

**Operating
Data
Installation
Maintenance
Instructions**

**For
Level Sensor**

Large Multi-Level

NOTE: SSR1000 and 500 Controls have built in switch protection, time delay and low voltage power supplies.

The electrical information below is for non use of the SSR1000 and SSR500

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1. Note

Please read and take note of these operating instructions before unpacking and commissioning. The instruments may only be used, maintained and installed by qualified personal familiar with the operating instructions and the applicable health and safety requirements.

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3. Specific Applications

The Level Control Gauge has been designed for use in rugged level monitoring applications and pump control for liquids

The probe part of the gauge can be manufactured from most non-magnetic materials including plastics. The floats can be either stainless, buna or engineered plastics.

The Multi-Level sensor can be configured from the factory with one to seven switch points set a customer specific locations and switch state.

4. Operating Principles

Hermitically sealed reed switches are potted inside the tube on a continuous wire harness. Other models may use a printed circuit board design. The float (stainless, buna or plastic all contain either a rod or ring magnet potted or gripped inside. As fluid moves the float – it's magnetic lines of force come in contact with the reed switch – and activate it to either an open or closed state.

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5. Instrument Instructions

The instruments are thoroughly inspected by the factory prior to shipment and sent in perfect working condition. Should any damage to the device be visible, we recommend a thorough inspection of the delivery packing. In case of damage please inform your parcel service/forwarding agent immediately, since they are responsible for damages incurred during transit.

Scope of delivery:

- Level Sensor per Purchase Order
- Operation Manual
- Reed Operation

6. Mechanical Installation

Must be installed to local piping and plumbing codes. Use caution when handling the wires, as they can be easily crushed against the head or potting. Insure that the bottom of the probe does not come in contact the tank bottom, as the probe will easily bend.

Use a wrench on the larger of the two fittings to install. Do not use any tool or clamp on the actual probe tube.

Compression Fitting: Must be installed by qualified technician with experience in correct torque of compression fitting type nut

Stand-Offs: many types are available. Some come with a simple collar on top and bottom threaded to 10/32 at three points. Remove the setscrew. Select 3 machine screws to thread into the holes, long enough to keep the ½” probe approximately centered of the pipe it is sliding into. Use a thread lock and do not over tighten. Too much thread in pressure can puncture the tube.

6a: Bracket Installation

Usually walls requiring a bracket are not perfectly flat. The level switch can take some flex but excessive bending is not good. The internal harness is isolated from the tube (somewhat) and can flex a bit.

Do not over tighten the nuts on the stem. Double nut (supplied) the “U” bolts to prevent loosening.

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7. Technical Specifications

Preliminary Technical Data Sheet

Instrument Type	Multi - Level Switch
Model	316 Stainless Steel
Housing Size	Custom
Housing Material	316 Stainless Steel polished bright annealed
Float	316 SS Sp. Gr. electro polished finish
Flag Display	N/A
Temperature	-20 to 300 Deg. F
Reed **	240 VAC/DC @0.5A resistive - see reed sheet
Top Fitting	Custom
Bottom Flange	N/A
Reed position	Fixed
Ruler	N/A
Liquid Indication	Remote wires
No Liquid Indication	N/A
** SPDT Reed (Large Size)	120 V @0.5A Resistive

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8. Electrical Connection

ATTENTION: Ensure that the voltage levels of your supply system are in agreement with the voltage levels given on specification sheet.

Make sure that the electric supply lines are not active during connection to this device.

- Improper wiring can lead to damage of this device as well as injury to the user.
- Make sure that installation; wiring and circuit protection are in **accordance with all local electrical codes.**
- Make sure the supply circuit **provides adequate fuse or circuit breaker protection** that is in accordance with the circuits current rating.
- Make sure that proper **snubber circuits** are used per the reed switch specification sheet.

Electrical connections to the relay module are made by - connecting the wires to and out of the NEMA box. Wiring is per attached drawings and specifications.

Wiring Table

Terminal #	Description	Function
Contact	Rating	240 VAC/DC @ 0.5 amps resistive (SPDT 120 V @ 0.5A resistive
N/O	Normally Open	Two wires – wired to each side of internal; switch -off or on
N/C	Normally Closed	Two wires – wired to each side of internal; switch -off or on
Common		N/A
Grd.	Ground	N/A

The reeds are factory set in the dry position. Be sure to connect the wires and check using an OHMmeter **only** per reed switch specifications.

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Adjustments

Multilevel controls are not adjustable. In some cases the float can be adjusted to the opposite state by moving the collars and setting the float using an ohm-meter.

Operation

N/C – With liquid present – the switch point will be open – contacts not conducting. The contacts will close as the float descends

N/O – With liquid present – the switch point will be closed – contacts will open as the float descends

Wiring Diagram

Single point controls have two wires connected to either side of the switch. Wiring to be completed by installer. SPDT use 3 wires –N/O, N/C and common

9. Set Up

IMPORTANT INFORMATION

The unit is rugged - but the electrical controls are pilot duty devices good for millions of operations if installed correctly.

10. Troubleshooting

The reeds do not switch:

- Check the sensor with an OHM meter scale. If both contacts show closed (circuit complete) the switch has most likely been burnt. This can be caused by a voltage spike or exceeding the limit of the reed. It is a pilot duty device. See reed spec sheet.
- If the float is not moving it is possible an object has lodged itself between the float and the gauge wall.
- The reed can change state if the unit receives a blow or hit. The reed would have shaken itself loose from the small holding magnet. No damage will be done the float will have to go through the cycle to correct the situation.

11. Maintenance

The Multi-Level Probe requires no special maintenance other than making sure sludge or debris to not enter the gauge. If the application is dirty – wipe the unit down on a regular schedule to prevent buildup on the probe interfering with float movement. Sensors can be replaced as well as added to.

There are no user serviceable parts inside the Level Sensor. If repair is required please contact your local distributor to return for repair.