

CE Marking PRODUCTS GUIDE





Continuous Level Measurment

Industries	CG
	Capacitive
Power, Gas, Municipal	■
Public Office	■
Food, Pharmaceutical	■
Pulp, Paper	■
Petrochemical, Chemical	■
Cement, Glass	■
Steel, Non-ferrous Metal	■
Cars, Ships	
Medical or Physical Equipment	■
Electric or Electric Equipment	
Industrial Equipment	■

Point Level Measurment of Solids

Industries	VL	R7
	Vibrating	Motor Torque
Power, Gas, Municipal	■	■
Public Office	■	■
Food, Pharmaceutical	■	■
Pulp, Paper	■	■
Petrochemical, Chemical	■	■
Cement, Glass	■	■
Steel, Non-ferrous Metal	■	■
Cars, Ships	■	■
Medical or Physical Equipment		
Electric or Electric Equipment	■	■
Industrial Equipment	■	■

Point Level Measurment of Liquids

Industries	FR / OLV	OL / LS / SH
	Reed Switch	Compact
Power, Gas, Municipal	■	■
Public Office	■	■
Food, Pharmaceutical	■	■
Pulp, Paper	■	
Petrochemical, Chemical	■	■
Cement, Glass	■	
Steel, Non-ferrous Metal	■	■
Cars, Ships	■	■
Medical or Physical Equipment	■	■
Electric or Electric Equipment	■	■
Industrial Equipment		

Liquid, Powder, Grain, Viscous material detection

Model CG Capacitance Level Sensor, Two Wire, CE Marking

Product Overview

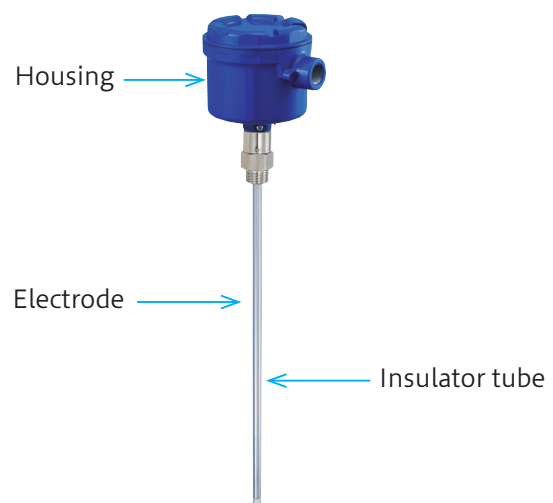
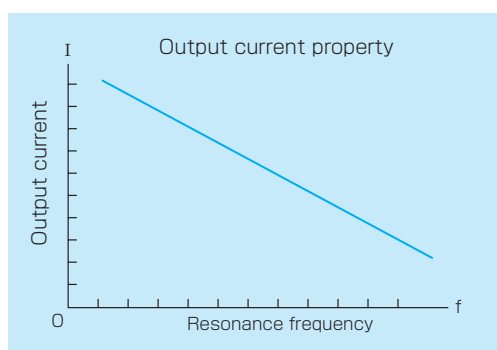
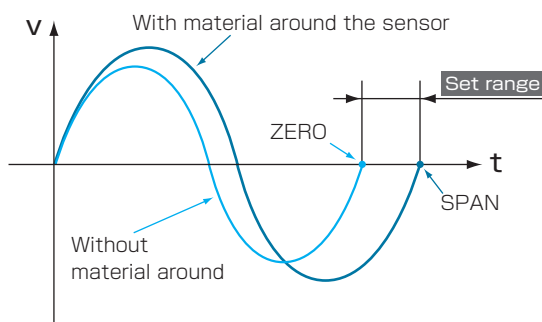


We, NOHKEN INC., has plenty of experience with capacitance level sensor for more than 30 years, and we consolidate all experience into CG400 series. CG400 series employ phase detection principle which the changing of resonance frequency is processed by microprocessor (digital circuit) and the changes in capacitance value is detected by changes in frequency value.

CE

Principle of Operation

The basic oscillator circuit is of the parallel resonance circuit with L (coil) and C (capacitance between the electrodes). The oscillation frequency (f) of this circuit is : $f = 1/2 \pi \sqrt{LC}$. The frequency without material around the sensor (f1) is : $f_1 = 1/2 \pi \sqrt{LC}$, where C is the capacitance without material around the sensor (zero point). With material around the sensor, the capacitance increases ($C + \Delta C$), and the frequency (f2) is: $f_2 = 1/2 \pi \sqrt{L(C + \Delta C)}$, where $C + \Delta C$ is the capacitance with material around the sensor (span point). The sensor detects the frequency change from f1 to f2, and gives output (4 to 20 mA) corresponding to the change. With the incorporated microcomputer, offset of output current and reversed output signals for ZERO / SPAN points are also available.



Specifications

CG400 (CE Marking) series, Integral Type, Two wire

Model	CG400BN	CG400BF	CG400BNT	CG400BFT
Drawing				
Medium	Liquid			
Measuring range	From the tip of electrode to thread end or 10mm from flange face L=4000mm Max., Min. S1=0mm with thread or 10mm with flange, Min.S2=L×0.02			
Sensitivity	30 to 2000pF			
Accuracy	±0.5%F.S.			
Power supply	18 to 30V DC			
Startup current	50mA DC Max. (Approx. 0.5 second at start up, 25°C)			
Output signal	4 to 20mA DC (Load Resistive 540 Ω Max. at 24V DC)			
Allowable load resistance				
Operating temperature	-20 to 60°C for electrode (without dew), Heat proof up to 150°C is available as an optional -25 to 65°C for housing (without dew)			
Operating pressure	100kPa Max. (Except mounting part)			
Protection class	IP68 (Electrode), IP65 (Housing)			
Material	304SS electrode, PFA insulator tube, ADC12 (Acrylic painting) housing			
Mounting	R1" and JIS5K50A (STD), other size of thread and flange are available as an optional			
Cable entry	G3/4" or equivalent			
Recommended cable	2-core shielded cable (Outer dimension : approx. Φ 10mm)			

* The specifications are subject to change without notice.

Model VL Vibration Level Sensor CE Marking

Ideal for powders, solids, and granular material

Product Overview



Model VL is designed to detect powders, solids, granular material including such very light powders as instant coffee, powdered milk, iron oxide, and toner for use in medium and / or large sized hopper. There are several versions available to meet a variety of hopper / silo operations. Model VL12, standard type, is used for high and low level detection. For low level detection in large silos. Model VL22, pipe extension type, is suitable for high and low alarm in large silos with top mounting. Pipe extension up to 2500mm for plug mounting and 4000mm for flange mounting are available. Model VL32, cable extension type, is also suitable for high or low alarm with a flexible PVC coated cable available in length up to 6000mm.



Principle of Operation

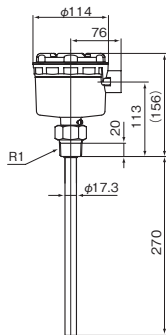
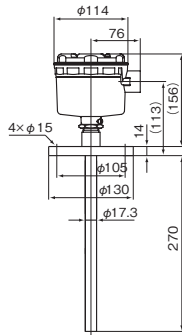
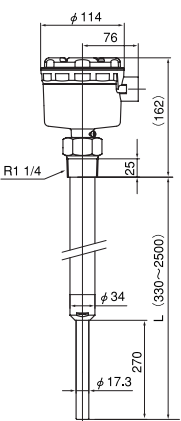
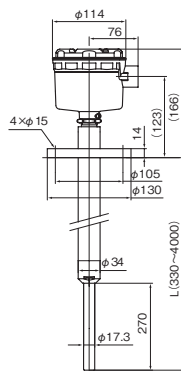
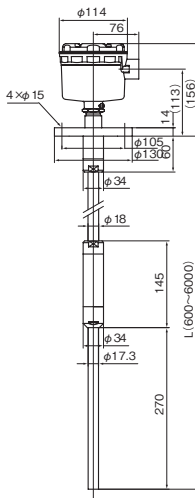
The vibration rod of new VL series is constructed by using the electro magnet and the permanent magnet. When the electro magnet is energized, the electro magnet and permanent magnet are attracted and repulsed. This movement makes vibration. The construction of vibration probe is similar to the motor. When the motor is energized by the battery, the back electromotive current is generated by the influence of permanent magnet and coil.

When the vibration rod is covered with solids or powdered material, the current flowing to the lead wire is increased by damping of the back electromotive current. The amplifier detects this shifting of current level, and converts to output signal.

Features

- **With stand up to 150°C (180°C in option)**
The operation temperature has been improved to 150°C by standard specification.
The operation temperature of 180°C Max. is optionally available.
- **Fail safe switch is provided**
The operation of relay contact can be changed by fail safe switch.
The fail safe switch is provided in standard.
- **Less subject to dead stock**
The sensing point of Model VL is at the tip of detection pipe, so it is not affected by dead stock in the tank.

Specifications

Model		VL12N	VL12F	VL22N	VL22F	VL32F
		Standard		Pipe Extension		Cable Extension
Drawing						
Measuring Object		Powder, Granular material, Pellets and under water sediments				
Mounting		R1	JIS5K50A	R1-1/4	JIS5K50A	JIS5K50A
Supply power		AC / DC Free (100 to 240V AC 50 / 60Hz, 24V DC ±10%)				
Power Consumption		Approx. 2VA at 100V AC or 1W Max. at 24V DC				
Relay Output		1SPDT, 250V 3A AC, 30V 3A DC (Resistive) C-NO: Normally Open Contact, C-NC: Normally Closed Contact				
Detection Time Delay		Approx. 3 to 5 seconds for covered and free				
Operating Temperature	Housing	-20 to 60℃				
	Vibration Rod	-20 to 150℃ (180℃ option)				-20 to 70℃
Maximum Pressure		2Mpa (Except a mounting part)				1kPa
Sensitivity		Bulk density of 0.2g /cm3 Min.				
Vibration Frequency		Approx. 300 to 500Hz				
Material	Housing	ADC12				
	Vibration Rod	304SS (316SS Option)				
	Extension	304SS (316SS Option)				PVC
Protection	Housing	IP65				
	Vibration Rod	IP68				IP65

Model R7 Rotating Paddle Level Sensor CE Marking

Ideal for powders, solids, and granular material

Product Overview



R7 is a solid level measurement sensor that is ideal to incorporate in plastic processing machinery or cereal processing machinery. The sensor has a paddle that is projected to the tank and rotates slowly. Without material around the paddle, it keeps rotating. When material reaches the paddle, the rotation stops and the output signal is given.



Principle of Operation

1) Without material around the paddle

Spindle and paddle, connected to the motor via the slip mechanism, slowly rotates as the motor rotates.

2) With material around the paddle

Paddle rotation is impeded by the material, and the motor revolves with the spindle as its axis.

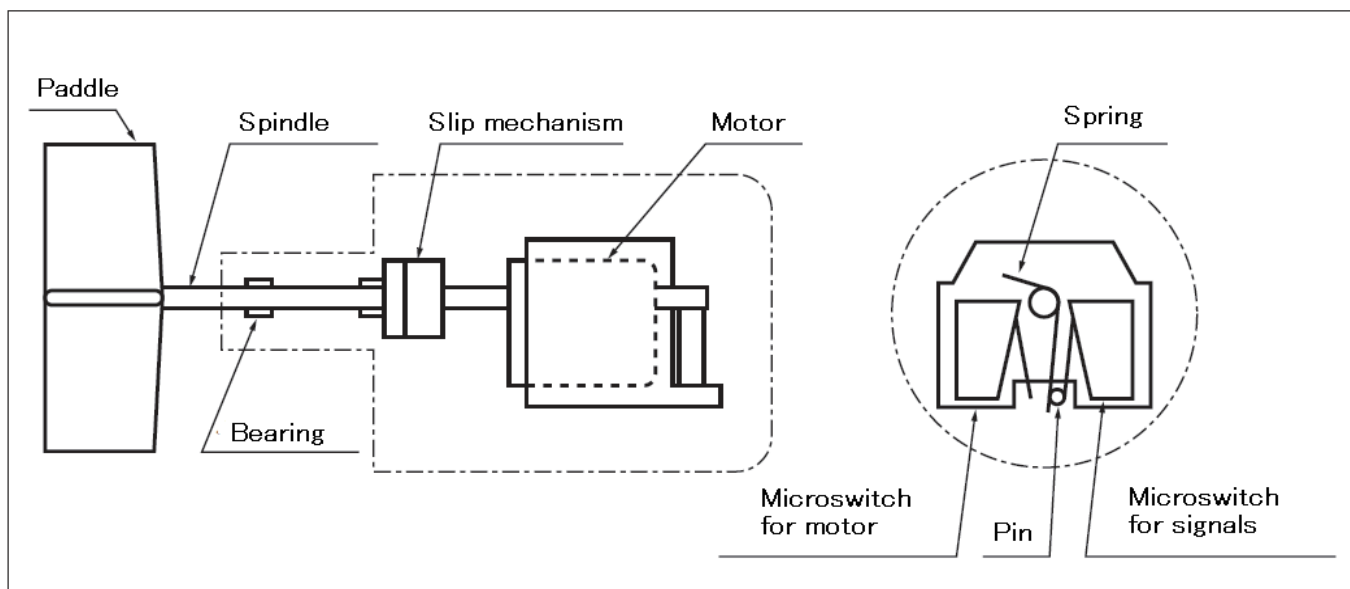
The motor revolution causes the pin on the motor to actuate the micro switches; turning on the signal out put and turning off the motor rotation, to give an output signal and stop the motor revolution simultaneously.

3) Reset

When the material descends and the paddle is no longer covered by it, the pin on the motor returns to its original position by the spring force, causing the micro switches to reset and thus the motor and the paddle to resume rotation.

4) Slip mechanism

When downward flow or other excessive force causes the spindle to rotate, the slip mechanism on the connection of the motor shaft and the spindle makes the spindle 'slip'. This prevents constrained rotation of the motor, and protects the motor from damage.



Features

● Compact and Low Cost

R7 utilizes a miniature motor and plastic devices for main components, making itself a compact, lightweight, and low cost sensor.

● Easy Torque Adjustment

Remove the cover, and change the spring position. That's all you have to do to achieve the best torque.

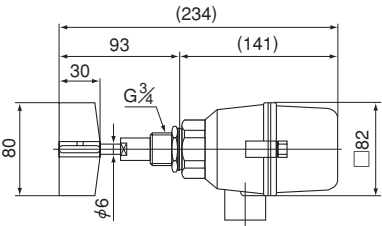
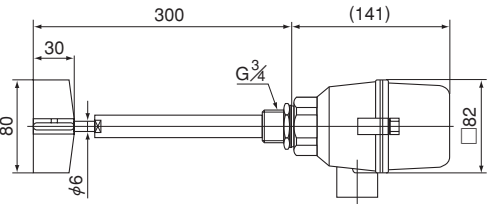
● Slip Mechanism

The durable magnetic "slip" mechanism of R7 prevents excessive force applied on the paddle from damaging the motor.

● Easy Maintenance

Maintenance is easy as the internal components can be removed while the sensor is mounted on a tank.

Specifications

Model		R7-Z (Standard)	R7-ZL (Long Type)
Object		Plastic pellet, Powder, Grain, etc.	
Principle		Rotating Paddle (CE Marking)	
Drawing			
Material	Process side	PC, 304SS, Brass (C3604BD), Aluminum Die Casting (ADC12), NBR, PTFE	
	Housing/Body	ABS, Aluminum Die casting (ADC12)	
Temp.	Process side	-10 to 70°C (no-freeze)	
	Ambient	-10 to 45 (no-dew condensation)	
Power supply		24/100/110/120/200/220/240V AC, 50/60Hz (Specified with order)	
Revolution		1 rpm at 50Hz (power freq.) / 1.2 rpm at 60Hz (power freq.)	
Switch rating		Micro switch, 250V 3A AC, 30V 4A DC (Restive Load)	
Detection torque		Approx. 50mN · m	
Protection class		IP65 or equivalent	
Mounting		G3/4"※1	
Cable entry		G1/2" or equivalent※2	
Color		Munsell 10B 5/6	
L length		93mm	1000mm Max.※3
Mass		Approx. 0.7kg	Approx. 1.8kg※4

Notes: Stainless paddle (304SS, 2-vane) is optionally available.

※ 1. Special mounting flange for R7 is optionally available.

※ 2. Cable gland, JIS F 20a (G3/4), is optionally available.

※ 3. Point load for L=1000 model: 134 N Max for EX, 94 N Max. for ZL

※ 4. When L=1000

Model FR and OLV series, Magnetic Float Level Sensor CE Marking, Ideal for universal liquid application

Product Overview



The FR and OLV custom level sensors are engineered and manufactured to meet demanding customer applications for liquid level sensing. The FR with wetted parts of 304SS, 316SS, PP and the OLV with wetted parts of 304SS, 316SS, PVC, PP are available with CE Marking.

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.

CE

Principle of Operation

- **Custom manufactured to user specifications**

All the specification such as length of stem, mounting, dimension of detection point and actuation are selected by the end user.

- **Wide Choice of material**

The wetted parts material of 304SS, 316SS, PP for FR20 series.

The wetted parts material of 304SS, 316SS, PP for FR25 series.

The wetted parts material of 304SS, 316SS, PVC, PP for OLV-25 series.

The wetted parts material of 304SS, 316SS for OLV-26 series.

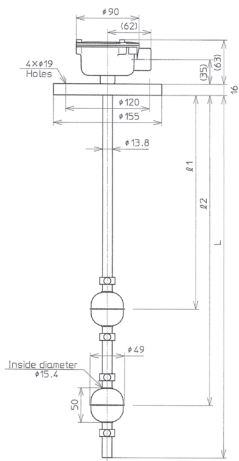
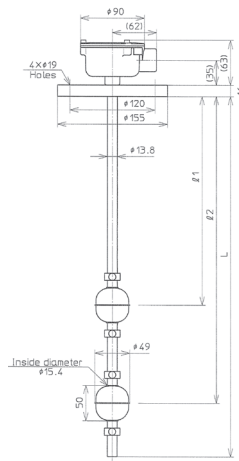
- **Switch points can be field adjustable**

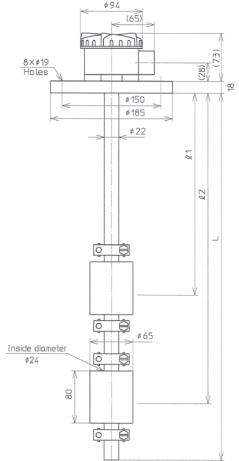
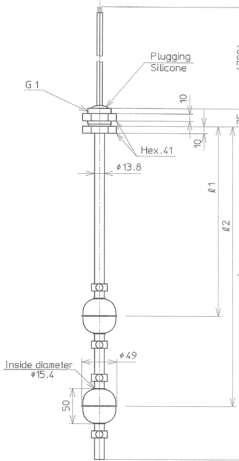
The switch points of Model FR series can be changed by your new requested dimension at site.

Operational Description

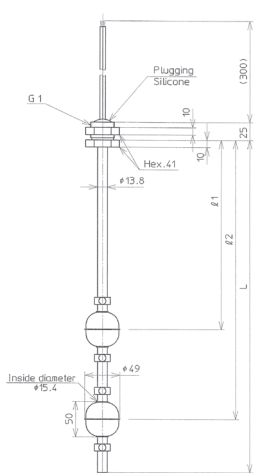
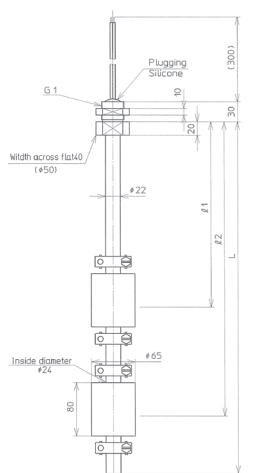
These level sensors contain hermetically sealed reed switches in the stem and a permanent magnet in the float. As a float raises or falls with the level of liquid, the reed switch activates by the magnet in the float.

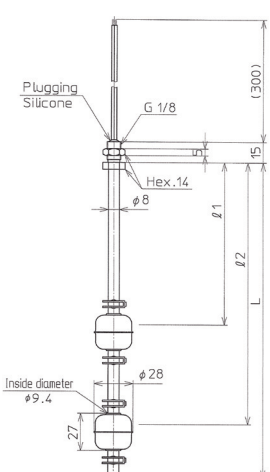
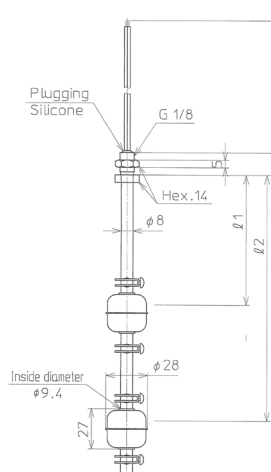
Specification

Model		FR20S	FR20S6
Drawing			
Material	Flange	304SS	316SS
	Stem	304SS	316SS
	Float	316SS	316SS
Operating Temperature		-10 to 100°C	
Maximum Pressure		2MPa	
Max. Switch Rating		15VA 1A 30V AC / 15W 1A 30V DC	
Min. Switch Rating		10 μ VA 100 μ A 50mV AC / 10 μ W 100 μ A 50mV DC	
Minimum SG		0.55	0.55

Model		FR20PS	FR25S
Drawing			
Material	Flange	PP	—
	Plug	—	304SS
	Stem	PP	304SS
	Float	PP	316SS
Operating Temperature		-10 to 80°C	-10 to 100°C
Maximum Pressure		200kPa	2MPa
Max. Switch Rating		15VA 1A 30V AC / 15W 1A 30V DC	
Min. Switch Rating		10 μ VA 100 μ A 50mV AC / 10 μ W 100 μ A 50mV DC	
Minimum SG		0.5	0.55

Specification

Model		FR25S6	FR25P
Drawing			
Material	Plug	316SS	PP
	Stem	316SS	PP
	Float	316SS	PP
Operating Temperature		-10 to 100°C	-10 to 80°C
Maximum Pressure		2MPa	200kPa
Max. Switch Rating		15VA 1A 30V AC / 15W 1A 30V DC	
Min. Switch Rating		10 μ VA 100 μ A 50mV AC / 10 μ W100 μ A 50mV DC	
Minimum SG		0.55	0.55

Model		OLV-25S	OLV-25S6
Drawing			
Material	Flange	304SS	316SS
	Stem	304SS	316SS
	Float	316LSS	316LSS
Operating Temperature		-10 to 100°C	
Maximum Pressure		2MPa	
Max. Switch Rating		50VA 0.5A 30V AC / 50W 0.5A 30V DC	
Min. Switch Rating		10 μ VA 100 μ A 50mV AC / 10 μ W100 μ A 50mV DC	
Minimum SG		0.8	0.8

Specification

Model		OLV-25P	OLV-25V
Drawing			
Material	Plug	PP	PVC
	Stem	PP	PVC
	Float	PP	PVC
Operating Temperature		-10 to 80°C	-10 to 50°C
Maximum Pressure		200kPa	200kPa
Max. Switch Rating		50VA 0.5A 30V AC / 50W 0.5A 30V DC	
Min. Switch Rating		10 μ VA 100 μ A 50mV AC / 10 μ W 100 μ A 50mV DC	
Minimum SG		0.85	0.71

Model		OLV-26S	OLV-26S6
Drawing			
Material	Flange	304SS	316SS
	Stem	304SS	316SS
	Float	316LSS	316LSS
Operating Temperature		-10 to 100°C	
Maximum Pressure		2MPa	
Max. Switch Rating		50VA 0.5A 30V AC / 50W 0.5A 30V DC	
Min. Switch Rating		10 μ VA 100 μ A 50mV AC / 10 μ W 100 μ A 50mV DC	
Minimum SG		0.8	0.85

Miniature Liquid Level Sensor CE Marking

Simple and Low Cost Solution for Liquid Level Measurement

Product Overview



These miniature liquid sensors are designed for reliable operation in small tanks and containers. Their rugged design and careful engineering make them the perfect solution for OEM and build in sensor for mass-produced products.

These sensors contain hermetically sealed reed switch in the stem and a permanent magnet in the float. As the float rises or fall swith the level of liquid, the reed switch is activated by the magnet in the float. The operation of the switch, normally open or normally close, is easily changed by inverting the float.

Model OLV-2P, OLV-2F, OLV-5 and OLH-3 are certified in conformity with standard of Food, Additives, etc. by Japan Food Research Laboratories, authorized by the Japan Ministry of Health and Welfare.

Some of sensors conform to RoHS directive. Six materials such as Lead, Mercury, Hexavalent Chromium, Polybrominated Biphenyls, Polybrominated Diphenyl Ethers, and Cadmium are not contained.



Features

- **Compact, Low cost, Variety of standard products**

Many types of standard products by compact size and low cost are suitable for diversified liquid detection.

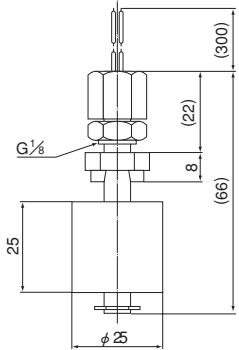
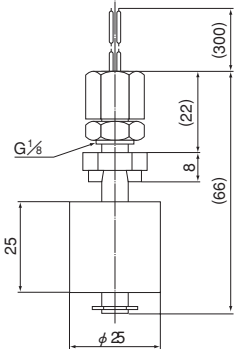
- **Not affected by the condition inside of tank**

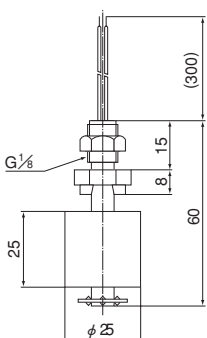
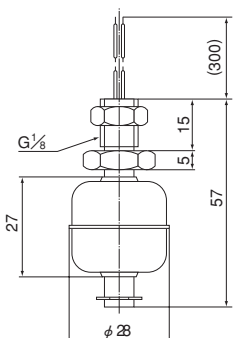
These sensors are not affected by the condition inside of tank as temperature and pressure change, capacitance and conductivity of liquid, and etc.

- **Perfect solution for built-in sensor of mass-produced products**

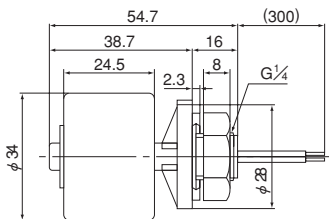
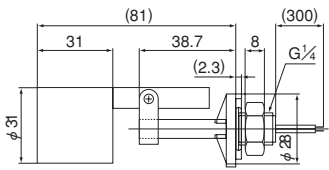
Many of standard products can make the sensor to fit the requested specification for built-in sensor of mass-produced products. The combination of sensor body and float can be selected to fit your application.

Specification

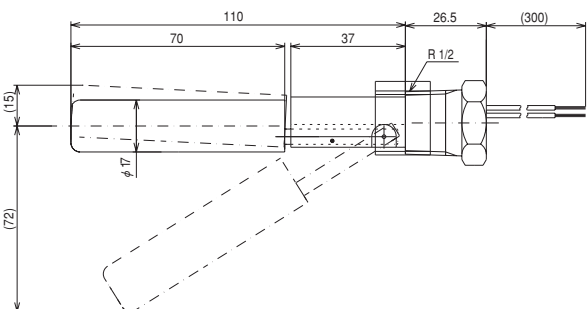
Model		OLV-2A	OLV-2P
Approval		CE,RoHS	CE,RoHS
Drawing			
Material	Stem	Polyacetal	PP
	Float	BUNA	Foamed PP
	Retainer	316SS	PP
Operating Temperature		-10 to 90°C	
Maximum Pressure		1MPa	
Mounting Type		Vertical	
Switch Rating		50VA, 0.5A, 30V AC / 50W, 0.5A, 30V DC	
Lead Wire		UL1430 AWG22	
Minimum SG		0.6	0.85

Model		OLV-2F	OLV-5
Approval		CE,RoHS	CE,RoHS
Drawing			
Material	Stem	PVDF	316SS
	Float	PVDF	316LSS
	Retainer	PVDF	316SS
Operating Temperature		-10 to 100°C	-10 to 100°C
Maximum Pressure		2MPa	2MPa
Mounting Type		Vertical	
Switch Rating		50VA, 0.5A, 30V AC / 50W, 0.5A, 30V DC	
Lead Wire		UL1430 AWG22	
Minimum SG		0.9	0.8

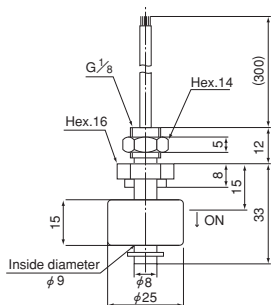
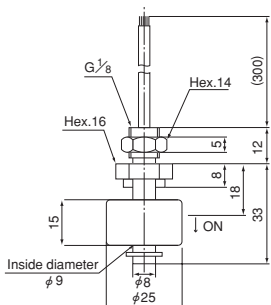
Specification

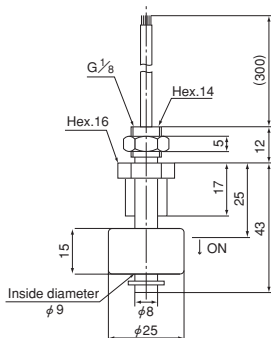
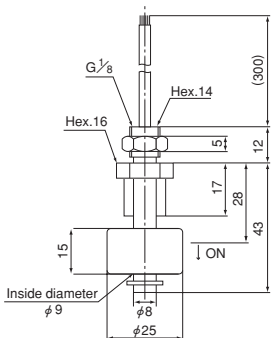
Model		OLH-3	OLH-10
Approval		CE,RoHS	CE,RoHS
Drawing			
Material	Stem	PP	PP
	Float	FoamedPP*1	PP
	Retainer	Polyacetal	—
Operating Temperature		-10 to 90℃	-10 to 90℃
Maximum Pressure		1MPa	100kPa
Mounting Type		Horizontal	Horizontal
Switch Rating		50VA, 0.5A, 30V AC / 50W, 0.5A, 30V DC	
Lead Wire		UL1430AWG22	
Minimum SG		0.8	0.5

*1.Magnet is exposed and in direct contact with liquids for OLH-3.

Model		SH10
Approval		CE,RoHS
Drawing		
Material	Stem	316SS
	Float	316LSS
Operating Temperature		-10 to 120℃
Maximum Pressure		1MPa
Mounting Type		Horizontal
Switch Rating		50VA, 0.5A, 30V AC / 50W, 0.5A 30V DC
Lead Wire		UL1430 AWG22
Minimum SG		0.6

Specification

Model		LS11P		LS11R	
		0A/0B	1A/1B	0A/0B	1A/1B
Approval		CE,RoHS		CE,RoHS	
Drawing					
Material	Stem	PP		PP	
	Float	Foamed PP		BUNA	
	Retainer	316SS		316SS	
Operating Temperature		-10 to 90℃			
Maximum Pressure		1MPa			
Mounting Type		Vertical			
Switch Rating		0A/0B: 10VA, 0.2A, 30V AC / 10W, 0.3A, 30V DC, 1A/1B: 50VA, 0.5A, 30V DC / 50W, 0.5A, 30V DC			
Lead Wire		UL1430 AWG22			
Minimum SG		0.9		0.7	

Model		LS12P		LS12R	
		0A/0B	1A/1B	0A/0B	1A/1B
Approval		CE,RoHS		CE,RoHS	
Drawing					
Material	Stem	PP		PP	
	Float	Foamed PP		BUNA	
	Retainer	316SS		316SS	
Operating Temperature		-10 to 90℃			
Maximum Pressure		1MPa			
Mounting Type		Vertical			
Switch Rating		0A/0B: 10VA, 0.2A, 30V AC / 10W, 0.3A, 30V DC, 1A/1B: 50VA, 0.5A, 30V DC / 50W, 0.5A, 30V DC			
Lead Wire		UL1430 AWG22			
Minimum SG		0.9		0.7	

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