

# **Installation Manual**

## **Stand-Alone Dispenser Pan Sensor with Dispenser Control Interface**

**Manual Number 576013-845, Revision C**

Non-Discriminating Stand-Alone Dispenser Pan Sensor  
with Dispenser Control Interface  
Part Nos. 847990-001, 847970-001

Discriminating Stand-Alone Dispenser Pan Sensor  
with Dispenser Control Interface  
Part Nos. 847990-002, 847970-002

# Notice

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# Introduction

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

For applications which require UL listing:

- ☐ Veeder-Root Non-Discriminating Stand-Alone Dispenser Pan Sensor with Dispenser Control Interface  
Part No. 847990-001 (Float-Switch Type)
- ☐ Veeder-Root Discriminating Stand-Alone Dispenser Pan Sensor with Dispenser Control Interface  
Part No. 847990-002 (Differentiating type)

For applications which require cUL listing:

- ☐ Veeder-Root Non-Discriminating Stand-Alone Dispenser Pan Sensor with Dispenser Control Interface  
Part No. 847970-001 (Float-Switch Type)
- ☐ Veeder-Root Discriminating Stand-Alone Dispenser Pan Sensor with Dispenser Control Interface  
Part No. 847970-002 (Differentiating Type)

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

## Damage Claims

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1. Thoroughly examine all components and units as soon as received. If damaged, write a complete and detailed description of the damage on the face of the freight bill. The carrier's agent *must* verify the inspection and sign the description.
2. Immediately notify the delivering carrier of damage or loss. This notification may be given either in person or by telephone. Written confirmation must be mailed within 48 hours. Railroads and motor carriers are reluctant to make adjustments for damaged merchandise unless inspected and reported promptly.
3. Risk of loss, or damage to merchandise remains with the buyer. It is the buyer's responsibility to file a claim with the carrier involved.
4. Immediately advise your Veeder-Root representative, distributor, or the factory so that we may assist you.

## Return Shipping

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All product returns, including warranty replacements, repairs, and core credits, must be returned on an RGA (Returned Goods Authorization) for proper processing. To return a product under this procedure:

1. Call Customer Service at (800) 873-3313 to obtain an RGA number.
2. Clearly print the RGA number on the packages being returned. No package can be received without this number.
3. All shipments of Veeder-Root products must be prepaid.
4. If the system is damaged, return it in the original shipping container with shock absorbing material provided. Veeder-Root will accept no liability for damage caused by improper packing.
5. Address the shipment to Veeder-Root Co., 6th Avenue at Burns Crossing, Altoona, Pennsylvania 16602.
6. All warranty returns must also include a legible WSR (warranty service report). Problem description and corrective action must be filled out in detail.

## 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. Always turn power off to the device and associated accessories when servicing the unit.



### Wear Eye Protection

Fuel spray from residual pressure in the lines can cause serious eye injuries. Always wear eye protection.



### Injury


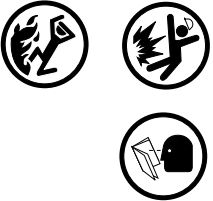
Careless or improper handling of materials can result in bodily injury.




### Gloves

Wear gloves to protect hands from irritation or injury.

## Warnings and Important Notes

 <b>WARNING</b>	
	<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"><li>1. Read and follow all instructions in this manual, including all safety warnings.</li><li>2. Comply with all applicable codes including: the National Electrical Code; federal, state, and local codes; and other applicable safety codes.</li><li>3. Do not alter or modify any component or substitute components in this kit.</li><li>4. Do not use this component for other systems aside from the TLS Console. Install only as described in this manual.</li></ol>

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

*To help ensure proper installation and unit performance, we recommend that a Veeder-Root Authorized Service Contractor install this equipment.*





# Installing the Dispenser Pan Sensor

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This section describes the hardware, requirements, wiring guidelines, and procedures for installing the Dispenser Pan Sensor with Dispenser Control Interface.

## Installation Hardware

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The Stand-Alone Dispenser Pan Sensor with Dispenser Control Interface comes with the following installation hardware:

For applications which require UL listing:


- ☐ Veeder-Root Non-Discriminating Stand-Alone Dispenser Pan Sensor with Dispenser Control Interface  
Part No. 847990-001 (Float-Switch Type)
- ☐ Veeder-Root Discriminating Stand-Alone Dispenser Pan Sensor with Dispenser Control Interface  
Part No. 847990-002 (Differentiating type)

For applications which require cUL listing:

- ☐ Veeder-Root Non-Discriminating Stand-Alone Dispenser Pan Sensor with Dispenser Control Interface  
Part No. 847970-001 (Float-Switch Type)
- ☐ Veeder-Root Discriminating Stand-Alone Dispenser Pan Sensor with Dispenser Control Interface  
Part No. 847970-002 (Differentiating Type)

For both:

- ☐ 1 Wiring Kit (Part No. 330020-024)
- ☐ Installation Instructions

**Important**  *Mounting brackets are required and must be ordered separately. Use of Veeder-Root Universal Mounting Kit (Part No. 330020-012) is recommended.*

## Installation Requirements

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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.

Dispenser Junction Box Requirements

Installing Dispenser Control Interface

- 1. The dispenser junction box must have at least one unused threaded conduit opening, either 1/2", 3/4", or 1" trade size.
- 2. The opening may be anywhere on the junction box, as long as sufficient clearance exists around the opening for installation of the Dispenser Control Interface.





**Important**  *When determining the installation location of the Dispenser Control Interface on the junction box, choose a location in which the Dispenser Control Interface will not interfere in any way with the operation of the dispenser or in maintenance or service access.*


Wiring Dispenser Control Interface to Dispenser

The following requirements must be met before attempting to wire the Dispenser Control Interface to a dispenser.

- 1. Be sure AC power to the dispenser junction box is OFF before attempting to open the junction box and wire the dispenser control interface to the dispenser.

The following applies to **both** installing and wiring the Dispenser Control Interface:

 <b>WARNING</b>	
  	<p><b>Before installing this device, turn OFF power to the system.</b></p> <p><b>Electrical shock resulting in serious injury or death may result if power is on during installation and the device is improperly installed.</b></p> <p><b>High voltages are present in the dispenser junction box. Be sure to turn OFF all power before opening the junction box. More than one disconnect may be required to completely de-energize the box. Failure to comply with this warning may result in personal injury, property loss, and equipment damage.</b></p> <p><b>Do not use any electric tools in the area of the dispenser island. Since the island is considered a Class I, Group D Hazardous Location, failure to comply with this warning could result in an explosion.</b></p>

**Important**  2. The junction box must have sufficient volume to accommodate the extra wiring to be installed, and must comply with the National Electric Code, Article 370-16. The required volume for any dispenser can be calculated using the information in Table I.

**Table 1.** Volume Required per Conductor in Junction Box

Size of Conductor AWG	Free Space Required within Box for Each Conductor (Cubic Inches)
18	1.5
16	1.75
14	2.0
12	2.25
10	2.5
8	3.0
6	5.0

**NOTE:** A conductor passing through the box and each conductor terminating in the box is counted as one conductor. No unplugged openings are permitted.

## Dispenser Control Interface Installation

The wires between the junction box and the dispenser control interface must be of a type designed for use in the presence of gasoline and oil, must be between AWG 14 and AWG 18, rated 300 Volt (minimum), and must be suitable for pulling through conduit (for example THHN or THWN).

1. Be sure AC power to the dispenser junction box is OFF.

### WARNING



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

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

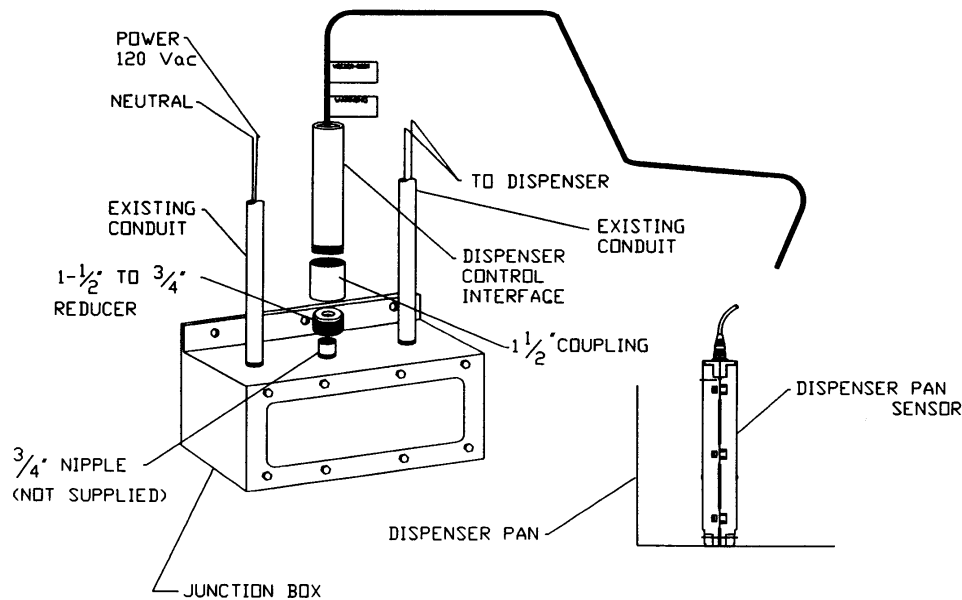
**High voltages are present in the dispenser junction box. Be sure to turn OFF all power before opening the junction box. More than one disconnect may be required to completely de-energize the box. Failure to comply with this warning may result in personal injury, property loss, and equipment damage.**

**Do not use any electric tools in the area of the dispenser island. Since the island is considered a Class I, Group D Hazardous Location, failure to comply with this warning could result in an explosion.**

2. Remove lower-front panels from dispenser to be modified.

**Important** ☞ *It may be necessary to remove both the front and rear panels of the dispenser to gain access to the junction box.*

3. Remove the junction box cover and pipe plug from the appropriate junction box conduit opening. Retain cover and bolts for reassembly.
4. Insert WHITE, BLACK, AND RED wires from the dispenser control interface into the threaded opening in the junction box. Screw the interface into the junction box and tighten. See Figure 1 below. At least 5 full threads must be engaged between each interconnect of the conduit.



**Figure 1.** Typical Dispenser Control Interface Installation

5. For Discriminating Dispenser Pan Sensor with Dispenser Control Interface, Part Nos. 847990-002 and 847970-002, attach the CAUTION Tag to the dispenser pan in a visible area.
6. Any additional parts required to allow the interface to clear the parts adjacent to the junction box conduit opening must be provided by the installer. At least 5 full threads must be engaged between each interconnect of the conduit.

**CAUTION:** Do not use pipe sealant or teflon tape to seal conduit interconnections. Failure to comply can result in explosion hazard.

**Important** ☞ *Check to see that the Intrinsic Safety WARNING Label is still securely attached to the cable. The labels must be attached to the cables at all times. Replace them if they are missing or the wording is not legible. See Figure 2 below; refer to Figure 1 for label location.*

 <b>WARNING</b>	
	To maintain intrinsic safety, route cable in accordance with Article 504 of the National Electrical Code.

<p style="text-align: center;"><b><u>WARNING</u></b></p> <p style="text-align: center;"><b>TO MAINTAIN INTRINSIC SAFETY, DO NOT INSTALL THESE WIRES NEAR WIRING FOR ANY OTHER CIRCUIT</b></p> <p style="text-align: right;">PT. NO.326429-001</p>
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**Figure 2.** Dispenser Control Interface WARNING Label

7. Route and secure protective Dispenser Control Interface cable with plastic wire ties, supplied in the wiring kit. The cable may be tied to the plumbing and structural members of the pump frame. **Cable must not be tied to sharp edges or moving parts.** Any remaining slack may be looped and tied at a convenient point.
8. Use wire nuts or other approved connectors for junction box connections to red, black, and white wires of the Dispenser Control Interface. See Figure 3 on page 10.

## Dispenser Control Interface Wiring

1. Wire Dispenser Control Interface to dispenser according to the appropriate Dispenser Control Interface wiring diagram (Figure 3 on page 10, Figure 4 on page 10, Figure 5 on page 11, Figure 6 on page 12, Figure 7 on page 13, Figure 8 on page 14, or Figure 9 on page 15).

 <b>WARNING</b>	
	Be sure no unplugged openings exist in the junction box. Close or plug any openings before proceeding. Failure to comply with this warning may result in personal injury, property loss, and equipment damage.

2. Place the cover on the junction box and ensure that all cover screws are replaced and tight.
3. Visually check to be sure that the security plugs, Dispenser Control Interface, and all wiring and cables are secure.
4. Restore AC power to the junction box.

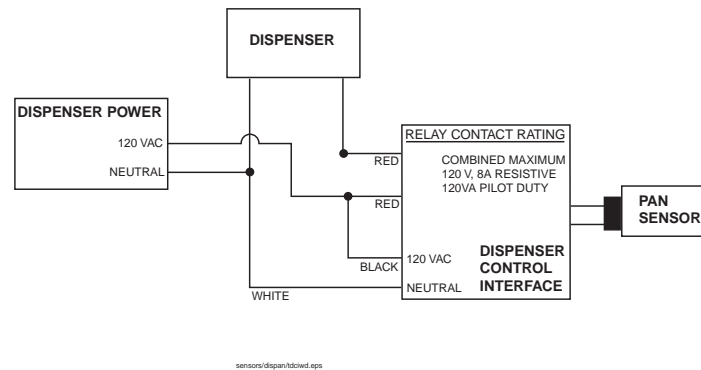


Figure 3. Typical Dispenser Control Interface Wiring Diagram

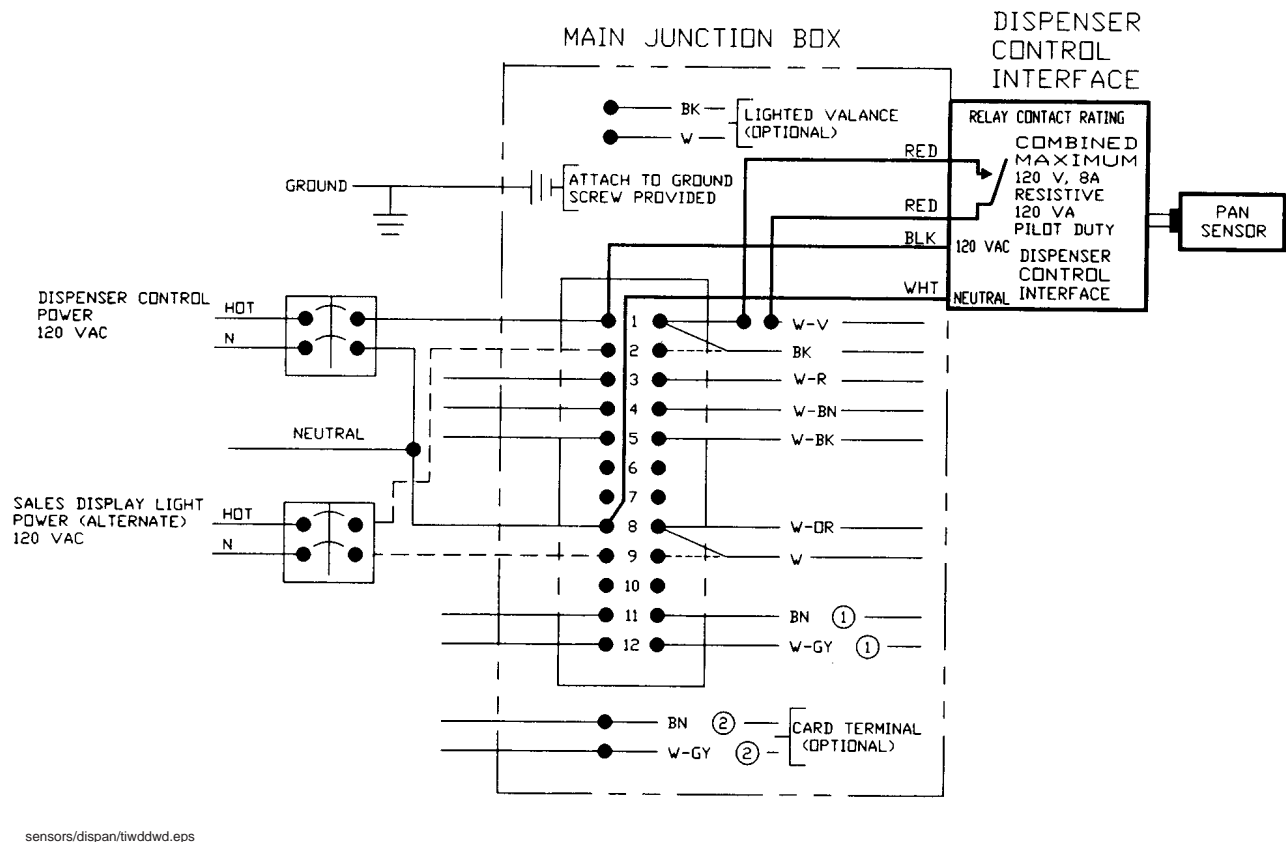
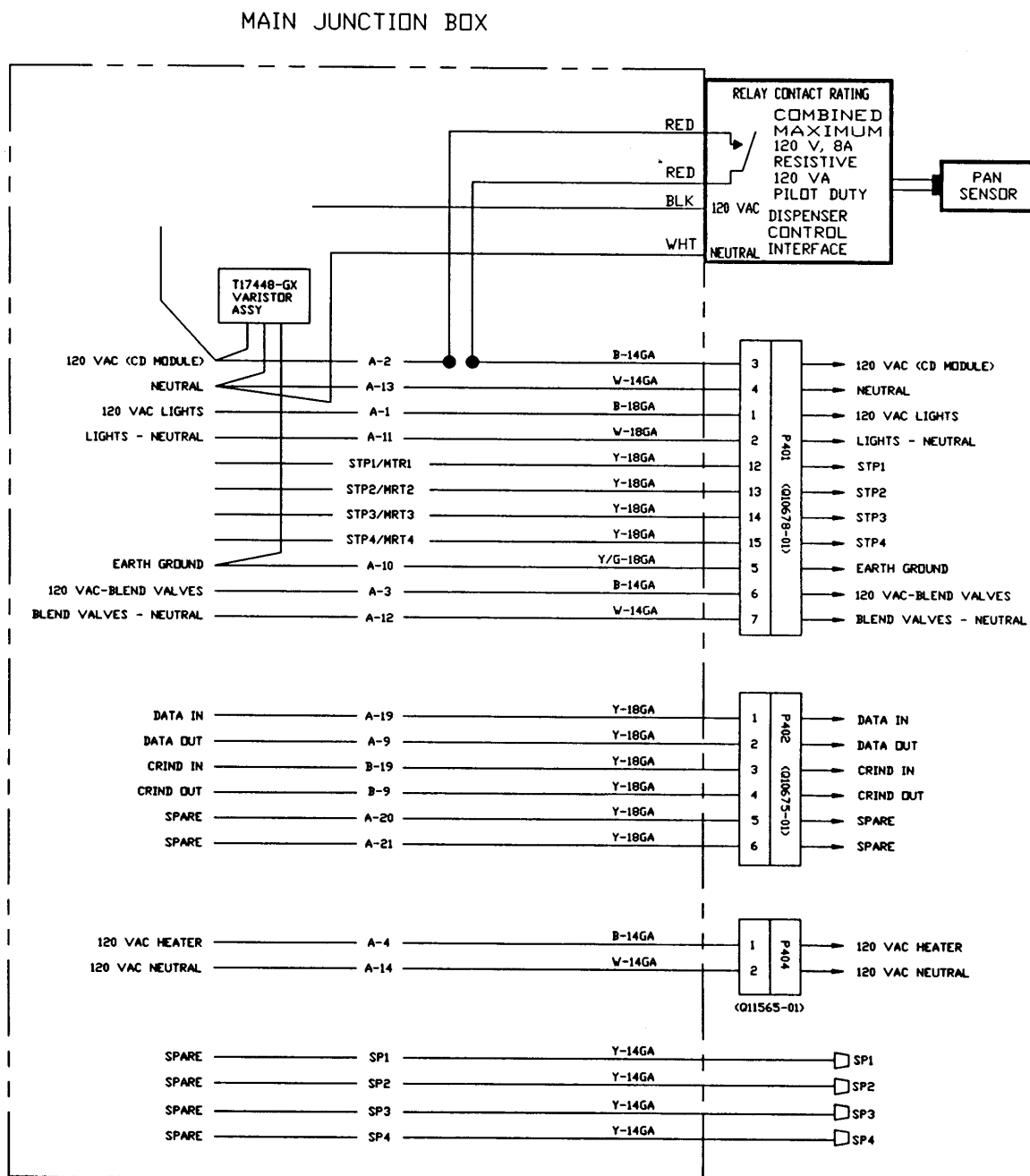
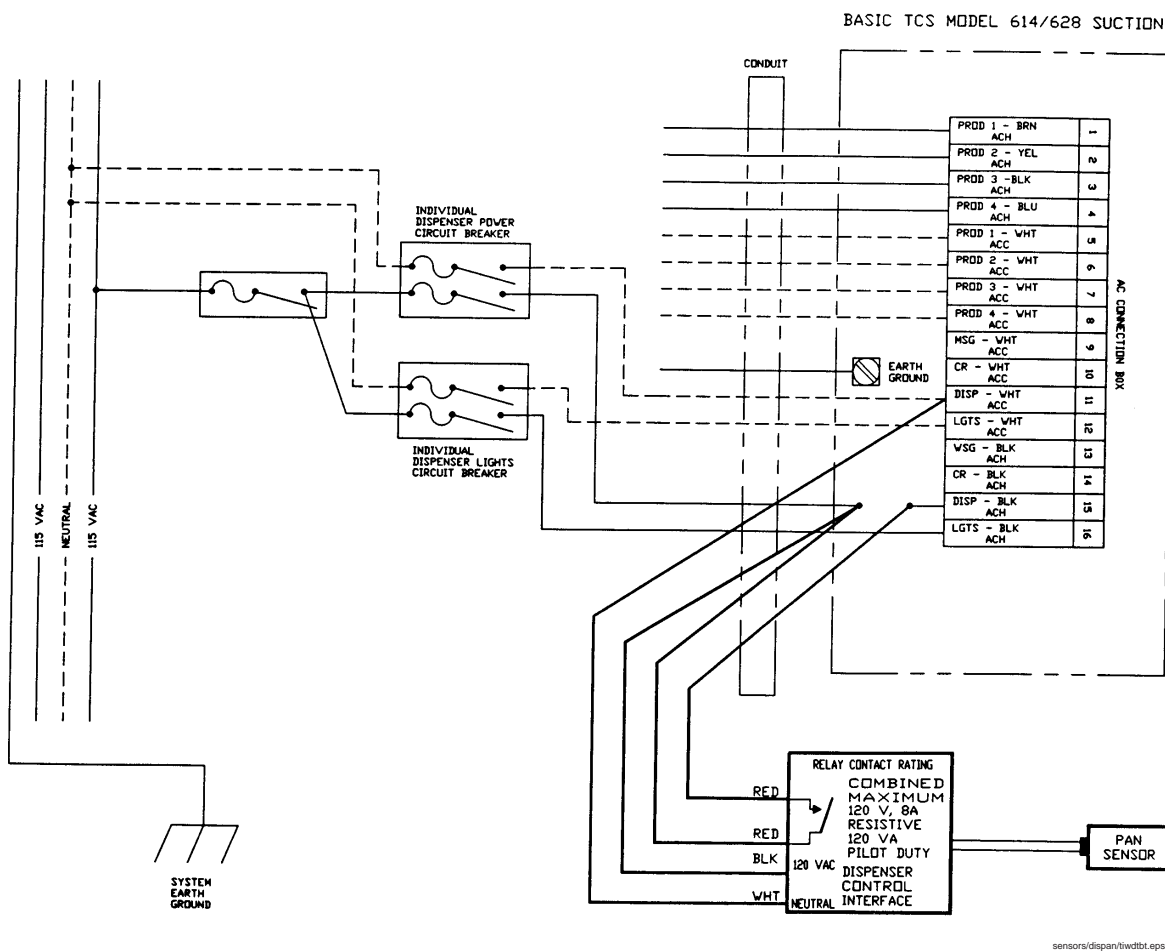


Figure 4. Typical Installation Wiring Diagram for Dispenser Control Interface to a Dresser-Wayne Dispenser (120 VAC)

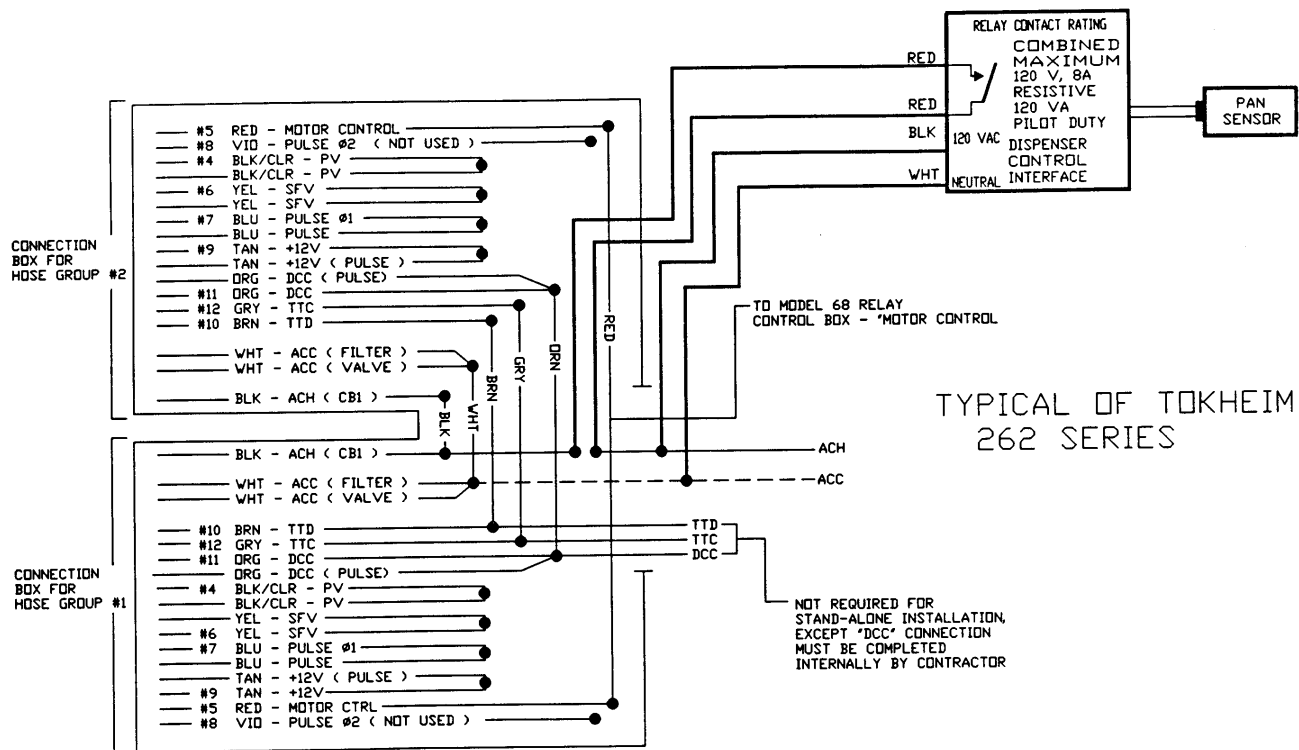


**Figure 5.** Typical Installation Wiring Diagram for Dispenser Control Interface to a Gilbarco Dispenser (120 VAC Models)



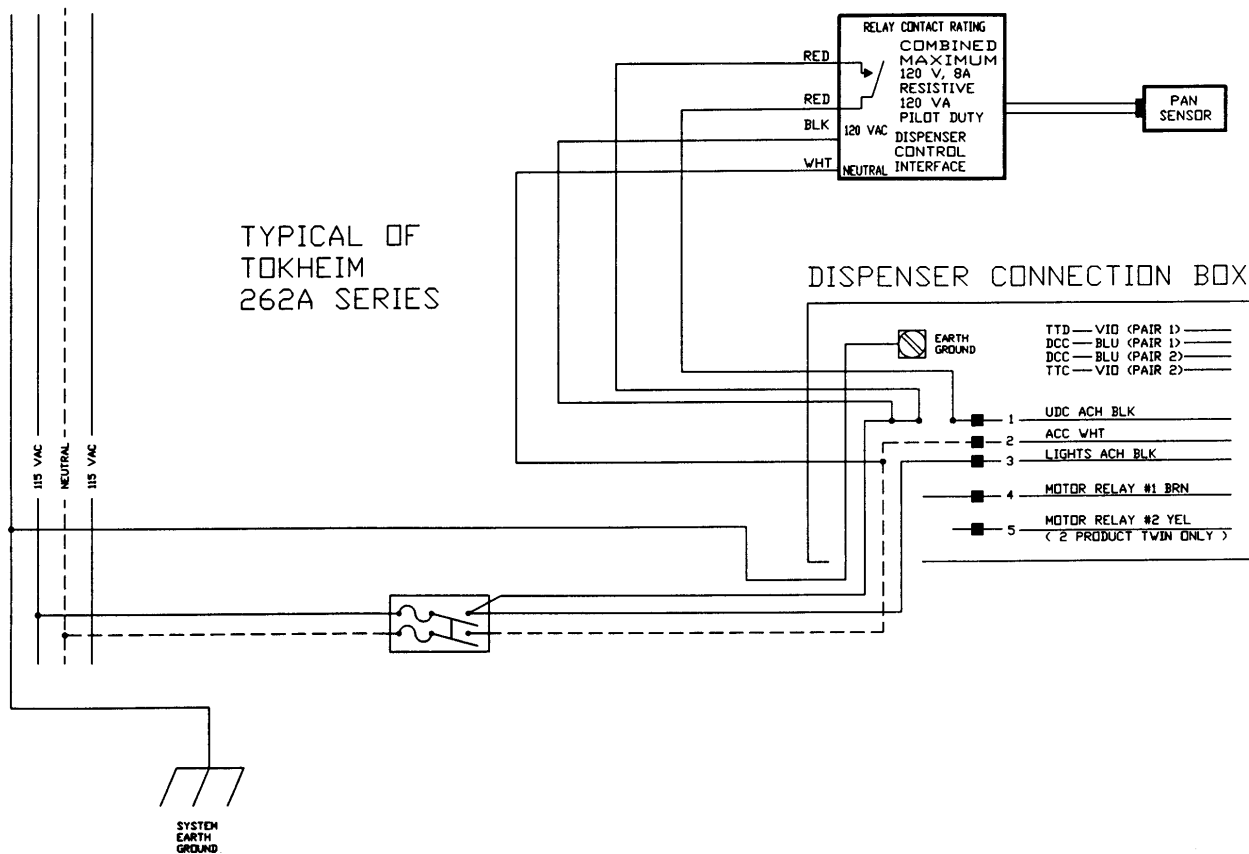
**Figure 6.** Typical Installation Wiring Diagram for Dispenser Control Interface to a Tokheim Basic TCS Model 614/628 Dispenser





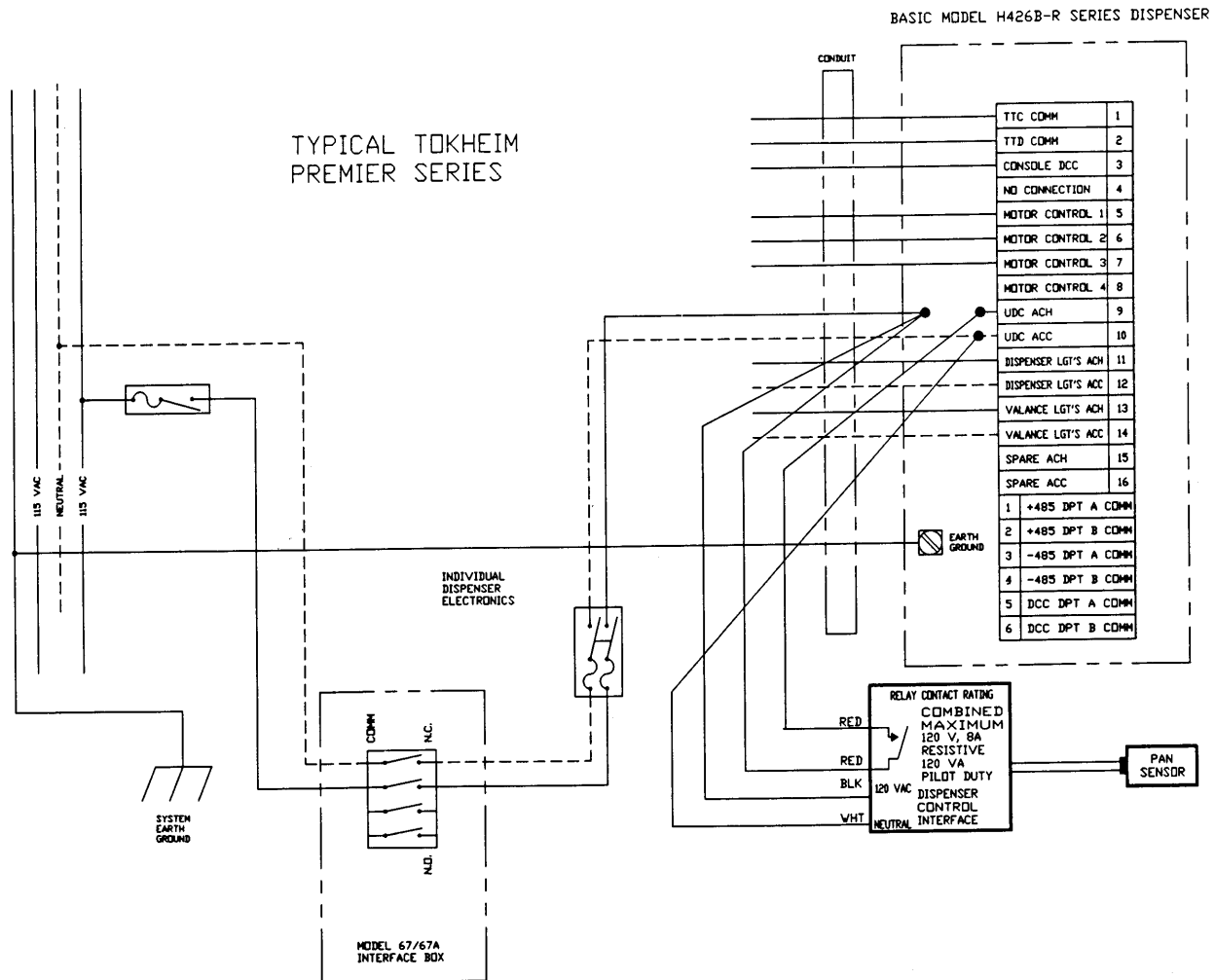
sensors/dispan/twdstd.eps

**Figure 7.** Typical Installation Wiring Diagram for Dispenser Control Interface to a Tokheim 262 Series Dispenser



sensors/dispan/tiwdtad.eps



**Figure 8.** Typical Installation Wiring Diagram for Dispenser Control Interface to a Tokheim 262A Series Dispenser




sensors/dispan/twdtpsd.eps

**Figure 9.** Typical Installation Wiring Diagram for Dispenser Control Interface to a Tokheim Premier Series Dispenser


## Dispenser Pan Sensor Installation

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

To install any of the Dispenser Pan Sensors:

**Important**  *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.*

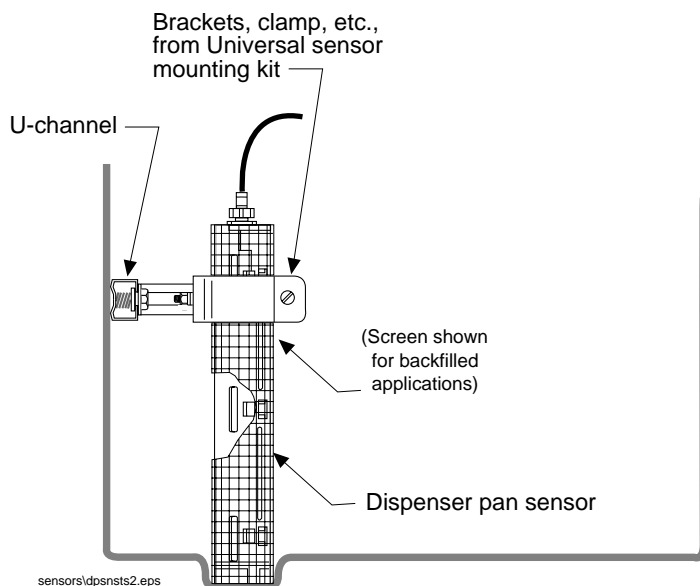
1. Make sure no liquid exists in the dispenser pan.

**Important**  *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.*

2. Choose a location in the dispenser pan following these guidelines to help insure proper operation of the sensor:

- ☐ The sensor should rest in the cup or lowest point of the dispenser pan.
- ☐ The sensor should be mounted in a true vertical position, where it can be pulled straight out for future service or replacement.
- ☐ If installing the sensor into a backfilled pan, it is recommended that a screen tube be used for ease of removal and reinstallation.

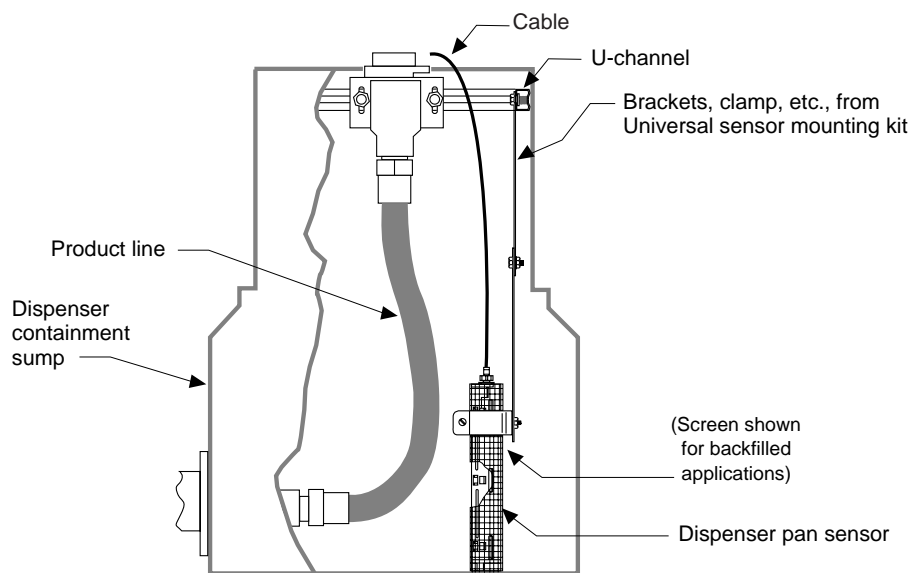
Refer to Figure 10, “Typical Dispenser Pan Sensor Installation,” on page 17, or Figure 11, “Typical Dispenser Pan Sensor Installation in a Dispenser Sump,” on page 17.



\*Dispenser pan sensor should:

1. Rest in the cup or the lowest point of the dispenser pan.
2. Be positioned so as to be removable when pulling the sensor straight up out of the pan.
3. Be mounted in a true vertical position.

**Figure 10.** Typical Dispenser Pan Sensor Installation



\*Dispenser pan sensor should:

1. Rest in the cup or the lowest point of the dispenser containment sump.
2. Be positioned so as to be removable when pulling the sensor straight up out of the pan.
3. Be mounted in a true vertical position.

**Figure 11.** Typical Dispenser Pan Sensor Installation in a Dispenser Sump

3. Install the mounting hardware according to the dispenser pan manufacturer's instructions.

**Important** ☞ *Mounting hardware should be ordered from the dispenser pan manufacturer. Specify that you are installing a Veeder-Root Dispenser Pan Sensor when ordering from the pan manufacturer. An optional Veeder-Root Universal Mounting Kit (No. 330020-012) is available.*

4. Secure the mounting bracket in the dispenser pan and slide the sensor into position.
5. Connect the cable from the Dispenser Control Interface to the sensor and secure the cable nut.

**Important** ☞ *For proper sensor operation, sensor connector and cable interface must be dry and free from any contaminants.*

6. Tighten the cord grip nut to ensure a watertight seal at the cable entry.
7. Restore AC power to the junction box.

## Dispenser Pan Sensor Testing

After sensor installation, test each dispenser pan sensor with dispenser interface installed to be sure it is working properly:

1. To test the sensor, turn the sensor upside-down. The dispenser should be disabled.

**Important** ☞ *If the dispenser is not disabled during the test, review the installation instructions in "Dispenser Control Interface Installation" on page 7. If the sensor does not deactivate after you review the installation, contact your Veeder-Root representative or distributor.*

2. To reactivate the dispenser, turn the dispenser power OFF for at least 15 seconds, then turn it back ON.

**Important** ☞ *Final approval of a field installation of this product into an existing dispenser is under the authority of the local inspector.*

# Warranty Conditions and Limitations of Liability

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## Limitations Of Liability

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We warrant that this product will be free from defects in materials and workmanship for a period of 1 year from the date of installation or 24 months from the date of invoice, whichever occurs first. During the warranty period, we or our representative will repair or replace the product, if determined by us to be defective, at the location where the product is in use and at no charge to the purchaser.

We shall not be responsible for any expenses incurred by the user.

This warranty applies only when the product is installed in accordance with Veeder-Root's specifications, and a Warranty Registration and Checkout Form has been filed with Veeder-Root by an Authorized Veeder-Root Distributor. This warranty will not apply to any product which has been subjected to misuse, negligence or accident; or misapplied; or used in violation of product manuals, instructions or warnings; or modified or repaired by unauthorized persons; or improperly installed.

## Inspection

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You shall inspect the product promptly after receipt and shall notify us at our Simsbury office in writing of any claims, including claims of breach of warranty, within 30 days after you discover or should have discovered the facts upon which the claim is based. Your failure to give written notice of a claim within the time period shall be deemed to be a waiver of such claim.

## Limitation of Remedy and Warranty

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The provisions of "Limitations Of Liability" on page 19 are our sole obligation and exclude all other remedies or warranties, express or implied, including warranties of MERCHANTABILITY and FITNESS FOR A PARTICULAR PURPOSE, whether or not purposes or specifications are described herein. We further disclaim any responsibility whatsoever to you or to any other person for injury to person or damage to or loss of property or value caused by any product which has been subjected to misuse, negligence, or accident; or misapplied; or used in violation of product manuals, instructions or warnings; or modified or repaired by unauthorized persons; or improperly installed.

## **Limitation of Damages**

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Under no circumstances shall we be liable for any incidental, consequential or specific damages, losses or expenses arising from this contract or its performance or in connection with the use of, or inability to use, our product for any purpose whatsoever.

## **Limitation of Actions**

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No action regardless of form arising out of this contract may be commenced more than 1 year after the cause of action has accrued, except an action for nonpayment.

## **Collateral Promises**

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There are no representations, warranties, or conditions, express or implied, statutory or otherwise except those herein contained, and no agreement or waivers collateral hereto shall be binding on either party unless in writing and signed by you and accepted by us at our Simsbury office.

## **Interpretation**

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Rights and liabilities arising out of any contract with us shall be determined under the Uniform Commercial Code as enacted in Connecticut.





## Sales Offices

Veeder-Root has offices around the world to serve you.

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