Manual No: **576013-306** ● Revision: **G**

Dispenser Pan Sensors & Containment Sump Sensors

Installation Guide

VEEDER-ROOT

Notice

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Veeder-Root reserves the right to change system options or features, or the information contained in this publication.

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.

Figures

Introduction

This manual contains procedures for the installation or replacement of the following:

- Veeder-Root Solid-State Discriminating Dispenser Pan Sensor (P/N 794380-320)
- Veeder-Root Discriminating Dispenser Pan Sensor (P/N 794380-322)
- Veeder-Root Solid-State Dispenser Pan Sensor (P/N 794390-321)
- Veeder-Root Solid-State Discriminating Containment Sump Sensor (P/N 794380-350)
- Veeder-Root Discriminating Containment Sump Sensor (P/N 794380-352)
- Veeder-Root Solid-State Containment Sump Sensor (P/N 794390-351)

The above parts are for the TLS System designed and manufactured by Veeder-Root. This manual assumes all preliminary site preparation is completed, and that field wiring from the monitor to the sensor junction box is in place.

Related Manuals

If site preparation is necessary, refer to the following manual, or contact your Veeder-Root representative for assistance:

576013-879 TLS-3XX Site Prep and Installation Guide

577013-879 TLS-4XX Site Prep and Installation Guide

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.

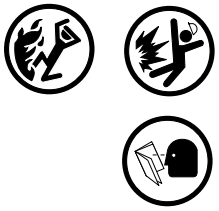
Safety Symbols

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.
 **WARNING** Heed the adjacent instructions to avoid equipment damage or personal injury.	 **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.
 **WEAR EYE PROTECTION** Fuel spray from residual pressure in the lines can cause serious eye injuries. Always wear eye protection.	 **INJURY** Careless or improper handling of materials can result in bodily injury.
 **WARNING** Heed the adjacent instructions to avoid equipment damage or personal injury.	 **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.

Warnings and Important Notes

⚠ WARNING



This product is to be installed in systems operating near locations where highly combustible fuels or vapors may be present.

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.

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. **Do not alter or modify any component or substitute components in this kit.**
4. **Substitution of components may impair intrinsic safety.**
5. **Do not use this component for other systems aside from the TLS Console. Install only as described in this manual.**

Failure to install this product in accordance with its instructions and warnings will result in voiding of all warranties connected with this product.

Installing the Dispenser Pan Sensor

This section describes the hardware, requirements, and procedures for installing the Solid-State Discriminating Dispenser Pan, Discriminating Dispenser Pan, and Solid-State Dispenser Pan Sensors.

Installation Hardware

All Dispenser Pan Sensors come with the following installation hardware:

- One 12-Foot Long Cable (including connector)

  Note: If a longer cable is required, you may order a 20-foot long cable (for either 2-wire or 3-wire sensors) separately. For 2-wire sensors, order Part No. 331102-001; for 3-wire sensors, order Part No. 331103-001.
- 1 Wiring Kit
- Installation Instructions
- Mounting brackets are required and must be ordered separately. Use of Veeder-Root Universal Mounting Kit (Part No. 330020-012) is recommended.

Table 1. Dispenser Pan Installation Hardware Part Numbers

Sensor	Cable Part No.	Wiring Kit Part No.
Solid-State Discriminating Dispenser Pan	331103-002	330020-011
Discriminating Dispenser Pan	331102-002	330020-011
Solid-State Dispenser Pan	331102-002	330020-011

Installation Requirements

Before you install each Dispenser Pan Sensor, consider the following important requirements:

1. The sensor should rest in the cup or lowest point of the dispenser pan.
2. It is recommended that the sensor be mounted in a true vertical position to ensure proper operation of the sensor.
3. Ensure that there will be enough room to pull the sensor straight out of the pan if service is required.

Installation Procedures

⚠ WARNING	
	**This device is installed in equipment where potentially lethal voltages may exist.** **Electrical shock resulting in serious injury or death may result if power is on during installation and the device is improperly installed.** **Before installing this device, turn off power to the system.**

Do not install the dispenser pan sensor if there is any liquid in the dispenser pan. Failure to comply can result in equipment damage or undetected potential environmental and health hazards.

1. Turn OFF power to the TLS Console.
2. Make sure no liquid exists in the dispenser pan.
3. Before removing an existing dispenser pan sensor be sure to mark field wires in the junction box to maintain correct sensor wiring polarity during the replacement procedure.

   If this is an existing installation where mounting hardware is already in place and only the sensor is being replaced, omit steps 4 and 6.
4. Install the mounting hardware according to the instructions provided with the Universal Mounting Kit. Refer to either Figure 1: “Typical Dispenser Pan Sensor Installation” or Figure 2: “Typical Dispenser Pan Sensor Installation in a Dispenser Containment Sump” (whichever most resembles your installation). These examples apply to all Solid-State Discriminating Dispenser Pan, Discriminating Dispenser Pan, and Solid-State Dispenser Pan Sensors.

Do not attach sensor to flexible product hose!

5. Slide the sensor into the mounting bracket and secure in a vertical position.
6. Install the Cord Grip supplied with the wiring kit in the junction box.
7. Feed the cable through the cord grip on the junction box. Tighten the cord grip nut to ensure a watertight seal at the cable entry.

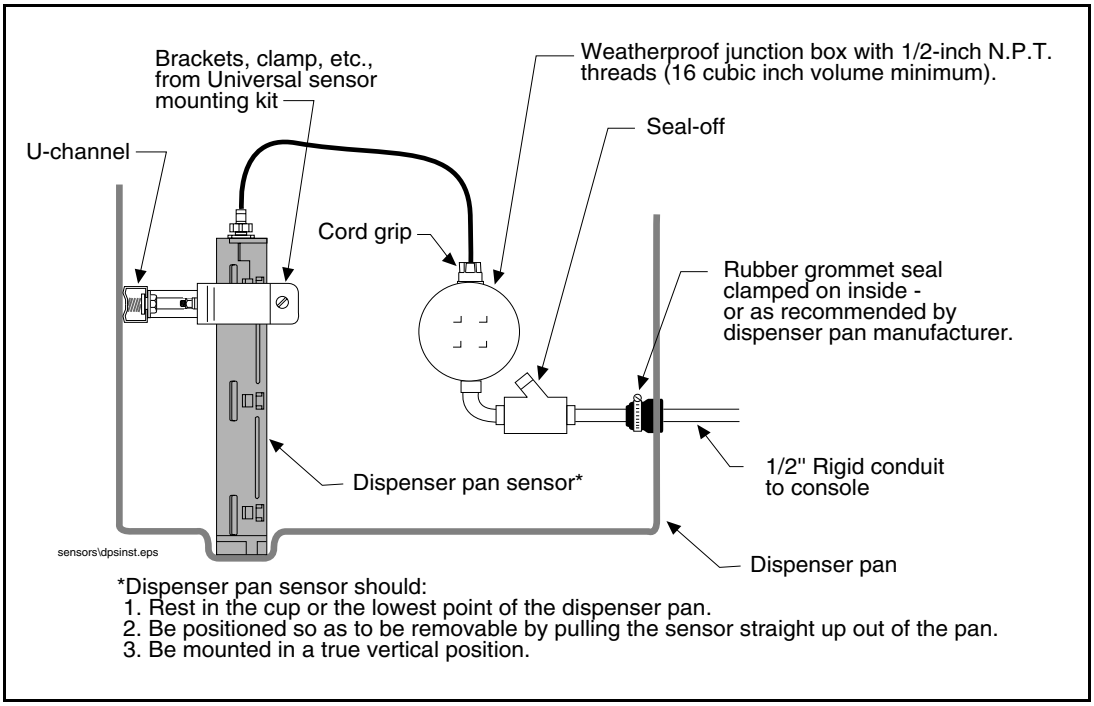


Figure 1. Typical Dispenser Pan Sensor Installation

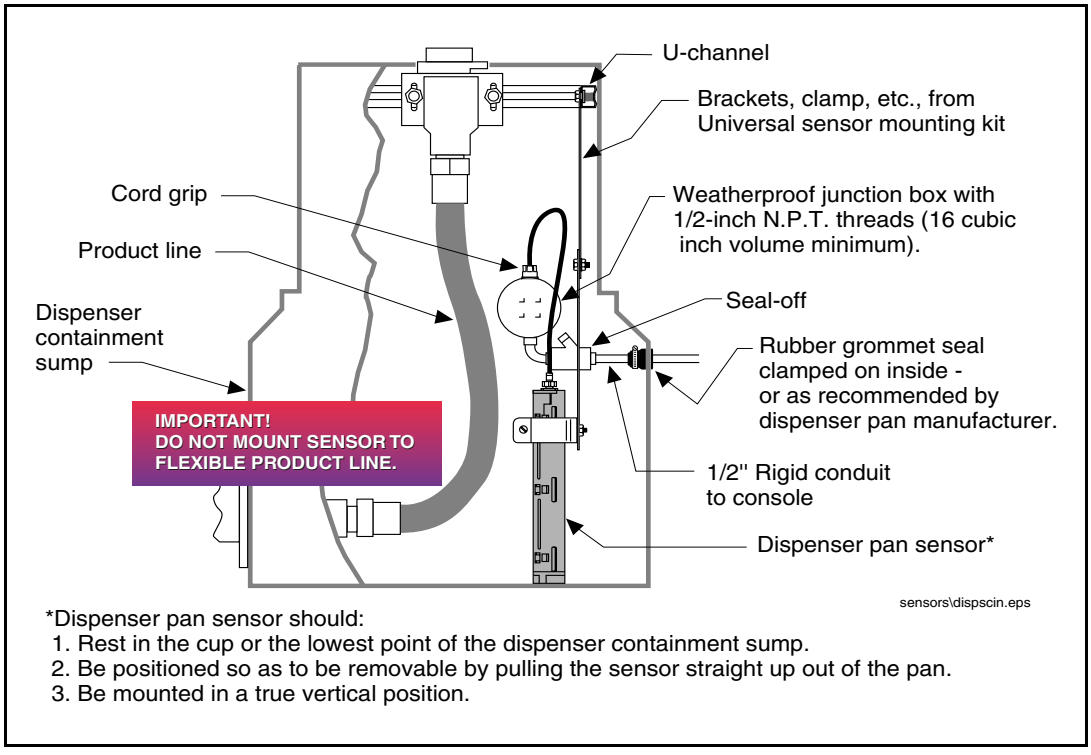


Figure 2. Typical Dispenser Pan Sensor Installation in a Dispenser Containment Sump

8. See subsections below, as each type of sensor has different wiring requirements. In the wiring examples below, rigid conduit is shown between the junction box and the console. However, some sites use direct burial cable between the junction box and the console.

   a. Solid-State Discriminating Dispenser Pan Sensor (Part No. 794380-320): Using wire nuts, connect the three-wire cable to the field wires in the sensor junction box (Refer to Figure 3). Be sure to observe color codes to maintain proper polarity hookup with the Type B Interface Module in the TLS-350 or TLS-350R Console or to the USM Module in the TLS-4XX Console.

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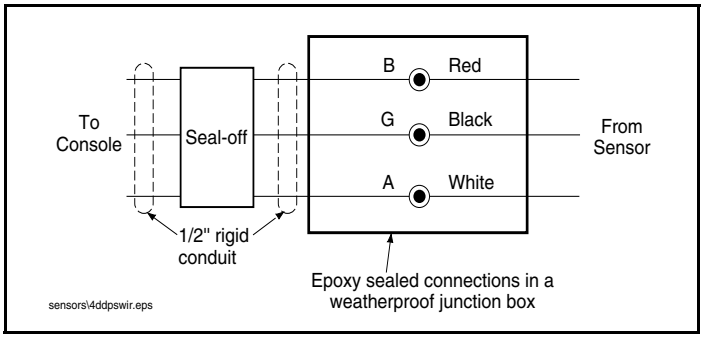


Figure 3. Solid-State Discriminating Dispenser Pan Sensor Wiring Diagram

   b. Discriminating Dispenser Pan Sensor (Part No. 794380-322): Using wire nuts, connect the two-wire cable to the field wires in the sensor junction box. Field wires connect to the Interstitial Interface Module in the TLS-350 or TLS-350R Console, the USM Module in the TLS-4XX console, or to the appropriate sensor terminals in the TLS-300 Console. (Refer to Figure 4 on page 6.)

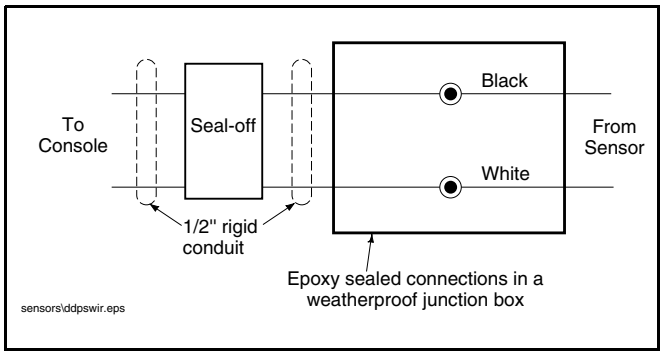


Figure 4. Discriminating Dispenser Pan Sensor Wiring Diagram

   c. Solid-State Dispenser Pan Sensor (Part No. 794380-321): Using wire nuts, connect the two-wire cable to the field wires in the sensor junction box (See Figure 5 on page 7). Be sure to observe color codes to maintain proper polarity hookup with the Type A Interface Module (Part No. 847490-105) in the TLS-350 or TLS-350R Console, or with the USM Module in the TLS-4XX Console.

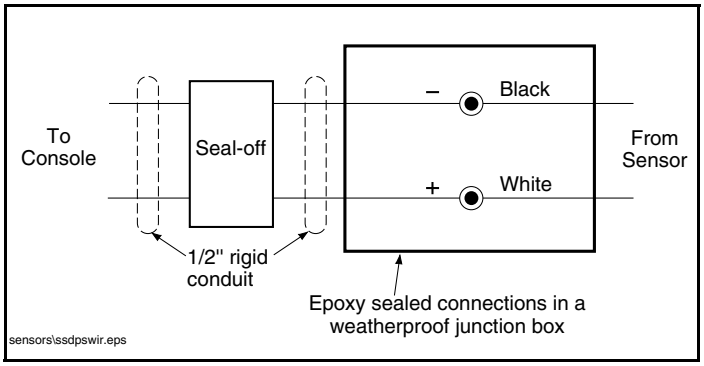
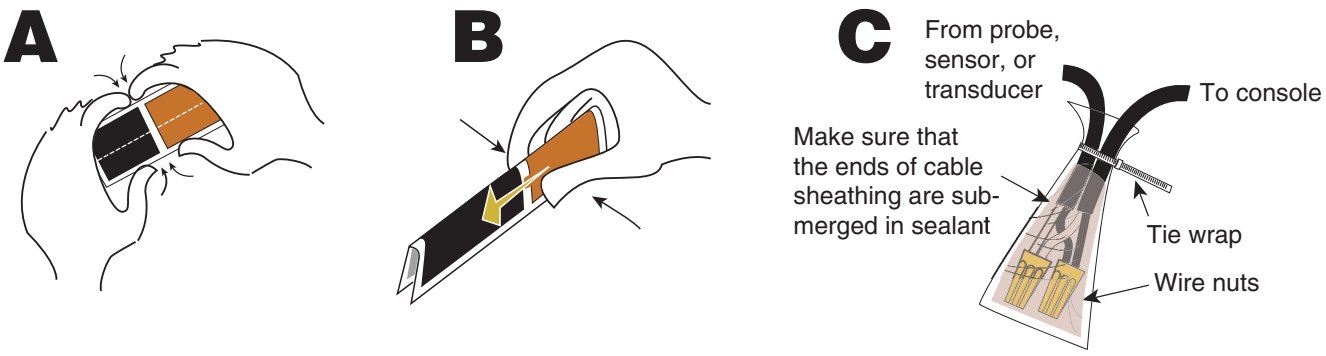


Figure 5. Solid-State Dispenser Pan Sensor Wiring Installation Diagram

9. Seal wire nuts with epoxy sealant using one bag for two wire nut connection or three wire nut connection (Figure 6).



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 pack 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.

consoles\epxy2w.eps

Figure 6. Epoxy Seal Field Wiring Connections

Installing the Containment Sump Sensor

This section describes the hardware, requirements, and procedures for installing the Solid-State Discriminating Containment Sump, Discriminating Containment Sump, and Solid-State Containment Sump Sensors.

Installation Hardware

All Discriminating Containment Sump Sensors come with the following installation hardware:

- One 12-Foot Long Cable (including connector)

  If a longer cable is required, you may order a 20 foot long cable (for either 2-wire or 3-wire sensors) separately. For 2-wire sensors, order Part No. 331102-001; for 3-wire sensors, order Part No. 331103-001.
- 1 Wiring Kit
- 1 Installation Instructions
- Mounting brackets are required and must be ordered separately. Use of Veeder-Root Universal Mounting Kit (Part No. 330020-012) is recommended.

Table 2. Containment Sump Installation Hardware Part Numbers

Sensor	Cable Part No.	Wiring Kit Part No.
Solid-State Discriminating Containment Sump	331103-002	330020-011
Discriminating Containment Sump	331102-002	330020-011
Solid-State Containment Sump	331102-002	330020-011

Installation Requirements

Before you install each Containment Sump Sensor, consider the following important requirements:

1. The sensor should rest in the cup or lowest point of the containment sump.
2. It is recommended that the sensor be mounted in a true vertical position to ensure proper operation of the sensor.
3. The sensor must be positioned as close to the containment sump outer wall as possible.

Installation Procedures

⚠ WARNING

This device is installed in equipment where potentially lethal voltages may exist.

Electrical shock resulting in serious injury or death may result if power is on during installation and the device is improperly installed.

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

Installing the float in a sump where water or fuel already exists will result in an immediate alarm. Make sure no liquid is present in the containment sump. Failure to comply can result in equipment damage or undetected potential environmental and health hazards.

1. Turn OFF power to the TLS Console.
2. Make sure no liquid exists in the containment sump.

   If this is an existing installation where mounting hardware is already in place and only the Containment Sump Sensor is being replaced, omit Step 3.
3. Install the mounting hardware according to the instructions provided with the Universal Mounting Kit (see Figure 7).

Do not attach sensor to flexible product line.

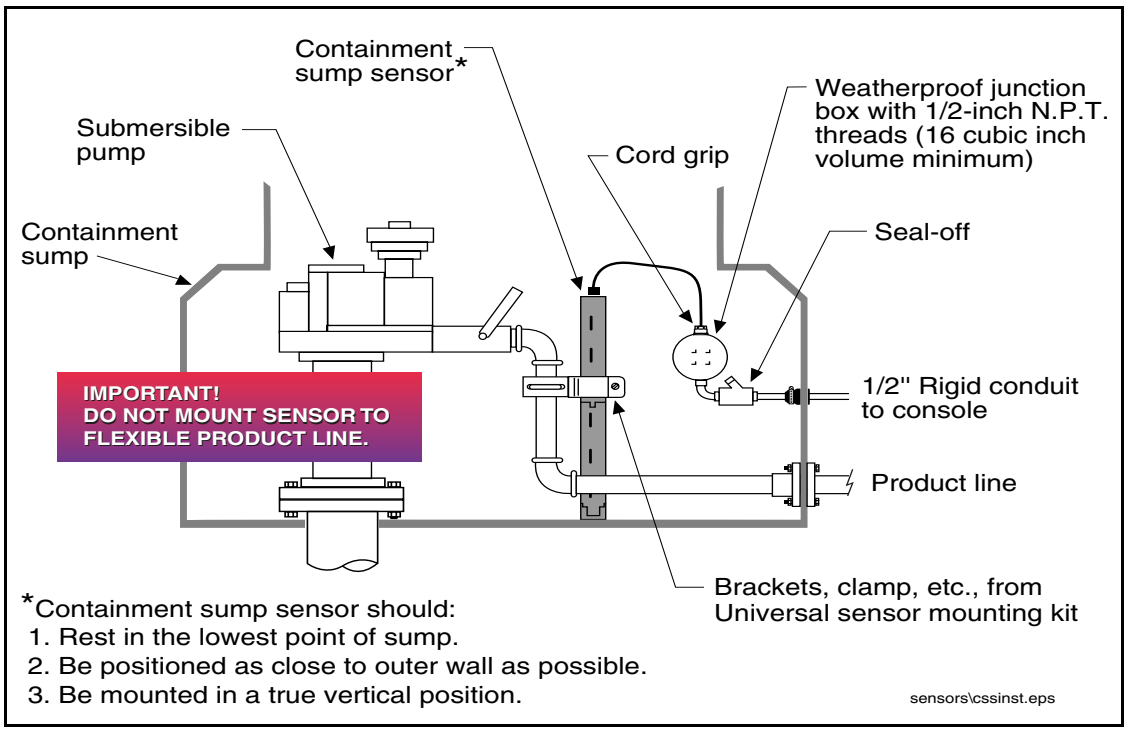


Figure 7. Typical Containment Sump Sensor Installation

4. Slide the sensor into the mounting bracket and secure in a vertical position.
5. Install the Cord Grip supplied with the wiring kit in the junction box.
6. Feed the cable through the cord grip on the junction box.
7. Tighten the cord grip nut to ensure a watertight seal at the cable entry.
8. See subsections below, as each type of sensor has different wiring requirements. Although rigid conduit is shown between the junction box and console in the following wiring examples, some sites may use direct burial cable between the junction box and the console.
   a. Solid-State Discriminating Containment Sump Sensor (Part No. 794380-350):
   Using wire nuts, connect the three-wire cable to the field wires in the sensor junction box . (Refer to Figure 3 on page 6). Be sure to observe color codes to maintain proper polarity hookup with the Type B Interface Module in the TLS-350 or TLS-350R Console or to the USM Module in the TLS-4XX Console.
   b. Discriminating Containment Sump Sensor (Part No. 794380-352):
   Using wire nuts, connect the two-wire cable to the field wires in the sensor junction box (Refer to Figure 4 on page 6). Field wires must connect to the Interstitial Interface Module in the TLS-350 or TLS-350R Console, the USM Module in the TLS-4XX Console, or to the appropriate sensor terminals in the TLS-300.
   c. Solid-State Containment Sump Sensor (Part No. 794380-351):
   Using wire nuts, connect the two-wire cable to the field wires in the sensor junction box (Refer to Figure 5 on page 7). Be sure to observe color codes to maintain proper polarity hookup with the Type A Interface Module in the TLS-350 or TLS-350R Console or to the USM Module in the TLS-4XX Console.
9. Seal wire nuts with epoxy sealant using one bag for two wire nut connection or three wire nut connection (Refer to Figure 6 on page 7).

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www.veeder.com