

Doc No.: 2010-SJ-06

Rev No.: 0, 2010.09.03

User Manual

Magnet Float Type Level Switch
(SHM-100E)

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Seojin Instech Co.,Ltd

1. Introduction

SHM-100 is normally mounted on the side of a tank to measure fluid level in order to alert or to control other related devices. Also, the float movement is delivered to the switch by the repulsive force of the homopolar magnet and there is no leakage from the liquid contact part to the switch part as these two parts are completely separated.

2. Principle

As shown Fig.1, two homopolar magnets are planted on each side of the flange which is non-magnetic material. And the float movement is delivered to the micro-switch by the repulsive force of these two homopolar magnets.

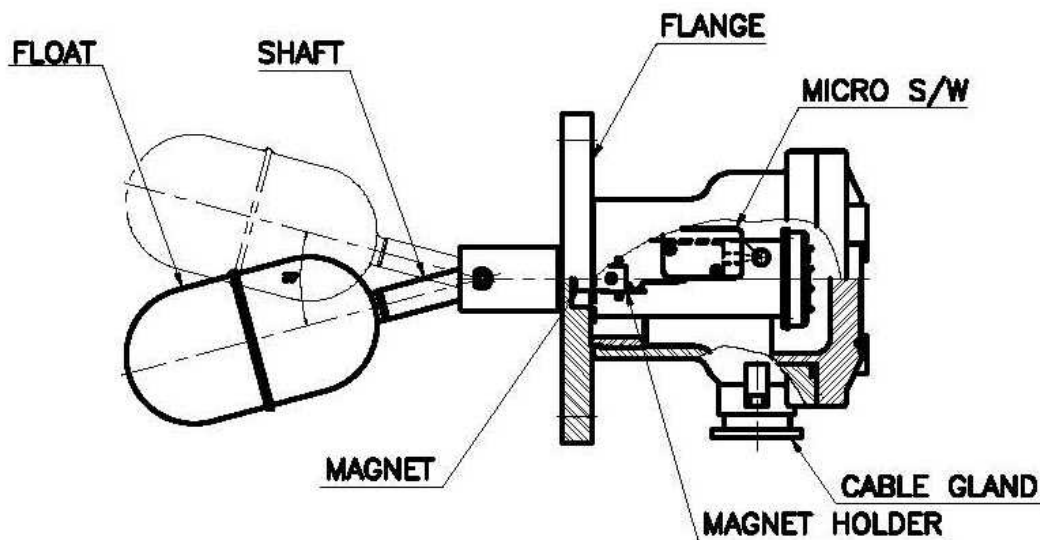


Fig 1.

3. Specification

A. Operational Features

- 1) Process Type : Liquid
- 2) Contact Rating : 25V AC. 10A
- 3) Output Signal : MICRO SWITCH Contact Point
- 4) Resistance : 15mΩ or less
- 5) Output : 1 DPDT Max.
- 6) Valid movements : 240times/min. (mechanical), 20times/min. (electrical)

B. Electrical Features

- 1) Insulation Resistance : 500V DC 100mΩ or more
- 2) Withstand Voltage : 1000V, 50/60 Hz for 1 minute (between each terminal)

C. Operating Condition

- 1) Temperature : Ambient Temperature - -20 ~ 60°C
Process Temperature - -25 ~ 120°C
- 2) Pressure : 10 Kgf/cm² Max.
- 3) Specific Gravity : 0.7
- 4) Measuring Range : 200 ~ 400mm (STROKE)
- 5) Longevity : 2000 times or more (Mechanical longevity),
500,000 times or more (Electrical longevity)
- 6) Actuation Angle : Plus or minus 15° from the horizontal
- 7) Humidity : 85% Rh or less (HEAD part)

D. Others

- 1) Material
 - a) Sensing Part - SUS304 / SUS316
 - b) Body Part - CARBON STEEL / SUS304 / SUS316
 - c) Housing Part - ADC12, AC2B
- 2) Enclosure : EXPLOSION PROOF (Ex d IIC T6, IP65 Pending)
- 3) Mounting : FLANGE JIS 5K 65A at least (SIDE MOUNT)
- 4) Conduit connection : PF 1/2", PF 3/4", PT 1/2", PT 3/4"
- 5) Weight : 7 Kg

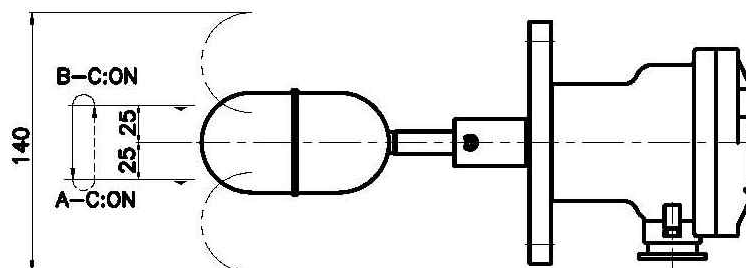


Fig. 2

4. Dimensions and wiring

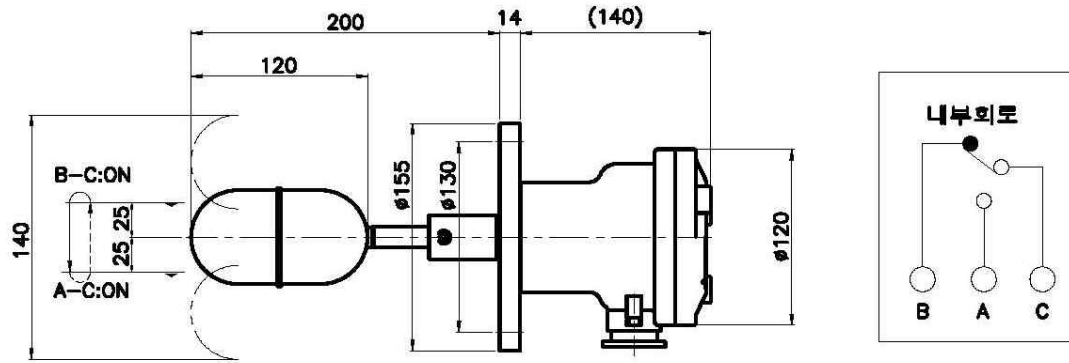


Fig. 3

5. Installation

Fig. 4-1. The inside diameter for inserting the float should be 68mm or more.

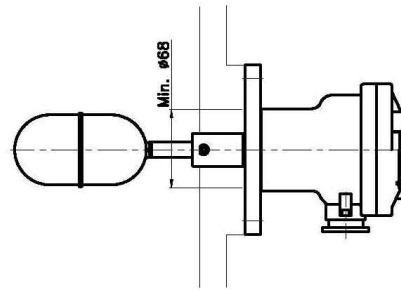


Fig. 4-2. In case of the installation to a short tube, the distance between the companion flange and the inside wall of a tank should be 70mm or less.

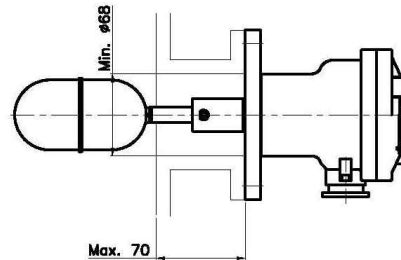
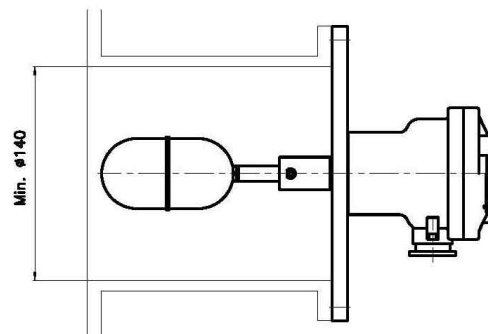


Fig. 4-3. When this instrument is installed into a pipe, the inside diameter of the pipe should be 140mm or more.



※ Top-down mounting method should be used for the mounting of Cable Gland.

6. Routine Maintenance and Troubleshooting

1). Routine Maintenance

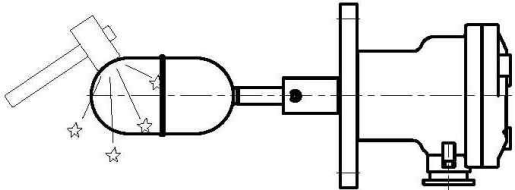
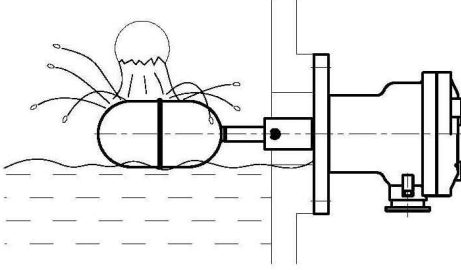
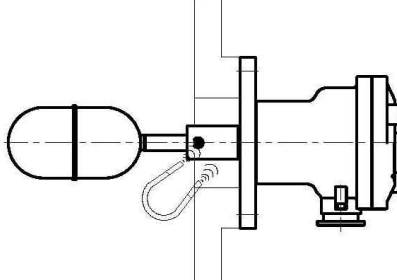
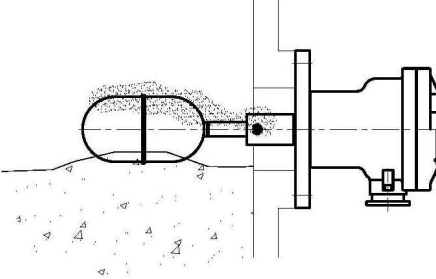
Please check the below listed points when performing routine maintenance.

- There should be no crack or scratch on the float.
- The float should be moving up and down smoothly.
- There should be no foreign substance between the flange and the shaft.
- The micro-switch should be actuated properly according to the movement of the float.

2) Troubleshooting

Trouble	Check Point	Solution
The float sank or was damaged.	Is the specific gravity less than 0.65?	Adopt another model.
	Has ever excessive pressure been added?	Consider the pressure in order not to exceed the given pressure range.
	Has excessive force been added?	Exchange the float.
	Has the float been contacted by any corrosive objects?	Check the float material.
The shaft is not moving smoothly.	Is there dust or sludge between the shaft and a pin or a flange?	Perform regular cleaning.
The micro-switch is not actuated even though the float is moving up and down.	Is there any magnetic substances attached to the float?	Clean the magnet part.
	Is the magnet not strong enough?	Clean the magnet part.
	Has the contact point of micro-switch been fused or disconnected by melting?	Replace the set plate.

7. Precautions

	<p>Do not drop this product, nor add excessive force to the float or shaft.</p>
	<p>Do not install this product near water supply facilities or drainages. Installing to those places can cause chattering or malfunction.</p>
	<p>Avoid to use this product near a pump or circuit which generates a strong magnet field. Also, do not apply this product to liquid including lots of magnetic material like iron.</p>
	<p>Regular cleaning is necessary when the fluid includes lots of floating particles in it or has a high viscosity..</p>