

Dispenser Pan Sensors & Containment Sump Sensors

Installation Guide

Notice

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Contact TLS Systems Technical Support for additional troubleshooting information at 800-323-1799.

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 must be notified of any damages and/or shortages within 30 days of receipt of the shipment, as stated in our Terms and Conditions.

VEEDER-ROOT'S PREFERRED CARRIER

1. Contact Veeder-Root 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 Veeder-Root Customer Service at 800-234-5350.
3. Veeder-Root 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, Veeder-Root will allow a Return to Stock without a restocking fee.
4. Veeder-Root 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" pages in the "Policies and Literature" section of the Veeder-Root **North American Environmental Products** price list. Veeder-Root will not accept any return product without a Return Goods Authorization (RGA) number clearly printed on the outside of the package.

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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 794380-321)
- 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 794380-351)

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.

Contractor Certification Requirements

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

Service Technician Certification (Previously known as Level 2/3): Contractors holding valid Technician Certifications are approved to perform installation checkout, startup, programming and operations training, system tests, troubleshooting and servicing for all Veeder-Root Series Tank Monitoring Systems, including Line Leak Detection. This certification includes TLS-3xx and TLS4xx certification training.

In-Station Diagnostics (ISD-PMC) Technician Certification: ISD PMC Contractors holding a valid ISD/PMC Certification are approved to perform (ISD/PMC) installation checkout, startup, programming, and operations training. This training also includes troubleshooting and service techniques for the Veeder-Root In-Station Diagnostics system. A current Veeder-Root Technician Certification is a prerequisite for the ISD/PMC course.

All service personal on site must comply with all recommended safety practices identified by OSHA and your employer.

Review and comply with all the safety warnings in the manuals listed in this document above and any other Federal, State or Local requirements.

Warranty Registrations may only be submitted by selected Distributors.

Product Marking Information

RELATED DOCUMENTS

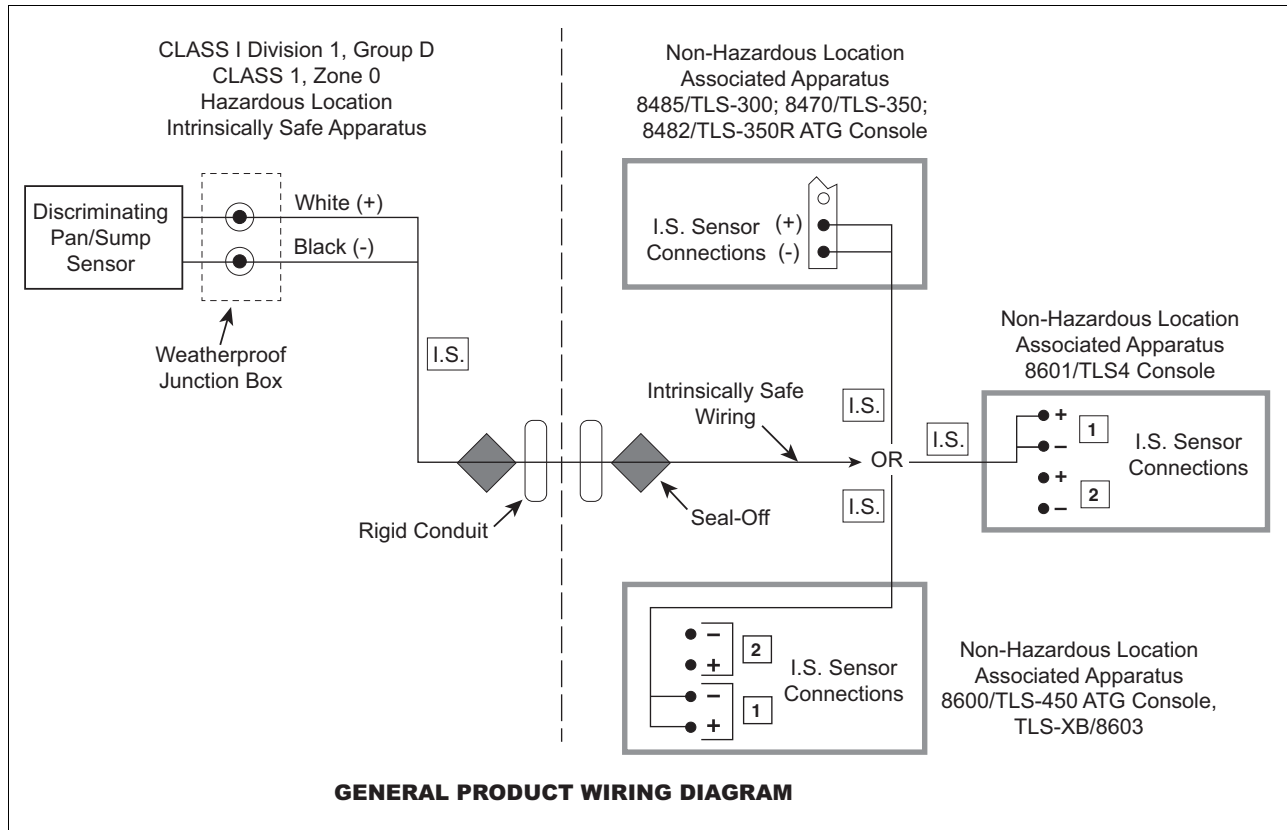
Documents Required to Install Equipment

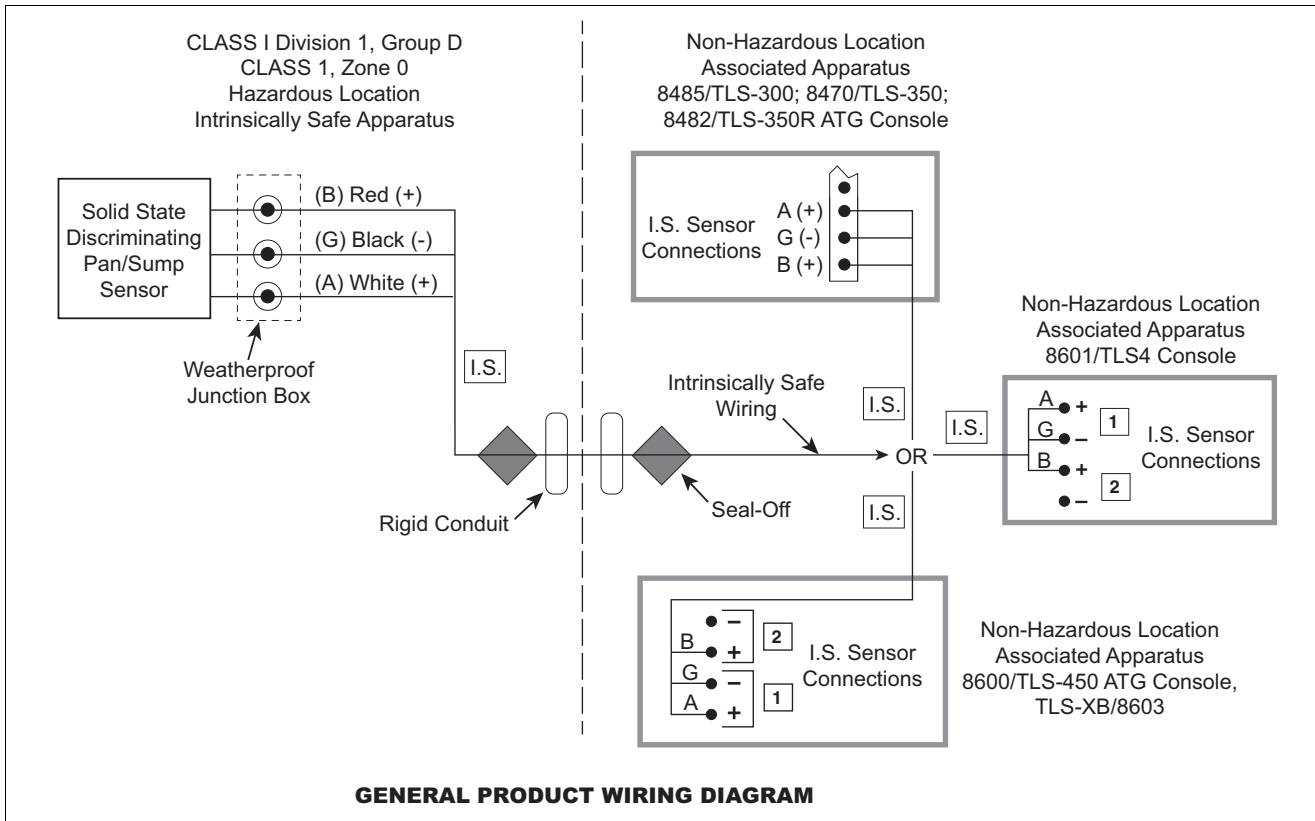
This intrinsically safe apparatus is only for use as part of a Veeder-Root Automatic Tank Gauging System (ATG Console with probes and sensors). To install intrinsically safe apparatus, use the specific control drawing that appears on the nameplate of the applicable associated apparatus (ATG Console):

| Equipment | UL/cUL Control Drawing Document No. |
|----------------------|-------------------------------------|
| Associated Apparatus | |



| Equipment | UL/cUL Control Drawing Document No. |
|-------------------|-------------------------------------|
| TLS-450/8600 | 331940-008 |
| TLS-350, TLS-350R | 331940-011 |
| TLS-300 | 331940-013 |
| TLS4/8601 | 331940-018 |

The control drawings contain information related to the correct installation of the overall intrinsically Safe System. This includes information such as maximum number of apparatus, specific apparatus allowed in the system, maximum cable lengths, references to codes, proper grounding and so on. Control drawings can be found on the Internet at <https://www.veeder.com/us/technical-document-library>.









Product Label Contents

| | | |
|--|---|--|
|  VEEDER-ROOT <small>TM</small> CL I, DIV. 1, GP.D CL I, ZONE 0 AEx ia IIA Ex ia IIA TC=T4 SECURITE INTRINSEQUE | I.S. CIRCUIT FOR HAZLOC SENSOR F/N 794380-XXX S/N XXXXXX -40°C ≤ Ta ≤ +60°C MANUAL NO. 576013-306 | 2466  LISTED |
|--|---|--|


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. |

| | |
|--|--|
|  <p>WARNING Heed the adjacent instructions to avoid equipment damage or personal injury.</p> |  <p>GLOVES Wear gloves to protect hands from irritation or injury.</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>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>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> |

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>FAILURE TO COMPLY WITH THE FOLLOWING WARNINGS AND SAFETY PRECAUTIONS COULD CAUSE DAMAGE TO PROPERTY, ENVIRONMENT, RESULTING IN SERIOUS INJURY OR DEATH.</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. To protect yourself and others from being struck by vehicles, block off your work area during installation or service. 4. Do not alter or modify any component or substitute components in this kit. 5. Warning! Substitution of components may impair intrinsic safety. 6. Field wiring to the Sensor must not share a conduit with any non-intrinsically safe device's wiring. 7. Warning! To prevent ignition of flammable or combustible atmospheres, disconnect power before servicing. 8. Before installing or taking the unit into a hazardous area, earth the unit in a safe area to remove any static charge. Then immediately transport the unit to the installation site. Do not rub or clean the unit prior to installation. Cleaning is not required under normal service conditions. Do not rub or clean the unit after installation. If the unit is not fixed to a known earth point when installed, ensure that a separate earth connection is made to prevent the potential of a static discharge. When fitting or removing the unit, use of anti-static footwear or clothing is required. 9. Materials used in the construction of this device do not contain, by mass, more than 10% in total of aluminum, magnesium, zirconium and titanium or 7.5% in total of magnesium, titanium and zirconium. |
|--|--|

NOTE Failure to install this product in accordance with its instructions and warnings will result in voiding of all warranties 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). 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 | |
|--|--|
|   | <p>This device is installed in equipment where potentially lethal voltages may exist.</p> <p>Electrical shock resulting in serious injury or death may result if power is on during installation and the device is improperly installed.</p> <p>Before installing this device, turn off power to the system.</p> |



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.

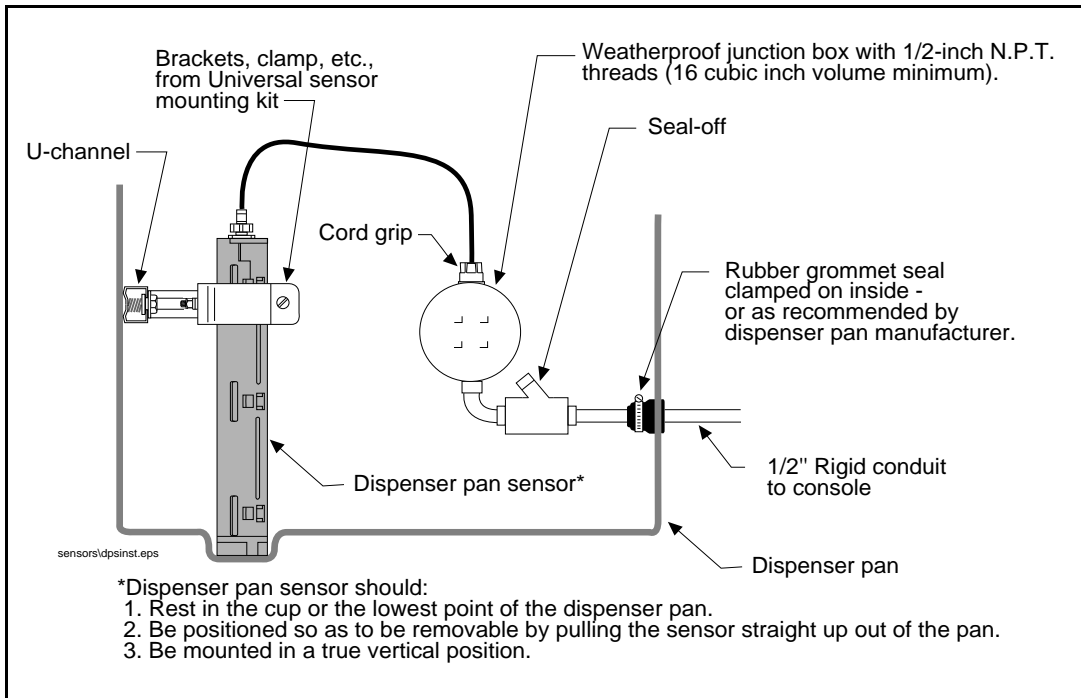


Figure 1. Typical Dispenser Pan Sensor Installation

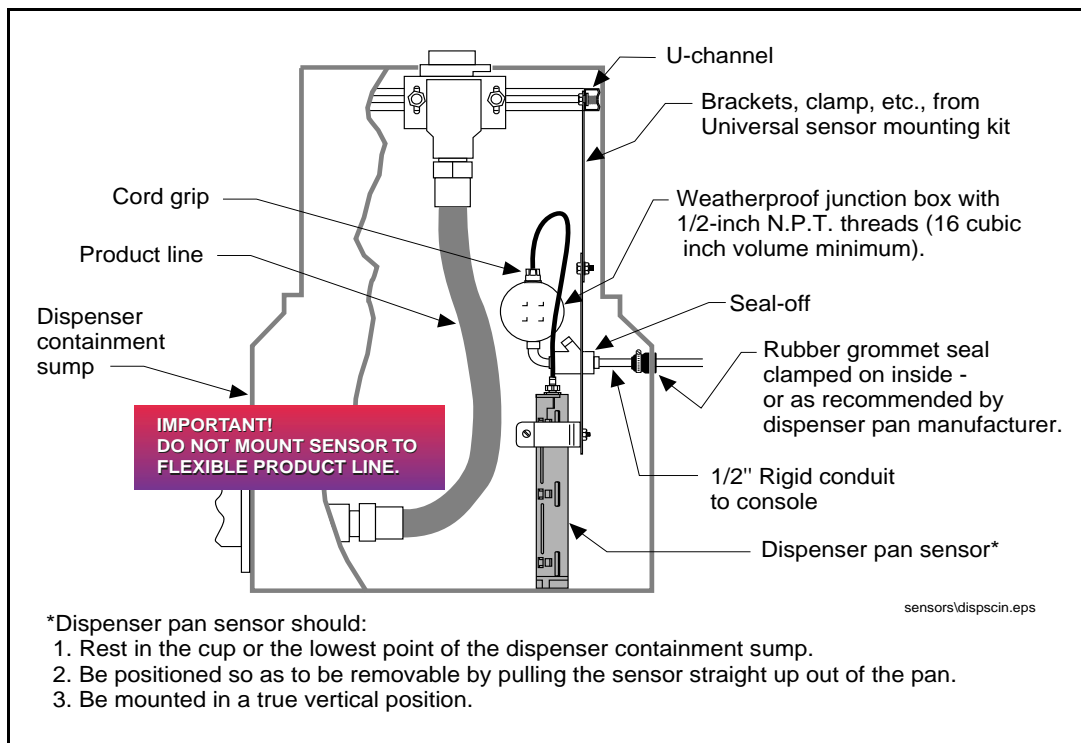
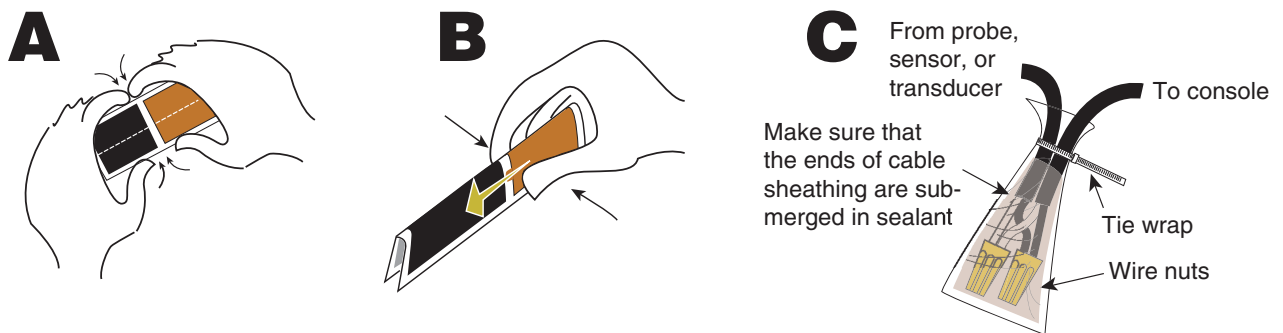


Figure 2. Typical Dispenser Pan Sensor Installation in a Dispenser Containment Sump

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 the wiring nuts, connect the 3 wires from the sensor cable to the field wires from the console (see General Product Wiring Diagram on page 3). Observe polarity!
 - b. Discriminating Dispenser Pan Sensor (Part No. 794380-322) and Solid-State Dispenser Pan Sensor (Part No. 794380-321): Using the wiring nuts, connect the 2 wires from the sensor cable to the field wires from the console (see General Product Wiring Diagram on page 2). Observe polarity!
9. Seal wire nuts with epoxy sealant using one bag for two wire nut connection or three wire nut connection (Figure 3).




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.



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.

consolesepxy2w.eps

Figure 3. Epoxy Sealing Field Wiring Connections - Two Wire Shown

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

⚠ 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 4).



Do not attach sensor to flexible product line.

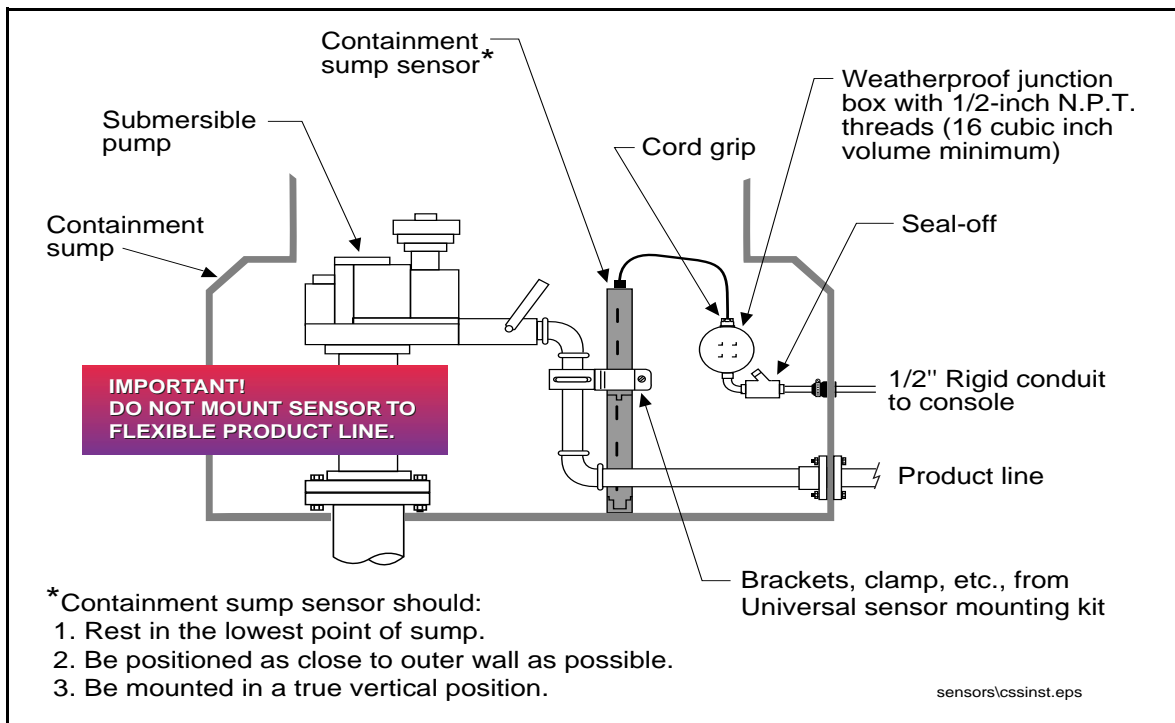


Figure 4. Typical Containment Sump Sensor Installation

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 the wiring nuts, connect the 3 wires from the sensor cable to the field wires from the console (see General Product Wiring Diagram on page 3). Observe polarity!
 - b. Discriminating Containment Sump Sensor (Part No. 794380-352), Solid-State Containment Sump Sensor (Part No. 794380-351):
Using the wiring nuts, connect the 2 wires from the sensor cable to the field wires from the console (see General Product Wiring Diagram on page 2). Observe polarity!
9. Seal wire nuts with epoxy sealant using one bag for two wire nut connection or three wire nut connection (Refer to Figure 3).

Appendix A: CCC Certification

本产品经认证符合 CNCA-C23-01: 2019《强制性产品认证实施规则 防爆电气》的要求。

The product(s) is verified and certified according to CNCA-C23-01: 2019 China Compulsory Certification Implementation Rule on Explosion Protected Electrical Product.



| # | 产品名称 Product 型号 Type | 防爆标志 Ex Marking | 3C 证书编号 CCC Certificate No. |
|---|---------------------------|--------------------|--------------------------------|
| 1 | 识别型人井传感器 79436X-350 | Ex ia IIA T4 Ga | CCC: 2021312315000467 |
| 2 | 加油机底盘传感器 79436X-320 | Ex ia IIA T4 Ga | CCC: 2021312315000468 |
| 3 | 识别型人井/底盆传感器 7943XX-3X2 | Ex ia IIA T4 Ga | CCC: 2021312315000430 |

依据标准

GB/T 3836.1-2021, GB/T 3836.4-2021

Series standards

安全使用条件

Specific conditions of safety use:

- 使用环境温度: $-40^{\circ}\text{C} \leq \text{Ta} \leq +60^{\circ}\text{C}$ 。
- 本产品必须作为维德路特公司液位控制器的本质安全系统的一部分进行安装。安装过程中必须遵守相应本质安全系统的描述性系统文件。
- 在安装或进入危险区域之前, 须将本产品在安全区域接地以消除静

- This device must be installed as part of the intrinsic safety system of Veeder-Root Company. The descriptive system documents included with the aforementioned certificate must be followed during installation.

- Before installing or taking into a hazardous area, earth the unit in a Safe Area to remove any static charge. Then immediately transport the unit to the installation site; do not rub or clean the device after installation. If the unit is not fixed to a known earth point when installed, ensure that a separate earth connection is made to prevent the potential of static discharge. When fitting or removing unit, use of anti-static footwear & clothing is required.



For technical support, sales or
other assistance, please visit:
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