

INSTALLATION INSTRUCTIONS

Liquid Refraction Sensor (LRS)

The following terms are used throughout this document to bring attention to the presence of hazards of various risk levels, or to important information concerning use of the product.

Danger!! Indicates the presence of a hazard that **will** cause **severe** personal injury, death, or substantial property damage **if ignored**.

Warning! Indicates the presence of a hazard that **can** cause **severe** personal injury, death, or substantial property damage **if ignored**.

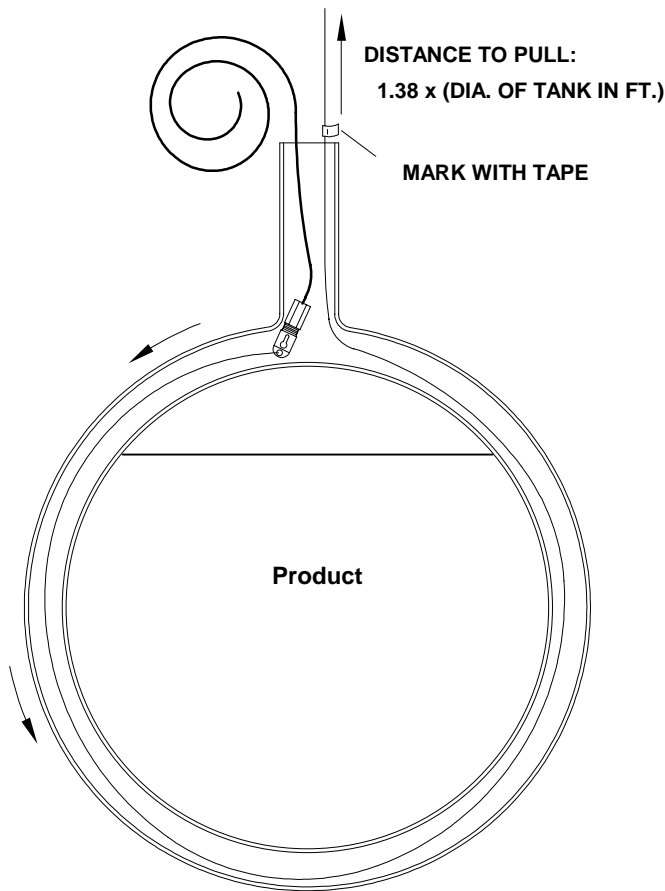
Caution Indicates the presence of a hazard that **will** or **can** cause **minor** personal injury or property damage **if ignored**.

Notice Indicates special instructions on installation, operation, or maintenance that are important but not related to personal injury hazards.

The Liquid Refraction Sensor (LRS) is a 3 wire sensor is used to monitor for the presence of a liquid in the dry interstitial space of double wall tanks and piping sumps. This sensor is a solid state device and uses light refraction technology to detect liquid and trigger an alarm.

Sensor Installation:

1. Check to see if an existing pull wire is in place in the interstitial space of the tank.
1. If a pull wire is already installed, go to step 6.



2. To install a pull wire for LRS installation use the following procedures.
3. If a riser pipe is NOT installed, use a 1/8" fish tape to install the pull wire.
4. If a riser pipe IS installed use a 1/4" fish tape to install the pull wire.
5. Tie one end of the pull wire to the pull cap on the LRS.
6. Carefully insert the LRS into the tank fitting or riser pipe and pull the opposite end of the pull wire until the sensor rests at the bottom of the riser fitting.
7. Insert the cutout end of the sensor tool over the end of the LRS and CAREFULLY guide it into the interstitial space while pulling the end of the pull wire.
8. Mark pull wire with tape at the top of the tank fitting or riser pipe (whichever is applicable) to serve as a reference point.
9. Compute how far to pull the LRS around the tank using this formula:

$$1.38 \times (\text{diameter of tank in feet}) = \text{Total distance of pull wire exposed}$$

Figure 1 LRS Installation Steps 6–7

For Technical Assistance
Call:
1-800-777-2480

RE260-100 Rev F 6/98

Red Jacket/Marley Pump reserves the right to make design improvements and pricing modifications as necessary and without notice Contact Red Jacket for information relevant to the operation of Red Jacket Equipment with equipment from other manufacturers.

10. Pull the sensor around the tank using the pull wire. Measure the amount of pull wire exposed from the tank fitting or riser pipe to the tape mark made in Step 9. When this distance equals the figure calculated in Step 10, the LRS is positioned correctly. 2
1. Coil up the excess pull wire and secure it inside the riser pipe for future use.

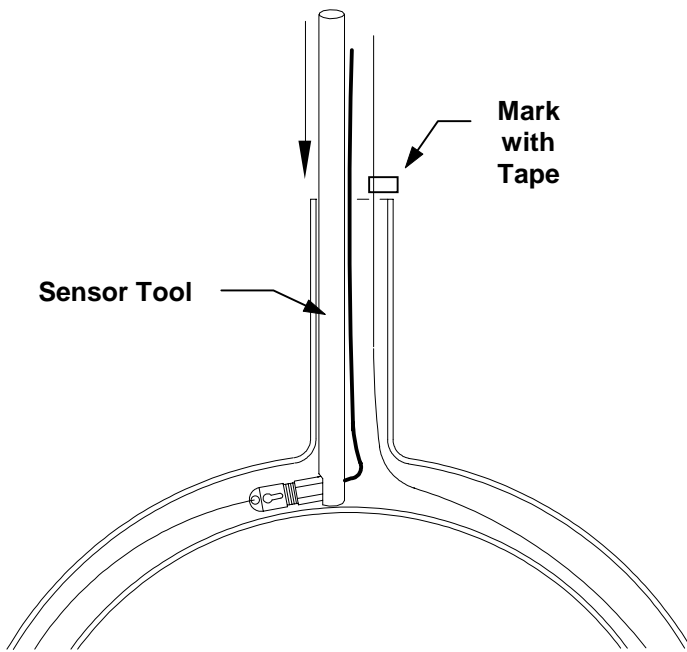


Figure 2 LRS Installation Step 8-10

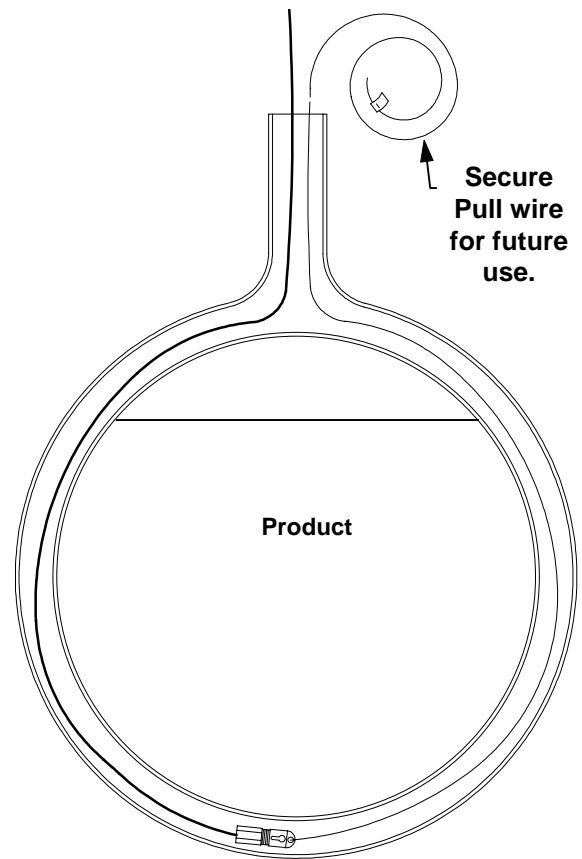


Figure 3 LRS Installation Step 11-12

Double Wall Tank Sensor Tool

This drawing is designed to enable you to construct a tool to help in installing and removing LRS and OLDS sensors. This sensor tool can be made to any length necessary. The threaded coupling allows the tool to be broken down for storage.

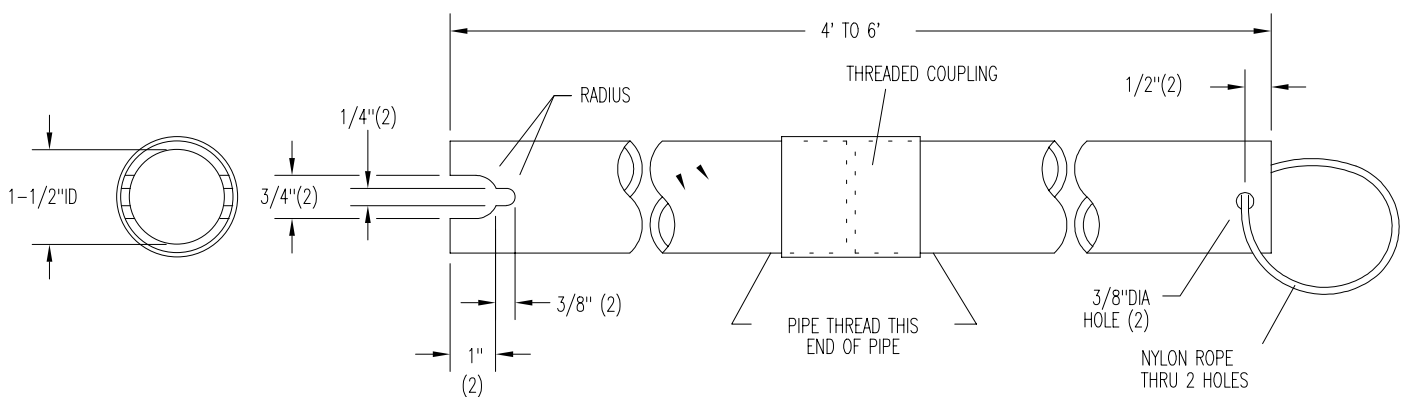
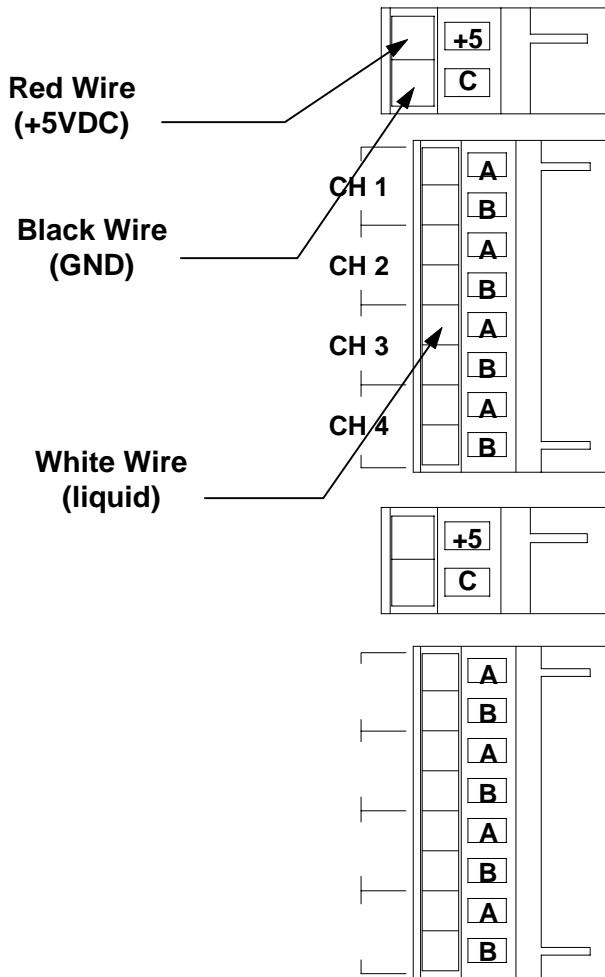


Figure 4 Double wall tank sensor tool

Prolink Sensor network card connections:



1. Run an 18-gauge, gas, oil, and water resistant three conductor cable from each Liquid Refraction Sensor to the Sensor network card.
2. Select an open channel and connect the white wire (liquid) to the **A** terminal.
3. Connect the red wire to one of the sensor power **+5V** terminals.
4. Connect the black wire to one of the sensor power **GND** terminals.

Figure 5 Liquid Refraction Sensor Prolink connections

ST Controller SIB connections:

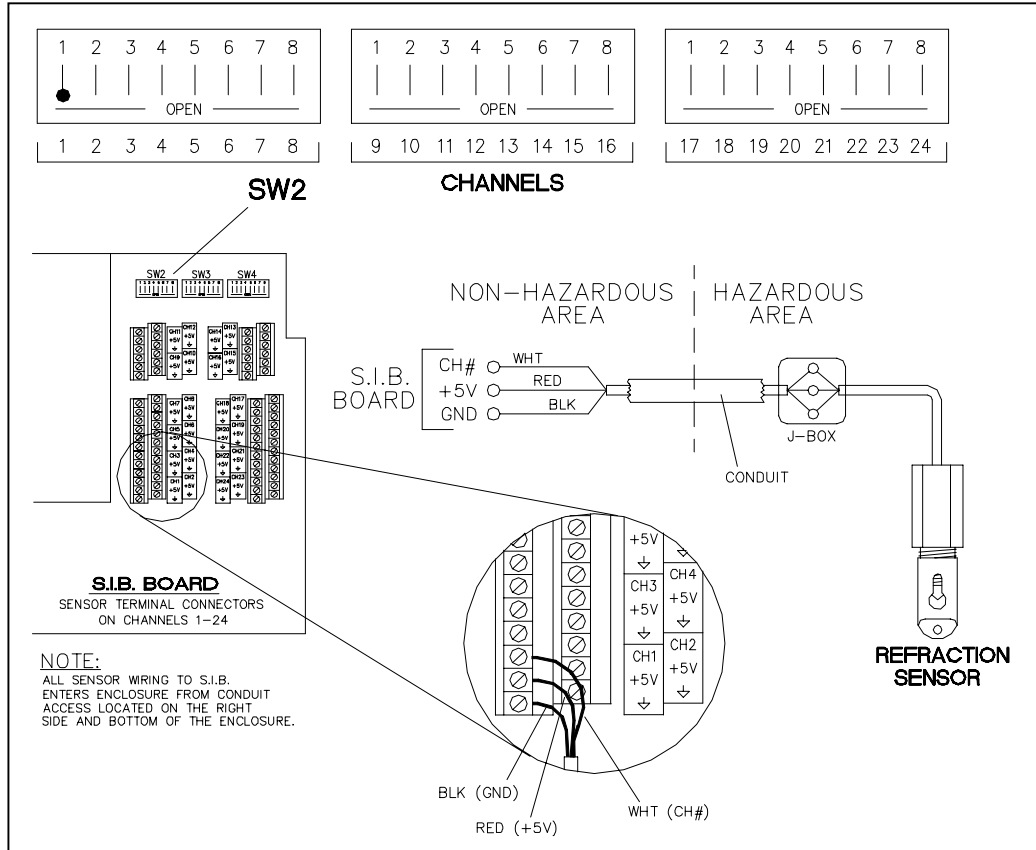


Figure 6 Liquid Refraction Sensor SIB connections

- Step 1:** Run an 18-gauge, gas, oil, and water resistant three conductor cable from each Liquid Refraction Sensor.
- Step 2:** Connect the red wire to the +5V terminal.
- Step 3:** Connect the white wire to the CH# terminal.
- Step 4:** Connect the black wire to the GND terminal.
- Step 5:** The DIP switch for the corresponding CH# must be set OPEN.

Figure 3 is an example of DIP switch settings on **SW2** when CH1 is being used.