



FC
FACTOCOMPONENTS
 INDUSTRIAL SUPPLIES AND MANUFACTURING EQUIPMENT

Magnetic Float Level Transmitter

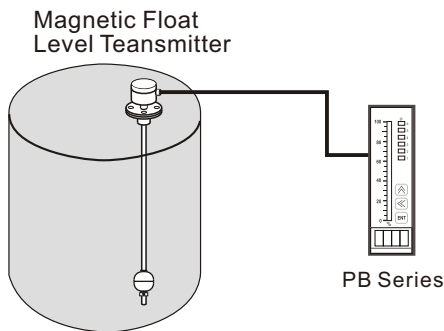


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INTRODUCTION

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, BV, LR, DNV.GL, CR available

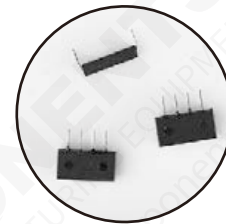


Fig.1
Sensing Element

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

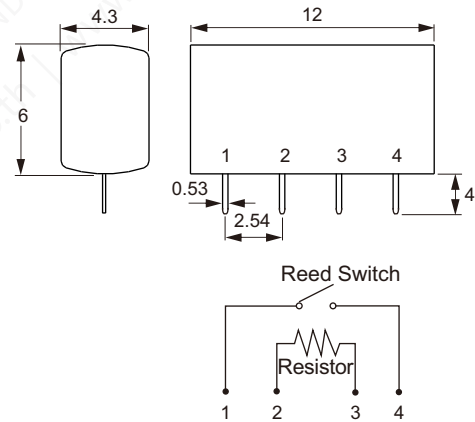
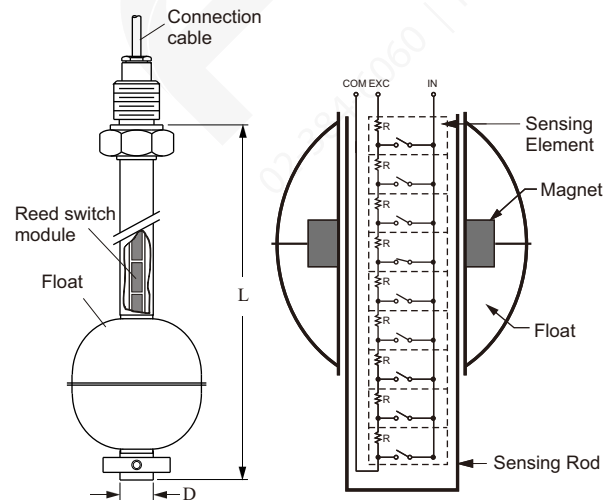


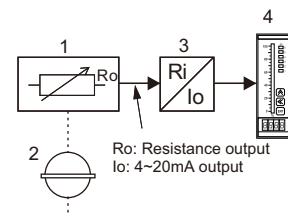
Fig.2
Sensing Element Size

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

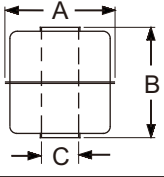
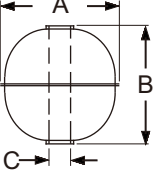
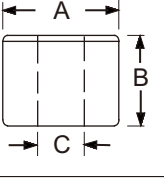
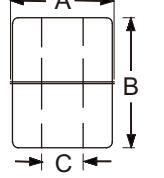
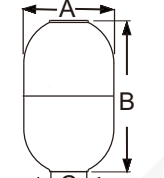
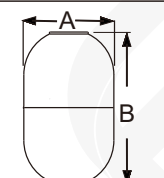
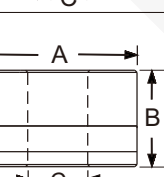
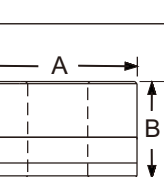
X

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

A

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

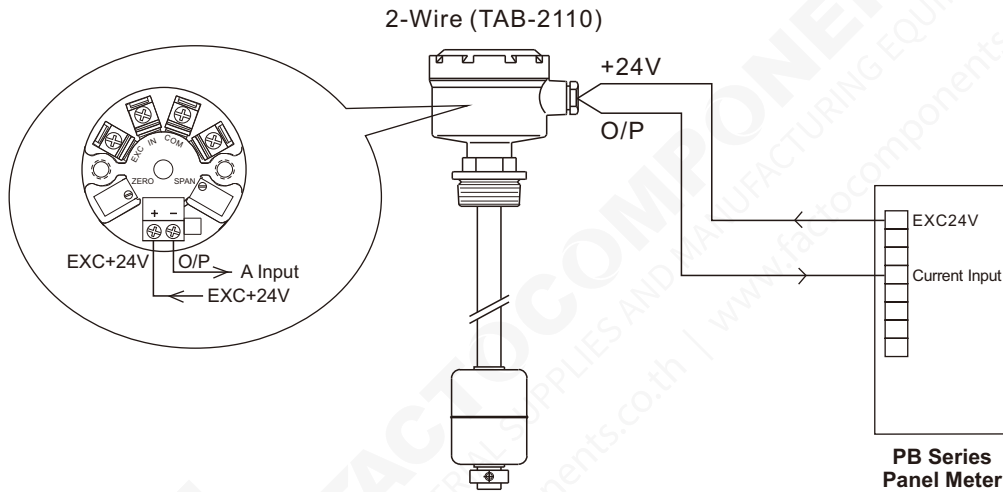
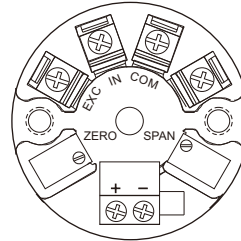
FLOAT SPECIFICATIONS

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

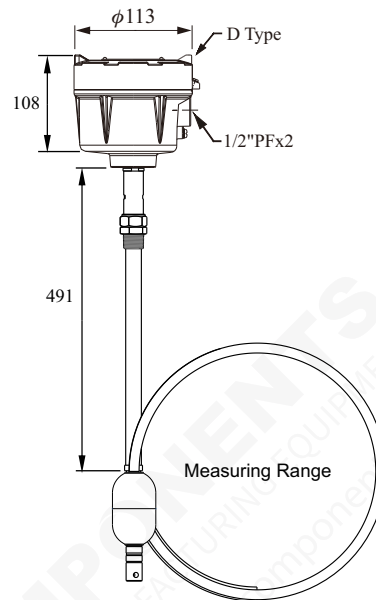
- Power Supply : 12~36Vdc
- Output Current : Loop power 4~20mA
- Load Resistance : $RL(\text{Max})=50(\text{Vs}-12)$
- Ambient Temperature : -40~80°C
- Ambient Humidity : 0~80% RH
- Accuracy : $\pm 0.1\%(25^\circ\text{C})$
- Temperature Effect : 0.01%F.S./°C
- Adjustment Range : Span Adjustment 20% FS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



FLEXIBLE MODEL DIGITALE DISPLAY TYPE / ECONOMICAL TYPE

MODEL: Flexible Magnetic Float Level Transmitter (Economical type)

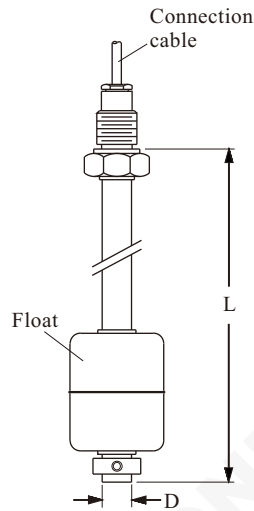
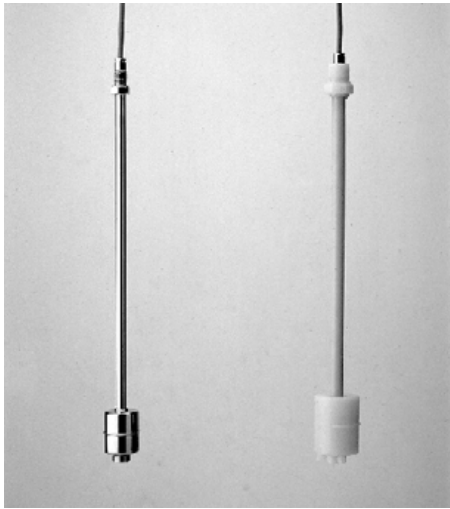
Power Supply	: 12~36Vdc
Measuring range	: 3000mm~30000mm
Analog output	: 4~20mA loop power
Resolution	: 12.7mm
Load impedance	: RL (Max.) = 50 (Vs-12)
Accuracy	: $\pm 0.1\%$ (25°C)
Ambient temp.	: -40~80°C
Operating temp.	: -40~80°C
IP rating	: IP65



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.

ECONOMICAL



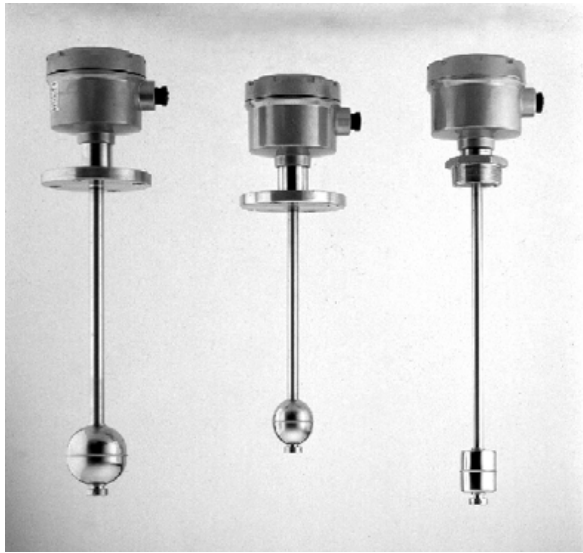
● SPECIFICATIONS

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

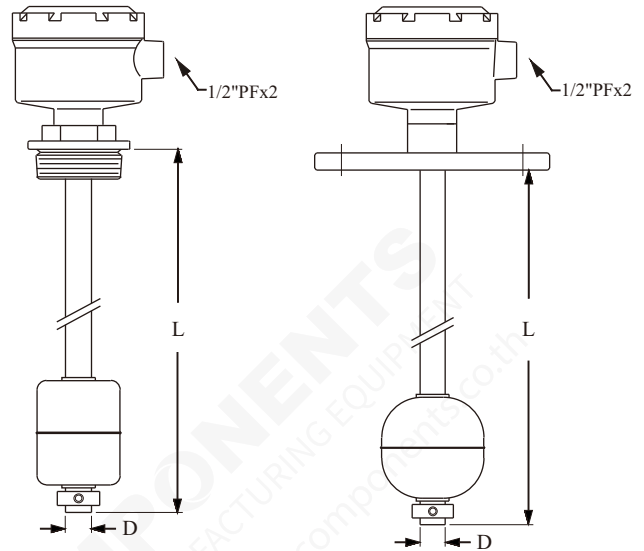
Operating Temp.: PP tube -10 °C ~ 80 °C
 PVDF tube -20 °C ~ 120 °C
 SUS tube -20 °C ~ 120 °C

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.)

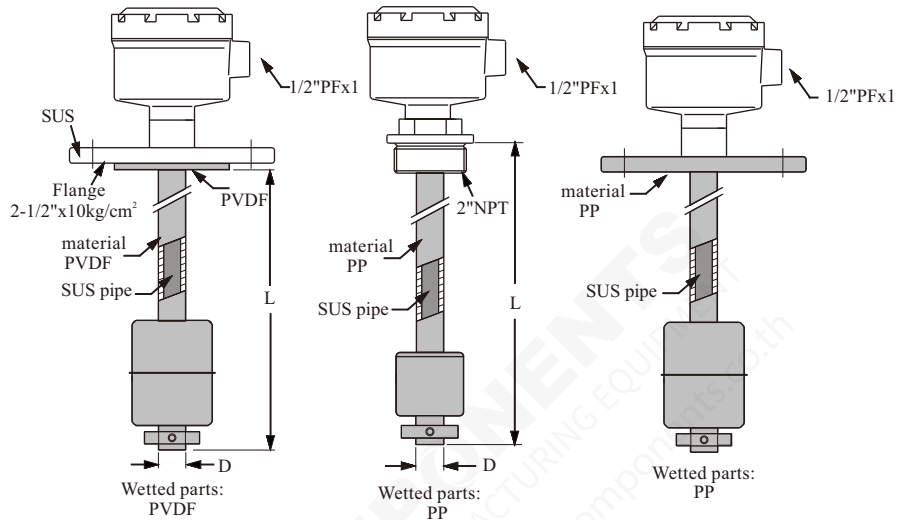
Operating Temperature: -20 ~ 120 °C
Ambient Temperature: 0 ~ 70 °C

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

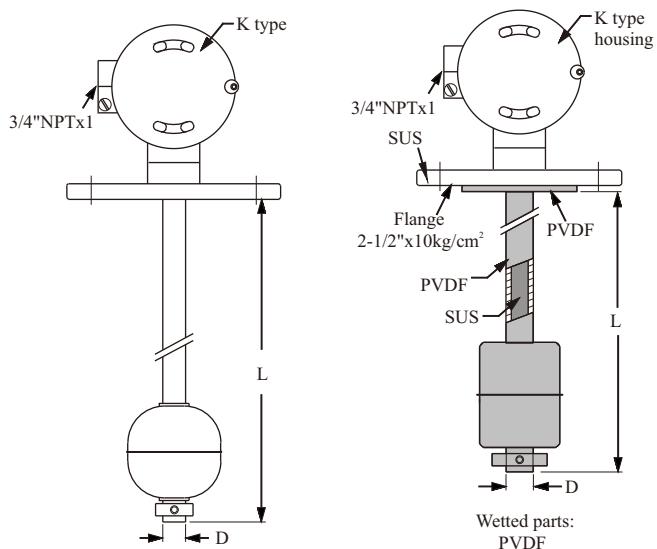
Terminal Housing: PP +Fiber, IP65
Output: 4 ~ 20mA, 2-wire
Ambient Temperature: 0~70 °C

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/cm ²	φ17.2 PP	P3: φ48x45 PP	>0.6	FGD...Max.6M
FGDCGN6F4	2-1/2"x10kg/cm ²	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).



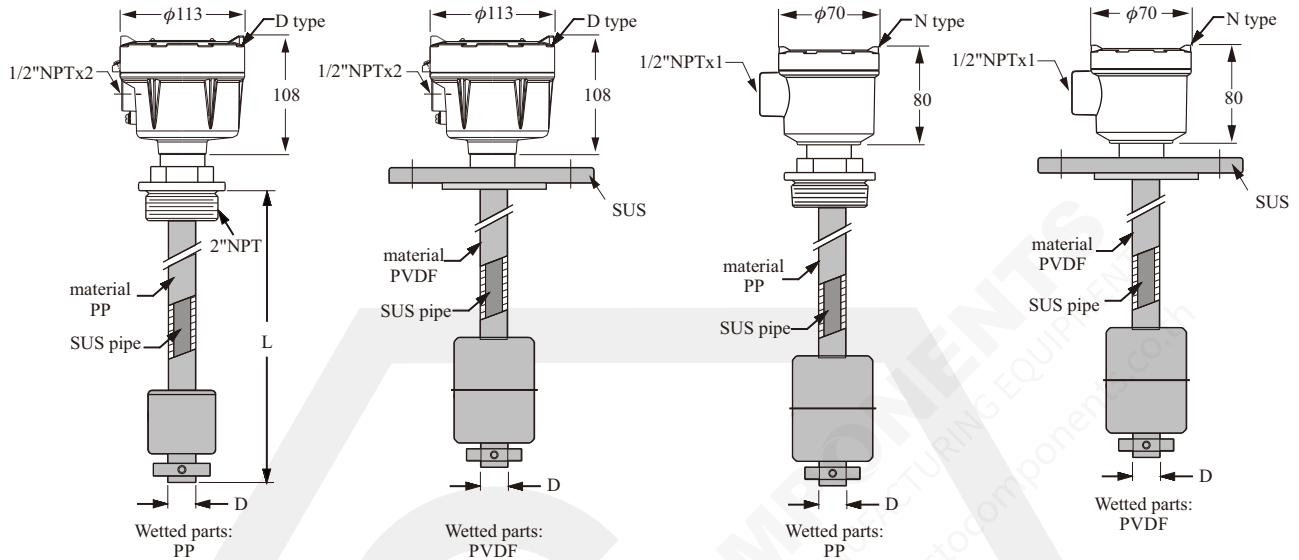
● SPECIFICATION

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

Ambient: 0~70 °C

Total Resistance: 1MΩ (Max.)

Operation Temperature: PP tube -10 ~ 80 °C
 PVDF 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 0 0 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

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

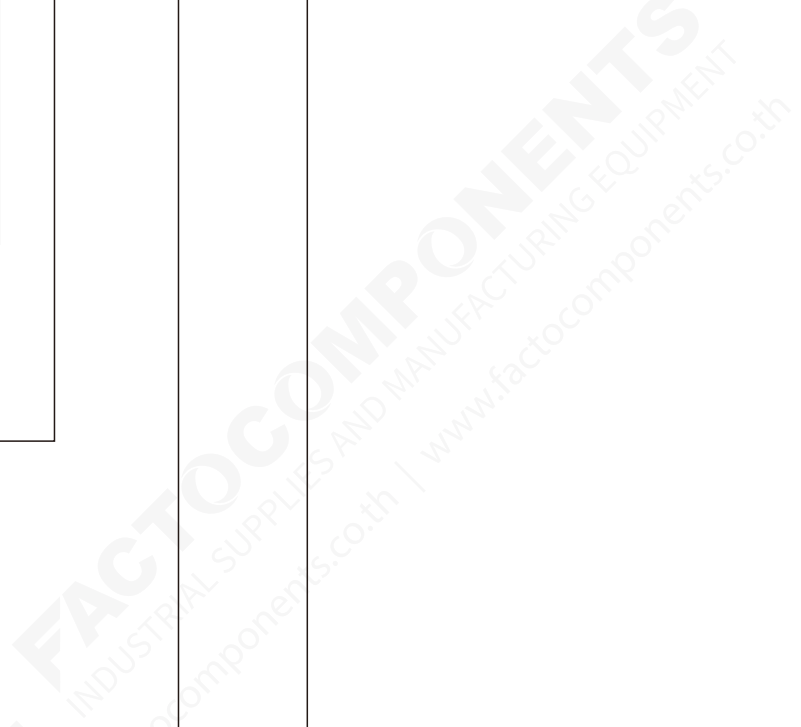
¹⁶ ¹⁷

- 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

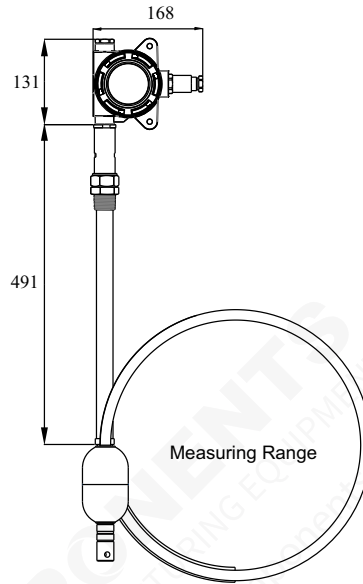
³⁰ ³¹ ³² ³³ **Length**

Code	Probe Length
0150~A300	150~30000mm

DISPLAY MODEL

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

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



FEATURE

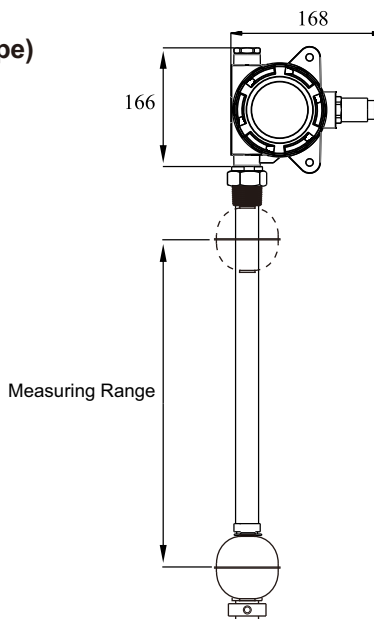
- Cover protection for reed module, to prevent any damage during transportation.
- Not effect by temperature and pressure variaion.
- Easy to record and set up with digital display.
- Easy to install, need not to do periodic calibration and maintenance.

EXPLOSION PROOF DISPLAY MODEL

NEPSI PROOF No.GYB16.1444X
 Ex d IIC T3~T6 Gb

MODEL: Explosion proof Magnetic Float Level Transmitter (Digital display type)

Power Supply: 12~36 Vdc
 Measuring range: 150mm~3000mm
 Analog output: 4~20mA, 2Wire(Loop power)
 Resolution: 6.35mm / 12.7mm
 Digital communication: HART/RS-485
 Ambient temp.: -40~85°C
 Operating temp.: -40~125°C
 IP rating: IP67



ORDER INFORMATION

FGX2 ⁰⁵ ⁰⁶ ⁰⁷ ⁰⁸ - ⁰⁹ ¹⁰ ¹¹ ¹² ¹³ ¹⁴ ¹⁵ ¹⁶ ¹⁷ ¹⁸ ¹⁹ ²⁰ ²¹ ²² ²³ ²⁴ 0 0 ²⁷ ²⁸ ²⁹ ³⁰ ³¹ ³² ³³

05 06 Model
00: Standar

07 08 Certification
00: None
7C: NEPSI-Exd

09 10 Probe type
A1: Rod type
A2: Flexible model
B1: Corrosion-proof rod type

11 Housing type
A: A type housing (Aluminum)

Connection

12 13	14 15	16 17
Flange	B2: 2"	01: PT male
AK: JIS-FF	B4: 2-1/2"	03: PF male
AN: ANSI-RF	B5: 3"	07: NPT male
AS: DIN-FF	B7: 4"	40: 5 kg/cm ²
	B8: 5"	42: 10 kg/cm ²
Thread	B9: 6"	48: 150 Lbs
AA: JIS	E2: DN50	49: 300 Lbs
AC: ANSI	E4: DN80	57: PN10
	E5: DN100	58: PN16

18 Resolution
C: 6.35mm
E: 12.7mm

19 20 Probe material
MA: SUS 304
MB: SUS 316
21: PTFE

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FGX2 ⁰⁵ ⁰⁶ ⁰⁷ ⁰⁸ ⁰⁹ ¹⁰ ¹¹ ¹² ¹³ ¹⁴ ¹⁵ ¹⁶ ¹⁷ ¹⁸ ¹⁹ ²⁰ ²¹ ²² ²³ ²⁴ 0 0 ²⁷ ²⁸ ²⁹ ³⁰ ³¹ ³² ³³

²¹ ²² **Probe diameter**

- 2A: ϕ 12.7mm
- 2B: ϕ 14.0mm
- 2C: ϕ 16.0mm
- 2D: ϕ 17.2mm
- 3B: ϕ 27.2mm

²³ ²⁴ **Float**

- S3: 45*55*15 E>0.65
- S4: 52*52*15 E>0.55
- S5: 75*73*20.5 E>0.65
- S6: 75*108*20 E>0.5
- S8: 100*100*20 E>0.5
- S9: 150*150*30 E>0.45
- F4: 48*62*18 E>0.75
- R6: 72*118*28 E>0.62
- P3: 48*45*18.5 E>0.6
- P9: 74*45*28 E>0.64

²⁷ **Analog output**

- B: 4~20mA
- C: 20~4mA

²⁸ **Digital output**

- O: None
- B: RS-485
- C: RS485 +PT100
- E: HART
- F: HART 7.3 +PT100

²⁹ **Material and surface roughness**

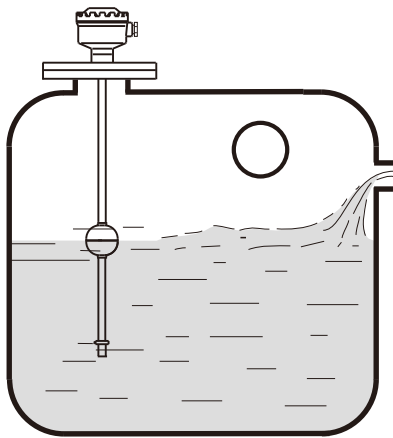
- O: None
- A: Ra < 0.3
- B: Ra < 0.5
- C: Ra < 0.8

³⁰ ³¹ ³² ³³ **Length**

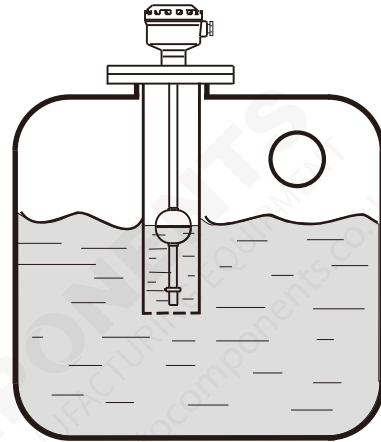
Code	Probe Length
0150~A300	150~30000mm

INSTALLATION

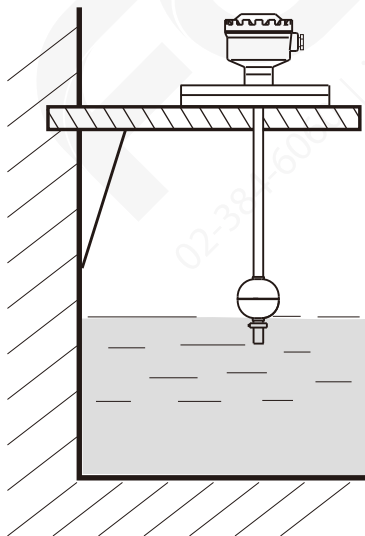
- ▶ The float level transmitter should be mounted far away from the inlet. Any rigorous liquid turbulence will produce error output signals.



- ▶ 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.

