

Solid-State Interstitial Liquid Sensor for Fiberglass Tanks

Installation Guide

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DAMAGE CLAIMS / LOST EQUIPMENT

Thoroughly examine all components and units as soon as they are received. If any cartons are damaged or missing, write a complete and detailed description of the damage or shortage on the face of the freight bill. The carrier's agent must verify the inspection and sign the description. Refuse only the damaged product, not the entire shipment.

VEEDER-ROOT'S PREFERRED CARRIER

1. Contact VR Customer Service at 800-873-3313 with the specific part numbers and quantities that were missing or received damaged.
2. Fax signed Bill of Lading (BOL) to VR Customer Service at 800-234-5350.
3. VR will file the claim with the carrier and replace the damaged/missing product at no charge to the customer. Customer Service will work with production facility to have the replacement product shipped as soon as possible.

CUSTOMER'S PREFERRED CARRIER

1. It is the customer's responsibility to file a claim with their carrier.
2. Customer may submit a replacement purchase order. Customer is responsible for all charges and freight associated with replacement order. Customer Service will work with production facility to have the replacement product shipped as soon as possible.
3. If "lost" equipment is delivered at a later date and is not needed, VR will allow a Return to Stock without a restocking fee.
4. VR will NOT be responsible for any compensation when a customer chooses their own carrier.

RETURN SHIPPING

For the parts return procedure, please follow the appropriate instructions in the "General Returned Goods Policy" and "Parts Return" pages in the "Policies and Literature" section of the Veeder-Root **North American Environmental Products** price list.

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Introduction

This manual contains procedures for installing Veeder-Root solid-state interstitial liquid sensors in fiberglass tanks. This manual assumes all preliminary site preparation is completed, and that field wiring from the TLS console to the sensor junction box is in place.

Related Manuals

You must reference the manual below, to plan and install wiring that will connect the sensor to the console:

576013-879	TLS-3XX Series Site Prep and Installation Manual
577013-879	TLS-4XX Site Prep and Installation Manual

Contractor Certification Requirements

Veeder-Root requires the following minimum training certifications for contractors who will install and setup the equipment discussed in this manual:







Level 1 Contractors holding valid Level 1 Certification are approved to perform wiring and conduit routing, equipment mounting, probe and sensor installation, tank and line preparation, and line leak detector installation.




Level 2/3 Contractors holding valid Level 2 or 3 Certifications are approved to perform installation checkout, startup, programming and operations training, troubleshooting and servicing for all Veeder-Root Tank Monitoring Systems, including Line Leak Detection and associated accessories.


Warranty Registrations may only be submitted by selected distributors.




Safety Precautions

The following safety symbols are used throughout this manual to alert you to important safety hazards and precautions.

 EXPLOSIVE Fuels and their vapors are extremely explosive if ignited.	 FLAMMABLE Fuels and their vapors are extremely flammable.
 ELECTRICITY High voltage exists in, and is supplied to, the device. A potential shock hazard exists.	 TURN POWER OFF Live power to a device creates a potential shock hazard. Turn Off power to the device and associated accessories when servicing the unit.
 WEAR EYE PROTECTION Wear eye protection when working with pressurized fuel lines or epoxy sealant to avoid possible eye injury.	 GLOVES Wear gloves to protect hands from irritation or injury.

	<p>INJURY Careless or improper handling of materials can result in bodily injury.</p>		<p>READ ALL RELATED MANUALS Knowledge of all related procedures before you begin work is important. Read and understand all manuals thoroughly. If you do not understand a procedure, ask someone who does.</p>
	<p>WARNING Heed the adjacent instructions to avoid equipment damage or personal injury.</p>		


WARNING

  	<p>This product is to be installed in systems operating near locations where highly combustible fuels or vapors may be present.</p> <p>Fire or explosion resulting in serious injury or death could result if the equipment is improperly installed or modified. Serious contamination of the environment may also occur.</p> <ol style="list-style-type: none"> 1. Read and follow all instructions in this manual, including all safety warnings to protect yourself and others from serious injury, explosion, or electrical shock. 2. Comply with all applicable codes including: the National Electrical Code NFPA 70; federal, state, and local codes; and other applicable safety codes. 3. Do not alter or modify any component or substitute components in this kit. 4. Substitution of components may impair intrinsic safety. 5. Circuitry within the sensor and console barrier form an intrinsically safe, energy-limited system. This system makes the interstitial sensor intrinsically safe for use in a Class I, Group D hazardous location. The sensor wiring is intrinsically safe only when connected to an approved Veeder-Root Console.
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Sensor Description

Veeder-Root's solid-state interstitial sensor accurately detects the presence of fluid in the interstitial space of a double-wall fiberglass tank, and depending on the model installed, differentiates between hydrocarbons and other liquids.

Alarm conditions - fuel, water, sensor out - detected by the sensor are indicated by an audible alarm, a displayed message on the TLS console, and a printed message if the console is equipped with a printer. The alarms are also recorded as part of the console's alarm history report.

INSTALLATION COMPONENTS

- Solid-state Interstitial Liquid Sensor for Fiberglass Tanks (P/N 794360-343, 794380-343, or 794380-345)
- Installation Kit
- Manual 576013-826

Sensor Installation

WARNING



Before installing this device, turn OFF power to the system.

Sensor wiring connects components of an intrinsically safe circuit. Conduit containing sensor wiring must not contain any other wires and must enter the console only through designated knockouts.



1. Turn Off power to the console.
2. Make sure no liquid is present in the annular space. Do not install the sensor if any liquid is present in the annular space.



Failure to remove any liquid in the annular space will lead to an alarm.

3. Measure the length of the riser pipe as shown in Figure 1.
4. Locate the label on the sensor cable that corresponds to the tank size. Add the riser pipe length determined in Step 3 (measuring away from the sensor). Mark this position on the cable with one of the tie-wraps provided, NOT by cutting into the cable jacket with a knife.
5. Attach a pull cord to the eyelet in the sensor and after confirming correct orientation of sensor (ref. Figure 1), pull the sensor through the interstitial space until the cable mark tie-wrap is even with the top of the riser pipe. All sensor types should rest at the bottom of the tank as shown.
6. Get the installation kit. Put the cord grip bushing in the riser cap and screw the cord grip nut onto the fitting. Screw the second cord grip fitting into the junction box.
7. Pass the end of the sensor cable through the cord grip fittings in the riser cap and in the junction box.
8. Secure the riser cap to the riser pipe.
9. Tighten the cable cord grip nuts on the riser cap and junction box to ensure a water-tight seal at the cable entry.
10. Using wire nuts from the kit, connect the two-wire sensor cable to the field wires in the sensor junction box (ref. Figure 2).



Observe polarity - the black wire from the sensor is ground and the other wire, which could be one of several colors, is positive.

11. Seal wire nuts with epoxy sealant following the instructions in Figure 3.

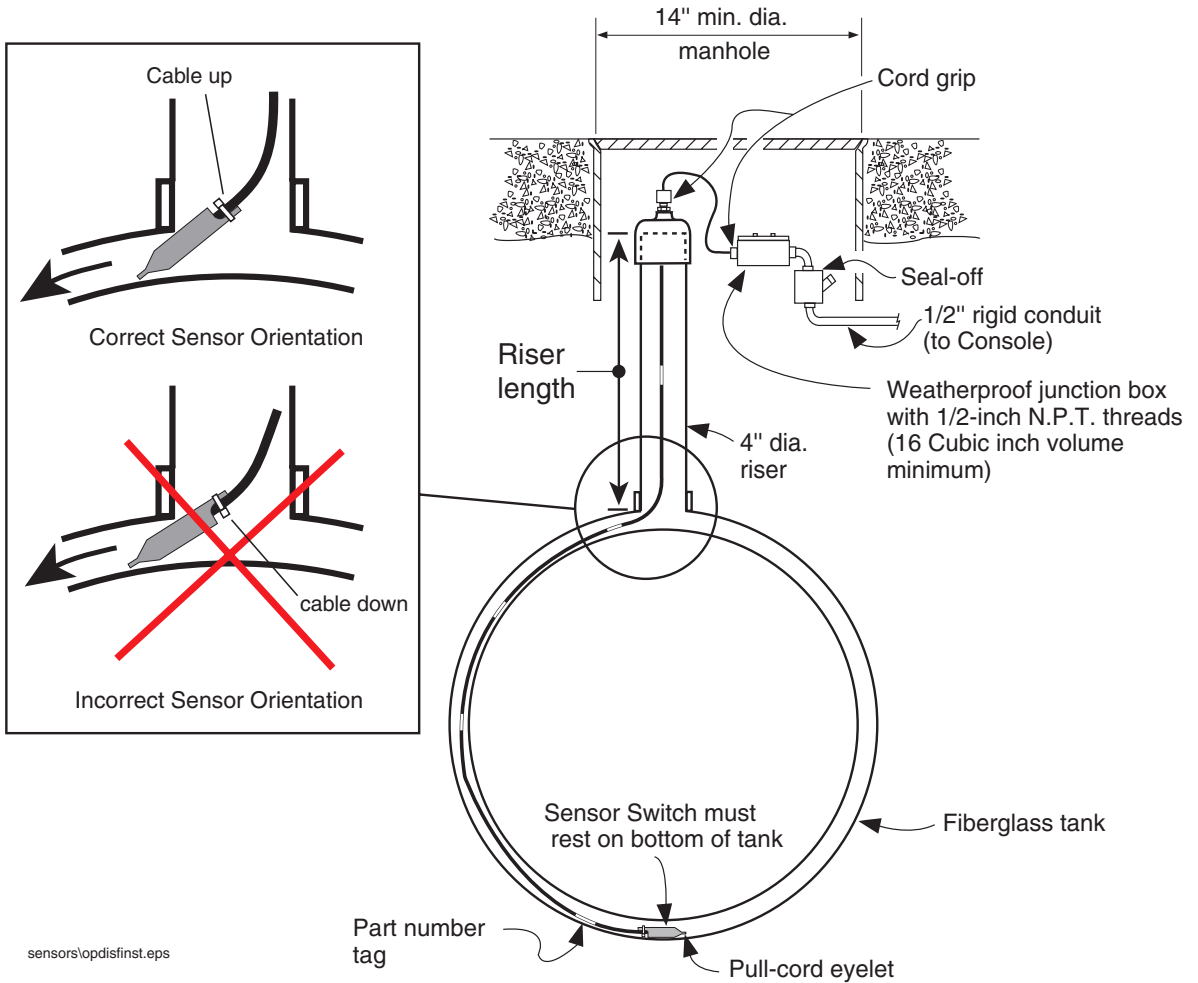


Figure 1. Sensor installation example

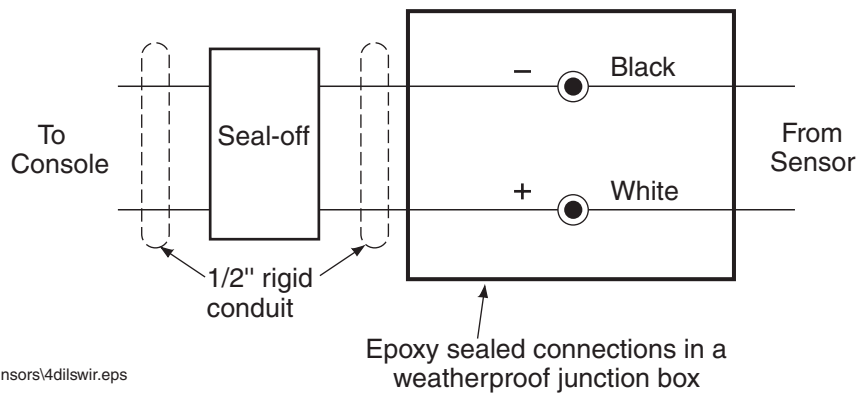
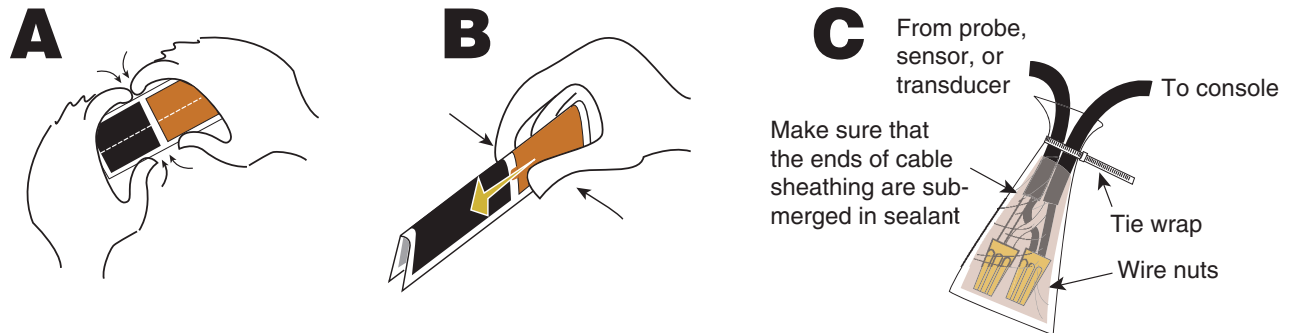


Figure 2. Sensor field wiring diagram

**Instructions:**

NOTE: When temperature is below 50°F (10°C), keep resin in a warm place prior to mixing (e.g., in an inside pocket next to body).

1. Open epoxy sealant package, and remove resin pak.
2. Holding resin pak as shown in A, bend pak along long length.
3. As shown in B, firmly squeeze the RED SIDE of the resin, forcing it through the center seal and into BLACK SIDE.

4. Mix thoroughly to a uniform color by squeezing contents back and forth 25-30 times.
5. Squeeze mixed, warm resin into one end of bag and cutoff other end.
6. Slowly insert wiring connections into sealing pak until they fit snugly against the opposite end as shown in C.
7. Twist open end of bag and use tie wrap to close it off and position the tie wrapped end up until the resin jells.



CAUTION: Epoxy sealant is irritating to eyes, respiratory system, and skin. Can cause allergic skin reaction. Contains: epoxy resin and Cycloaliphatic epoxy-carboxylate.

Precautions: Wear suitable protective clothing, gloves, eye, and face protection. Use only in well ventilated areas. Wash thoroughly before eating, drinking, or smoking.

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Figure 3. Epoxy sealing field wiring connections

