

Liquid-Level Sensors

with Temposonics® Magnetostrictive Technology



Troubleshooting M-Series Analog Gauges

551034 A

Technical Tip #26

Resistive tests

Isolation Tests:

1. Disconnect the DC voltage from the transmitter. (Both loops if applicable)
2. Measure with an Ohmmeter between all pins on the baseboard and the outer pipe of the transmitter. All measurements should be open.
3. If not, remove the connectors from J3 and J4 on the baseboard and repeat the test.

If any wires are shorted to the pipe, the sensing element (or stick) will need to be replaced.

Waveguide continuity test:

- Measure between pins #7 and #8 of the baseboard. On average the readings should be about 1ohm per foot for the transmitter length. Example: (20 foot gauge would be approximately 20 ohms).

If waveguide is shorted or open circuit, the sensing element will need to be replaced.

RTD continuity test:

- Measure between pins #5 and #6 of the RTD terminal block. Depending on the temperature of the sensor the RTD can range between $-30\text{ }^{\circ}\text{F} = 866\text{ ohms}$ $30\text{ }^{\circ}\text{F} = 1.57\text{ ohms}$. at ambient temperature of $75\text{ }^{\circ}\text{F}$. the RTD will read 1.09 ohms.

If the RTD is shorted or open circuit, the sensing element will need to be replaced.

Electrical tests

Voltage test:

1. Measure the DC voltage coming from the supply then connect to the electronics module in the transmitter. The voltage should not drop more than a volt.

If the voltage is not reaching the transmitter there is a problem in the cable and needs to be isolated.

If the voltage drops significantly when connected to the transmitter, the electronics needs to be replaced.

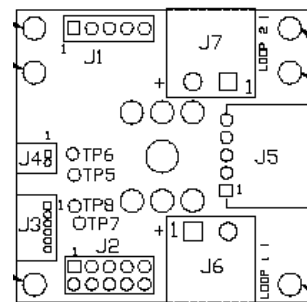
2. MTS recommends using a linear power supply, as a switching power supply could generate noise that might interfere with the return signal from the waveguide.

Current tests:

1. Connect the DC voltage to the transmitter in series with a multimeter for loop one only.
2. Measure the current out of the transmitter, be sure the current is steady.
3. Put a magnet near the top of the transmitter at least five inches from the top of the pipe if possible. The current should change to the new position.

If the current does not change the electronics must be changed.

Diagram of baseboard



All specifications are subject to change. Please contact MTS for specifications that are critical to your needs.

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