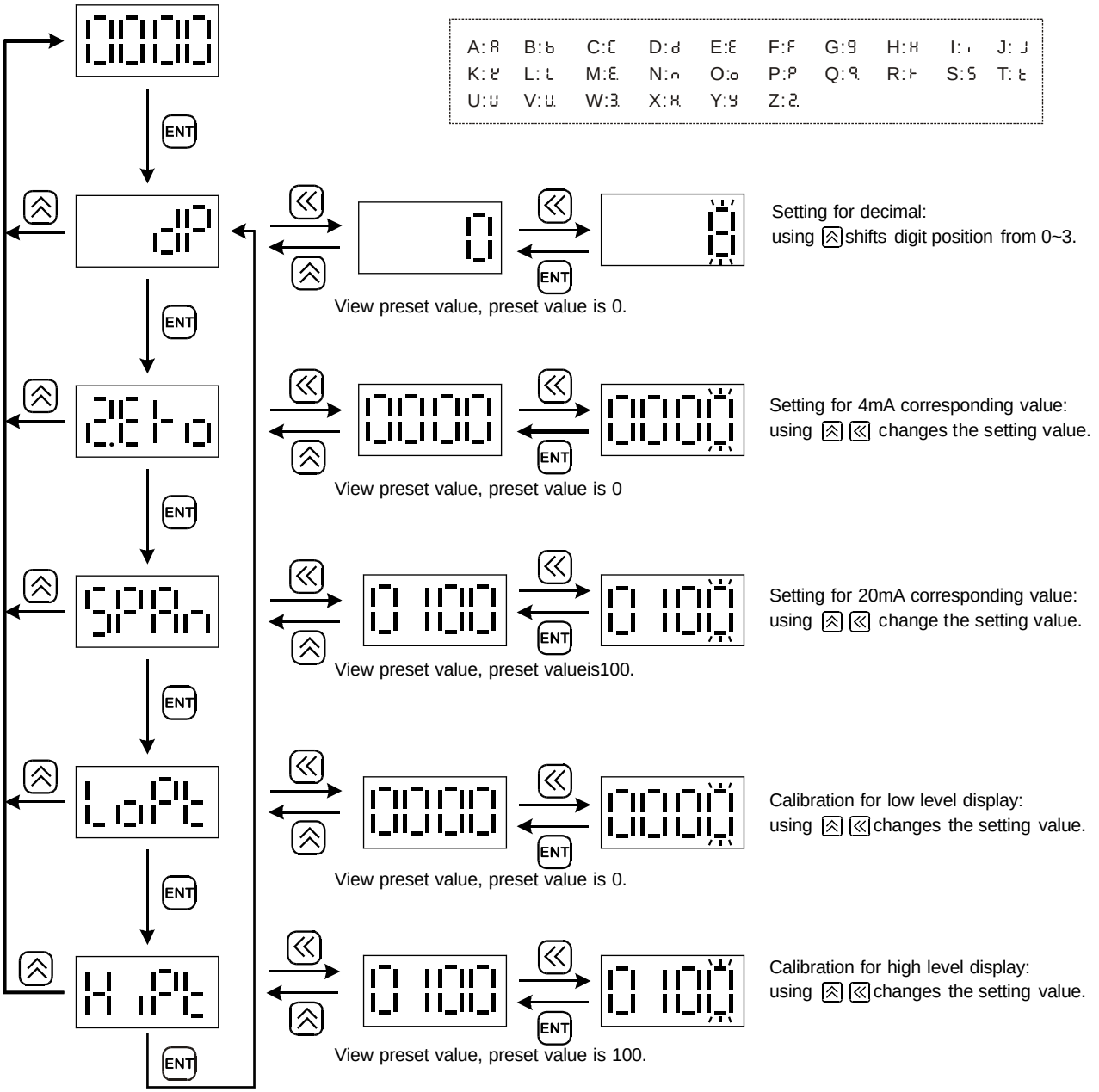
Dimensions (unit:mm)			 EB3510 --- Nylon Coating EB3520 --- PP Coating EB3530 --- FEP Coating
Model No.	**EB3200 Rod Probe**	**EB3300 Wire Probe**	**EB3510/20/30 Anti-Corrosion Hi-Temp Wire Probe**
Probe material	SUS304/316	SUS304	SUS304+Coating
Weight material	————	SUS304	SUS304+PTFE
Ambient Temperature	-40~80°C	-40~80°C	-40~80°C
Operating temperature	-40~100°C	-40~100°C	-40~100°C
Tensile strength	————	3500Kgf	1200Kgf
Operation voltage	12~36Vdc	12~36Vdc	12~36Vdc
Output current	4 ~20mA	4 ~20mA	4 ~20mA
Measuring Range	0~5000pF	0~5000pF	0~5000pF
Accuracy	±1%FS	±1%FS	±1%FS
Housing IP Degree	IP65	IP65	IP65
Connection	1"x5kg/cm^2 or 1"PT Screw	1"PT	1"PT
Weight	Approx. 2.3kg(1M)	Approx. 2.3kg(1M)	Approx. 2.3kg(1M)
Operating pressure	15kg/cm^2	15kg/cm^2	15kg/cm^2

STANDARD SPECIFICATION

Dimensions (unit:mm)	 EB3400 --- PVDF Coating EB3420 --- PP Coating EB3430 --- FEP Coating
Model No.	**EB3400/20/30 Anti-Corrosion**
Probe material	SUS304+Coating
Weight material	————
Ambient Temperature	-40~80°C
Operating temperature	-40~100°C
Tensile strength	————
Operation voltage	12~36Vdc
Output current	4 ~20mA
Measuring Range	0~5000pF
Accuracy	±1%FS
Housing IP Degree	IP65
Connection	1"x5kg/cm^2
Weight	Approx. 2.3kg(1M)
Operating pressure	15kg/cm^2

Dimensions (unit:mm)	 EB2600 --- FEP Coating
Model No.	**EB2600**
Power Supply	10~36Vdc
Measuring Range	0~5000pF
Output Current	4~20mA(two wire)
Output Linear Range	3.8~21.5mA
Upper Limit	22mA
Lower Limit	3.5mA
Output Latch	3.5、22mA
Linearity	±1%F.S
Load Resistance	(Vs- 9) x 50Ω Vs:Power Voltage
Environment Temperature	-10°C~55°C
Operation Temperature	-40°C~100°C
Environment Humidity	0~85%
Temperature Coefficient	±1% F.S per 30°C
LCD Display	-1999 ~ 9999
Protective Degree	IP 65

SETTING FLOWCHART FOR EACH FUNCTION



INSTALLATION

1. The rod probe or cable probe (depending upon which one you purchased) should be parallel to the tank wall and be positioned as close as possible to the tank wall. Make sure the medium does not stick in between the probe and the tank wall.
2. If the tank is not electrically conductive, a metal strap should be added outside of tank wall (fig. 1) for either liquid or non-liquid medium. Or place a metal tube, usually made out of stainless steel, around the rod (fig. 2) for liquid medium. This metal tube should come with a vent hole at top of the tube to allow the medium to go up inside of the tube.
3. If the container is irregular shaped, such as a cylindrical, and the medium is liquid with low viscosity, the rod should be place inside a metal tube with vent hole at the top. (fig. 2)
4. The cable probe should be routed through the ceramic insulator and tightened with the fixing bolt, finally it should be routed through the silo and firmly attached to the cable nut. (fig. 3)
5. Make sure to fix the rod probe or cable probe to the container wall with non-conductive supporting material. If an agitator is in place (see fig. 4). This will prevent the deformation of the rod probe and tangling of the cable probe around the agitator.
6. If the medium is conductive, make sure to coat the rod probe or cable probe with PVDF or PP material.
7. During the installation, the process connection should be grounded. An installation without proper grounding will not guarantee normal operation of the device later on.
8. When all electrical connections inside of a Capacitance Level Transducer housing are finished, the housing cover and the conduit opening should be sealed and tightened to prevent moisture from ruining it.

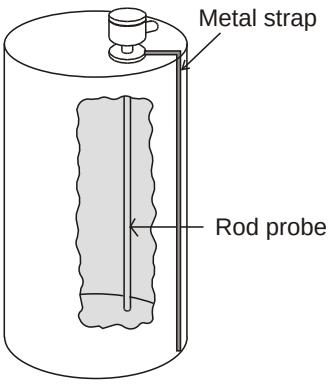


Fig. 1

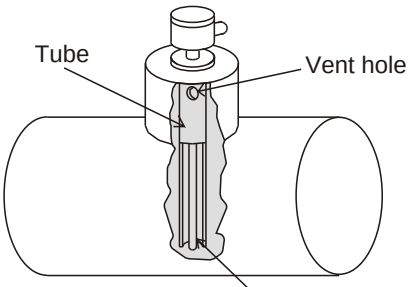


Fig. 2

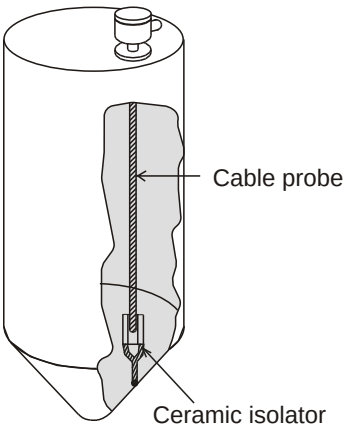


Fig. 3

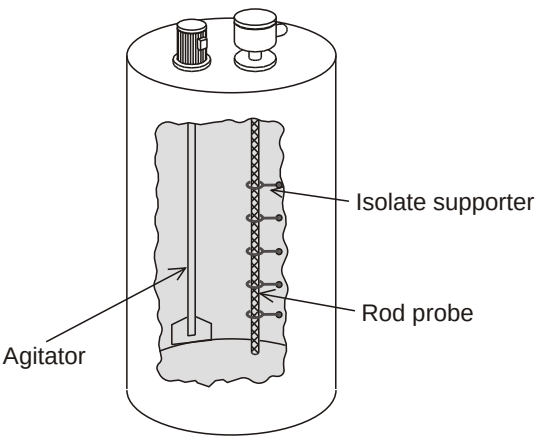


Fig. 4

CODE NAME INFORMATION

EB 2160 HM 5000

Order No.

EB3200 --- Rod Type
EB3300 --- Wire Probe Type
EB34□□-- Anti-Corrosion
(3400: PVDF 3420: PP 3430: FEP)
EB35□□-- Anti-Corrosion with Wire-probe weight
(3510: Nylon 3520: PP 3530: FEP)
EB2100 --- Wire Probe Type
EB2101 --- Hi-Temp Wire Probe Type
EB2200 --- Rod Type
EB2201 --- Hi-Temp Rod Probe Type
EB2300 --- Wire Probe Type
EB2301 --- Hi-Temp Wire ProbeType
EB24□□-- Anti-Corrosion
(2400: PVDF 2420: PP 2430: FEP)
EB2431 --- Anti-Corrosion Hi-Temp Wire ProbeType
EB25□□-- Anti-Corrosion with Wire-probe weight
(2510: Nylon 2520: PP 2530: FEP)
EB2531 --- Anti-Corrosion Hi-Temp Wire ProbeType
EB2600--- Compact Ramp (FEP Coating)

Material

0: SUS304, 6: SUS316

Connecting

B --- 1/2" (EB2600)
C --- 3/4" (EB2600)
D ---1"
E ---1-1/2"
F ---2"
G ---2-1/2"
H ---3"
I ---4"
J ---5"
K ---6"
S ---others

M ---5kg/cm^2
N ---10kg/cm^2
O ---150 Lbs
P ---300 Lbs
Q ---PT pipe thread
R ---PF(G) pipe thread
T ---BSP pipe thread
U ---NPT pipe thread
V ---GAS
S ---others

Length L (UNIT: mm)

0500: 50cm(01~50)
1000: 100cm(51~100)
1500: 150cm(101~150) ※ 50cm per Unit

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