

Interstitial Liquid Sensor - Steel 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 installation procedures for the replacement of interstitial liquid sensors for steel tanks in an existing TLS monitoring system designed and manufactured by Veeder-Root. This manual assumes all preliminary site preparation is completed, and that wiring from the console to the sensor junction box is in place.

If this is a new installation or site preparation is necessary, refer to the appropriate Site Preparation and Installation manual, or contact your Veeder-Root representative for assistance.

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.

Related Manuals







Depending on your installed console, you must reference the appropriate manual below for sensor-to-console connections:




576013-879 TLS-3XX Site Prep Manual

577013-879 TLS-4XX Site Prep Manual

Safety Symbols





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

 <p>EXPLOSIVE Fuels and their vapors are extremely explosive if ignited.</p>	 <p>FLAMMABLE Fuels and their vapors are extremely flammable.</p>
 <p>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.</p>	 <p>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.</p>
 <p>USE SAFETY BARRICADES Unauthorized people or vehicles in the work area are dangerous. Always use safety cones or barricades, safety tape, and your vehicle to block the work area.</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>WEAR EYE PROTECTION Fuel spray from residual pressure in the lines can cause serious eye injuries. Always wear eye protection.</p>	<p>INJURY Careless or improper handling of materials can result in bodily injury.</p> 
 <p>GLOVES Wear gloves to protect hands from irritation or injury.</p>	

Before You Begin

To protect yourself and your equipment, observe the following warnings and important information:

 WARNING	
  	<p>This product is to be installed and operated in the highly combustible environment of a gasoline storage tank where flammable liquids and explosive vapors may be present.</p> <p>Improper installation may result in fire or explosion causing serious injury or death.</p> <p>Leaking underground tanks can create serious environmental and health hazards. It is your responsibility to install this product in accordance with the instructions and warnings found in this manual. Failure to do so could result in undetected potential environmental and health hazards.</p> <p>Failure to install this product in accordance with its instructions and warnings will result in voiding of all warranties connected with this product.</p>

System Description

The Veeder-Root Interstitial Liquid Sensor detects the presence of liquid in the interstitial space of a double-wall tank. When liquid is detected, the sensor sends an alarm signal to the console. The console's visual and audible built-in alarm indicators immediately tell you where the problem is, so you can quickly take action to help prevent serious safety and environmental problems. The Interstitial Liquid Sensor can be used in the annulus of a tank with a sensor riser pipe of 1.5" I.D. or greater.

STANDARD COMPONENTS

Qty.	Description
1	Interstitial Steel Tank Sensor
2	Watertight Cord Grips

STANDARD MODELS

Form No.	Description
794390-420	Interstitial Steel Tank Sensor with 16' Cable
794390-460	Interstitial Steel Tank Sensor with 30' Cable
794380-430	Interstitial Steel Tank Sensor - Media Isolated with 16' Cable

INTERSTITIAL STEEL TANK SENSOR CONSOLE CAPABILITY

The Series 7943 Interstitial Steel Tank Sensor is compatible with the following consoles:

TLS-4XX ¹	TLS-350R ²	TLS-350 ²	TLS-300i	TLS-300C
Series 860X	Series 8482	Series 8470	Series 8485	Series 8485

¹Note: A USM Module is required for use of the Interstitial Fiberglass Tank Sensor with the TLS-4XX Console.


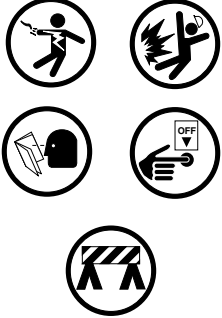
²Note: An Interstitial Sensor Interface Module is required for use of the Interstitial Fiberglass Tank Sensor with the TLS-350/TLS-350R Consoles.

OPERATING CAPABILITIES

- Operating temperature Range: -20°C to +70°C (hydrocarbons); 0°C to +70°C (non-freezing water).
- Storage Temperature Range: -40° C to + 75° C.
- Dimensions: 2.5” high, 1.50” diameter
- Cable length: 16 or 30 feet (-460 only)

Installation

Safety Warnings

 WARNING	
	<p>This device is installed in equipment where potentially lethal voltages may exist and where product spillage could create serious environmental and safety hazards.</p> <p>The following hazards exist:</p> <ol style="list-style-type: none">1. Electrical shock resulting in serious injury or death may result if power is on during installation and the device is improperly installed.2. Product leakage could cause severe environmental damage or explosion resulting in death, serious personal injury, property loss and equipment damage, <p>Observe the following precautions:</p> <ol style="list-style-type: none">1. Read and follow all instructions in this manual, including all safety warnings.2. Comply with all applicable codes including: the National Electrical Code; federal, state, and local codes; and other applicable safety codes.3. Before installing this device, turn off power to the system, including console and submersible pumps.4. To protect yourself and others from being struck by vehicles, block off your work area during installation or service.5. Substitution of components may impair intrinsic safety.

Equipment Preparation



To prepare your equipment for sensor installation:

1. Turn OFF power to the console.
2. Make sure no liquid is present in the annular space. Important! Do not install the sensor if any liquid is present in the annular space. Failure to comply will lead to an alarm.
3. To ensure the sensor will reach the bottom of the annular space, the splice between the leader cable and the sensor must be 1 foot from the bottom of the riser pipe (see Figure 1).
 - a. First measure the sensor riser pipe from the bottom of the pipe to the top.
 - b. Subtract 1 foot from the riser pipe measurement,
 - c. Measure the distance up the leader cable from its connection to the sensor; mark the leader cable with a marker pen or a piece of tape.

Field Wiring Requirements

You must consult your console's latest Site Prep manual for required wiring type, gauge, length, etc., needed for sensor installation.

Installing Float Switch

To ensure proper operation of the float switch, it is important that the switch rests as close as possible to the bottom of the tank annulus.

1. Lower the float switch assembly into the riser pipe until the float touches the bottom of the tank (see Figure 1).
2. Keeping the cable taut, secure the sensor assembly in place by attaching a grip cord. Note: The float switch assembly should not be suspended by the cable, but should rest lightly on the bottom of the tank.
3. Secure the riser cap to the riser pipe.
4. Tighten the cable bushing nuts on the riser cap and junction box to ensure a water-tight seal at the cable entry.

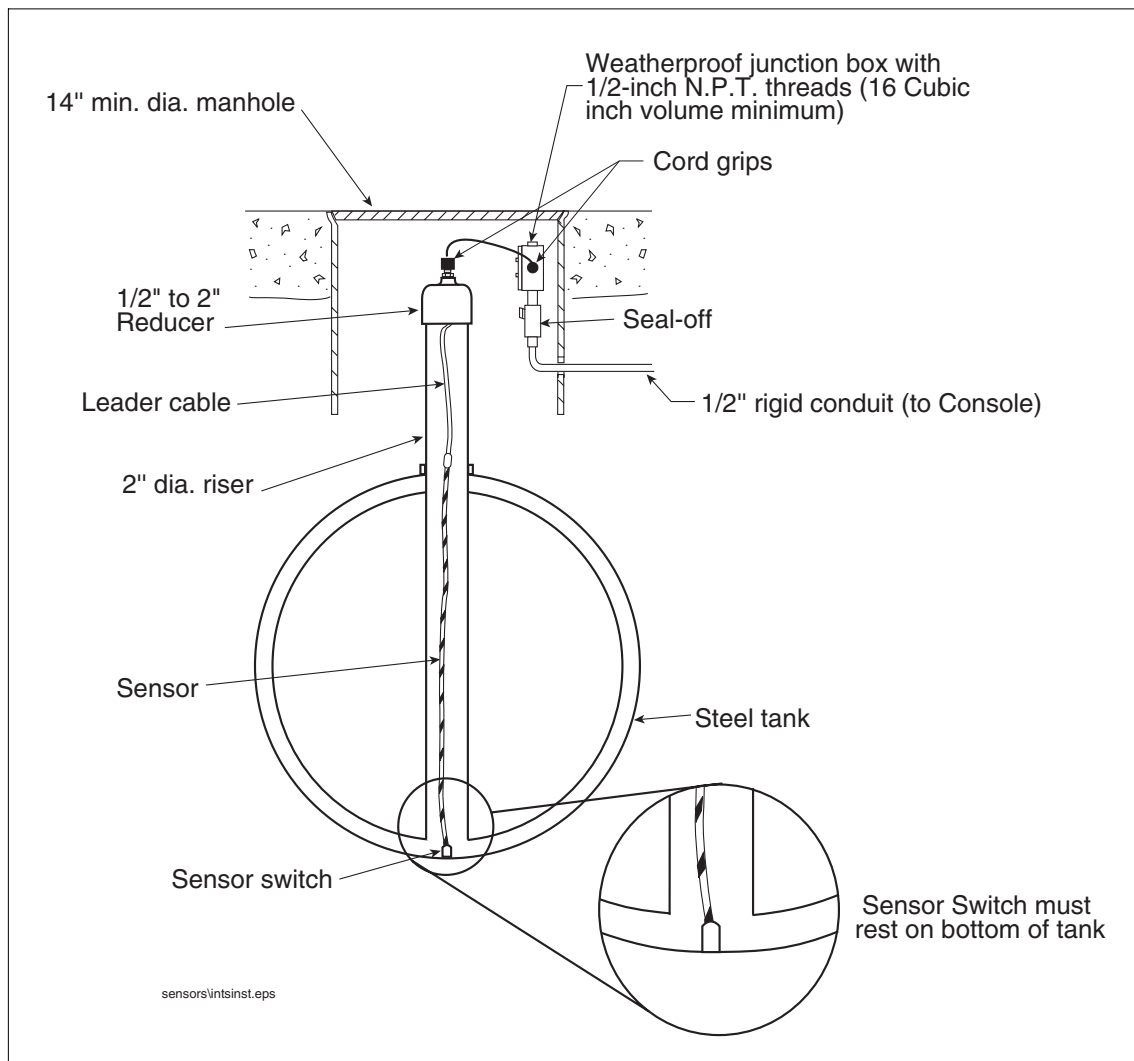


Figure 1. Sensor Dimensions and Installation Requirements - Steel Tank

- Using wire nuts, connect the two-wire sensor cable to the field wires in the sensor junction box (Figure 2). Seal wire nuts with epoxy sealant following the instructions in Figure 3.

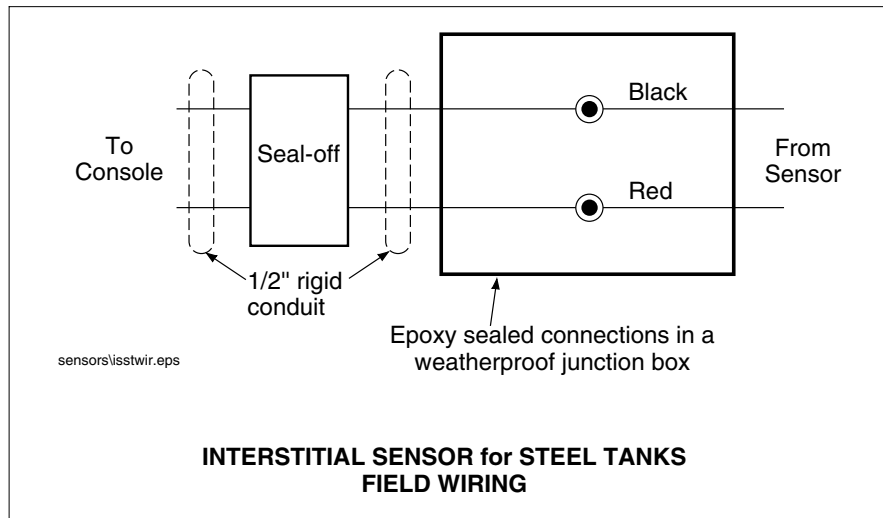


Figure 2. Sensor Wiring Installation Diagram

A

B

C

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).

- Open epoxy sealant package, and remove resin pak.
- Holding resin pak as shown in A, bend pak along long length.
- As shown in B, firmly squeeze the RED SIDE of the resin, forcing it through the center seal and into BLACK SIDE.
- Mix thoroughly to a uniform color by squeezing contents back and forth 25-30 times.
- Squeeze mixed, warm resin into one end of bag and cutoff other end.
- Slowly insert wiring connections into sealing pack until they fit snugly against the opposite end as shown in C.
- 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.

consoles/epxy2w.eps

Figure 3. Epoxy sealing example

