

MicroSensor

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 to install the Veeder-Root MicroSensor in a double-walled steel tank or a contained riser interstice space. This manual assumes all preliminary site preparation is completed, and that field wiring from the monitor to the sensor junction box is in place.

Product Description

The MicroSensor uses solid-state technology to detect liquids. When used as a contained riser sensor, it fits in the 5/8" interstice space between the 4" and 6" riser. When used as a steel tank interstitial monitor, it fits into risers as small as 1" diameter or 1" square.

Related Manuals

You must reference the appropriate 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.

 <p>EXPLOSIVE Fuels and their vapors are extremely explosive if ignited.</p>	 <p>FLAMMABLE Fuels and their vapors are extremely flammable.</p>
 <p>ELECTRICITY High voltage exists in, and is supplied to, the device. A potential shock hazard exists.</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>WEAR EYE PROTECTION Wear eye protection when working with pressurized fuel lines or epoxy sealant to avoid possible eye injury.</p>	 <p>GLOVES Wear gloves to protect hands from irritation or injury.</p>
 <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>

National Electrical Code Compliance

The following information is for general reference and is not intended to replace recommended National Electric Code (NEC) procedures. It is important for the installer to understand that electrical equipment and wiring located in Class I, Division 1 and 2 installations shall comply with the latest appropriate Articles found in the National Electric Code (NFPA 70) and the Automotive and Marine Service Station Code (NFPA 30A).

Warnings and Important Notes

 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; 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 discriminating 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.

Failure to install this product in accordance with its instructions and warnings will result in voiding of all warranties connected with this product. Do not attempt to wire a MicroSensor into a new site based solely on the information contained in this manual. This manual contains installation procedures for a MicroSensor into an existing system only!

For new installations, and for wiring requirements, see the “Site Preparation and Installation Instructions” manual provided with the system.

INSTALLATION COMPONENTS

- MicroSensor for Fiberglass Tanks P/N 7943X0-34X
- Installation Kit - P/N 312020-949 (Figure 1)
- Optional 2” riser cap and adaptor kit - P/N 312020-928
- Manual 576013-285

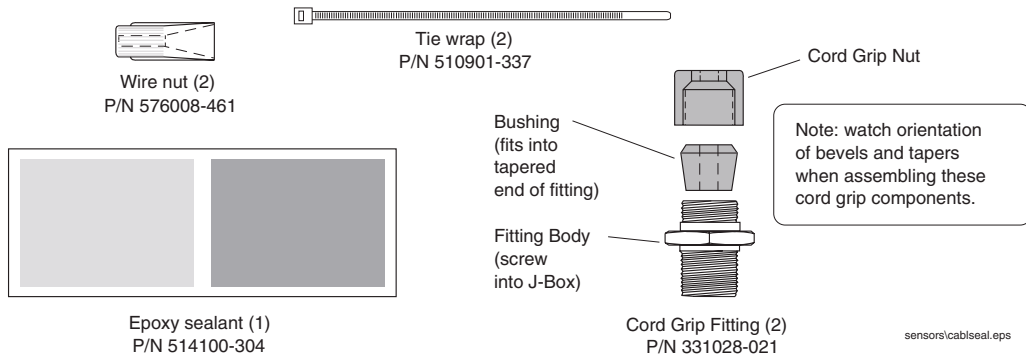


Figure 1. Installation kit

Installation Procedures

⚠ 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.

Sensor Installation - Containment Riser

1. Turn OFF power to the console.
2. Make sure no liquid is present in the annular space.
3. Install the sensor in the conduit by pushing the cable until it cannot be pushed any further. When fully inserted, you should be able to feel the sensor contact the bottom of the containment riser (see Figure 2). To function correctly, the sensor must rest as close as possible to the bottom of the riser annulus. The MicroSensor uses a stiff cable to provide the required stiffness for ease of installation.

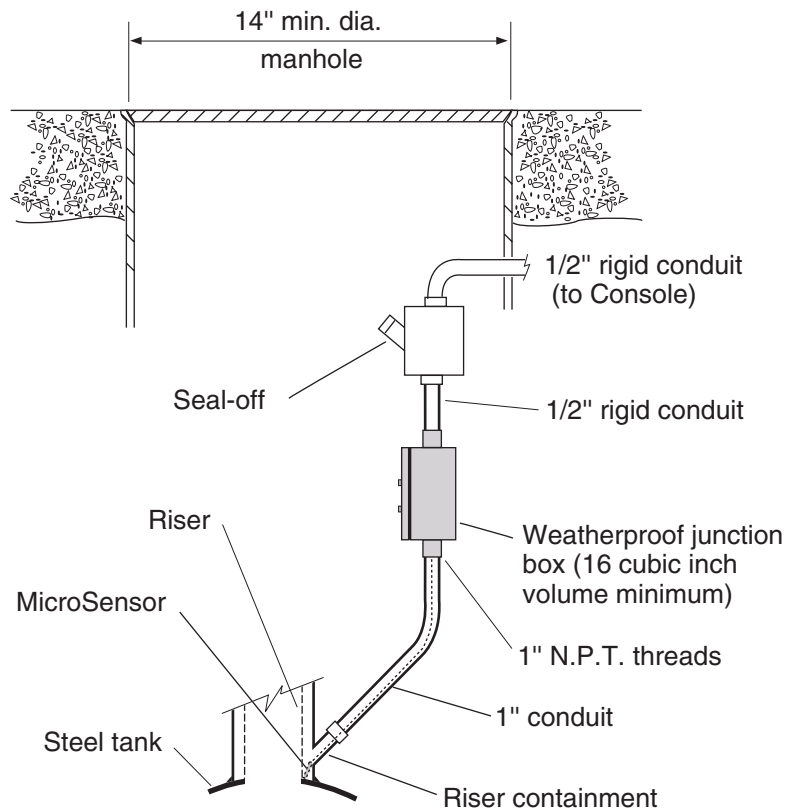


Figure 2. MicroSensor Installation - Containment Riser

- Using wire nuts, connect the two-wire sensor cable to the console field wires in the sensor junction box. For proper polarity, the black wire from the sensor is ground and the other wire, which could be one of several colors, is positive (See Figure 3).

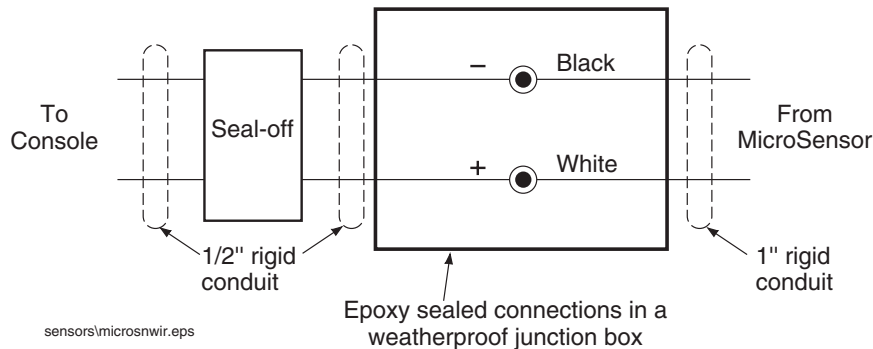
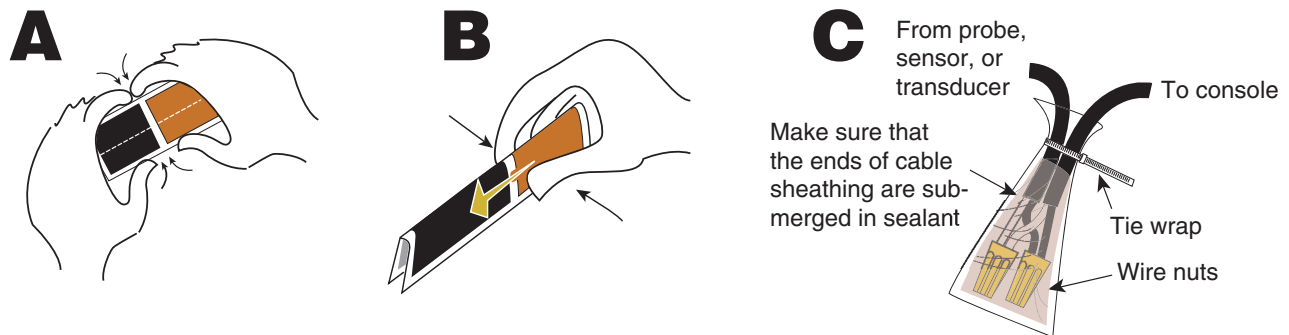


Figure 3. MicroSensor Field Wiring Diagram

- Seal wire nuts with epoxy sealant following the instructions below.




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.

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Sensor Installation - Steel Tank

1. Make sure no liquid is present in the annular space.
2. To be sure the sensor will reach the bottom of the annular space, first measure the sensor riser pipe from the bottom of the pipe to the top. (See *Distance to Measure* in Figure 4.) Then measure the same distance up the sensor leader cable from its connection to the sensing element and mark the leader cable. Do not use a knife or other sharp object to mark the leader cable to avoid damaging wire. Use instead, a marker, piece of tape, or a twist tie.
3. Install a cord grip into the junction box.

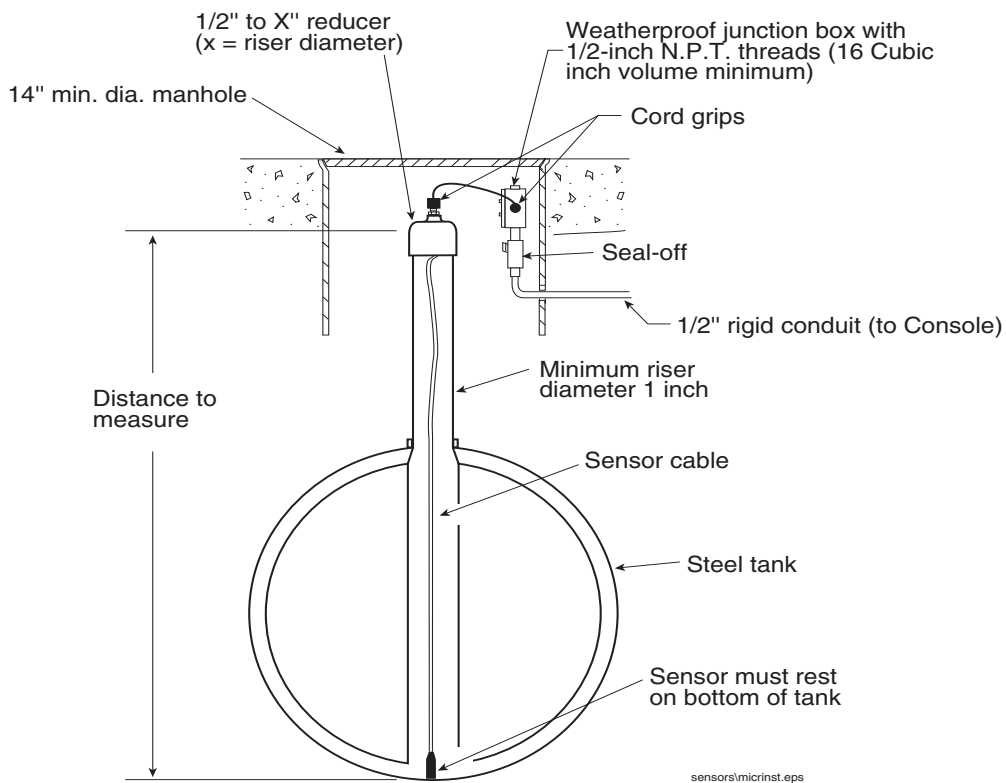


Figure 4. Sensor Dimensions and Installation - Steel Tanks

4. Lower the sensor assembly into the riser pipe until the sensor is just resting on the bottom of the tank.
5. Run the sensor leader cable through the reducer up to the mark previously made on the cable.
6. Secure the reducer to the riser pipe.
7. Keeping the cable taut, secure the sensor assembly in place by attaching the cord grip.
8. Tighten the cable bushing nuts on the riser cap and junction box to ensure a watertight seal at the cable entry.
9. Using wire nuts, connect the two-wire sensor cable to the console field wires in the sensor junction box. Be sure to observe color codes for proper polarity (as shown in Figure 3 on page 5).
10. Seal wire nuts with epoxy sealant using one bag for two wire nut connections as discussed in Step 5 of the containment riser installation above .

