

# Installation Manual

## **Pressurized Line Leak Interface Module For TLS-350 and TLS-350R Systems**

**Manual Number 576013-498, Revision B**

Pressurized Line Leak Interface Module:

Part No. 330373-001 (with console)

Part No. 847490-109 (without console)

Low Voltage Pressurized Line Leak Interface Module:

Part No. 330843-001 (with console)

Part No. 847490-110 (without console)

# Notice

---

Veeder-Root makes no warranty of any kind with regard to this publication, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose.

Veeder-Root shall not be liable for errors contained herein or for incidental or consequential damages in connection with the furnishing, performance, or use of this publication.

This publication contains proprietary information which is protected by copyright. All rights reserved. No part of this publication may be photocopied, reproduced, or translated to another language without the prior written consent of Veeder-Root.

The information contained in this publication is subject to change without notice.

## FCC Information

---

This equipment complies with the requirements in Part 15 of the FCC rules for a Class A computing device. Operation of this equipment in a residential area may cause unacceptable interference to radio and TV reception requiring the operator to take whatever steps are necessary to correct the interference.

# Contents

---

## Introduction

General .....	1
Damage Claims .....	1
Return Shipping .....	2
Safety Symbols .....	2
Warnings and Important Notes .....	3
National Electrical Code Compliance .....	4
Sensor-to-Console Wiring .....	4
Wire Type for Bonded Metal Conduit .....	4
Wire Type for Non-Bonded Metallic or PVC Conduit .....	4

## Installation

Requirements .....	5
Module/Connector Positions .....	5
Module Position .....	5
Connector Position .....	5
Module Installation .....	6
Line Leak Sensor Wiring Connections .....	9

## Warranty Conditions and Limitations of Liability

Limitations Of Liability .....	11
Inspection .....	11
Limitation of Remedy and Warranty .....	11
Limitation of Damages .....	12
Limitation of Actions .....	12
Collateral Promises .....	12
Interpretation .....	12

## Figures

Figure 1.	CPU Board Battery Switch ON (S2) .....	7
Figure 2.	ECPU Board Battery Switch ON (SW1) .....	8
Figure 3.	Intrinsically Safe Area of TLS Console .....	9
Figure 4.	PLLD Interface Module Wiring Diagram .....	10



---

# Introduction

---

## General

---

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

- ☐ Veeder Root Pressurized Line Leak Interface Module (PLLD):  
Part No. 330373-001 (with console), Part No. 847490-109 (without console).  
Note: the PLLD Module works with all sensors.
- ☐ Veeder Root Low Voltage Pressurized Line Leak Interface Module (LVPLLD):  
Part No. 330843-001 (with console) Part No. 847490-110 (without console).  
Note: the LVPLLD Module works with all sensors, except P/Ns 330376-001 or -002.

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.

If site preparation is necessary, refer to the TLS-350 or TLS-350R "Site Preparation and Installation Instructions" manual, or contact your Veeder-Root representative for assistance.

## Damage Claims

---

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

---

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.


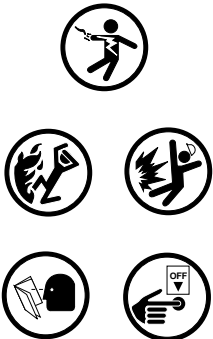
**Gloves**

Wear gloves to protect hands from irritation or injury.

**Read**

Read all instructions and symbol warnings.

## Warnings and Important Notes

 <b>WARNING</b>	
	<p><b>You are working with a device in which potentially lethal voltages may be present.</b></p> <p><b>This product is to be installed in systems operating near locations where highly combustible fuels or vapors may be present.</b></p> <p><b>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.</b></p> <ol style="list-style-type: none"> <li><b>1. Read and follow all instructions in this manual, including all safety warnings.</b></li> <li><b>2. Turn POWER OFF before installing these modules.</b></li> <li><b>3. Comply with all applicable codes including: the National Electrical Code; federal, state, and local codes; and other applicable safety codes.</b></li> <li><b>4. Do not alter or modify any component or substitute components in this kit.</b></li> <li><b>5. Do not use this component for other systems aside from the TLS Console. Install only as described in this manual.</b></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.*

---

## 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).

---

## Sensor-to-Console Wiring

---

### Wire Type for Bonded Metal Conduit

Although shielded cable is preferred in all installations, Veeder-Root allows the use of non-shielded cable when using bonded metal conduit from the sensor junction box to the TLS Console. There is one exception – shielded cable is **REQUIRED** at all sites using variable speed submersible pumps.

**Important** ☞ *The wiring **MUST** be contained in bonded metal conduit the **ENTIRE** way to the console, including wiring located indoors. If non-bonded conduit (such as plastic raceways) are being used, shielded cable is required. Bonded conduit means that the metallic sections of conduit are permanently joined to form an electrically conductive path that will assure electrical continuity, and that the conduit has the capacity to conduct safely, any current likely to be imposed.*

When not using shielded cable, the sensor wiring must conform to Article 501-13 of the NEC (Conductor Insulation, Class I, Divisions 1 and 2), e.g., nylon-jacketed conductor type THWN.

**Important** ☞ *The conductor itself must bear the marking legend designating its use as suitable for gasoline exposure; such designation on the tag alone is not sufficient.*

### Wire Type for Non-Bonded Metallic or PVC Conduit

Veeder-Root requires the use of shielded cable when using non-bonded metallic or PVC conduit in any portion of the wiring between the sensor junction box and the TLS Console. In these installations, shielded cable must be rated less than 100 picofarad per foot and be manufactured with a material suitable for the environment, such as Carol™ C2534 or Belden™ 88760, 8760.



# Installation

---

## Requirements

---

Installing interface modules in a TLS-350 or TLS-350R console is a simple process. However, there are important points to remember:

1. For each module, a corresponding expansion slot with a connector must be available.
2. ALL unused expansion slots **MUST** be covered.

## Module/Connector Positions

---

### Module Position






- ☐ Record on the circuit directory (on the inside front panel) the type of module you are installing in this slot.
- ☐ Once a particular type of module has been installed in that slot, the system will always look for that type of module in that slot.

### Connector Position

- ☐ Identify all connectors according to their slot location using the self-adhesive numbering labels supplied with each module.
- ☐ Once a device has been wired to certain terminals on the connector and the system has been programmed, terminal position may not be changed without reprogramming the system.

## Module Installation

For additional information regarding the below steps, refer to the Veeder-Root TLS-350 or TLS-350R *Site Preparation and Installation* manual.


 <b>WARNING</b>	
   	<p><b>You are working with a device in which potentially lethal voltages may be present.</b></p> <p><b>If high voltage is shorted across any barrier terminal, explosion and fire could result.</b></p> <p><b>Be sure AC POWER to the TLS-350 or TLS-350R monitor is OFF before opening the front panel and installing or wiring any communications module.</b></p>

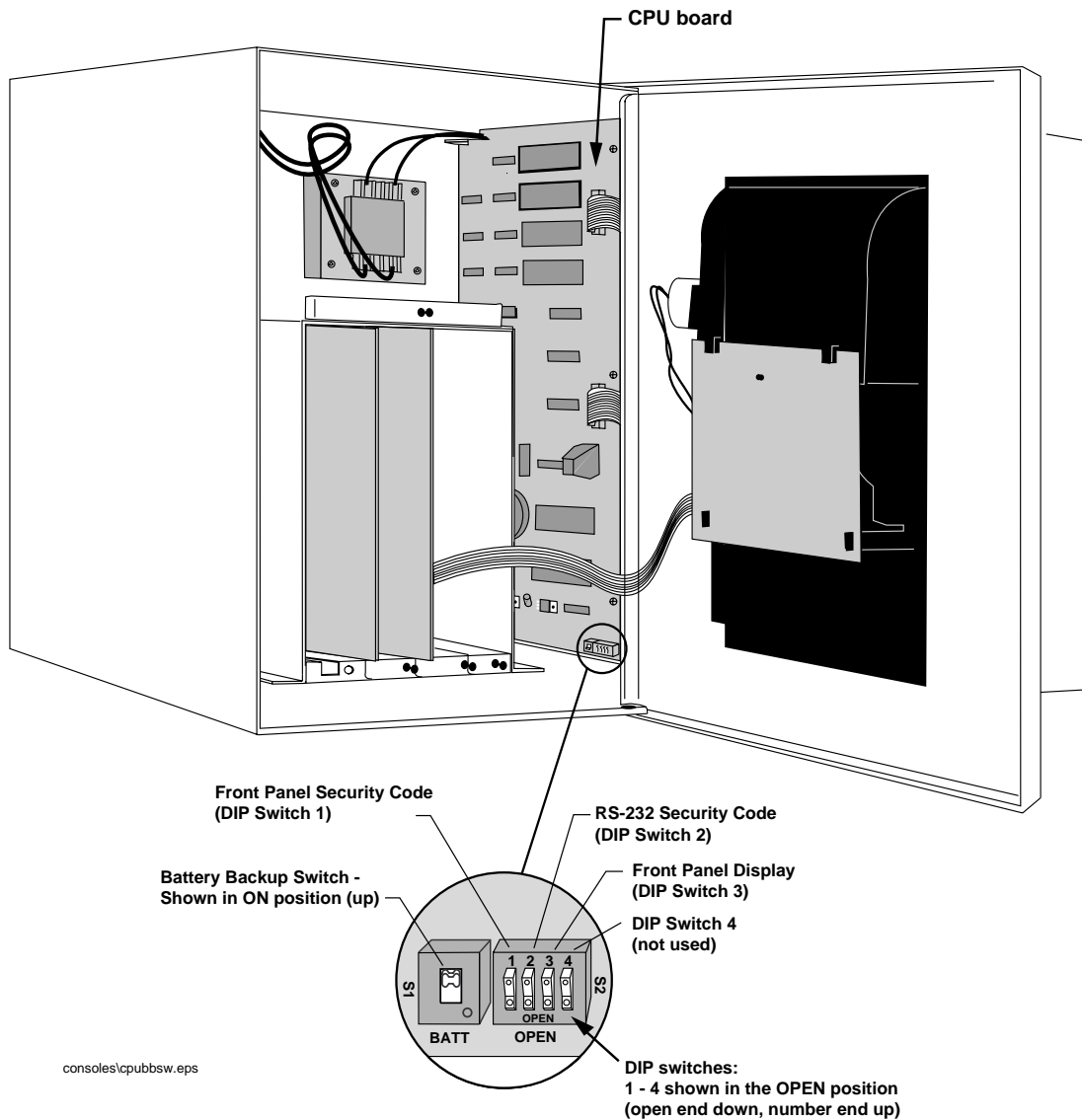


1. Read and follow all instructions carefully.
2. Open the right-hand door of the TLS-350 or TLS-350R console by unscrewing the right-top and right-bottom locking bolts.
3. To retain current programming, be sure that the CPU (for TLS-350) or ECPU (for TLS-350R) board battery switch is set to "ON" (see Figure 1 on page 7 and Figure 2 on page 8). To avoid electrical shock or damage to components, if accessing the battery switch, avoid touching any circuit components with your hand or any conductive tool or jewelry.
4. Turn console POWER OFF before installing the module.
5. Avoid shorting high voltage across any component or module to the intrinsically safe section of the console. This could result in an explosion near the sensor.
6. Remove two existing retaining bracket panels from the compartment.
7. Hold the first module with its snap-in fastener positioned at the lower edge, and carefully slide the module into its slot. Repeat for the second module.
8. To secure each module, press down on the snap-in fastener until its connector engages completely with the connector on the board. Do not apply excessive force when installing the module.
9. BE SURE ALL UNUSED SLOTS in the power area ARE COVERED with snap-in plates! (Veeder-Root Module Cover Part No. 329339-001.)
10. Connect the cable provided (Veeder-Root Part No. 330869-001) to the sensor module by threading the cable over the partition between the communications area and the high voltage area (behind the doors).

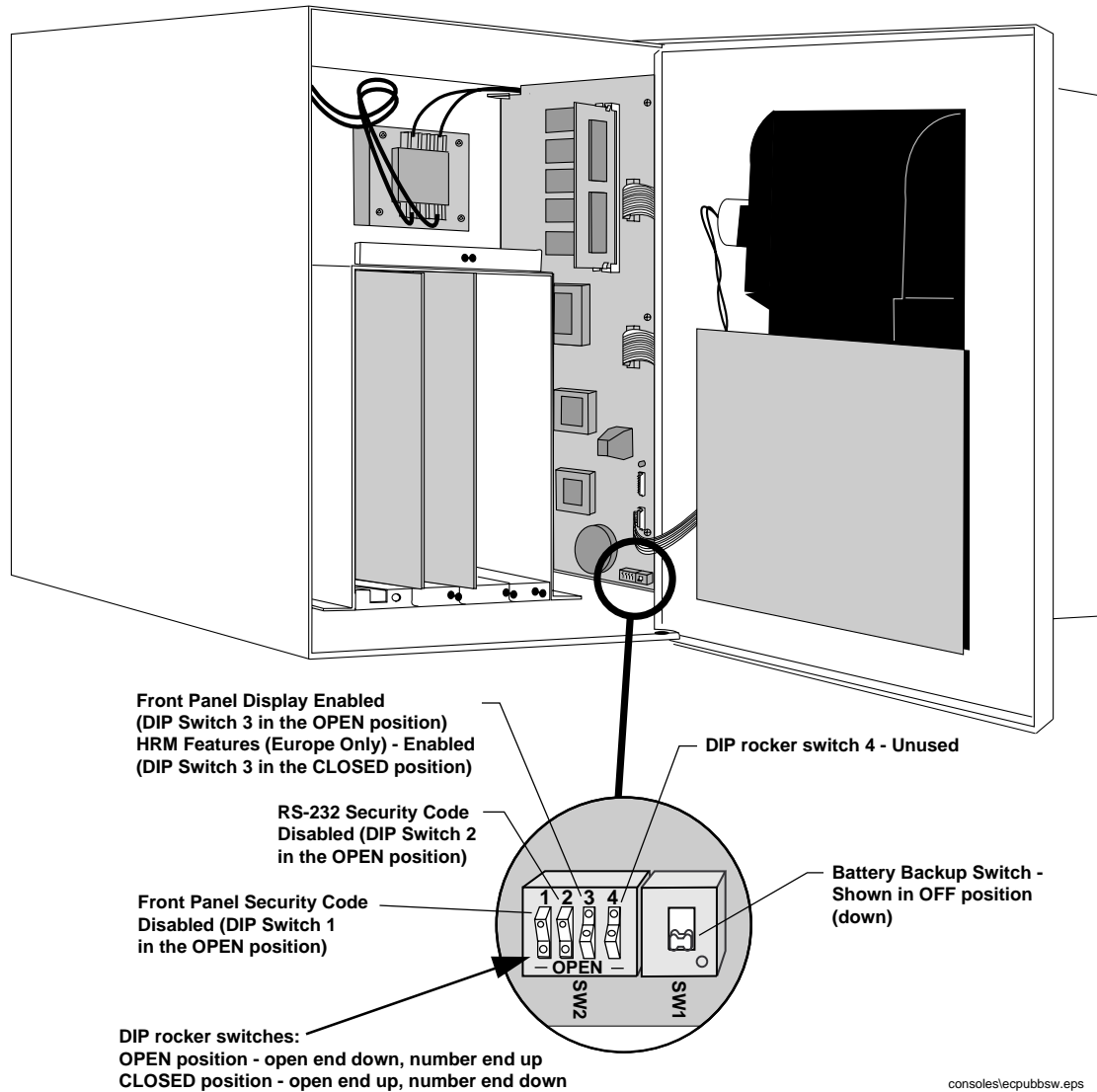
### Important

*If you are installing these modules in a system that has already been programmed, you CANNOT CHANGE the position of existing modules and/or connectors without reprogramming the entire system.*

**Important**  If any connectors are removed during installation, BE SURE they are reconnected to their original modules.

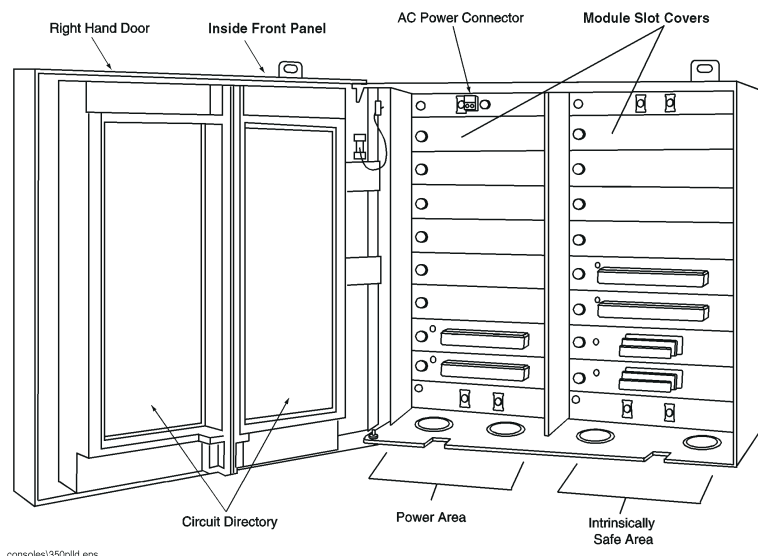


**Figure 1.** CPU Board Battery Switch ON (S2)








**Figure 2.** ECPU Board Battery Switch ON (SW1)

The following shows the Intrinsically Safe Area (where PLLD and LVPLLD Modules are placed) of the TLS Console:



**Figure 3.** Intrinsically Safe Area of TLS Console

## Line Leak Sensor Wiring Connections

 <b>WARNING</b>	
   	<p><b>You are working with a device in which potentially lethal voltages may be present.</b></p> <p><b>If high voltage is shorted across any barrier terminal, explosion and fire could result.</b></p> <p><b>Be sure AC POWER to the TLS-350 or TLS-350R monitor is OFF before opening the front panel and installing or wiring any communications module.</b></p>

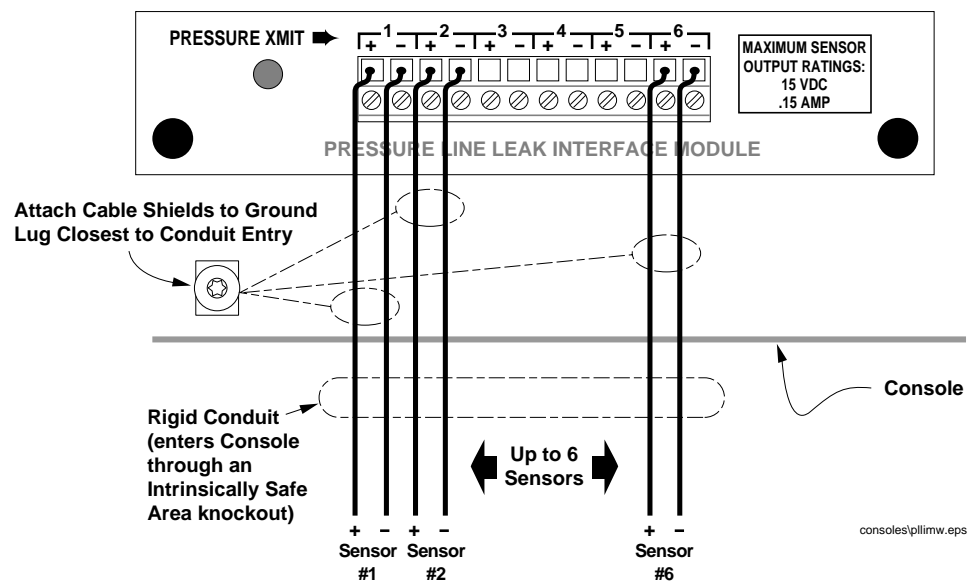
1. Connectors are supplied with each Pressurized Line Leak Interface Module. They provide screw terminations for up to six (6) Line Leak Sensors. Be sure to record on the circuit directory the type of module and the name or location of each device wired to the connector.
2. Connect the two (2) marked or color-coded wires from each Line Leak Sensor to the appropriate terminals on the PLLD Interface Module Connector (see Figure 4 on page 10).

**CAUTION:** Once Line Leak Sensors have been connected and the system has been programmed, module, connector, and wiring positions cannot be changed without reprogramming the system.


Low voltage PLLD Module positions must follow same product order as high voltage PLLD positions. If this rule is not followed, the wrong pressure will be read on a product line, and failed 3 GPH tests will disable the fueling for the product identified by the low voltage PLLD position.

Improper system operation will result if any one of these positions is changed without reprogramming.

3. Connect the three (3) marked or color-coded wires from the pump controls and the one (1) wire from the main breaker panel to the proper terminals on the Pressure Line Leak Controller Module connector.



**Figure 4.** PLLD Interface Module Wiring Diagram

**Important**  Be sure to maintain the proper polarity between the Line Leak Sensor wires and their respective module connector terminals.

# Warranty Conditions and Limitations of Liability

---

## Limitations Of Liability

---

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 15 months from the date of invoice, whichever occurs first. We will repair or replace the product if it is returned to us, transportation prepaid, within the warranty period and is determined by us to be defective.

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. 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

---

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

---

The provisions of "Limitations Of Liability" on page 11 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**

---

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**

---

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**

---

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**

---

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.

### Headquarters

Veeder-Root Company  
125 Powder Forest Drive  
Simsbury, CT 06070-7684 U.S.A.  
(860) 651-2700 FAX: (860) 651-2719

### England

Veeder-Root Environmental Systems Limited  
Hydrex House, Garden Road  
Richmond, Surrey TW9 4NR ENGLAND  
44-181-392-1355

### Brazil

Veeder-Root do BRASIL  
Rua ado Benatti, 92  
Caixa Postal 8343  
01051 Sao Paulo BRAZIL  
55-11-861-2155

### Germany

Veeder-Root GmbH  
Uhlandstrasse 49  
D-78554 Aldingen GERMANY  
49 (0)7424 89285

### France

Veeder-Root SARL  
ZI des Mardelles  
94-106 rue Blaise Pascal  
93600 Aulnay-sous-Bois FRANCE  
33 (0)1 4879 5599

### Canada

Veeder-Root Canada  
151 Superior Boulevard, Suite 24  
Mississauga, Ontario, L5T 2L1 CANADA  
905-670-2755

### Singapore

Veeder-Root Singapore  
#2 Kallang Pudding Road  
#06-16 Mactech Industrial Building  
SINGAPORE 1334  
(65) 745-0368 FAX: (65) 745-0636

### Mexico

Veeder-Root Mexico  
Prado de las Camelias  
No. 4483-4  
Prados Tepeyac C.P. 45500  
Zapopan, Jal., MEXICO  
(52) 36-47-3750