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INSTRUCTION MANUAL

FLOAT TYPE LEVEL SWITCH

HR-10 Series



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You should be well-informed of the contents where **WARNING** is marked before carrying out the work.



You should be careful where **CAUTION** is marked to carry out the work.

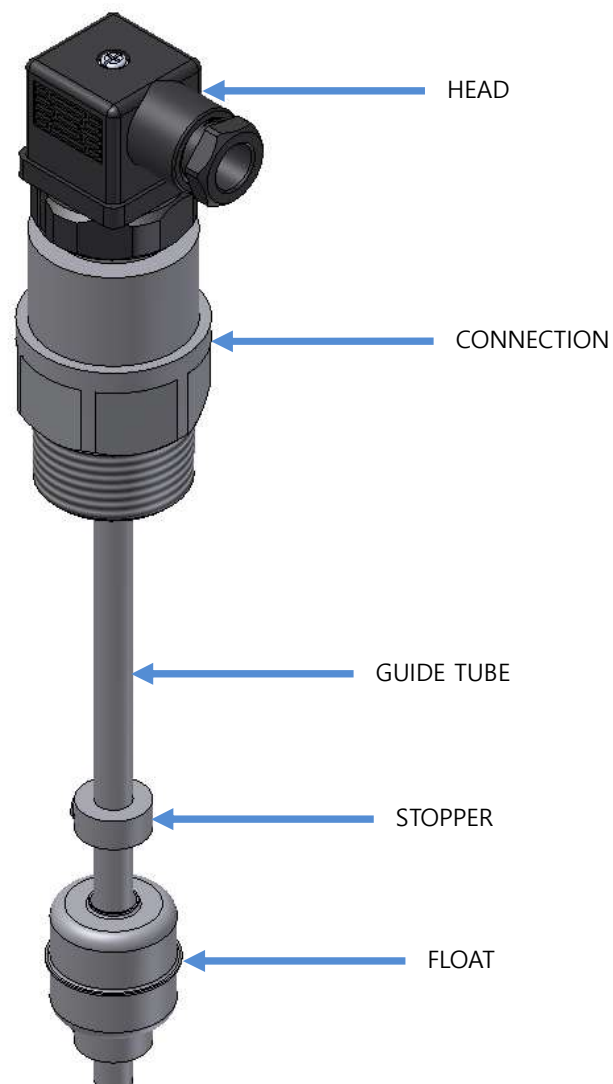


You should be aware of where **NOTICE** is marked to carry out the work.

Overview HR-10 Series is a Float Type Level Switch which is basically operated with the usage of reed switch and magnet. It can be applied to various storage containers. Also, it can be widely used in general industries with high reliability and long life span.

Operating Principle As liquid level is changed in the tank, the float which is manufactured in accordance with the specific gravity of liquid moves upward or downward along the guide pipe with the same liquid level by buoyancy. The built-in magnet in the float activates reed switch which is located in the guide pipe and contact signal is out. Each alarm or H/L control with multiple setting points is available.

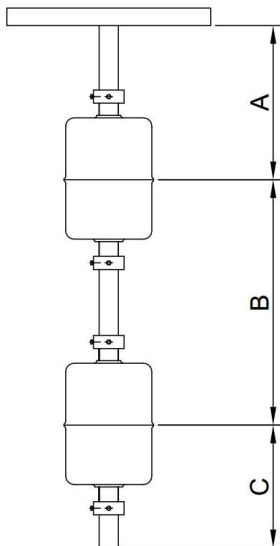
- Characteristics**
- Widely used to measure various liquid
 - Applicable to small tank
 - Long life cycle
 - Strong structure and high reliability
 - Easy Installation



Specifications

Model	HR-10S	HR-10T
Mounting	Screw, Flange	
Temperature	Max. 80°C	Max. 60°C
Process Pressure	Up to 20kg/cm2(300#)	0.5kg/cm2
Ambient Temperature	-20°C ~ +60°C	
Switch Type	Reed S/W	
Switch Form	SPST(Std.), SPDT(Opt.)	
Enclosure	Weather-Proof	
Wetted Part Material	316L SS	PVC, PP(Float)
Process Connection	PT 1" Screw	PT 1-1/2" Screw
Housing	PA66(Std.), AL(Opt.)	ABS(Std.), AL(Opt.)
Cable Entry	PG7(Std.)	PF 3/4"(F)(Std.)
Contact Form	SPST, SPDT	SPST
Max. Contact Form	1-SPST, 2-SPST, 1-SPDT	1-SPST
Contact Rating	24VDC / 0.5A / 10W (SPST) 24VDC / 0.25A / 5W (SPDT)	24VDC / 0.28A / 10W (SPST)

Minimum Section Distance



Standard Type	Float Size
	1"
Section A(mm)	40
Section B(mm)	55
Section C(mm)	40(100)

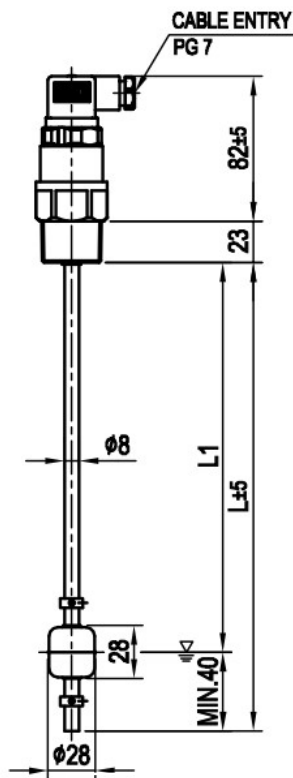
A = Upper Dead Band; Minimum length which cannot be measured from the bottom of flange

B = Minimum distance between two setting points

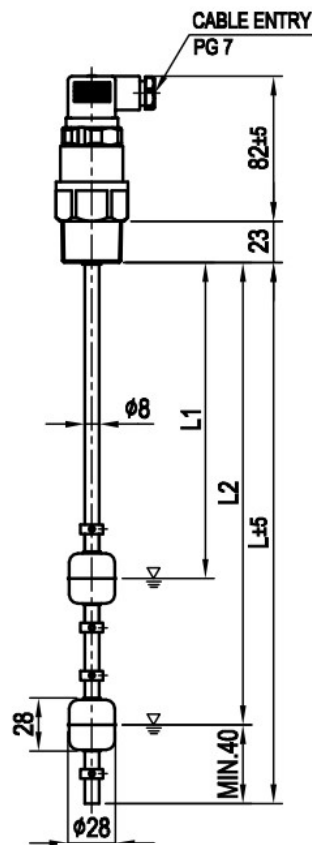
C = Lower Dead Band; Minimum length which cannot be measured from the end of guide pipe

() = Latching Type; Minimum distance between two setting points for detecting by one float; Minimum distance = 20mm

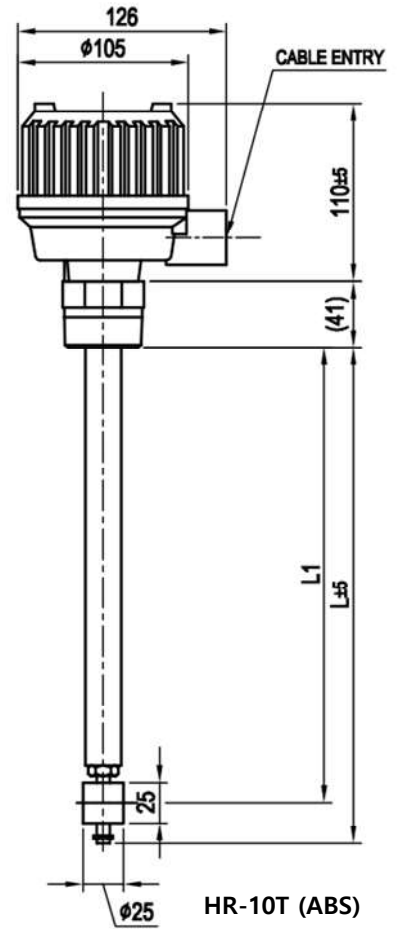
Dimensions <WEATHER-PROOF Version>



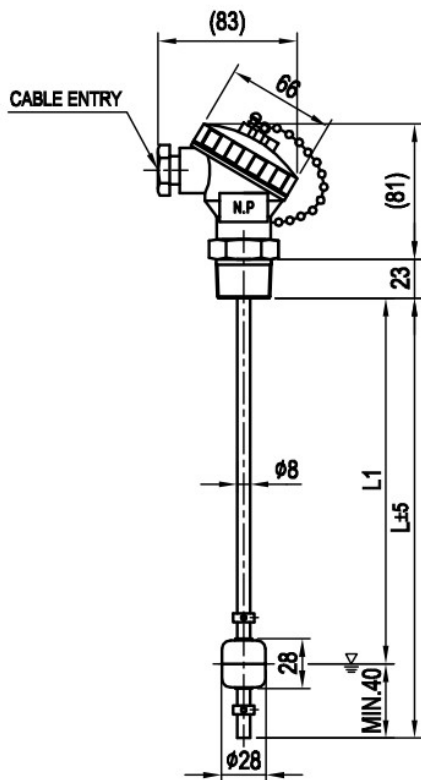
HR-10S-1F (PA66)



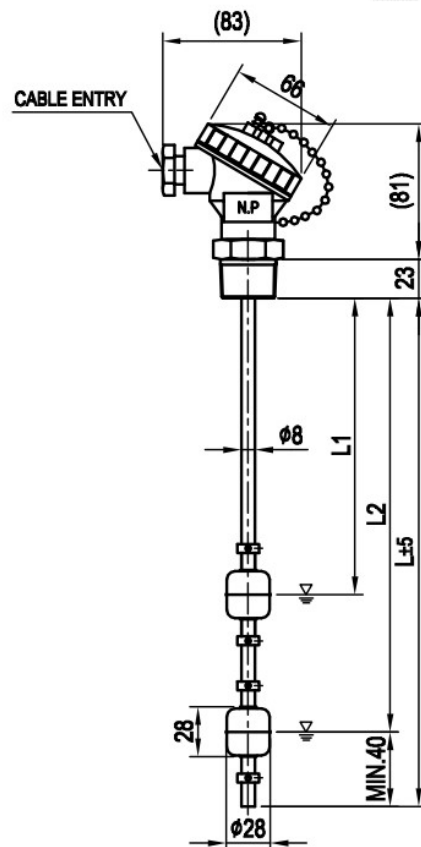
HR-10S-2F (PA66)



HR-10T (ABS)



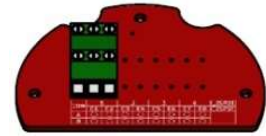
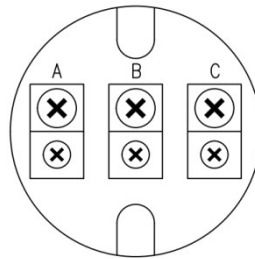
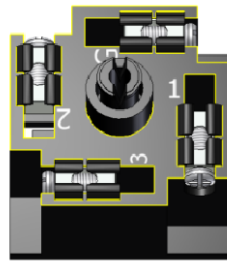
HR-10S-1F (AL)



HR-10S-2F (AL)

Wiring

The terminals of the products are composed according to contact points and shall be connected as follows.



COM	1	2	3	4	○ SPDT
A	○	○	○	○	○
B	○	○	○	○	○

HR-10S (PA66)

1 : E1

2 : E2

3 : Com

G : Ground

HR-10S (AL)

A : E1

B : E2

C : Com

HR-10T (ABS)

Com : Com

E1 : E1

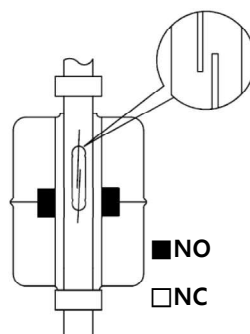
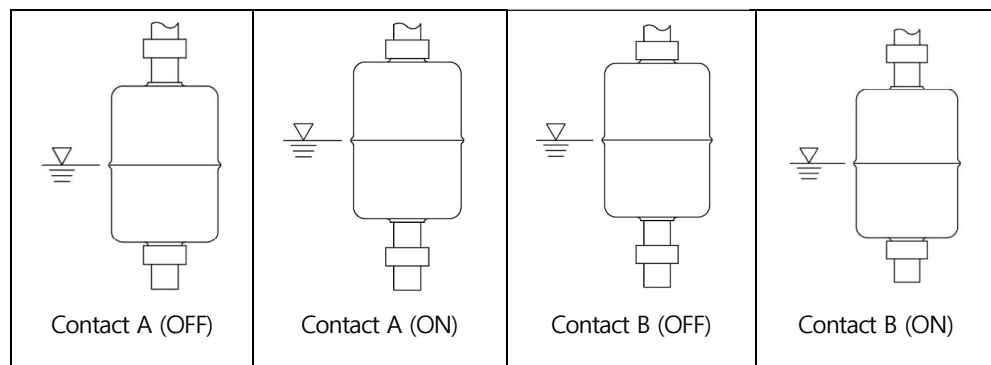
Matters

The product can be manufactured to N.O (Contact with A)/N.C (Contact with B) on orders from customers, and if there are no specific requirements for them, it can be manufactured to N.O (Contact with A). The shape of the contacts is shown below.

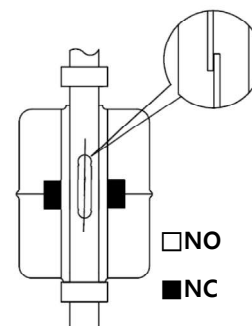
Regarding

Operation and

Use



Switch ON, when the level rises. (Contact with A)



Switch ON, when the level drops. (Contact with B)



Please do not move the stopper holding the float at random.

Maintenance

The major parts of HR-10 Series to be inspected are float and reed switch.

The life span of key parts depends on user's environment and can be used optimally through periodic check. Therefore, regular inspection ensures optimal performance of product, so take regular inspection and maintenance at least every year. In addition, check for the exterior of the product like visual damage. If there is scale caused by measurements, it shall be removed for the smooth operation of the float. Reed switch can simply be inspected using a Digital Multimeter as follow.

- Select the buzzer of the Digital Multimeter and connect it to one of product's terminal blocks, E1/E2 or N.O/N.C and the COM terminal.
- If the buzzer rings when the float reaches the upper/lower contact points, it works normally.
- If the contact state is checked by resistance, the Digital Multimeter indicates 0Ω by moving the float, it is normal to the N.C (Normal Close), and the N.O (Normal Open) indicates infinite.



Please turn off the power of the product for maintenance.

**Precautions
for Removal**

- Check the level and presence of measurements in the tank before removing it.
- Wear gloves when removing it, to prevent a burn.
- Disassemble work shall be done with the power off.
- Make sure that any O-ring or gasket is not damaged while opening or closing the cover of product.

**Precautions
for Installation**

- Use the same standard flange or screw.
- Make sure to insert washers between bolts and nuts to prevent loosening.
- Make sure to insert gaskets between flanges. (Select the gaskets in consideration of temperature of content and pressure of vessel.)
- After the installation is complete and the cover of the product is assembled, power it on.



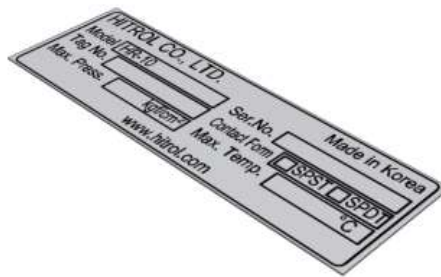
Please do not apply high impact to the product.

Safety and Environment

- Precautions for Use
 - Make sure to connect the product and vessel using required tools for sure.
 - Do not apply high impact to the product.
- Precautions for Wiring
 - Make sure to wire contacts correctly (refer to Wiring)
 - Pay attention to prevent electric shock.
- Disposal of Product
 - Make sure to separate the amplifier and main unit from housing before disposing the products. Also, the amplifier shall be detached and discard the metal and non-metallic materials. No part (ex. Mercury switch) has influence on the environment, so no special attention is required.

Marking

- Product Identification
 - The product identification mark is attached onto the housing and shows the model name, serial number, working temperature, working pressure, and matters regarding output. The serial number is a unique manufacturing number for the identification of products.



User Training

The fluid temperature of the container shall be up to 80°C for Weather-proof type. In addition, make sure that the ambient temperature of housing is kept at -20°C ~ +60°C. (However, product with PVC sensor part, the fluid temperature of the container is limited to 60°C.)

Warranty and Contact

- Warranty and Service

This product is subject to the warranty for 2 years of shipment and unpaid service will be provided for any damage found under normal operating conditions. If it is not about the failure of product, the service charge will be payable.

You can request A/S at our website or by contacting our headquarters.

- Headquarters . Factory . Laboratory Contact Number

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