



Mini Float Level Switch



PRODUCT INTRODUCTION

■ INTRODUCTION

The reed switch relies on two basic scientific principles namely: buoyancy and magnetism. Buoyancy causes the float (which contains a magnet) to rise with the liquid and magnetism helps open and close the switch.

Since this product's this product has been introduced to the market, it has seen significant improvement and advances with regards to convenience, safety and lowering costs.

The float switches are extremely compact, simple and are easy to install on any small locations.

These switches are not affected by electrical interference and can withstand chemicals, high temperatures and pressures if the correct material of float switch is selected.

■ LIQUID PROPERTIES AND FLOATS

The switch's float should always have a specific gravity (SG) less than the liquid that holds the float.

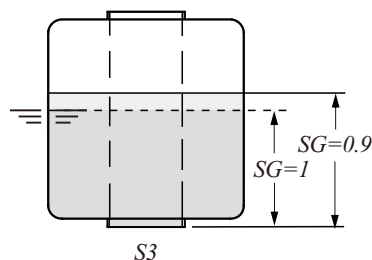
(SG float < SG liquid)

When the liquid level rises the float will rise up due to its buoyancy. The float's upward movement will actuate the switch and close the circuit.

Different float materials can be used to ensure the float's SG level is less than the liquid.

(Water's SG level is 1 while gasoline SG levels tend to be less than 1).

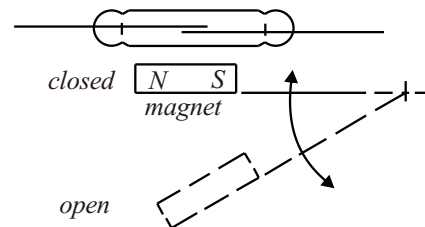
Because the float switches are activated by the magnetic field inside the float, make sure the liquid contains no iron traces or substances that can induce magnetic interference.



(Fig. 3)

■ WORKING PRINCIPLE

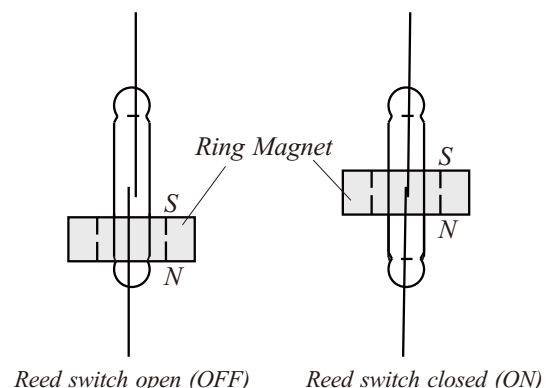
Fig. 1 illustrates the pivot activation (FCH Type reed switch). When float's magnet is moved close to the switch's stationary stem, the float magnet pushes the stem's switch circuit together and closes the electrical circuit. When the float magnet is moved away from the stem, the switch circuit separates and the circuit is opened.



(Fig. 1)

Fig. 2 illustrates perpendicular activation (FC V TYPE float reed switches). When the liquid level rises and pushes the float up, the float's ring magnet (sealed in the float) moves close to the switch's stationary stem.

The magnet pushes the circuit together and when it makes contact, it closes the electrical circuit. When the float magnet moves away from the switch, the circuit contact is released and the switch is opened.



(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_4OH	10	40	104	●	●	●	●	○			
	10	80	176		○	●	●				
Aque Regia $3\text{HCl}+\text{HNO}_3$	10	40	104	△	△	●	●				
	10	80	176			●	●				
Benzene C_6H_6	Pure	40	104	×	△	○	●				
		80	176			△	●				
Bleaching Liquor $\text{Ca}(\text{ClO})_2$	5	40	104	●		●	●				
	5	80	176			●	●				
	20	40	104	●		●	●				
	20	80	176			●	●				
Boric Acid H_3BO_3	Satu	40	104	●	●	●	●	●			
		80	176		●	●	●	○			
Brine		40	104	●	●	●	●	●			
		80	176		●	●	●				
Butadiene $\text{CH}_2=\text{CH}=\text{CH}=\text{CH}_2$	Gas	40	104	●		●	●				
		80	176			●	●				
Butane $\text{CH}_3(\text{CH}_2)_2\text{CH}_3$	Gas	40	104	●	●	●	●				
		80	176		●	●	●				
Nitric Acid HNO_3	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 HOOCCOOH	20	40	104	●	●	●	●	●		△	
	20	80	176		●	●	●				
	50	40	104	●	●	●	●			△	
	50	80	176		●	●	●				
Phosphoric Acid H_3PO_4	10	40	104	●	●	●	●	●	●	●	
	10	80	176		○	●	●	△	●	●	
	50	40	104	●	●	●	●	●	●	●	
	50	80	176		△	●	●	×	●	●	
	80	40	104	●	●	●	●	○	●	●	
	80	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_2SO_4	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 $\text{C}_6\text{H}_5\text{CH}_3$	80	40	104	●	●	●	●	●	×	×	
	80	80	176		○	●	●	○	×	×	
	90	40	104	○	●	●	●	△	×	×	
	90	80	176		○	●	●	△			
	98	40	104	△		●	○		○	○	
	98	80	176			△	○				
Chlorine Gas Cl_2	Wet	40	104	○		●	●				
	Wet	80	176			△	●				
	Dry	40	104	●		●	●				
	Dry	80	176			●	●				
Chromic Acid H_2CrO_4	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	●		●	●			
	10	80	176			●	●			
Diesel Fuels		40	104			●	●		●	●
		80	176			●	●		●	●
Ethyl Alcohol	Pure	40	104	●	●	●	●	●	○	○
C_2H_5OH		80	176		○	●	●	○		
Formic Acid	90	40	104	○	○	●	●			
$HCOOH$		80	176			●	●			
Hydrofluoric Acid HF	Dilute	40	104	●	○	●	●			
	Dilute	80	176		○	●	●			
	30	40	104	○	○	●	●			
	30	80	176	×	○	●	●			
	40	40	104	△	○	●	●			
	40	80	176		○	●	●			
	50	40	104	△	○	●	●			
	50	80	176		○	●	●			
Hydrogen peroxide H_2O_2	5	40	104	●	●	●	●		○	●
	5	80	176		○	●	●			
	20	40	104	●	●	●	●			
	20	80	176		○	●	●			
	30	40	104	○	○	●	●			
	30	80	176		△	●	●			
	50	40	104	△	×	●	●			
	50	80	176			●	●			
	90	40	104			●	●			
	90	80	176			●	●			
Isopropyl Alcohol	Pure	40	104	●	●	●	●	○		
$(CH_3)_2CHOH$		80	176			●	●			
Kerosene		40	104	●	○	●	●			
		80	176			●	●			
Methyl Alcohol		40	104	○	●	●	●	△		
CH_3OH		80	176		○	●	●			
Methyl Ethyl Ketone		40	104		△		●			
$CH_3COC_2H_5$		80	176				●			
Potassium Chromate		40	104	●	●	●	●	●		
K_2CrO_4		80	176		○	●	●	○		

REED SWITCH PROTECTION

■ INDUCTIVE LOADS

When using reed switches for inductive loads such as motors, relay coil, solenoids, etc., the contact points will sometimes be subjected to high voltages. Such high induced voltages may damage the reed switch or significantly reduce its life.

Therefore, circuit protectors such as: RC snubbers, varistors or clamping diodes are recommended. (see Fig. 4a, Fig. 4b, Fig. 4c)

- Do not directly connect the solenoid valve, motor or magnetic switch.

$$C = \frac{I^2}{10} \text{ (uF)}$$
$$R = \frac{E}{10I(1 + \frac{E}{50})}$$

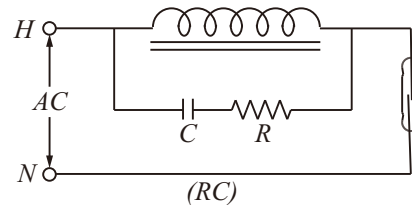


Fig. 4 (a)

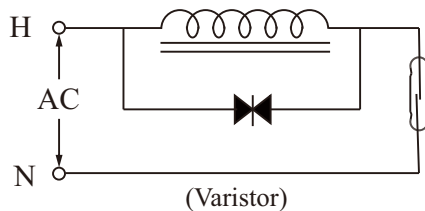


Fig. 4 (b)

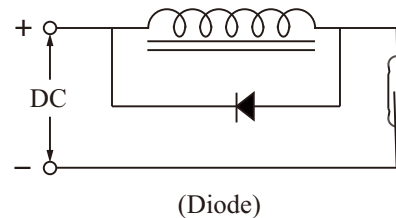


Fig. 4 (c)

■ CAPACITIVE LOADS

When using reed switches for capacitive loads such as capacitors, incandescent lamps or long cables, the contact points will be subjected to electrical surges. Therefore, protective circuits such as: surge suppressors or current limiting resistors are recommended. (Fig. 5a, Fig. 5b)

Therefore, circuit protectors such as: RC snubbers, varistors or clamping diodes are recommended (Fig. 5a, Fig. 5b)

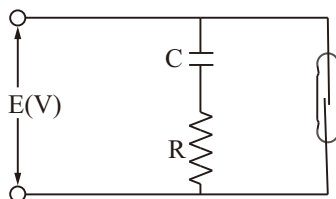


Fig. 5 (a)

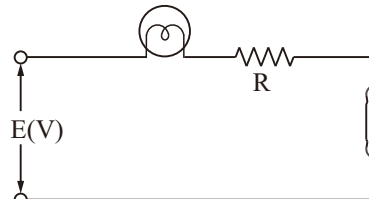
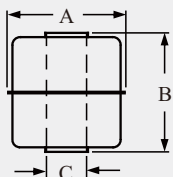
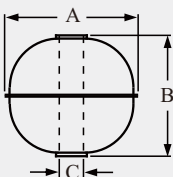
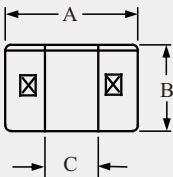
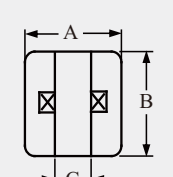
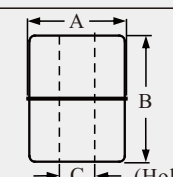


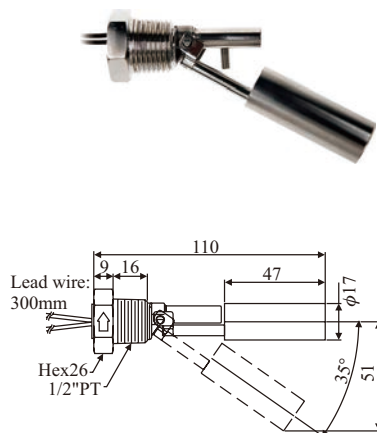
Fig. 5 (b)

FLOAT SPECIFICATIONS

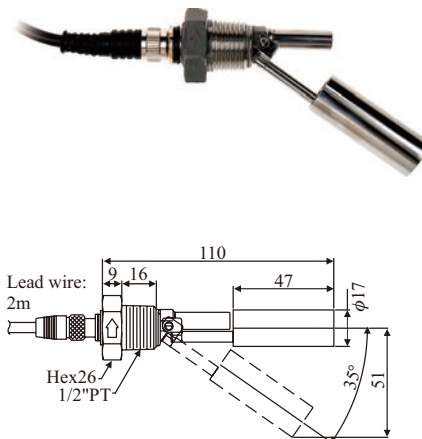
MODEL	TYPE	$\phi A \times B \times \phi C$	S.G.	Max. Pressure (kg/cm ²)	Weight (g)	Material/Color	Max. Temp. (°C)
	S1	28x28x9.5	E>0.7	10	8	SUS 316 / 316L	200
	S3	45x55x15	E>0.65	12	37.6	SUS 316	200
	S6	75x108x20	E>0.5	10	165	SUS 316	200
	S13	38x50x15	E>0.62	12	22.9	SUS 316L	200
	S2	41x38x11	E>0.7	35	19.5	SUS 316	200
	S4	52x52x15	E>0.55	30	33.4	SUS 316	200
	S5	75x73x20	E>0.70	30	102.4	SUS 316	200
	S7	30x28x9.5	E>0.75	25	8	SUS 316 / 316L	200
	S8	100x100x20	E>0.5	15	249.7	SUS 304	200
	S9	150x150x30	E>0.45	15	534	SUS 304	200
	S10	30x32x9.5	E>0.75	50	8.6	SUS 316	200
	S11	28x32x9.5	E>0.82	30	8.1	SUS 316	200
 (Hollow)	P1	25x15x10	E>0.65	4	3.5	PP / white black	80
	P2	25x25x10	E>0.7	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	18.2x15.3x7.2	E>0.8	4	1.82	PP / black	80
 (Foam)	Q6	20x20x7.5	E>0.75	ATM	3.5	PP / white	80
	Q7	25x25x8.8	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	17.5x25x10	E>0.65	ATM	2.5	NBR / black	100
	N5	30x45x12.8	E>0.5	ATM	11.5	NBR / black	100
 (Hollow)	F2	40x41.5x14	E>0.63	5	18.5	PP	80
	F3	45x45x20	E>0.65	5	35.7	PP	80
	F4	48x62x18	E>0.8	5	65.3	PVDF	120

STAINLESS STEEL SWITCHES

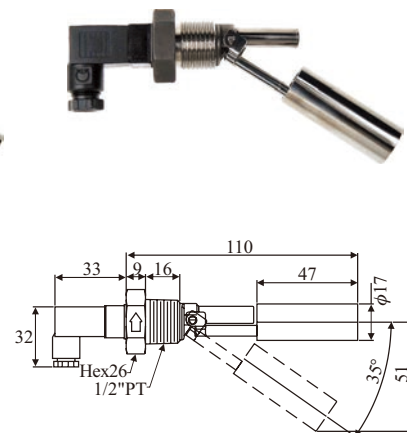
► FD MH50/ 56



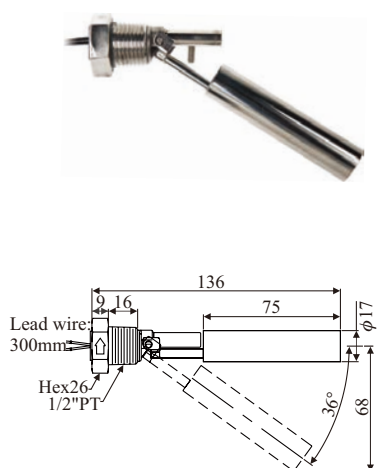
► FD MH50A /56A



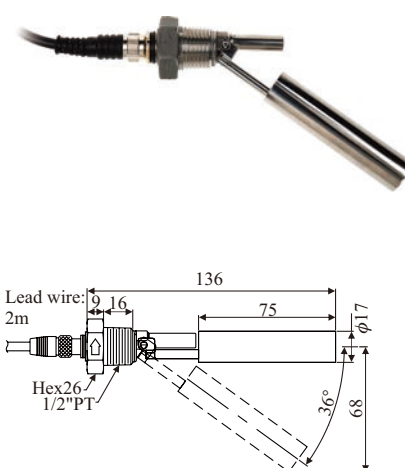
► FD MH50C /56C



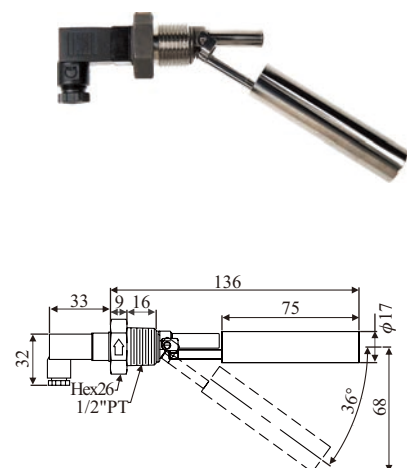
► FD MH60/ 66



► FD MH60A/ 66A



► FD MH60C/ 66C



■ SPECIFICATIONS

Type	Material	Switching Capacity Max.	Switching Voltage Max.	Switching Current Max.	Carry Current Max.	Lead Wire	Max. Pressure	Operating Temp.	Suitable Sp. Gr.
FDMH50/56 FDMH60/66	SUS 304 SUS 316L	50W/SPST	240Vac 200Vdc	0.5A	1A	XLPE or TEFLON	5 kg/cm ²	-20~120°C (Max.200°C)	FDMH5:0.92 FDMH6:0.75
FDMH50A/56A FDMH60A/66A	SUS 304 SUS 316L	50W/SPST	240Vac 200Vdc	0.5A	1A	PVC or PUR	5 kg/cm ²	80°C	FDMH5:0.92 FDMH6:0.75
FDMH50C/56C FDMH60C/66C	SUS 304 SUS 316L	50W/SPST	240Vac 200Vdc	0.5A	1A	NA	5 kg/cm ²	-20~120°C	FDMH5:0.92 FDMH6:0.75

MODEL / NUMBER ORDER CODE COMPARISON TABLE

Model Number	Order Code
FDMH50	FDM10000-05MA
FDMH56	FDM10000-05MC
FDMH60	FDM10000-06MA
FDMH66	FDM10000-06MC
FDMH50A	FDM10000-05MAA
FDMH56A	FDM10000-05MCA
FDMH60A	FDM10000-06MAA
FDMH66A	FDM10000-06MCA
FDMH50C	FDM10000-06MAB
FDMH56C	FDM10000-05MCB

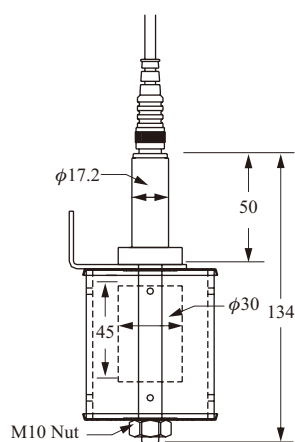
ORDER INFORMATION (STAINLESS STEEL SWITCHES)

	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
FDM 1 0 0																	
07 08 Certification																	
00: None																	
09 10 Type																	
05: ϕ 17x47L (SG: 0.92)																	
06: ϕ 17x75L (SG: 0.75)																	
11 12 Material																	
MA: SUS 304																	
MC: SUS 316L																	
13 Wiring																	
A: M12																	
B: DIN																	
C: Cable wire type 1																	
14 15 16 17 Connection																	
A503: 1/2"PF																	
A501: 1/2"PT																	
A507: 1/2"NPT																	
A505: 1/2"BSP																	
18 19 20 Material of Lead wire																	
250: Silicon(150°C AWG24 Cable)																	
210: Teflon(200°C AWG24)																	
291: XLPE(125°C AWG22)																	
220: PUR(For M12)																	
21 22 23 Lead wire Length																	
001: 100mm																	
002: 200mm																	
003: 300mm																	
004: 400mm																	
005: 500mm																	
006: 600mm																	
007: 700mm																	
008: 800mm																	
009: 900mm																	
010: 1000mm																	
020: 2000mm																	
100: 10m																	
000: None																	

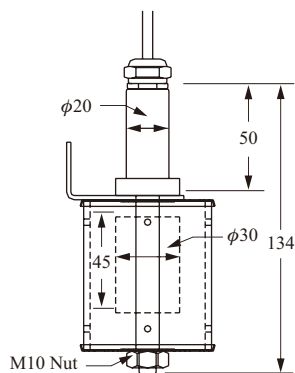
※Connector M12 whose standard wire length is 2m ,5m,10m,15m

MARINE LEVEL SWITCHES

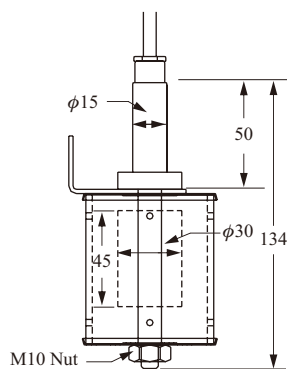
► FDMRN5A0B



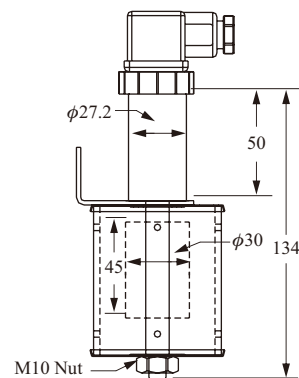
► FDMRN5B0B



► FDMRN5C0B



► FDMRN5D0B

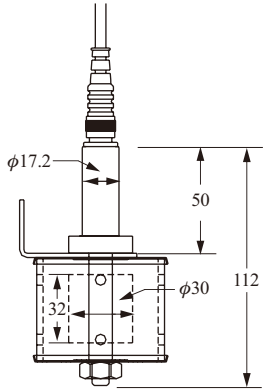


■ SPECIFICATIONS

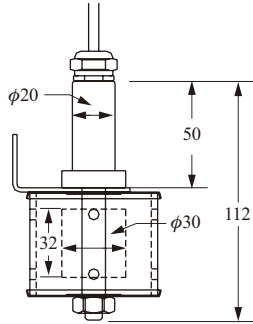
Type	Material	Switching Capacity Max.	Switching Voltage Max.	Switching Current Max.	Carry Current Max.	Lead Wire	Max. Pressure	Operating Temp.	Suitable Sp. Gr.
FDMRN5A0B	SUS 304 (Float:NBR)	50W/SPST	240Vac 200Vdc	0.5A	1A	M12, 2 meter	ATM	Max. 80°C	0.5
FDMRN5B0B	SUS 304 (Float:NBR)	50W/SPST	240Vac 200Vdc	0.5A	1A	PVC,22 AWG	ATM	Max. 80°C	0.5
FDMRN5C0B	SUS 304 (Float:NBR)	50W/SPST	240Vac 200Vdc	0.5A	1A	Silicon	ATM	Max. 100°C	0.5
FDMRN5D0B	SUS 304 (Float:NBR)	50W/SPST	240Vac 200Vdc	0.5A	1A	DIN 43650	ATM	Max. 80°C	0.5

MARINE LEVEL SWITCHES

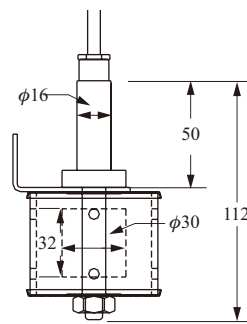
► FDMRN8A0B



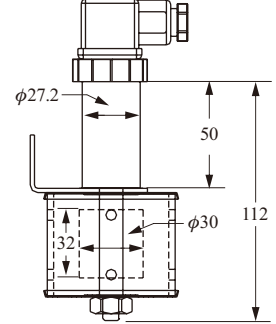
► FDMRN8B0B



► FDMRN8C0B



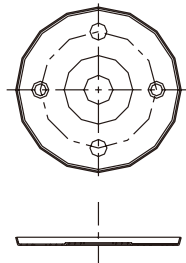
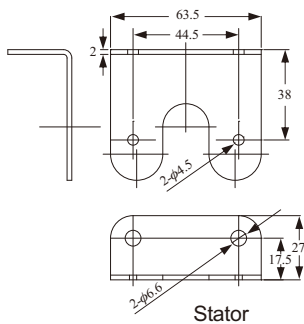
► FDMRN8D0B



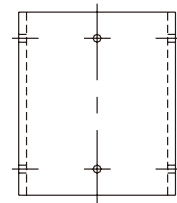
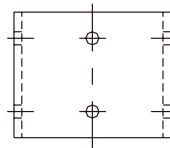
■ SPECIFICATIONS

Type	Material	Switching Capacity Max.	Switching Voltage Max.	Switching Current Max.	Carry Current Max.	Lead Wire	Max. Pressure	Operating Temp.	Suitable Sp. Gr.
FDMRN8A0B	SUS 304 (Float:NBR)	50W/SPST	240Vac 200Vdc	0.5A	1A	M12, 2 meter	ATM	Max. 80°C	0.7
FDMRN8B0B	SUS 304 (Float:NBR)	50W/SPST	240Vac 200Vdc	0.5A	1A	PVC,22 AWG	ATM	Max. 80°C	0.7
FDMRN8C0B	SUS 304 (Float:NBR)	50W/SPST	240Vac 200Vdc	0.5A	1A	Silicon	ATM	Max. 100°C	0.7
FDMRN8D0B	SUS 304 (Float:NBR)	50W/SPST	240Vac 200Vdc	0.5A	1A	DIN 43650	ATM	Max. 80°C	0.7

■ FDB-0450 PARTS OF SLOSH SHIELD



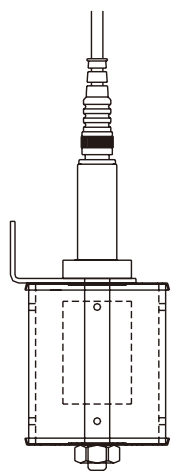
Acrylic for case Upper/Lower



Acrylic cover

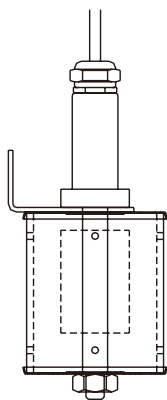
HOW TO ORDER MARINE LEVEL SWITCHES

► FDMRN5A



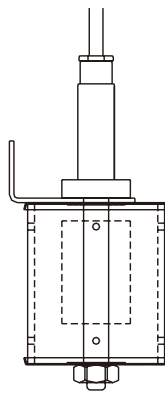
A TYPE

► FDMRN5B



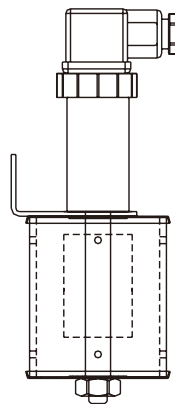
B TYPE

► FDMRN5C



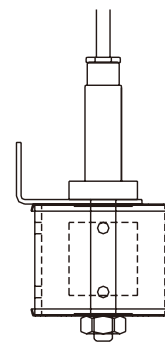
C TYPE

► FDMRN5D



D TYPE

► FDMRN8C



C TYPE

MODEL / NUMBER ORDER CODE COMPARISON TABLE

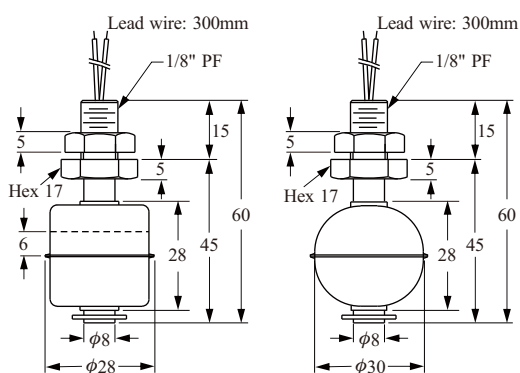
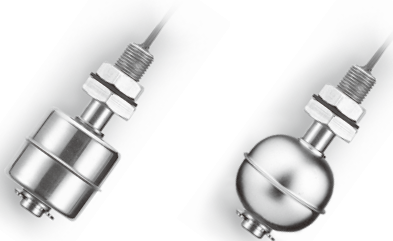
Model Number	Order Code
FDMRN5A0B	FDM20000-N5MAAB
FDMRN5B0B	FDM20000-N5MACB
FDMRN5C0B	FDM20000-N5MADB
FDMRN5D0B	FDM20000-N5MABB
FDMRN8A0B	FDM20000-N8MAAB220
FDMRN8B0B	FDM20000-N8MACB233
FDMRN8C0B	FDM20000-N8MADB250
FDMRN8D0B	FDM20000-N8MABB

ORDER INFORMATION (MARINE LEVEL SWITCHES)

	07	08	09	10	11	12	13	14	15	16	17	18	19	20
FDM 2 0 0														
07 08 Certification														
00: None														
09 10 The material of the float														
N5: $\phi 30 \times 45L$ (NBR)														
N8: $\phi 30 \times 32L$ (NBR)														
11 12 The material of the probe														
MA: SUS 304														
MC: SUS 316L														
13 Wiring														
A: M12														
B: DIN														
C: Cable wire type 1 (B type)														
D: Cable wire type 2 (C Type)														
14 Contact type														
A: NO														
B: NC														
15 16 17 Material of Lead wire														
233: PVC (80°C AWG22 Cable)														
250: Silicon (150°C AWG24 Cable)														
220: PUR (for M12)														
000: None														
18 19 20 Lead wire Length														
001: 100mm														
002: 200mm														
003: 300mm														
004: 400mm														
005: 500mm														
006: 600mm														
007: 700mm														
008: 800mm														
009: 900mm														
010: 1000mm														
020: 2000mm														
100: 10m														
000: None														

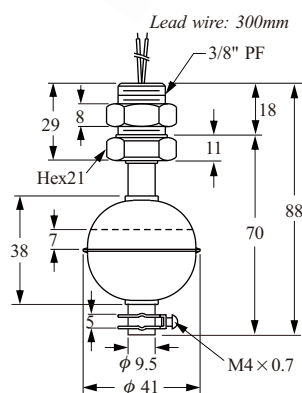
STAINLESS STEEL MODELS

► FD 30□1/ FD 35□1



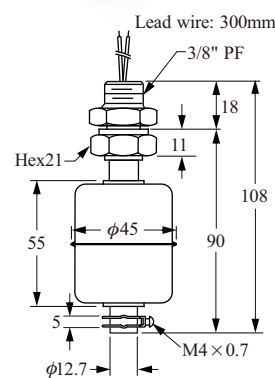
Washer: NBR
Drill hole φ10mm

► FD 40□1



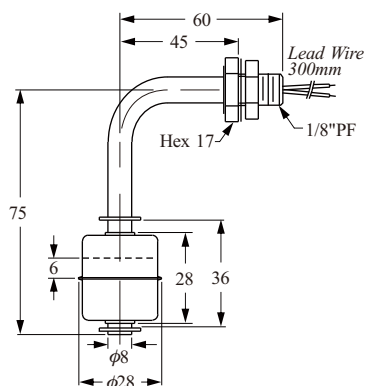
Washer: NBR
Drill hole φ17mm

► FD 45□1



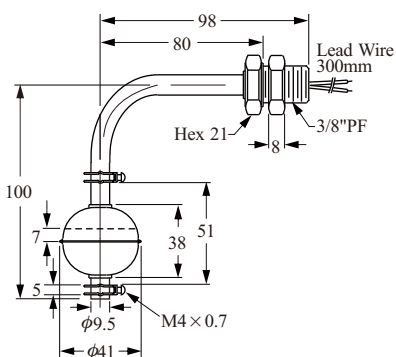
Washer: NBR
Drill hole φ17mm

► FD 30□2



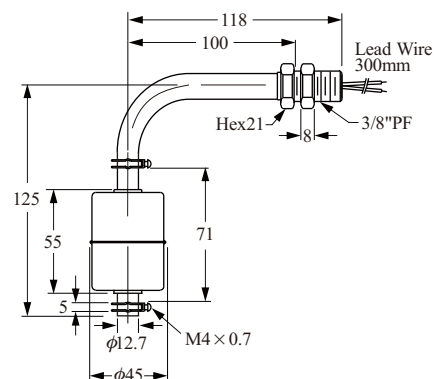
Washer: NBR
Drill hole φ10mm

► FD 40□2



Washer: NBR
Drill hole φ17mm

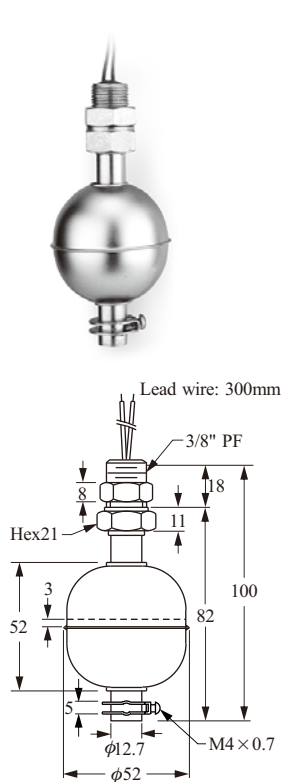
► FD 45□2



Washer: NBR
Drill hole φ17mm

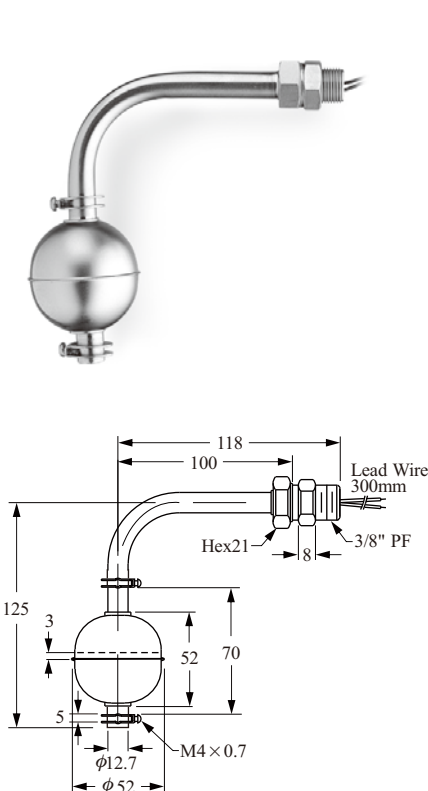
METAL TYPES

► FD 50□1



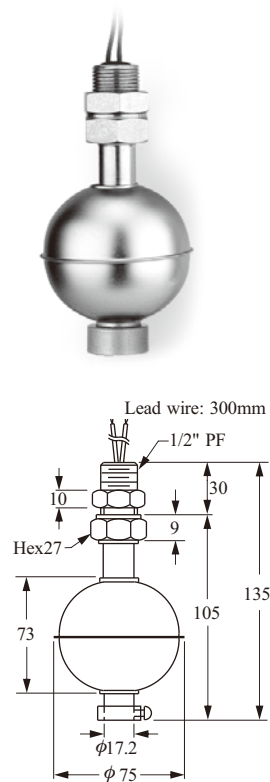
Washer: NBR
Drill hole $\phi 17\text{mm}$

► FD 50□2



Washer: NBR
Drill hole $\phi 17\text{mm}$

► FD 75□1



Washer: NBR
Drill hole $\phi 21\text{mm}$

■ SPECIFICATIONS

Type	FD30□1D FD30□2D	FD40□1D FD40□2D	FD45□1D FD45□2D	FD50□1D FD50□2D	FD75□1G	FD10□1G
Description						
Material	Stainless Steel SUS304, 316					
Switching Capacity Max.	50W SPST	50W SPST	50W SPST	50W SPST	50W SPST	
Switching Voltage Max.	240Vac/200Vdc				220Vac	
Switching Current Max. (A)	0.5A	0.5A	0.5A	0.5A	1A	
Carry Current Max. (A)	1A	1A	1A	1A	2A	
Lead Wire	XLPE (UL3266, AWG22)					
Reversible Switch Action	YES / below 80°C, NO / UP 80°C				NO	NO
Max. Pressure (Kg/cm ²)	10	30	12	30	30	10
Operating Temperature	-20~120°C (OPTION 200°C)					
Suitable Specific Gravity	0.7	0.7	0.65	0.55	0.65	0.5

MODEL / NUMBER ORDER CODE COMPARISON TABLE

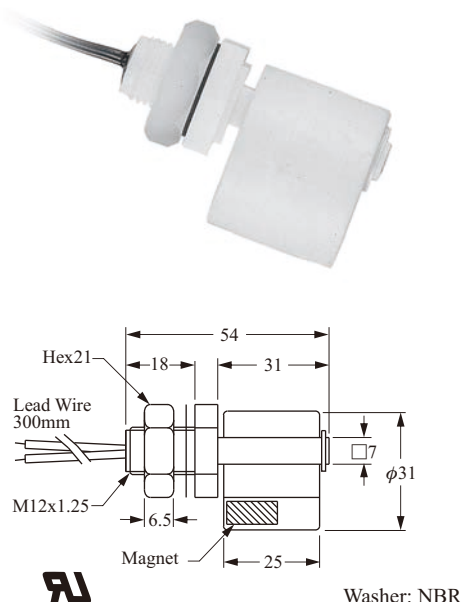
Model Number	Order Code
FD30□1D	FDM3003A-30MA
FD30□2D	FDM3003A-30
FD40□1D	FDM3003A-40
FD40□2D	FDM3003A-40
FD45□1D	FDM3003A-45
FD45□2D	FDM3003A-45MAHD
FD50□1D	FDM3003A-50
FD50□2D	FDM3003A-50
FD75□1G	FDM3003A-75
FD10□1G	FDM3003A-10

ORDER INFORMATION (STAINLESS STEEL SWITCHES)

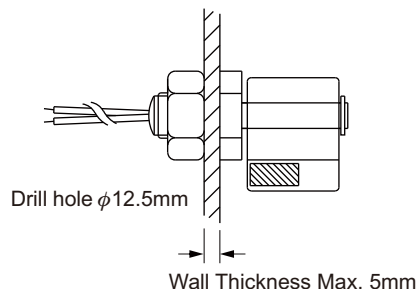
	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21
FDM 3	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
05 06 Model																	
00: Standard																	
02: Hi-temperation																	
07 08 Certification																	
00: None																	
09 10 Type																	
10: ϕ 75x108 ,1/2"PF	35: ϕ 30x28,1/8"PF					45: ϕ 45x55,3/8"PF											
30: ϕ 28x28,1/8"PF	36: ϕ 30x28,1/8"NPT					50: ϕ 52x52,3/8"PF											
31: ϕ 28x28,1/8"NPT	40: ϕ 41x38,3/8"PF					75: ϕ 75x73,1/2"PF											
11 12 Probe material																	
MA: SUS 304																	
MB: SUS 316																	
13 Mounting																	
V: Top or Bottom Mounting																	
H: Side Mounting																	
14 Switching Capacity Max.																	
D: 50W 240VAC/200VDC SPST																	
F: 10W 125VAC SPST																	
K: 20W 150VAC/200VDC SPDT																	
15 Contact Mode																	
A: SPST, Normal Open	D: Normal Closed Reversible																
B: SPST, Normal Closed	E: Normal Open Reversible																
C: SPDT																	
16 17 18 Material of Lead wire																	
250: Silicon (150°C AWG24 Cable)	232: PVC (80°C AWG24 Cable)																
210: Teflon (200°C AWG24)	231: PVC (80°C AWG22 Cable)																
291: XLPE (125°C AWG22)	230: PVC (80°C AWG22)																
300: XLPVC (105°C AWG24)																	
19 20 21 Lead wire Length																	
001: 100mm	005: 500mm					009: 900mm											
002: 200mm	006: 600mm					010: 1000mm											
003: 300mm	007: 700mm					020: 2000mm											
004: 400mm	008: 800mm					100: 10m											

PLASTIC OH MODELS

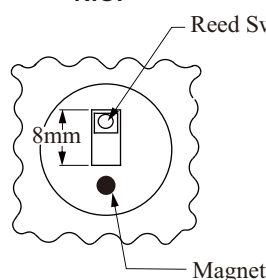
► FCH11QD



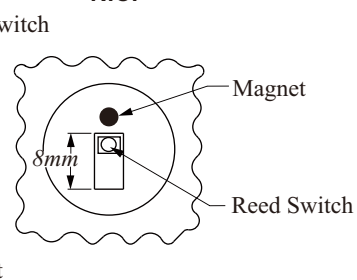
■ Installation / N.C./ N.O. Action Position



Normally open
N.O.



Normally closed
N.C.



- All the products in this range come with UL E161587 approval.
- All the products in this range are designed to be side mounted.
- Water's specific gravity is used as the reference point for calculations.

■ SPECIFICATIONS

Description \ Type	FCH11QD	FCH21PD FCH31PD	FCH23FD FCH33FD	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 ²)	ATM	4 kg/cm ²	2 kg/cm ²	
Operating Temperature	-20~80°C		-20~120°C	
Material	PP		PVDF	Polysulfone
Suitable Specific Gravity	0.6	0.65	0.85	0.85
Weight	25 g	H21: 22 g H31: 21 g	25 g	25.4 g

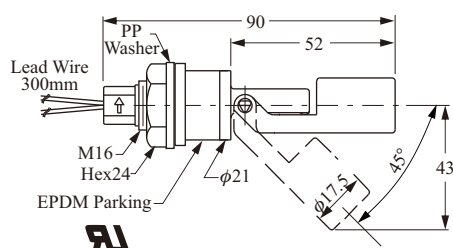
PLASTIC OH MODELS

► FC H21PD / H31PD



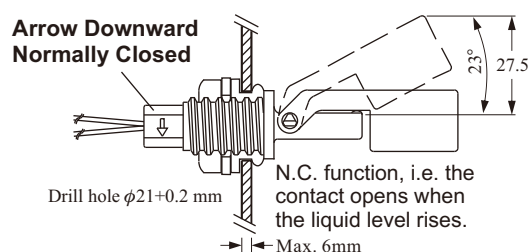
- FCH2 and FCH3 models are available in PP and PVDF.
- Special lead wire/cable are available on request.
- Different reed switches are available for selection.
- For standard design specifications see catalog (p14).
- OEM designs are welcome.

■ Optional FC H21PDO(Round)

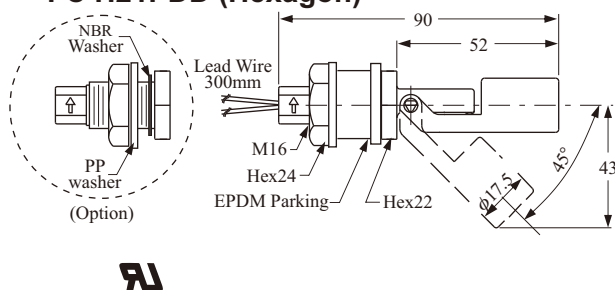


■ Installation / N.C. / N.O. Action Position

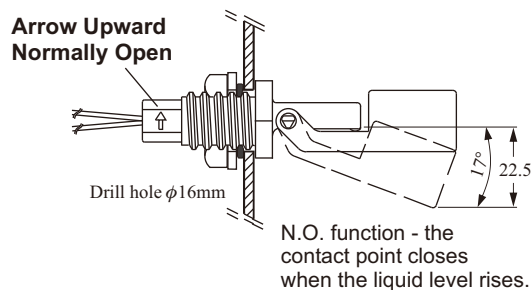
[External mounting]



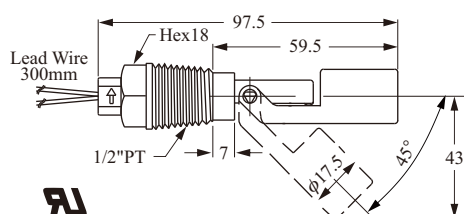
■ Standard FC H21PDD (Hexagon)



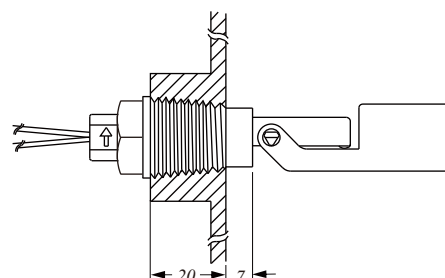
[Internal mounting]



■ FC H31PD

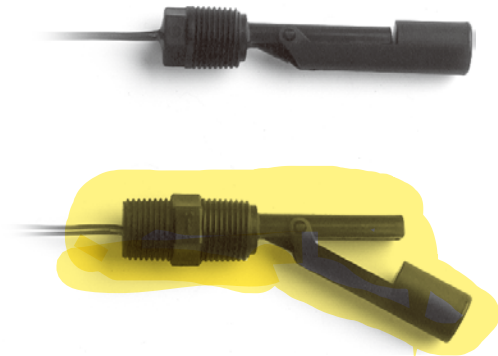


[External mounting]

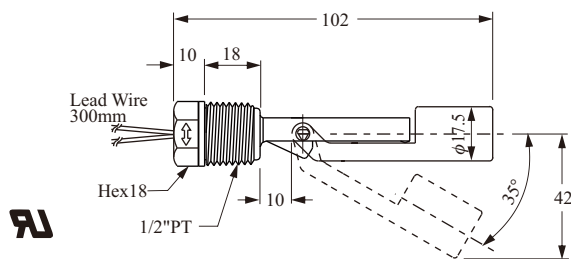


PLASTIC OH MODELS

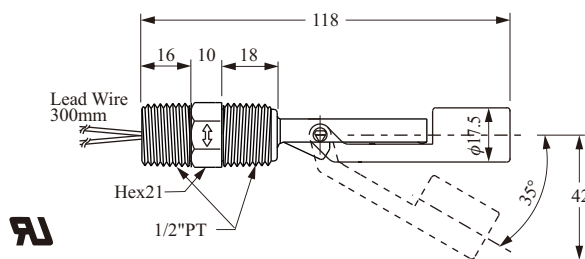
► FC H41PD / H51PD



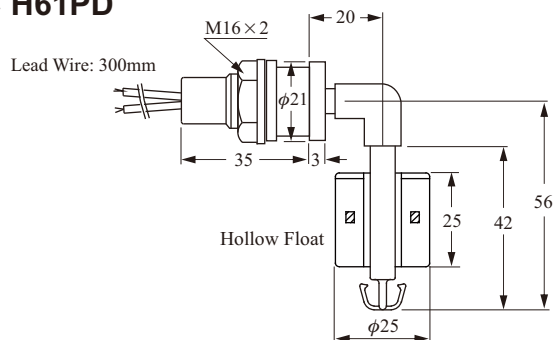
■ FC H41PD



■ FC H51PD



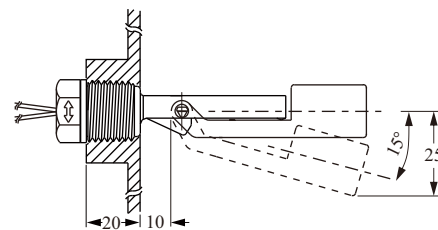
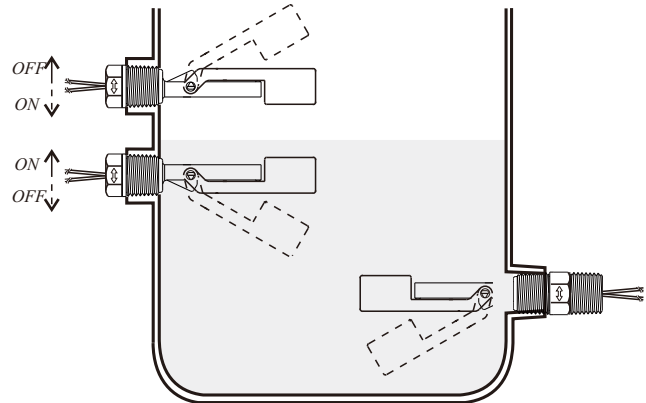
■ FC H61PD



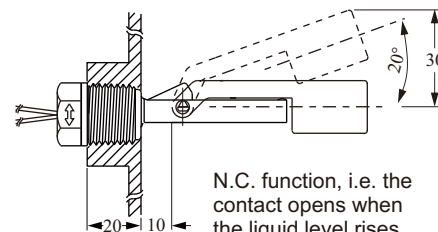
■ SPECIFICATIONS

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 ²	-20~80°C	0.55	20g
FCH51PD										25g
FCH61PD						PVC				31g

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



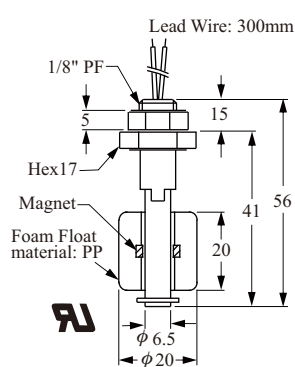
N.O. function, i.e. the contact closes when the liquid level rises.



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

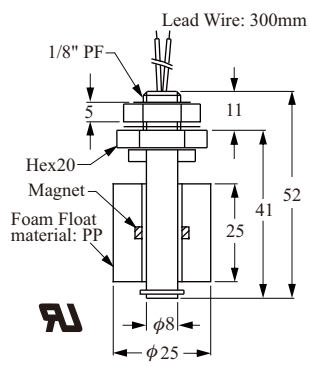
PLASTIC OV MODELS

► FC V11QF



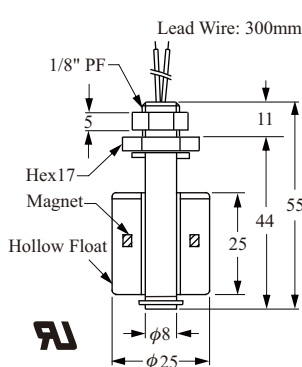
Washer: NBR
Drill hole $\phi 10\text{mm}$

► FC V21QD



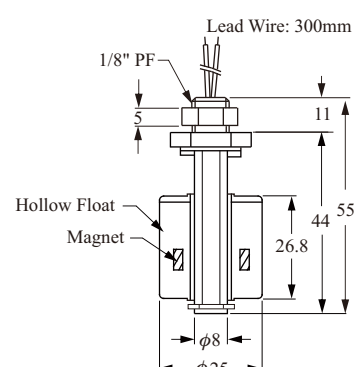
Washer: NBR
Drill hole $\phi 10\text{mm}$

► FC V31PD



O-ring: VITON
Drill hole $\phi 10\text{mm}$

► FC V33FD, 35GD



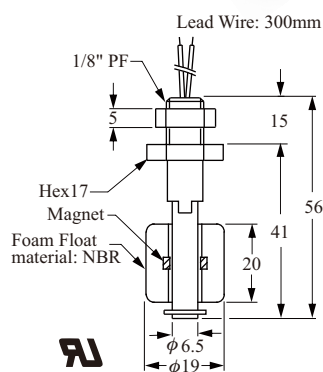
O-ring: VITON
Drill hole $\phi 10\text{mm}$

■ SPECIFICATIONS

Description \ Type	FC V11QF	FC V21QD	FC V31PD	FC V33FD	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	NO	YES/ 80°C down		
Max. Pressure (Kg/cm ²)	ATM		4 kg/cm ²	2 kg/cm ²	
Operating Temperature	-20~80°C		-20~80°C	-20~120°C	
Material	PP		PP	PVDF	Polysulfone
Suitable Specific Gravity	0.75	0.7	0.7	0.85	0.85
Weight (g)	12 g	18 g	12.8 g	18 g	18 g

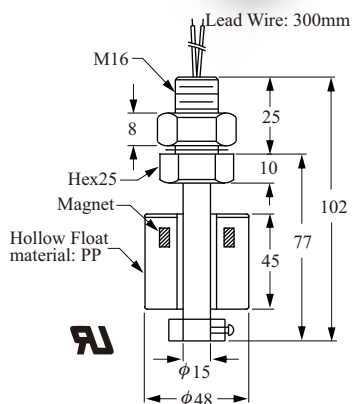
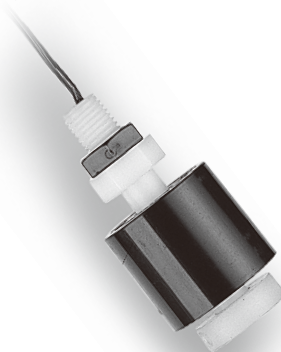
PLASTIC OV MODELS

► FC V11NF



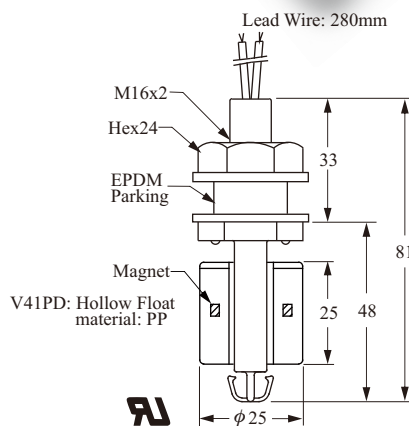
Washer: NBR
Drill hole $\phi 10\text{mm}$

► FC V81PD



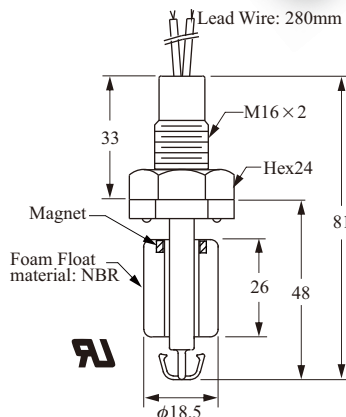
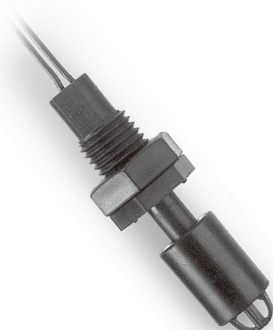
Washer: NBR
Drill hole $\phi 16\text{mm}$

► FC V41PD



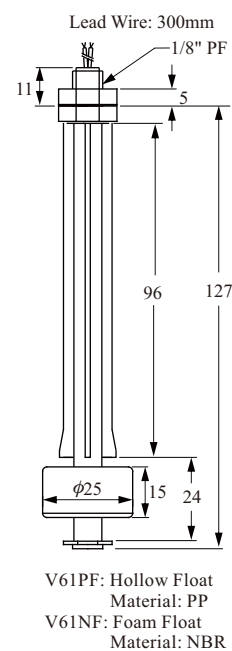
Washer: NBR
Drill hole $\phi 16\text{mm}$

► FC V41ND



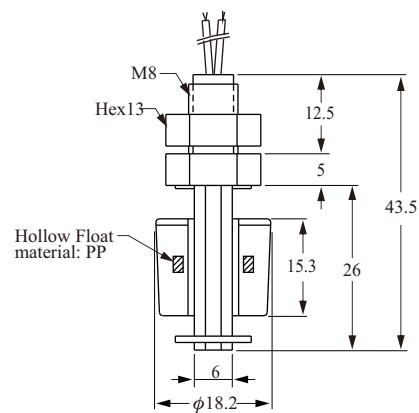
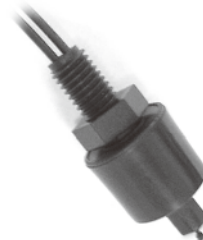
Washer: NBR
Drill hole $\phi 16\text{mm}$

► FC V61PF, V61NF



Washer: NBR
Drill hole $\phi 10\text{mm}$

► FC V51PD

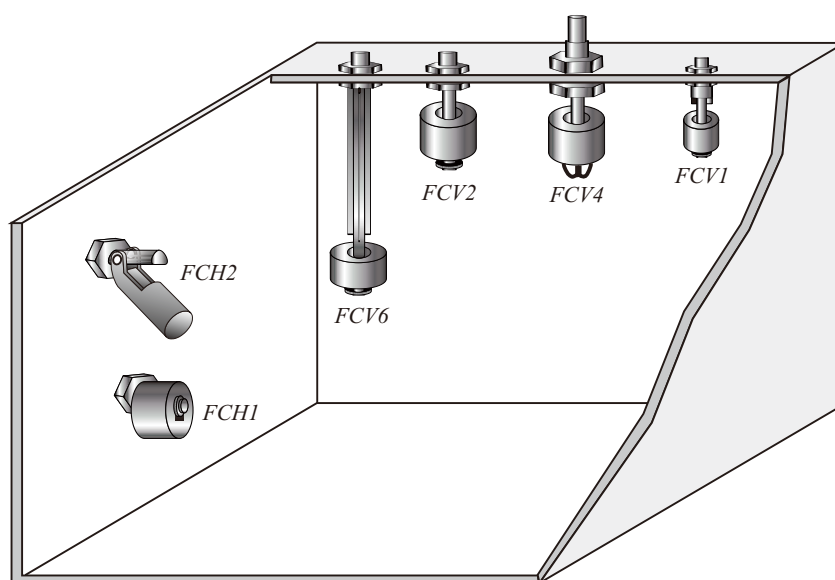


O-Ring: VITON
Drill hole $\phi 8.5\text{mm}$

PLASTIC OV MODELS

■ SPECIFICATIONS

Type Description	FC V11NF	FC V61PF FC V61NF	FC V41PD	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	NO	NO
Max. Pressure (kg/cm ²)	ATM	V61P: 4kg/cm ² V61N: ATM	4kg/cm ²	4 kg/cm ²	ATM	4 kg/cm ²
Operating Temperature	-20~80°C					80°C
Material	PP (except V11N, V61N, V41N: NBR float)					
Suitable Specific Gravity	0.55	0.65 0.5	0.55	0.6	0.7	0.8
Weight (g)	11 g	16 g	23 g	180 g	17 g	8.2 g



MODEL / NUMBER ORDER CODE COMPARISON TABLE

Model Number	Order Code
FCH11QD	FCM1003A-H1181DD
FCH21PD	FCM1003A-H2
FCH31PD	FCM1003A-H3180DD
FCH23FD	FCM1003A-H2
FCH33FD	FCM1003A-H3240DD
FCH24YD	FCM1003A-H2
FCH34YD	FCM1003A-H3090DD
FCH25GD	FCM1003A-H2160DD
FCH35GD	FCM1003A-H3160DD
FCH41PD	FCM1003A-H4180DD
FCH51PD	FCM1003A-H5180DD
FCH61PD	FCM1003A-H6180D

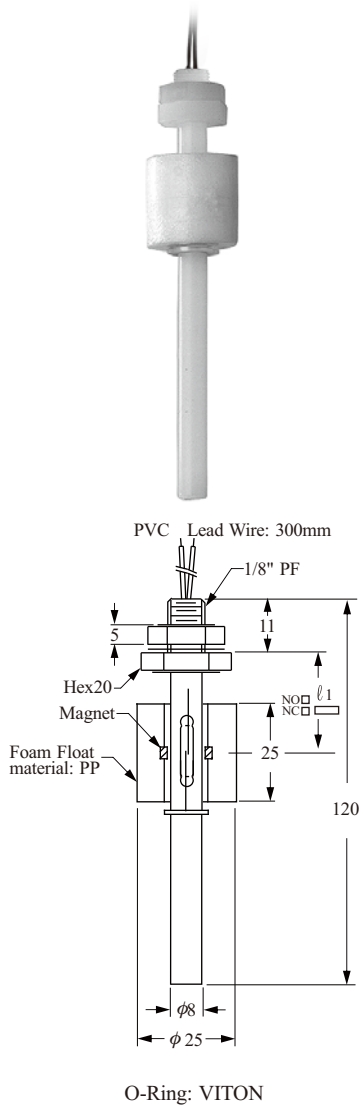
FCV11QF	FCM1003A-V1181F
FCV21QD	FCM1003A-V2181D
FCV31PD	FCM1003A-V3180D
FCV33FD	FCM10000-V3240D
FCV35GD	FCM10000-V3
FCV11NF	FCM1003A-V1070F
FCV61PF	FCM1003A-V6180F
FCV61NF	FCM1003A-V6070F
FCV41PD	FCM1003A-V4
FCV81PD	FCM1003A-V8180D
FCV41ND	FCM1003A-V4070D
FCV51PD	FCM1003A-V5180D

ORDER INFORMATION (PLASTIC MODELS)

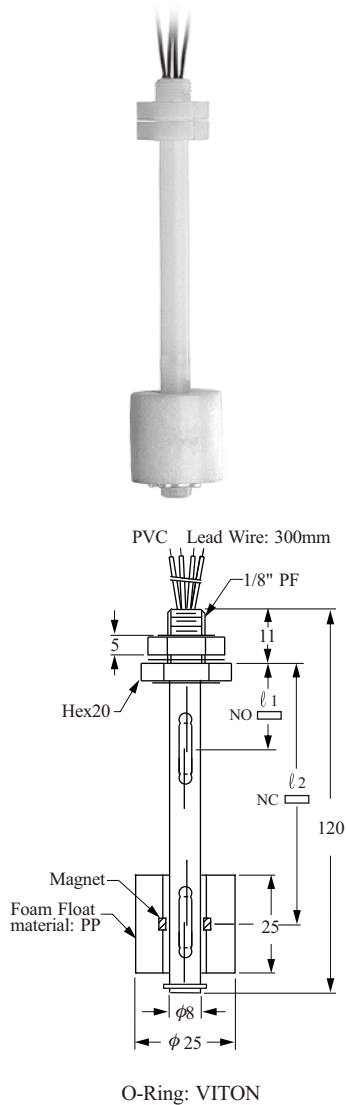
	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21
FCM 1 0 0															
⑦⑧ Certification															
00: None															
⑨ Mounting															
V: Top or bottom mounting															
H: Side mounting															
⑩ Type															
1: Type 1															
2: Type 2															
3: Type 3															
4: Type 4															
5: Type 5															
6: Type 6															
7: Type 7															
8: Type 8															
⑪⑫⑬ Material of Wetted parts															
240: PVDF(Float), PVDF(Floating pole)															
070: NBR(Float), PP(Floating pole)															
180: PP(Hollow float), PP(Floating pole)															
181: PP(Foam float), PP(Floating pole)															
⑭ Switching Capacity Max.															
D: 50W 240VAC/200VDC SPST															
F: 10W 125VAC SPST															
K: 20W 150VAC/200VDC SPDT															
⑮ Contact Mode															
A: SPST, Normal Open															
B: SPST, Normal Closed															
D: Normal Closed Reversible															
E: Normal Open Reversible															
C: SPDT															
⑯⑰⑱ Material of Lead wire															
210: Teflon (200°C AWG24)															
250: Silicon(125°C AWG24 Cable)															
290: XLPE (125°C AWG22)															
300: XLPVC (105°C AWG24)															
230: PVC (80°C AWG22)															
231: PVC (80°C AWG22 Cable)															
232:PVC(80°C AWG24 Cable)															
⑲⑳㉑ Lead wire Length															
001: 100mm															
002: 200mm															
003: 300mm															
004: 400mm															
005: 500mm															
006: 600mm															
008: 800mm															
009: 900mm															
010: 1000mm															
020: 2000mm															

CUSTOMIZED PLASTIC MODELS

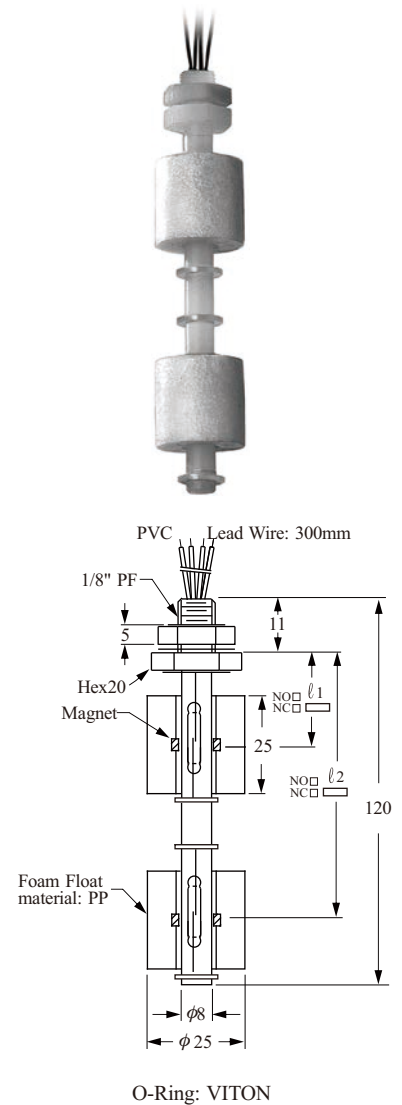
► FC PV1



► FC PV2



► FC PV3



● NOTE: Float material's are optional.

The above items are custom-built when client demands are unique. The benefits are listed below:

- FCPV1 One float for one level activation.
- FCPV2 One float with 2 reed switches.
- Applicable for conditions where 1 float can actuate switches at high and low levels.
- FCPV3 Two floats actuate two independent reed switches: Each float unit's default setting can be either N.O. or N.C. as per cus

MODEL / NUMBER ORDER CODE COMPARISON TABLE

Model Number	Order Code
FCPV1	FCM20000-V118
FCPV2	FCM20000-V2
FCPV3	FCM20000-V318

ORDER INFORMATION (PLASTIC MODELS)

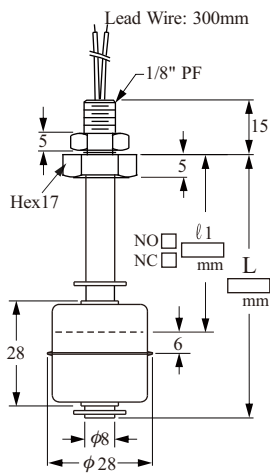
	07	08	09	10	11	12	13	14	15	16	17	18	19	20
FCM 2 0 0														
07 08 Certification														
00: None														
09 10 Mounting														
V1: Single float single switch														
V2: Single float dual switch														
V3: Dual float dual switch														
11 12 Probe material														
18: PP Float														
07: NBR Float, PP(Floating pole)														
24: PVDF, PP(Floating pole)														
13 Switching Capacity Max.														
D: 50W 240VAC/200VDC SPST														
F: 10W 125VAC SPST														
K: 20W 150VAC/200VDC SPDT														
14 Contact Mode														
A: SPST, Normal Open														
B: SPST, Normal Closed														
C: SPDT														
H: Double reed switch 1-NO ,1-NC														
15 16 17 Material of Lead wire														
230: PVC (80°C AWG22)														
231: PVC (80°C AWG22 Cable)														
232:PVC(80°C AWG24 Cable)														
291: XLPE (125°C AWG22)														
18 19 20 Lead wire Length														
001: 100mm	003: 300mm	005: 500mm	008: 800mm	010: 1000mm										
002: 200mm	004: 400mm	006: 600mm	009: 900mm	020: 2000mm										

CUSTOMIZED PLASTIC MODELS

Items below are custom-built models for special applications or placement on existing facilities. Their unique characteristics are as follows:

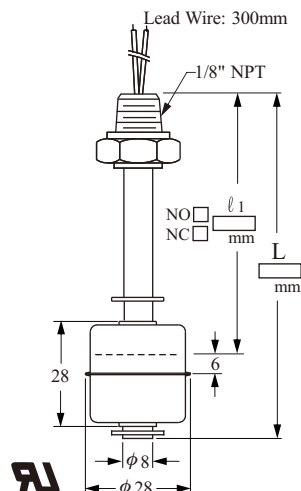
- Any size measuring range, but $\phi 8$ mm stem
Max. 500mm.
- Customized mounting thread specifications are acceptable.
- Single or multiple contact points are workable.
- Switch activation N.O. or N.C. choices are available.

► FDSA□11



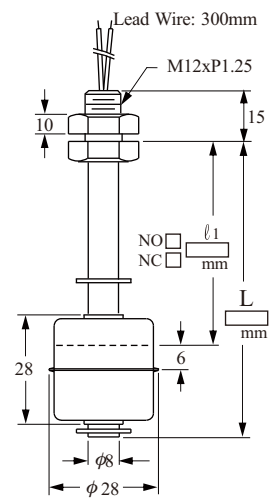
Washer: NBR

► FDSB□11



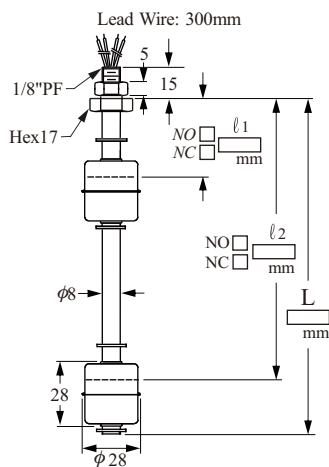
Washer: NBR

► FDSC□11



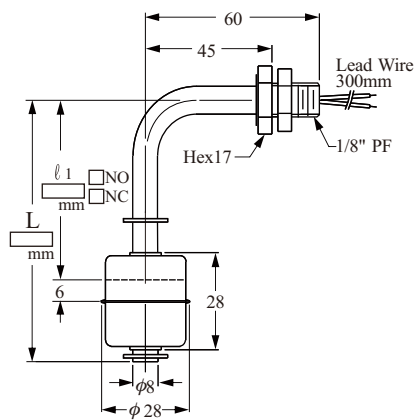
Washer: NBR

► FDSA□12



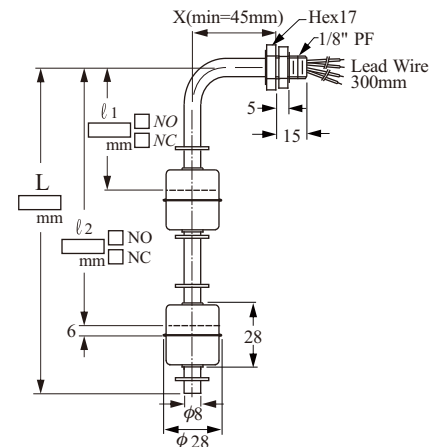
Washer: NBR

► FDSA□21



Washer: NBR

► FDSA□22

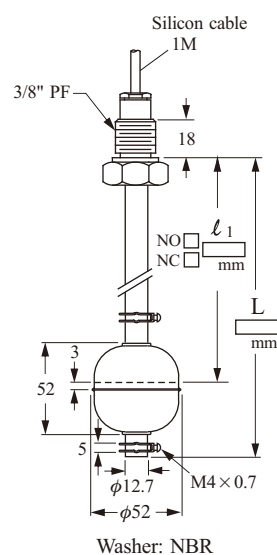


Washer: NBR

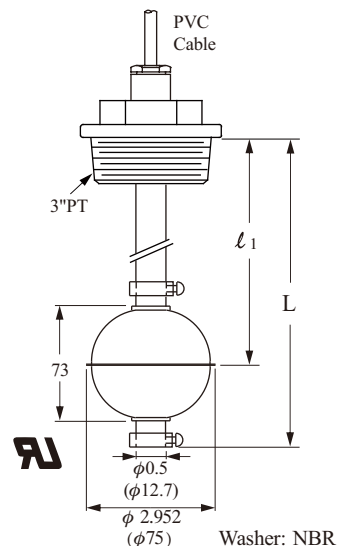
- Any size measurement range available.

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

► **FDSF** ☐ 11



► **FD7503G**



MODEL / NUMBER ORDER CODE COMPARISON TABLE

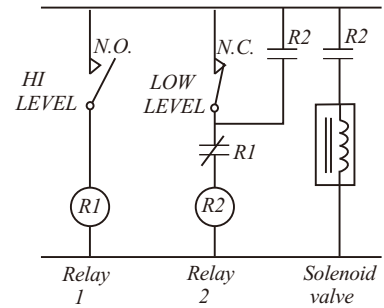
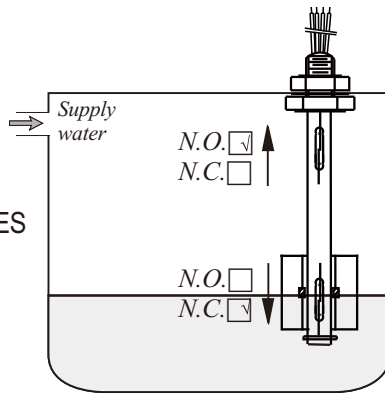
Model Number	Order Code
FDSA□11	FDM40000-SA
FDSB□11	FDM40000-SB
FDSC□11	FDM40000-SC
FDSA□12	FDM40000-SA
FDSA□21	FDM40000-SA
FDSA□22	FDM40000-SA
FDSD□11	FDM40000-SD
FDSE□11	FDM40000-SE
FDSF□11	FDM40000-SF

ORDER INFORMATION (CUSTOMIZED STAINLESS STEEL MODELS)

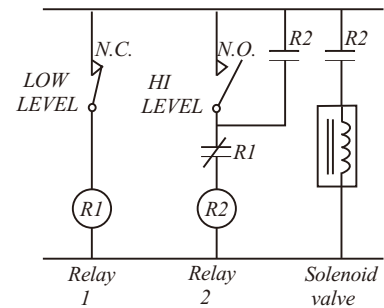
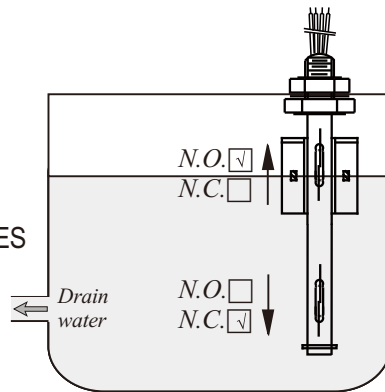
	09	10	11	12	13	14	15	16	17	18	19	20	21	22
FDM 4 0 0 0 0 -														
⑩ ⑪ Type														
SA: Float ϕ 28x28, 1/8"PF								SE: Float ϕ 45x45, 2"PF						
SB: Float ϕ 28x28, 1/8"NPT								SF: Float ϕ 52x52, 3/8"PF						
SC: Float ϕ 28x28, M12								SG: Float ϕ 75x73, 3"PT						
SD: Float ϕ 52x52, 2"PT														
⑪ ⑫ Probe material														
MA: SUS304														
MB: SUS316														
⑬ Mounting														
V: Top or Bottom Mounting														
H: Side Mount														
⑭ Float Number														
1: 1 float														
2: 2 floats														
⑮ Switching Capacity Max.														
D: 50W 240VAC/200VDC SPST														
K: 20W 150VAC/200vdc SPDT														
⑯ Contact Mode														
A: NO														
B: NC														
C: SPDT														
H: 1 NO, 1NC														
⑰ ⑱ ⑲ Material of Lead wire														
210: Teflon (200°C AWG24)														
250: Silicon(150°C AWG24 Cable)														
291: XLPE (125°C AWG22)														
230: PVC (80°C AWG22)														
231:PVC(80°C AWG22 Cable)														
⑳ ㉑ ㉒ Lead wire Length														
001: 100mm	003: 300mm	005: 500mm	008: 800mm	010: 1000mm										
002: 200mm	004: 400mm	006: 600mm	009: 900mm	020: 2000mm										

TYPICAL WIRING DIAGRAMS

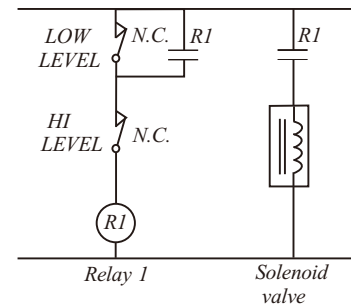
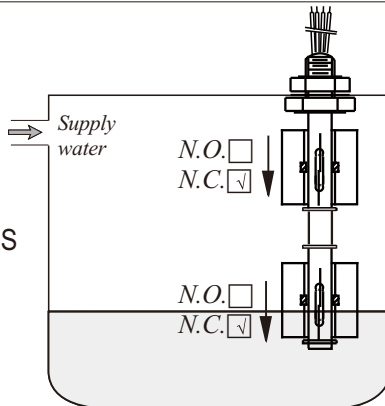
* AUTO SUPPLY CASE:
SINGLE FLOAT DUAL SWITCHES



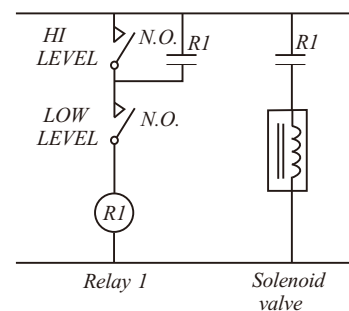
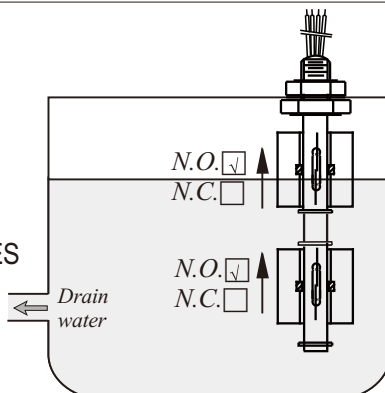
* AUTO DRAIN CASE:
SINGLE FLOAT DUAL SWITCHES



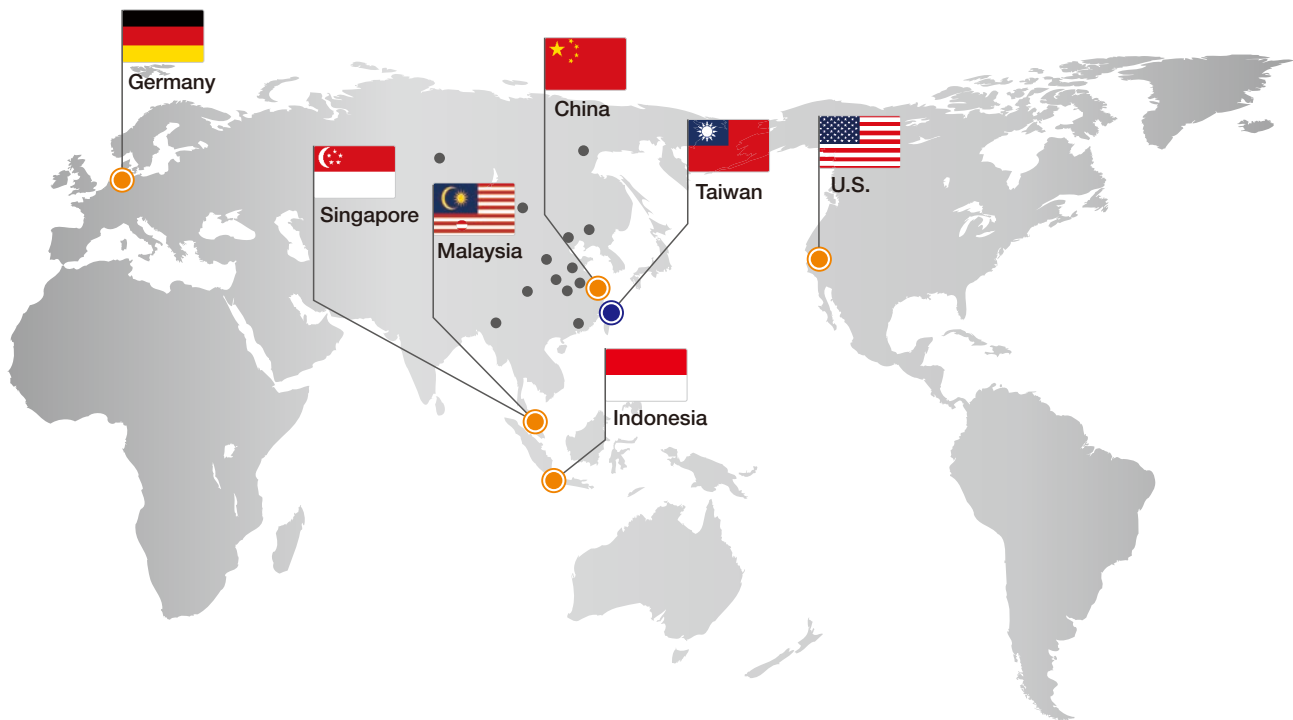
* AUTO SUPPLY CASE:
DUAL FLOATS DUAL SWITCHES



* AUTO DRAIN CASE:
DUAL FLOATS DUAL SWITCHES



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