ISEN-FQ20/21
Float Ball Level Switch

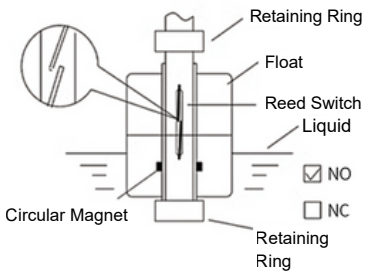
The connecting rod float liquid level switch is a safe, reliable, easy to use and simple structure liquid level controller. One product can realize multi-point control. Its characteristics are long life, fast speed and strong load impact re sistance. The connecting rod float liquid level switch is suitable for controlling the operation of the pump to maintain the liquid level; controlling the automatic loading and unloading of the tank; controlling the liquid level or supplying signals, such as oil tanks, automatic cleaning systems, hydraulic tanks, low-pressure boilers, and sewage treatment systems.

Product Features

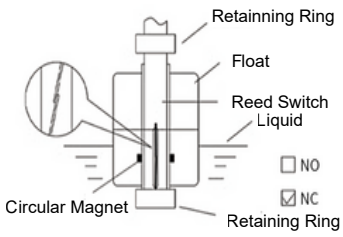
1. Multi-point control is possible. The control switch position can be customized according to user needs.
2.The use of reed switches does not require power supply, and the contact life can reach 2 million times.
3.All switch outlets are in the same junction box, and the cost of external construction wiring is low.
4.Compared with multiple switch control points and other forms of liquid level switches, the unit price of RF type is low.
5.The protection level of the junction box is above IP65.
6.PP and SUS316 metal materials are available, so no matter acid and alkali liquids, solvents or various fuels , there are suitable products to be used in conjunction.
7.The reed switch is completely isolated from the wire and liquid, so it can also be used on high temperature and high pressure equipment.
8.Link type float level switch set, suitable for high temperature and high pressure occasions.
9.60VA dry contact reed switch, can be selected as normally open or normally closed according to the installation position of the float.
10.316 SS float, conduit and installation interface, suitable for harsh environments.
11.NEMA 4X polypropylene enclosure with rotatable base for easy electrical alignment adjustment.
12.Customizable conduit length and switch set point dimensions

Working Principle

One or more reed switches are set in a sealed metal or plastic tube, and then the tube is passed through one or more hollow floats with ring magnets inside. The float is fixed in the range related to the reed switch by a fixing ring. When the float moves, the magnet inside it attracts the reed switch contacts to operate, which serves as a control or indication of the liquid level



Normally open (NO) setting, the reed switch is turned on when the liquid level rises



Normally closed (NC) setting, the reed switch opens when the liquid level rises

Application Field

Petrochemical | Wastewater treatment | Chemicals and Pharmaceuticals

Connecting rod float liquid level switch is widely used in wastewater/water treatment, shipbuilding, generator equipment, petrochemical, food, electronics, dyeing and finishing, chemistry, rubber and plastic, hydraulic machinery, electric power, pharmaceutical and other industries

Product Line

1 ISEN-FQ20 Standard terminal bõ thread type

2 ISEN-FQ20Flange Type

3 ISEN-FQ20 Clamp Type

4 ISEN-FQ20 Hirschmann type

5 ISEN-FQ20 All stainless steel type

6 ISEN-FQ20 Immersion type

7 ISEN-FQ20 Simple Type

8 ISEN-FQ20 Anti-corrosion

Product Line

9 ISEN-FQ20 Explosion-proof

10 ISEN-FQ20 Outlet type

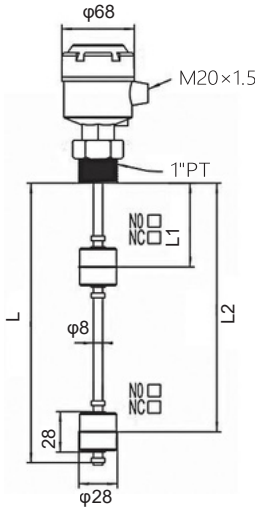
11 ISEN-FQ20Explosion-proof and anti-corrosion type

12 ISEN-FQ21 Pull-out connecting rod

Technical Specification

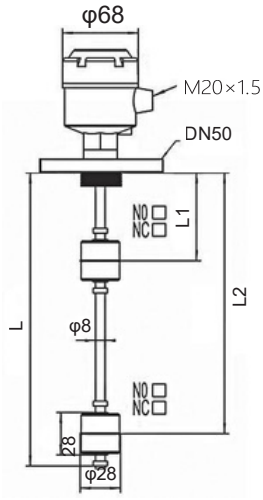
Material	Default 304 stainless steel, 316L, PP, PTFE (Teflon) can be customized Standard: 304 Stainless Steel, Optional: 316L, PP, PTFE (Teflon)
Length	Switching type: ≥100mm (single-point), Continuous type: ≥500mm, Max. 5m
Contact Rating	50W/250VAC，200VDC 40W/250VAC 10W/110VAC
Rated Current	0.2A（50W）、0.16A（40W）、0.1A（10W）
Operating Current	1A（50W，40W）、0.5A（10W）
Pressure Resistance	(-1.0~3.5)MPa Metal type; (0~0.5)MPa--Plastic type Metal type: -1.0~3.5 MPa; Plastic type: 0~0.5 MPa
Temperature	-20℃~120℃（200℃ Max.）
Float Size	25/28/45/50/75/110mm，depending on the parameters(customizable based on requirements)
Stem Diameter Diameter	8/12/14/16/20mmdepending on theparameters(customizable based on requirements)
Connection Type	Threaded, Quick-Install Clamp, Flange, etc.

Outline Dimensions & Technical Specifications (Reference)

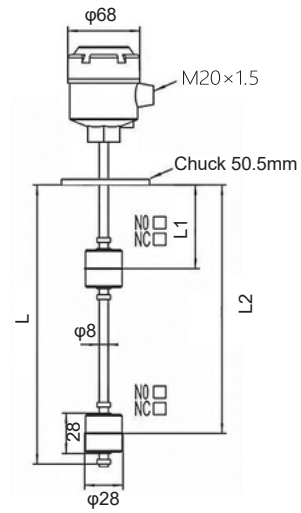


Model Name		ISEN-FQ20 Standard terminal box thread				
Contact Form		type SPDT/SPST				
Measuring Length (mm)		1000	2000	3000	4000	6000
MaeasuringRod Diameter(mm)		φ8	φ12.7	φ14	φ16	φ22
Maximum Measuring Points/Power	SPDT	2Groups/5 W	4Groups/ 10W	4Groups/ 10W	4Groups/10 W	4Groups/ 10W
	SPST	4Groups/30 W	6Groups/30 W	6Groups/30 W	6Groups/30 W	6Groups/30 W
Wetted Material		SUS304/SUS 316 L				
Operating Pressure		-0.1MPa~2.5MPa				
Operating Temperature		-20~200℃				
Connection Type		G1" thread (customizable)				
JunctionBox Material		Aluminum alloypaint				
Protection Rating		IP65				

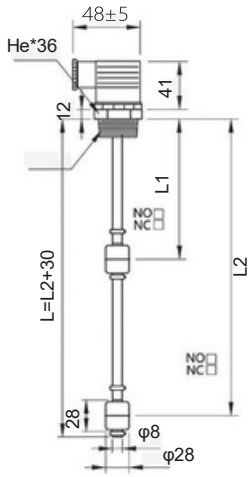
Outline Dimensions & Technical Specifications (Reference)(Continued)



Model Name		ISEN-FQ20 standard junction box flange				
Contact Form		type SPDT/SPST				
Measuring Length (mm)		1000	2000	3000	4000	6000
MeasuringRod Diameter (mm)		φ8	φ12.7	φ14	φ16	φ22
Maximum Measuring Points/Power	SPDT	2Groups/5W	4Groups/10W	4Groups/10W	4Groups/10W	4Groups/10W
	SPST	4Groups/30W	6Groups/30W	6Groups/30W	6Groups/30W	6Groups/30W
Wetted Material		SUS304/SUS316L				
Operating Pressure		-0.1MPa~2.5MPa				
Operating Temperature		-20~200℃				
Connection Type		DN50 flange (customizable)				
JunctionBox Material		Aluminum alloy paint				

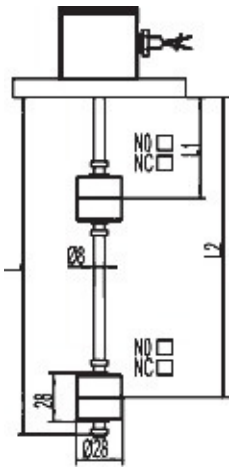


Model Name		ISEN-FQ20 standard junction box chuck type				
Contact Form		SPDT/SPS				
Measuring Length (mm)		T 1000	200	300	400	600
Measuring Rod Diameter (mm)		φ8	φ12.7	φ14	φ16	φ22
Maximum Measuring Points/Power	SPDT	2Groups/5W	4Groups/10W	4Groups/10W	4Groups/10W	4Groups/10W
	SPST	4Groups/30W	6Groups/30W	6Groups /30W	6 Groups /30W	6 Groups /30W
WettedMaterial		SUS304/SUS316L				
Operating Pressure		-0.1MPa~2.5MPa				
Operating Temperature		-20~200℃				
Connection Type		50.5 chuck (customizable)				
Junction Box Material		Aluminum alloy paint				
Protection Rating		IP65				

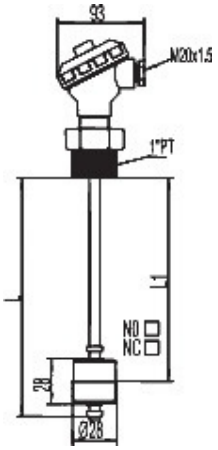


Model Name	ISEN-FQ20 Hirschmann type
Maximum power	50VA
Maximum switching voltage	220VAC/DC
Maximum switchingcurrent	1.5A
Maximum breakdown voltage	300VAC/DC
Maximum contact resistance	100mΩ
Temperature range	-30~+120℃
Float material	SUS304
Bodymaterial	SUS304

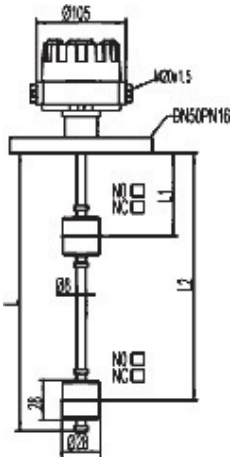
Outline Dimensions & Technical Specifications (Reference)(Continued)



Model Name		ISEN-FQ20 Submersible type				
Contact Form		SPDT/SPST				
Measuring Length (mm)		1000	2000	3000	4000	6000
Measuring Rod Diameter (mm)		φ8	φ12.7	φ14	φ16	φ22
Maximum Measuring Points/Power	SPDT	2Groups/5W	4Groups/10W	4Groups/10W	4Groups/10W	4Groups/10W
	SPST	4Groups/30W	6Groups/30W	6Groups/30W	6Groups/30W	6Groups/30W
Wetted Material		SUS304/SUS316L				
Operating Pressure		-0.1MPa~2.5MPa				
Operating Temperature		-20~200℃				
Connection Type		Thread, flange (customizable)				
Junction Box Material		SUS304/SUS316L				
Cable length (mm)		2000 (customizable)				



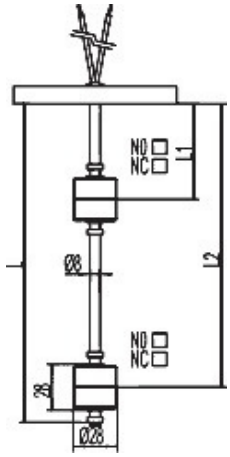
Model Name		ISEN-FQ20 Simple type				
Contact Form		SPDT/ SPST				
Measuring Length (mm)		1000	2000	3000	4000	6000
MeasuringRodDiameter(mm)		φ8	φ12.7	φ14	φ16	φ22
Maximum Measuring Points/Power	SPDT	2Groups/5W	2Groups/10W	2 Groups /10W	2 Groups/10W	2Groups /10W
	SPST	3Groups/30W	3Groups/30W	3Groups/30W	3Groups/30W	3Groups/30W
Wetted Material		SUS304/SUS316L				
Operating Pressure		-0.1MPa~2.5MPa				
OperatingTemperature		-20~200℃				
Connection Type		Thread, flange(customizable)				
JunctionBox Material		Aluminum alloy paint				
Protection level		IP65				



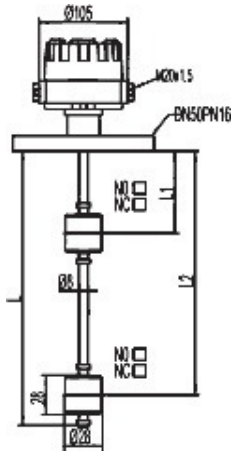
Model Name		ISEN-FQ20 explosion-proof type				
Contact Form		SP DT/ S PST				
Measuring Length (mm)		1000	2000	3000	4000	6000
MeasuringRodDiameter (mm)		φ8	φ12.7	φ14	φ16	φ22
Maximum Measuring Points/Power	SPDT	2Groups/5W	4Groups/10W	4Groups/10W	4Groups/10W	4Groups/10W
	SPST	4Groups/30W	6Groups/30W	6Groups/30W	6Groups/30W	6Groups/30W
Wetted Material		SUS304/SUS316L				
Operating Pressure		-0.1MPa~2.5MPa				
Operating Temperature		-20~200℃				

Outline Dimensions & Technical Specifications (Reference)(Continued)

Connection Type	Thread, flange (customizable)
Junction Box Material	Aluminum alloy paint
Protection Rating	IP65
Protection level	ExdIICT6

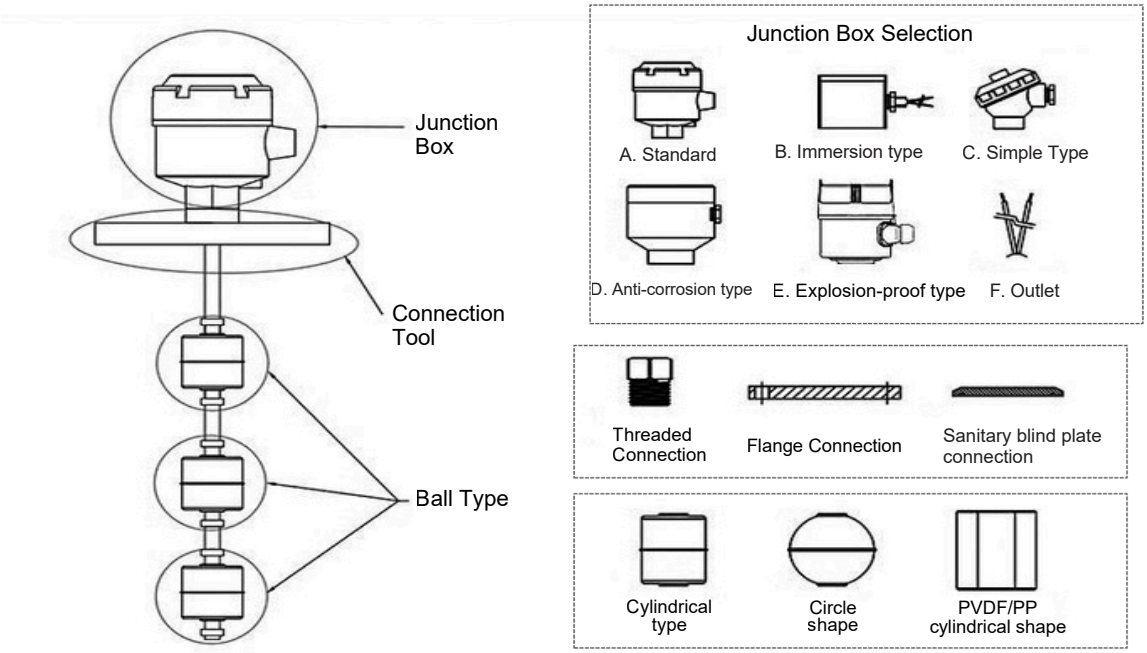


Model Name		ISEN-FQ20 outlet type	
Contact Form		SPDT/SPST	
Measuring Length (mm)		1000	2000
Measuring Rod Diameter (mm)		φ8	φ12.7
Maximum Measuring Points/Power	SPDT	2Groups/5W	4Groups/10W
	SPST	4Groups/30W	6Groups/30W
Wetted Material		SUS304/SUS316L	
OperatingPressure		-0.1MPa~2.5MPa	
OperatingTemperature		-20~200℃	
ConnectionType		Thread, flange (customizable)	
ProtectionLevel		IP67	



Model Name		ISEN-FQ20 explosion-proof and corrosion-proof type		
Contact Form		SPDT/SPST		
Measuring Length (mm)		3000	4000	6000
MeasuringRod Diameter (mm)		φ16	φ20	φ25
Maximum Measuring Points/Power	SPDT	4Groups/10W	4Groups/10W	4Groups/10W
	SPST	6Groups/30W	6Groups/30W	6Groups/30W
Wetted Material		PP/PDVF		PTFE
Operating Pressure		-0.1MPa~0.5MPa		-0.1MPa~1MPa
Operating Temperature		-20~80℃		-20~200℃
Connection Type		Flange (customizable)		
Junction Box		Aluminum alloy paint		

Structural form



Installation precautions and instructions

Installation precautions:

1.The installation position should be far awayfrom the water inlet, otherwise the switch will cause false operation due tothe large

fluctuation of the water inlet.

2. If the switch is installed on the concrete pool wall, an L-shaped angle steel bracket can be installed.

3. If the switch is installed in the mixingarea, a wave-proof pipe or a wave-proof baffle can be installed.

4. Select a flange connection pipe with an inner diameter larger than the diameter of the float.

5. It is recommended touse Φ8mm multi-core cable when wiring.

6. The load of the controlled line must match the capacityof the switch contact.

7 . The specific gravityof the measured liquid must be greater than the specific gravityof the float.

8. Plastic material is suitable for acid and alkali liquids, and metal material is suitable for high-temperature liquids such as fuel.

9. The action point of the float has been adjusted at the factoryaccording tothe customer's order requirements. Please donot adjust the

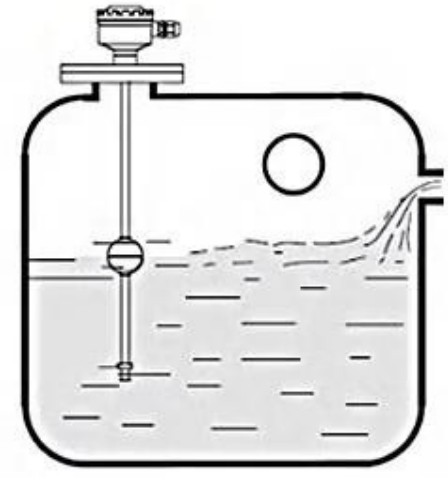
position of the ringbuckle for fixingthe float at will toavoid false operation of the float switch.

Installation instructions:

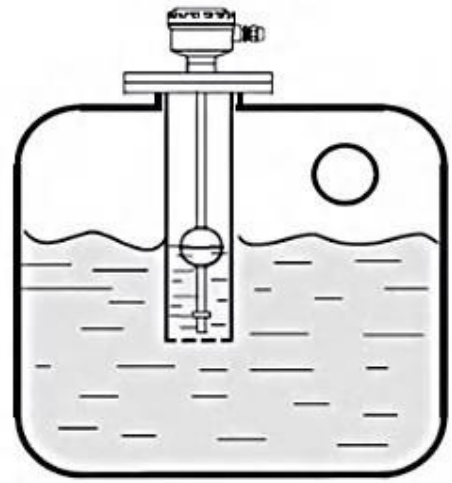
1. The installation location should be far away from the medium inlet and outlet to reduce the impact of medium fluctuations on it.

2. If the switch is installed in th e stirring area, a wave- proof tube or wave-p roof baffle can be installed

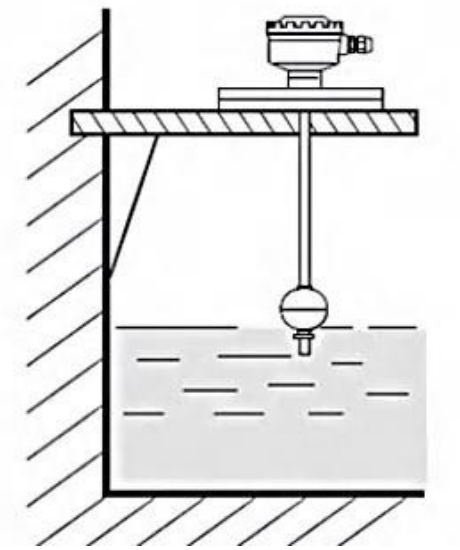
Installation precautions and instru ctions (Conti nued)

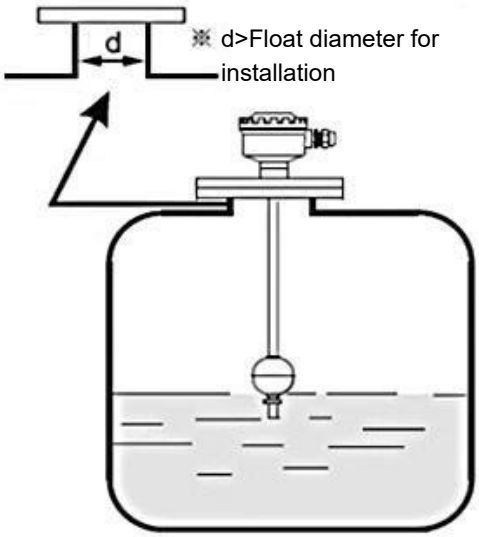


3. The switch is installed on the concrete pool wall, and an L-shaped angle iron bracket can be installed



4.Choose a flange connection pipe with a diameter larger than the float diameter





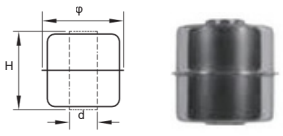
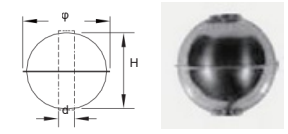
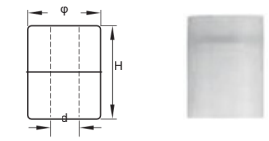
Contact protection circuit

1.When the switch is used in a circuit with inductive loads such as motors, relays, solenoid coils, etc., it is recommended to connect a protective circuit such as RC (snubber), variable resistor, diode, etc. in parallel at both ends of the load.

Note: Do not connect the switch directlyto a solenoid valve, motor or solenoid switch.

2. When the reed switch is used in a capacitive load such as a capacitor, incandescent bulb, or verylong cable, a surge current will be generated between the contacts of the switch; it is recommended to connect a protective circuit such as a current limiting resistor or surge absorber in par allel at bothends of the reed switch.

Magnetic float selection table

Size	φ×H×d（mm）	Materia	Density (g/cm3)	Temperature resistance (℃)	Pressure resistance (Kg/cm2)	Diagram
S1	φ28×H28×d9.5	SUS304，316L	0.7	150	10	
S2	φ40×H50×d15.5	SUS304，316L	0.7	150	10	
S3	φ45×H55×d15.5	SUS304，316L	0.7	150	10	
S4	φ30×H29×d9.5	SUS304，316L	0.65	150	25	
S5	φ52×H52×d15.5	SUS304，316L	0.65	150	25	
S6	φ75×H75×d15.5	SUS304，316L	0.55	150	25	
S7	φ125×H125×d15.5	SUS304，316L	0.45	150	25	
P1	φ40×H52×d20	PP	0.65	75	5	
P2	φ48×H52×d20	PP	0.65	75	5	
F1	φ55×H70×d23	PVDF	0.85	150	5	
F2	φ40×H52×d20	PVDF	1.0	150	5	

Magnetic float selection considerations

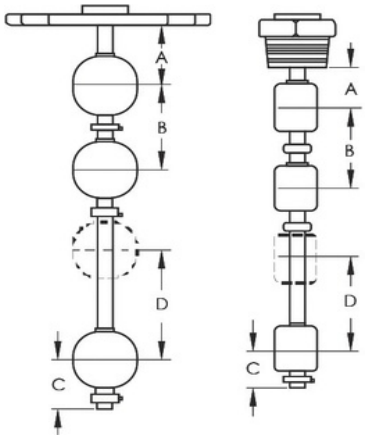
1. When ordering, users should pay attention to the minimum distance between the two floats and the minimum distance between the lowest points. If the distance is not enough, production will not be possible. When ordering, users can determine these relative dimensions based on the data in the table below.

A = minimum distance from the bottom of the connection

B = minimum distance between two adjacent floats

C = minimum distance from the end of the main pipe

D = minimum distance between two liquid levels of a float



Float / Interval	S1	S2	S3	S4	S5	S6	S7	P1	P2	F1
A（mm）	17	19	19	18	20	30	33	14	30	40
B（mm）	44	48	48	46	50	70	76	38	70	90
C（mm）	27	29	29	28	30	40	43	24	40	50
D（mm）	34	38	38	36	40	60	66	28	60	80

2. Users should also payattention to the relationship between the characteristics of the float and the liquid when selecting. Users should select the corresponding specifications of the float in the magnetic float selection table accordingto the operating temperature, pressure, specific gravity, acidityand alkalinity of the liquid beingtested. Temperature: The maximum temperature of PVC is 80℃, the maximum temperature of PP is 80℃, the maximum temperature of PVDF is 150℃, and the max imum temp erature of SUS304/3 16L float is 200℃

Pressure: The maximum pressure resistance of plastic floats is 5kg/cm2, and the maximum pressure resistance of SUS304/316L floats is 40kg/cm2. Viscosity: For relatively viscous liquids, in principle, a float with a large outer diameter and a small specific gravityis selected to overcome the surface tension of the liquid. Acidityand alkalinity: Polypropylene is s uitable for strong acid and alkali occasions . For strong acid and a lkali occas ions with a temperatu re above 8 0, PVDFshould be s elected. Al cohol, oil, etc.: It is re commende d to use st ainless stee l SUS, and for the fo od industry , food hygiene grade SUS316L should be used.

Wiring and contact instructions

Specific gravity: The specific gravityS.G of the float must be less than the specific gravityof the liquid beingmeasured, otherwise the float will not float.

Wiring and contact instructions

1. Open the junction box, insert the cable from the inlet, and tighten the cable fixing screws at the inlet. Connect the power cord and contact wire to the corresponding terminals according to the nameplate and the markings on the terminal block of the wiring board.
2. The marking numbers on the terminal block of the wiring boa rd correspond to the contacts of each float from top to bottom
from small to large. 3. The float contacts are divided into three forms (A represents the normally open point, B represents the normally closed point, and C represents the common point):
①1A: When the liquid level is higher than the float, the A-C contacts are connected
②1B: When the liqu id level is lower than the float, the B-C contacts are connected
③1AB: When the liquid level is lower than the float, the A-C contacts are disconnected and the B-C contacts are connected; when the liquid level is higher than the float, the A-C contacts are connected and the B-C contacts are disconnected 4. After the wiringis completed, please tighten the box cover and fix the wiring port to ensure that the junction box iswaterproof.

Selection Chart

Model	Product Name Lever
ISEN-FQ20/21	Float Level Switch

Code	Explosion-proof Type
P	Standard, Non-explosion-proof
E	Explosion-proof

Code	Measuring Range
xxxx	xxxx ( )mm (select range as required)

Code	Process Connection
S1	G1-1/2" Threaded
S2	G1" Threaded
F1	DN50 Flange Connection (DN50 Flange)
F2	DN80 Flange
T	Clamp Connection
Y	Customizable

Code	Wetted Material
4	Stainless Steel SUS304
6	Stainless Steel SUS316L
P	Polypropylene PP/Polyvinylidene Fluoride PVDF
F	PTFE

Code	Temperature Range
N	-20~80℃
T	-20~200℃

Code	Float Size
S1~F2	Refer to Magnetic Float Selection Table

Code	Float Quantity
1~8	Select quantity according to control points, max. 8

Selection Chart （Continued）

	Code	Junction Box Type
	A	Standard Type
	B	Submersible Type
	C	Simple Type
	D	Corrosion-Proof Type
	E	Explosion-Proof Type
	F	Outlet Type
	H	Hirschmann Connector

	Code	Junction Box Material
	L	Aluminum alloy
	P	PP polypropylene / PP + Fiber
	4	Stainless steel SUS304
	6	Stainless steel SUS316

Selection Example

Example: ISEN-FQ20-P260S24NS12AL, connecting rod float level switch, standard type (non-explosion-proof), range 260mm, G1" thread installation, wetted material stainless steel SUS304, temperature -20~80℃, float size S1, float quantity 2, junction box type standard, aluminum alloy material.

Website

WhatsApp

All your process control needs

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