

# Techtrol Magnetic Float Operated Pivoted Level Switch - FPS



It is an economical device used for high, low or intermediate point level switching and ideal for tanks with inaccessible tops or bottoms.

## Salient Features :

- ☑ Safety of operation through glandless design
- ☑ Option of 'Extended Trim' for long nozzle length
- ☑ Option of 'Hermetically Sealed' switch casing
- ☑ Option of 'IBR Approved' switch, mounted in external chamber
- ☑ Option of Ex d(CCOE) / ATEX Certification / Marine Class Approval

## Construction & Operation :

Compact & rugged construction consisting of a free moving pivoted float assembly and a switch enclosure in non-magnetic material to achieve undisturbed magnetic flux. It employs dual magnets, one carried by the float arm and other by the contact carriers housed in the switch enclosure. A change in liquid level brings the like poles of dual magnets opposite to each other and resulting repulsion force ensures a changeover of contacts with snap action. The magnetic coupling is glandless to prevent leakage from vessel to switch housing.

## Installation :

Mounted internally or externally through a chamber. External mounting is resorted to, where space is a limiting factor or mechanical devices like stirrers operate within the tank. Besides, in applications like boilers, reaction kettles etc., with external mounting, isolating is possible for regular servicing. The switch is normally side-mounted, however for applications like slurry, top installation is preferred. The switch can be wired directly "to make or break electrical circuits", of burners, heaters, motor-pumps, alarms and other such electrically operated devices.

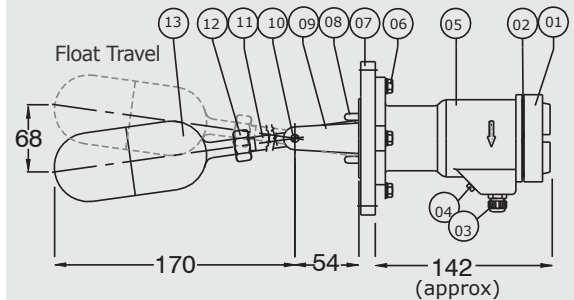
## Specifications :

Installation	: Normally Side/ Top for special applications
Enclosure x Cable Entry	: Cast Al IP66 x PG11 Gland (Polyamide) or Exd Gr. IIC T6, IP66 or ATEX Exd Gr. IIC T6, IP66 x 1/2"NPT DC Gland (Brass)
Float	: SS304/ 316/ 316L, PP, PVDF
Float Dia x Min SG	: Ø40 x SS (≥0.8 SG), Ø50/Ø60 x SS (≥0.7 SG), Low SG upto 0.6 depending upon float moc & dimensions
Process Connection	: Flanged or Screwed Ø 50 x PP or PVDF (≥0.8 SG)
Magnetic Switch Assembly	: With Micro switch or Micro switch in Hermetically Sealed Casing (SPDT/DPDT, 150°C or 250°C) 5A, 250 VAC/ 24 VDC
Switching Differential	: Fixed: 15 ± 5 mm Adjustable: between 40 & 300 mm depending upon float, trim length & cam positioning for SS MOC
Repeatability/ Accuracy	: ±1 mm/ ± 2 mm
Load/Insulation	: Resistive/ 150 M Ohm at 500 VDC
Temp. Range	: Standard -20 to 70 °C (PP), 100°C (PVDF), 150°C (SS) : High Temp 250 °C (SS), Very High Temp 350 °C with Radiating Fins (for SS weighted parts) : Vacuum to 20 Kg/cm2 at ambient temp (contact factory for pressure more than 20 kg/cm2)
Finish	: Regular / Sanitary
Special Features	: 1) Adjustable differential, 2) L/Z cranked trims, 3) Extended trim with side mtg.



IBR Ex CE

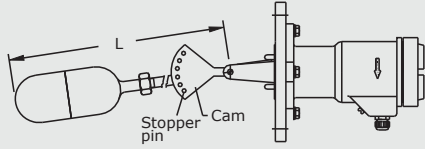
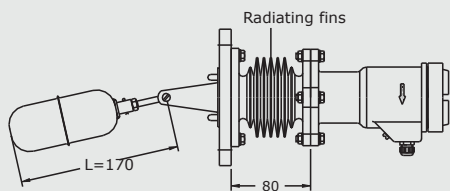
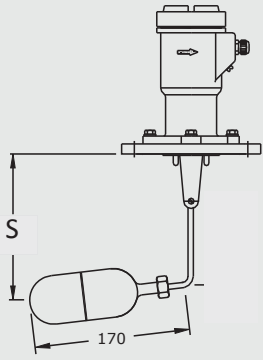
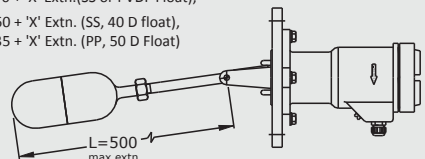
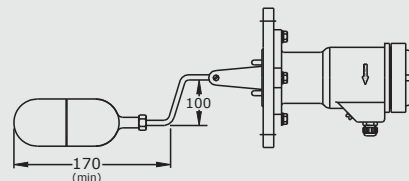
## Finish (Regular) :



- |                    |                  |                    |
|--------------------|------------------|--------------------|
| 01) Terminal cap   | 05) Enclosure    | 09) Bracket        |
| 02) Gasket         | 06) Bolts        | 10) Pivot pin      |
| 03) Conduit conn   | 07) Process conn | 11) Trim           |
| 04) Earthing screw | 08) Stopper      | 12) Float lock nut |
|                    |                  | 13) Float          |

**CE certified option with Weather Proof Enclosure is available as per 73/23/EEP**

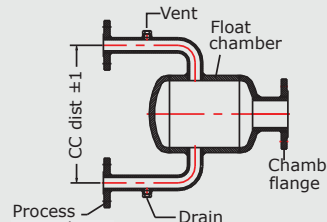
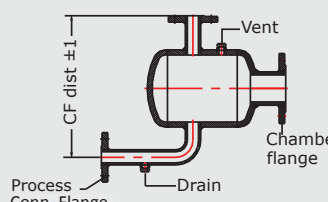
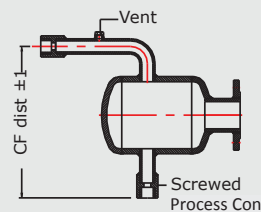
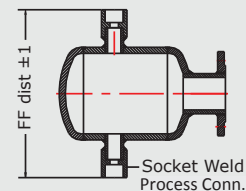
**Special Features :**

 <p><b>Adj. differential for Pump Control</b> Adjustable differential by locating float trim at various fixed angles with the help of cam &amp; stopper pin</p>	 <p><b>Very high-temp construction</b> Very high-temp. construction with radiating fins</p>	 <p><b>Cranked trim with top mtg. for high level detection</b> 'S' Switching Point (Max 500 mm)</p>
<p>L=170 + 'X' Extn.(SS or PVDF Float), L=160 + 'X' Extn. (SS, 40 D float), L=135 + 'X' Extn. (PP, 50 D Float)</p>  <p><b>Extended trim for longer nozzle length</b></p>	 <p><b>Cranked trim with side mtg. for slurry application</b></p>	

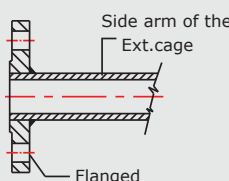
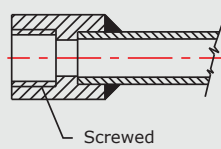
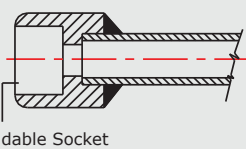
**Accessories :**

**External Chamber :** Wide range of external chambers are available in various MOCs (CS,SS304/316), mountings and process connections for use in tanks where,  
 1) Space is a limiting factor.  
 2) Mechanical devices like stirrer operate within it.

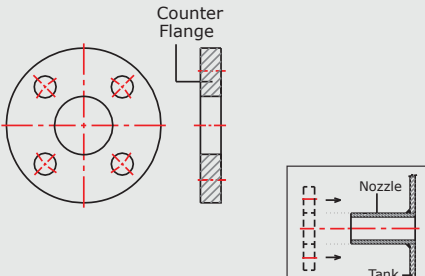
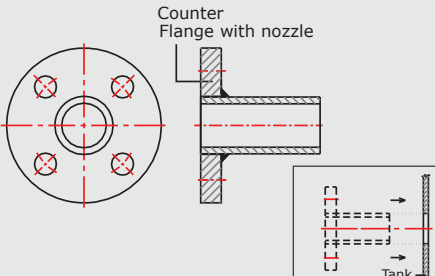
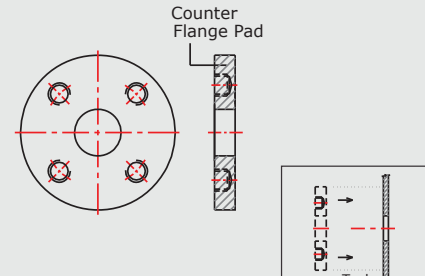
**Mounting Types :**

<p><b>S-Side-side</b></p> 	<p><b>T-Side-top</b></p> 	<p><b>B-Side-bottom</b></p> 	<p><b>V-Top-bottom</b></p> 
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**Process Connection Types :**

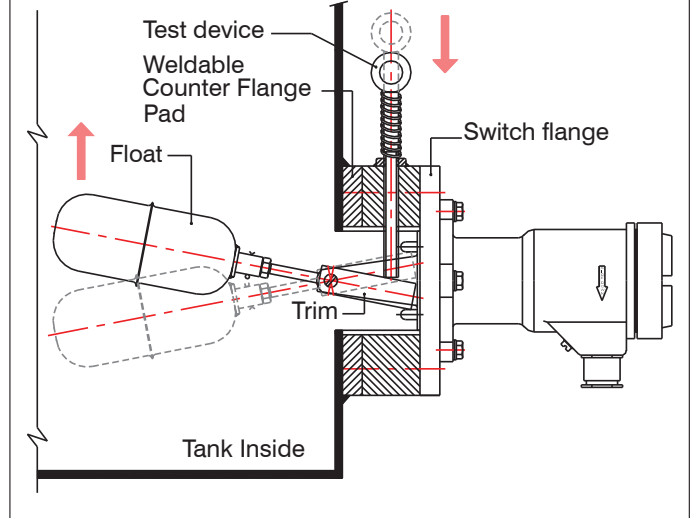
<p><b>A-Flanged</b></p> 	<p><b>C-Screwed socket</b></p> 	<p><b>B-Welded socket</b></p> 
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**Counter Flange Types :**

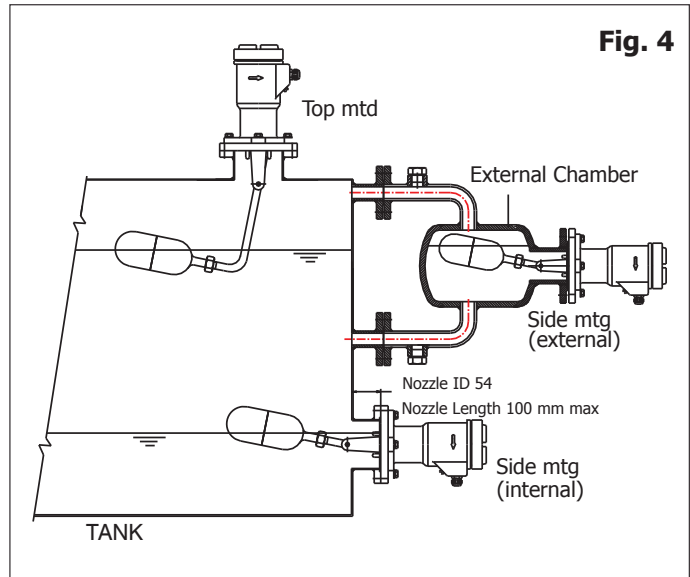
<p><b>C-Counter flange w/o nozzle (weld flange on tank nozzle)</b></p> 	<p><b>W-Counter flange with nozzle (weld nozzle to tank)</b></p> 	<p><b>P-Counter flange pad (weld flange to tank)</b></p> 
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**In situ Test Device - T :**

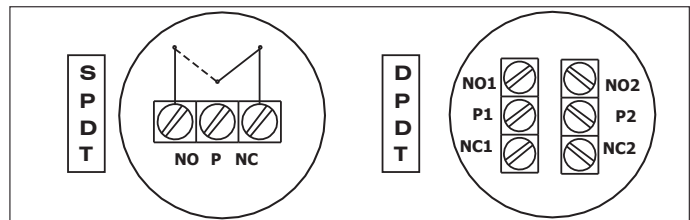
It is supplied as an accessory to Magnetic Switch (FPS) to facilitate mechanical testing of electrical circuit. As such operations are checked without carrying out the emptying/filling cycle.



**Installation :**

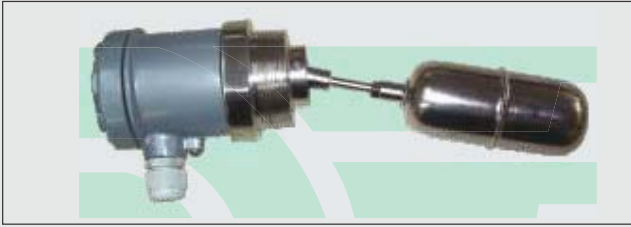


**Termination for SPDT or DPDT Switch :**



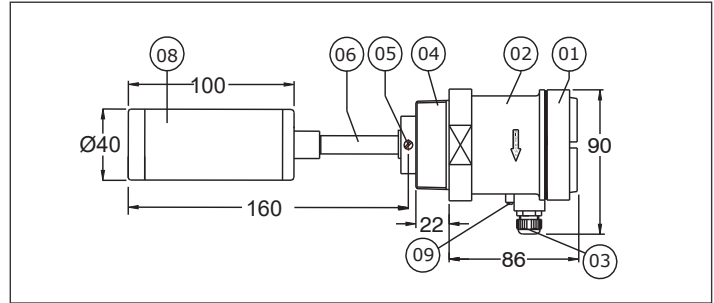
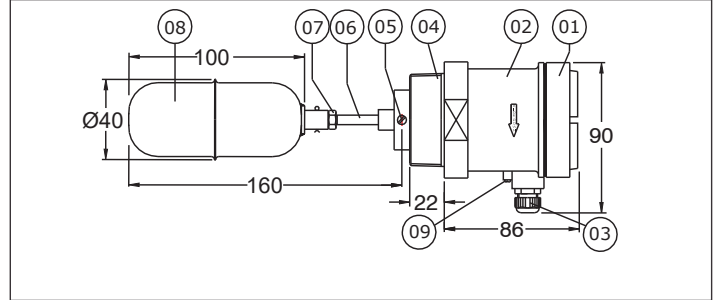
# OTHER STANDARD MODELS

## Screwed Float Pivoted Switch - 'SFPS'



### Specifications :

MOC	: SS316
Enclosure	: Cast Al, WP
Process Connection	: Screwed, 1-1/2"BSP (M)
Switch Type	: Micro switch (SPDT)
Switching Capacity	: 5A, 250 VAC
Max Temp	: upto 100°C
Max Pressure	: upto 10 kg/cm <sup>2</sup>



### Specifications :

MOC	: PP
Enclosure	: Cast Al, WP
Process Connection	: Screwed, 1-1/2"BSP (M)
Switch Type	: Micro switch (SPDT)
Switching Capacity	: 5A, 250 VAC
Max Temp	: upto 70°C
Max Pressure	: upto 2 kg/cm <sup>2</sup>

### Model identification No:

#### MOC (Float x Process conn.)

SS304 \_\_\_\_\_  
 SS316 \_\_\_\_\_  
 PP \_\_\_\_\_

#### Float x Process Connection Combine

Ø40 x 1-1/2" BSP (M) \_\_\_\_\_  
 Ø50 x 2" BSP (M) \_\_\_\_\_  
 Others \_\_\_\_\_

#### Accessories

None \_\_\_\_\_  
 External cage \_\_\_\_\_  
 Mtg Socket \_\_\_\_\_

SFPS-			
	N		
	S		
	P		
		1	
		2	
		O	
			W
			C
			F

### TERMINOLOGY

- |                  |                  |               |                    |                    |
|------------------|------------------|---------------|--------------------|--------------------|
| 01) Terminal cap | 03) Conduit conn | 05) Pivot pin | 07) Float lock nut | 09) Earthing screw |
| 02) Enclosure    | 04) Process conn | 06) Trim      | 08) Float          |                    |

## Pune Techtrol Pvt Ltd

[CIN : U31909PN1991PTC063403]



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Custom built specs./options available on demand.

We reserve the right to modify design and specifications without prior notice.

# Model Identification

FPS -								
<b>1. Enclosure x Cable Entry</b>								
Cast Al. IP66 x PG11 Cable Gland	J							
Cast Al. IP66 x 1/2" NPT Double Comp'n Cable Gland	K							
Cast Al. IP66 x 1/2"NPT (F)	L							
Cast Al. Ex d Gr IIC x 1/2" NPT Double Comp'n Cable Gland	F							
Cast Al. ATEX Ex d Gr IIC x 1/2"NPT Double Comp'n Cable Gland	H							
Cast Al. Ex d Gr IIC x 1/2"NPT (F)	N							
Cast Al. ATEX Ex d Gr IIC x 1/2"NPT (F)	R							
SS316 IP66 x PG 11 Cable Gland	S							
Cast Al. IP66 x Plug & Socket	T							
Others	O							
<b>2. Wetted Parts (Float, Process Connection)</b>								
SS304	N							
SS316	S							
SS316L	L							
PP (with Ø 50 float)	P							
PVDF (with Ø 50 float)	F							
Others	O							
<b>3. Float Diameter</b>								
Ø 40 (SS)	1							
Ø 50 (SS, PP or PVDF)	2							
Ø 60 (SS)	3							
Others	O							
<b>4. Process Connection Size &amp; Type</b>								
120 OD, 92 PCD Flange	A							
92 Square, 92 PCD Flange (IP66 Enclosure)	B							
2" NB ASME 150 # Flange	C							
2" NB ASME 300 # Flange	D							
2-1/2" NB ASME 150 # Flange	E							
2-1/2" NB ASME 300 # Flange	F							
3" NB ASME 150 # Flange	G							
3" NB ASME 300 # Flange	H							
2" BSP (M) Screwed (SS)	I							
2" NPT (M) Screwed (SS)	J							
2" Triclover Ferrule	K							
2-1/2" NB BS 10 T 'D' Flange	L							
Others	O							
<b>5. Magnetic Switch Assembly</b>								
Micro Switch x SPDT	1							
Micro Switch x DPDT	2							
Micro Switch in Hermetically Sealed Casing x SPDT	3							
Micro Switch in Hermetically Sealed Casing x DPDT	4							
Others	O							
<b>6. Max Temperature</b>								
Standard - 70 °C (PP), 100 °C (PVDF), 150 °C (SS)	S							
High Temperature - 250 °C (SS)	H							

Very High Temperature - 350 °C with Radiating Fins (SS)	V		
<b>7. Finish</b>			
Regular	R		
Sanitary	S		
<b>8. Special Feature</b>			
Without		W	
Adjustable Differential (Regular Finish, SS MOC)		A	
Cranked Trim with Top Mounting (SS MOC)		L	
Extended Trim with Side Mounting		X	
Cranked Trim with Side Mounting (SS MOC)		Z	
Others		O	
<b>9. Accessories</b>			
Without		W	
External Chamber (Refer ECS catalog)		C	
Counter Flange with Nuts/ Bolts & Gasket		F	
In-situ Test Device (SS202 MOC)		T	
Others		O	

<b>Counter Flange MOC</b>		
CS	M	
SS304	N	
SS316	S	
SS316L	L	
Others	O	
<b>Counter Flange Type</b>		
Counter Flange w/o Nozzle (weld flange on tank nozzle)	C	
Counter Flange with Nozzle (weld nozzle on tank)	W	
Counter Flange Pad (weld flange to tank)	P	

## Ordering Information

Model No. x Liquid & its SG, Operating Temperature & Pressure, Nozzle Length & ID,  
For Special Features–

1. Adjustable Differential, please specify maximum differential required.
2. Cranked Trim for Top Mounting, please specify switching point.
3. Extended Trim, please specify nozzle length and ID

Model no of External Chamber if required (Refer ECS catalog)

**Refer 'FPSB' catalog for IBR approved switch**