



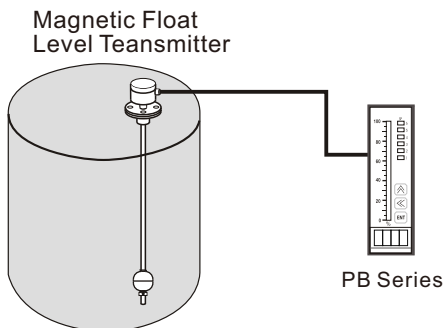
Magnetic Float Level Transmitter



INTRODUCTION

WORKING PRINCIPLE

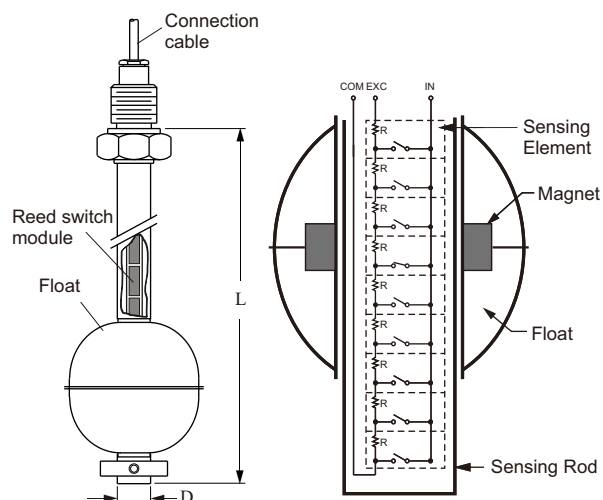
The "Magnet Float Level Transmitter" is composed of a float and sensing rod (shown below). As the float is raised or lowered by the liquid level, the sensing rod will induce a resistance output, which is directly proportional to the liquid level. The Magnet Float Level Transmitter is a sturdy, reliable and durable device that is applicable to most industries.



APPLICATIONS

Waste water treatment
Turn-key facilities
Electric power plants
Shipping vessels
Hydraulic facilities
Chemical industrial equipment
Petrochemical industries
Hot coal boiler
e.g. diesel engine generators, motor
oil meters, oil material storage tanks

CONSTRUCTION



FEATURES

- Optional TAB-2100 (see p4) to produce a 0/4~20mA signal
- Optional PB series bargraphic display scaling panel meter for level control and display
- Sensing elements are protected with a plastic package for safety in use and transport.
- High performance and reliable electric circuit modular design (fig.2)
- Explosion Proof certificate available
- Marine certificate: ABS, BV, LR, DNV.GL, CR available

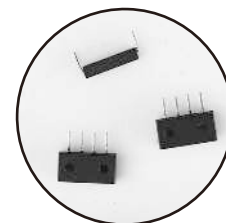


Fig.1
Sensing Element

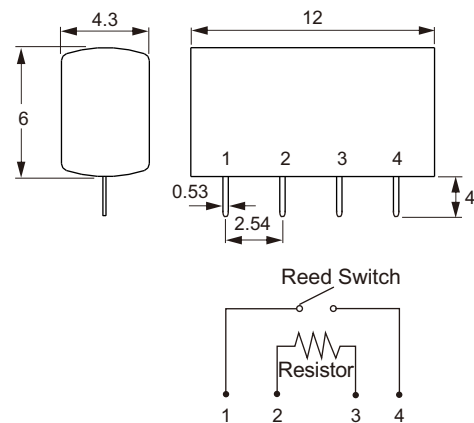
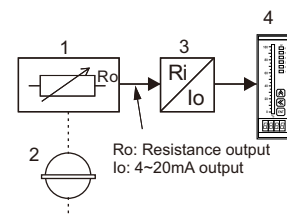


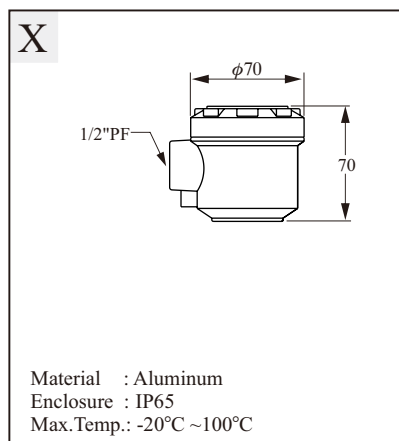
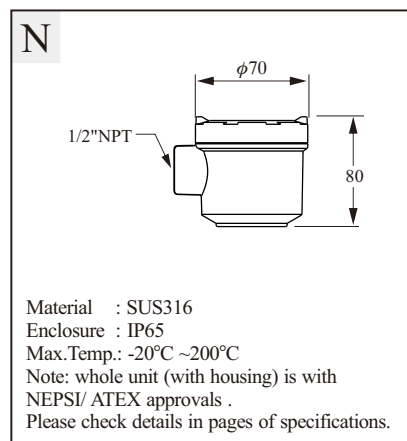
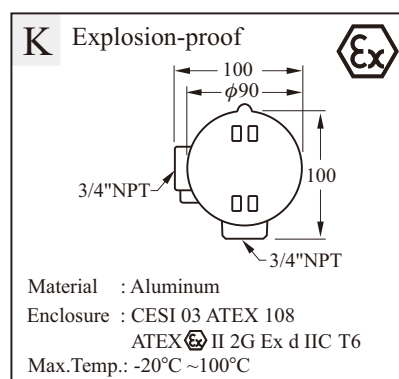
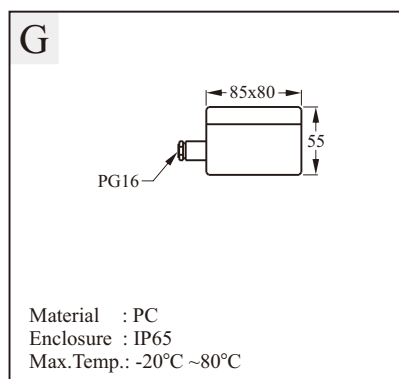
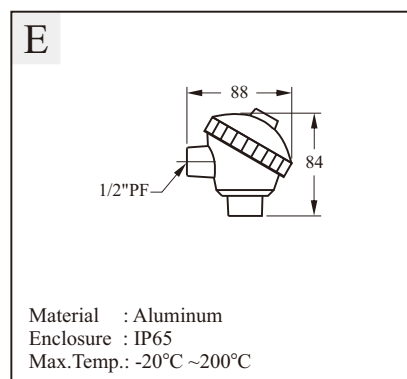
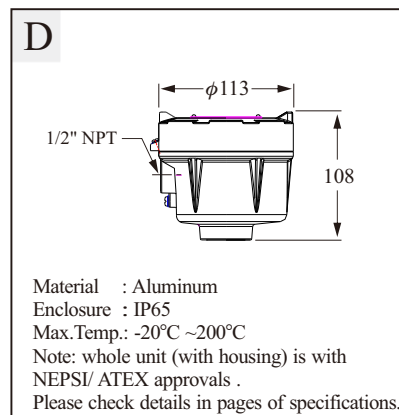
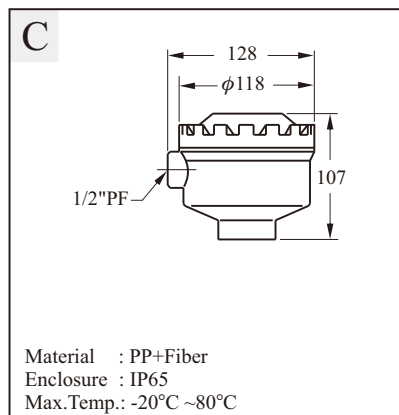
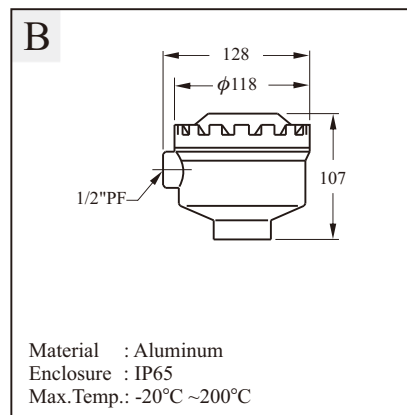
Fig.2
Sensing Element Size

SCHEMATIC DIAGRAMS

1. Sensing Rod
2. Float
3. Transducer
4. Display Unit



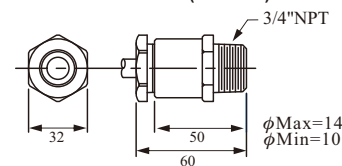
HOUSING DIMENSIONS



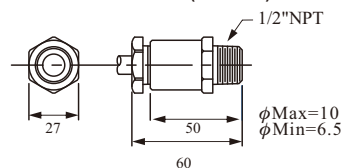
ACCESSORIES

Cable Conduit - Ex d IIC
Material: Washer — NBR
Body— Copper alloy(3/4"NPT)
Nickel plated(1/2"NPT)

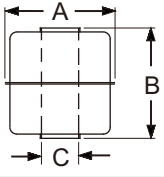
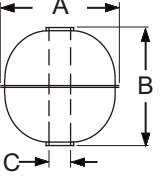
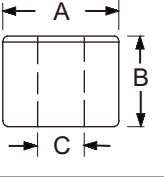
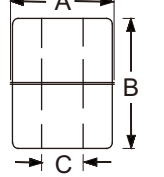
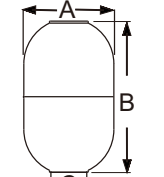
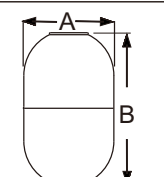
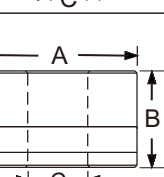
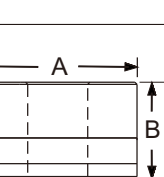
HP415-A23100MH01(29-1104)



HP415-A23000MG01(29-1108)



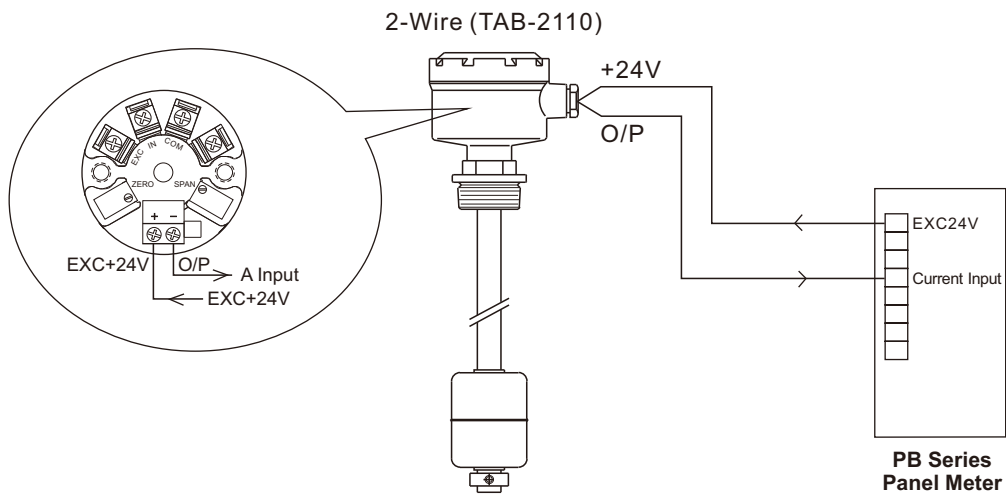
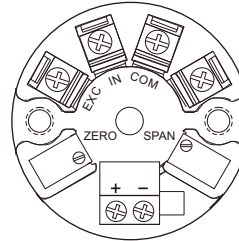
FLOAT SPECIFICATIONS

Dimension	Type	AxBxC(mm)	S.G.	Max. Pressure (kg/cm ²)	Material	Max. Temp. (°C)	Approx. Weight (g)
	S3	45x55x15	0.65	12	SUS 316	200°C	37.6
	S6	75x108x19	0.5	10	SUS 304 SUS 316	200°C	165
	S4	52x52x15	0.55	30	SUS 316	200°C	33.4
	S5	75x73x19	0.61	30	SUS 304 SUS 316	200°C	105
	S8	100x100x20	0.5	15	SUS 304 SUS 316	200°C	249.7
	S9	150x150x30	0.45	15	SUS 304	200°C	534
	P3	48x45x18.5	0.6	5	PP	80°C	35.5
	F4	48x62x18	0.75	5	PVDF	120°C	65.3
	R6	72x118x28	0.62	22.5	SUS316	200°C	193
	RF	72x118x28	0.95	22.5	SUS316	200°C	296
	P9	74x45x28	0.64	5	PP	80°C	111
	PI	74x45x28	0.96	5	PP	80°C	165

TRANSDUCER

MODEL: TAB-2110 (TAXAA1X) Transducer

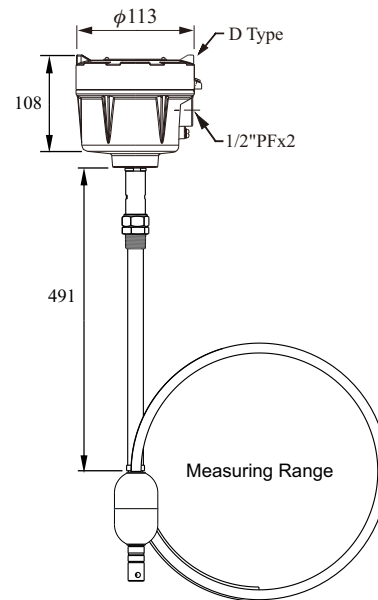
Power Supply	: 12~36Vdc
Output Current	: Loop power 4~20mA
Load Resistance	: $RL(\text{Max})=50(Vs-12)$
Ambient Temperature	: -40~80°C
Ambient Humidity	: 0~80% RH
Accuracy	: $\pm 0.1\%(25^\circ\text{C})$
Temperature Effect	: 0.01%F.S./°C
Adjustment Range	: Span Adjustment 20% FS Zero Adjustment 5% FS



FLEXIBLE MODEL DIGITALE DISPLAY TYPE / ECONOMICAL TYPE

MODEL: Flexible Magnetic Float Level Transmitter (Economical type)

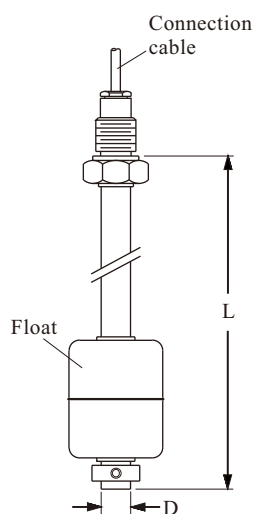
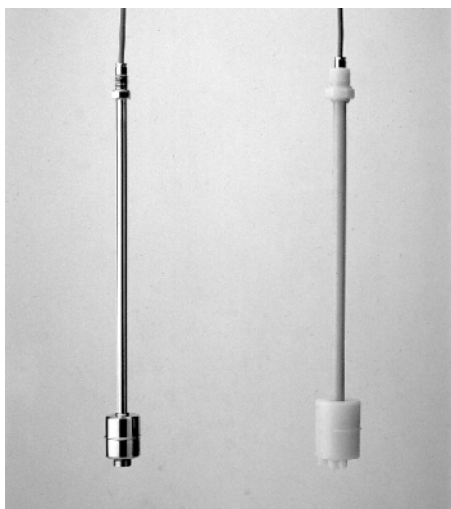
Power Supply	: 12~36Vdc
Measuring range	: 3000mm~30000mm
Analog output	: 4~20mA loop power
Resolution	: 12.7mm
Load impedance	: RL (Max.) = 50 (Vs-12)
Ambient temp.	: -40~80°C
Operating temp.	: -40~80°C
IP rating	: IP65



FEATURE

- Cover protection for reed module, to prevent any damage during transportation.
- Not effect by temperature and pressure variaion.
- Easy to record and set up with digital display.
- Easy to install, need not to do periodic calibration and maintenance .

ECONOMICAL



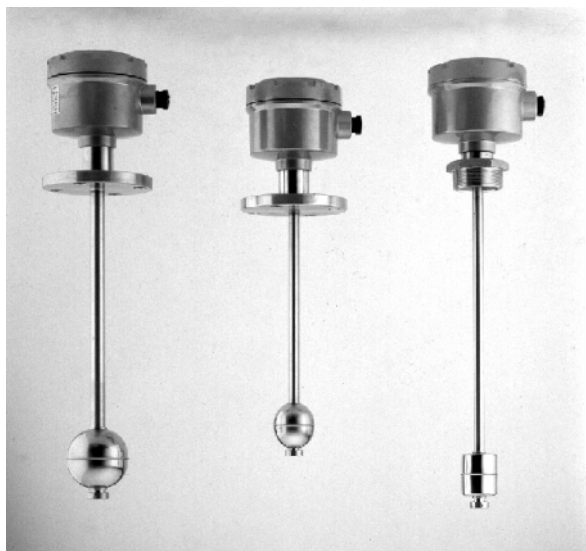
● SPECIFICATIONS

Connection Cable: Silicon cable 3C × 1M
Output: 3-wire resistance output
Total Resistance: 1MΩ (Max.)

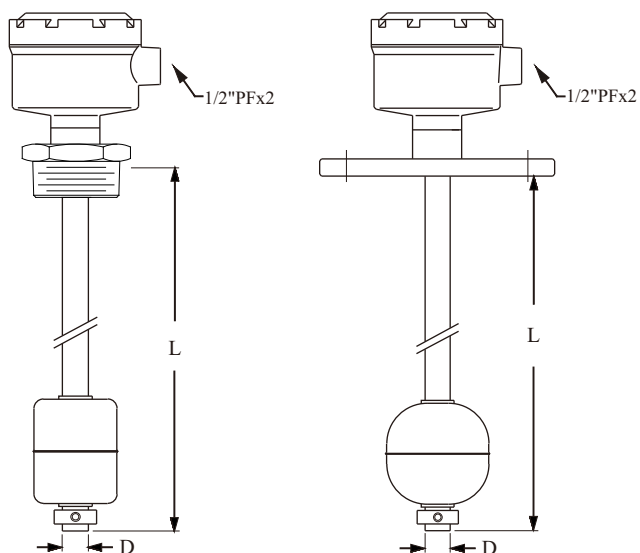
Operating Temp.: PP tube -10 °C ~ 80 °C
 PVDF tube -20 °C ~ 120 °C
 SUS tube -20 °C ~ 120 °C

Order No.	Connection	Tube size & Material (D)	Float type & Material	Suitable S.G.	Measuring Range
FG□-AR4	3/8"PF	φ14 SUS 304 SUS 316	S3: φ45x55 SUS 316 S4: φ52x52 SUS 316	>0.65 >0.55	FGA...Max.6M FGB...Max.6M
FG□-AR7	3/8"PF	φ17.2 SUS 304	S5: φ75x73 SUS 304 SUS 316	>0.61 >0.5	FGA...Max.6M FGB...Max.6M
			S6: φ75x108 SUS 304 SUS 316		
FGB-CR5P3	3/4"PF	φ17.2 PP	P3: φ48x45 PP	>0.6	FGB...Max.6M
FGB-CR6F4	3/4"PF	φ16 PVDF	F4: φ48x62 PVDF	>0.75	FGB...Max.6M

STANDARD



★ B type housing, dimension see page 2.



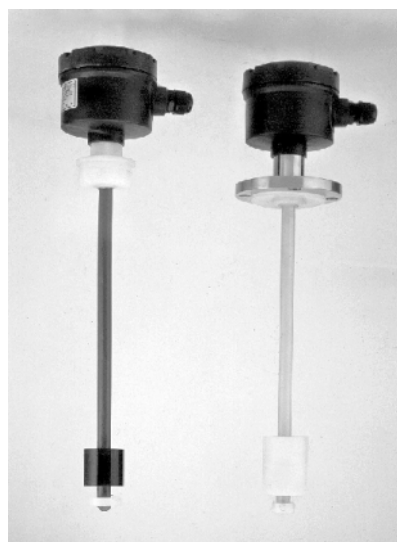
● SPECIFICATION

Terminal Housing: Aluminum, IP65
Output: 4 ~ 20mA, 2-wire
Total resistance : 1MΩ (Max.)

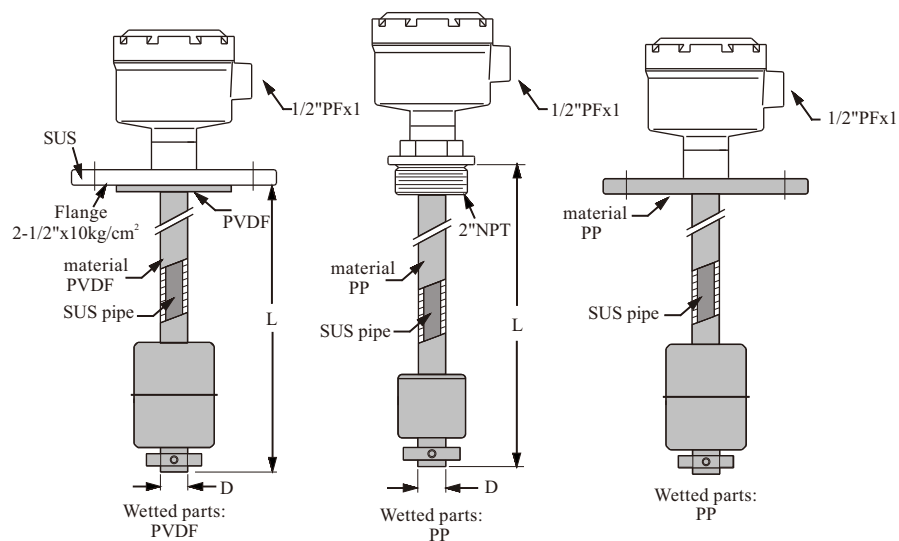
Operating Temperature: -20 ~ 120 °C
Ambient Temperature: 0 ~ 70 °C

Order No.	Connection	Tube size & Material (D)	Float type & Material	Suitable S.G.	Measuring Range
FG□BFQ4	2"PT	φ14 SUS 316 SUS 304	S3: φ45x55 SUS 316 S4: φ52x52 SUS 316	>0.65 >0.55	FGC/D...Max.6M
FG□BGN4	2-1/2"x10kg/cm ²	φ14 SUS 316 SUS 304	S3: φ45x55 SUS 316 S4: φ52x52 SUS 316	>0.65 >0.55	FGC/D...Max.6M
FGDBHN7	3"x10kg/cm ²	φ17.2 SUS 304	S5: φ75x73 SUS 304 SUS 316	>0.61 >0.5	FGD...Max.6M
			S6: φ75x108 SUS 304 SUS 316		
FGDBIQ7	4"PT	φ17.2 SUS 304	S8: φ100x100 SUS 304 SUS 316	>0.5	FGD...Max.6M
FGDBKN8 FGDBKN9	6"x10kg/cm ²	φ21.7 φ27.2 SUS 304	S9: φ150x150 SUS 304	>0.45	FGD...Max.12M

ANTI-CORROSIVE



★ C type housing, dimension see page 2.



● SPECIFICATIONS

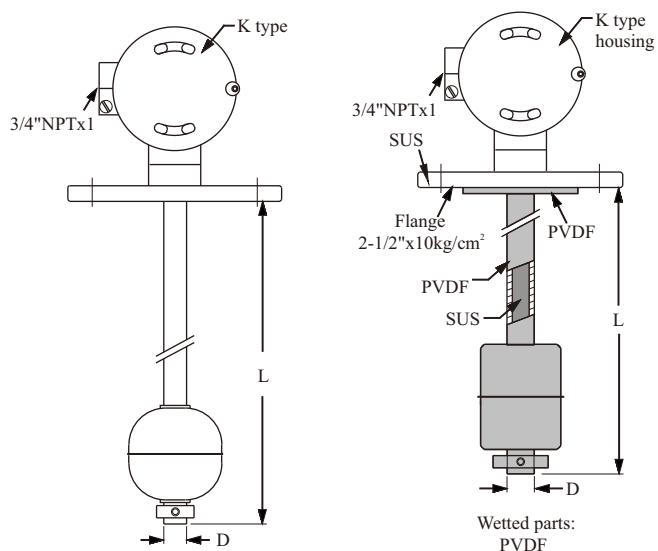
Terminal Housing: PP +Fiber, IP65
Output: 4 ~ 20mA, 2-wire
Ambient Temperature: 0~70 °C

Operating Temperature: PP jacket tube-10 ~ 80 °C
 PVDF jacket tube -20 ~ 120 °C
Total resistance: 1MΩ (Max.)

Order No.	Connecting	Tube size & Material (D)	Float type & Material	Suitable S.G.	Measuring Range
FGDCFQ5P3	2"PT	φ17.2 PP	P3: φ48x45 PP	>0.55	FGD...Max.6M
FGDCFQ6F4	2"PT	φ16 PVDF	F4: φ48x62 PVDF	>0.75	FGD...Max.6M
FGDCGN5P3	2-1/2"x10kg/cm²	φ17.2 PP	P3: φ48x45 PP	>0.6	FGD...Max.6M
FGDCGN6F4	2-1/2"x10kg/cm²	φ16 PVDF	F4: φ48x62 PVDF	>0.75	FGD...Max.6M

Every unit is protected by a PP or PVDF flange to prevent the sensing rod from corrosion.

★K type ATEX Explosion proof enclosure can be selected (see p2).



● SPECIFICATION

Terminal Housing: K type --- Aluminum, ATEX Ex d IIC T6

Output: 4 ~ 20mA, 2-wire

Ambient Temperature: 0 ~ 70 °C

Total resistance: 1MΩ (Max.)

Operating Temperature: PP tube -10 ~ 80°C

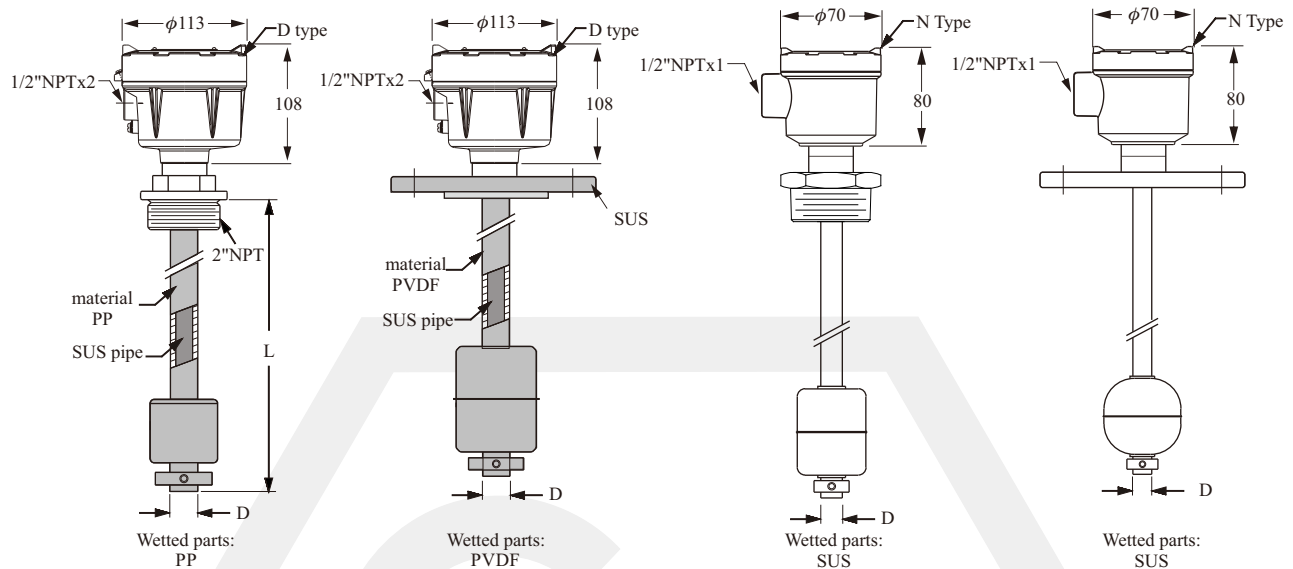
PVDF tube -20 ~ 120°C

SUS tube -20 ~ 120°C

Order No.	Connection	Tube size & Material (D)		Float type & Material		Suitable S.G.	Measuring Range
FG□KFQ4	2"PT	φ14	SUS 304	S4: φ52x52	SUS 316	>0.55	FGA/B...Max.6M FGC/D...Max.6M
FG□KGN4	2-1/2"x10kg/cm ²	φ14	SUS 304	S4: φ52x52	SUS 316	>0.55	FGA/B...Max.6M FGC/D...Max.6M
FGDKHN7	3"x10kg/cm ²	φ17.2	SUS 304	S6: φ75x108	SUS 304 SUS 316	>0.5	FGD...Max.6M
FGDKIQ4	4"PT	φ17.2	SUS 304	S8: φ100x100	SUS 304 SUS 316	>0.5	FGD...Max.6M
FGDKFQ5P3	2"PT	φ17.2	PP	P3: φ48x45	PP	>0.6	FGD...Max.6M
FGDKFQ6F4	2"PT	φ16	PVDF	F4: φ48x62	PVDF	>0.75	FGD...Max.6M
FGDKGN5P3	2-1/2"x10kg/cm ²	φ17.2	PP	P3: φ48x45	PP	>0.6	FGD...Max.6M
FGDKGN6F4	2-1/2"x10kg/cm ²	φ16	PVDF	F4: φ48x62	PVDF	>0.75	FGD...Max.6M

ENCLOSURE EXPLOSION PROOF

★ D or N type housing can be selected.



● SPECIFICATIONS

Terminal Housing: D type --- Aluminum
 N type --- SUS
Output: 4 ~ 20mA, 2-wire
Ambientt: 0~70 °C

Total Resistance: 1MΩ (Max.)
Operation Temperature: PP tube -10 ~ 80 °C
 PVDF tube -20 ~ 120 °C
 SUS tube -20 ~ 120 °C

MODEL NO. FG7	Connecting	Tube size (D) & Material	Float type & Material	Suitable S.G.	Measuring Range
FG7□DFQ4	2"PT	φ14 SUS 316	S3: φ45x55 SUS 316	>0.65	FG7...Max.3M
FG7□DGN4	2-1/2"x10kg/cm ²	φ14 SUS 316	S3: φ45x55 SUS 316	>0.65	FG7...Max.3M
FG7DDHN7	3"x10kg/cm ²	φ17.2 SUS 304	S5: φ75x73 SUS 304 SUS 316	>0.61	FG7...Max.6M
FG7DDIQ4	4"PT	φ17.2 SUS 304	S8: φ100x100 SUS 304 SUS 316	>0.5	FG7...Max.6M
FG7DDKN8 FG7DDKN9 FG7DDKN8 FG7DDKN9	6"x10kg/cm ²	φ21.7 φ27.2 SUS 304	S9: φ150x150 SUS 304	>0.45	FG7...Max.6M
FG7DDFQ5P3	2"PT	φ17.2 PP	P3: φ48x45 PP	>0.6	FG7...Max.6M
FG7DDFQ6F4	2"PT	φ16 PVDF	F4: φ48x62 PVDF	>0.75	FG7...Max.6M
FG7DDGN5P3	2-1/2"x10kg/cm ²	φ17.2 PP	P3: φ48x45 PP	>0.6	FG7...Max.6M
FG7DDGN6F4	2-1/2"x10kg/cm ²	φ16 PVDF	F4: φ48x62 PVDF	>0.75	FG7...Max.6M

MODEL NUMBER / ORDER CODE COMPARISON TABLE

Model Number	Order Code
FG□-AR4	FGX10100-A10AAA403CMA2B
FG□-AR7	FGX10100-A10AAA403CMA2D
FGB-CR5P3	FGX10100-B10AAA703E182D
FGB-CR6F4	FGX10100-AAA703E242C
FG□BFQ4	FGX10000-A1BAAB201CMA2B
FG□BGN4	FGX10000-A1BAKB442
FGBBHN7	FGX10000-A1BAKB542EMA2D
FGBBIQ7	FGX10000-A1BAKB701EMA2D
FGBBKN8	FGX10000-A1BAKB942EMA3A
FGBBKN9	FGX10000-A1BAKB942EMA3B
FGDCFQ5P3	FGX10000-B1CAAB201E182DP3
FGDCFQ6F4	FGX10000-B1CAAB201E242CF4
FGDCGN5P3	FGX10000-B1CAKB442E182DP3
FGDCGN6F4	FGX10000-B1CAKB442E242CF4
FG□KFQ4	FGX10000-A1KAAB201CMA2B
FG□KGN4	FGX10000-A1KAKB442CMA2B
FGDKHN7	FGX10000-A1KAKB542EMA2D
FGDKIQ4	FGX10000-A1KAAB701EMA2D
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FGDKFQ6F4	FGX10000-A1KAAB201E242CF4
FGDKGN5P3	FGX10000-A1KAKB442E182DP3
FGDKGN6F4	FGX10000-A1KAKB442E242CF4
FG7□DFQ4	FGX100□□-A1DAAB201CMB2BS3
FG7□DGN4	FGX100□□-A1DAKB442CMB2BS3
FG7DDHN7	FGX100□□-A1DAKB542EMA2DS5
FG7DDIQ4	FGX100□□-A1DAAB707EMA2DS8
FG7DDKN8	FGX100□□-A1DAKB942EMA3AS9
FG7DDKN9	FGX100□□-A1DAKB942EMA3BS9
FG7DDFQ5P3	FGX100□□-A1DAAB207E182DP3
FG7DDFQ6F4	FGX100□□-A1DAAB207E242CF4
FG7DDGN5P3	FGX100□□-A1DAKB442E182DP3
FG7DDGN6F4	FGX100□□-A1DAKB442E242CF4

ORDER INFORMATION

FGX1 ⁰⁵ ⁰⁶ ⁰⁷ ⁰⁸ - ⁰⁹ ¹⁰ ¹¹ ¹² ¹³ ¹⁴ ¹⁵ ¹⁶ ¹⁷ ¹⁸ ¹⁹ ²⁰ ²¹ ²² ²³ ²⁴ 00 ²⁷ 0 ²⁹ ³⁰ ³¹ ³² ³³

⁰⁵ ⁰⁶ Model

- 00: Standard
- 01: Economy type

⁰⁷ ⁰⁸ Certification

- 00: None
- 1C: ATEX-Ex d
- 2C: IECEx-db
- 5C: TS-Ex d
- 7C: NEPSI-Ex d
- 1D: ATEX-Ex tb
- B0: DNV.GL
- C0: ABS
- E0: BV
- F0: LR
- G0: CR

⁰⁹ ¹⁰ Probe type

- A1: Rod type
- A2: Flexible model
- B1: Corrosion-proof rod type

¹¹ Housing type

- 0: Without housing
- B: B type housing (Aluminum)
- C: C type housing (PP)
- D: D type housing (Aluminum)
- E: Terminal head (Aluminum)
- K: K type (Aluminum)
- N: N type (stainless steel)

Connection

¹² ¹³

Flange

- AK: JIS-FF
- AN: ANSI-RF
- AS: DIN-FF

Thread

- AA: JIS
- AC: ANSI

¹⁴ ¹⁵

- A4: 3/8"
- A5: 1/2"
- A7: 3/4"
- A8: 1"
- B1: 1-1/2"
- B2: 2"
- B4: 2-1/2"
- B5: 3"
- B7: 4"
- B8: 5"
- B9: 6"
- D7: DN20
- D8: DN25
- D9: DN32
- E1: DN40
- E2: DN50
- E3: DN65

¹⁶ ¹⁷

- 01: PT male
- 03: PF male
- 07: NPT male
- 40: 5 kg/cm²
- 42: 10 kg/cm²
- 48: 150 Lbs
- 49: 300 Lbs
- 57: PN10
- 58: PN16

¹⁸ Resolution

- C: 6.35mm
- E: 12.7mm

(Next page)

FGX1 ⁰⁵ ⁰⁶ ⁰⁷ ⁰⁸ - ⁰⁹ ¹⁰ ¹¹ ¹² ¹³ ¹⁴ ¹⁵ ¹⁶ ¹⁷ ¹⁸ ¹⁹ ²⁰ ²¹ ²² ²³ ²⁴ 00 ²⁷ 0 ²⁹ ³⁰ ³¹ ³² ³³

¹⁹ ²⁰ **Probe material** _____

MA: SUS 304

MB: SUS 316

18: PP

24: PVDF

²¹ ²² **Probe diameter** _____

2A: ϕ 12.7mm

2D: ϕ 17.2mm

2B: ϕ 14.0mm

3A: ϕ 21.7mm

2C: ϕ 16.0mm

3B: ϕ 27.2mm

Note1: 2A only 12.7mm resolution is available.

Note2: 2D pp material & 2C PVDF material when measuring range>500mm only 12.7mm resolution is available.

²³ ²⁴ **Float** _____

00: None

S3: 45*55*15 E>0.65

S9: 150*150*30 E>0.45

P3: 48*45*18.5 E>0.6

S4: 52*52*15 E>0.55

F4: 48*62*18 E>0.75

P9: 74*45*28 E>0.64

S5: 75*73*20.5 E>0.65

R6: 72*118*28 E>0.62

PI: 74*45*28 E>0.96

S6: 75*108*20 E>0.5

RF: 72*118*28 E>0.95

S8: 100*100*20 E>0.5

²⁷ **Analog output** _____

B: 4~20mA

E: 3-wire resistance output

²⁹ **Material and surface roughness** _____

0: None

A: Ra < 0.3

B: Ra < 0.5

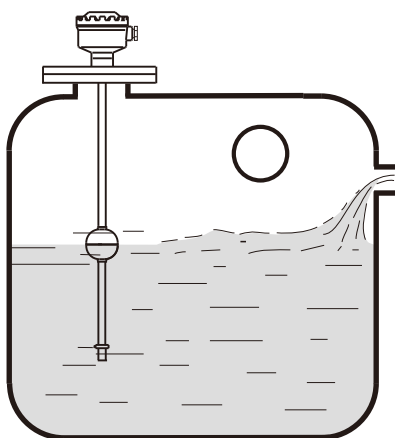
C: Ra < 0.8

³⁰ ³¹ ³² ³³ **Length** _____

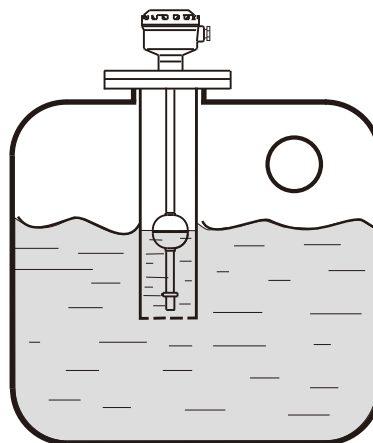
Code	Probe Length
0150~A300	150~30000mm

INSTALLATION

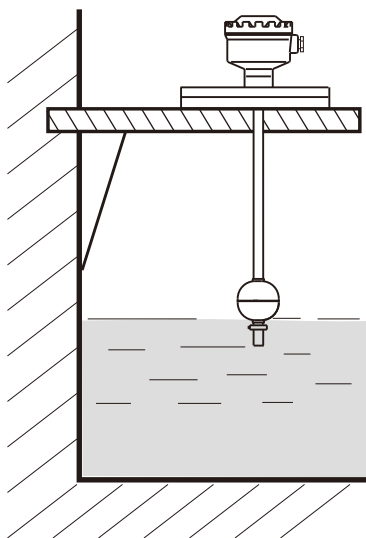
- The float level transmitter should be mounted far away from the inlet. Any rigorous liquid turbulence will produce error output signals.



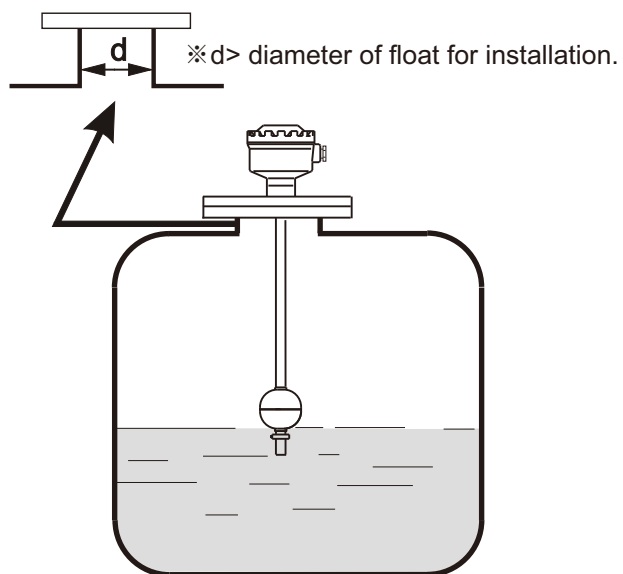
- A pipe shield or an equivalent device can help normalize the indicator actuation especially when an agitator is present.



- Another useful alternative is an L type support frame when the level indicator is mounted in concrete wall tank as figure below.



- It is recommended to select the standpipe with diameter (d) larger than the float for the installation process.



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