MODEL FR20 & OLV-20 MAGNETIC FLOAT LEVEL SENSOR



Features

- Custom manufactured to user specifications
- Switch points are field-adjustable (FR series)
- Reliable
- Wide choice of materials
- Long switch life
- Durable float

Technical Advantage

Utility design for shock resistive construction in the metal float

General Description

The FR20 and OLV-20 custom level sensors are engineered and manufactured to meet demanding customer applications for liquid level sensing. Available in a wide range materials and mounting types, these sensors are appropriate in most liquids. The FR20 series is available in lengths up to 3900mm with a variety of mounting configurations. The OLV-20 series is physically smaller and has a maximum total length of 500mm.

Interface of two immiscible liquids can be detected by FR series. The difference of SG is required more than 0.1 for SS float, 0.2 for plastic float.

Operational Description

These level sensors contain hermetically sealed reed switches in the stem and a permanent magnet in the float. As a float rises or falls with the level of liquid, the reed switch activates by the magnet in the float.

Applications

The FR20 and OLV-20 have numerous industrial, machinery and process control applications that include some of the following:

Control

In processing petrochemicals, iron, steels, chemicals and food

Original Equipment Manufacturing

As a reliable component in boilers, hydraulic equipment, air conditioners, etc

Semiconductor Manufacturing

As a non-contaminating pump control for pure water

Automatic Planting Machinery

As a level control in corrosive plated environments

Selecting the Correct Series

The FR20 series offer a wide range of choices in floats, mounting configurations, materials, and number of switch points, while the OLV-20 series offer smaller dimensions, shorter maximum length and lower cost.

- 1. Determine whether an FR20 or OLV-20 series are required.
- 2. Select the required material for the stem and floats.
- 3. Select the required mounting type.
- 4. Determine the number of actuation levels required.
- 5. Determine where the actuating levels should be. Distances are measured from the inner surface of the mounting to the end of the stem.
- 6. Determine switch operation normally opened (up ON, down OFF) or normally closed (up OFF, down ON).

Ordering Information

0 Flat-face flange 1 Raised-face flange 2 Slide Flange 3 Sanitary Ferrule 4 Plug mounted from outside of tank 5 Plug mounted from inside of tank 5 Slad stainless steel 56L 316L stainless steel VS PVC HVS CPVC PS PP PFL PFA Lining 1500mm Max. F4T PTFE Tubing J JIS flange and Sanitary Ferrule A ANSI flange D DIN flange G G plug R R plug T NPT plug A: 316SS \$\$\phi38 +H50 for A and C reed switch IC 304SS \$\$\phi38 +H50 for A reed switch IC 304SS \$\$\phi38 +H50 for A and C reed switch IC 304SS \$\$\phi38 +	FR2		-							
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			$\square V PP \phi 48 \times H58$ for A reed switch							
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FR2 0 S J A1 1A = FR20S-JA11A

* The mounting size should be specified when you order.

* The length of probe should be specified in mm.

The dimension of detection points and actuation should be specified when you order.
The reed switch of cord "C" is not available with heat proof type.

Ordering Information

				_				
OL	_V2							
		C)	Flat-face flange				
		1		Ra	ise	d-f	ace	flange
		Z	ŀ	Ρlu	ig n	no	unte	d from outside of tank
		5	5	Ρlu	ig n	no	unte	d from inside of tank
		6	3	OL	fla	ng	е	
		7	7	OL	ho	us	ing	
				S 304 stainless steel				
				S6	3.	16	stair	nless steel
				V	P۱	٧C		
				F2	P۱	٧D	F	
]P	Sel	ect the number of switch points
							F	PVDF ϕ 25×H25
							K	316LSS \$\$ 31×H30
							Ρ	PP \$ 25×H25
							R	BUNA ϕ 25×H25
							S	316LSS φ 28×H27
							V	PVC \$ 42×H40
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OLV2 0 S 1P S = OLV-20S-1PS

* The mounting size should be specified when you order.

* The length of probe should be specified in mm.

* The dimension of detection points and actuation should be specified when you order.

Specification

Model		FR		FR21		
Mounting	g type	Flat Face	e Flange	Raised Face Flange		
Drawing			4-019 Holes 0120 013.8 013.8 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	8-019 Holes 0126 0185 0185 00 00 00 00 00 00 00 00 00 00 00 00 00	4-019 Holes 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
Material Housing		PVC	ADC12	PVC	ADC12	
Wetted Part		PVC, PP	SS, PVDF	PVC, PP	SS, PVDF	
		CPVC	PTFE	CPVC	PTFE	
Protection		IP43*	IP65	IP43*	IP65	
Electrical connection			··· =	(G3/4)		
Maximur	n Length	3900mm	3900mm	3900mm	3900mm	
			1500mm for PVDF		1500mm for PVDF	
	ontionally ava					

*IP65 is optionally available.

FR20 Series Float Types

Code		М	Ν	V	R
Dimensions		¢ 65	€		99
Material		PVC	PP	PP	PVDF
Maximum Temperature		50°C	80°C	80°C	120°C
Maximum Pressure		200kPa/2bar	200kPa/2bar	200kPa/2bar	200kPa/2bar
Minimum S.G.		0.65	0.5	0.75	0.9
Minimum Length of Dimer	nsions				
15VA Reed Switch	А	75mm	85mm	50mm	50mm
	B1		145mm	120mm	125mm
B2		125mm	125mm	100mm	110mm
С		85mm	70mm	75mm	110mm
220VA Reed Switch A		65mm	80mm	N/A	N/A
	B1		150mm	N/A	N/A
B2		130mm	130mm	N/A	N/A
	С	90mm	80mm	N/A	N/A

Note:

Dimension A is minimum length of L1 from the bottom of flange or plug. (For G plug, minimum length of L1 is shown by A plus thickness of plug.) Dimension B1 is minimum length of 2 points with 2 stoppers. Dimension B2 is minimum length of 2 points with 1 stopper.

Dimension C is minimum length of lowest point from bottom of the stem.

FR22		FR23	FR	24	FR25
		Sanitary Ferrule	Plug Mour	nt Outside	Plug Mount Inside
	φ13.8 φ13.8 φ13.8 φ13.8 τ _Ω γ φ49 φ6 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9				
PVC	ADC12	ADC12	PVC	ADC12	
PVC, PP	SS	SS	PVC, PP	SS	PVC, PP
CPVC			CPVC		CPVC, SS
IP43*	IP65	IP65 (G3/4)	IP43*	IP65	
	300mm, 22AWG				
2000mm	3900mm	3900mm	3900mm	3900mm	2000mm for SS
					1000mm for Plastics

In case of G plug, the total length of stem includes thickness of plug. In case of R plug, the thickness of plug is not included.

S	K	Р	А	С	В
∠9 = ↓ 00 ↓ 00	€ =		S2 → ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓	92 	92
PTFE	BUNA	CPVC	316SS	304SS	316SS
180°C	80°C	80°C	180°C	180°C	180°C
100kPa/1bar	2MPa/20bar	200kPa/2bar	2MPa/20bar	200kPa/2bar	600kPa/6bar
0.75	0.5	0.7	0.55	0.5	0.65
75mm	55mm	70mm	50mm	60mm	50mm
155mm	90mm	80mm	90mm	105mm	90mm
140mm	80mm	140mm	80mm	95mm	80mm
120mm	50mm	125mm	50mm	55mm	50mm
N/A	N/A	60mm	45mm	60mm	N/A
N/A	N/A	90mm	95mm	110mm	N/A
N/A	N/A	140mm	85mm	100mm	N/A
N/A	N/A	125mm	70mm	70mm	N/A

Switch Rating

	15VA ree	ed switch	220VA reed switch		
Max. Capacity	15VA	15W	220VA	55W	
Max. Current	1A AC	1A DC	1A AC	0.5A DC	
Max. Voltage	264V AC	200V DC	220V AC	110V DC	

Specification

Model	OLV	/-20	OL\	/-21	
Mounting type	Flat Face	e Flange	Raised Face Flange		
Drawing			ϕ 90 $4 \cdot \phi$ 15 ϕ 85 ϕ 1065 ϕ 11 ϕ 42 ϕ 42 ϕ 42 ϕ 42 ϕ 42 ϕ 42 ϕ 42 ϕ 42		
Material Housing	ADC12	ADC12	ADC12	ADC12	
Wetted Part	PVC	SS	PVC	SS	
Protection	IP65	IP65	IP65	IP65	
Electrical connection			(G3/4)		
Maximum Length	500mm	500mm	500mm	500mm	

*100mm Max. for over 40°C for PVDF

OLV-20 Series Float Type

Code		V	H*	Р	G*
Dimension		¢42 	$\begin{array}{c} \hline \\ \hline $	€t	6
Material		PVC	PP	PP	BUNA
Maximum Temperature		50°C	80°C	80°C	90°C
Maximum Pressure		200kPa/2bar	1MPa/10	1MPa/10bar	1MPa/10bar
Minimum S.G.		0.71	0.9	0.85	0.7
Dimensions	А	48mm	24mm	27mm	27mm
	B1	82mm	43mm	53mm	43mm
	B2	66mm	N/A	45mm	N/A
	С	47mm	27mm	34mm	24mm

Note:

Dimension A is minimum length of L1 from the bottom of flange or plug.

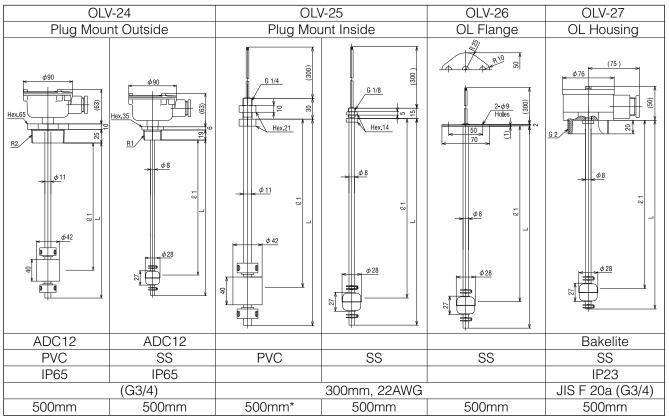
(For G plug, minimum length of L1 is shown by A plus thickness of plug.)

Dimension B1 is minimum length of 2 points with 2 stoppers.

Dimension B2 is minimum length of 2 points with 1 stopper.

Dimension C is minimum length of lowest point from bottom of the stem.

*Magnet is exposed and in direct contact with liquids.



In case of G plug, the total length of stem includes thickness of plug. In case of R plug, the thickness of plug is not included.

R	S	K	F
	€1	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	
BUNA	316LSS	316LSS	PVDF
90°C	120°C	120°C	100°C
1MPa/10bar	2MPa/20bar	500kPa/5bar	1MPa/10bar
0.85	0.8	0.7	0.9
27mm	25mm	30mm	27mm
53mm	47mm	50mm	53mm
45mm	41mm	44mm	45mm
34mm	30mm	29mm	40mm

Switch Rating

Max. Capacity	50VA	50W
Max. Current	0.5A AC	0.5A DC
Max. Voltage	300V AC	300V DC