

## DESCRIPTION

The Float Level Switch is made of chemical resistant polypropylene. It is durable, low-cost, and specially designed to solve the long range, multi-points level detection in liquid and liquid with pump or granule instances.

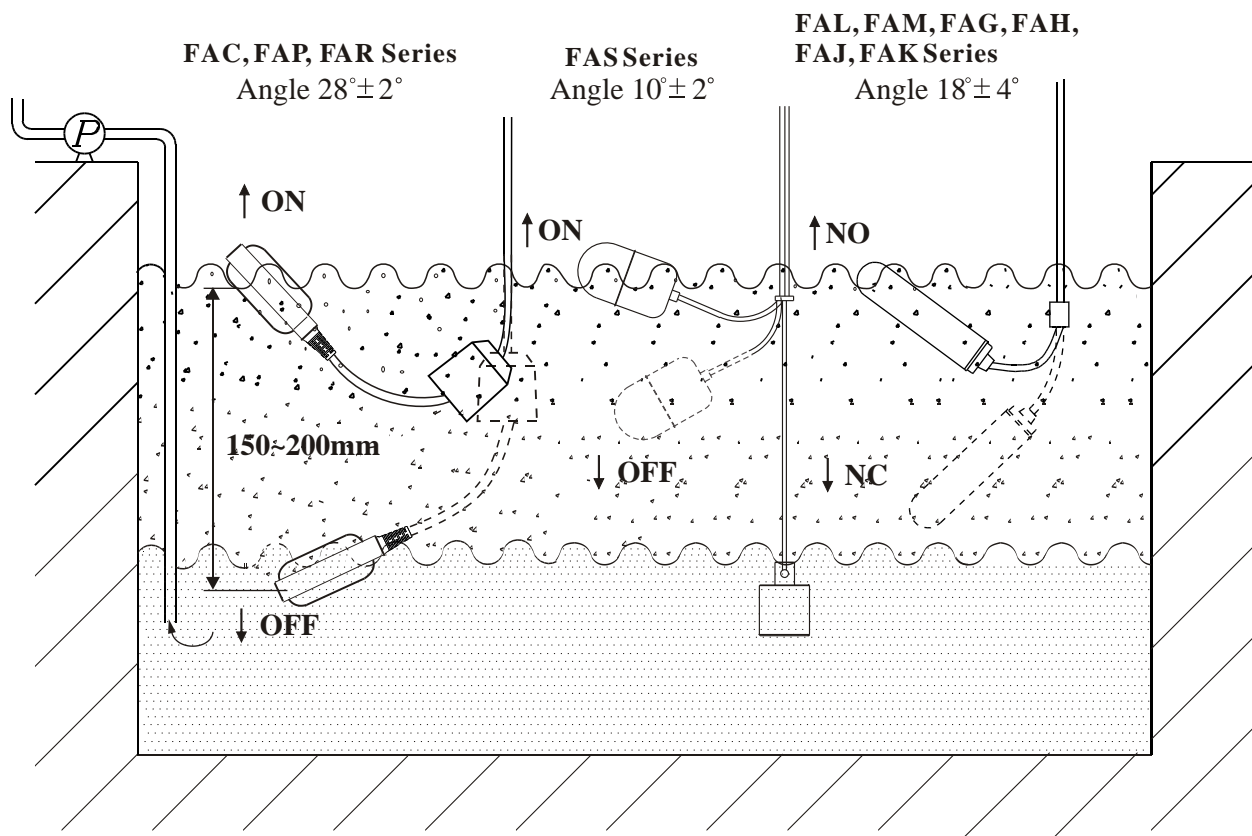
## PRINCIPLE

The Cable Float Level Switch is with simple structure of using micro switch or proximity switch or reed switch to control the contact and it is user friendly design for level measurement.

The switches will send out ON or OFF contact signal output when the floating angle is larger than a certain degree where the state of the iron ball and reed switch will be changed for actuation.

For different temperature of waste water & application, the materials of the float can be chosen from plastic to stainless steel. The cable float level switch not only can be used in clear liquid but also can be used in granular liquid to control the detection of long distance and multi-point contacts. Mostly the cable float level switch is applied in petrochemical industry, chemical industry and other related industry.

## APPLICATION



# SPECIFICATION

## STRUCTURE & DIMENSION

### 1. Cable

The <HAR> approved cable is extremely flexible to ensure a long life-time.

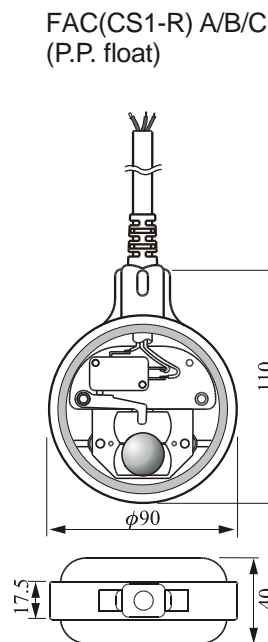
### 2. Enclosure

The rugged enclosure can prevent the damages from mechanical impact and chemical corrosion. The unit complies with the IP68 enclosure rating.

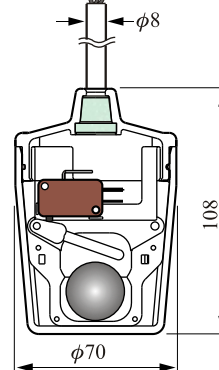
### 3. Micro switch

Contact system suitable for applications with high in-rush current.

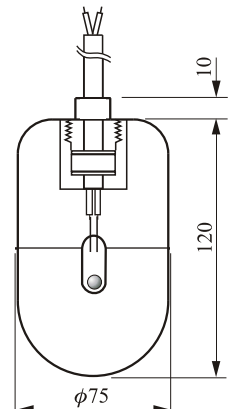
### 4. Steel ball



FAR(CS2-R) A/B/C  
FAP(CS2-P) A/B/C  
(P.P. float)  
FAD(CS2-P) A/B/C  
FAE(CS2-P) A/B/C  
(PVC float)



FAS(CF-S) A/B/C  
(SUS float)



## SPECIFICATION

Type	FAC(CS1-R) A/B/C	FAP(CS2-P) A/B/C	FAR(CS2-R) A/B/C	FAD A/B/C	FAE A/B/C	FAS(CF-S) A/B/C
Float Material	P.P.			PVC		SUS304
Cable Specification	Neoprene Cable 1mm <sup>2</sup> x3C or 2C	PVC Cable 1.25mm <sup>2</sup> x3C or 2C	Neoprene Cable 1mm <sup>2</sup> x3C or 2C	Neoprene Cable 1mm <sup>2</sup> x3C or 2C	PVC Cable 1.25mm <sup>2</sup> x3C or 2C	Silicon Cable 0.75mm <sup>2</sup> x3C or 2C
Contact Rating	10A/250Vac (std.) or 15A/250Vac			10A/250Vac (std.) or 15A/250Vac		2A/250Vac
Contact Form	N.O. N.C. or SPDT			N.O. N.C. or SPDT		N.O. N.C. or SPDT
Operating Temp.	-10°C~80°C	0°C~60°C	-10°C~80°C	-10°C~80°C	0°C~60°C	0°C~170°C
Suitable S.G.	0.6			0.6		0.5
Weight Approx.	770g/5M	290g/1M	290g/1M	290g/1M	290g/1M	480g/5M
Pressure(Max.)	2 kg/cm <sup>2</sup>	2 kg/cm <sup>2</sup>	2 kg/cm <sup>2</sup>	2 kg/cm <sup>2</sup>	2 kg/cm <sup>2</sup>	2 kg/cm <sup>2</sup>

※ For PLC and DCS usage, we recommend to use the REED switch.

## FLOAT TYPE CODE

(CS1-R)  
FACA□□...PP Float

— Cable length  
x6---0.6M 10--- 10M  
03--- 3M Max. 20M  
05--- 5M

— Contact form A --- N.O.  
(Micro switch) B --- N.C.  
C --- SPDT

— Cable material  
C --- Neoprene  
<HAR>HO7RN

(CS2-P/R)  
FAPA□□...PP Float

— Cable length

— Contact form (Micro switch)  
A --- N.O.  
B --- N.C.  
C --- SPDT

— Cable material  
P --- PVC  
R --- Neoprene  
<HAR>HO7RN

(CF-SA)  
FASA□□...SUS Float

— Cable length

— Contact form (Micro switch)  
A --- N.O.  
B --- N.C.  
C --- SPDT

— Cable material  
S --- Silicon

FADA□□...PVC Float

— Cable length

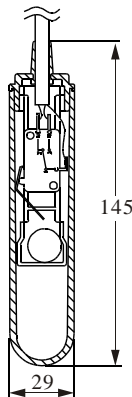
— Contact form (Micro switch)  
A --- N.O.  
B --- N.C.  
C --- SPDT

— Cable material  
D --- Neoprene  
E --- PVC

# SPECIFICATION

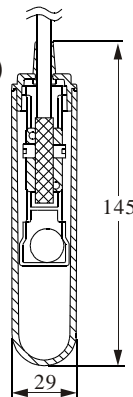
## Micro Switch

Order No. FAL A/B/C  
FAM A/B/C  
(P.P. Float)



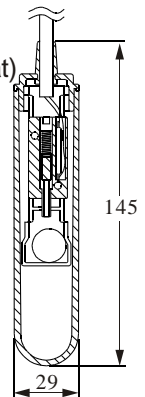
## Proximity Switch

Order No. FAG N/P  
FAH N/P  
(P.P. float)



## Reed Switch

Order No. FAJ A/B  
FAK A/B  
(P.P. Float)



## Specification Of Float

Float Material	PP	Pressure	4.5 kg/cm <sup>2</sup>
Specific Gravity	≤0.8	Protection	IP-68

Switch	Micro Switch	Proximity Switch	Reed Switch
Model	FAL A/B/C---PVC FAM A/B/C---Neoprene	FAG N/P---PVC FAH N/P---Neoprene	FAJ A/B---PVC FAK A/B---Neoprene
Contact Rating	3A 125/250 VAC	100 mA / 10~30 VDC	AC70(VA) / DC50(W)
Contact Form	NO · NC or SPDT	NPN or PNP	NO
Cable Spec	PVC(0.75mm <sup>2</sup> × 3C ) or Neoprene	PVC(0.75mm <sup>2</sup> × 3C ) or Neoprene	PVC(0.75mm <sup>2</sup> × 3C ) or Neoprene
Switch Voltage	600 VAC	500 VAC	300 VAC / 350 VDC
Isolation Resistance	Min 100 MΩ	Min 100 MΩ	Min 10 <sup>10</sup> Ω
Contact Resistance	Min 100mΩ		Min 100mΩ
Operating Temp.	0~60°C(PVC)----- Liquid State -10~80°C(Neoprene)Liquid State	0~60°C(PVC)----- Liquid State -10~80°C(Neoprene)Liquid State	0~60°C(PVC)----- Liquid State -10~80°C(Neoprene)Liquid State
Actuation Angle	Up18° ± 4° / Down3° ± 3°	Up18° ± 4° / Down3° ± 3°	Up18° ± 4° / Down3° ± 3°
Weight Approx.	113 ± 2g/1mCable	117 ± 2g/1mCable	115 ± 2g/1mCable

※ For PLC and DCS usage, we recommend to use the REED switch.

## Float Type Code

FA□□□□-(G)

Ground(Optional)  
Cable length  
x6---0.6M 10--- 10M  
03--- 3M Max. 20M  
05--- 5M  
Contact form (Micro switch)  
A --- N.O.  
B --- N.C.  
C --- SPDT  
Cable material  
L---PVC  
M---Neoprene

FA□□□□□-(G)

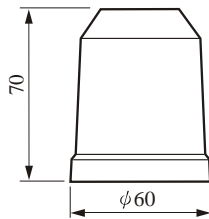
Ground(Optional)  
Cable length  
x6---0.6M 10--- 10M  
03--- 3M Max. 20M  
05--- 5M  
Contact form (proximity switch)  
NA --- NPN N.O.  
NB --- NPN N.C.  
PA --- PNP N.O.  
PB --- PNP N.C.  
Cable material  
G---PVC  
H---Neoprene

FA□□□□-(G)

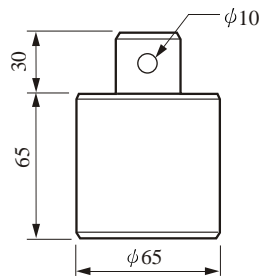
Ground(Optional)  
Cable length  
x6---0.6M 10--- 10M  
03--- 3M Max. 20M  
05--- 5M  
Contact form (reed switch)  
A --- N.O.  
B --- N.C.  
Cable material  
J---PVC  
K---Neoprene

## DIMENSION OF WEIGHT

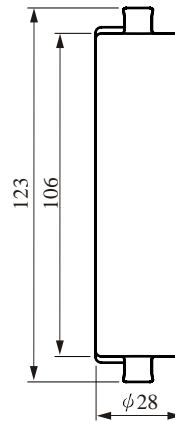
**FAPW-03  
FAPW-05**



**FASW**



**FAA-1471**

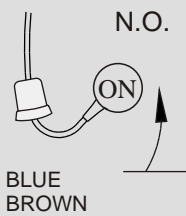


Type	Material	Weight
<b>FAPW-03 FAPW-05</b>	PP	0.3kg 0.5kg
<b>FASW</b>	SUS304	0.5kg
<b>FAA-1471</b>	PP	0.15kg

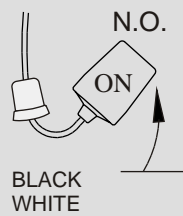
## CONTACT FORM

### ● In Liquid

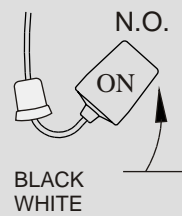
**FACA**



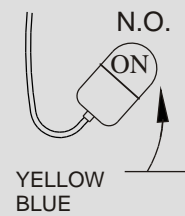
**FAPA/FAEA**



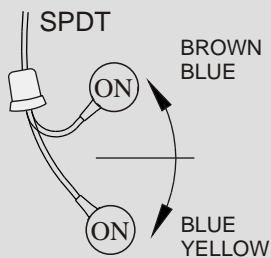
**FARA/FADA**



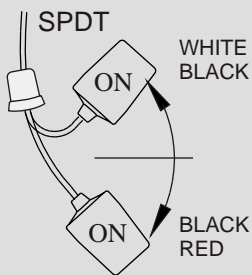
**FASA**



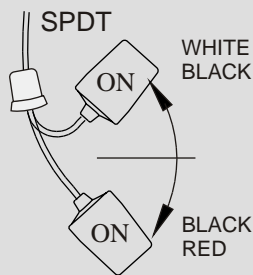
**FACC**



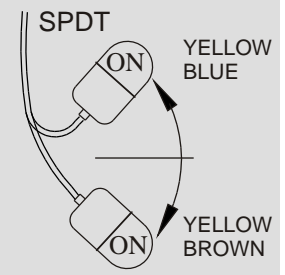
**FAPC/FAEC**



**FARC/FADC**

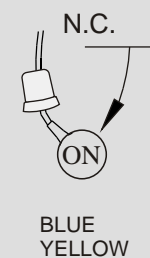


**FASC**



### ● In Air

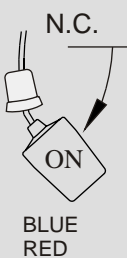
**FACB**



**FAPB/FAEB**



**FARB/FADB**



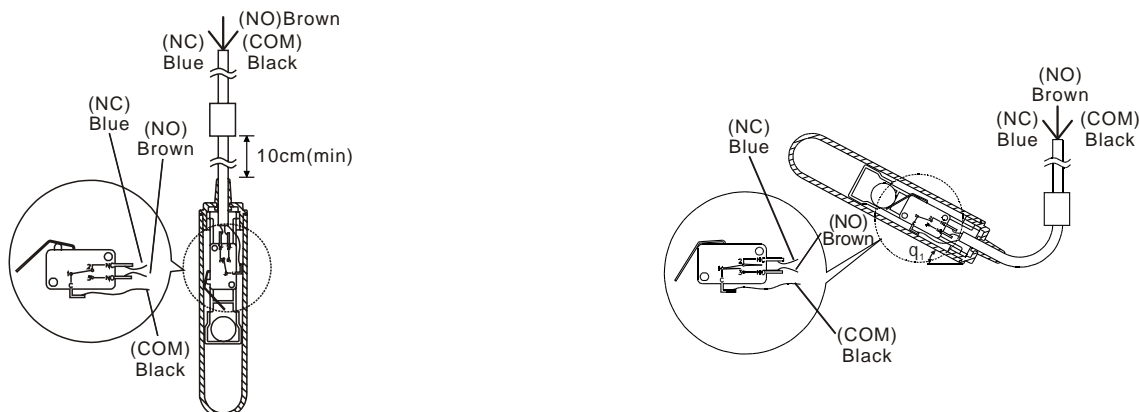
**FASB**



## Wiring

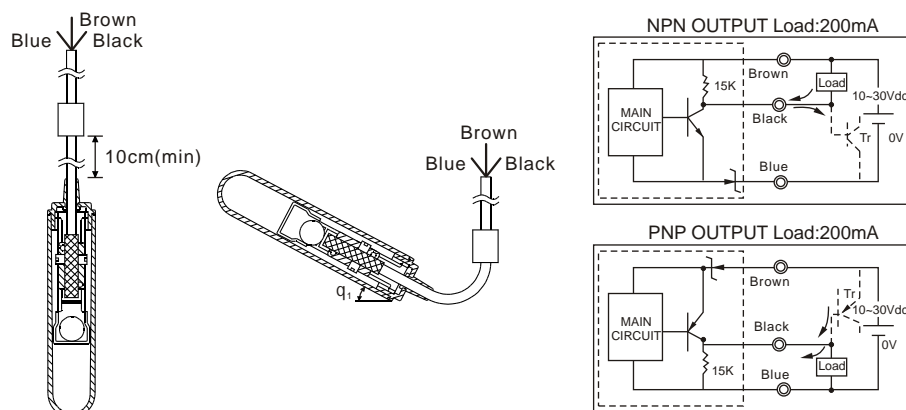
### Micro Switch

When float is not in contact with liquid, the blue and black wires are in open state. Contact form is in NC mode. When liquid rises and lifts the float up until it reaches the actuation angle, the brown and black wires will be in open state. Contact form is in NO mode.



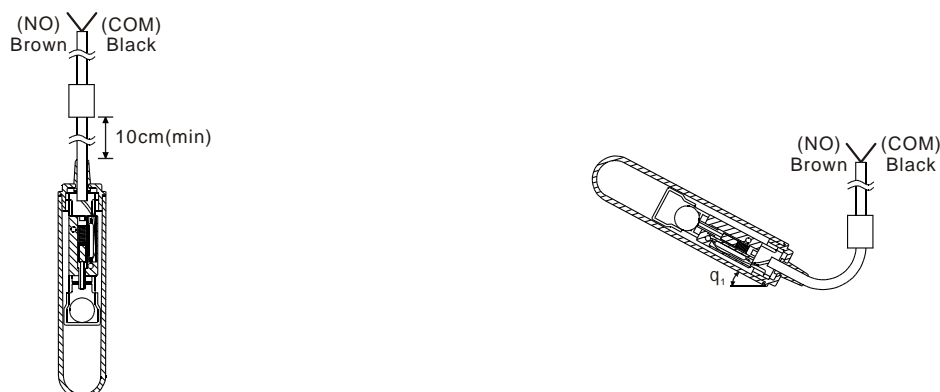
### Proximity Switch

When switch is in dry state, metal ball should be more than 1mm away from proximity switch. No signal will be sent out. When liquid rises and lifts the float up to the actuation angle, metal ball will slide into proximity switch sensing range and signal will be sent out.



### Reed Switch

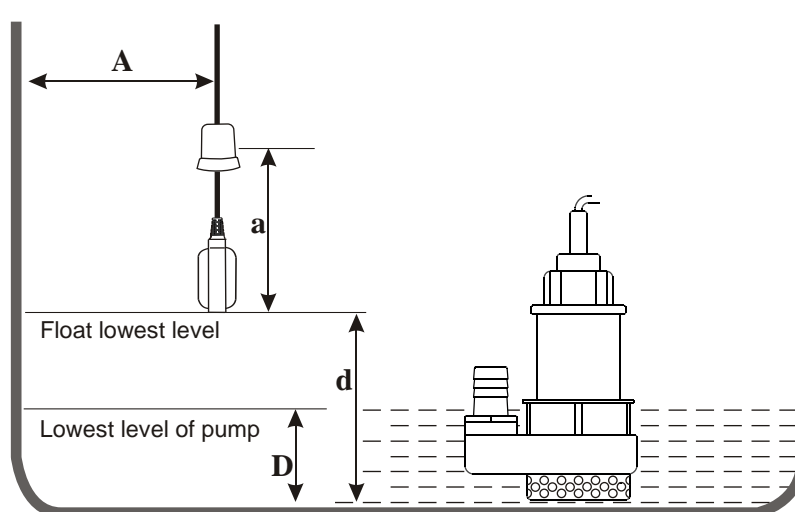
When liquid is in low level, metal ball stays away from sensing range. Brown and black wires are in open state, which is NC mode. When liquid rises and lifts the float up until it reaches the actuation angle, reed switch will be actuated. Brown and black wires will be in open state, which is NO mode.



## DIMENSION FOR INSTALLATION

The float action length (a) must be shorter than the distance between wall and cable (A) ; if not, it will cause wrong action.

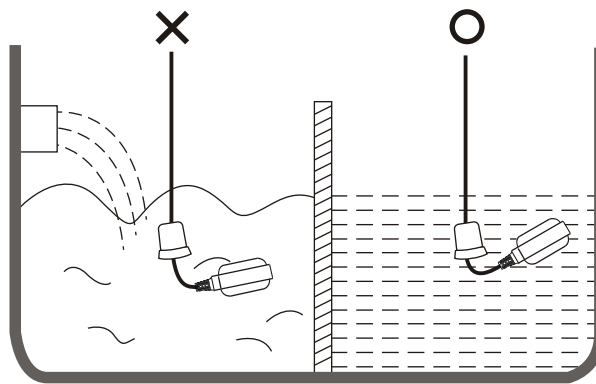
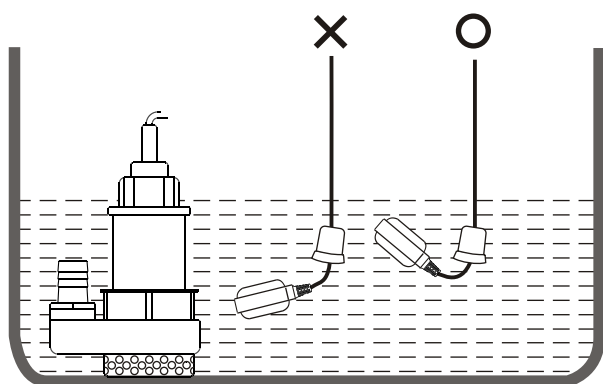
The lowest float level (d) must be higher than the lowest water level of pump (D).



## CAUTION FOR INSTALLATION

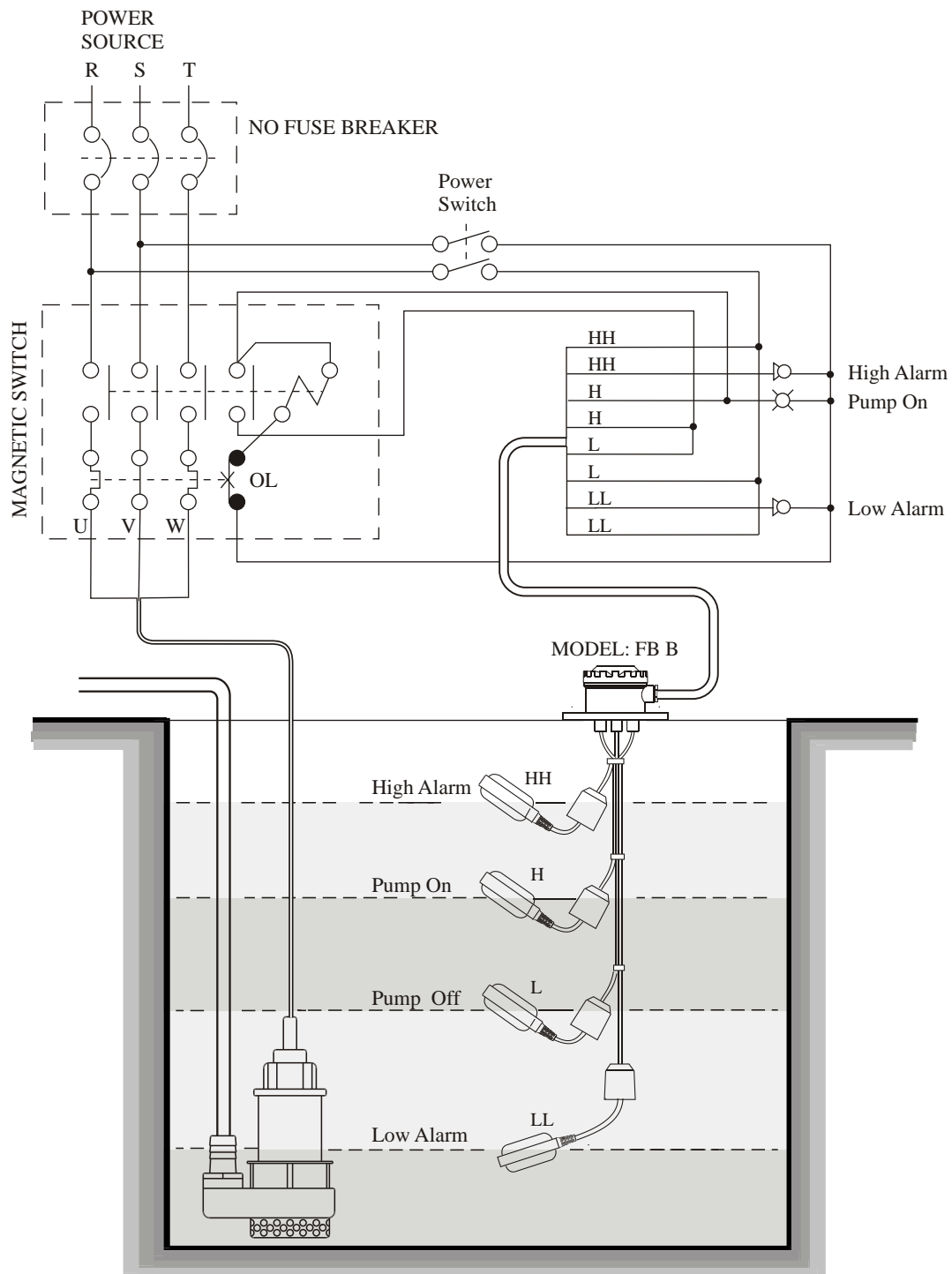
Keep proper distance between installation position and inlet of water pump to prevent float switch being sucked by inlet of water pump.

There should be a proper distance between installation position and inlet of water to prevent direct water impact. If it can't be avoided, please install wave-resistance pipe or wave-resistance plate for protection.



# APPLICATION

The FBB type is suitable for installation from the roof of tank for pumping control with level alarms.



# HOW TO ORDER FB TYPE

Various types of multi-point products can be selected depending on user's requirement.  
For example:  
FB-B type is suitable for Corrosive liquid.  
FB-A type is suitable for high temperature liquid. (170°C )

## DISTANCE OF CONTROL POINT

	NO	NC
$\ell 1$ : _____ mm	<input type="checkbox"/>	<input type="checkbox"/>
$\ell 2$ : _____ mm	<input type="checkbox"/>	<input type="checkbox"/>
$\ell 3$ : _____ mm	<input type="checkbox"/>	<input type="checkbox"/>
$\ell 4$ : _____ mm	<input type="checkbox"/>	<input type="checkbox"/>
L : _____ mm		

**FB** ☐ ☐ ☐ ☐ ☐ ( ☐ ☐ ☐ ☐ ☐ )

**Cable Length (unit: mm)**  
0500: 50cm (01~50)  
1000: 100cm(51~100)  
1500: 150cm(101~150)  
※ 50cm/per unit  
※ Duer 10M, 1st digit=A  
Ex: 15M= A150  
20M= A200

**Cable Material**  
S: Stainless N: Nylon

**Weight quantity**  
1~4

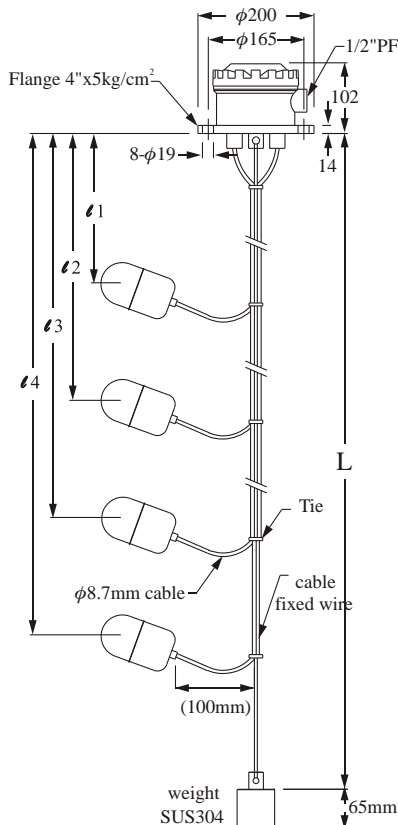
**Weight material**  
C: P.P.  
S: SUS304

**Float quantity**  
1~4

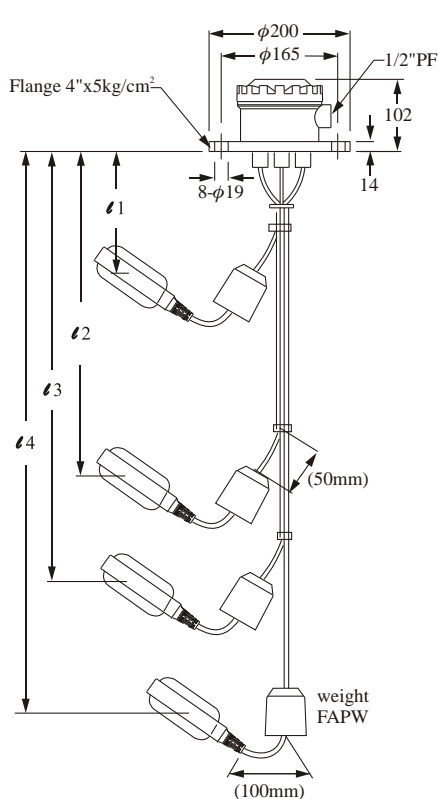
**Float material**  
C: P.P. (φ90x110 Neoprene cable) L: P.P. (φ29x145 PVC cable)  
P: P.P. (φ70x108 PVC cable) M: P.P. (φ29x145 Neoprene cable)  
R: P.P. (φ70x108 Neoprene cable) G: P.P. (φ29x145 PVC cable)  
S: SUS(φ75x120 Silicon cable) H: P.P. (φ29x145 Neoprene cable)  
D: PVC(φ70x108 Neoprene cable) J: P.P. (φ29x145 PVC cable)  
E: PVC(φ70x108 PVCcable) K: P.P. (φ29x145 Neoprene cable)

**Housing**  
A: Aluminum B: Plastic S: SUS304

MODEL: FB A



MODEL: FB B



MODEL: FB S

