JERGUSON®
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Specialists In Liquid Level Indication

Installation and Operation Instructions
MAGNICATOR® II
Reed Switch Transmitter

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DESCRIPTION/OPERATIONS:

The purpose of the Magnicator II Reed Switch (RST) System is to provide a remote liquid level signal for level indication and/or control. The RST system consists of two components; the transmitter and sensor, which are mounted to the Magnicator II. An optional remote mounted transmitter and display are also available.

RST SENSOR:

Mounted on the Magnicator II is the RST Sensor. The purpose of the sensor is to provide signal to the transmitter that is proportional to the liquid level indicated by the Magnicator II. The RST sensor consists of a circuit board mounted within a heavy wall stainless steel tube. Mounted on the circuit board is a chain of resistors and magnetically operated reed switches. The sensor length corresponds to the required level span being measured, normally the same as the Magnicator II center/center dimension. As the float within the Magnicator II responds to the liquid level, the magnet in the float closes the nearest reed switch within the sensor. The sum of the voltage drops across the resistance chain from the bottom of the sensor to the location of the closed reed switch and is then compared to the overall voltage drop across the entire length of the resistance chain. It is this ratio that is sensed by the RST Transmitter as an indication of liquid level.

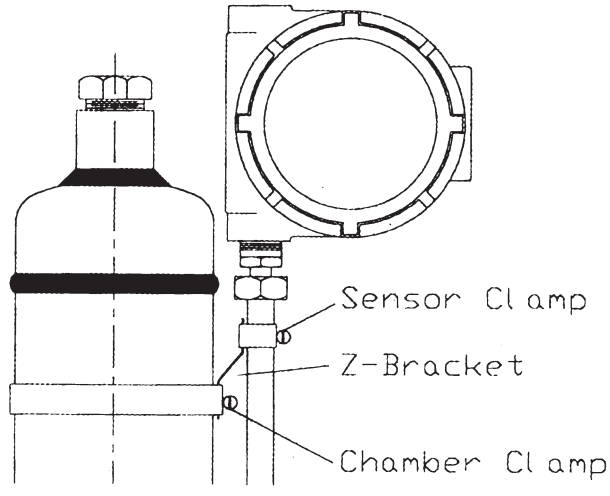
RST TRANSMITTER:

The purpose of the RST Transmitter is to provide a 4-20mA signal proportional to the liquid level indicated by the Magnicator II. It consists of an electronic assembly mounted into an explosion proof and weather tight enclosure. The transmitter is powered by 24 VDC (2 wire), 12 VDC (3 wire) or 110 VAC (4 wire) depending on desired version. The transmitter supplies a constant current to the sensor's resistance chain. Each resistor in the resistance chain causes a voltage drop as the result of current flowing through it. As the float rises or falls with level, it is closing and opening reed switches, therefore changing the resistance in the sensor. The sum of the resistors located between that end of the chain and the closed reed switch results in an output voltage. The transmitter uses this signal and coverts it into a 4-20mA proportional to the liquid level.

INSTALLATION:

Prior to attempting the installation procedure in this section, a quick readthrough of the entire manual is recommended. This will familiarize the user with the equipment and required tasks.

- For high-temperature applications, an insulating strip is placed between the sensor and the Magnicator II.
- Position the RST against the chamber with the enclosure toward the top.
- Zero starts at 3" above the bottom of the sensor.
- The RST is secured to the Magnicator II with SS clamps and Z-brackets.
- Install large clamp around the chamber and small clamp around the sensor.
- Insert Z bracket between the two clamps and tighten.
- There is a minimum of two sets required, however, on longer sensors additional clamps are necessary.



Reed Switch Transmitter

SPECIFICATIONS:

RST Sensor

Length:	Up to 20 Feet
Resolution:	½ Inch
Enclosure:	Stainless Steel
Operating Temp.:	Up to 500 Deg. F (260 Deg. C) (Process Temp.)

RST Transmitter

Output Limits:	3.8mA to 26mA
Amb. Temp. Range:	-20 to 180 Deg. F (-29 to 82 Deg. C)
Housing:	Explosion Proof and Water Tight • NEMA 4X and NEMA 7X • CL.I GR.B, C, D/CL.II GR. E, F, G • UL Standard 1203 • FM Standard 3615 • CSA Standard C22.2 No. 30

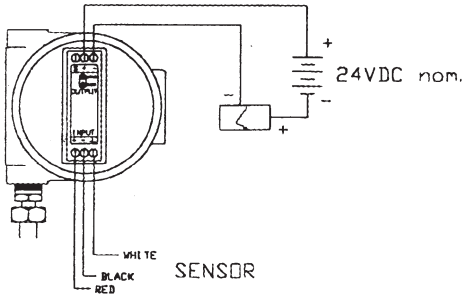
Power Requirements

2 Wire Loop Powered
24 VDC Nominal, 50 VDC Max.

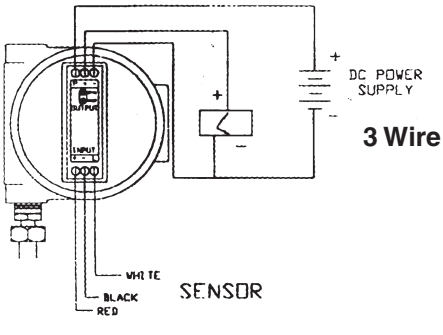
3 Wire Low Power
8 VDC to 36 VDC @ 6mA

4 Wire AC Power
115 VAC Standard

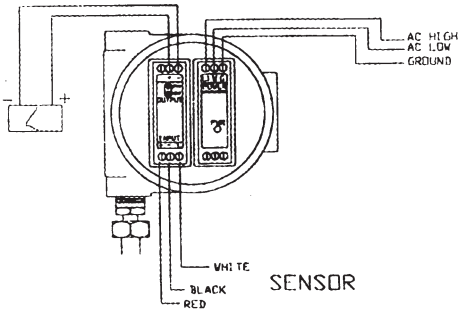
ELECTRICAL CONNECTIONS:



2 Wire 24 VDC Nom.



3 Wire Low Power



4 Wire VAC Power

CALIBRATION:

Transmitter:

Connect the transmitter as shown in the electrical connection diagram. Calibration should be performed using the actual sensor. The Zero and Span adjustments are accessible on the front panel of the transmitter. The screwdriver blade used to adjust the potentiometers should not be more than .100 inch wide.

Procedure:

1. Set the float at minimum level.
2. Adjust the Zero(Z) pot until the output reads 4.00mA DC.
3. Set the float to maximum level.
4. Adjust the Span(S) pot until the output reads 20.00 mA DC.
5. Repeat steps 1 thru 4 until the readings converge. The RST is now calibrated. Several mid-point point values should be checked to verify proper operation of the system.

Optional Display:

If your RST has the display option, the display is calibrated separately from the transmitter. The calibration of the transmitter should be verified first, before proceeding with the calibration of the display (follow above procedure). NOTE: The display option is factory configured for a specific customer specified range (0% to 100% is standard). The display Zero(DZ) and Span(DS) adjustments are trim adjustments only.

Procedure:

1. Set the float at minimum level (the Zero point of the transmitter span).
2. Adjust the Zero(DZ) pot of the display module for zero of the display range (0.0%).
3. Set the float to maximum level (the Span point of the transmitter).
4. Adjust the Span (DS) pot of the display module for the full scale display reading (100%).
5. Repeat steps 1 thru 4 until the readings converge. The display is now calibrated.

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