

■ Application Notes

◎ To Clamping of products

Clamping should be made with an electric driver at a torque of $6\text{kg} / \text{cm}^2$ or lower, if not indicated. Particularly, in the case of clamping on the underside, full checking with the material and shape of the underside is needed. Tools giving a shock, such as an air driver, should be avoided.

◎ To Liquid to be used

In this catalogue, the working positions, i.e., the ON / OFF points of the sensor are specified by the prescribed liquid. The floating level of the float varies depending upon the kind of the liquid used. Therefore, attention should be paid to the change of the working positions. Use with sticky liquids may inhibit the smooth moving of the float. We will advise with you about the use with the special liquids which may cause deterioration of the materials.

◎ To Shock

When the sensor was dropped onto a floor at the position of not lower than 30cm high, attention should be paid to changing of the sensing value (the “ON” point) and the releasing value (the “OFF” point) of the reed switch.

◎ To External magnetic interference

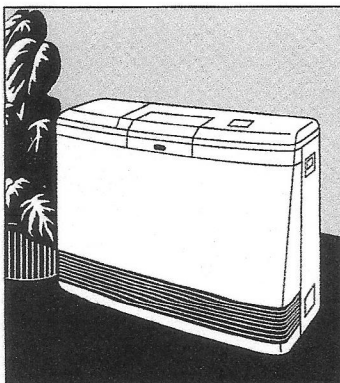
Where the tank is made of a magnetic material, a shorter distance of the tank from the float containing a magnet built therein may allow the working positions to change. Use near strong magnetic field-generating sources, such as transformers and motors, may allow the working positions to change depending upon the intensity of the magnetic field. Therefore, the use the conditions and environments should be checked before installation the level sensor.

◎ To Protection of contacts

Inductive loading: Use of an inductance as a loading containing motors, coils, electromagnetic solenoids, ...etc., may generate a reverse electromotive force of several hundreds of volts. When the reed switch is opened and closed, the life of the reed switch may remarkably be shortened. In order to avoid this, arc-inhibiting circuits, such as CR circuits, varistors or diodes are needed.

Capacitive loading: Capacitive loading such as condenser loading, lamp loading or cable loading may generate a surge current exceeding the contact capacity of the reed switch. In order to avoid this, a surge suppressor or protective resistance is needed.

EXAMPLES OF APPLICATIONS

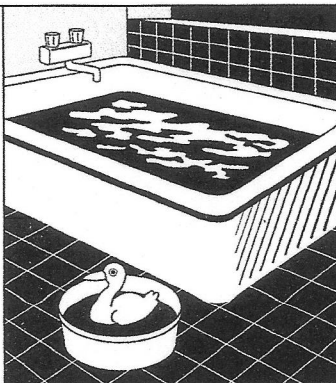


Domestic Appliance

Fan Heater
Humidifier
Air Conditioner

<Level Sensor>

- Detection of remaining amount of kerosene
- Detection of inclusion of different liquid
- Detection of liquid level



House Equipments

Bath
Toilette
Boiler
Solar system

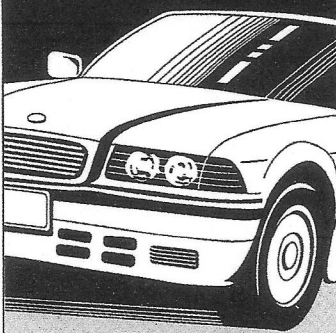
<Level Sensor>

- Detection of liquid level
- Detection of flow of liquid

Automobiles

<Level Sensor>

- Detection of liquid level in a radiator
- Detection of liquid washer surface
- Detection of engine oil level
- Detection of brake oil level



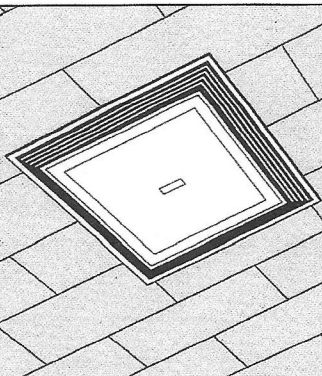
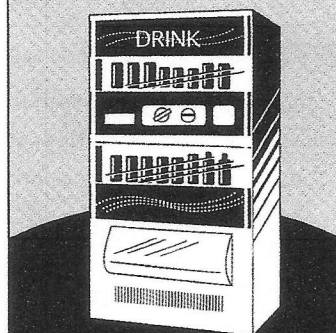
Vending Machine

<Level Sensor>

- Detection of remaining amount of liquid

<Flow Sensor>

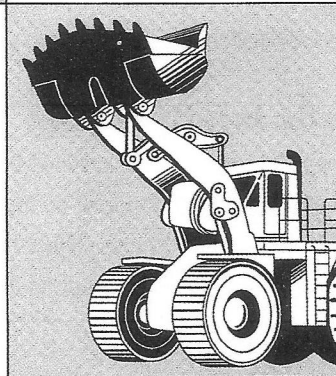
- Detection of plugging of pipelines



Air Conditioner

<Level Sensor>

- Detection of level of drain liquid



Construction Machinery

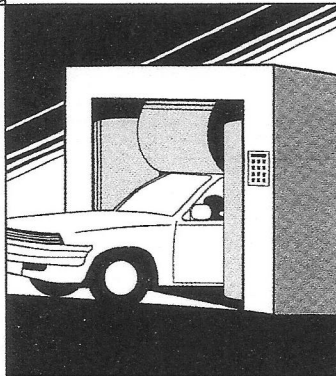
<Level Sensor>

- Detection of liquid level in a radiator
- Detection of engine oil level
- Detection of brake oil level
- Detection of working liquid level
- Detection of transmission oil level

Car Washer

<Level Sensor>

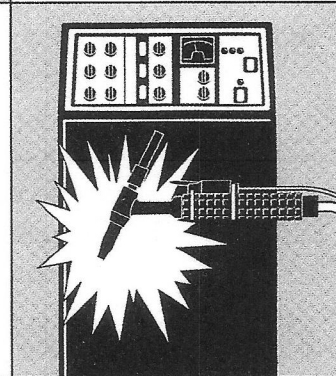
- Detection of water level



Welding Machine

<Flow Sensor>

- Detection of cooling water level



[FEATURES]

1. High Reliability

The reed switch has a high accuracy and resistance to bad external environments, because it is completely hermetically sealed.

2. Long Life

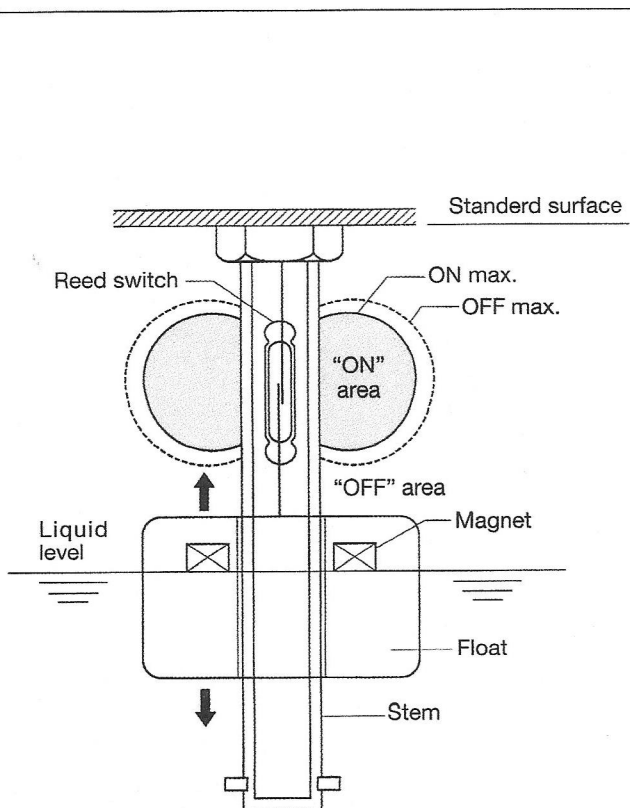
The reed switch has an infinite electric life, and does not suffer from any mechanical attack because of non-contact driving.

3. Variety of Applications

The reed switch exhibits stable operating characteristics under micro loading. Such characteristics permit to use various operating methods with combinations of magnets. There is a wide range of specifications, so that one can be easily use and applied.

4. Cost merits

Circuit design for using reed switch is easy and simple. Therefore reed switch applied to equipments and devices can make the performance more reliable and durable. The total cost including maintenance and power consumption can be reduced.



■ Operating Principle

The level sensor consists of a vertical stem and a free moving float containing a magnet. The vertical stem contains reed switch which activated by the proximity of float.

■ Operating Standards

There are two types: the first type is in which the contact turns "ON" or "OFF" when the liquid level rises up, and the another type is in which the contact turns "ON" or "OFF" when the liquid level falls down.

This diagram indicates that the mounting surface as a base surface to show the distances from the base surface to the "ON" position and "OFF" position. The difference in the distance between the "ON" position and the "OFF" position is called a "correspondence difference". The "ON" distance, "OFF" distance and "correspondence difference" determine the operating standards. In the case where the liquid level moves up and down like rippling waves and the float moves in the same manner, the "ON" and "OFF" may be repeated. In this case, the level sensor having a good "correspondence difference" performance is more suitable to use.