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**

<table>
<thead>
<tr>
<th>Series</th>
<th>Angle</th>
<th>Contacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>FAC, FAP, FAR</td>
<td>28°±2°</td>
<td>ON</td>
</tr>
<tr>
<td>FAS Series</td>
<td>10°±2°</td>
<td>ON</td>
</tr>
<tr>
<td>FAL, FAM, FAG, FAH, FAJ, FAK Series</td>
<td>18°±4°</td>
<td>NO, NC</td>
</tr>
</tbody>
</table>

**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.

http: //www.fine-tek.com

Tel: 886-2-22696789   Fax: 886-2-22686682
SPECIFICATION

STRUCTURE & DIMENSION

1. Cable
The <HAR> approved cable is extremely flexible to ensures 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

SPECIFICATION

<table>
<thead>
<tr>
<th>Type</th>
<th>FAC(CS1-R) A/B/C</th>
<th>FAP(CS2-P) A/B/C</th>
<th>FAR(CS2-R) A/B/C</th>
<th>FAD A/B/C</th>
<th>FAE A/B/C</th>
<th>FAS(CF-S) A/B/C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Float Material</td>
<td>P.P.</td>
<td>P.P.</td>
<td>PVC</td>
<td>PVC</td>
<td>PVC</td>
<td>SUS304</td>
</tr>
<tr>
<td>Cable Specification</td>
<td>Neoprene Cable</td>
<td>PVC Cable</td>
<td>Neoprene Cable</td>
<td>PVC Cable</td>
<td>PVC Cable</td>
<td>Silicon Cable</td>
</tr>
<tr>
<td></td>
<td>1mm²x3C or 2C</td>
<td>1.25mm²x3C or 2C</td>
<td>1mm²x3C or 2C</td>
<td>1.25mm²x3C or 2C</td>
<td>0.75mm²x3C or 2C</td>
<td></td>
</tr>
<tr>
<td>Contact Rating</td>
<td>10A/250Vac (std.) or 15A/250Vac</td>
<td>10A/250Vac (std.) or 15A/250Vac</td>
<td>10A/250Vac (std.) or 15A/250Vac</td>
<td>10A/250Vac (std.) or 15A/250Vac</td>
<td>2A/250Vac</td>
<td></td>
</tr>
<tr>
<td>Contact Form</td>
<td>N.O. N.C. or SPDT</td>
<td>N.O. N.C. or SPDT</td>
<td>N.O. N.C. or SPDT</td>
<td>N.O. N.C. or SPDT</td>
<td>N.O. N.C. or SPDT</td>
<td></td>
</tr>
<tr>
<td>Operating Temp.</td>
<td>-10°C~80°C</td>
<td>-10°C~80°C</td>
<td>-10°C~80°C</td>
<td>-10°C~80°C</td>
<td>-10°C~80°C</td>
<td>-10°C~80°C</td>
</tr>
<tr>
<td>Suitable S.G.</td>
<td>0.6</td>
<td>0.6</td>
<td>0.6</td>
<td>0.6</td>
<td>0.6</td>
<td>0.5</td>
</tr>
<tr>
<td>Weight Approx.</td>
<td>770g/5M</td>
<td>290g/1M</td>
<td>290g/1M</td>
<td>290g/1M</td>
<td>290g/1M</td>
<td>480g/5M</td>
</tr>
<tr>
<td>Pressure(Max.)</td>
<td>2 kg/cm²</td>
<td>2 kg/cm²</td>
<td>2 kg/cm²</td>
<td>2 kg/cm²</td>
<td>2 kg/cm²</td>
<td>2 kg/cm²</td>
</tr>
</tbody>
</table>

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

FLOAT TYPE CODE

(CS1-R)
FAC...PP Float

(CS2-P/R)
FAP...PP Float

(CF-SA)
FASA...SUS Float

FADA...PVC Float
SPECIFICATION

 Specification Of Float

<table>
<thead>
<tr>
<th>Float Material</th>
<th>Pressure</th>
<th>Protection</th>
</tr>
</thead>
<tbody>
<tr>
<td>PP</td>
<td>4.5 kg/cm$^2$</td>
<td>IP-68</td>
</tr>
</tbody>
</table>

| Specific Gravity | 0.8 |

<table>
<thead>
<tr>
<th>Switch</th>
<th>Micro Switch</th>
<th>Proximity Switch</th>
<th>Reed Switch</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>Order No. FAL A/B/C</td>
<td>FAG N/P-PVC</td>
<td>FAG A/B-PVC</td>
</tr>
<tr>
<td></td>
<td>FAM A/B/C</td>
<td>FAH N/P-PVC</td>
<td>Order No. FAJ A/B</td>
</tr>
<tr>
<td></td>
<td>(P.P. Float)</td>
<td>(P.P. Float)</td>
<td>(P.P. Float)</td>
</tr>
<tr>
<td>Contact Rating</td>
<td>3A 125/250 VAC</td>
<td>100 mA / 10~30 VDC</td>
<td>AC70(VA) / DC50(W)</td>
</tr>
<tr>
<td>Contact Form</td>
<td>NO - NC or SPDT</td>
<td>NPN or PNP</td>
<td>NO</td>
</tr>
<tr>
<td>Cable Spec</td>
<td>PVC(0.75mm$^2$ x 3C ) or Neoprene</td>
<td>PVC(0.75mm$^2$ x 3C ) or Neoprene</td>
<td>PVC(0.75mm$^2$ x 3C ) or Neoprene</td>
</tr>
<tr>
<td>Switch Voltage</td>
<td>600 VAC</td>
<td>500 VAC</td>
<td>300 VAC / 350 VDC</td>
</tr>
<tr>
<td>Isolation Resistance</td>
<td>Min 100 M$\Omega$</td>
<td>Min 100 M$\Omega$</td>
<td>Min 10$^6$ $\Omega$</td>
</tr>
<tr>
<td>Contact Resistance</td>
<td>Min 100m$\Omega$</td>
<td>Min 100m$\Omega$</td>
<td></td>
</tr>
<tr>
<td>Operating Temp.</td>
<td>0~60$^\circ$C(PVC) ------- Liquid State</td>
<td>0~60$^\circ$C(PVC) ------- Liquid State</td>
<td>0~60$^\circ$C(PVC) ------- Liquid State</td>
</tr>
<tr>
<td></td>
<td>-10~80$^\circ$C(Neoprene)Liquid State</td>
<td>-10~80$^\circ$C(Neoprene)Liquid State</td>
<td>-10~80$^\circ$C(Neoprene)Liquid State</td>
</tr>
<tr>
<td>Weight Approx.</td>
<td>113 ± 2g/1mCable</td>
<td>117 ± 2g/1mCable</td>
<td>115 ± 2g/1mCable</td>
</tr>
</tbody>
</table>

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

**Float Type Code**

- **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)

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

**Contact form**
- A --- N.O.
- B --- N.C.
- C --- SPDT

**Contact material**
- L---PVC
- M---Neoprene

**Cable material**
- G---PVC
- H---Neoprene

**Ground(Option)**

**For PLC and DCS usage, we recommend to use the REED switch.**
DIMENSION OF WEIGHT

<table>
<thead>
<tr>
<th>Type</th>
<th>Material</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>FAPW-03</td>
<td>PP</td>
<td>0.3kg</td>
</tr>
<tr>
<td>FAPW-05</td>
<td>PP</td>
<td>0.5kg</td>
</tr>
<tr>
<td>FASW</td>
<td>SUS304</td>
<td>0.5kg</td>
</tr>
<tr>
<td>FAA-1471</td>
<td>PP</td>
<td>0.15kg</td>
</tr>
</tbody>
</table>

CONTACT FORM

- **In Liquid**

  - **FACA**
    - N.O.
    - BLUE BROWN
  
  - **FAPC/FAEC**
    - SPDT
    - BROWN BLUE
    - BLUE YELLOW
  
  - **FAPA/FAEA**
    - N.O.
    - BLACK WHITE
  
  - **FAPB/FAEB**
    - N.O.
    - BLUE RED
  
  - **FARC/FADC**
    - N.O.
    - BLACK RED
  
  - **FASA**
    - N.O.
    - YELLOW BLUE

- **In Air**

  - **FACB**
    - N.C.
    - BLUE YELLOW
  
  - **FAPB/FAEB**
    - N.C.
    - BLUE RED
  
  - **FARB/FADB**
    - N.C.
    - BLUE RED
  
  - **FASB**
    - N.C.
    - YELLOW BROWN
**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.
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

<table>
<thead>
<tr>
<th>NO</th>
<th>NC</th>
</tr>
</thead>
<tbody>
<tr>
<td>ℓ1</td>
<td></td>
</tr>
<tr>
<td>ℓ2</td>
<td></td>
</tr>
<tr>
<td>ℓ3</td>
<td></td>
</tr>
<tr>
<td>ℓ4</td>
<td></td>
</tr>
<tr>
<td>L</td>
<td></td>
</tr>
</tbody>
</table>

MODEL: FB A

MODEL: FB B

MODEL: FB S

Cable Material
S: Stainless
N: Nylon

Weight material
C: P.P.
P: PPφ28x106
S: SUS304

Float material
C: P.P. (φ90x110 Neoprene cable)
P: P.P. (φ29x145 PVC cable)
R: P.P. (φ70x108 Neoprene cable)
S: SUS(φ75x120 Silicon cable)
D: PVC(φ70x108 PVC cable)
E: PVC(φ70x108 PVC cable)

Cable Length (unit: mm)
0500: 50cm (01~50)
1000: 100cm (51~100)
1500: 150cm (101~150)

Ex: 15M= A150
20M= A200

Cable Length (unit: mm)
0500: 50cm (01~50)
1000: 100cm (51~100)
1500: 150cm (101~150)

Ex: 15M= A150
20M= A200

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