

User's manual



Magnetic Level Switches
IMN

Before starting

Please read these instructions before unpacking and the start-up of the instrument containing. Follow the instructions as described in this document.

The instruments should be treated only by personnel familiar with these instructions and in accordance with specific standards of health, safety and the prevention of accidents regulated for the area where you are.

When used in machinery, measuring equipment should be installed only when the machine meets the guidelines of the EN60204 standard, or equivalent.

Inspection of the instrument

The instruments are inspected before being packed and shipped in perfect condition.

If when you receive the package observes that the packaging is damaged, do not open it and immediately report to the forwarding agency since it is responsible for damage during the transit of the goods.

Content of a standard shipping:

- Magnetic Level Switch, family IMN.
- Manufacturing sheet with the technical and operating characteristics. This sheet is exclusive for the model that accompanies and should not be used externally as a reference for other similar models. The sheet and the instrument are related by the manufacturing number, easily identifiable in both.

Application area

The Magnetic Level Switches are used for the monitoring and control of the level of the liquids in tanks, reservoirs, boilers, etc. There are innumerable applications in different fields where a Magnetic Level Switch is required, which are manufactured under the exclusive requirements of each customer.

Liquids should not contain suspended solids or tendency to crystallize. The density and viscosity of the liquid are factors to consider in order to favor the correct movement of the float along the tube.

It is essential to ensure that the materials with which the instrument is manufactured are of enough chemical strength to withstand the liquid to be controlled, and the temperature and pressure conditions of operation do not cause mechanical deformations affecting it.

Important: This instruments should not be installed in the proximity of strong magnetic fields, since this can impair their right operativity.

Operating principle

The Magnetic Level Switches are provided on the inside of the tube with one or more sealed *reed* contacts.

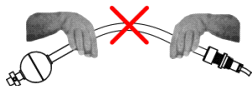
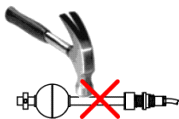
The float moves along the tube contains a magnet whose magnetic field operates the contacts when it is located at the same height. Contacts may be NO, NC or SPDT type.

The contacts are placed in the tube at the distances required by the customer and can not change its position. The float is the only moving element in a Magnetic Level Switch.

Mechanical processing

The tube of the Magnetic Level Switch should not be bent or exposed to impacts since the *reed* contacts could be seriously damaged.

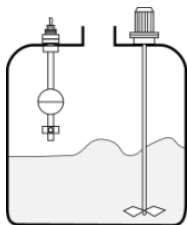
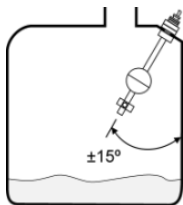
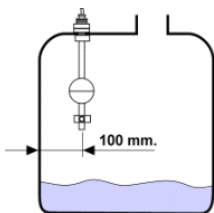
The mechanical stoppers that may have along the tube does not have to be reset as it may miss the correct operation of the contacts.



Depending on the type of electrical connection, ensure the use of the supplied gaskets and adequacy of the electrical cable diameter to the cable glands to prevent moisture penetration. If due to site conditions could likely occur with frequent temperature changes with the consequent condensation inside the instrument, request that it be manufactured with either sealing version.

In carrying out the installation, you need to check that the float can move freely along the tube and ensuring sufficient distance to the vessel wall.

The inclination of the instrument should not exceed $\pm 15^\circ$ from vertical.



Electrical connection

The manufacturing sheet that accompanies each instrument clearly details the maximum permissible voltage and current values, which must not be exceeded even for short periods of time.

Work values are referred to resistive load. When connecting inductors (coils of relays or contactors, solenoid valves, etc.), appropriate means should be used to protect the contacts from the voltage spikes they produce (RC filters, diodes, etc.). Any special care is required when connecting the contacts to PLC.

The electrical connections must be in accordance with the diagram on the manufacturing sheet, unique and specific to the instrument that accompanies it.

Important: When the electrical connections of the instrument is made, the appropriate security measures, rules, regulations and safety guidelines should be considered.

You can view the recommendations for installation and application of Magnetic Level Switches in the section *Suport/Documentation/Practical information* of our web site or accessing to http://www.disibeint.com/web2010/suport/documents/doctec_001-i.pdf.

Maintenance

Overall, Magnetic Level Switches require no maintenance. In liquids that can generate deposits, the float and the tube should be cleaned at regular intervals that depend on the time of formation thereof.

Supplementary devices

Contacts protection relays

We recommend the use of protective relay contacts together with Magnetic Level Switches as they provide the following benefits:

Prevent the appearance of overloads and high currents which may be caused, for example, by the activation of a solenoid valve.

Isolate electrically from the high voltage supply.
Protect people who are in contact with liquids.

PSPS / DSPS: Switched and amplified output. Control of maximum and minimum level, on-off.

PSMS / DSMS: Protector and/or contacts amplifier. Two inputs, two switched outputs.

Timer preventing turbulences

In tanks where turbulence occur, is advisable to apply a delay to the signal detection. The PSIA / DSIA relay eliminates the false detection produced by the waves and provides a differential control of the maximum and minimum levels.

Dissuasive tube for agitated liquids

In tanks containing liquid agitation is desirable to install the instrument inside a tube to dampen the movement of the liquid which may produce undesirable effects on the control process.

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