

■ INTRODUCTION

Since technologies of the product have more and more advance, the products need comply with a requirement for more safe, convenient and low cost.

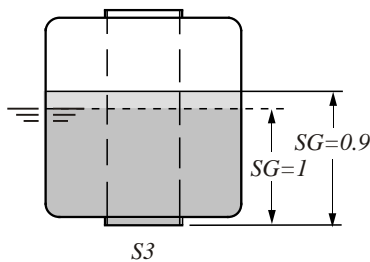
The float switches are extremely compact, simple and are easy to install on any small space. These switches are not effected by electrical interference. They can withstand to chemicals, high temperatures and pressures if the correct material of float switch is selected by the customers.

■ LIQUID PROPERTIES AND FLOATS

When the liquid specific gravity is less or more than the water, the float on the switch will either increase or decrease the immersion depth. The switch actuation level will also change.

All actuation levels are assumed with the water (SG=1). If your liquid has a different specific gravity, you should not specify the float specific gravity more than liquid, that will not cause the float rise with the liquid level. The reed switch inside the stationary stem will not be activated by the magnet inside the float.

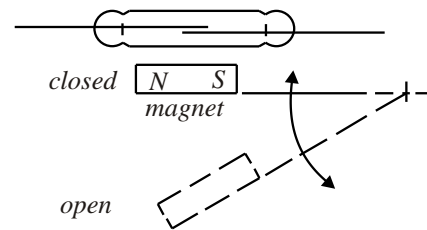
If your liquid has a high viscosity, you should specify largest size float that will provide a greatest buoyant force to ensure the units operate normally. Because the float switches are activated by the magnetic field of permanent magnet inside the float, make sure the liquid is no iron powder or magnetic material to avoid magnetic interference.



(Fig. 3)

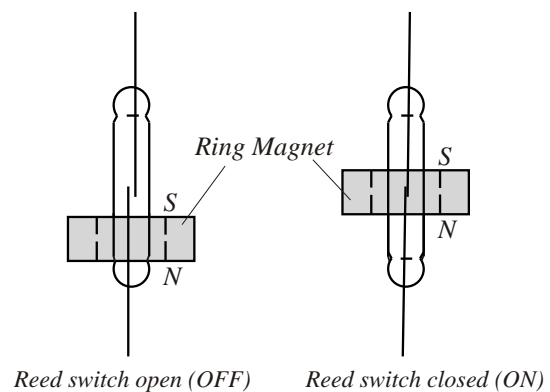
■ PRINCIPLE

Fig. 1 illustrates the method of pivot actuation (such as the FCH TYPE float switches). When the magnetic field of permanent magnet inside the float is moved into to the proximity of the reed switch inside the stationary stem, the reed switch "snaps" the contact together and closes the electrical circuit. When the magnetic field is moved away from the reed switch, the reed switch does not touch. The circuit is open.



(Fig. 1)

Fig. 2 illustrates the method of perpendicular actuation (such as the FC V TYPE float switches). When the magnetic field of ring magnet inside the float is moved into the proximity of reed switch inside the stationary stem, the reed switch "snaps" the contact together and closes the electrical circuit. When the magnetic field is moved away from the reed switch, the reed switch does not touch. The circuit is open.



(Fig. 2)

# CHEMICAL RESISTANCE

● Excellent ○ Good △ Fair × Corroded

Chemical	Concentration %	Temp		Plastic				Rubber Stainless		
		°C	°F	PVC	PP	PVDF	PTFE	NBR	304	316
Ammonia Water NH <sub>4</sub> OH	10	40	104	●	●	●	●	○		
	10	80	176		○	●	●			
Aque Regia 3HCl+HNO <sub>3</sub>	10	40	104	△	△	●	●			
	10	80	176			●	●			
Benzene C <sub>6</sub> H <sub>6</sub>	Pure	40	104	×	△	○	●			
		80	176			△	●			
Bleaching Liquor Ca(ClO) <sub>2</sub>	5	40	104	●		●	●			
	5	80	176			●	●			
	20	40	104	●		●	●			
	20	80	176			●	●			
Boric Acid H <sub>3</sub> BO <sub>3</sub>	Satu	40	104	●	●	●	●	●		
		80	176		●	●	●	○		
Brine		40	104	●	●	●	●	●		
		80	176		●	●	●			
Butadiene CH <sub>2</sub> =CH=CH=CH <sub>2</sub>	Gas	40	104	●		●	●			
		80	176			●	●			
Butane CH(CH <sub>3</sub> ) <sub>2</sub> CH <sub>3</sub>	Gas	40	104	●	●	●	●			
		80	176		●	●	●			
Nitric Acid HNO <sub>3</sub>	10	40	104	●	●	●	●	●	●	●
	10	80	176	×	○	●	●		●	
	30	40	104	●	●	●	●		●	●
	30	80	176	×	○	●	●		●	●
	50	40	104	○	○	●	●		●	●
	50	80	176	×	×	○	●			
	70	40	104	○	×	●	●		○	●
	70	80	176	×		○	●			
	98	40	104			○	○			
	98	80	176				△			
Oxalic Acid HOCCOOH	20	40	104	●	●	●	●	●		△
	20	80	176		●	●	●			
	50	40	104	●	●	●	●			△
	50	80	176	●	●	●	●			
Phosphoric Acid H <sub>3</sub> PO <sub>4</sub>	10	40	104	●	●	●	●	●	●	●
	10	80	176		○	●	●	△	●	●
	50	40	104	●	●	●	●	●	●	●
	50	80	176		△	●	●	×	●	●
	80	40	104	●	●	●	●	○	●	●
	80	80	176		△	●	●		●	●
Butane CH(CH <sub>3</sub> ) <sub>2</sub> CH <sub>3</sub>	Gas	40	104	●	●	●	●			
		80	176	●	●	●				
Sodium Hydroxide NaOH	15	40	104	●	●	●	●	●	●	●
	15	80	176		○	△	●	△	×	×
	30	40	104	●	●	●	●	●	●	●
	30	80	176		○	△	●	●	×	×
	50	40	104	●	●	○	●	●	●	●
	50	80	176		○	×	●	●	×	×
	70	40	104	○	○	○	●			
	70	80	176		○	×	●			

Chemical	Concentration %	Temp		Plastic				Rubber Stainless			
		°C	°F	PVC	PP	PVDF	PTFE	NBR	304	316	
Sodium Hypochlorite NaClO	3	40	104	●	○	●	●		△	○	
	3	80	176								
	5	40	104	●	○	●	●		△	○	
	5	80	176								
	7	40	104	●	△	○	●		×	×	
	7	80	176								
	10	40	104	●	△	●	●		×	×	
	10	80	176								
Sulfuric Acid H <sub>2</sub> SO <sub>4</sub>	10	40	104	●	●	●	●	●	●	●	
	10	80	176		●	●	●	○	○	○	
	30	40	104	●	●	●	●	●	×	×	
	30	80	176		●	●	●	○	×	×	
	50	40	104	●	●	●	●	○	×	×	
	50	80	176		●	●	●	△	×	×	
	60	40	104	●	●	●	●	●	×	×	
	60	80	176		○	●	●	○	×	×	
	70	40	104	●	●	●	●	○	×	×	
	70	80	176		○	●	●	△	×	×	
Toluene C <sub>6</sub> H <sub>5</sub> CH <sub>3</sub>		40	104		△	△	●				
		80	176				○				
	Chlorine Gas Cl <sub>2</sub>	Wet	40	104	○		●	●			
		Wet	80	176			△	●			
		Dry	40	104	●		●	●			
		Dry	80	176			●	●			
	Chromic Acid H <sub>2</sub> CrO <sub>4</sub>	10	40	104	●		●	●			
		10	80	176			●	●			
20		40	104	△		●	●				
20		80	176			●	●				
40		40	104	△		●	●				
40		80	176			●	●				
50		40	104	×		●	●				
50		80	176			△	●				
Hydrochloric Acid HCl	15	40	104	●	●	●	●	○			
	15	80	176		●	●	●				
	25	40	104	●	●	●	●	×			
	25	80	176		●	●	●				
	35	40	104	●	●	●	●	×			
	35	80	176		○	●	●				
	38	40	104	●	●	●	●	×			
	38	80	176		○	●	○				

● Excellent ○ Good △ Fair × Corroded

Chemical	Concentration %	Temp		Plastic				Rubber	Stainless	
		°C	°F	PVC	PP	PVDF	PTFE	NBR	304	316
Citric Acid	10	40	104	●	●	●	●	●	●	●
$C_6H_8O_7$	10	80	176		○	●	●	●		
Gasoline	10	40	104	●		●	●			
		80	176			●	●			
Diesel Fuels		40	104			●	●		●	●
		80	176			●	●		●	●
Ethyl Alcohol $C_2H_5OH$	Pure	40	104	●	●	●	●	●	○	○
		80	176		○	●	●	○		
Formic Acid $HCOOH$	90	40	104	○	○	●	●			
		80	176			●	●			
Hydrofluoric Acid HF	Dilute	40	104	●	○	●	●			
		80	176		○	●	●			
	30	40	104	○	○	●	●			
		80	176	×	○	●	●			
	40	40	104	△	○	●	●			
		80	176		○	●	●			
	50	40	104	△	○	●	●			
		80	176		○	●	●			
Hydrogen peroxide $H_2O_2$	5	40	104	●	●	●	●		○	●
		80	176		○	●	●			
	20	40	104	●	●	●	●			
		80	176		○	●	●			
	30	40	104	○	○	●	●			
		80	176		△	●	●			
	50	40	104	△	×	●	●			
		80	176			●	●			
	90	40	104			●	●			
		80	176			●	●			
Isopropyl Alcohol $(CH_3)_2CHOH$	Pure	40	104	●	●	●	●	○		
		80	176			●	●			
Kerosene		40	104	●	○	●	●			
		80	176			●	●			
Methyl Alcohol $CH_3OH$		40	104	○	●	●	●	△		
		80	176		○	●	●			
Methyl Ethyl Ketone $CH_3COCH_2CH_3$		40	104		△		●			
		80	176				●			
Potassium Chromate $K_2CrO_4$		40	104	●	●	●	●	●		
		80	176		○	●	●	○		

# REED SWITCH PROTECTION

## ■ INDUCTIVE LOADS

When using reed switches for inductive loads such as motors, relay coil, solenoids, etc., the contacts will be subjected to high induced voltages during opening of the contacts (load circuit). Such high induced voltages (transients) may cause damage to the reed switch or significantly reduce its life.

Therefore, protective circuits such as: RC (snubber), varistor or clamping diodes are recommended. (see Fig. 4a, Fig. 4b, Fig. 4c)

- It is prohibited to drive directly solenoid valve, motor or magnetic switch.

$$C = \frac{I^2}{10} \text{ (uF)}$$

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

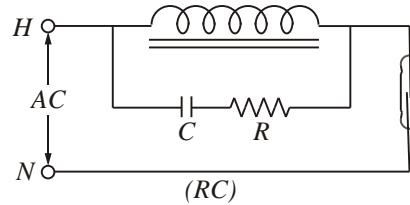


Fig. 4 (a)

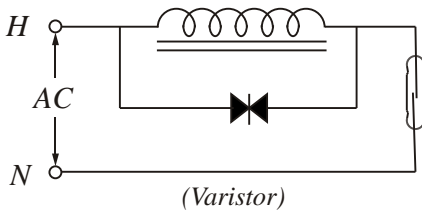


Fig. 4 (b)

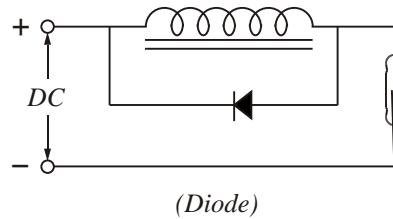


Fig. 4 (c)

## ■ CAPACITIVE LOADS

When using reed switches for capacitive loads such as capacitors, incandescent lamps or long cables, the contacts will be subjected to high surge (inrush) current.

Therefore, protective circuits such as: surge suppressors or current limiting resistors are recommended. (Fig. 5a, Fig. 5b)

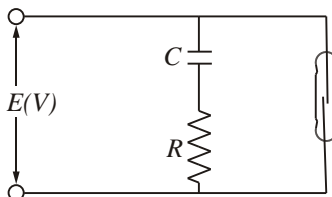


Fig. 5 (a)

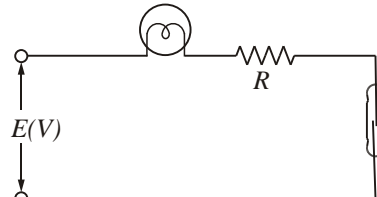
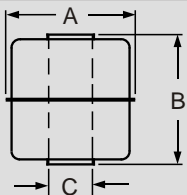
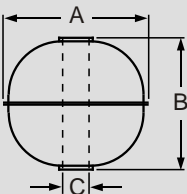
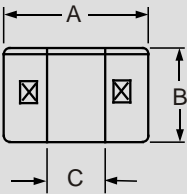
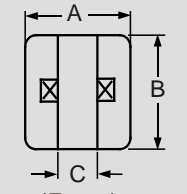
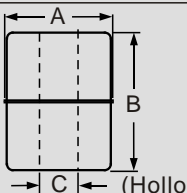


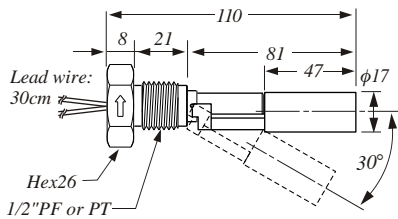
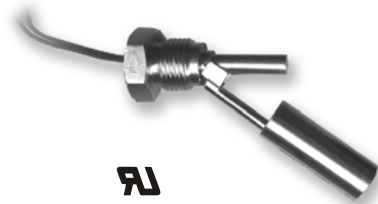
Fig. 5 (b)

# FLOAT SPECIFICATIONS

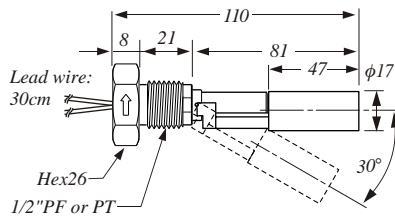
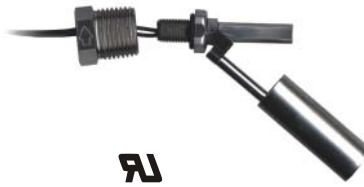
MODEL	TYPE	$\phi A \times B \times \phi C$	S.G.	Max. Pressure (kg/cm <sup>2</sup> )	Weight (g)	Material/Color	Max. Temp. (°C)
	S1	28x28x9.5	E>0.7	10	8	SUS 316	200
	S3	45x55x15	E>0.65	12	37.6	SUS 316	200
	S6	75x108x19	E>0.5	10	165	SUS 304	200
	S2	41x38x11	E>0.7	35	19.5	SUS 316	200
	S4	52x52x15	E>0.55	30	33.4	SUS 316	200
	S5	75x73x19	E>0.65	30	102.4	SUS 304	200
	S7	30x28x9.5	E>0.82	30	8	SUS 316	200
	S8	100x100x20	E>0.5	30	249.7	SUS 304	200
	S9	150x150x30	E>0.45	30	534	SUS 304	200
	S10	30x32x9.5	E>0.82	50	8.6	SUS 316	200
	S11	28x32x9.5	E>0.82	45	8.1	SUS 304	200
 <p>(Hollow)</p>	P1	25x15x10	E>0.65	4	3.5	PP / white black	80
	P2	25x25x10	E>0.55	4	5	PP / white black	80
	P3	48x45x18.5	E>0.6	5	35.5	PP / black	80
	P4	20x25x10	E>0.7	4	3.7	PP / black	80
	P5	20x20x8.1	E>0.75	4	4	PP / black	80
	P8	18x15x8	E>0.8	4	1.82	PP / black	80
 <p>(Foam)</p>	Q6	20x20x7.5	E>0.75	ATM	3.5	PP / white	80
	Q7	25x25x10	E>0.7	ATM	6.7	PP / white	80
	N1	25x15x10	E>0.5	ATM	2.7	NBR / black	100
	N2	18.5x26x10	E>0.7	ATM	3.3	NBR / black	100
	N3	19x20x10	E>0.55	ATM	2.4	NBR / black	100
	N4	17.5x25x12.8	E>0.65	ATM	2.5	NBR / black	100
	N5	30x45x10	E>0.5	ATM	11.5	NBR / black	100
 <p>(Hollow)</p>	F2	42x44x14	E>0.63	5	18.5	PP	80
	F3	45x45x20	E>0.65	5	35.7	PP	80
	F4	48x60x18	E>0.75	5	65.3	PVDF	120

# METAL SINGLE SWITCH TYPES

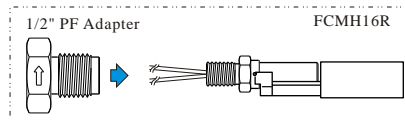
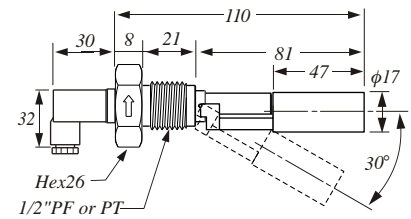
► FD MH16



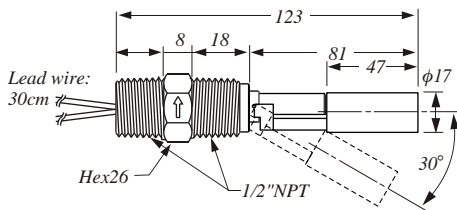
► FD MH16A (MH16R+Adapter)



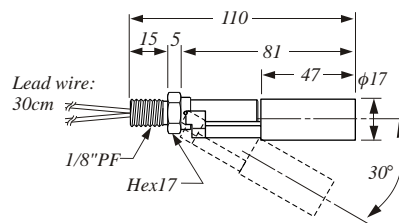
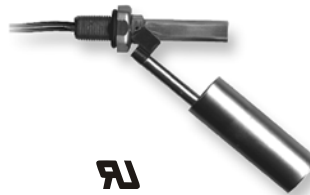
► FD MH16C



► FD MH16D



► FD MH16R

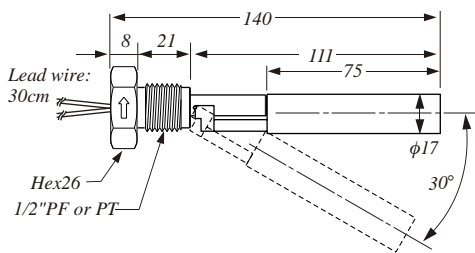


## ■ SPECIFICATIONS

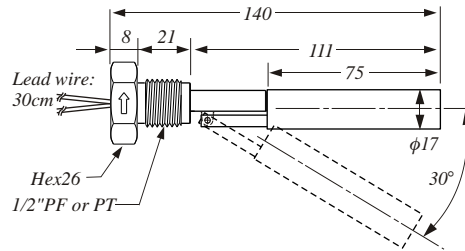
Type	Material	Switching Capacity Max.	Switching Voltage Max.	Switching Current Max.	Carry Current Max.	Lead Wire	Max. Pressure	Operating Temp.	Suitable Sp. Gr.
FDMH16 A/D/R	SUS304	50W/SPST	240Vac	0.5A	1A	XLPE or TEFLON	5 kg/cm <sup>2</sup>	-20~120°C (Max.200°C)	0.8
FDMH16C			200Vdc						

# METAL SINGLE SWITCH TYPES

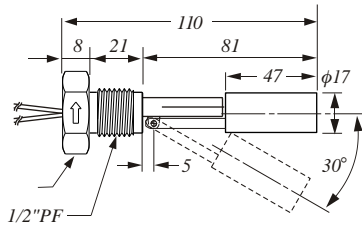
► FD MH26



► FD MH46



► FD MH36



## ■ SPECIFICATIONS

Type	Material	Switching Capacity Max.	Switching Voltage Max.	Switching Current Max.	Carry Current Max.	Lead Wire	Max. Pressure	Operating Temp.	Suitable Sp. Gr.
FDMH26 FDMH36 FDMH46	SUS304	50W/SPST	240Vac 200Vdc	0.5A	1A	XLPE or TEFLON	5 kg/cm <sup>2</sup>	-20~120°C (Max.200°C)	0.7 0.8 0.7

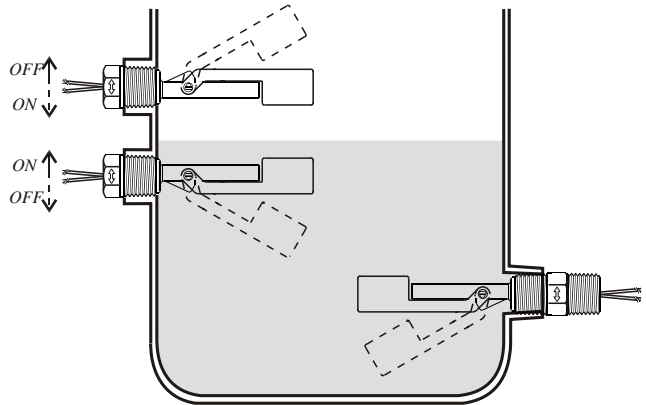
※ Please choose FDMH36 instead of FDMH16 when the medium is vibration during application.

# PLASTIC OH TYPES

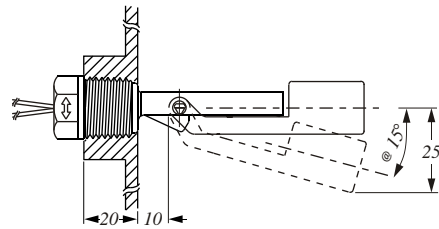
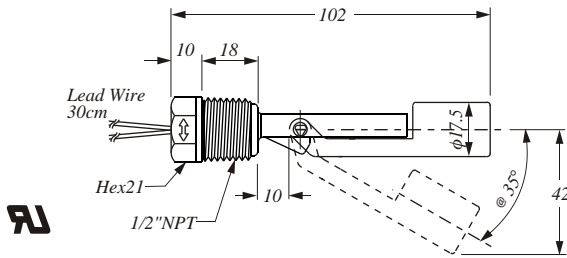
## ► FC H41PD / H51PD



## ■ Installation / N.C. / N.O. Action Position

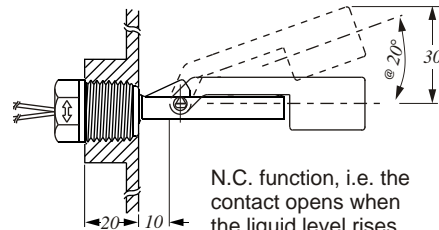
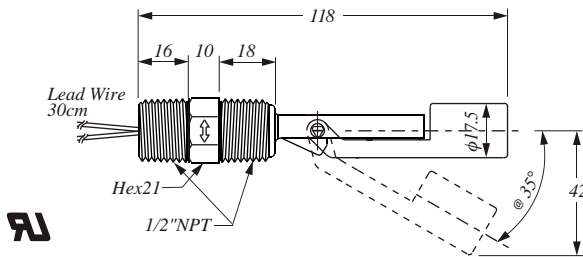


## ■ FC H41PD



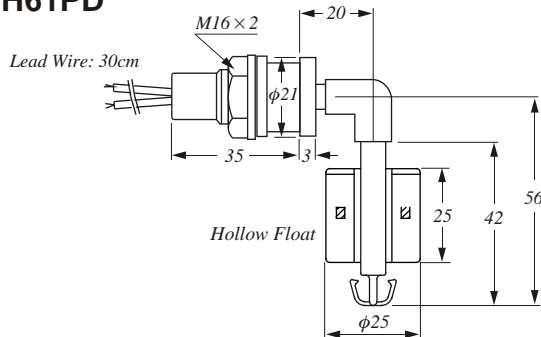
N.O. function, i.e. the contact closes when the liquid level rises.

## ■ FC H51PD



N.C. function, i.e. the contact opens when the liquid level rises.

## ■ FC H61PD



## ■ SPECIFICATIONS

Type	Material	Switching Capacity Max.	Switching Voltage Max.	Switching Current Max.	Carry Current Max.	Lead Wire	Max. Pressure	Operating Temp.	Suitable Sp. Gr.	Weight
FCH41PD	PP	50W/SPST	240Vac 200Vdc	0.5A	1A	XLPE	4 kg/cm <sup>2</sup>	-20~80°C	0.65	20g
FCH51PD									0.65	25g
FCH61PD									0.7	31g



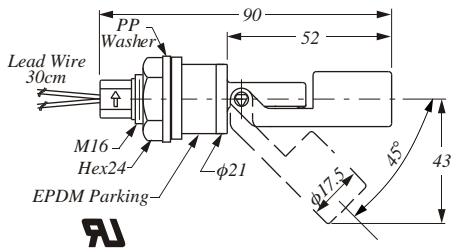
# PLASTIC OH TYPES

## ► FC H21PD / H31PD



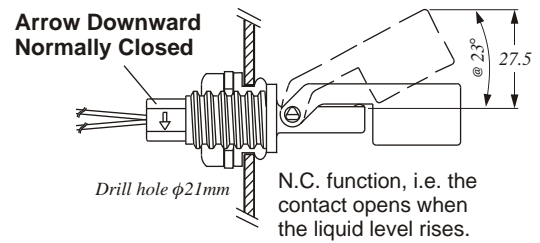
- For models FCH2 and FCH3, three different types of material are available PP, Nylon, and PVDF.
- The special lead wire or cable can be supplied according to the requirement of the customer.
- The customer can select the type of reed switch which they requires.
- For specifications of the standard design see catalog ( page 10).
- OEM customers are welcome.

### ■ Optional FC H21PDO(Round)

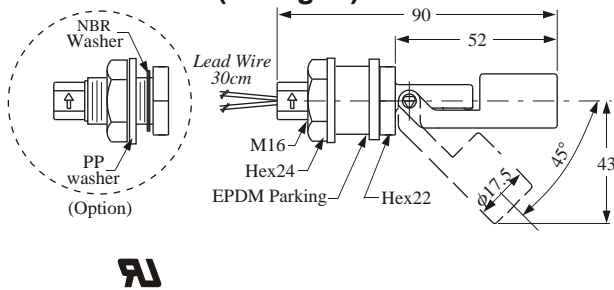


### ■ Installation / N.C. / N.O. Action Position

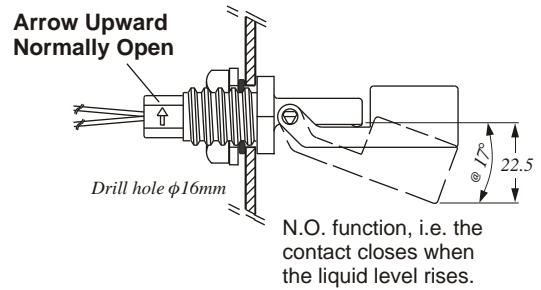
#### [ External mounting ]



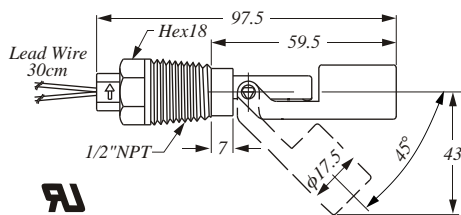
### ■ Standard FC H21PDD (Hexagon)



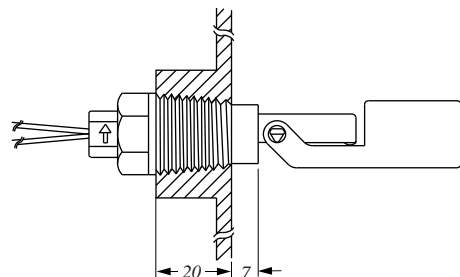
#### [ Internal mounting ]



### ■ FC H31PD

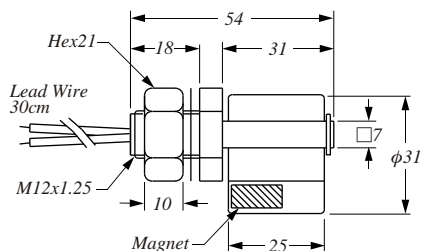
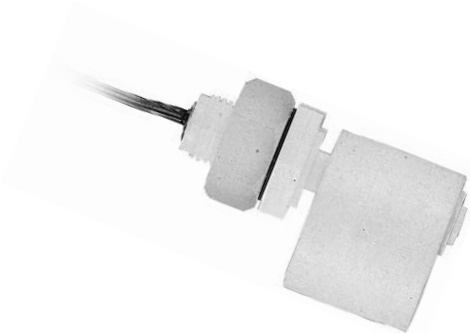


#### [ External mounting ]



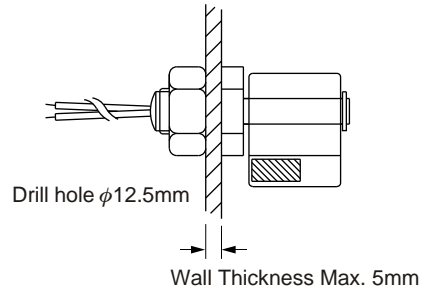
# PLASTIC OH TYPES

## ► FCH11PD



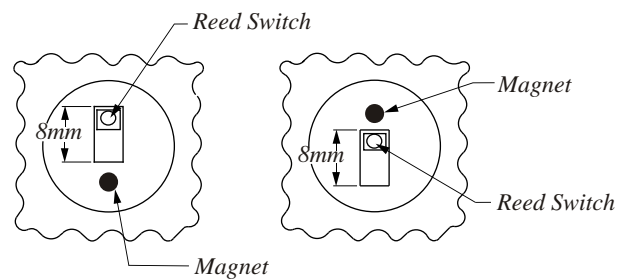
WASHER: NBR

## ■ Installation / N.C./ N.O. Action Position



Normally open  
N.O.

Normally closed  
N.C.



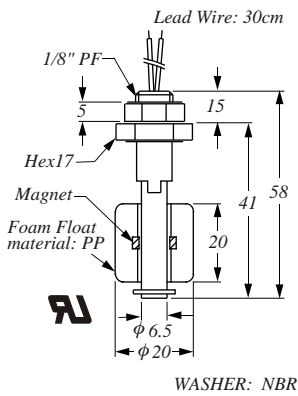
- All the products in this range come with the UL E161587 approval.
- All the products in this range are designed to be mounted on the side.
- For the specific gravity of water is used as a reference point in calculating specific gravity.

## ■ SPECIFICATIONS

Description	Type	FCH11PD	FCH21PD FCH31PD	FCH23FD FCH33FD	FCH24YD FCH34YD	FCH25GD FCH35GD
Switching Capacity Max.		50W SPST				
Switching Voltage Max.		240VAC / 200Vdc				
Switching Current Max. (A)		0.5A				
Carry Current Max. (A)		1A				
Lead Wire		PVC AWG22	XLPE AWG22			
Max. Pressure (Kg/cm <sup>2</sup> )		ATM	4 kg/cm <sup>2</sup>	2 kg/cm <sup>2</sup>		
Operating Temperature		-20~80°C		-20~120°C		
Material		PP		PVDF	Nylon	Polysuphone
Suitable Specific Gravity		0.78	0.75	0.85	0.8	0.85
Weight		25 g	H21: 22 g H31: 21 g	25 g	23 g	25.4 g

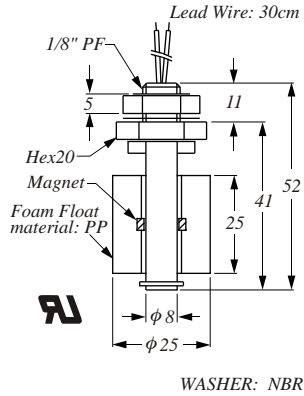
# PLASTIC OV TYPES

## ▶ FC V11QF



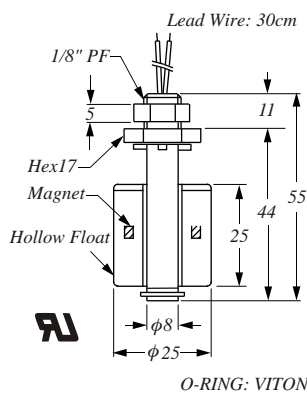
Drill hole  $\phi 10\text{mm}$

## ▶ FC V21QD



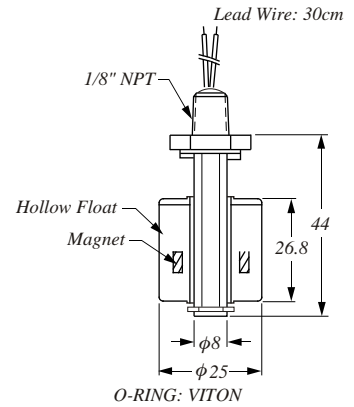
Drill hole  $\phi 10\text{mm}$

## ▶ FC V31PD



Drill hole  $\phi 10\text{mm}$

## ▶ FC V33FD, 34YD, 35GD



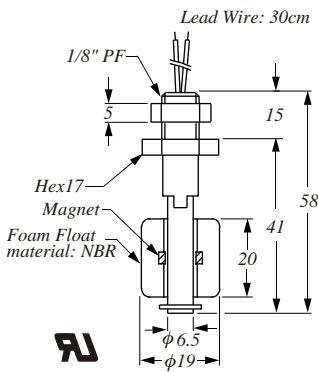
Drill hole  $\phi 10\text{mm}$

## ■ SPECIFICATIONS

Description \ Type	FC V11QF	FC V21QD	FC V31PD	FC V33FD	FC V34YD	FC V35GD
Switching Capacity Max.	10W SPST	50W SPST	50W SPST			
Switching Voltage Max.	125Vac	240Vac / 200Vdc	240Vac / 200Vdc			
Switching Current Max. (A)	0.5A		0.5A			
Carry Current Max. (A)	1A		1A			
Lead Wire	UL 1007 AWG22 PVC		UL 1007 AWG22 PVC	XLPE AWG22		
Reversible Switch Action	YES		YES			
Max. Pressure (Kg/cm <sup>2</sup> )	ATM		4 kg/cm <sup>2</sup>	2 kg/cm <sup>2</sup>		
Operating Temperature	-20~80°C		-20~80°C	-20~120°C		
Material	PP		PP	PVDF	Nylon	Polysuphone
Suitable Specific Gravity	0.8		0.7	0.85	0.8	0.75
Weight (g)	12 g	18 g	12.8 g	18 g	15 g	18 g

# PLASTIC OV TYPES

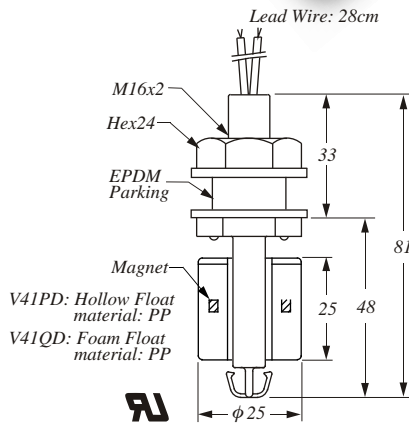
## ▶ FC V12NF



WASHER: NBR

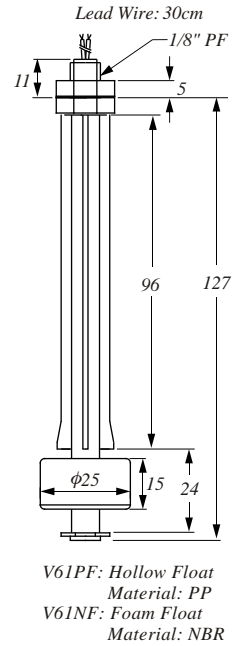
Drill hole  $\phi 10\text{mm}$

## ▶ FC V41PD, V41QD



Drill hole  $\phi 16\text{mm}$

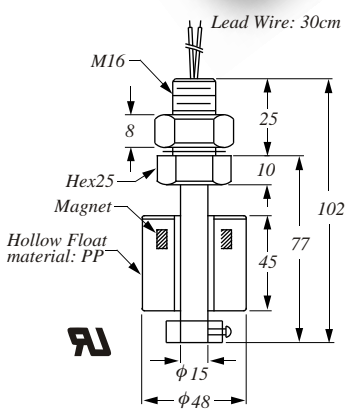
## ▶ FC V61PF, V61NF



WASHER: NBR

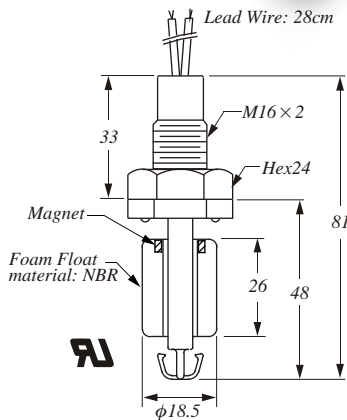
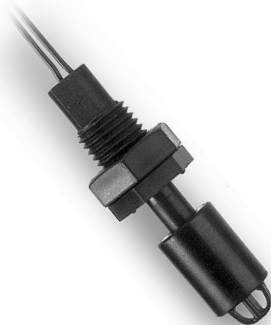
Drill hole  $\phi 10\text{mm}$

## ▶ FC V81PD



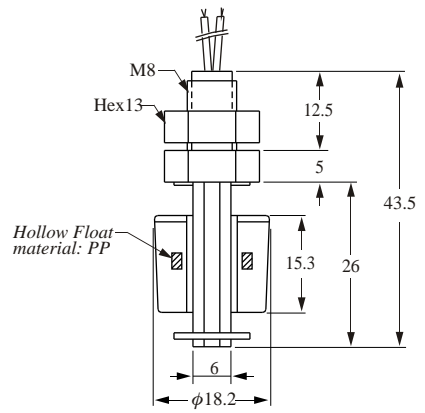
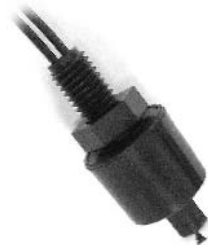
Drill hole  $\phi 16\text{mm}$

## ▶ FC V41ND



Drill hole  $\phi 16\text{mm}$

## ▶ FC V51PD

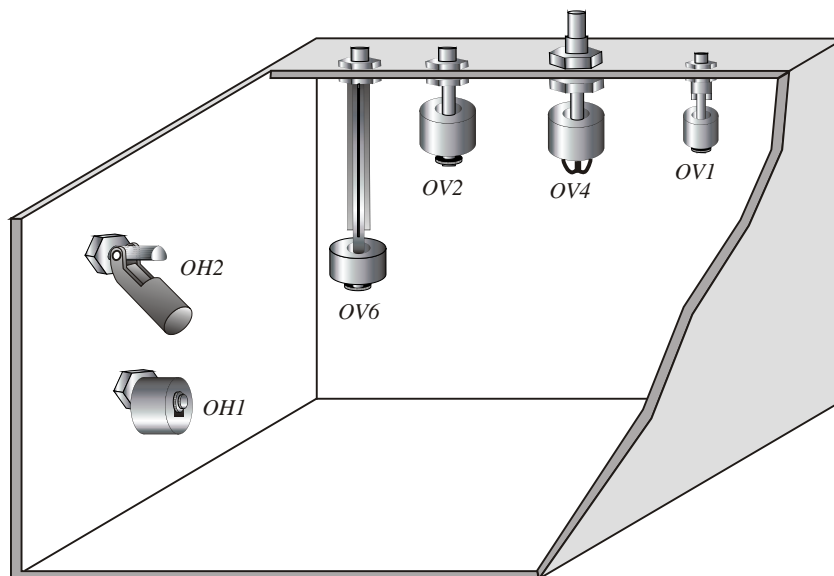


Drill hole  $\phi 8.5\text{mm}$

# PLASTIC OV TYPES

## ■ SPECIFICATIONS

Description \ Type	FC V12NF	FC V61PF FC V61NF	FC V41PD FC V41QD	FC V81PD	FC V41ND	FC V51PD
Switching Capacity Max.	10W SPST		50W SPST			
Switching Voltage Max.	125Vac (Break Down 250Vac)		240Vac / 200Vdc			
Switching Current Max. (A)	0.5A					
Carry Current Max. (A)	1A					
Lead Wire	XLPE AWG22	UL 1007 AWG22 PVC				
Reversible Switch Action	NO	NO	YES	NO	YES	NO
Max. Pressure (kg/cm <sup>2</sup> )	ATM	V61P: 4kg/cm <sup>2</sup> V61N: ATM	V41P: 4kg/cm <sup>2</sup> V41Q: ATM	4 kg/cm <sup>2</sup>	ATM	4 kg/cm <sup>2</sup>
Operating Temperature	-20 ~100°C	-20~80°C			-20 ~100°C	
Material	PP (except V11N, V61N, V41N: NBR float)					
Suitable Specific Gravity	0.8	0.7 ~ 0.8		0.6	0.8	0.8
Weight (g)	11 g	16 g	23 g	180 g	17 g	8.2 g



# ORDER INFORMATION

**FC** 

**Order No./ Model** \_\_\_\_\_

**FC H1~H6:** RF-OH Side Mounting  
**FC V1~V9:** RF-OV Top or bottom Mounting


**Material of Wetted parts** \_\_\_\_\_

**1:** PP                      **5:** Polysuphone  
**3:** PVDF                 **6:** PPS  
**4:** Nylon

**Material of Float** \_\_\_\_\_

**F:** PVDF    **P:** PP (hollow)    **Y:** Nylon            **K:** PPS  
**N:** NBR     **Q:** PP (foam)     **G:** Polysuphone

**Switching Capacity Max.** \_\_\_\_\_

**D:** 50W 240Vac /200Vdc SPST   
**F:** 10W 125Vac SPST  
**K:** 20W 150Vac/200Vdc SPDT

**Contact Form** \_\_\_\_\_

**A:** Normally Open (N.O.) SPST  
**B:** Normally Close (N.C.) SPST  
**C:** 1AB SPDT  
**D:** NC Reversible  
**E:** NO Reversible

**Lead wire Length** \_\_\_\_\_

**03:** 30cm (Standard length)            ※ 50cm per Unit  
**05:** 50cm (01~50)                        ※ Except of (FCV4, V5 standard by 28cm)  
**10:** 100cm (51~100)  
**15:** 150cm (101~150)

**Material of Lead wire** \_\_\_\_\_

**B:** PVC (80°C)                    ---- AWG24  
**C:** PVC cable (80°C)            ---- AWG22 X ϕ4  
**D:** XLPVC (105°C)                ---- AWG24  
**F:** SILICON cable (200°C) ---- AWG24X ϕ4  
**P:** PVC (80°C)                    ---- AWG22  
**T:** TEFLON (200°C)              ---- AWG24  
**X:** XLPE (125°C)                 ---- AWG22

※ "A" (Normal Open) contact form is our standard specified switch activation, others contact form and target lead wire length subject to above data, except of above, please refer pages 7, 8, 10, 11 and 13.

# PLASTIC SPECIAL TYPES

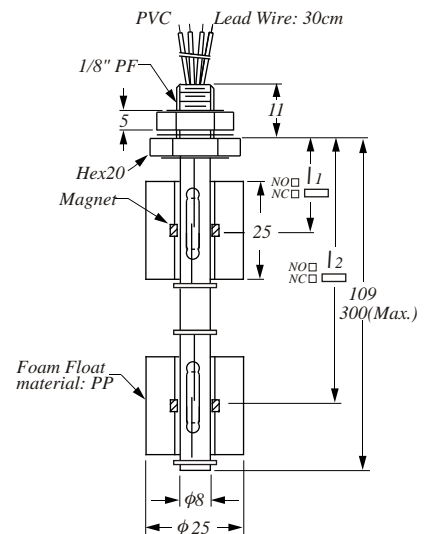
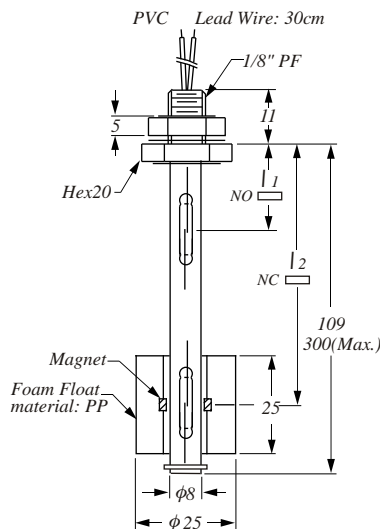
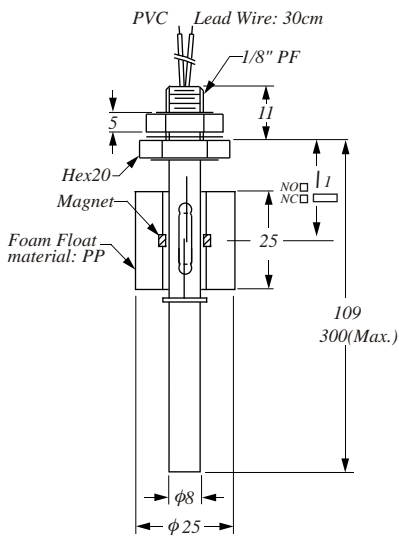
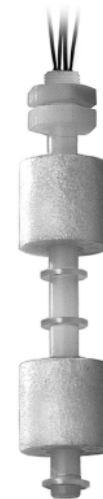
▶ FC PV1



▶ FC PV2



▶ FC PV3



O-RING: VITON

● NOTE: Float material can be optional.

Above items are done by custom-built when the standard specification is unable to be coped with their unique demand. There are with below special benefits:

- FCPV1 One float for one level activation switch location by custom-order.
- FCPV2 One float with 2 reed switches, applicable for high / low two level activation, especial design by one float to drive two contacts activation.
- FCPV3 Two floats drive with two independent reed switches, the compared difference with FCPV2 base on below character : Each one float unit can be performed by N.O. or N.C. level activation as per customer's option.

# ORDER INFORMATION

FC **P** **V** **1** **2** **D** **A** **0** **5** **P**


**Order No./ Model** \_\_\_\_\_

**PV1:** RF-PV1 Vertical Mounting, Single Float Single Switch  
**PV2:** RF-PV2 Vertical Mounting, Single Float Dual Switch  
**PV3:** RF-PV3 Vertical Mounting, Dual Float Dual Switch

**Material of Wetted parts** \_\_\_\_\_

**1 :** PP; Lead wire---PVC---Temp. 80°C  
**2 :** NBR (only float); Lead wire---PVC---Temp. 60°C  
           Lead wire---XLPE---Temp. 100°C  
**3 :** PVDF; Lead wire---XLPE---Temp. 125°C  
**4 :** Nylon; Lead wire---XLPE---Temp. 125°C

**Switching Capacity Max.** \_\_\_\_\_

**D:** 50W 240Vac /200Vdc SPST   
**F:** 10W 125Vac SPST  
**K:** 20W 150Vac/200Vdc SPDT

**Contact Form** \_\_\_\_\_

**A:** Normally Open (N.O.) SPST  
**B:** Normally Close (N.C.) SPST  
**C:** SPDT  
**F:** 1 float 2 points.  
**H:** 1-N.O.,1-N.C.(2 floats)

**Lead wire Length** \_\_\_\_\_

**03:** 30cm (Standard length)      ※ 50cm per Unit  
**05:** 50cm (01~50)  
**10:** 100cm (51~100)  
**15:** 150cm (101~150)

**Material of Lead wire** \_\_\_\_\_

**C:** PVC cable (80°C)      ---- AWG22 X φ4  
**P:** PVC (80°C)              ---- AWG22 (Standard)  
**X:** XLPE (125°C)          ---- AWG22



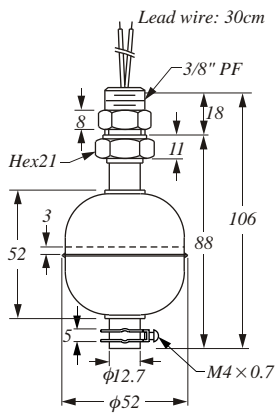


# METAL TYPES

► FD 50□1



WASHER: NBR

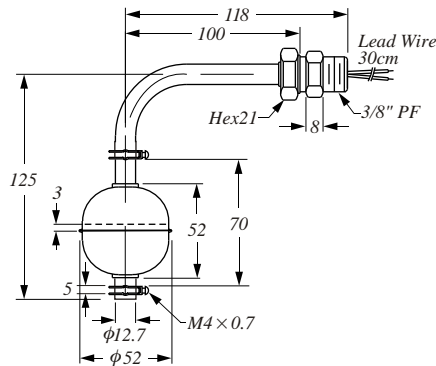


Drill hole φ17mm

► FD 50□2

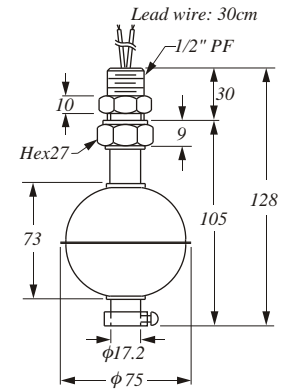


WASHER: NBR



Drill hole φ17mm

► FD 75□1



Drill hole φ21mm

## ■ SPECIFICATIONS

Type	FD30□1D FD30□2D	FD40□1D FD40□2D	FD45□1D FD45□2D	FD50□1D FD50□2D	FD75□1G	FD10□1G
Description						
Switching Capacity Max.	50W SPST	50W SPST	50W SPST	50W SPST	60W SPDT	
Switching Voltage Max.	240Vac/200Vdc				220Vac	
Switching Current Max. (A)	0.5A	0.5A	0.5A	0.5A	2A	
Carry Current Max. (A)	1A	1A	1A	1A	3A	
Lead Wire	XLPE (UL3266, AWG22)					
Reversible Switch Action	YES	YES	YES	YES	NO	NO
Max. Pressure (Kg/cm <sup>2</sup> )	10	30	12	30	30	10
Operating Temperature	-20~120°C (OPTION 200°C)					
Material	Stainless Steel SUS304, 316					
Suitable Specific Gravity	0.8	0.7	0.65	0.55	0.55	0.5

# ORDER INFORMATION

**FD**

**Order No./ Model** \_\_\_\_\_

- FD10** Float : **RF-10**  $\phi$ 75x108, Screw : 1/2"PF
- FD30** Float : **RF-30**  $\phi$ 28x28, Screw : 1/8"PF
- FD35** Float : **RF-35**  $\phi$ 30x29, Screw : 1/8"PF
- FD40** Float : **RF-40**  $\phi$ 41x38, Screw : 3/8"PF
- FD45** Float : **RF-45**  $\phi$ 45x55, Screw : 3/8"PF
- FD50** Float : **RF-50**  $\phi$ 52x52, Screw : 3/8"PF
- FD75** Float : **RF-75**  $\phi$ 75x70, Screw : 1/2"PF


**Material of Wetted parts** \_\_\_\_\_

- 0** : SUS304
- 6** : SUS316

**Mounting** \_\_\_\_\_

- 1** : Top or Bottom Mounting
- 2** : Side Mounting

**Switching Capacity Max.** \_\_\_\_\_

- D**: 50W 240Vac /200Vdc SPST 
- F**: 10W 125Vac SPST
- G**: 60W 220Vac SPDT (only use for tube  $\geq \phi$ 12.7)

**Contact Form** \_\_\_\_\_

- A**: Normal Open (N.O.) SPST
- B**: Normal Close (N.C.) SPST ※ High Temp only available for A or B Type
- C**: 1C SPDT
- D**: N.C. Reversible
- E**: N.O. Reversible

**Lead wire Length** \_\_\_\_\_

- 03**: 30cm (Standard length) ※ 50cm per Unit
- 05**: 50cm (01~50)
- 10**: 100cm (51~100)
- 15**: 150cm (101~150)

**Material of Lead wire** \_\_\_\_\_

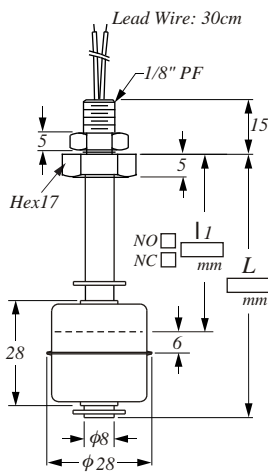
- C**: PVC cable (80°C) ----- AWG22 X  $\phi$ 4
- D**: XLPVC (105°C) ----- AWG22
- F**: SILICON cable (200°C) ----- AWG24X  $\phi$ 4
- P**: PVC (80°C) ----- AWG22
- S**: SILICON (200°C) ----- AWG22
- T**: TEFLON (200°C) ----- AWG24
- X**: XLPE (125°C) ----- AWG22 (Standard)

# METAL SPECIAL TYPES

Below items are custom-built subject to special application place and existed equipment facilities. Their unique characters as follow:

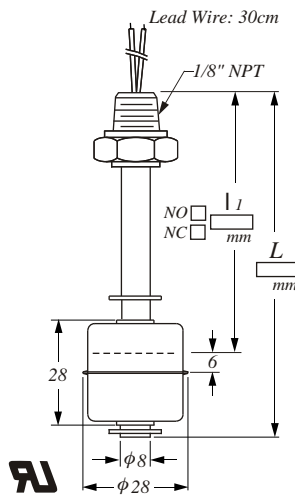
- Any size measuring range, but  $\phi 8$ mm stem Max. 500mm.
- Customized mounting thread specification are acceptable.
- Single or multiple contact form (point) are workable.
- Switch activation N.O. or N.C. are available.

## ► FDSA□11



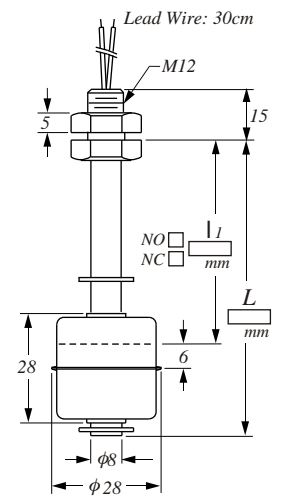
WASHER: NBR

## ► FDSB□11



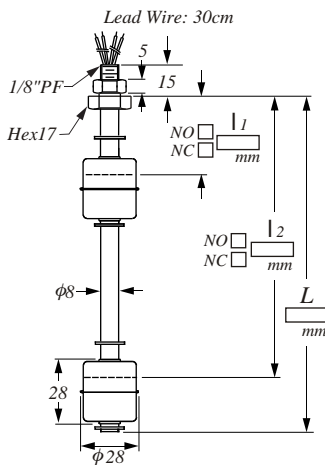
WASHER: NBR

## ► FDSC□11



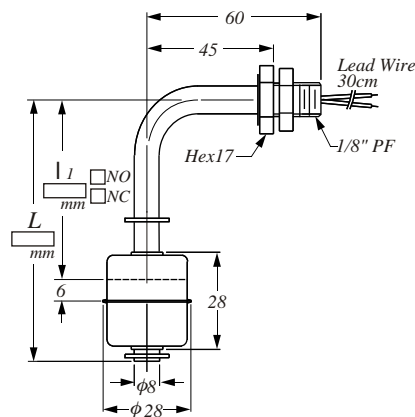
WASHER: NBR

## ► FDSA□12



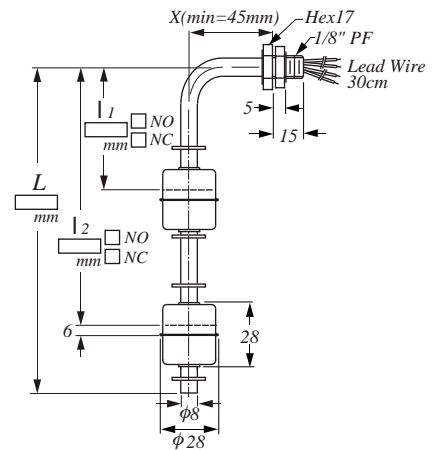
WASHER: NBR

## ► FDSA□21



WASHER: NBR

## ► FDSA□22



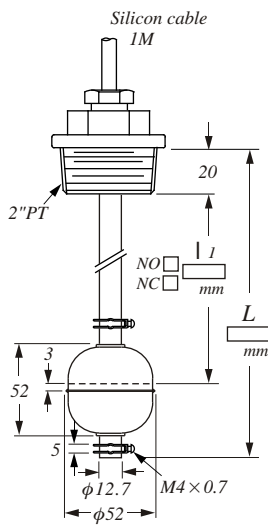
WASHER: NBR

# METAL SPECIAL TYPES

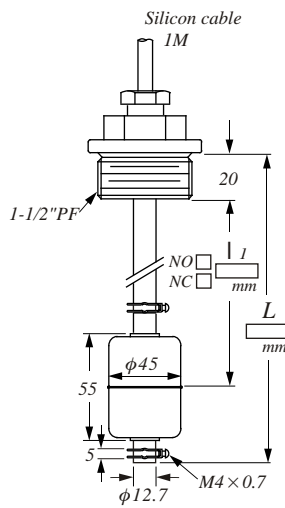
Below items are custom-built subject to special application place and existed equipment facilities. Their unique characters as follow:

- Any size measuring range.
- Customized mounting thread specification are acceptable.
- Single or multiple contact form (point) are workable.
- Switch activation N.O. or N.C. are available.

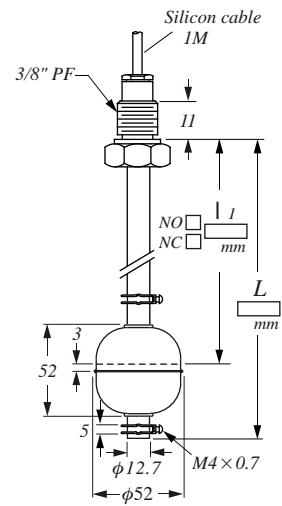
► **FDSD□11**



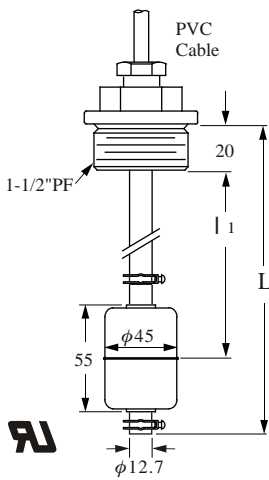
► **FDSE□11**



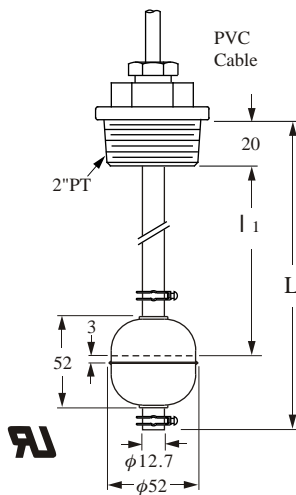
► **FDSF□11**



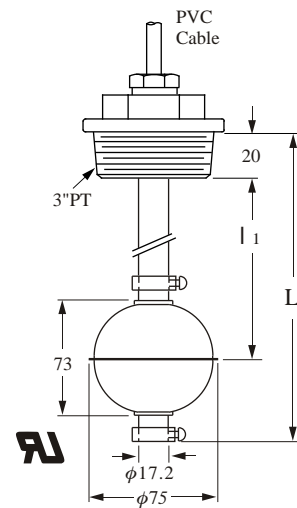
► **FD4503D**



► **FD5003G**

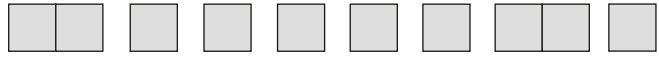


► **FD7503G**



# ORDER INFORMATION

**FD**



**Type**

- FDSA** Float : **RF-SA**  $\phi 28 \times 28$ , Screw : 1/8"PF
- FDSB** Float : **RF-SB**  $\phi 28 \times 28$ , Screw : 1/8"NPT
- FDSC** Float : **RF-SC**  $\phi 28 \times 28$ , Screw : M12
- FDSD** Float : **RF-SD**  $\phi 52 \times 52$ , Screw : 2"PT
- FDSE** Float : **RF-SE**  $\phi 45 \times 55$ , Screw : 1-1/2"PF
- FDSF** Float : **RF-SF**  $\phi 52 \times 52$ , Screw : 3/8"PF

**Material of Wetted parts**

- 0** : SUS304
- 6** : SUS316

**Mounting**

- 1** : Top or Bottom Mourting
- 2** : Side Mounting

**Float Number**

**1~4** floats

**Switching Capacity Max.**

- D**: 50W 240Vac /200Vdc, SPST
- G**: 60W 220Vac, SPDT (only use for tube  $\geq \phi 12.7$ )
- K**: 20W 150Vac /200Vdc, SPDT

**Contact Form**

- A**: Normal Open (N.O.) SPST    **C**: Over 3 points.
- B**: Normal Close (N.C.) SPST
- C**: 1AB SPDT

**Lead wire Length (Silicon Cable)**

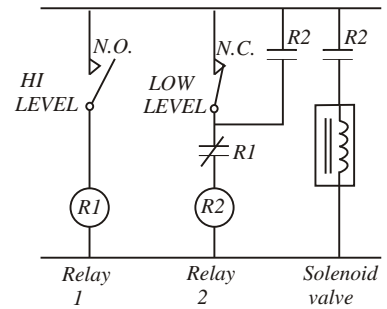
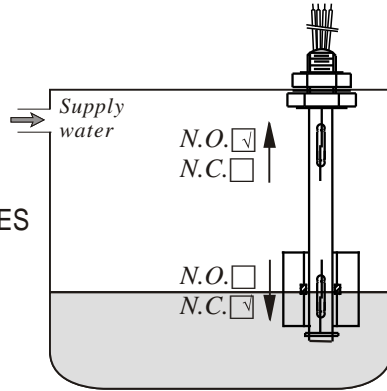
- 03**: 30cm (SA, SB, SC, Standard length)                      ※ 50cm per Unit
- 05**: 50cm (01~50)
- 10**: 100cm (SD, SE, SF, Standard length)
- 15**: 150cm (101~150)

**Material of Lead wire**

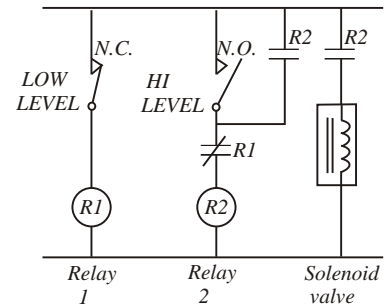
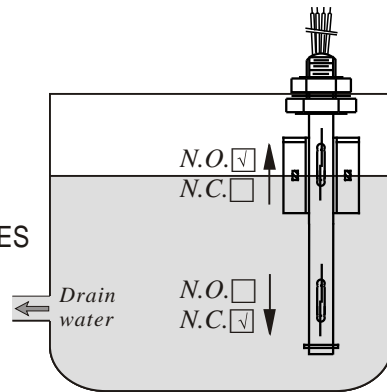
- C**: PVC cable (80°C)        ---- AWG22 X 2C X  $\phi 4$
  - F**: SILICON cable (200°C) ---- AWG24 X 2C X  $\phi 4$
  - P**: PVC (80°C)                ---- AWG22
  - T**: TEFLON (200°C)        ---- AWG24
  - X**: XLPE (125°C)            ---- AWG22 (Standard)
- For SA, SB, SC Type

# TYPICAL WIRING DIAGRAMS

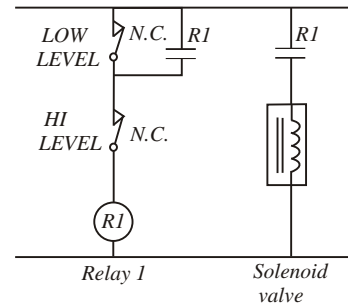
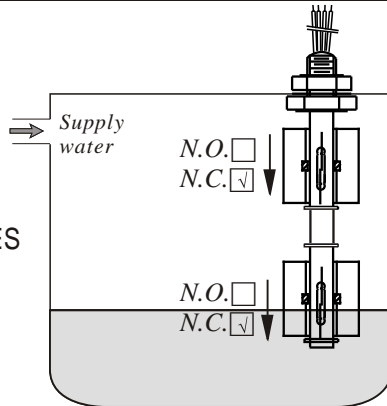
\* AUTO SUPPLY CASE:  
SINGLE FLOAT DUAL SWITCHES



\* AUTO DRAIN CASE:  
SINGLE FLOAT DUAL SWITCHES



\* AUTO SUPPLY CASE:  
DUAL FLOATS DUAL SWITCHES



\* AUTO DRAIN CASE:  
DUAL FLOATS DUAL SWITCHES

