



Sensing Element

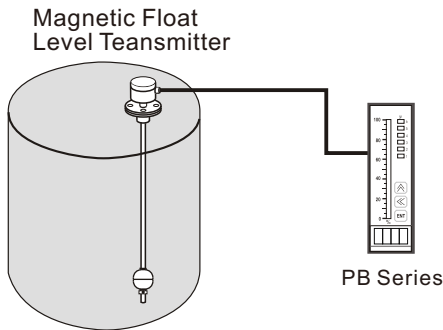
Magnetic Float Level Transmitter



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.



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, DNV, BV, LR, GL available

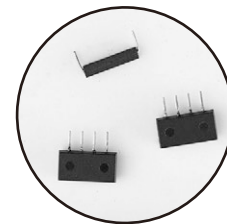


Fig.1 Sensing Element

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

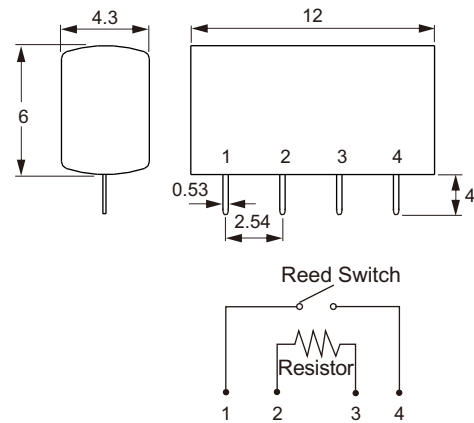
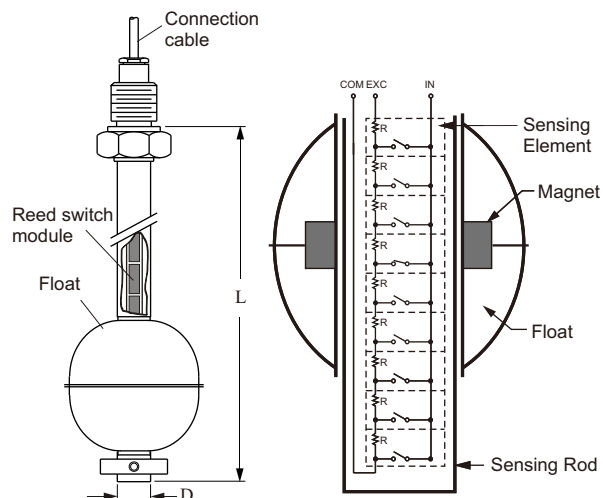


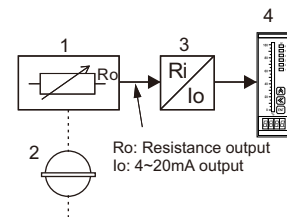
Fig.2 Sensing Element Size

CONSTRUCTION



SCHEMATIC DIAGRAMS

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



HOUSING DIMENSIONS

B

Material : Aluminum
 Enclosure : IP65
 Max.Temp.: -20°C ~200°C

C

Material : PP+Fiber
 Enclosure : IP65
 Max.Temp.: -20°C ~80°C

D

Material : Aluminum
 Enclosure : IP65
 Max.Temp.: -20°C ~200°C

E

Material : Aluminum
 Enclosure : IP65
 Max.Temp.: -20°C ~200°C

G

Material : PC
 Enclosure : IP65
 Max.Temp.: -20°C ~80°C

K Explosion-proof

Material : Aluminum
 Enclosure : CESI 03 ATEX 108
 ATEX II 2G Ex d IIB T6
 Max.Temp.: -20°C ~100°C

N

Material : SUS316
 Enclosure : IP65
 Max.Temp.: -20°C ~200°C

X

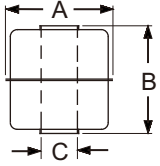
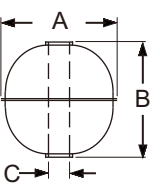
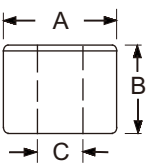
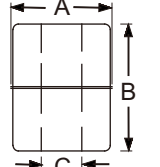
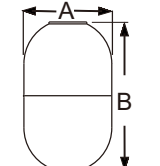
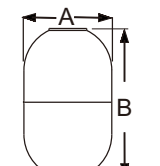
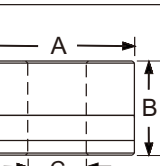
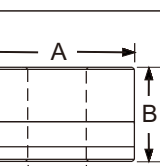
Material : Aluminum
 Enclosure : IP65
 Max.Temp.: -20°C ~100°C

A

Material : Aluminum
 Enclosure : IP67
 Max.Temp.: -40°C ~80°C

FLOAT SPECIFICATIONS

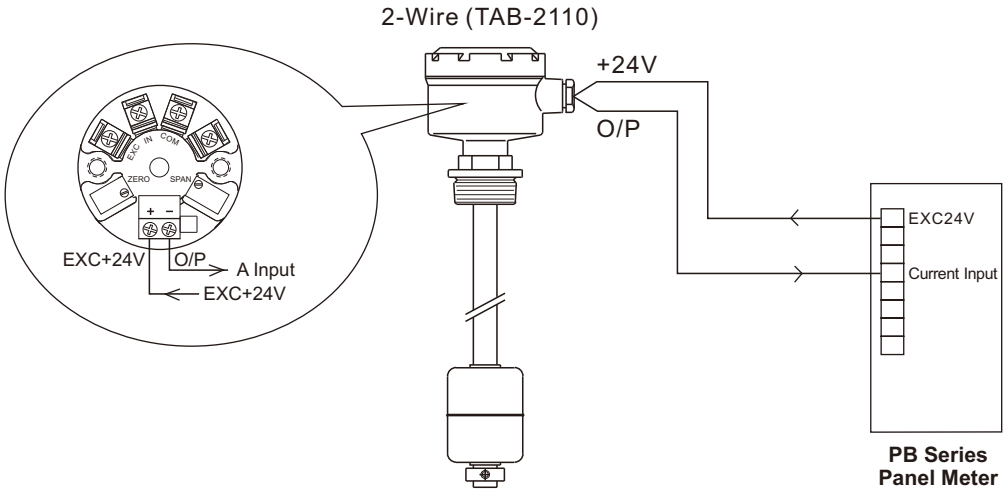
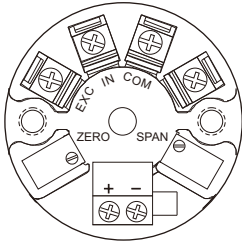
● FLOAT SPECIFICATION

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	200°C	165
	S4	52x52x15	0.55	30	SUS 316	200°C	33.4
	S5	75x73x19	0.61	30	SUS 304	200°C	105
	S8	100x100x20	0.5	15	SUS 304	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	193
	P9	74x45x28	0.64	5	PP	80°C	111
	PI	74x45x28	0.96	5	PP	80°C	165

TRANSDUCER

MODEL: TAB-2110 Transducer

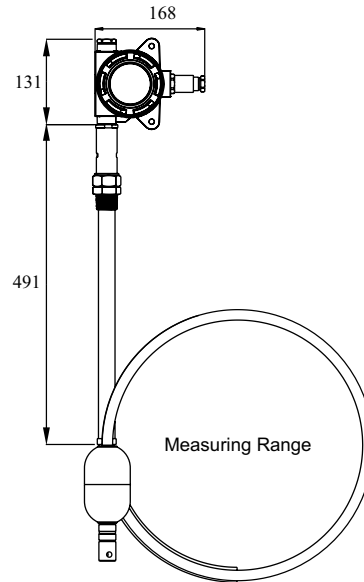
- Power Supply : 12~36Vdc
- Output Current : Loop power 4~20mA
- Load Resistance : $R_L(\text{Max})=50(\text{Vs}-8)$
- Ambient Temperature : -40~80°C
- Ambient Humidity : 0~80% RH
- Accuracy : $\pm 0.1\%(25^\circ\text{C})$
- Temperature Effect : 0.01%F.S./°C
- Adjustment Range : Span Adjustment 20% FS
Zero Adjustment 5% FS



FLEXIBLE MODEL DIGITALE DISPLAY TYPE / ECONOMICAL TYPE

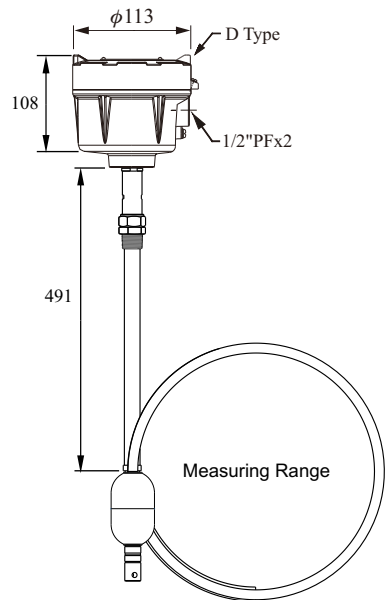
MODEL: Flexible Magnetic Float Level Transmitter (Digital display type)

Power Supply	: 12~36Vdc
Measuring range	: 3000mm~30000mm
Analog output	: 4~20mA loop power
Resolution	: 12.7mm
Digital communication	: HART, RS485
Load impedance	: RL (Max.) = 50 (Vs-8)
Accuracy	: $\pm 0.1\%$ (25°C)
Ambient temp.	: -40~80°C
Operating temp.	: -40~80°C
IP rating	: IP67



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
Digital communication	: HART, RS485
Load impedance	: RL (Max.) = 50 (Vs-8)
Accuracy	: $\pm 0.1\%$ (25°C)
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 .

ORDER INFORMATION

FG X **00** **0**

RESOLUTION

- D: 12.7mm (4-20mA, Economical type)
- F: 12.7mm (4-20mA, Digital display)
- H: 12.7mm
(4-20mA + HART, Digital display)
- J: 12.7mm
(Power + RS485, Digital display)

TERMINAL HOUSING

- A: Digital display (IP67)
- D: Aluminum (IP65)

CONNECTION

Dimension	Specification	
H: 3" (80A)	M: 5 Kg/cm ²	Z :PN40
I : 4" (100A)	N :10 Kg/cm ²	Q: PT
J : 5" (125A)	O: 150 Lbs	R: PF(G)
K: 6" (150A)	P : 300 Lbs	T : BSP
4 : 7" (175A)	W:PN10	U : NPT
5 : 8" (200A)	X :PN16	V : GAS
S : Others	Y :PN25	S : Others

TYPE & MATERIAL

- G: ϕ 16 Flexible tube (PTFE)

Float Type

Float	Dimension	Material	S.G.
P9	ϕ 74x45x28	PP	0.64
PI	ϕ 74x45x28	PP	0.96
R6	ϕ 72x118x28	SUS316	0.62
RF	ϕ 72x118x28	SUS316	0.95

LENGTH (UNIT : mm)

- 3000: 2501~3000mm
- 3500: 3001~3500mm
- 4000: 3501~4000mm
- 4500: 4001~4500mm

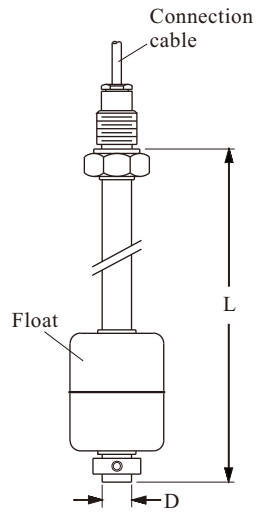
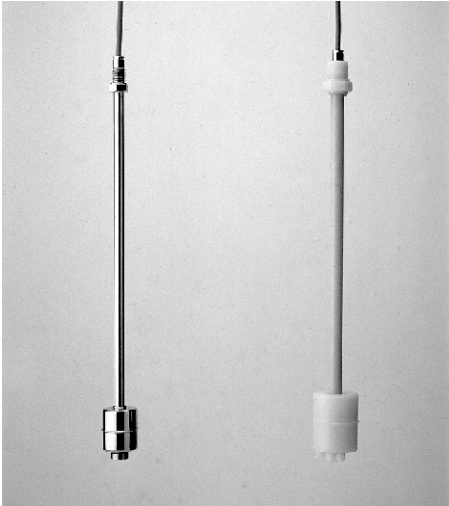
※More than 10m, replaced the first code in "A"

E.g.: A150=15m; A200=20m

OPTION

- ※ 0: N/A
- ※ Weight is along with this transmitter
- ※ Product length tolerance shall be \pm 5mm.
- ※ Features, specifications and dimensions will be changed if necessary.
- ※ If you request for further information, please contact us.

ECONOMICAL



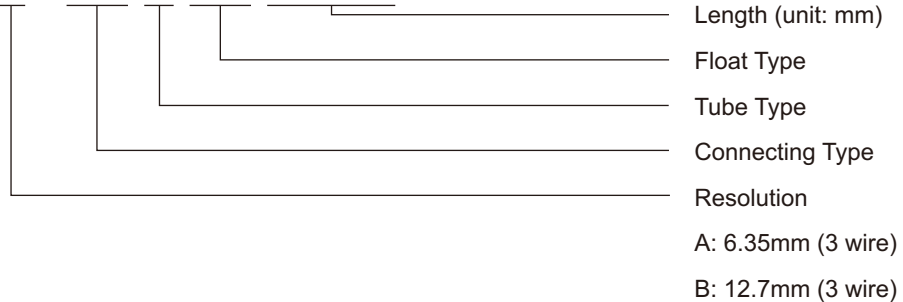
● SPECIFICATIONS

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

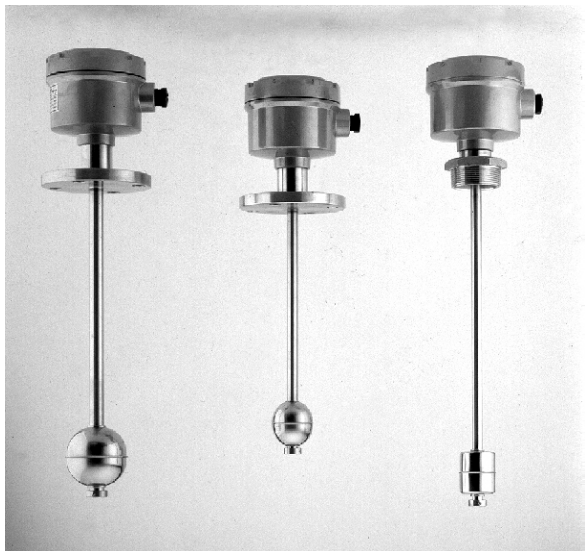
Operating Temp.: PP tube -10 °C ~ 80 °C
 PVDF tube -20 °C ~ 120 °C
 SUS tube -20 °C ~ 120 °C

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 S6: φ75x108	>0.61 >0.5	FGA...Max.6M FGB...Max.6M
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

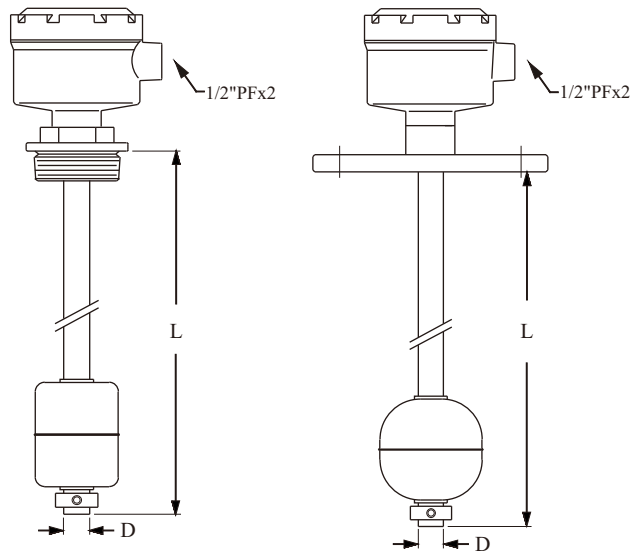
MODEL : FG □ - □ □ □ □ □ □ □ □



STANDARD



* B type housing, dimension see page 2.



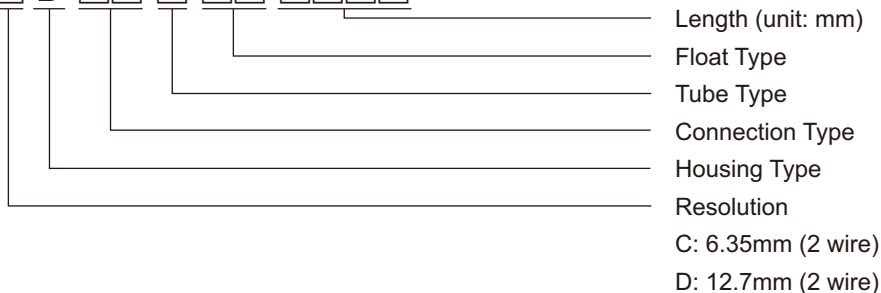
● SPECIFICATION

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

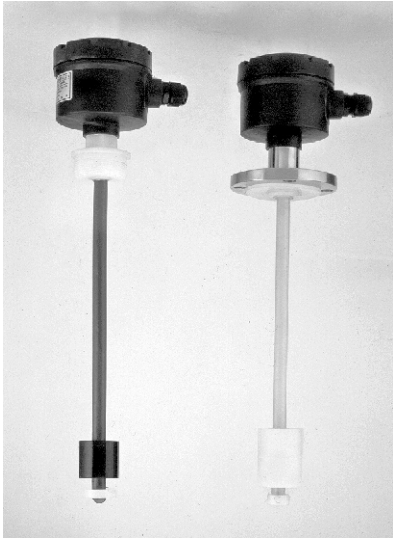
Operating Temperature: -20 ~ 120 °C
Ambient Temperature: 0~70 °C

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 S6: φ75x108 SUS 304	>0.61 >0.5	FGD...Max.6M
FGDBIQ7	4"PT	φ17.2 SUS 304	S8: φ100x100 SUS 304	>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

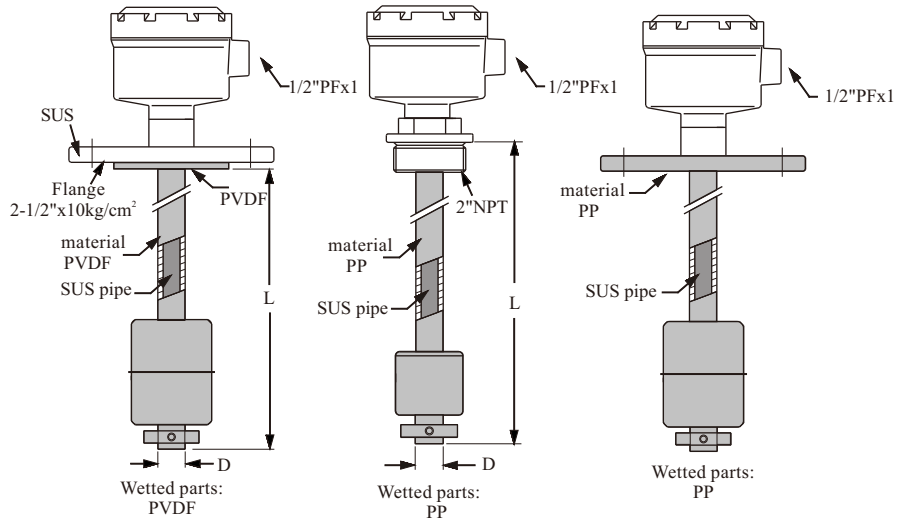
MODEL : FG□ B □ □ □ □ □ □ □ □



ANTI-CORROSIVE



★ C type housing, dimension see page 2.



● SPECIFICATIONS

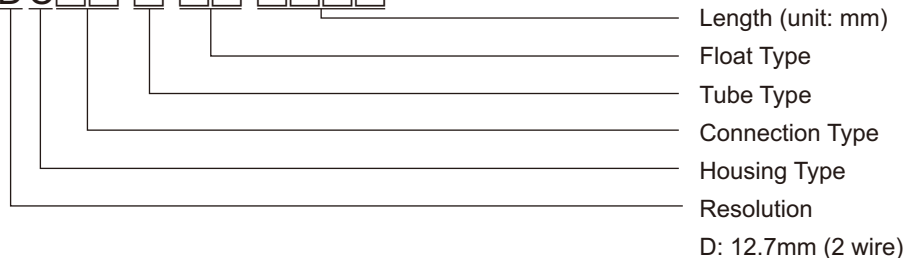
Terminal Housing: PP +Fiber, IP65
Output: 4~20mA, 2-wire
Ambient Temperature: 0~70 °C

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

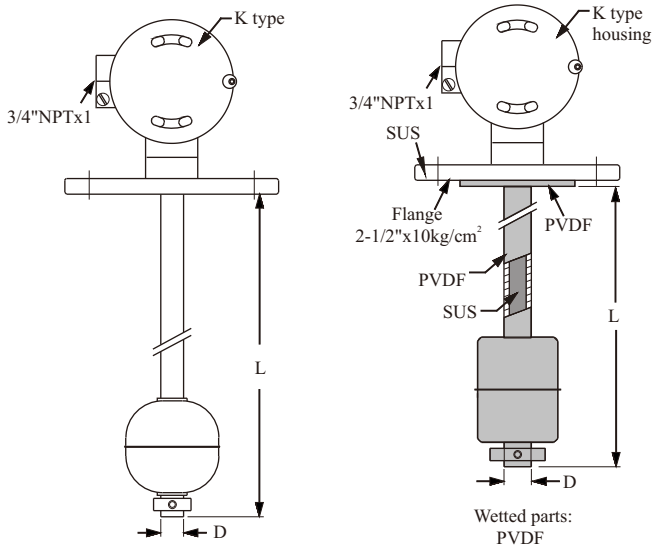
Order No.	Connecting	Tube size & Material (D)	Float type & Material	Suitable S.G.	Measuring Range
FGDCFQ5P3	2"PT	φ17.2 PP	P3: φ48x45 PP	>0.55	FGD...Max.6M
FGDCFQ6F4	2"PT	φ16 PVDF	F4: φ48x62 PVDF	>0.75	FGD...Max.6M
FGDCGN5P3	2-1/2"x10kg/cm²	φ17.2 PP	P3: φ48x45 PP	>0.6	FGD...Max.6M
FGDCGN6F4	2-1/2"x10kg/cm²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

MODEL : FG DC



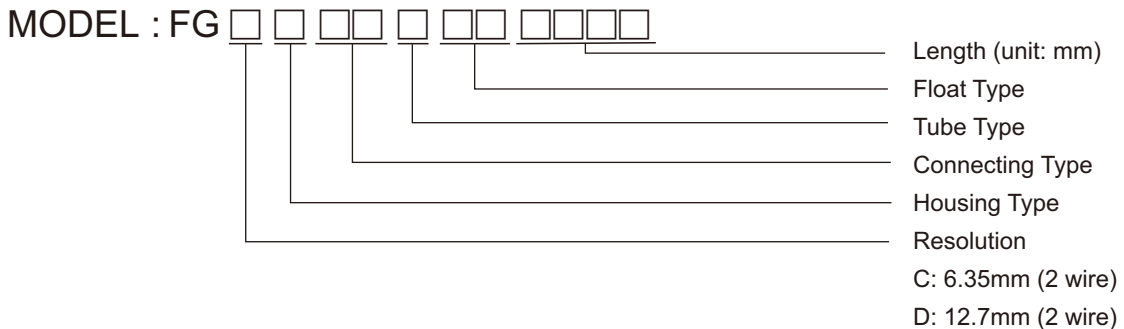
*K type ATEX Explosion proof enclosure can be selected (see p2).



● SPECIFICATION

Terminal Housing: K type — Aluminum, ATEX Ex d IIB T6 **Operating Temperature:** PP tube -10 ~ 80°C
Output: 4~20mA, 2-wire PVDF tube -20 ~ 120°C
Ambient Temperature: 0~70 °C SUS tube -20 ~ 120°C
Total resistance: 1MΩ (Max.)

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	>0.5	FGD...Max.6M
FGDKIQ4	4"PT	φ17.2 SUS 304	S8: φ100x100 SUS 304	>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



HOW TO ORDER

FG D C FQ 6 F1 1 5 0 0 (P)

RESOLUTION

- A : 6.35mm (3-wire)
- B : 12.7mm (3-wire)
- C : 6.35mm (2-wire)(4-20mA)
- D : 12.7mm (2-wire)(4-20mA)

TERMINAL HOUSING (see page 2)

- B : Aluminum - : None
- C : P.P S : Others
- D : Aluminum X : Aluminum
- E : AL.
- G : PC
- K : Aluminum
- N : SUS
- F : Aluminum

CONNECTION

Dimension		Specification	
A: 3/8" (10A)	H: 3" (80A)	M: 5 Kg/cm ²	Z :PN40
B: 1/2" (15A)	I : 4" (100A)	N:10 Kg/cm ²	Q: PT
C: 3/4" (20A)	J : 5" (125A)	O: 150 Lbs	R : PF(G)
D: 1" (25A)	K: 6" (150A)	P: 300 Lbs	T : BSP
E: 1 1/2" (40A)	4 : 7" (175A)	W:PN10	U : NPT
F: 2" (50A)	5 : 8" (200A)	X :PN16	V : GAS
G: 2 1/2" (65A)		Y :PN25	S : Others

※ Tri-Clamp 1-1/2"=ES; 2"=FS

TUBE TYPE & MATERIAL

- 0: φ12.7 (SUS304)*
- 4: φ14 (SUS304)
- 5: φ17.2 (P.P.)**
- 6: φ16 (PVDF)**
- 7: φ17.2 (SUS304)
- 8: φ21.7 (SUS304)
- 9: φ27.2 (SUS304)
- C: φ12.7 (SUS316)*
- B: φ14 (SUS316)
- D: φ17.2 (SUS316)
- E: φ21.7 (SUS316)
- F: φ27.2 (SUS316)

*Note 1: O&C only 12.7mm resolution is available

**Note 2: 5&6 when measuring range >500mm only 12.7mm resolution is available

FLOAT TYPE (see page 2)

Material	Type					
	P3	F4				
Plastic						
SUS	S3	S4	S5	S6	S8	S9

- : None

LENGTH (UNIT : mm)

- 0500: 500mm up ※ 500mm per Unit
- 1000: 501~1000mm
- 1500: 1001~1500mm

⋮

PIPE SHIELD

- ★ Product length tolerance shall be ±5mm.
- ★ Characteristics, specifications and dimensions are subject to change.

HOW TO ORDER

Order No. FG7 **D** **D** **FQ** **6** **F1** **1500** **(L)**

EXPLOSION PROOF _____

RESOLUTION _____

- A : 6.35mm (3-wire)
- B : 12.7mm (3-wire)
- C : 6.35mm (2-wire)(4-20mA)
- D : 12.7mm (2-wire)(4-20mA)

TERMINAL HOUSING (see page 2) _____

- D: AL
- N: SUS

CONNECTION _____

Dimension			Specification	
A : 3/8" (10A)	H : 3" (80A)		M: 5 Kg/cm ²	Z :PN40
B : 1/2" (15A)	I : 4" (100A)		N:10 Kg/cm ²	Q: PT
C : 3/4" (20A)	J : 5" (125A)		O:150 Lbs	R: PF(G)
D : 1" (25A)	K : 6" (150A)		P : 300 Lbs	T : BSP
E : 1 1/2" (40A)	4 : 7" (175A)		W:PN10	U: NPT
F : 2" (50A)	5 : 8" (200A)		X :PN16	V: GAS
G : 2 1/2" (65A)			Y :PN25	S: Others

TUBE TYPE & MATERIAL _____

- | | |
|------------------------|--------------------------|
| 0: ϕ 12.7 (SUS)* | C: ϕ 12.7 (SUS316)* |
| 4: ϕ 14 (SUS) | B: ϕ 14 (SUS316) |
| 5: ϕ 17.2 (P.P)** | D: ϕ 17.2 (SUS316) |
| 6: ϕ 16 (PVDF)** | E: ϕ 21.7 (SUS316) |
| 7: ϕ 17.2 (SUS) | F: ϕ 27.2 (SUS316) |
| 8: ϕ 21.7 (SUS) | |
| 9: ϕ 27.2 (SUS) | |

*Note 1: O&C only 12.7mm resolution is available

**Note 2: 5&6 when measuring range >500mm only 12.7mm resolution is available

FLOAT TYPE (see page 2) _____

Material	Type					
	Plastic	P3	F4			
SUS	S3	S4	S5	S6	S8	S9

LENGTH (UNIT : mm) _____

- 0500:** 500mm up
 - 1000:** 501~1000mm
 - 1500:** 1001~1500mm
 - ⋮
- ※ 500mm per Unit

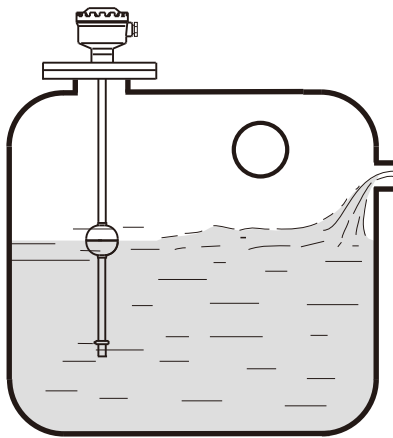
TAG _____

★ Product length tolerance shall be \pm 5mm.

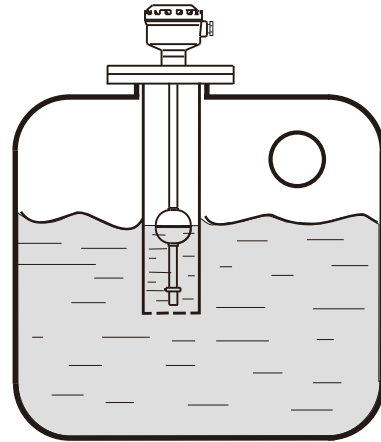
★ Characteristics, specifications and dimensions are subject to change.

INSTALLATION

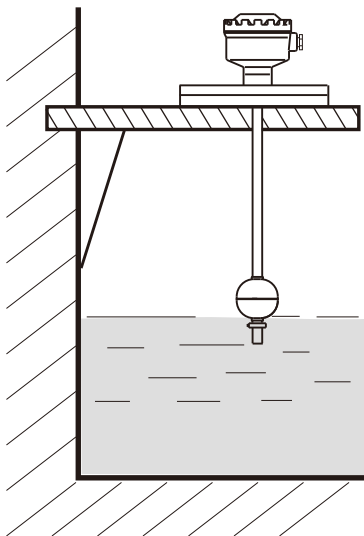
- ▶ The float level transmitter should be mounted far away from the inlet. Any rigorous liquid turbulence will produce error output signals.



- ▶ 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.

