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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.

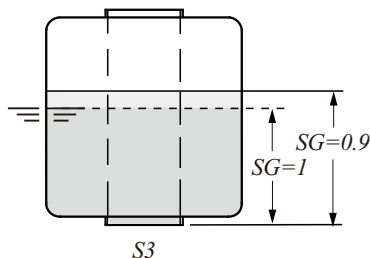
(SG float < SG liquid)

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).

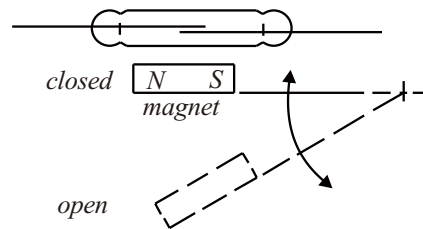
Because the float switches are activated by the magnetic field inside the float, make sure the liquid contains no iron traces or substances that can induce magnetic interference.



(Fig. 3)

■ WORKING PRINCIPLE

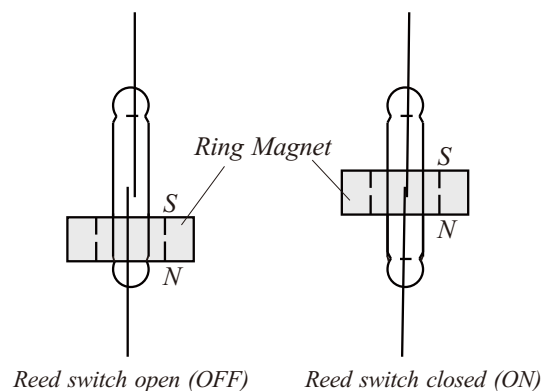
Fig. 1 illustrates the pivot activation (FCH Type reed switch). When float's magnet is moved close to the switch's stationary stem, the float magnet pushes the stem's switch circuit together and closes the electrical circuit. When the float magnet is moved away from the stem, the switch circuit separates 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 ₄ OH	10	40	104	●	●	●	●	○			
	10	80	176		○	●	●				
Aque Regia 3HCl+HNO ₃	10	40	104	△	△	●	●				
	10	80	176			●	●				
Benzene C ₆ H ₆	Pure	40	104	×	△	○	●				
		80	176			△	●				
Bleaching Liquor Ca(ClO) ₂	5	40	104	●		●	●				
	5	80	176			●	●				
	20	40	104	●		●	●				
	20	80	176			●	●				
Boric Acid H ₃ BO ₃	Satu	40	104	●	●	●	●	●			
		80	176		●	●	●	○			
Brine		40	104	●	●	●	●	●			
		80	176		●	●	●				
Butadiene CH ₂ =CH=CH=CH ₂	Gas	40	104	●		●	●				
		80	176			●	●				
Butane CH ₃ (CH ₂) ₂ 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 HOOCOOH	20	40	104	●	●	●	●	●		△	
	20	80	176		●	●	●				
	50	40	104	●	●	●	●			△	
	50	80	176		●	●	●				
Phosphoric Acid H ₃ PO 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									
	13	40	104	●	△	●	●			×	×	
	13	80	176									
	Sulfuric Acid H ₂ SO 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		○	●	●	△	×	×		
	80	40	104	●	●	●	●	●	×	×		
	80	80	176		○	●	●	△				
	90	40	104	○	●	●	●	△	×	×		
	90	80	176		○	●	●	△				
	98	40	104	△		●	○		○	○		
	98	80	176			△	○					
Toluene C ₆ H ₅ CH ₃		40	104		△	△	●					
		80	176				○					
Chlorine Gas Cl ₂	Wet	40	104	○		●	●					
	Wet	80	176			△	●					
	Dry	40	104	●		●	●					
	Dry	80	176			●	●					
Chromic Acid H ₂ CrO 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	●		●	●				
		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	104	△	○	●	●				
		80	176		○	●	●				
		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 $CH_3COC_2H_5$		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 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.

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

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

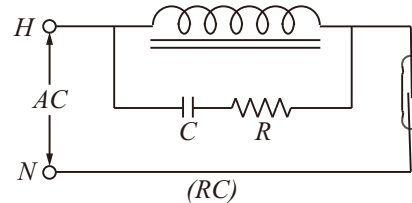
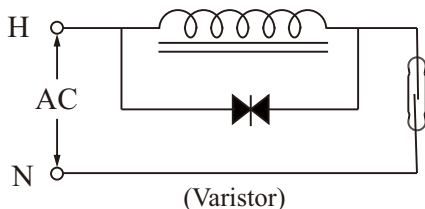
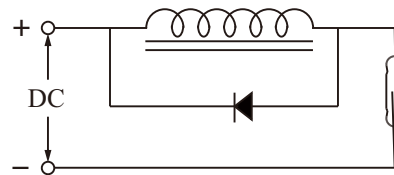


Fig. 4 (a)



(Varistor)

Fig. 4 (b)



(Diode)

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)

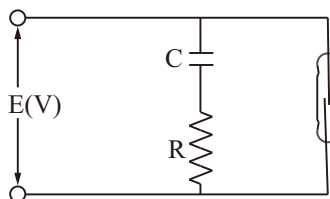


Fig. 5 (a)

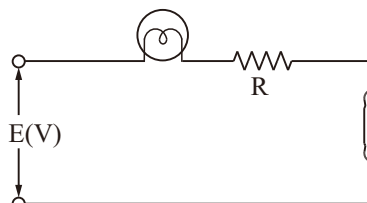
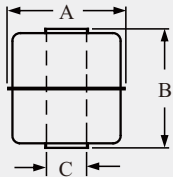
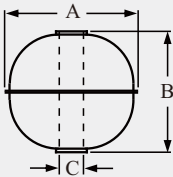
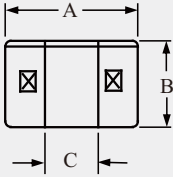
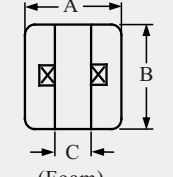
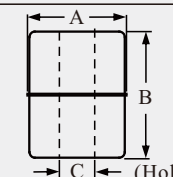


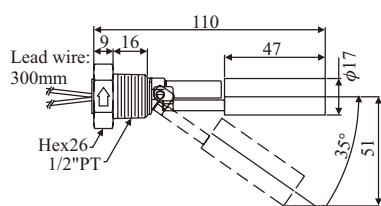
Fig. 5 (b)

FLOAT SPECIFICATIONS

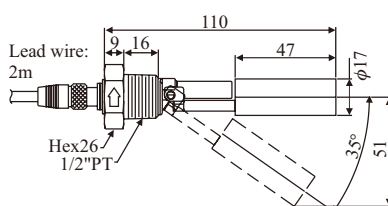
MODEL	TYPE	$\phi A \times B \times \phi C$	S.G.	Max. Pressure (kg/cm ²)	Weight (g)	Material/Color	Max. Temp. (°C)
	S1	28x28x9.5	E>0.7	10	8	SUS 316 / 316L	200
	S3	45x55x15	E>0.65	12	37.6	SUS 316	200
	S6	75x108x20	E>0.5	10	165	SUS 316	200
	S13	38x50x15	E>0.62	12	22.9	SUS 316L	200
	S2	41x38x11	E>0.7	35	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
 <p>(Hollow)</p>	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
 <p>(Foam)</p>	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
 <p>(Hollow)</p>	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

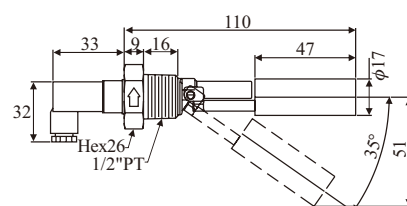
► FD MH50/ 56



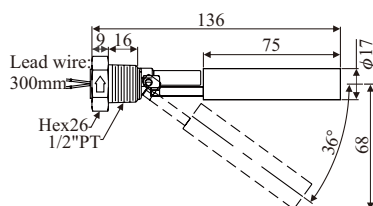
► FD MH50A /56A



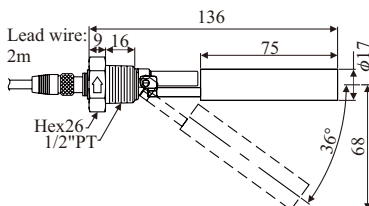
► FD MH50C /56C



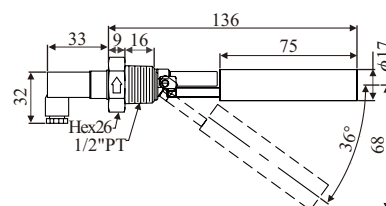
► FD MH60/ 66



► 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

ORDER INFORMATION (STAINLESS STEEL SWITCHES)

FDM 1 0 0 ⑦⑧ ⑨⑩ ⑪⑫ ⑬⑭ ⑮⑯ ⑰⑱ ⑲⑳ ㉑㉒ ㉓

⑦⑧ Certification

00: None

⑨⑩ Type

05: ϕ 17x47L (SG: 0.92)
06: ϕ 17x75L (SG: 0.75)

⑪⑫ Material

MA: SUS 304
MC: SUS 316L

⑬ Wiring

A: M12
B: DIN
C: Cable wire type 1

⑭⑮⑯⑰ Connection

A503: 1/2"PF
A501: 1/2"PT
A507: 1/2"NPT
A505: 1/2"BSP

⑱⑲⑳ Material of Lead wire

250: Silicon(150°C AWG24 Cable)
210: Teflon(200°C AWG24)
291: XLPE(125°C AWG22)
220: PUR(For M12)

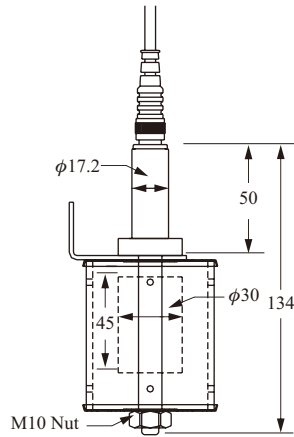
㉑㉒㉓ Lead wire Length

001: 100mm	008: 800mm
002: 200mm	009: 900mm
003: 300mm	010: 1000mm
004: 400mm	020: 2000mm
005: 500mm	100: 10m
006: 600mm	000: None
007: 700mm	

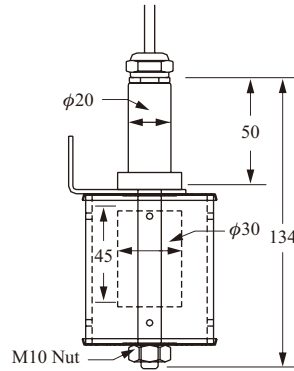
※Connector M12 whose standard wire length is 2m ,5m,10m,15m

MARINE LEVEL SWITCHES

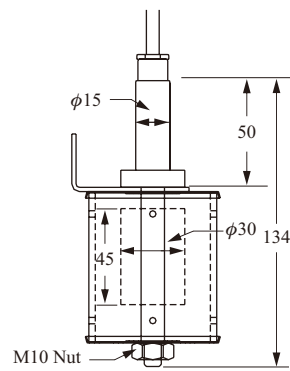
► FDMRN5A0B



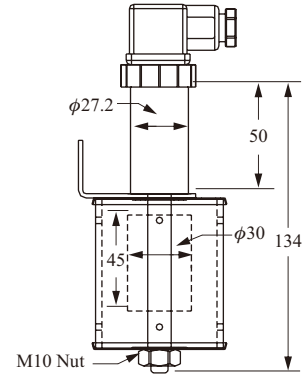
► FDMRN5B0B



► FDMRN5C0B



► FDMRN5D0B

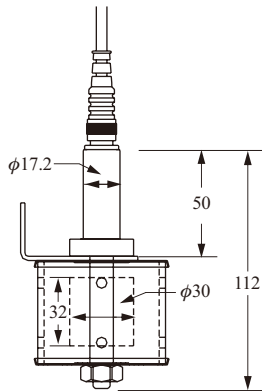


■ SPECIFICATIONS

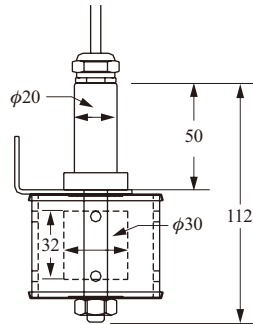
Type	Material	Switching Capacity Max.	Switching Voltage Max.	Switching Current Max.	Carry Current Max.	Lead Wire	Max. Pressure	Operating Temp.	Suitable Sp. Gr.
FDMRN5A0B	SUS 304 (Float:NBR)	50W/SPST	240Vac 200Vdc	0.5A	1A	M12, 2 meter	ATM	Max. 80°C	0.5
FDMRN5B0B	SUS 304 (Float:NBR)	50W/SPST	240Vac 200Vdc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

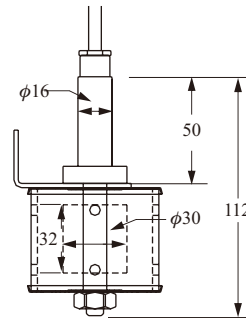
► FDMRN8A0B



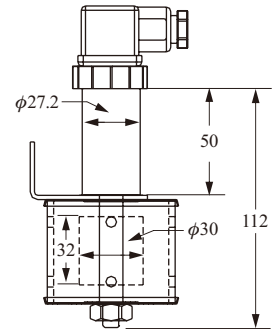
► FDMRN8B0B



► FDMRN8C0B



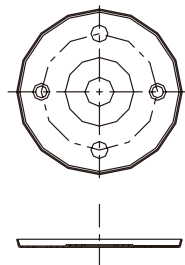
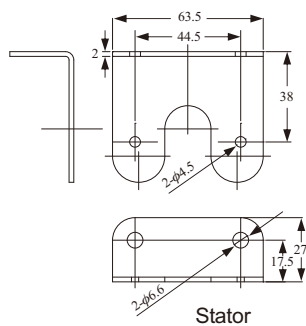
► FDMRN8D0B



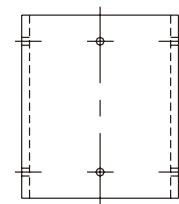
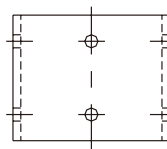
■ SPECIFICATIONS

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

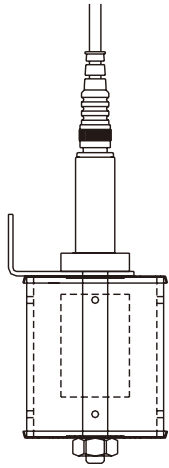
▶ FDMRN5A

▶ FDMRN5B

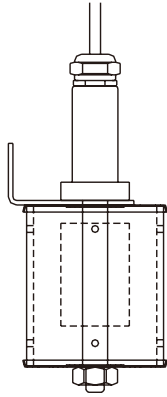
▶ FDMRN5C

▶ FDMRN5D

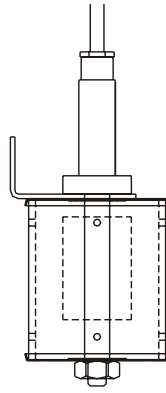
▶ FDMRN8C



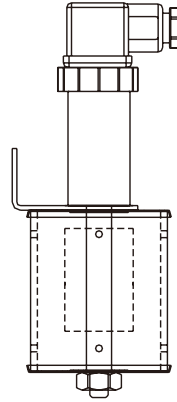
A TYPE



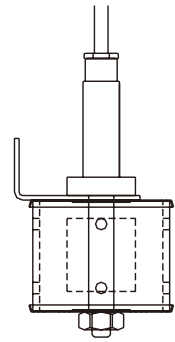
B TYPE



C TYPE



D TYPE



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)

FDM 2 0 0 ⁰⁷ ⁰⁸ - ⁰⁹ ¹⁰ ¹¹ ¹² ¹³ ¹⁴ ¹⁵ ¹⁶ ¹⁷ ¹⁸ ¹⁹ ²⁰

⁰⁷ ⁰⁸ Certification

00: None

⁰⁹ ¹⁰ The material of the float

N5: ϕ 30x45L (NBR)

N8: ϕ 30x32L (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

008: 800mm

002: 200mm

009: 900mm

003: 300mm

010: 1000mm

004: 400mm

020: 2000mm

005: 500mm

100: 10m

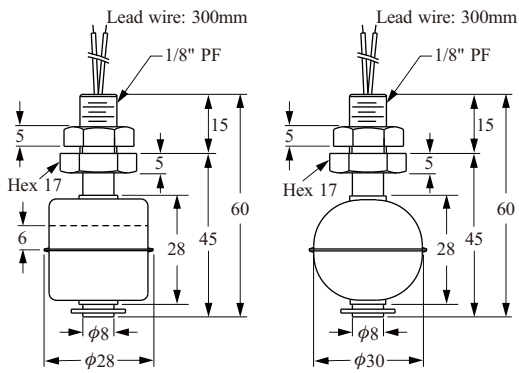
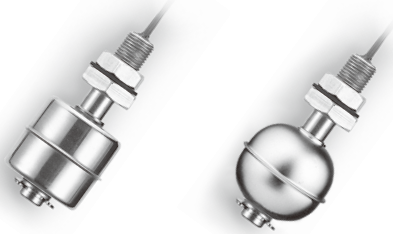
006: 600mm

000: None

007: 700mm

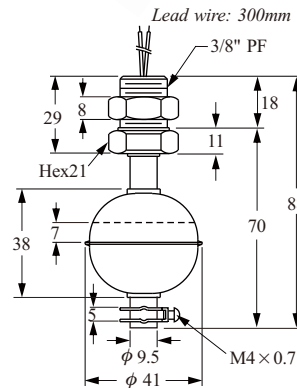
STAINLESS STEEL MODELS

► FD 30□1/ FD 35□1



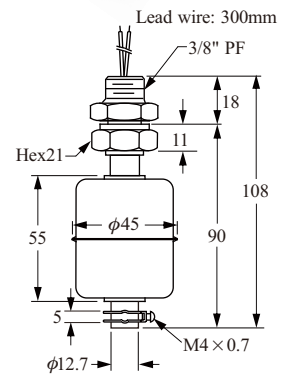
Washer: NBR
Drill hole $\phi 10\text{mm}$

► FD 40□1



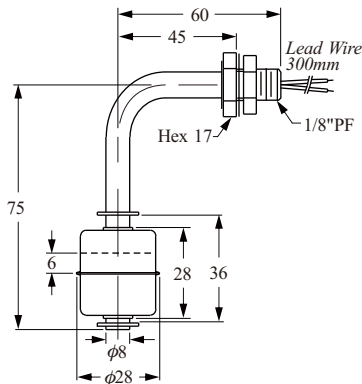
Washer: NBR
Drill hole $\phi 17\text{mm}$

► FD 45□1



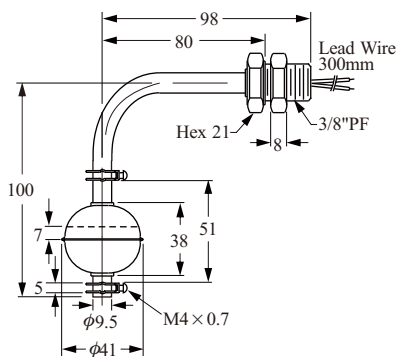
Washer: NBR
Drill hole $\phi 17\text{mm}$

► FD 30□2



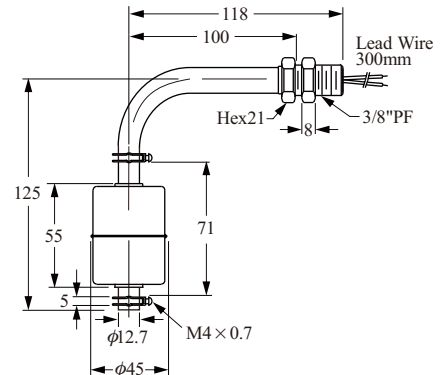
Washer: NBR
Drill hole $\phi 10\text{mm}$

► FD 40□2



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

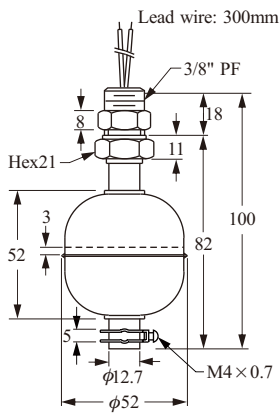
► FD 45□2



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

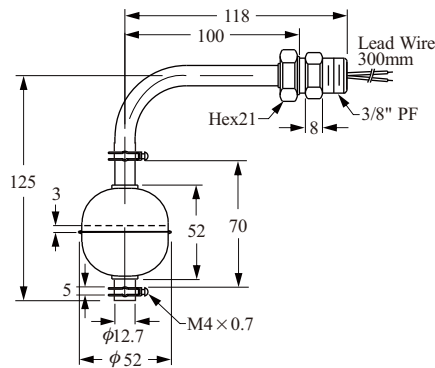
METAL TYPES

► FD 50□1



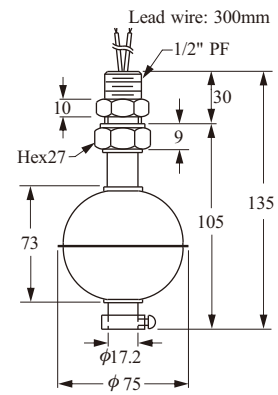
Washer: NBR
Drill hole ϕ 17mm

► FD 50□2



Washer: NBR
Drill hole ϕ 17mm

► FD 75□1



Washer: NBR
Drill hole ϕ 21mm

■ SPECIFICATIONS

Description	Type	FD30□1D FD30□2D	FD40□1D FD40□2D	FD45□1D FD45□2D	FD50□1D FD50□2D	FD75□1G	FD10□1G
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)

FDM 3 ⁰⁵ ⁰⁶ ⁰⁷ ⁰⁸ - ⁰⁹ ¹⁰ ¹¹ ¹² ¹³ ¹⁴ ¹⁵ ¹⁶ ¹⁷ ¹⁸ ¹⁹ ²⁰ ²¹

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

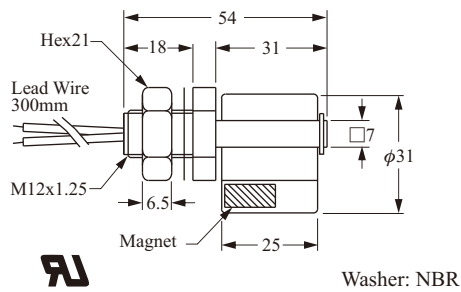
15 Contact Mode
 A: SPST, Normal Open D: Normal Closed Reversible
 B: SPST, Normal Closed E: Normal Open Reversible
 C: SPDT

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)

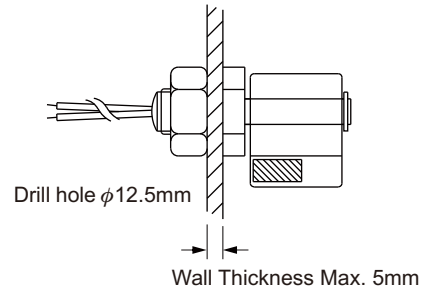
19 20 21 Lead wire Length
 001: 100mm 005: 500mm 009: 900mm
 002: 200mm 006: 600mm 010: 1000mm
 003: 300mm 007: 700mm 020: 2000mm
 004: 400mm 008: 800mm 100: 10m

PLASTIC OH MODELS

► FCH11QD

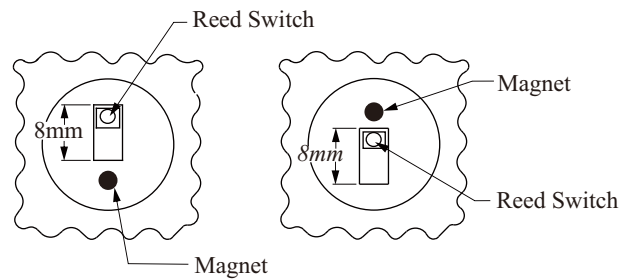


■ Installation / N.C./ N.O. Action Position



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

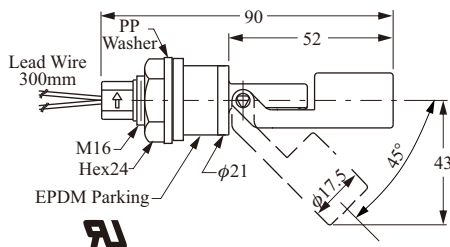
PLASTIC OH MODELS

► FC H21PD / H31PD



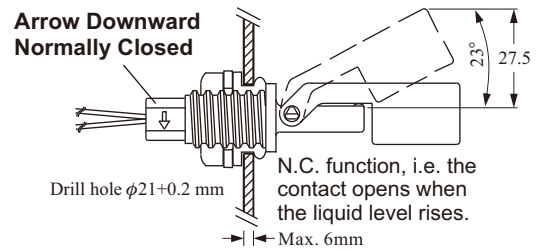
- FCH2 and FCH3 models are available in PP and PVDF.
- Special lead wire/cable are available on request.
- Different reed switches are available for selection.
- For standard design specifications see catalog (p14).
- OEM designs are welcome.

■ Optional FC H21PDO(Round)

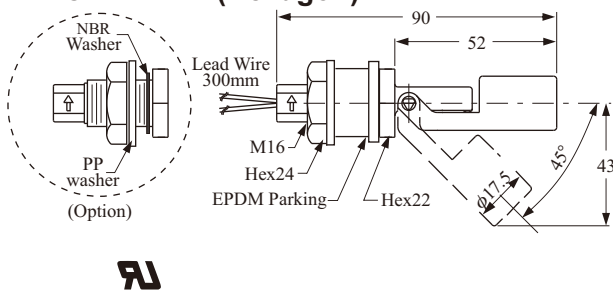


■ Installation / N.C. / N.O. Action Position

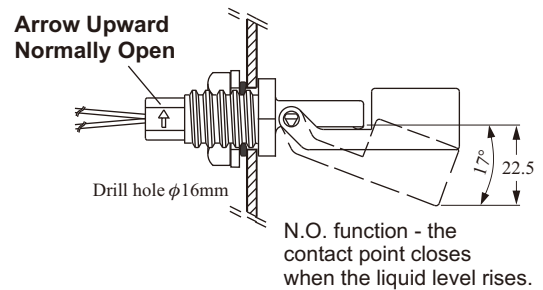
[External mounting]



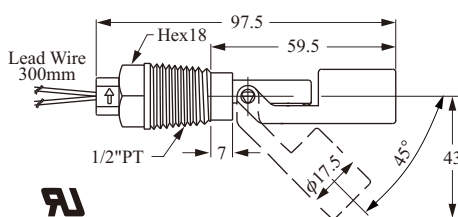
■ Standard FC H21PDD (Hexagon)



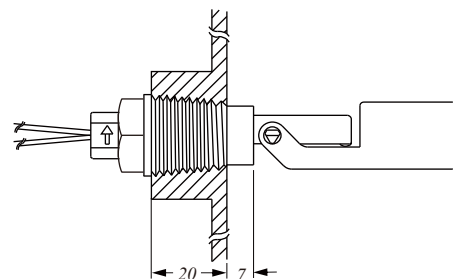
[Internal mounting]



■ FC H31PD



[External mounting]

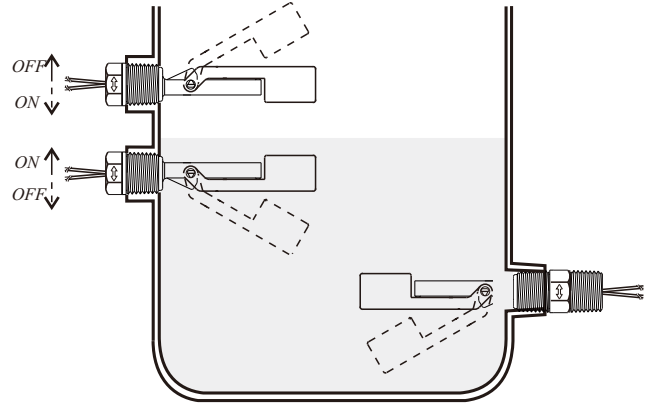


PLASTIC OH MODELS

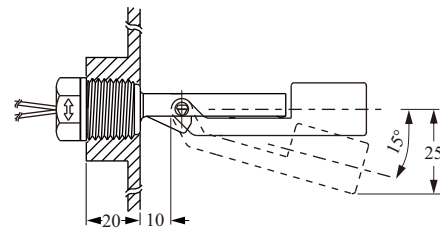
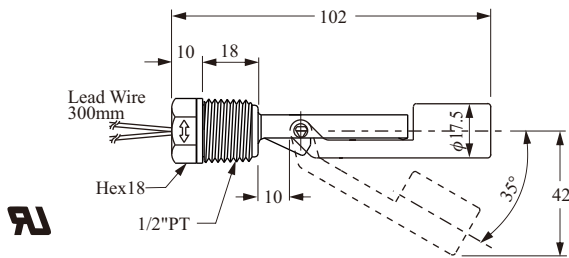
► FC H41PD / H51PD



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

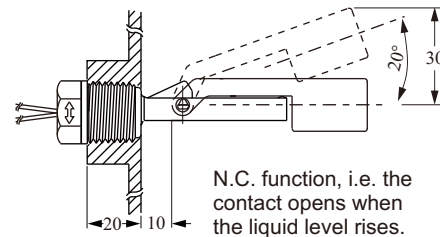
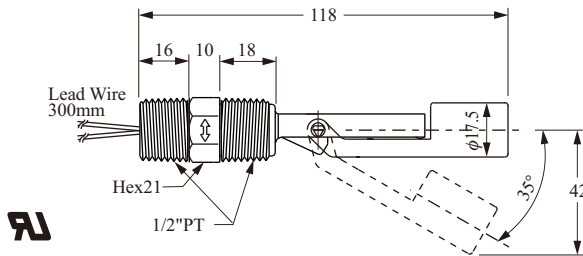


■ FC H41PD



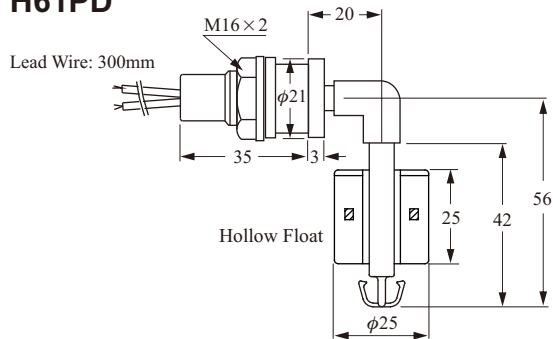
N.O. function, i.e. the contact closes when the liquid level rises.

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

PLASTIC OV MODELS

▶ FC V11QF



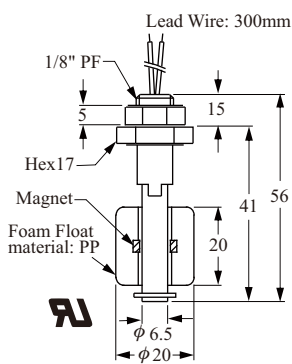
▶ FC V21QD



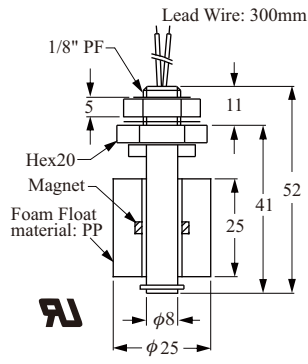
▶ FC V31PD



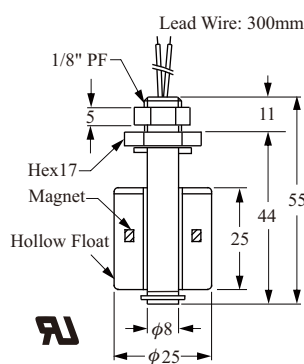
▶ FC V33FD, 35GD



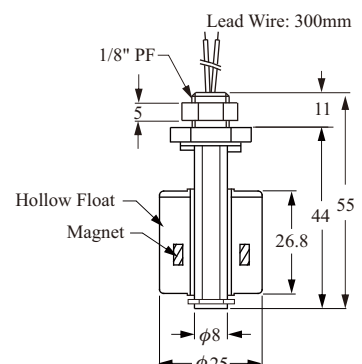
Washer: NBR
Drill hole φ10mm



Washer: NBR
Drill hole φ10mm



O-ring: VITON
Drill hole φ10mm



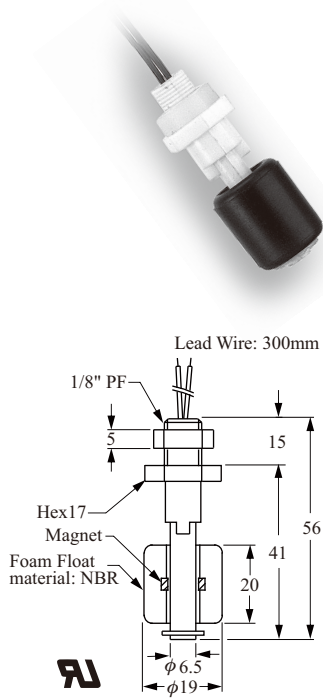
O-ring: VITON
Drill hole φ10mm

■ 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

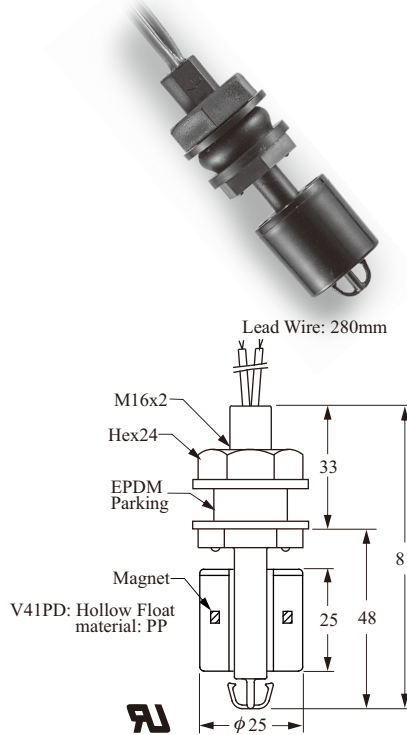
PLASTIC OV MODELS

► FC V11NF



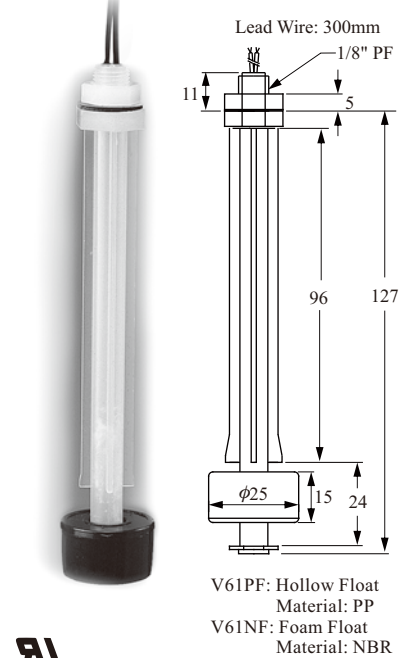
Washer: NBR
Drill hole ϕ 10mm

► FC V41PD



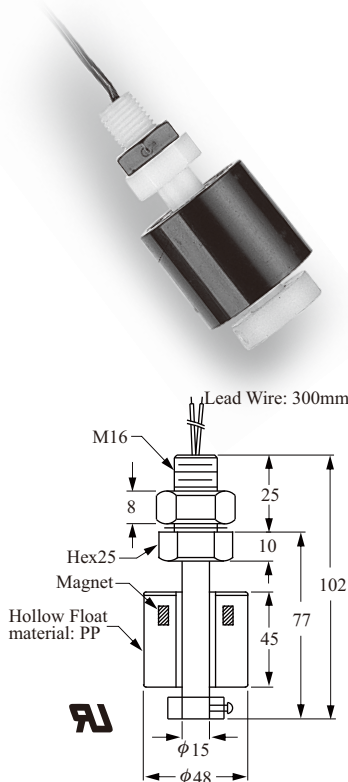
Washer: NBR
Drill hole ϕ 16mm

► FC V61PF, V61NF



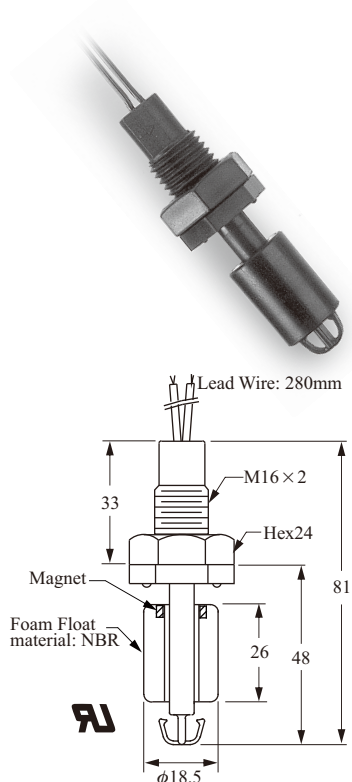
Washer: NBR
Drill hole ϕ 10mm

► FC V81PD



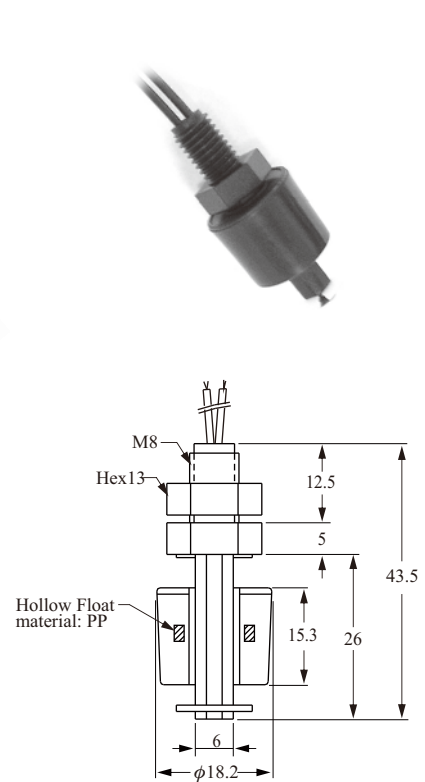
Washer: NBR
Drill hole ϕ 16mm

► FC V41ND



Washer: NBR
Drill hole ϕ 16mm

► FC V51PD

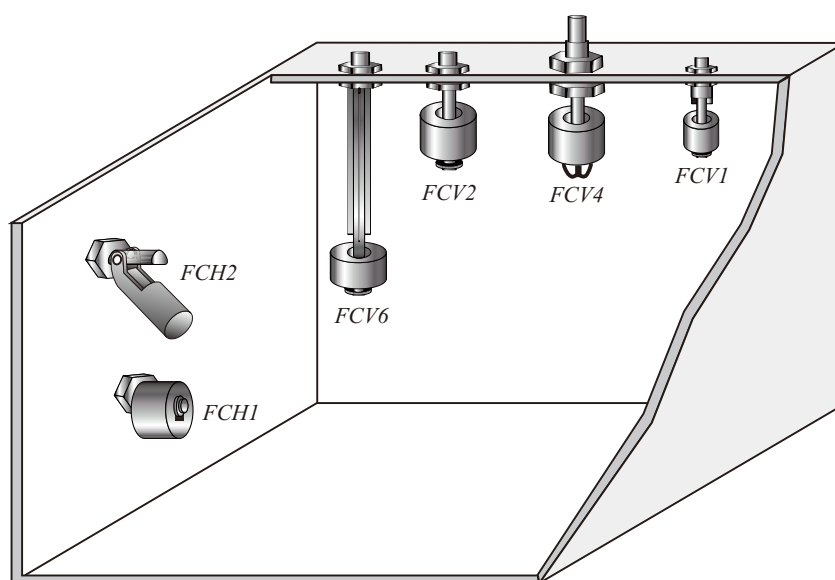


O-Ring: VITON
Drill hole ϕ 8.5mm

PLASTIC OV MODELS

■ SPECIFICATIONS

Description \ Type	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)

FCM 1 0 0 ⁰⁷ ⁰⁸ - ⁰⁹ ¹⁰ ¹¹ ¹² ¹³ ¹⁴ ¹⁵ ¹⁶ ¹⁷ ¹⁸ ¹⁹ ²⁰ ²¹

⁰⁷ ⁰⁸ Certification

00: None

⁰⁹ Mounting

V: Top or bottom mounting
H: Side mounting

¹⁰ Type

1: Type 1 4: Type 4 7: Type 7
2: Type 2 5: Type 5 8: Type 8
3: Type 3 6: Type 6

¹¹ ¹² ¹³ 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

¹⁶ ¹⁷ ¹⁸ Material of Lead wire

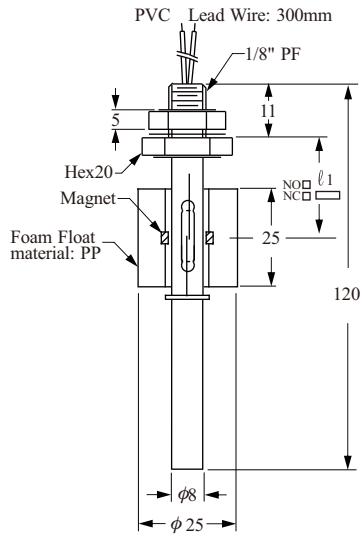
210: Teflon (200°C AWG24)	230: PVC (80°C AWG22)
250: Silicon(125°C AWG24 Cable)	231: PVC (80°C AWG22 Cable)
290: XLPE (125°C AWG22)	232:PVC(80°C AWG24 Cable)
300: XLPVC (105°C AWG24)	

¹⁹ ²⁰ ²¹ Lead wire Length

001: 100mm	003: 300mm	005: 500mm	008: 800mm	010: 1000mm
002: 200mm	004: 400mm	006: 600mm	009: 900mm	020: 2000mm

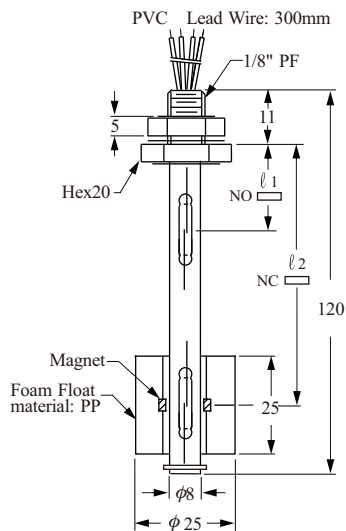
CUSTOMIZED PLASTIC MODELS

▶ FC PV1



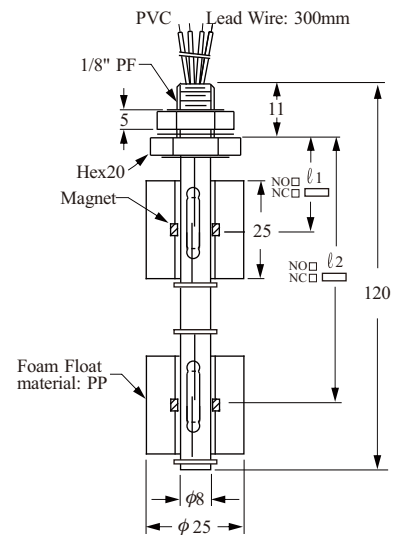
O-Ring: VITON

▶ FC PV2



O-Ring: VITON

▶ FC PV3



O-Ring: VITON

- 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)

FCM 2 0 0 ⑦⑧ ⑨⑩ ⑪⑫ ⑬⑭ ⑮⑯ ⑰⑱ ⑲⑳

⑦⑧ Certification

00: None

⑨⑩ Mounting

V1: Single float single switch
 V2: Single float dual switch
 V3: Dual float dual switch

⑪⑫ 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

⑮⑯⑰ 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)

⑱⑲⑳ Lead wire Length

001: 100mm	003: 300mm	005: 500mm	008: 800mm	010: 1000mm
002: 200mm	004: 400mm	006: 600mm	009: 900mm	020: 2000mm

ORDER INFORMATION (CUSTOMIZED STAINLESS STEEL MODELS)

FDM 4 0 0 0 0 - ⁰⁹ ¹⁰ ¹¹ ¹² ¹³ ¹⁴ ¹⁵ ¹⁶ ¹⁷ ¹⁸ ¹⁹ ²⁰ ²¹ ²²

⑨ ⑩ Type

- SA: Float ϕ 28x28, 1/8"PF
- SB: Float ϕ 28x28, 1/8"NPT
- SC: Float ϕ 28x28, M12
- SD: Float ϕ 52x52, 2"PT
- SE: Float ϕ 45x45, 2"PF
- SF: Float ϕ 52x52, 3/8"PF
- SG: Float ϕ 75x73, 3"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

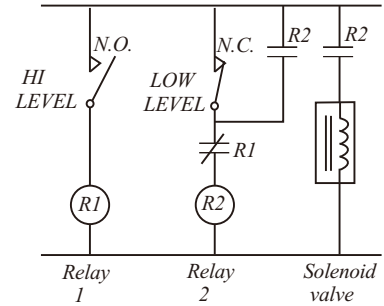
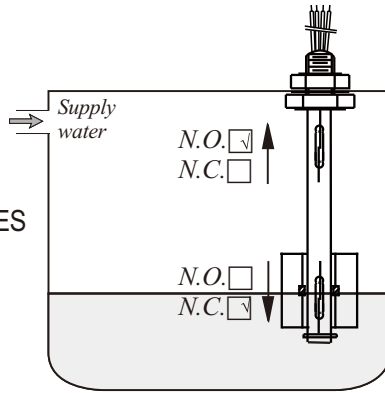
- 210: Teflon (200°C AWG24)
- 250: Silicon(150°C AWG24 Cable)
- 291: XLPE (125°C AWG22)
- 230: PVC (80°C AWG22)
- 231:PVC(80°C AWG22 Cable)

⑳ ㉑ ㉒ Lead wire Length

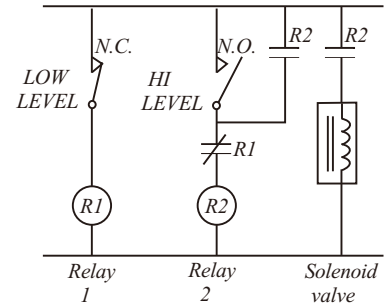
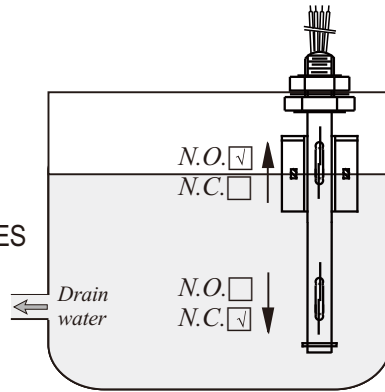
- 001: 100mm
- 002: 200mm
- 003: 300mm
- 004: 400mm
- 005: 500mm
- 006: 600mm
- 008: 800mm
- 009: 900mm
- 010: 1000mm
- 020: 2000mm

TYPICAL WIRING DIAGRAMS

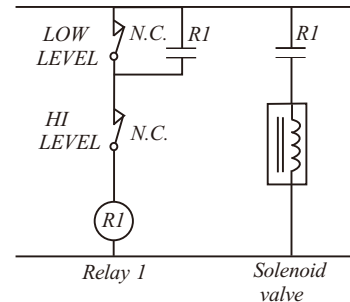
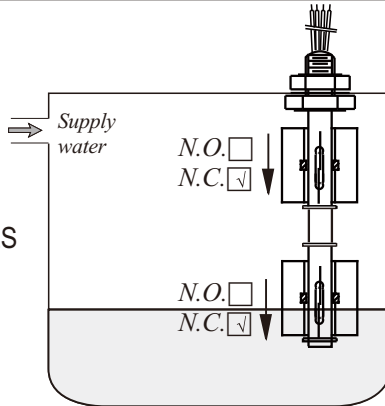
* AUTO SUPPLY CASE:
SINGLE FLOAT DUAL SWITCHES



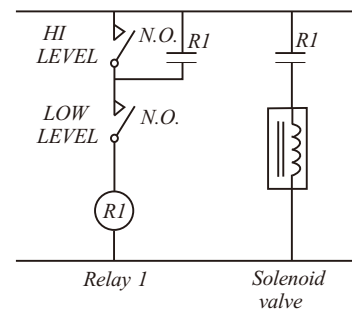
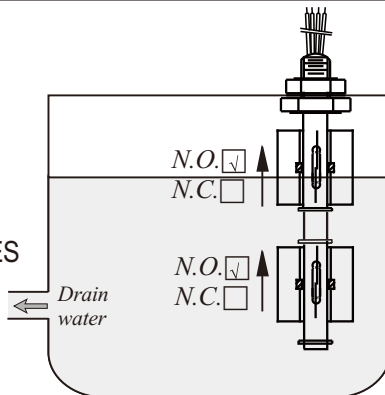
* AUTO DRAIN CASE:
SINGLE FLOAT DUAL SWITCHES



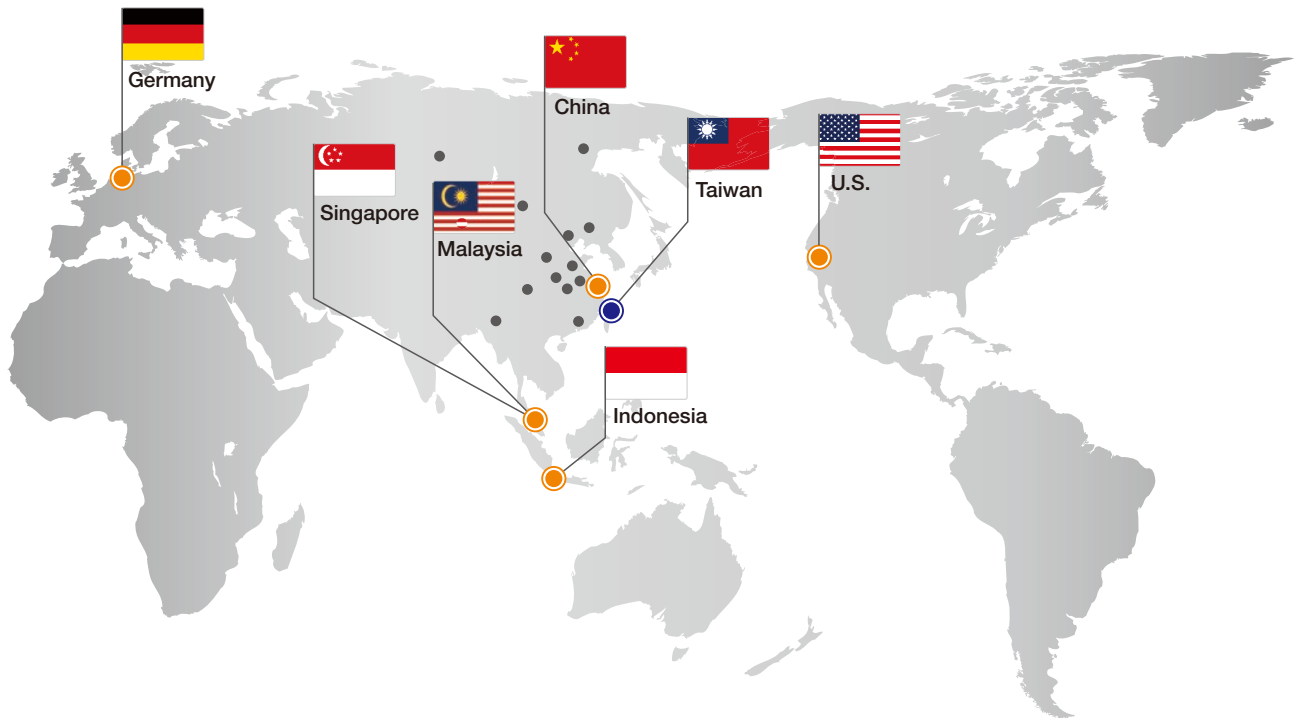
* AUTO SUPPLY CASE:
DUAL FLOATS DUAL SWITCHES



* AUTO DRAIN CASE:
DUAL FLOATS DUAL SWITCHES



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