INSTRUCTION MANUAL

SIDE MOUNTED MAGNETIC LEVEL SWITCH

Warning

Read all warnings and instructions before performing installation or maintenance. Safety glasses and gloves should be worn at all times when working with or examining water gauge glass and connections

Danger

Improper installation or maintenance of gauge glass and connections can cause mimediateor delayed breakage resulting in bodily injury and/or property damage.

Installation

1. INSTALLATION

- Qualified experienced personnel who are familiar with this equipment and have read and understood all the instructions in this manual should undertake installation.
- The user should refer to NK Instruments product proposal to obtain over all dimensional information.
- **Direct mounting level switches (Direct into vessel)**
  Unpack the magnetic level switch from its box and remove all packing pieces, tie strings and tape. The gasket supplied with this product is a non-as best os composite and must be handled with care to avoid damage. This switch contains strong permanent magnets: Ferrous debrisor particles may become attached to the float magnet. Always check the float magnet is clean before final installation.

  The level switch should be positioned so that the float may move freely over its full travel and not foul the sides, bottom or top of the tank etc., in which it is mounted. Positions where turbulence may be caused by agitators or by inlet connections should be avoided. The plant should be clear of any loose materials or metallic particles which might accumulate round the float magnet and interfere with the operation of the switch. Where the liquid may contain sedimentor solid particles, particular attention must be given to keeping these free of the float assembly
  When mounted the switch flange should be vertical within two degrees either way. When fitted to an open tank or sump, not under pressure, the switch may be mounted through a hole cut in the tank and secured with bolts or studs.
  The float unit carries a permanent magnet which is opposed magnetically to a similar magnet in the switch assembly. The switch contacts are changed over with a snap action by magnetic repulsion between the magnets , acting a cross the wall of the switch body. No intermediate 'off' position can be obtained.

- **Level Switches for vertical mounting**
  A suitable mounting bracket is required for mounting the switch over open top tanks and sumps.
  Note: The diameter of a standard float on a vertical float rod is larger than the hole required for the Switch Head and the float must therefore be fitted from in side the vessel. The switch should be conveniently positioned at a point of access for both installation and maintenance. Care should be taken to ensure that condensation cannot drain down the conduit in to the switch head.

- **Switches in pressurized vessels**

A studded padis necessary where the switch is required to operate in a pressure vessel.

- **Level switches in chambers**

Magnetic level switches supplied in or with an external chamber (cage) are supplied loosely assembled only. It is the responsibility of the installer to check that all packaging, tie strings, tapes and filler materials are moved from around and inside the chamber and switch before the assembly is bolted down and in accordance with the torque settings. When installing, using or maintaining external chambers supplied compliant with the Pressure Equipment Directive, refer also to the Safety Information supplied with the product for further details.

Switches mounted in chambers external to the main vessel should be fitted with suitable valves so that the chamber may be blown down periodically or isolated for routine maintenance as required.

2. ELECTRICAL CONNECTION

The electrical connection must comply with the safety regulations for installing electrical systems and equipment that apply in the country where the unit is installed and this work may only be undertaken by qualified personnel. The magnetic float switch is to be connected in the junction box or to the connecting cable, a sindicated on the connection plan. For units with the junction box, the cable is
passed through the cable gland and sealed. Ensure the lid of the junction box is properly sealed.

3. CAUTION

The user has to ensure, that instruments, which have an earthing connection, are properly earthed. Instruments with connecting cable are not earthed and in case of mal function they can be come live. Those instruments must be operated with extra-low voltage. Instruments which are used in plants and have an inside coating, have to be provided with a earthing bracket or a screw outside the terminal box, with which can be hold a earthing connection to the plant. If the switch is connected to an inductive load, it may be damaged beyond repair. A protective circuit with an RCelementora free wheeling diode should be provided. If the switch is connected to a capacitive load, a protective resistor is to be connected in series to limit the peak current. Electrical over loading may result in the switch being damaged beyond repair. This will cause the magnetic float switch and the control connected in the outgoing circuit to malfunction, which may result in damage to property and injury to persons. Maximum electrical switching capacities must be complied with. The power supply should be adequate and correct for the application.

Maintenance

The units must be installed and commissioned in accordance with the generally accepted rules of engineering practice.

When in service, the units do not require any maintenance provided that the magnetic float switchis designed for the ambient conditions such as the temperature, protection rating and medium.

Magnetic level switches are designed for long and trouble free operation, provided regular routine maintenance is carried out in accordance with there commendations below:-

- Switch off electrical supply and isolate or drain down as necessary.
- Remove level switch from tank or chamber.
- Remove deposits of sludge, scale etc. Any tightness in the movement of the float assembly or the pivot pin should be investigated and corrected.
- Remove any metallic particles adhering to the float magnet assembly by wiping with plasticize. Avoid contamination by swarf, etc, on benches and tools.
- On switches with shrouded float units, the shroud and gaiter should best ripped and any solids which have collected on the inside removed.
- The gasket should be replaced and the switch installed and bolted down in accordance with the installation instructions.

The user is responsible for periodically carrying out a functional test or a visual check. The function of the contacts can be tested with the unit or removed, by moving the float manually or by filling the container. Care must be taken to ensure that the functional test does not trigger any process operations.

A visual check is made of components in the unit that are exposed to the liquid stored in the tank, its vapors or condensate to as certain whether any signs of corrosion exist. This inspection can only be carried out from inside the storage tank or after the unit has been removed.

NOTICES

These instruments should be packed with respect to the delicate nature of some of the parts. Outer packing such as wooden cases should be marked with fragile or similar signs to help protect the instrument.

Product Warranty

NK Instruments, warrants its products as designed and manufactured by NK Instruments to be free of defects in material and workmanship for a period of one year after the date of installation or eighteen months after the date of manufacture, whichever is earliest. NK Instruments will, at its option, replace or repair any products which fail during the warranty peri od due to defective material or workmanship.

Prior to submitting any claim for warranty service, the owner must submit proof of purchaset o NK Instruments and obtain written authorization to return the product. Thereafter, the product shall be returned to NK Instruments with freight prepaid.

This warranty shall not apply if the product has been disassembled, tampered with, repaired or altered outside of the NK Instruments factory, or if it has been subjected to misuse, neglect or accident.

NK Instruments responsibility here under is limited to repairing or replacing the product at its expense. NK Instruments shall not be liable for loss, damage, or expenses directly or indirectly related to the installation or use of its products, or from any other cause or for Consequential damages. It is expressly understood that NK Instruments is not responsible for damage or injury caused to other products, building, property or persons, by reason of the installation or use of its products.

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This document and the warranty contained here in may not be modified and no other warranty, expressed or implied, shall be made by or on behalf of NK Instruments unless modified or made in writing and signed by the Proprietor of NK Instruments.

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USEAndCare

DO NOT's
DO NOT use glass if it contains any scratches, chips, or any other visible signs of damage.
DO NOT reuse any glass packing.
DO NOT subject gauge glass to bending or torsional stresses.
DO NOT overtighten glass packing nuts.
DO NOT allow glass to touch any metal parts.
DO NOT exceed the recommended pressure of the gauge or gauge glass.
DO NOT clean the gauge or gauge glass while pressurized or in operation.

DO's

DO verify proper gauge has been supplied.
DO examine gauge and packing carefully for damage before installation.
DO install protective guard sand utilize automatic ball checks where necessary to help prevent injury in case of glass breakage.
DO inspect the gauge daily, keep maintenance records, and conduct routine replacements.
DO protect glass from sudden changes in temperature such as drafts, water spray, etc.

General Maintenance

Examine the gauge regularly for any signs of clouding, scratching, erosion, or corrosion. This will help establish the routine inspection and routine replacement schedules.

Inspection

Examine the surface of the gauge for scratches, corrosion, chips, cracks, surface flaws, or nicks.

Storing

Keep the gauge in original packaging until ready to install.

Wires Colour Code

NO	NC	Common
Black	Red	White

Manufacturer & Marketed by:

NK Instruments Pvt. Ltd.
B-501/504, 5th floor, Raunak Arcade, Near THC Hospital, Gokhale Road, Naupada, Thane(W) 400602. Maharashtra INDIA
Telefax Nos.: 91-22-25301330 / 31 / 32
E-Mail: sales@nkinstruments.com
Web: http://www.nkinstruments.com
Skype: nitinkelkarskype
Gtalk: nkinstruments2006