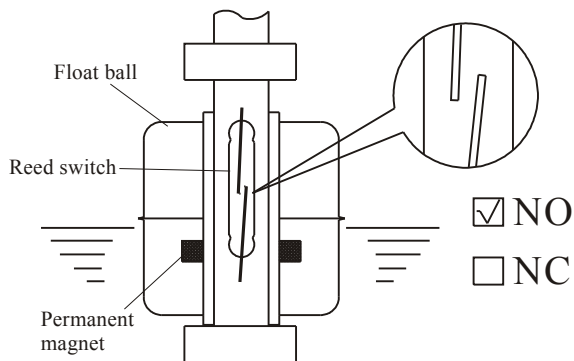


MAGNETIC FLOAT LEVEL SWITCH

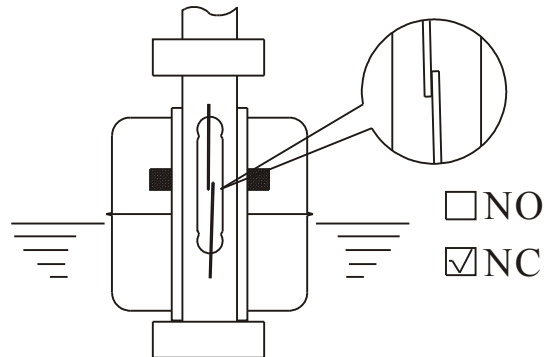
PRINCIPLE

The single unit or multiple reed switch units are housed tightly in stainless steel or engineering plastic stem, and the permanent magnet is sealed into the middle of the specified float ball(s). You can mount the float ball to penetrating through the stem, then the liquid buoyancy will deliver the float ball up and down at the specified position by graduating rings.

When the float internal magnet approaches the reed switch, it will actuate the reed switch contact point to create an open or close circuit. We can apply such on-off output signals to reach liquid level controlling and monitoring purpose. The figures below show the float orientations on N.O. (Normal Open) and N.C. (Normal Close).



Rising float ball to actuate the reed switch



Rising float ball to switch off.

FEATURES

- ★ Multiple points measuring, multiple level points are available for custom-built.
- ★ It is used the magnet to actuate the reed switch without any extra electric power source. Each reed switch is durable for operation life reaching 2 million times.
- ★ All output signal wiring are simplified in same junction box (housing) to economize the external wiring construction.
- ★ YFC(D) type magnetic float level switches are more economical in budget than other level switches by comparison in multiple points.
- ★ The housing protection rating up to IP65.
- ★ Rugged construction and multiple options for materials from engineering plastics as PVDF, PP, PVC, and stainless steels as SUS304, SUS316, float switches can be applied to versatile applications in chemical corrosion of acidity and alkalinity liquid, solvents or oil fuels.
- ★ The reed switch and lead wire are isolated absolutely with liquids. All stainless steel switches are applicable to high pressure and high temperature performances.

INTRODUCTION

APPLICATIONS

Shipbuilding Industry, Generator Facilities, Petrochemical Industry, Food/Beverage Industry, Waste Water/Water Purified Facilities, Electronic Industry, Dyeing And Finishing Industry, Chemical Industry, Rubber/ Plastic Industry, Hydraulic.

SPECIFICATION

Tube Type	Material	Switching Contact from	Switching Capacity Max.	Switching Voltage Max.	Switching Current Max.	Carry Current Max.
OD8	SUS	SPST	50W	300Vac/350Vdc	0.5A	2.5A
	PVC	SPDT	20W	150Vac/200Vdc	1A	2A
OD9.5	SUS	SPST	50W	300Vac/350Vdc	0.5A	2.5A
		SPDT	20W	150Vac/200Vdc	1A	2A
OD12.7	SUS	SPST	60W	220Vac/500Vdc	3A	4A
		SPDT	60W	400Vac/1000Vdc	1A	2A
OD16	PVDF	SPST	60W	220Vac/500Vdc	3A	4A
		SPDT	60W	400Vac/1000Vdc	1A	2A
OD17.2	PP	SPST	60W	220Vac/500Vdc	3A	4A
		SPDT	60W	400Vac/1000Vdc	1A	2A

APPLICATION FIELDS OF FLOAT

Environments Float	Working Temp.	Pressure Rating	Acid	Alkaline	Oil	Solvent
SUS304	- 20°C~120°C (200°C Max.)	10~ 30kg/cm ²	×	△	◎	◎
SUS316	- 20°C~120°C (200°C Max.)	10~ 30kg/cm ²	△	○	◎	◎
Polypropylene	-20°C~80°C	4kg/cm ²	○	○	○	×
PVDF	-20°C~120°C	3kg/cm ²	◎	◎	○	○

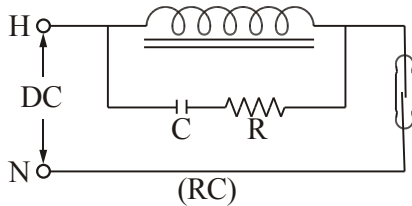
Note: ◎ = Excellent ○ = Good △ = Acceptable × =Not good

CONTACT PROTECTION CIRCUITS

INDUCTIVE LOADS

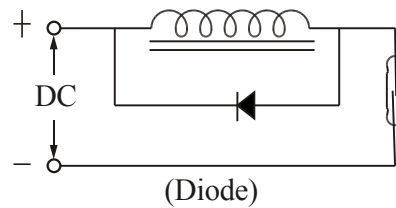
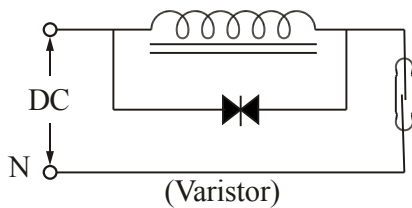
When using a reed switch with inductive loads such as motors, relays, solenoids, etc., the contact will be subjected to a high induced voltage during opening of the contact (load circuit).

Such high induced voltage (transients) may cause damages to the reed switch or significantly reduce its life. Therefore, protective circuits such as: RC (snubber), varistors or clamping diodes are recommended.



$$C = \frac{I^2}{10} (\mu F)$$

$$R = \frac{E}{10I(1 + \frac{50}{E})}$$

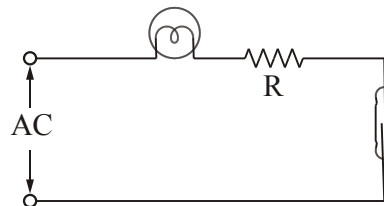
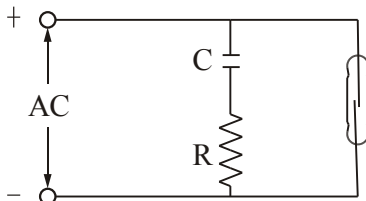


★ It is prohibited to connect directly with any solenoid valve, motor or magnetic switch.

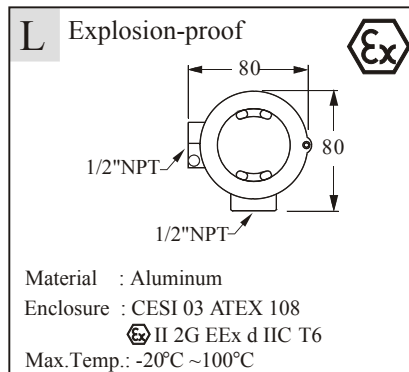
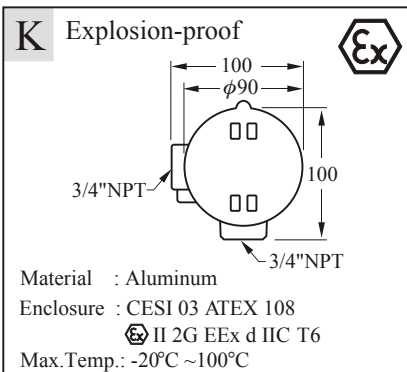
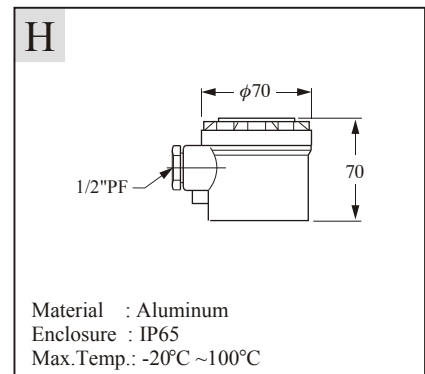
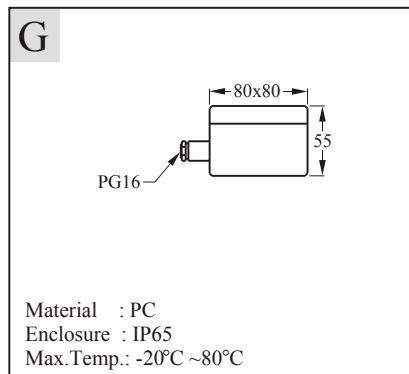
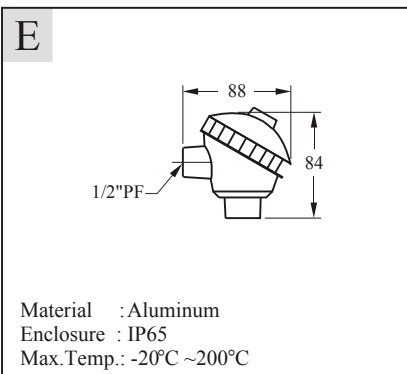
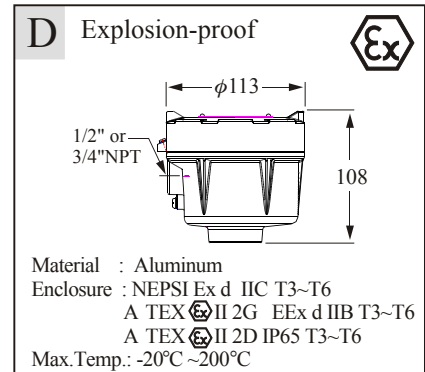
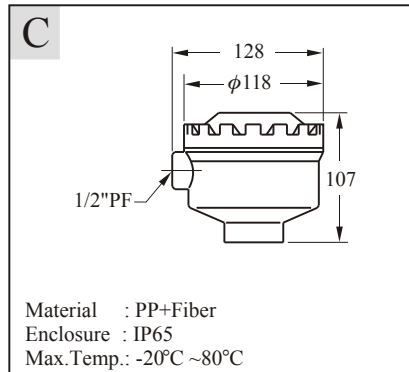
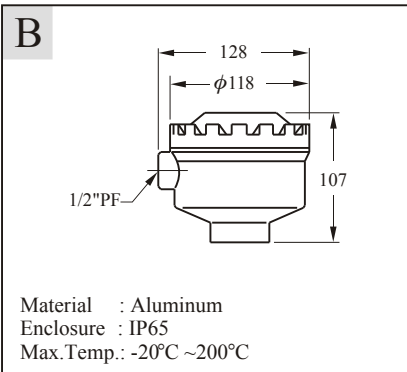
CAPACITIVE LOADS

When using a reed switch with capacitive loads such as capacitors, incandescent lamps or long cables, the contact will be subjected to a high surge (inrush) current.

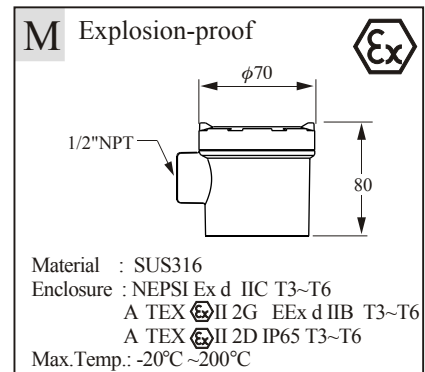
Therefore, protective circuits such as: surge suppressors or current limiting resistors are recommended.



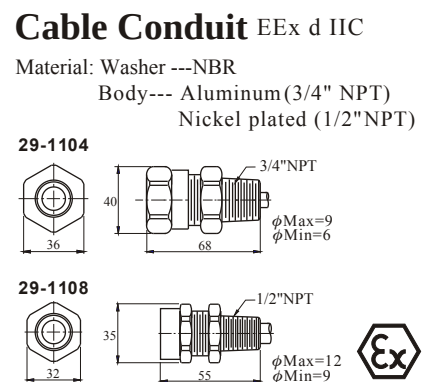
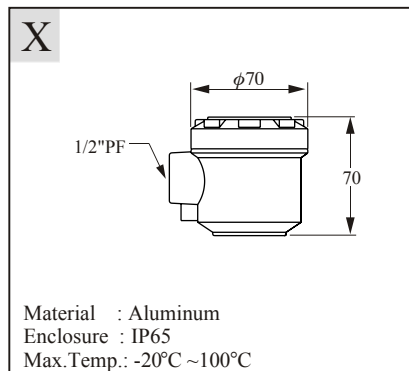
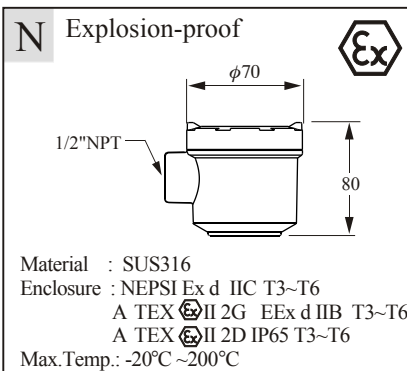
HOUSING SPECIFICATION



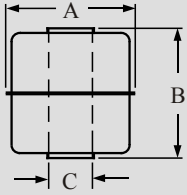
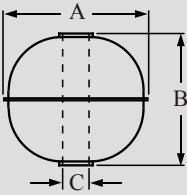
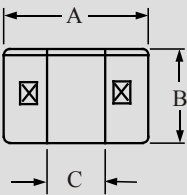
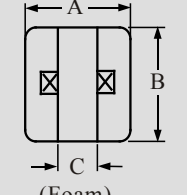
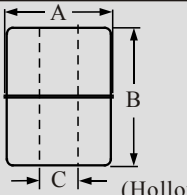
*Recommend for flow switch used



*Recommend for side float sw. used



FLOAT SPECIFICATIONS

MODEL	TYPE	$\phi A \times B \times \phi C$	S.G.	Max. Pressure (kg/cm ²)	Weight (g)	Material/Color	Max. Temp. (°C)
	S1	28 × 28 × 9.5	E>0.7	10	8	SUS 316	200
	S3	45 × 55 × 15	E>0.65	12	37.6	SUS 316	200
	S6	75 × 108 × 20	E>0.5	10	165	SUS 304	200
	S2	41 × 38 × 11	E>0.7	35	19.5	SUS 316	200
	S4	52 × 52 × 15	E>0.55	30	33.4	SUS 316	200
	S5	75 × 73 × 19	E>0.65	30	102.4	SUS 304	200
	S7	30 × 28 × 9.5	E>0.82	30	8	SUS 316	200
	S10	30 × 32 × 9.5	E>0.82	50	8.6	SUS 316	200
 (Hollow)	P1	25 × 15 × 10	E>0.65	4	3.5	PP / white black	80
	P2	25 × 25 × 10	E>0.55	4	5	PP / white black	80
	P3	48 × 45 × 18.5	E>0.6	5	35.5	PP / black	80
	P4	20 × 25 × 10	E>0.7	4	3.7	PP / black	80
 (Foam)	Q7	25 × 25 × 10	E>0.7	ATM	6.7	PP / white	80
	N1	25 × 15 × 10	E>0.5	ATM	2.7	NBR / black	100
	N2	18.5 × 26 × 10	E>0.7	ATM	3.3	NBR / black	100
	N3	19 × 20 × 10	E>0.55	ATM	2.4	NBR / black	100
	N4	17.5 × 25 × 10	E>0.65	ATM	2.5	NBR / black	100
	N5	30 × 45 × 12.8	E>0.5	ATM	11.5	NBR / black	100
 (Hollow)	F2	42 × 44 × 14	E>0.63	5	18.5	PP	80
	F3	45 × 45 × 20	E>0.65	5	35.7	PP	80
	F4	48 × 60 × 18	E>0.75	5	65.3	PVDF	120

ORDER SPECIFIED

THE PROPERTIES BETWEEN LIQUID AND FLOAT

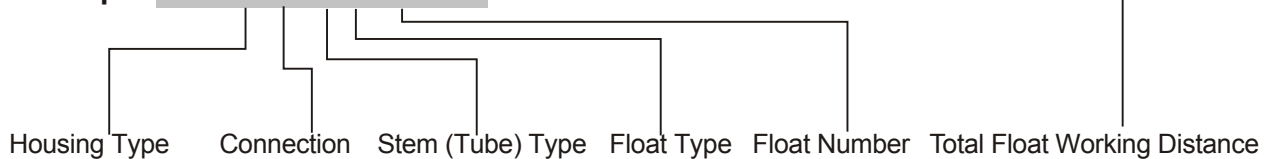
Please choose the proper float subject to above independent specified terms and chemical characters.

- 1. Temperature:** PVDF Max. 120°C,
PPMax. 80°C,
SUS304/ 316 Max. 200°C
- 2. Pressure:** SUS304/ 316 Float, Max. 35kg/cm²
Engineering plastic, Max. 5kg/cm²
- 3. Viscosity:** Please choose smaller S.G. with
greater diameter floats to cope with
high viscosity liquid applications.
- 4. Chemical:** Please use plastic float for acid/
alkaline corrosion of chemical
applications. PVDF float is noted
for high temperature cases.
- 5. Benzine:** Please choose stainless steel floats
to apply in any gasoline, fuel oil,
petroleum application.
- 6. S.G.:** The float S.G. Must be smaller than the
liquid, otherwise, the liquid buoyancy
can not deliver the float upward.

The magnetic level switch can be done as per customer's specified technical data such as the flange, thread, housing, float ball diameter, float ball number, the float traveling up or down actuated position by N.C. or N.O. output, the total float working distance (L) or each

independent float actuating position, please refer the order information to define the application specifications. A single ball driving multiple actuated points is available to apply on the order form.

Example: YFD B HM 7 S6 3 0405



It is requested the minimum interval for a single ball driving dual actuated positions (D) or neighboring two balls (B), or from the bottom to the lowest ball interval (C) or from the mounting position to the first ball (A), otherwise, there will be some magnetic mutually interference involved by insufficient interval. To ensure the defined distance, please see the data below:

A= Minimum distance from the mounting position to the highest actuation level.

B= Minimum distance between any two actuation levels.

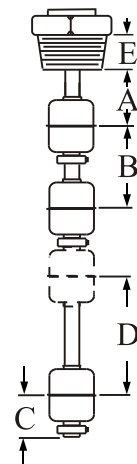
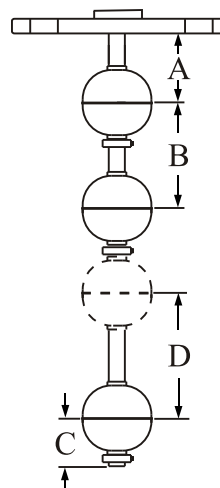
C= Minimum distance from end of the lowest level.

D= Minimum distance between two actuation levels by one float.

E= Screw length

FLOAT TYPE	S1	S2	S3	S4	S5	S6	P1	P2	P3	F4
A(mm)	25	32	40	39	50	70	23	27	47	55
B(mm)	50	64	82	78	99	136	44	55	85	98
C(mm)	25	32	40	39	50	70	23	31	43	50
D(mm)	30	40	55	50	65	70	30	30	45	65

SCREW	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"
(E) (mm)	14	16	19	22	22	25	28	32



HOW TO MAKE YOUR ORDER

YF D B (HM) 7 S6 3 0500 A (T)

T: Test Rog
 P: Pipe Shield

Contact Form

A: SPST C: SPDT F: 1 float 2 points
 G: 1 float 3 points -: No contact

Length: mm (total)

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

Quantity of float

Float Type (see page 7)

P1, P2, P3, P4
 F2, F3, F4
 S1, S2, S3, S4, S5, S6, S7, S0(S10)
 Q7, N1, N2, N3, N4, N5

Stem

Code size	Material	Code size	Material	Code size	Material
0: ϕ 8	PP	6: ϕ 16	PVDF	A: ϕ 8	SUS316
1: ϕ 8	SUS304	7: ϕ 17.2	SUS304	B: ϕ 9.5	SUS316
2: ϕ 8	PVC	8: ϕ 12.7	P.P.	C: ϕ 12.7	SUS316
3: ϕ 9.5	SUS304	9: ϕ 12.7	PVC	D: ϕ 17.2	SUS316
4: ϕ 12.7	SUS304			E: ϕ 8	PFA
5: ϕ 17.2	P.P.			S: Other Materials	

Connection Type

Housing Type

B: AL. (Big space) IP65
 C: PP (Anti-acidity) IP65
 D: Aluminum Ex d IIC T4
 E: AL. (Small space) IP65
 G: PC (Anti-acidity) IP65
 K: AL. (Explosion-proof)
 EEx d IIC T6
 H: Aluminum(IP65)
 N: SUS304 or SUS316
 Ex d IIC T4
 -: Without housing
 2: Side Mounting

C: Plastic (Stem)

D: Metal (Stem)

※Certified by GL, ABS Marine grade
 are available. (Please see page 17)

Size for flange or screw

A: 3/8" (10A)
 B: 1/2" (15A)
 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
 1: 1/8"
 2: 1/4"
 3: 1-1/4" (32A)

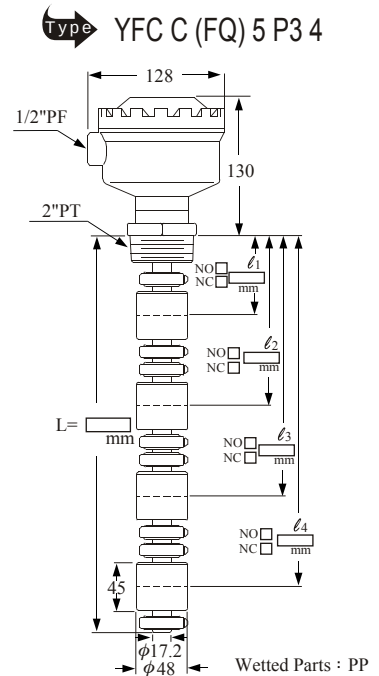
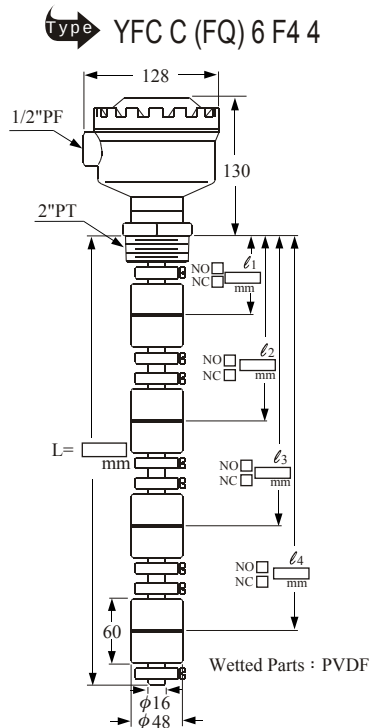
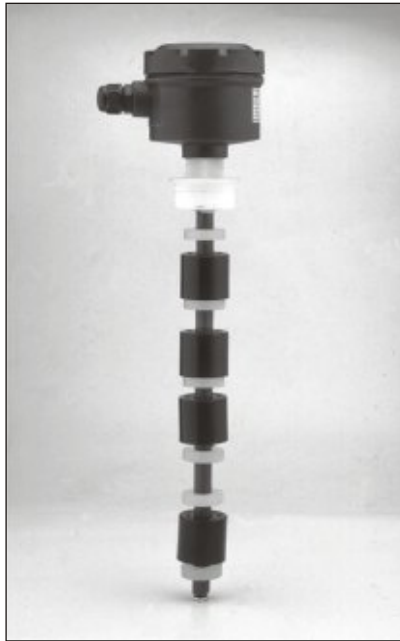
Pressure range or other

M: 5kg/cm² JIS
 N: 10kg/cm² JIS
 O: 150Lbs ANSI
 P: 300Lbs ANSI
 Q: PT
 R: PF (G)
 T: BSP (DIN)
 U: NPT
 S: Others
 W: PN10 (10Bar)
 X: PN16 (16Bar)
 Y: PN25 (25Bar)
 Z: PN40 (40Bar)
 J: Adjustment screw
 K: Adjustment flange
 A: PT (nut type)
 B: PF (nut type)
 C: BSP (nut type)
 U: NPT(nut type)

※Tri-Clamp (Screw Size+S) ex. 1-1/2"=ES;2"=FS

ANTI-CORROSION SCREW / FLANGE TYPE

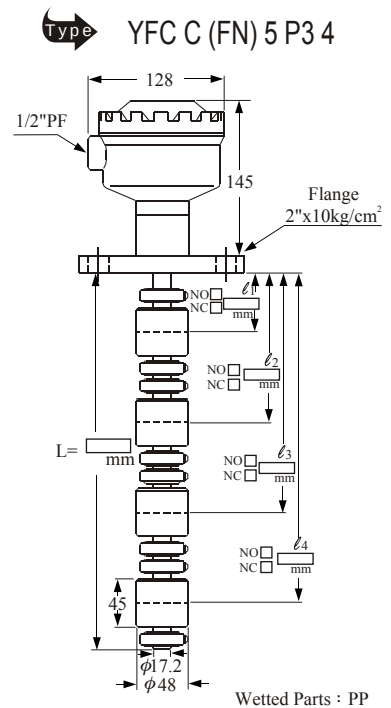
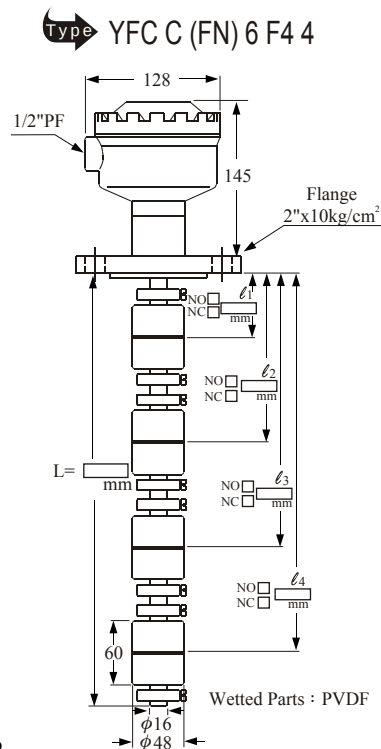
Housing material apply by PP, wet portion material options in PP, PVDF, specially applicable for chemical applications against corrosive environments.



Order information

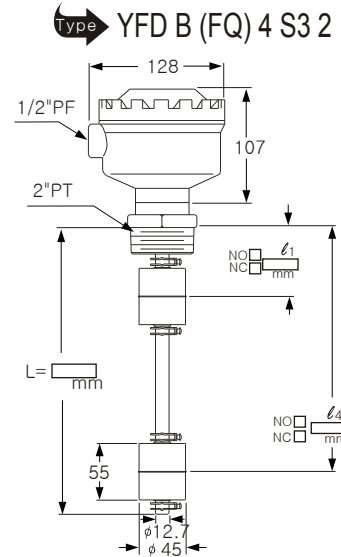
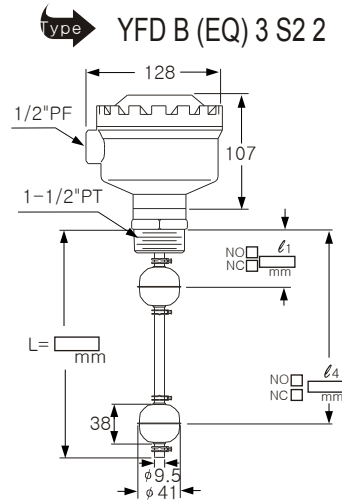
Type	Housing Type			
YFC	C	(FQ)	6	F1 4
Connection Flanges	Pipe Diameter	Float Type	Float Quantity	
FQ=2" PT	6= $\phi 16$	F4=PVDF $\phi 48 \times 60$	1~4	
FQ=2" PT	5= $\phi 17.2$	P3=PP $\phi 48 \times 45$	1~4	
FN=2" 10kg/cm ²	6= $\phi 16$	F4=PVDF $\phi 48 \times 60$	1~4	
FN=2" 10kg/cm ²	5= $\phi 17.2$	P3=PP $\phi 48 \times 45$	1~4	

※ YFCC(FQ) & (FN)2" flange/thread are available, too.

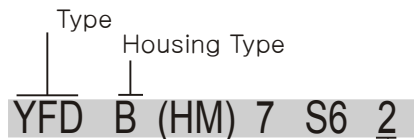


STANDARD FLANGE TYPE

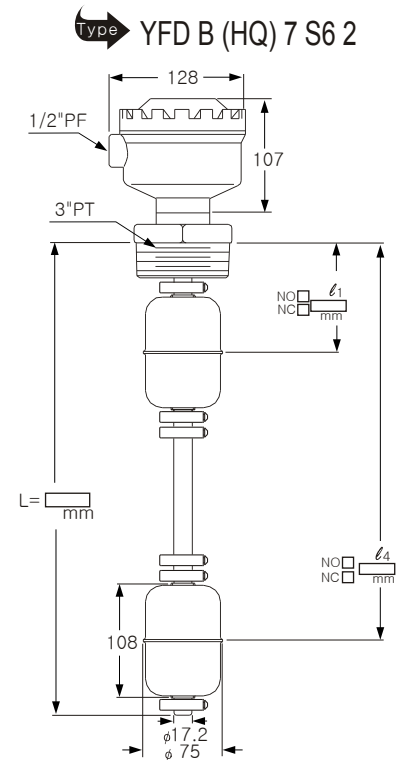
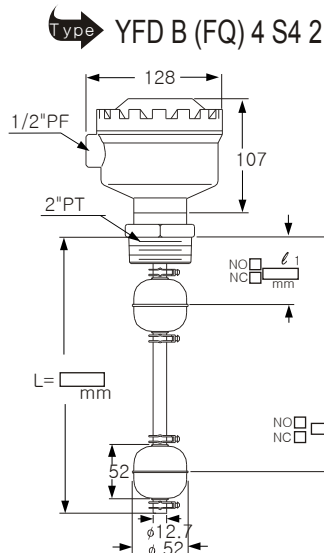
The housing complies with the IP65 rating and can therefore be used in outdoor environment.



Order information

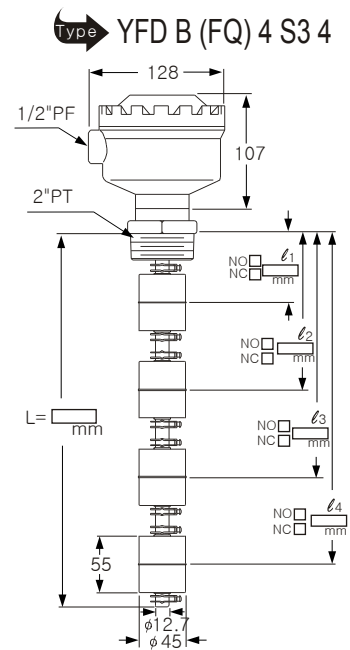
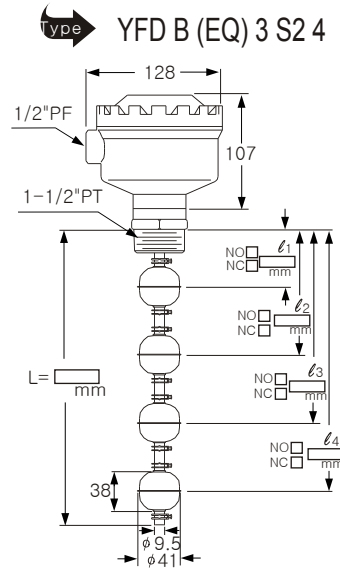


Connection Flanges	Pipe Diameter	Float Type	Float Quantity
EM=1-1/2" 5kg/cm ²	3=φ9.5	S2= φ41x38	1~ 4
FM=2" 5kg/cm ²	4=φ12.7	S3= φ45x55	1~ 4
FM=2" 5kg/cm ²	4=φ12.7	S4= φ52x52	1~ 4
HM=3" 5kg/cm ²	7=φ17.2	S6= φ75x108	1~ 4



STANDARD FLANGE TYPE

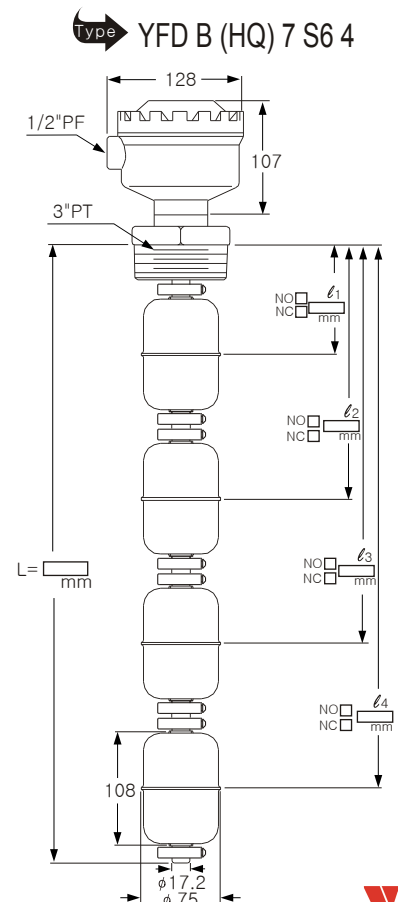
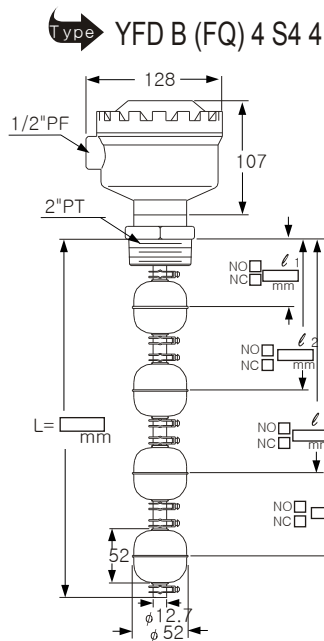
The housing complies with the IP65 rating and can therefore be used in outdoor environment.



Order information

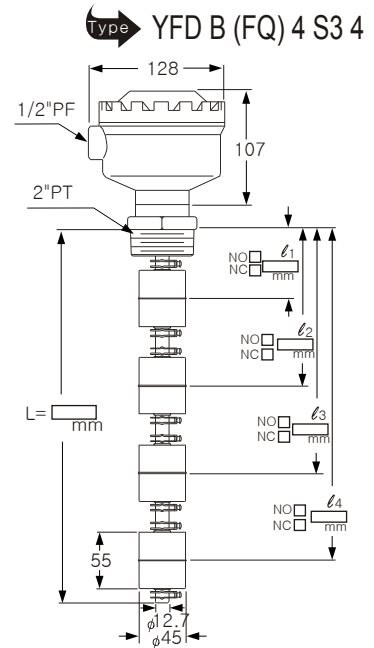
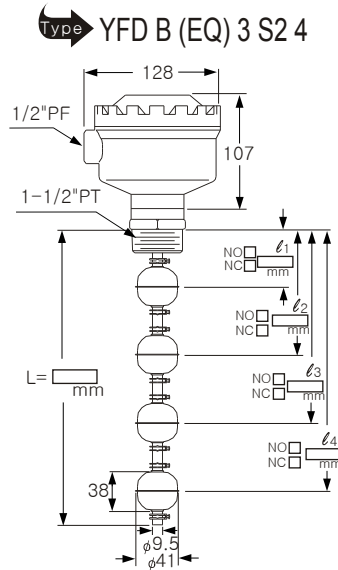
Type Housing Type
YFD B (HM) 7 S6 4

Connection Flanges	Pipe Diameter	Float Type	Float Quantity
EM=1-1/2" 5kg/cm ²	3=φ9.5	S2= φ41x38	1~ 4
FM=2" 5kg/cm ²	4=φ12.7	S3= φ45x55	1~ 4
FM=2" 5kg/cm ²	4=φ12.7	S4= φ52x52	1~ 4
HM=3" 5kg/cm ²	7=φ17.2	S6= φ75x108	1~ 4



STANDARD SCREW TYPE

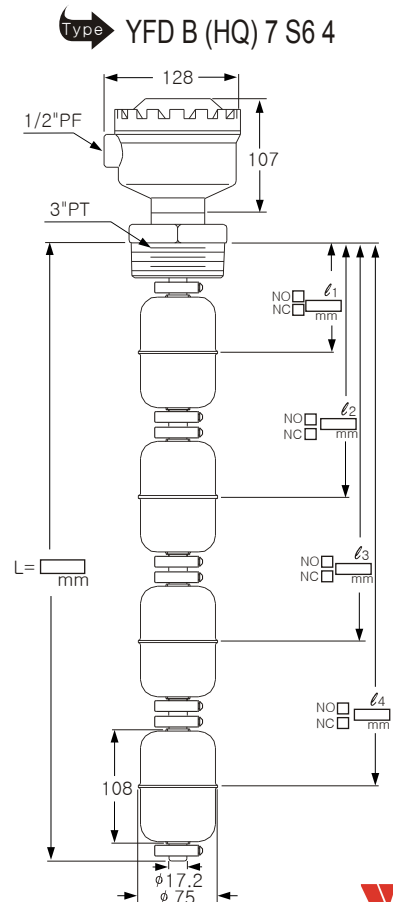
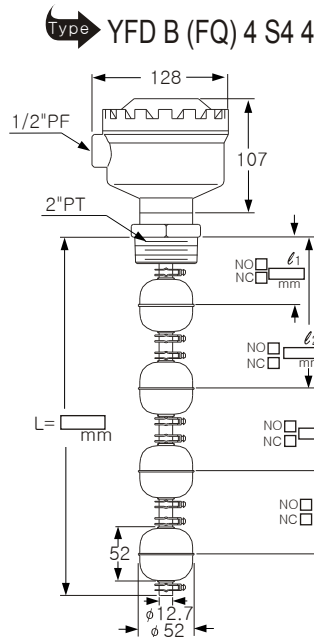
The housing complies with the IP65 rating and can therefore be used in outdoor environment.



Order information

Type Housing Type
YFD B (HQ) 7 S6 4

Connection Flanges	Pipe Diameter	Float Type	Float Quantity
EQ=1-1/2" PT	3= $\phi 9.5$	S2= $\phi 41 \times 38$	1 ~ 4
FQ=2" PT	4= $\phi 12.7$	S3= $\phi 45 \times 55$	1 ~ 4
FQ=2" PT	4= $\phi 12.7$	S4= $\phi 52 \times 52$	1 ~ 4
HQ=3" PT	7= $\phi 17.2$	S6= $\phi 75 \times 108$	1 ~ 4



VERTICAL ADJUSTMENT TYPE

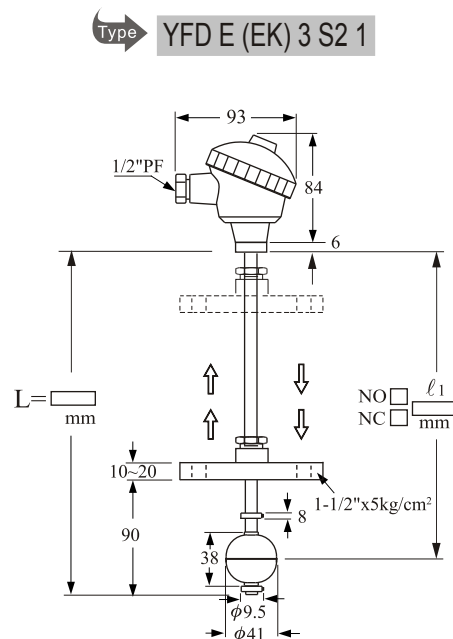
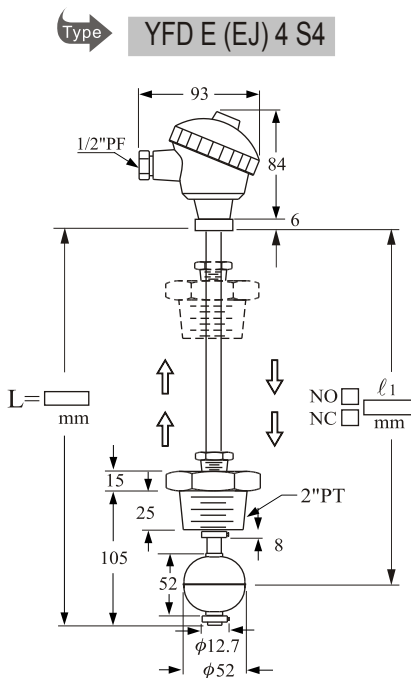
This is a special design for some liquid applications requiring monitoring different actuation levels frequently. The user needs only to loose the hexagon nut, then remove the mounted screw/ flange up or down to achieve the actuated level position adjustment.

* Applicable at tank interior pressure under 5 kg/cm^2 .

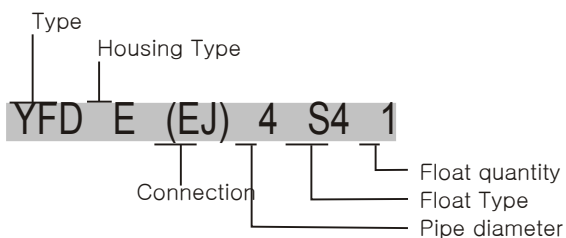
* Standard specification 80°C , special order of max. 200°C available.

* Switch contact: 20W/150Vac /250Vdc SPDT
50W/300Vac /350Vdc SPST
60W/220Vac /500Vdc SPST
60W/400Vac /1000Vdc SPDT

* Customer specified flange/ screw acceptable.



Order information



Connection	Pipe Diameter	Float Type
EJ=1-1/2" PT	3=φ9.5	S2= φ41x38
FJ=2" PT	4=φ12.7	S4= φ52x52
EK=1-1/2" 5kg/cm ²	3=φ9.5	S2= φ41x38

* Please specify the ℓ_1 while placing an order
(Length from lower end of housing to centerline of float ball)

HOW TO MAKE YOUR ORDER

YF **D** 7 **D** **HM** 7 **S** 6 3 **0500** **A** (**L** **T**)

T: Test Rog

Tag

Contact Form

A: SPST C: SPDT

F: 1 float 2 points G: 1 float 3 points

Length: mm (total)

0500: 50cm (01~50) ※ 50cm per Unit

1000: 100cm (51~100)

1500: 150cm (101~150)

Quantity of float

Float Type (see page 7)

P1, P2, P3, P4

F2, F3, F4

S1, S2, S3, S4, S5, S6, S7

Stem

Code size	Material	Code size	Material	Code size	Material
0: ϕ 8	PP	6: ϕ 16	PVDF	A: ϕ 8	SUS316
1: ϕ 8	SUS304	7: ϕ 17.2	SUS304	B: ϕ 9.5	SUS316
2: ϕ 8	PVC	8: ϕ 12.7	P.P.	C: ϕ 12.7	SUS316
3: ϕ 9.5	SUS304	9: ϕ 12.7	PVC	D: ϕ 17.2	SUS316
4: ϕ 12.7	SUS304				
5: ϕ 17.2	P.P.				

Connection Type

Housing Type

D: Aluminum (Explosion-proof)
EEx IIC T3~T6

N: SUS304 or SUS316
(Explosion-proof)
EEx IIC T3~T6

Size for flange or screw		Pressure range or other
A: 3/8" (10A)	I: 4"(100A)	M: 5kg/cm ² JIS
B: 1/2" (15A)	J: 5"(125A)	N: 10kg/cm ² JIS
C: 3/4" (20A)	K: 6"(150A)	O: 150Lbs ANSI
D: 1" (25A)	S: Others	P: 300Lbs ANSI
E: 1-1/2"(40A)	1: 1/8"	Q: PT
F: 2" (50A)	2: 1/4"	R: PF (G)
G: 2-1/2"(65A)	3: 1-1/4"(32A)	T: BSP
H: 3" (80A)		U: NPT
		S: Others
		W: PN10 (10Bar)
		X: PN16 (16Bar)
		Y: PN25 (25Bar)
		Z: PN40 (40Bar)
		J: Adjustment screw
		K: Adjustment flange

YFC: Plastic (Stem)

YFD: Metal (Stem)

※Certified by GL, ABS Marine grade
are available. (Please see page 17)