

# MV INSTRUMENTS

## Float Operated Liquid Level Switches



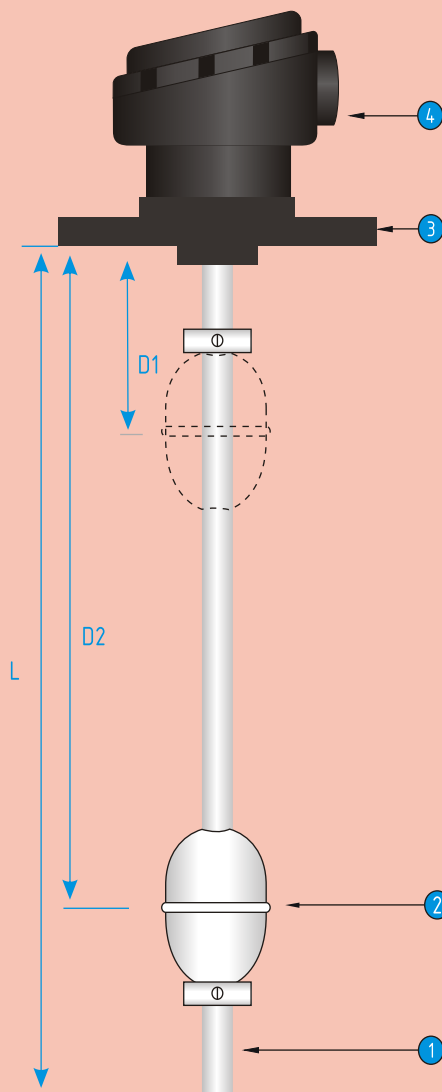
## Principle :

The Magnetic Level Switch consists of non-abrasive Float carrying permanent magnet and non-ferrous stem carrying one, two or multiple reed switches. The float glides along the stem and when the float nears the vicinity of reed switch the magnetic field of permanent magnet forces the contact to close, thereby completing the external electrical circuit.

## Applications :

Due to simple design, reliability and with only one moving part i.e., Magnetic Float, it finds application in various liquids where accurate and repeated liquid level control is called for.

This type of float switches are suitable for Storage Tanks, Utility Tanks, Process Tanks, Hydraulic Power Pack, Centralised Lubrication System, Fuel Tanks, Cooling Tower, Textile, Pharmaceuticals and special purpose machines.



- 1 - Stem
- 2 - Float
- 3 - Mounting Flange
- 4 - Enclosure

## CONSTRUCTION

**Stem :** Non magnetic, Non corrosive, SS 304 / SS 316  
For special applications : PP, PVC on request

**Float :** PU : ø34mm Polyurethane foam float.  
Suitable for Water, Oil, Diesel etc.,

S4 : ø45 SS 316 Cylindrical Float.

S5 : ø52mm SS 316 Spherical Float

S6 : ø68 SS 316 Spherical Float

SP : PP or PVC float for special applications.

Suitable for Water, Oil, Chemicals,  
Solvents, Diesel, Food grade,  
Pharmaceuticals. etc.,

**Mounting :** Level Switch comes with either Flanged or Threaded Mounting

### Flange :

F1 : ø75mm OD, 60mm PCD, ø6.6mm 4 mounting holes for PU Foam float

F2 : ø100mm OD, 80mm PCD, ø8.8mm 4 mounting holes  
for ø45 & ø52 SS 316 float

F3 : Std. Table flanges (ANSI, BS, DIN), specify size

F4 : Special (Drawing to be provided by customer)

### Threaded :

T1 : 1½" BSPM for PU Foam Float

T2 : 2" BSPM for ø45 & ø52 SS 316 Float

T3 : Special (Drawing to be provided by customer)

### Flange Material :

MS : Mild Steel

S1 : SS 304

S2 : SS 316

S3 : Special (consult factory for material)

## Enclosure :

DC : Din Solenoid Connector made of polyimide suitable for indoor small tank mountings

WP : Weatherproof made of cast Aluminum suitable for High temperature, Large Tanks and Open environment

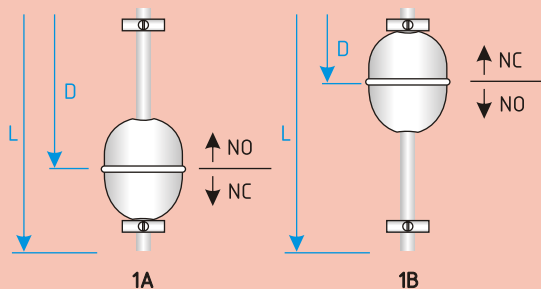
FP : Flameproof made of Cast Aluminum suitable for Exd1, group II A and II B as per IS : 2148

IP : IP 68 gland & cable for underwater application

SP : Special enclosures (Drawing to be provided by customer)

## LEVEL CONFIGURATIONS

### Single Level



Single Level Switch is used for either High Level or Low Level sensing  
The different output logic is as below

1A : The contact is Normally Open when liquid level is above the set level and closes on reaching the set level.

1B : The contact is Normally Open when liquid level is below the set level and closes on reaching the set level.

D : minimum 50mm  
L : D + 50mm

### Two Level

Two Level Switch is used for High Level & Low Level sensing.

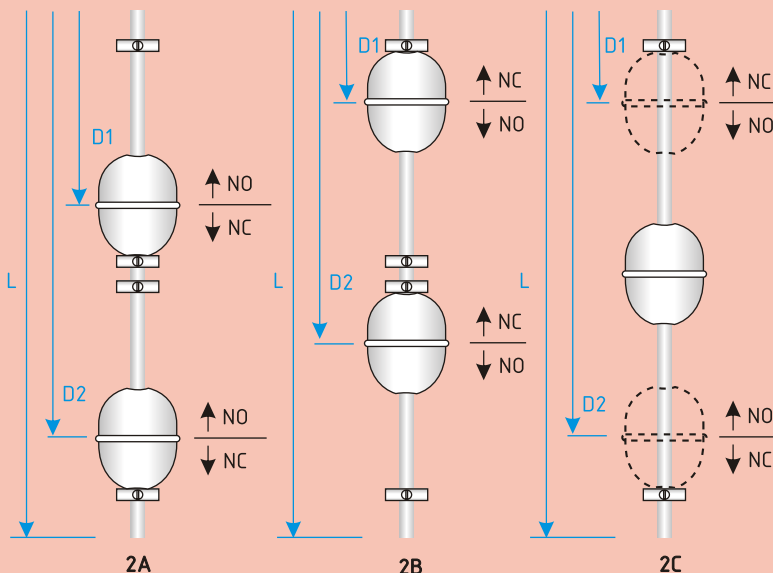
The different output logic is as below

2A : The contact of both High & Low is Normally Open when liquid level is above the set level and closes on reaching the respective set level.

2B : The contact of both High & Low is Normally Open when liquid level is below the set level and closes on reaching the respective set level.

2C : The contact of both High & Low is Normally Open. Low level reed contact Closes on liquid reaching low level & Opens once liquid raises above low level. Similarly High level reed contact Closes on liquid reaching High level & Opens once liquid level falls below High level.

D1 : minimum 50mm  
D2 : maximum (L-50)mm  
Minimum distance between D1 & D2 75mm  
L : D2 + 50mm



### Multiple Level

Multi Level Switch is used for multiple level sensing  
The different output logic is as below

NA : The contact of all the level is Normally Open when liquid level is above the respective set level and closes on reaching the set level.

ND : Same as above with Single Float (with ø52 & ø68 float only)

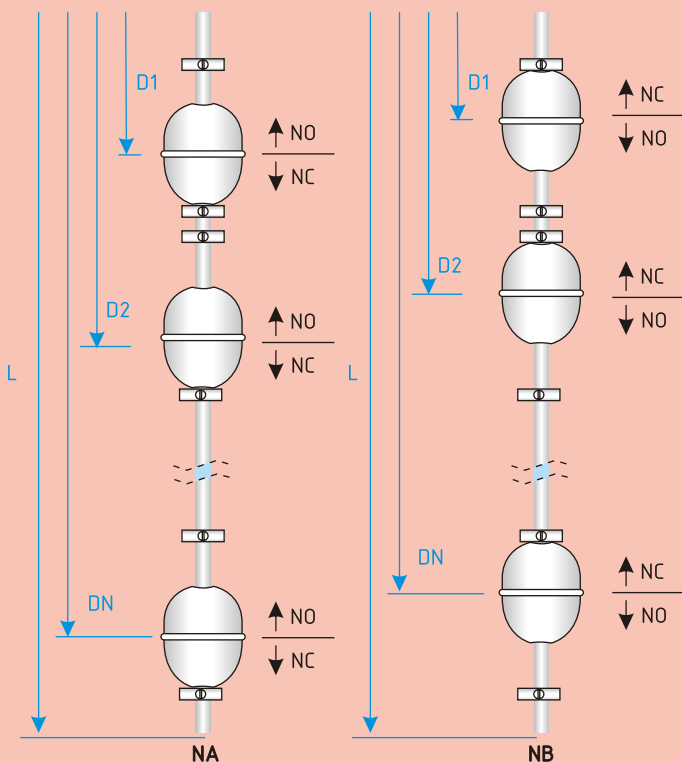
NB : The contact of all the level is Normally Open when liquid level is below the respective set level and closes on reaching the set level.

NE : Same as above with Single Float (with ø52 & ø68 float only)

#### N Stands for number of levels

Maximum of Ten Set points is possible in a single level Switch

D1 : minimum 50mm  
DN : maximum (L-50)mm  
Minimum distance between each levels - 75mm  
L : DN + 50mm



**Note : The above types are for SPST contact only.**

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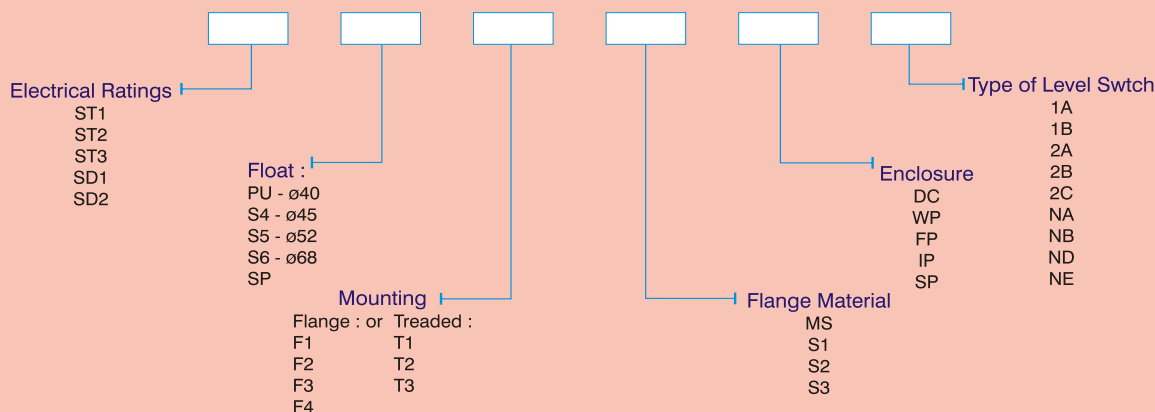
## TECHNICAL SPECIFICATIONS

	ø34 X 36 PU Foam Float	ø45 SS 316 Float	ø52 SS 316 Float	ø68 SS 316 Float
Temperature	0° C to + 80°C	-25° C to + 125°C		
Pressure Max.	Atmospheric	20 kg/cm²		
Stem Size	12.7 mm			16 mm
Flange Size	OD 75mm PCD 60mm	OD 100mm PCD 80mm		2 ½" Table D
Max. Length	3000mm			5000mm
Accuracy	± 2mm			± 5mm
Set Point	1 to 6		1 to 10	

## ELECTRICAL SPECIFICATIONS

Type	Maximum Switching Voltage	Maximum Switching Current	Contact VA	Contact Form
ST1	200V DC 125V AC	0.5 A	15 VA	SPST Normally Open
ST2	300V DC 240V AC	0.7 A	70 VA	SPST Normally Open
ST3	300V DC 240V AC	3 A	100 VA	SPST Normally Open
SD1	24V DC 24V AC	0.1 A	3 VA	SPDT 1NO + 1NC
SD2	240V DC 240V AC	1.5 A	50 VA	SPDT 1NO + 1NC

## ORDERING INFORMATIONS



### Order Example :

ST1 PU F1 MS DC 2C : Magnetic Level Switch with 200V DC Switch Rating, PU Float, ø75 standard MS Flange, Din Std. Connector, Two level with single Float. Also specify Length of Level Switch, High Level distance, Low Level distance with respect to tank top.

### Contact Protection Methods :

We recommend R-C Network for alternating current circuit and clamping diode for Direct Current circuit to protect the contact of Reed Switches.

Since continuous development is our policy, the above specifications and details may change without prior notice.

Manufactured by:

## MV INSTRUMENTS

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