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TLS4/8601 Series Consoles

Site Prep and Installation Manual

VEEDER-ROOT™

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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.

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1. Fax Bill of Lading to V/R Customer Service at 800-234-5350.
2. Call V/R Customer Service at 800-873-3313 with the specific part numbers and quantities that were received damaged or lost.
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.

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4. VR will NOT be responsible for any compensation when a customer chooses their own carrier.

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For the parts return procedure, please follow the instructions in the "General Returned Goods Policy" pages of the "Policies and Literature" section of the Veeder-Root North American Red Jacket Mechanical Products Price Book. Veeder-Root will not accept any return product without a Return Goods Authorization (RGA) number clearly printed on the outside of the package.

RESPONSIBILITIES OF THE INSTALLER AND STATION OWNER

This installation, operation and service instruction manual shall be left with the owner of the service station at which this equipment is installed. Retain these instructions for future use and provide them to persons servicing or removing this equipment.

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Introduction

This manual assumes that you are installing the console in a new site (before pavement is put down and with no wiring runs in place). Among the topics covered are:

- Related documents
- Installing the console
- Component locations
- Console specifications/features
- Connecting wiring from the AC power panel or DC power source
- Installing wiring conduit between the console and probes and sensors

If installing ATEX (European) approved Mag Probes use Manual No. 577014-031, if installing UL/cUL approved Mag Probes use Manual No. 577013-744.

Related Documents

DOCUMENTS REQUIRED TO INSTALL EQUIPMENT

This equipment must be installed according to the applicable installation document:

Equipment	ATEX Descriptive System Document No.	IECEx Descriptive System Document No.	UL/cUL Control Drawing Document No.
Associated Apparatus			
8601 Series Console	**331940-017**	**331940-117**	**331940-018**
Intrinsically Safe Apparatus for Wireless Applications			
Tank Gauge Accessories	**331940-005**	**331940-105**	**331940-012**

Related Manuals

577013-578 TLS Monitoring Systems Contractor's Site Preparation Guide

576013-858 Direct Burial Cable Installation Guide

577013-034 TLS4 Quick Start Guide

Safety Symbols

The following safety symbols are used in 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 damage to equipment, property, environment 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.
STATIC SENSITIVE COMPONENTS Wear grounded anti-static wrist strap before handling the printed circuit boards and mounted components.	

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.

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), the Code for Motor Fuel Dispensing Facilities and Repair Garages (NFPA 30A), CEC codes and all applicable local codes.

PROBE- AND SENSOR-TO-CONSOLE WIRING

Wire Type

To ensure the best operating systems available, Veeder-Root **REQUIRES** the use of shielded cable for all probes and sensors regardless of conduit material or application. 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, or 8770.

Note: Throughout this manual, when mentioning any cable or wire being used for probe and sensor to console wiring, it will be referring to shielded cable.

Wire Length

Improper system operation could result in undetected potential environmental and health hazards if the probe- or sensor-to-console wire runs exceed 1000 feet. Wire runs must be less than 1000 feet to meet intrinsic safety requirements.

Wire Gauges - Color coded

Shielded cable must be used in all installations. Sensor-to-console wires should be #14-#18 AWG stranded copper wire and installed as Class 2 circuits. As an alternate method when approved by the local authority having jurisdiction, #22 AWG wire such as Belden 88761 may be suitable in installations with the following provisions:

- Wire run is less than 750 feet
- Capacitance does not exceed 100 pF/foot
- Inductance does not exceed 0.2 μH/foot

AC POWER WIRING

Wires carrying 120 or 240 Vac from the power panel to the console should be #14 AWG (or larger) wire for line, neutral and chassis ground (3); and 4 sq. mm, rated for at least 90°C, for barrier ground.

DC POWER WIRING

Wires carrying +24 and +5 Vdc from the DC power source to the console should be #14 AWG wire. For barrier ground, 4 sq. mm wire, rated for at least 90°C.

Component Identification

Figure 1 through Figure 3 show assembly and component locations referenced in the troubleshooting section of this manual.

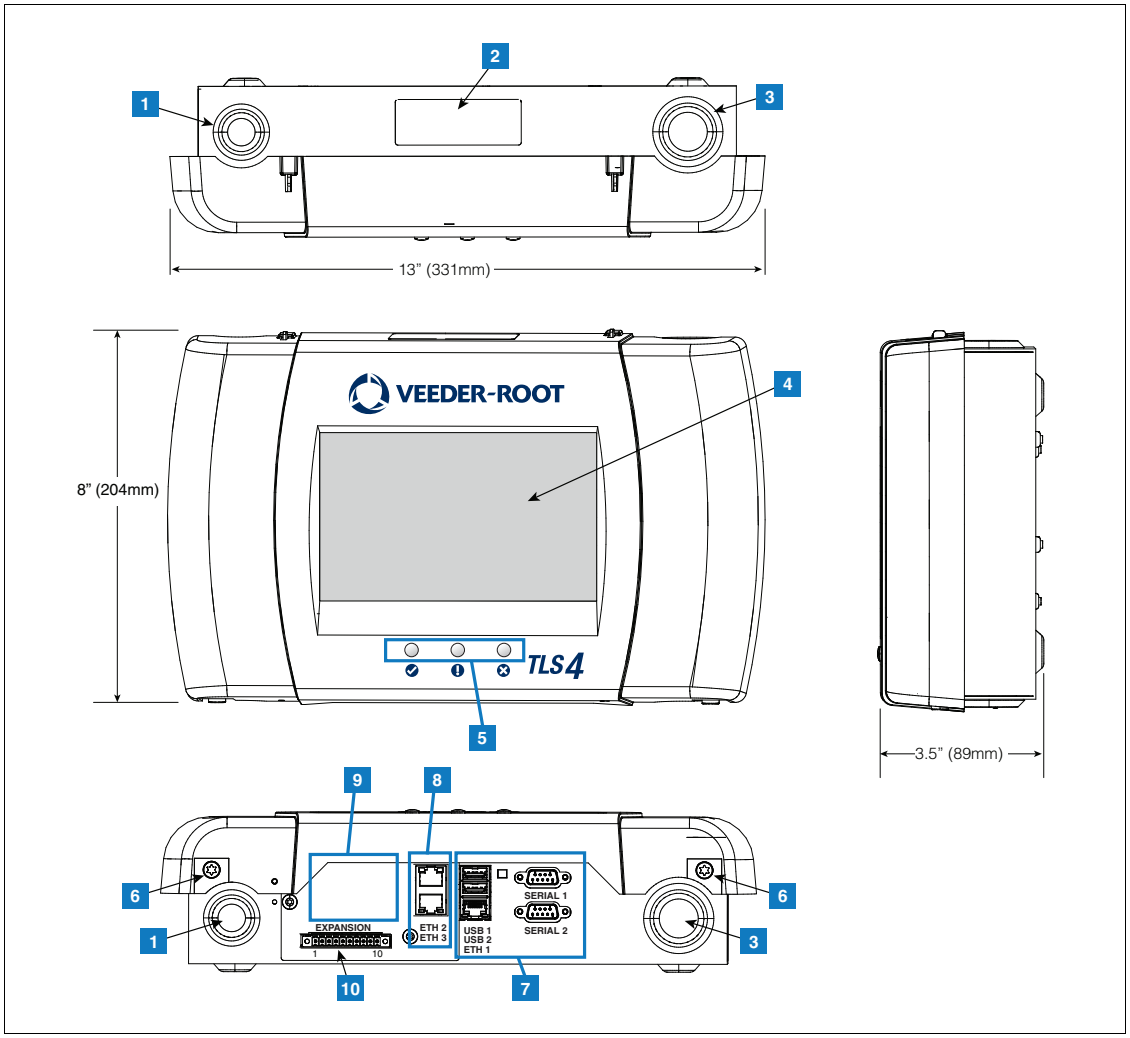


Figure 1. TLS4/8601 Series Console - Dimensions and Hardware

LEGEND FOR NUMBERED BOXES IN Figure 1

1. Power conduit knockout (1 top/1 bottom)
2. Console label contains input power ratings and Form and Serial number
3. Intrinsically safe wiring conduit knockout (1 top/1 bottom)
4. Optional touch screen display
5. Status LEDs
6. T15 screws secure cover (2 places)
7. Communication ports - standard:
   Serial ports 1 (full handshaking) and 2
   USB ports 1 and 2
   Ethernet port 1
8. Communication port - optional integrated Ethernet switch ports 2 and 3
9. Factory Installed Optional Module
10. Expansion port

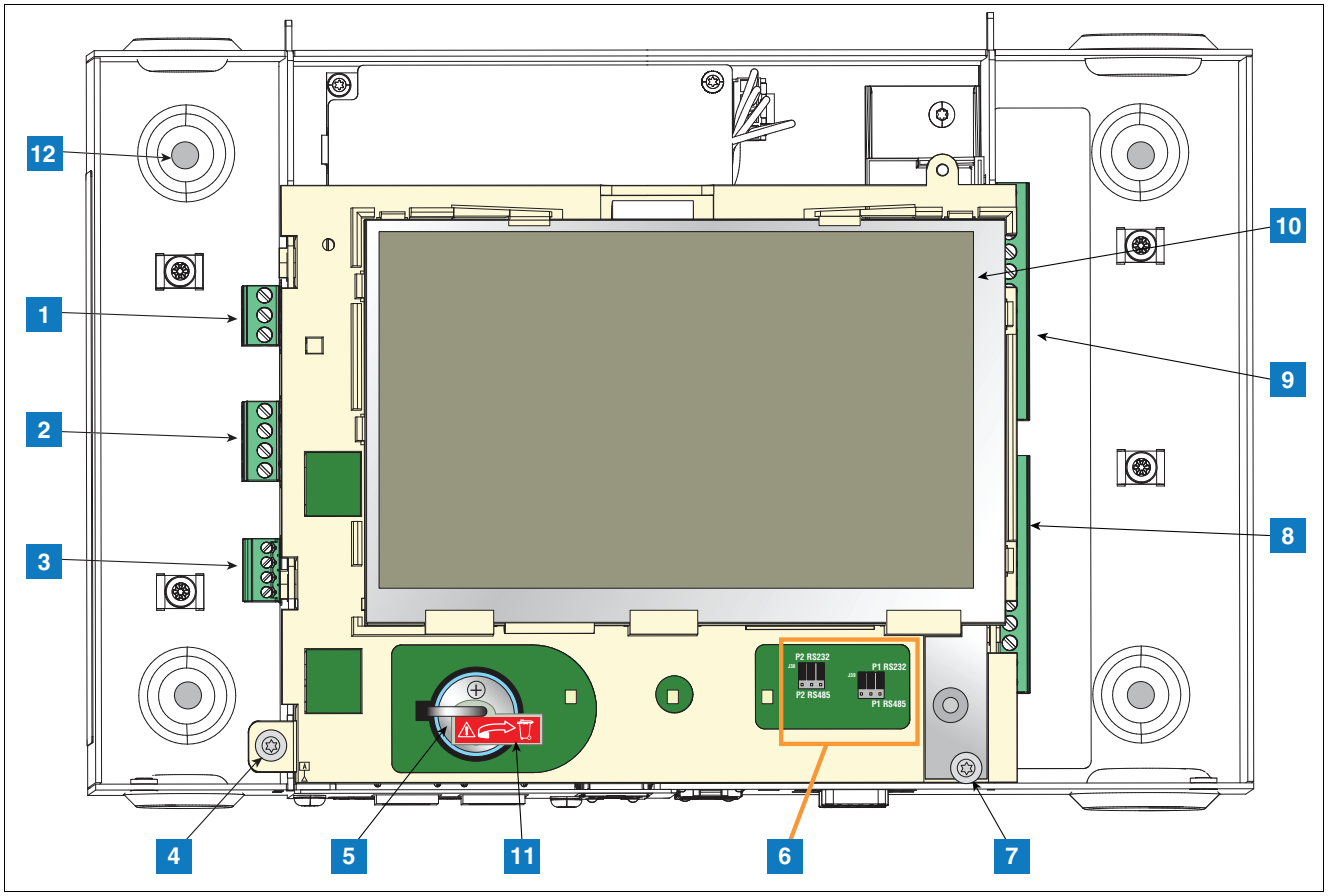
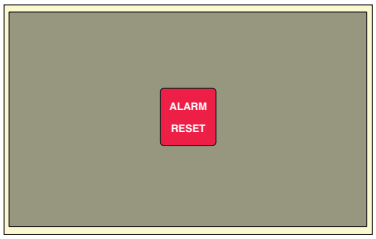


Figure 2. Component Locations (Front Cover Removed)

LEGEND FOR NUMBERED BOXES IN Figure 2

1. AC or DC input power connector (as ordered)
2. High voltage output relay connector
3. Low voltage external input connector
4. T15 screw secures Display/CPU assembly
5. Rechargeable 3V Lithium battery (battery backup)
6. RS232/485 selection jumpers SERIAL 1 (P1) and SERIAL 2 (P2)(factory set to RS232 position)
7. T20 screw secures Display/CPU assembly
8. Optional 6-device intrinsically safe input connector (7 - 12)
9. Standard 6-device intrinsically safe input connector (1 - 6)
10. Optional Graphical User Interface (GUI) display (on non-display consoles, the GUI display is replaced with the Alarm Reset (Acknowledge) button panel shown below):



11. Battery Isolator - Remove and discard prior to startup.
12. Mounting Holes - 0.28” (7mm) diameter holes - (2 hole versions - upper left and lower right corners; 4 hole versions - all four corners).

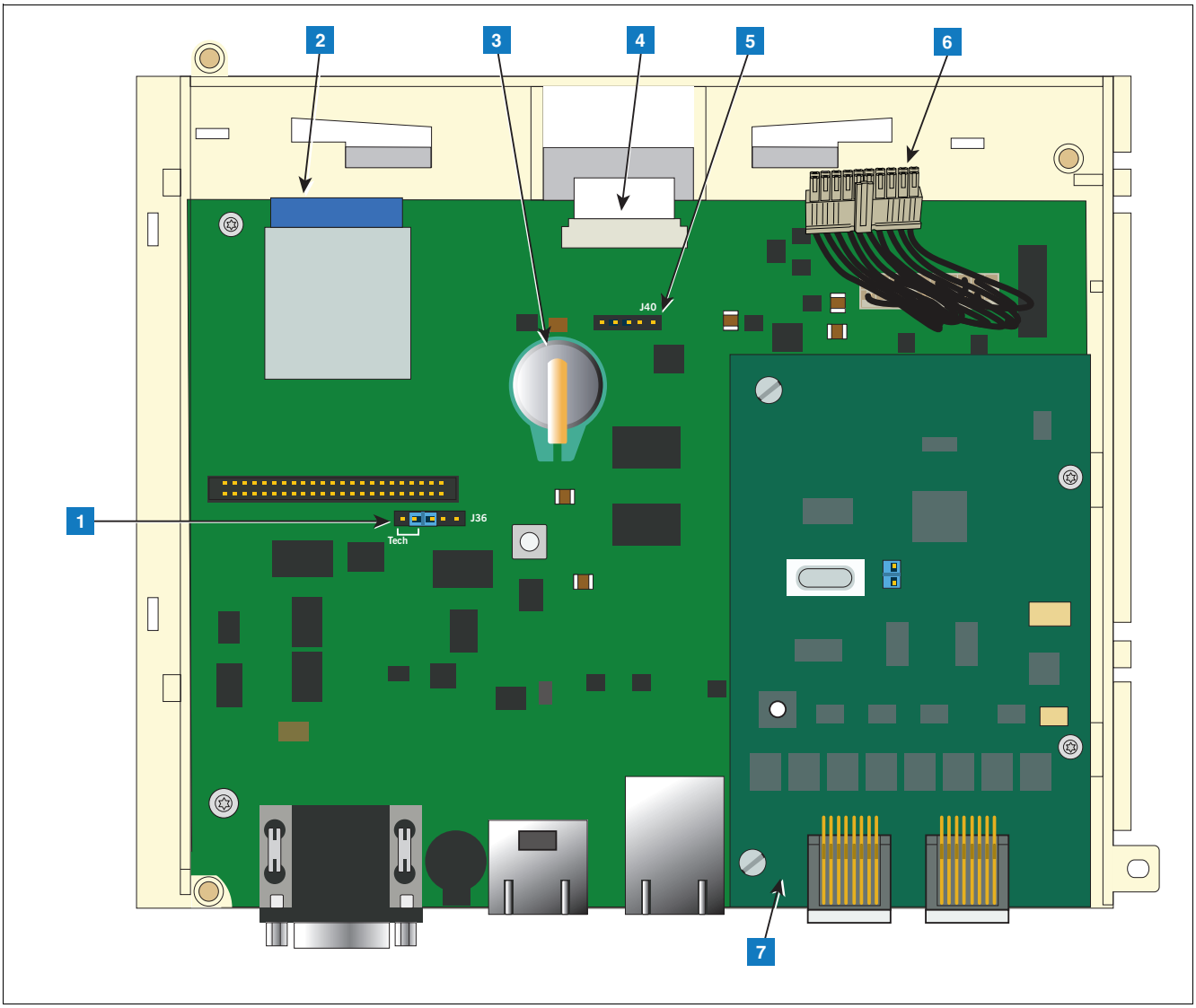


Figure 3. Component Locations Underside of Display/CPU Board Assembly

LEGEND FOR NUMBERED BOXES IN Figure 3

1. J36 Mode Jumper (shown in Operating Mode Position)
2. SD Card
3. Software Features iButton
4. Display ribbon cable connector - Consoles with GUI display only
5. Acknowledge switch cable connector (J40) - Consoles without GUI display only
6. 20-pin Display/CPU-to-USIOM board cable
7. Optional CDIM module or IFSF module (CDIM module shown)

Console Wiring Inputs

This section details TLS4 power, communication, and device input connections and requirements.

Table 1. TLS4 Wiring Inputs

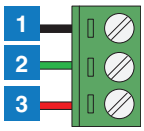
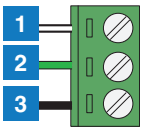
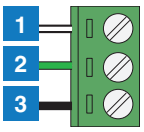
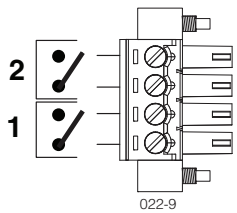
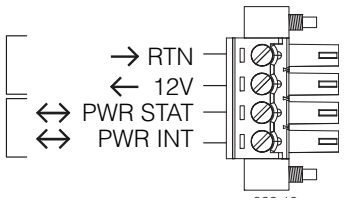
Connector	Description
Input Power (Item 1, Figure 2)	**NOTE: The TLS4/8601 Series console is factory configured for either AC input power or DC input power, <u>but not both</u>.** Universal AC power supply:100 to 249Vac, 50/60Hz, 2A maximum; or DC power supply (optional): +24Vdc, 2A max. and +5Vdc, 4A max. Um <= 250Vrms or 250Vdc **240 Vac input:** 1 - N/L2 (black), 2 - Ground (green), 3 - L1 (red)  **120 Vac Input:** 1 - N/L2 (white), 2 - Ground (green), 3 - L1 (black)  **+24/+5 Vdc Input:** 1 - +24 (white), 2 - Ground (green), 3 - +5 (black). NOTE: This input wiring diagram is only for consoles with DC Power option. 
HV Relay Outputs (Item 2, Figure 2)	2 Relay Outputs: 120/240 Vac, 5A; 30 Vdc, 5A; Fuse ratings 5A, 250 Vac Type T (Slo-Blo) 

Table 1. TLS4 Wiring Inputs

<table>
<tr><th>Connector</th><th colspan="4">Description</th></tr>
<tr><td rowspan="4">Low Voltage Inputs
(Item 3, Figure 2)</td><td colspan="4">1 Low Voltage Input:
Maximum contact closure circuit ratings 12 Vdc, 0.015A
Class I wiring is required for these 12 volt closure circuits.</td></tr>
<tr><td>Legend</td><td>Pin</td><td>Input</td><td rowspan="3"> 
</td></tr>
<tr><td>Dry Contact Switch</td><td>1</td><td>RTN</td></tr>
<tr><td></td><td>2</td><td>12V</td></tr>
<tr><td>RS-232 Ports
(Item 7 in Figure 1)</td><td colspan="4">2 optically isolated serial ports standard, labeled SERIAL 1 supporting full handshaking and SERIAL 2.

The RS-232 D-connector is a panel mount, 9-pin female type, wired in a Data Terminal Equipment (DTE) configuration. For example, any RS-232 port in any TLS consoles is also a DTE, therefore, a Null Cable is needed in order for communication to happen between the two consoles.

A Data Communication Equipment (DCE) device such as a modem may be connected directly to the interface using a straight-through cable (modem support may not be available on all ATGs). Handshake signals in the system are configurable.

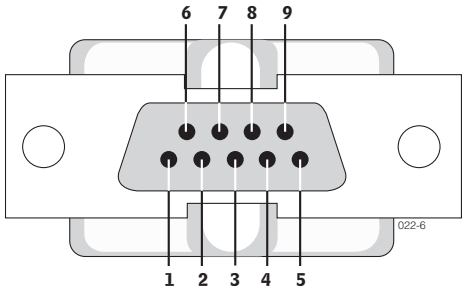
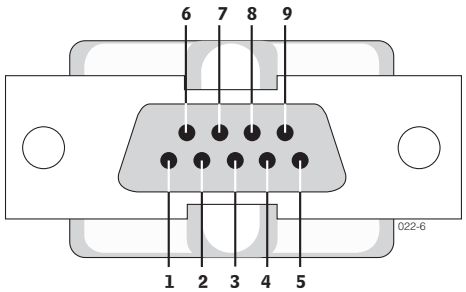
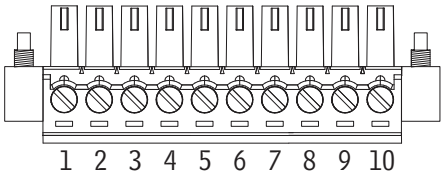
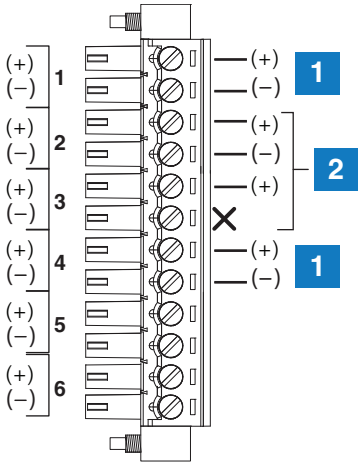
RS-232 signals are wired to the female D-connectors as follows:</td></tr>
<tr><td rowspan="7"></td><td colspan="3">SERIAL1 (Full Handshake)</td><td rowspan="7"> 
</td></tr>
<tr><td>Pin</td><td>Signal</td><td>Pin</td><td>Signal</td></tr>
<tr><td>1</td><td>Data Carrier Detect</td><td>6</td><td>Data Set Ready</td></tr>
<tr><td>2</td><td>Received Data</td><td>7</td><td>Request to Send</td></tr>
<tr><td>3</td><td>Transmitted Data</td><td>8</td><td>Clear to Send</td></tr>
<tr><td>4</td><td>Data Terminal Ready</td><td>9</td><td>Ring Indicator</td></tr>
<tr><td>5</td><td>Signal Ground</td><td></td><td></td></tr>
<tr><td rowspan="7"></td><td colspan="3">SERIAL 2</td><td rowspan="7"> 
</td></tr>
<tr><td>Pin</td><td>Signal</td><td>Pin</td><td>Signal</td></tr>
<tr><td>1</td><td></td><td>6</td><td></td></tr>
<tr><td>2</td><td>Received Data</td><td>7</td><td></td></tr>
<tr><td>3</td><td>Transmitted Data</td><td>8</td><td></td></tr>
<tr><td>4</td><td></td><td>9</td><td></td></tr>
<tr><td>5</td><td>Signal Ground</td><td></td><td></td></tr>
</table>

Table 1. TLS4 Wiring Inputs

<table>
<tr><th>Connector</th><th>Description</th></tr>
<tr><td>Ethernet Ports</td><td>1 Ethernet port standard, labeled ETH 1 (Item 7 in Figure 1)</td></tr>
<tr><td></td><td>1 Optional Ethernet port (Switch ETH 2 and ETH 3) (Item 8 in Figure 1)</td></tr>
<tr><td>Factory Installed Optional Modules (One module per console)</td><td>Optional CDIM module - Two RJ-45/RJ-485 serial ports, labeled CDIM 1 and CDIM 2 (Item 9 in Figure 1)</td></tr>
<tr><td></td><td>Optional IFSF module - One IFSF port, labeled IFSF LON (Item 9 in Figure 1). The IFSF cable's plug will have to be assembled in the field. See TLS4 Troubleshooting manual (P/N 577014-058) for full instructions.</td></tr>
<tr><td>USB Ports</td><td>2 USB ports, labeled USB 1 and USB 2 (Item 7 in Figure 1)</td></tr>
<tr><td>Expansion Port</td><td>10-pin connector VR bus, labeled EXPANSION (Item 10 in Figure 1)
Legend
<table>
<tr><th>Pin</th><th>Signal</th><th>Pin</th><th>Signal</th></tr>
<tr><td>1</td><td>+W</td><td>6</td><td>Ground</td></tr>
<tr><td>2</td><td>-W</td><td>7</td><td>+24 Vdc</td></tr>
<tr><td>3</td><td>+15 Vdc</td><td>8</td><td>+Expansion Bus</td></tr>
<tr><td>4</td><td>Ground</td><td>9</td><td>– Expansion Bus</td></tr>
<tr><td>5</td><td>N/C</td><td>10</td><td>Expansion Reset</td></tr>
</table>

</td></tr>
<tr><td>Intrinsically Safe inputs</td><td>6 or 12 universal intrinsically safe inputs as ordered (Items 8 and 9 in Figure 2)
<table>
<tr><th>Item</th><th>Description</th></tr>
<tr><td>1</td><td>Typical 2-wire device</td></tr>
<tr><td>2</td><td>Typical 3-wire device</td></tr>
</table>

</td></tr>
</table>

Determining Mag Probe Length

Determining Mag Probe Length for Installation in a Dedicated Riser

1. Measure the distance from the bottom of the tank to the top of the probe manway, or the 2-, 3- or 4-inch tank opening- this is the minimum probe length (ref. Figure 4).
2. The probe canister must be within the riser pipe (minimum length of 10 inches [254mm]).

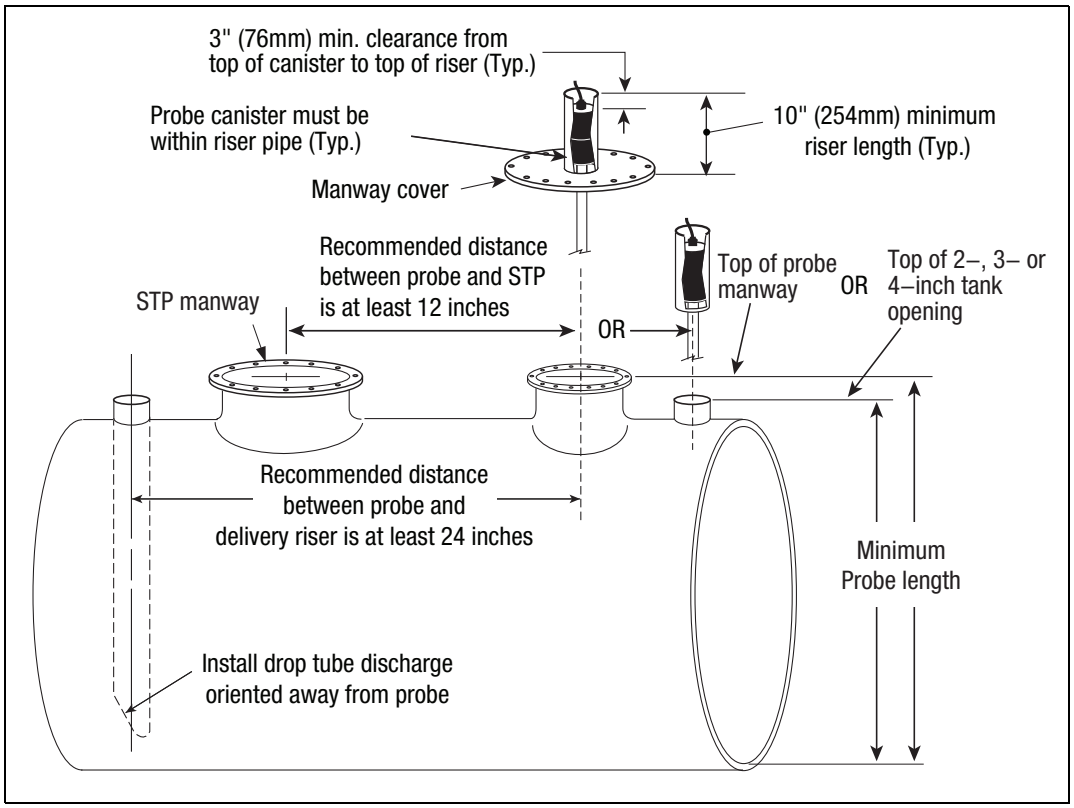
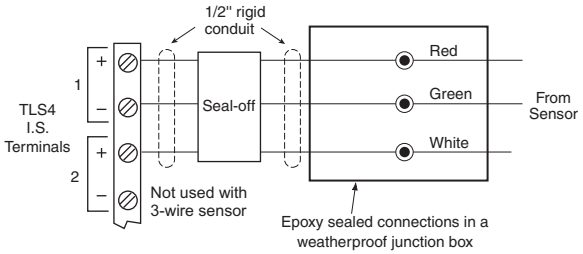


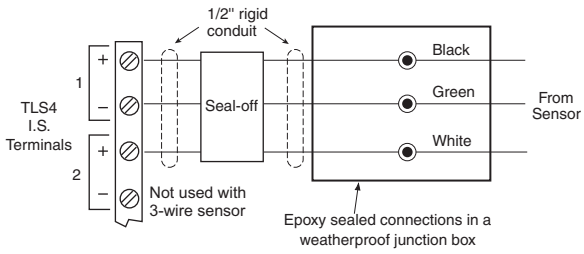
Figure 4. Determining the Minimum Mag Probe Length

Probe And Sensor Field Wiring

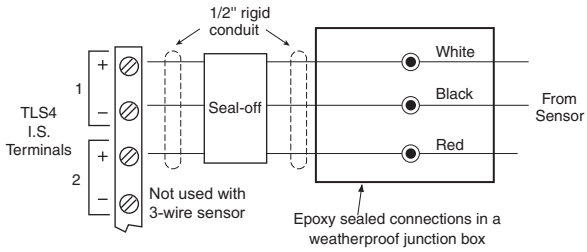
Figure 5 contains diagrams for connecting, at the field junction box, cables from the probes and sensors to cables from the console. Check diagrams closely for polarity requirements.



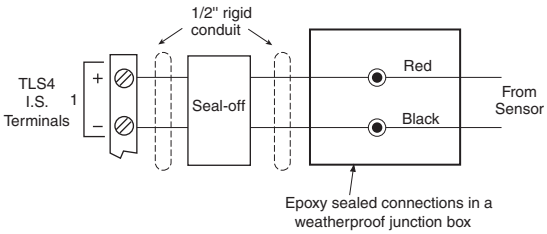
Groundwater Sensor



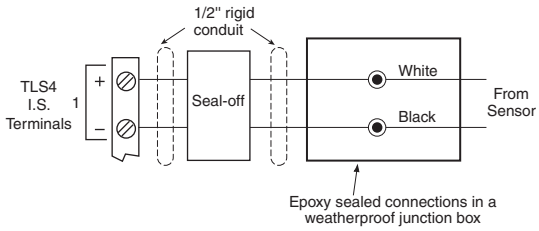
Vapor Sensor



***4SITE* Solid-State Discriminating Containment Sump Sensor**
***4SITE* Solid-State Discriminating Dispenser Pan Sensor**



Position Sensitive Interstitial Sensor for Steel Tanks
Interstitial Sensor For Steel Tanks
CSTP Liquid Switch



Magnetostrictive Probe
Position-Sensitive Sensor
Solid-State Containment Sump Sensor
Sump Sensor
Solid-State Dispenser Pan Sensor
Solid-State Discriminating Interstitial Liquid Sensor For Fiberglass Tanks
Discriminating Containment Sump Sensor
Hydrostatic Sensors For Fiberglass Tanks
Interstitial Sensor For Fiberglass Tanks
Microsensor

Figure 5. Field Wiring Probe and Sensor Cables to Console Cables

Console Installation

⚠ WARNING

FAILURE TO COMPLY WITH THE FOLLOWING WARNINGS AND SAFETY PRECAUTIONS COULD CAUSE DAMAGE TO PROPERTY, ENVIRONMENT, RESULTING IN SERIOUS INJURY OR DEATH.

Explosive vapors or flammable liquids could be present near locations where fuels are stored or being dispensed.

This console is not explosion proof. Do not install this console in a volatile, combustible, or explosive atmosphere.

An explosion or fire resulting in serious injury or death, property loss and equipment damage could occur if the console is installed in a volatile, combustible or explosive atmosphere (Class I, Division 1 or 2).

Console Location

For console location, refer to the 'System Consoles' section of manual 577013-578 (on the Internet at *https://www.veeder.com/us/search-result?search_api_fulltext=577013-578*) prior to installing the 8601 Series Console.

Mounting the Console

To mount the console remove the two T15 screws in the bottom of the cover (see Figure 1). As you lift up the bottom of the cover it pivots on two tabs that project from the top of the console's chassis into slots in the top of the cover. Lift the cover off the chassis tabs and set it aside. Notice the corner mounting holes in the base of the chassis (Item 12 in Figure 2). Locate the chassis on the wall in the desired mounting location, mark the hole locations, drill the appropriate pilot holes; and using 1/4-inch (6mm) maximum fasteners (customer supplied), attach the chassis to the mounting surface at all four locations.

Figure 1 shows the two designated knockouts through which power wiring can safely enter the console.

Wiring the Console

The 8601 Series Console can be operated using either AC or DC power.

⚠ WARNING

This console contains high voltages which can be lethal. It is also connected to low power devices that must be kept intrinsically safe.

1. **Turn power off at the circuit breaker. Do not connect the console AC power supply wires at the breaker until all devices are installed.**
2. **Attach conduit from the power panel to the console's Power Area knockouts only.**

Connecting power wires to a live circuit can cause electrical shock that may result in serious injury or death.

Routing conduit for power wires into the intrinsically safe compartment can result in fire or explosion resulting in serious injury or death

AC INPUT POWER

3. Check the Input power rating on the label affixed to the underside of the console to verify whether input power requirements are 120 Vac or 240 Vac.
4. Pull four wires between the power panel and the console; three #14 AWG or larger color-coded wires for AC line (hot), AC neutral and chassis ground; and one 4 sq. mm wire, rated for at least 90°C, for barrier ground.
5. Connect the input 120 or 240 Vac power wires as shown in Figure 6.

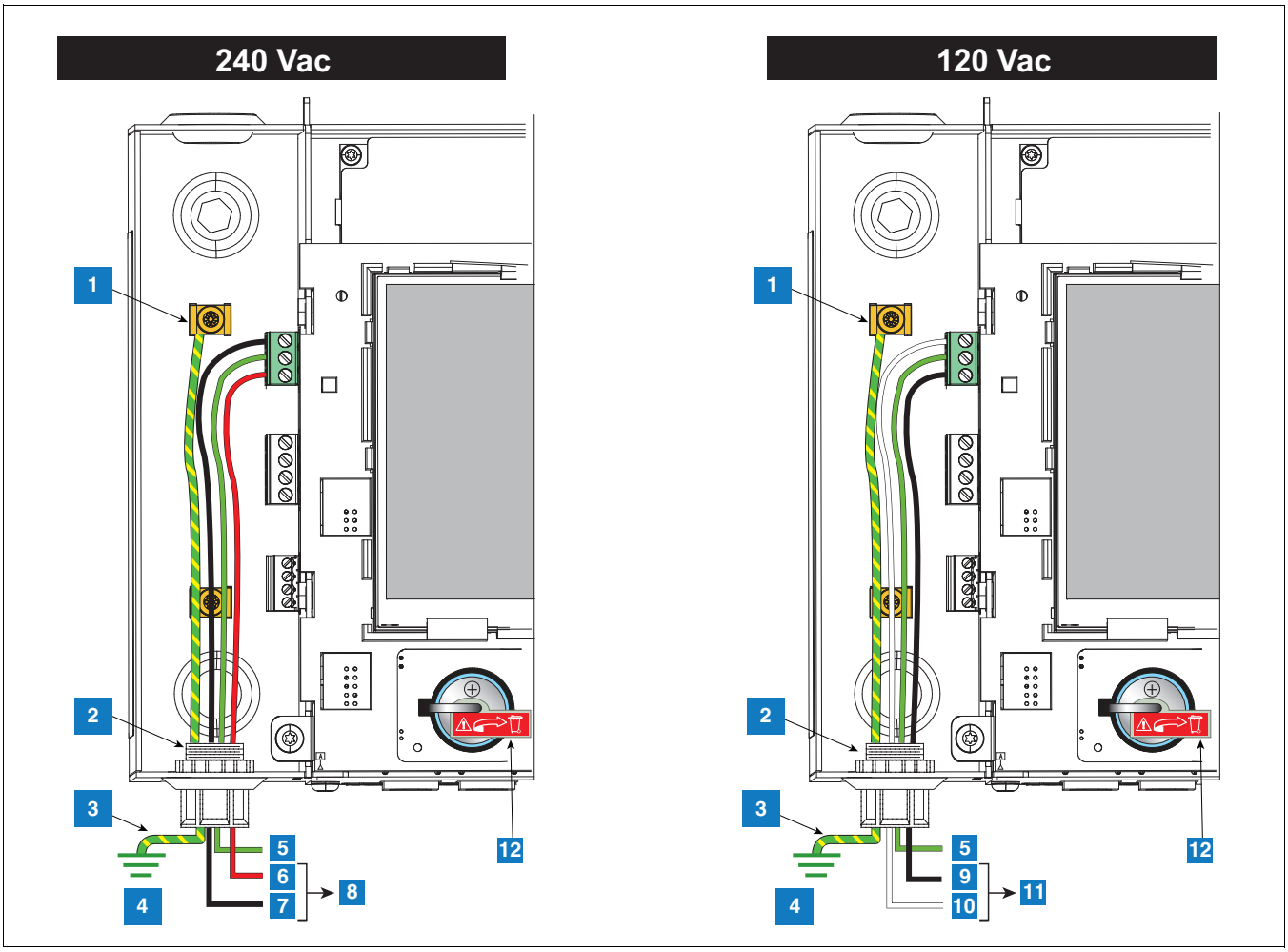


Figure 6. Wiring AC Power to the Console

LEGEND FOR NUMBERED BOXES IN Figure 6

1. Attach barrier wire to grounding clamp
2. Power connector conduit entry
3. Equipotential bonding conductor (4 sq. mm min.)
4. Earth ground
5. GND (green)
6. L1 (Red)
7. N/L2 (black)
8. (To 240 Vac breaker in power panel)
9. L1 (black)
10. N/L2 (white)
11. (To 120 Vac breaker in power panel)
12. Battery Isolator - Remove and discard prior to startup.

DC INPUT POWER

1. Check the Input Power Rating on the label affixed to the underside of the console to verify whether input power requirements are +24Vdc and +5Vdc.
1. Pull three wires between the DC power source and the console; three #14 AWG or larger color-coded wires for +24 Vdc, +5Vdc and Ground; and one 4 sq. mm wire, rated for at least 90°C, for barrier ground.
2. Connect the DC power wires as shown in Figure 7.

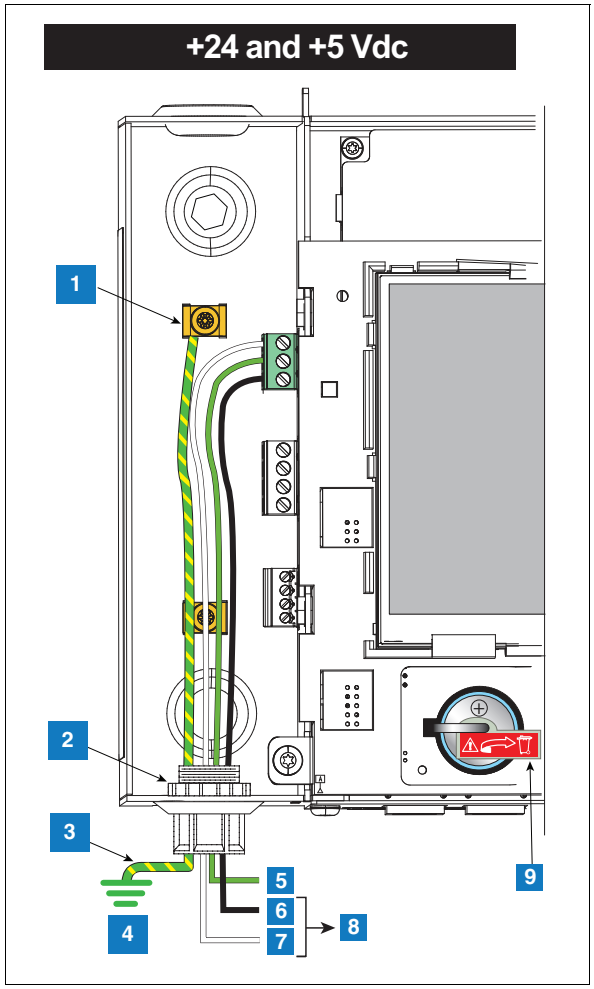


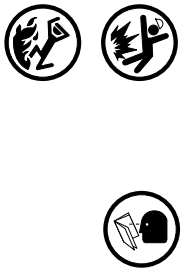
Figure 7. Wiring DC Power to the Console

LEGEND FOR NUMBERED BOXES IN Figure 7

1. Attach barrier wire to grounding clamp
2. Power connector conduit entry
3. Equipotential bonding conductor (4 sq. mm min.)
4. Earth ground
5. GND (green)
6. +5 Vdc (black)
7. +24 Vdc (white)
8. To DC power source
9. Battery Isolator - Remove and discard prior to startup.

Probe and Sensor Conduit Installation

⚠ WARNING



FAILURE TO COMPLY WITH THE FOLLOWING WARNINGS AND SAFETY PRECAUTIONS COULD CAUSE DAMAGE TO PROPERTY, ENVIRONMENT, RESULTING IN SERIOUS INJURY OR DEATH.

Probes and sensors operate in areas where flammable liquids and explosive vapors may be present.

Improper installation may result in fire or explosion causing serious injury or death.

Practice the following:

1. **Read thoroughly and follow the instructions shipped with each probe and sensor.**
2. **Probe and sensor wiring conduit must not contain any other wires.**
3. **Probe and sensor wiring and conduits must enter the console only through their designated areas.**
4. **Power and communication wires must not enter the intrinsically safe compartment of the console.**

Wiring Run Methods

Two wiring run methods are commonly used for probes and sensors - Wiring pulled through buried, sealed 1/2" conduit; or direct burial cable. NOTE: PVC conduit is an acceptable alternate where accepted by local codes [ref. "National Electrical Code Compliance" on page 3 for more detail on cable requirements].

BURIED RIGID CONDUIT

The preferred method, especially in new sites before driveway surfaces are paved, is to pull probe and sensor wiring through buried 1/2" rigid conduit [Figure 8].

Pull two or three conductors shielded cable (as required). Individual wires should be color-coded between the console and the junction box at each probe and sensor location (do not gang wires together, i.e., splicing all sump sensor + wires together to run one wire back to console). Use single lengths of wire with no splices to ensure optimum signal strength.

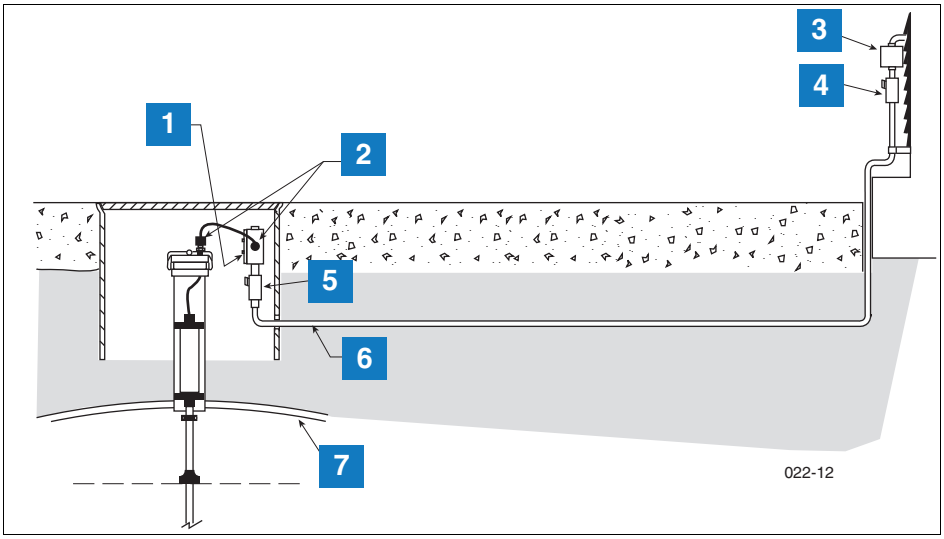


Figure 8. Example Probe Wiring Run in Buried Rigid Conduit

LEGEND FOR NUMBERED BOXES IN Figure 8

1. Weatherproof junction box with 1/2-inch N.P.T. threads (16 cubic inch minimum)
2. Cord grip seals
3. Splice Closure
4. Seal-Off
5. Epoxy seal per NFPA spec
6. 1/2" rigid conduit (to console)
7. Tank

CAUTION: Since wires for multiple sensors may enter the console through a single conduit, it is recommended that you use a different color-code for each wire or individually mark each wire to identify sensor inputs. Also, if the intrinsically safe wires enter the building in a wiring trough, only Veeder-Root intrinsically safe wire can be in the trough. Keep all low power (intrinsically safe) wiring isolated from high power wires in all wiring troughs.

DIRECT BURIAL CABLE

An alternative to trenching through existing pavement is to use direct burial cable. Before considering the direct burial method, check to be sure that direct burial practices are acceptable by the authority having jurisdiction at this location. The direct burial method requires grinding using an abrasive wheel, a 1/4” to 3/8” wide by 1-1/4” deep groove (adding 1/4” of depth for each additional cable) in the pavement surface, laying Veeder-Root supplied direct burial cable down in the bottom of the groove, laying an expanded polyethylene foam backer rod over the cable(s), and then a placing a 1/4” to 1/2” bead of silicone sealant over the backer rod to within a minimum of 3/8” below the pavement surface [see Figure 9].

If you decide upon the direct burial method, consult the direct burial cable installation manual for detailed installation instructions (reference manual 576013-858).

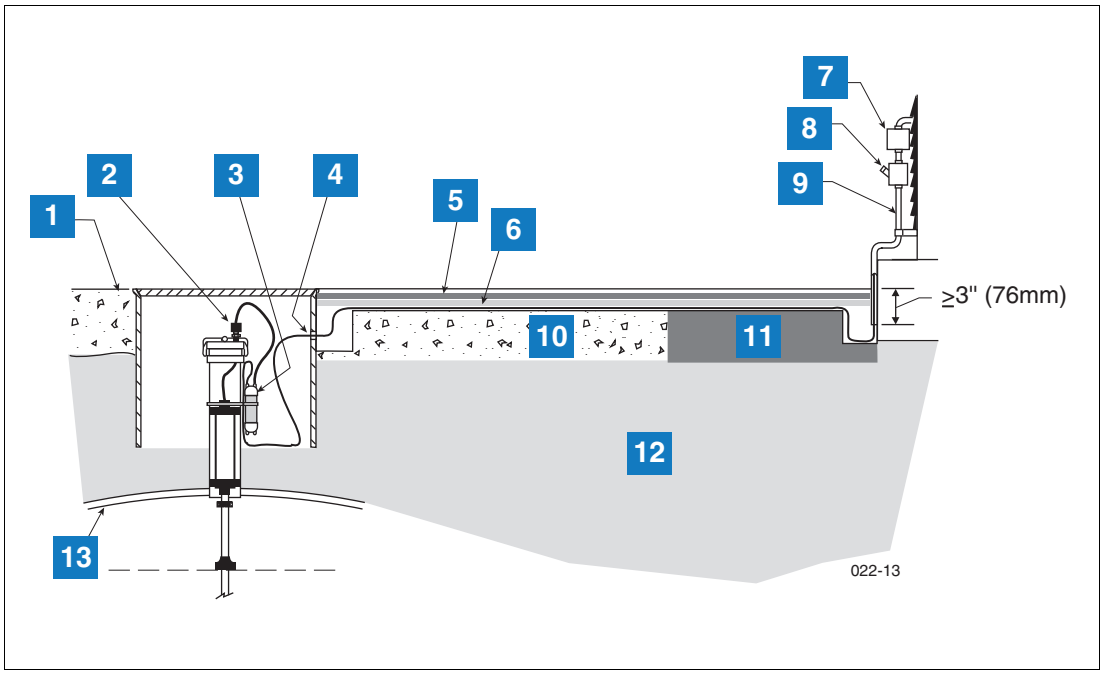


Figure 9. Example Probe Wiring Run via Direct Burial Cable

LEGEND FOR NUMBERED BOXES IN Figure 9

1. Grade
2. Cord grip
3. Epoxy filled splice enclosure
4. Drill oversized hole in sump for DB cable
5. Dow Corning 890-SL silicone Pavement Sealant
6. Expanded polyethylene foam backer rod, e.g., Applied-Extrusion Technologies SOF ROD
7. Splice closure
8. Seal-off
9. Rigid conduit
10. Concrete
11. Asphalt
12. Earth
13. Tank

Initial Startup Procedure

Once the probes, sensors, communication devices, etc., are connected to the console, remove and discard the backup battery isolator strip (item 11 in Figure 2).

Replace front cover. Attach a label to the breaker feeding the console. This allows others to know how to disconnect power to the console when servicing the system. Communicate to facility personnel which breaker feeds the console.

Switch the dedicated circuit breaker ON to apply power to the console.

TLS4 GUI NAVIGATION

If the operation of the TLS4 is unfamiliar, review the TLS4 Quick Help Guide (P/N 577014-034) or, after the home screen displays, touch the Actions icon , then the Help icon to open the TLS4 console's Online help. Once Online help displays, touch the **Show TOC** link in the top left of the display to view the Online help's Table Of Contents. Read the Welcome, Explanation of Screen Icons, How to Use On-Screen Keyboard and Using Touchscreen with Help topics.

TLS4 INITIAL SETUP

Workflow Wizard is an application in the TLS4 that guides the user through the Veeder-Root recommended setup screens during the console's initial commissioning. From the console's touch screen, Workflow Wizard Setup can be accessed by touching **Menu>Setup>Workflow Wizard>Setup Workflow**.

Appendix A: Universal Sensor Mounting Kit

Introduction

This addendum describes installation procedures for the Universal Mounting Kit for Dispenser Pan and Containment Sump Sensors, Part Number 331144-001.

Since you can use the Universal Mounting Kit in a variety of ways, only the most commonly used mounting methods are described.

Product Description

The Universal Mounting Kit is compatible with most manufacturer's dispenser pans and containment sumps and provides added flexibility when mounting the sensors.

KIT CONTENTS

The Universal Mounting Kit, Part No. 331144-001 consists of:

Quantity	Description
2	Extension brackets (see Item 1, Figure A-1)
1	L-bracket (see Item 2, Figure A-1)
1	3/4-inch U-bolt (see Item 3, Figure A-1)
1	1-inch U-bolt (see Item 3, Figure A-1)
1	2-inch U-bolt (see Item 3, Figure A-1)
1	3/8-inch spring nut (see Item 4, Figure A-1)
1	3/8-16 X 7/8-inch bolt (see Item 4, Figure A-1)
4	1/4-20 nut
3	1/4-20 x 3/4-inch bolt
4	1/4 flat washer
1	1/4-20 x 1-1/2 inch machine screw (See Item 5, Figure A-1)
1	2-inch sensor clamp (See Item 5, Figure A-1)
1	1/4 X 1-inch spacer (See Item 5, Figure A-1)

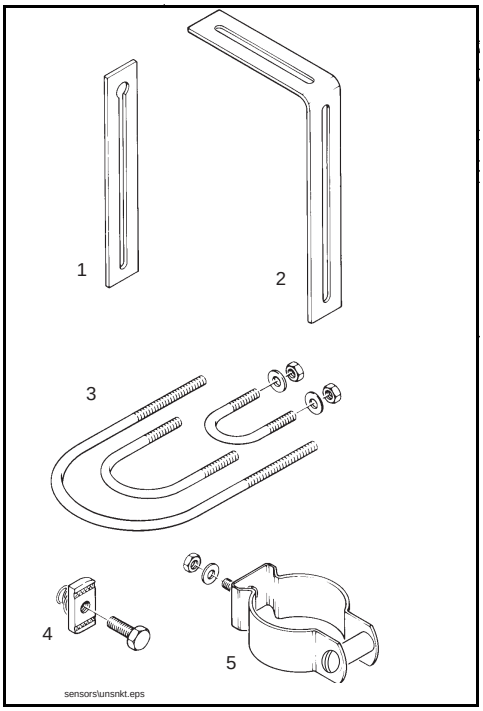


Figure A-1. Universal Mounting Kit Contents

Mounting Sensors

Depending on the type of pan you are using, you can configure the Universal Mounting Kit in several different ways. Some of the more frequently used mounting methods are illustrated in the following figures using selected

components from the kit as required. The spacer for the1-1/2 inch machine screw is only needed with a stabilizer tube to prevent excess clamping pressure on the sensor (see Figure A-2).

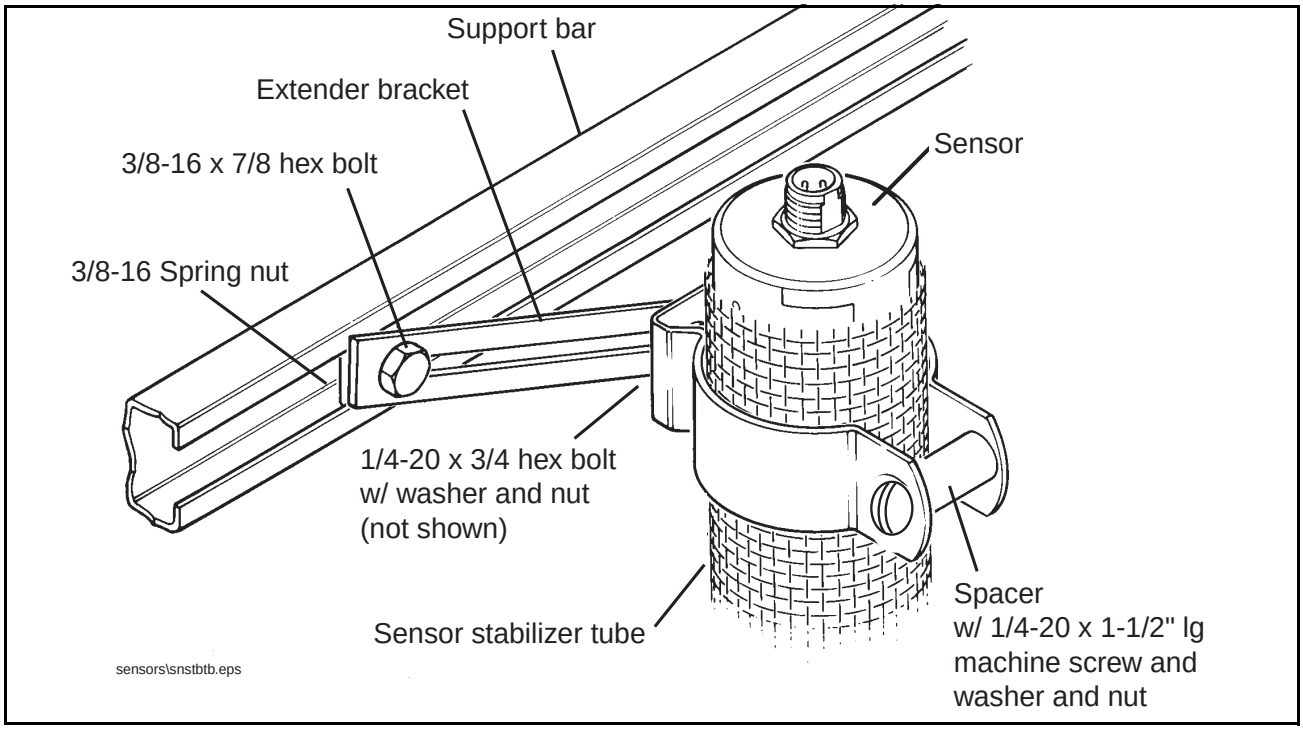


Figure A-2. Mounting the Sensor in a Stabilizer Tube to a Support Bar

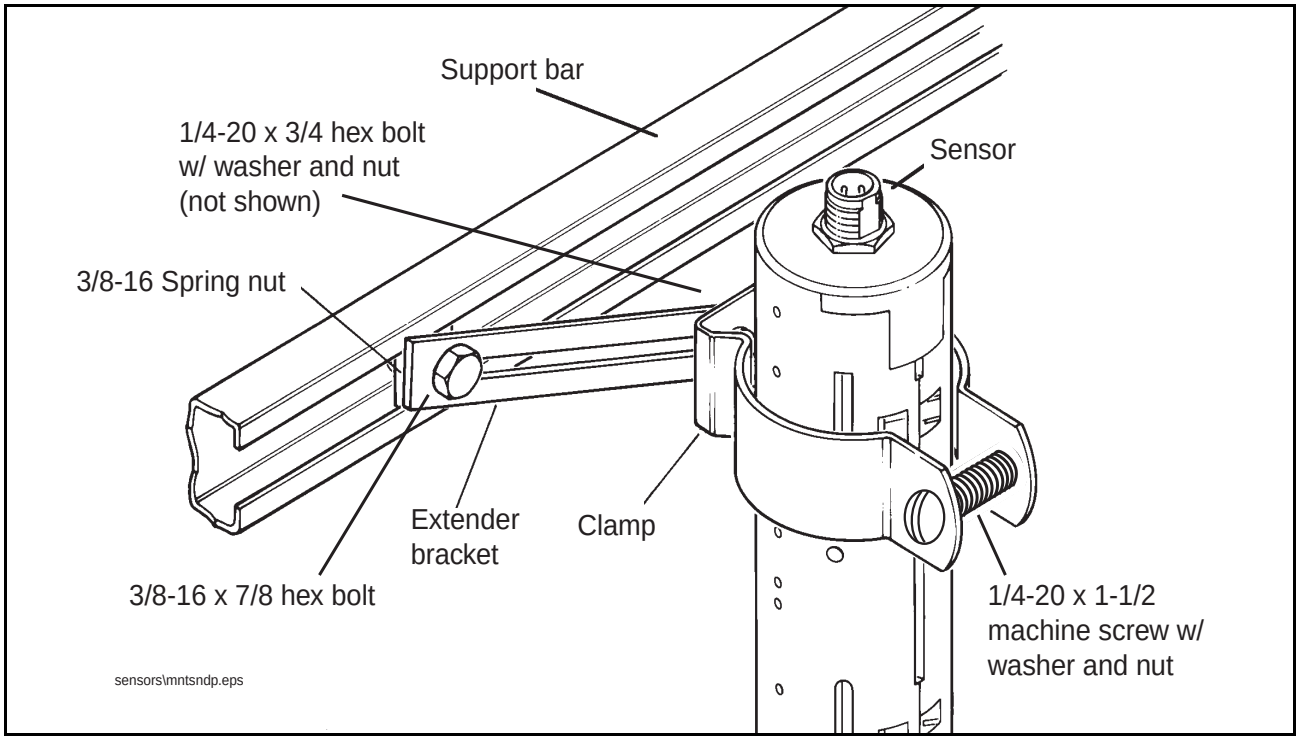


Figure A-3. Mounting the Sensor in the Dispenser Pan

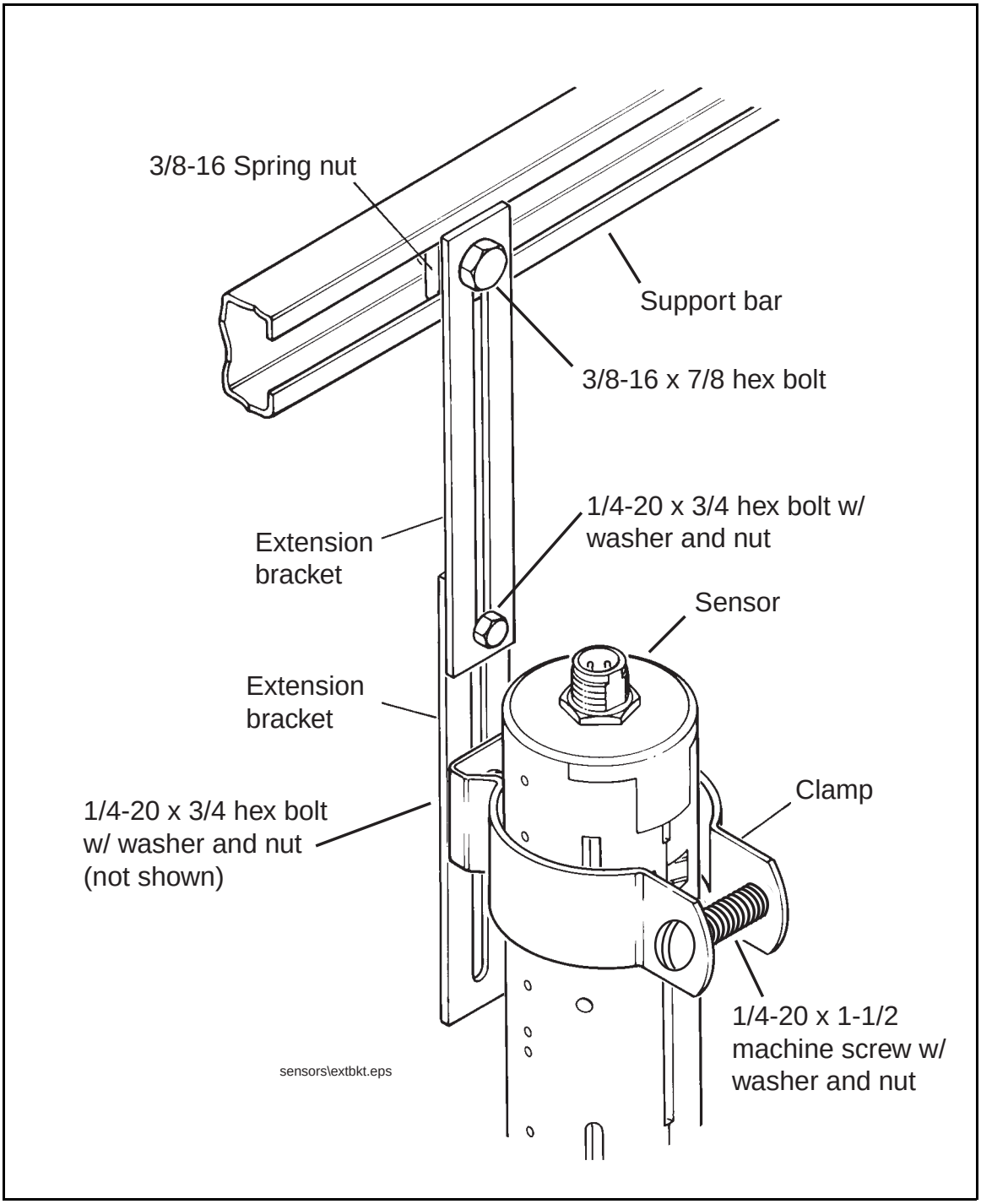


Figure A-4. Mounting the Sensor Using Two Extension Brackets

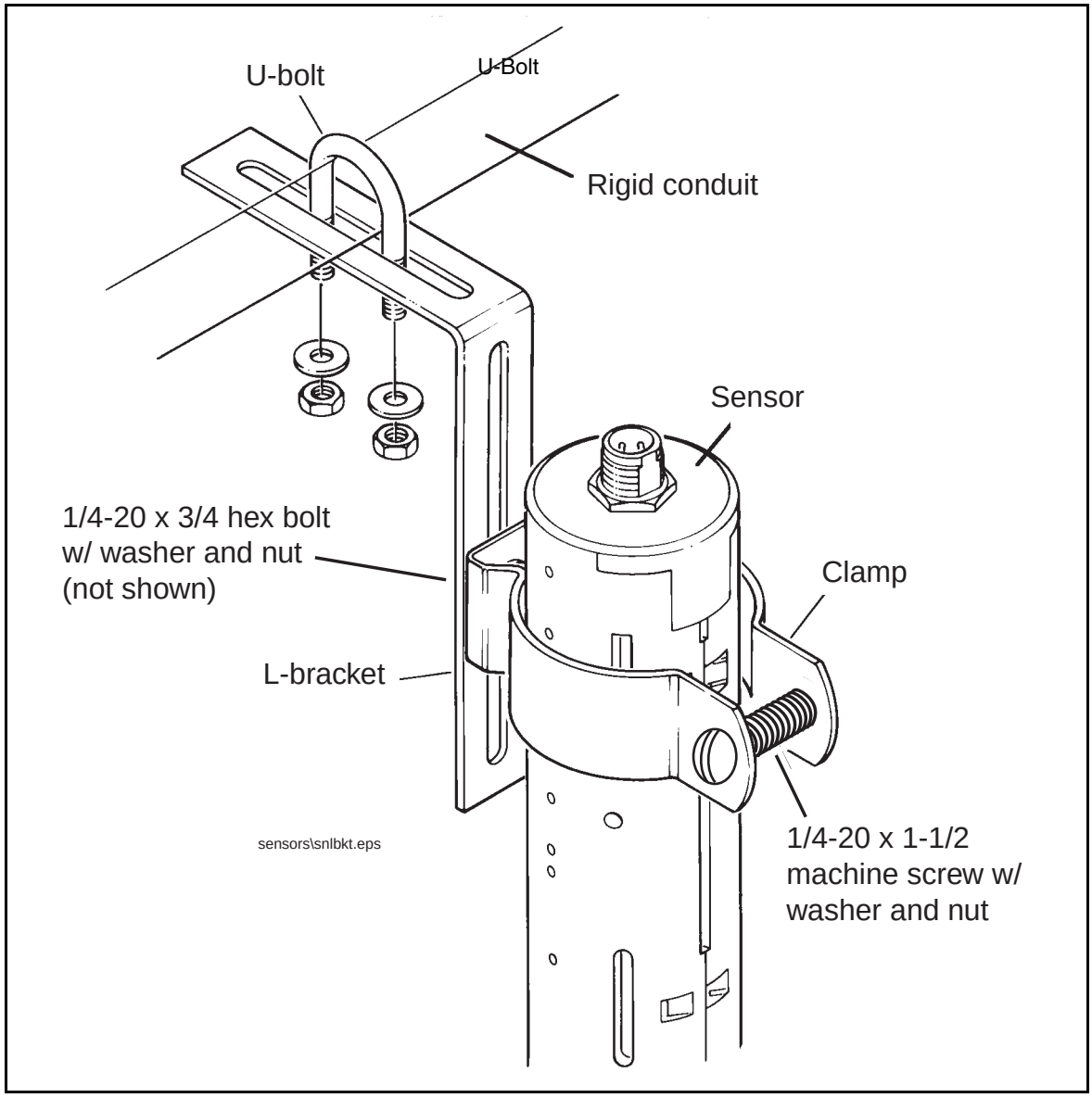


Figure A-5. Mounting the Sensor to Rigid Conduit

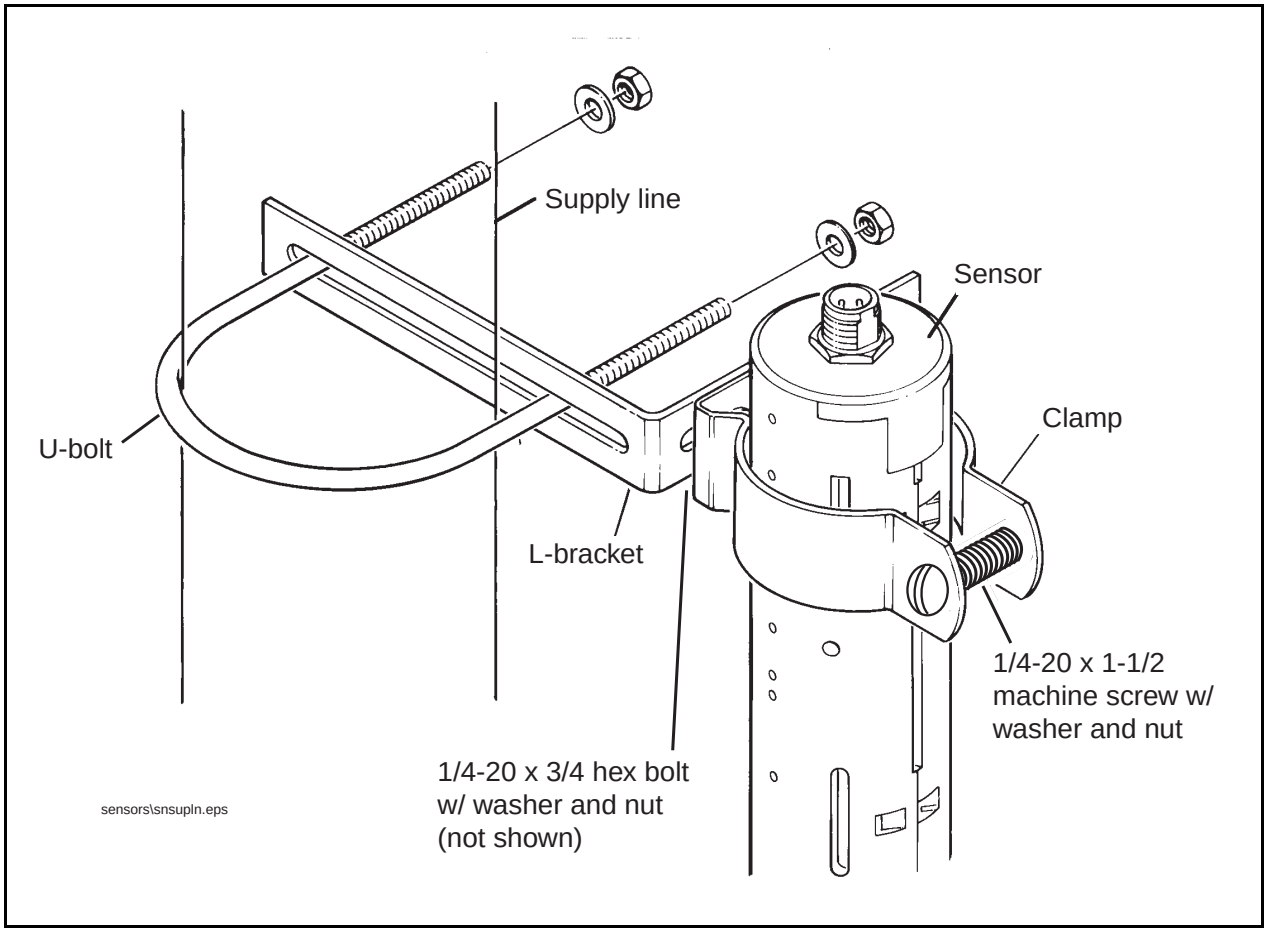


Figure A-6. Mounting the Sensor to a Supply Line

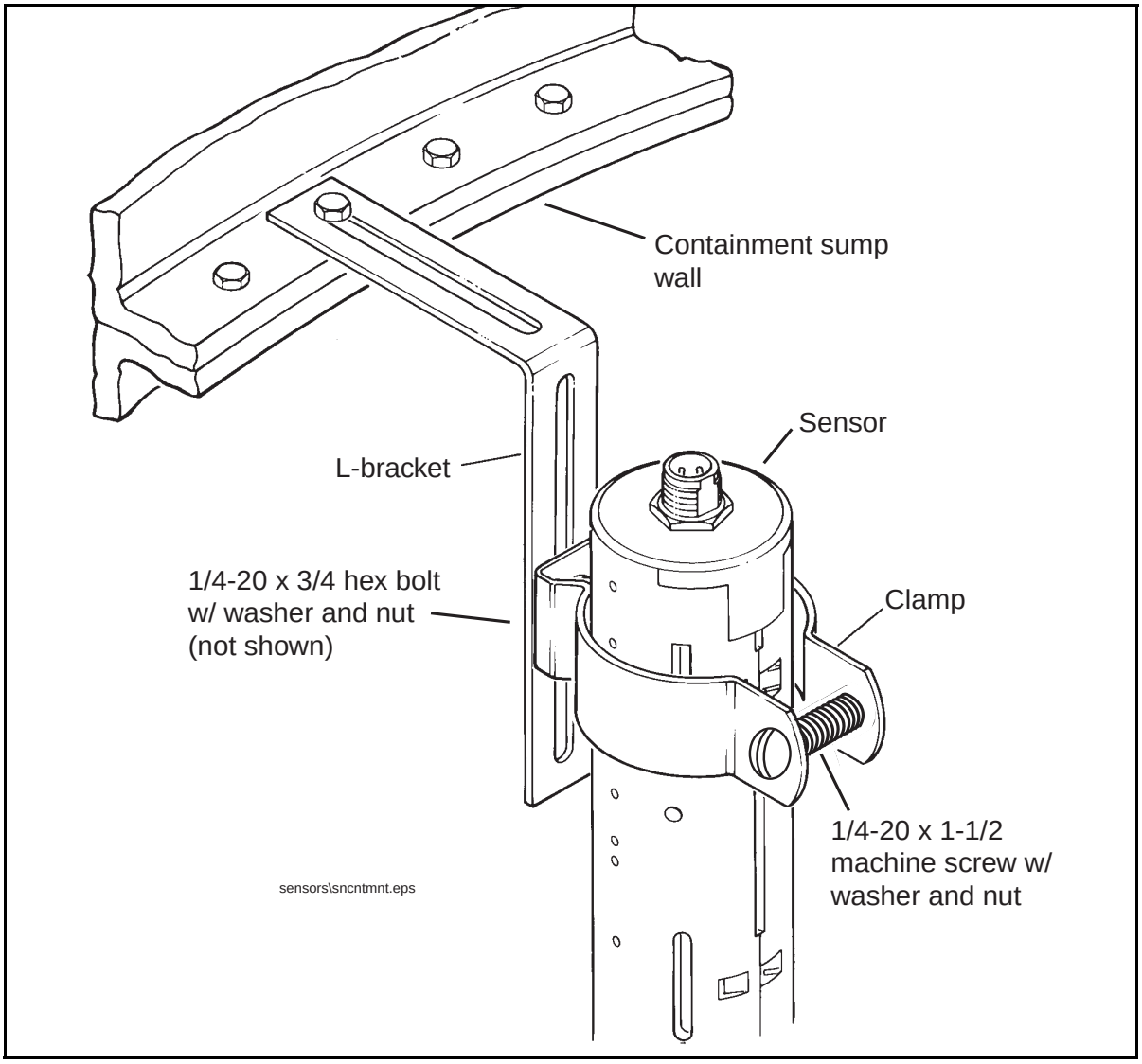


Figure A-7. Mounting the Sensor in a Containment Sump

Appendix B: Enabling The TLS4 To Function As A Datalogger

This document explains how to enable a TLS4 to function as a Datalogger. A laptop, an Ethernet crossover cable and a FMS ID number will be required.

NOTE: Several of the steps below may have been completed when the TLS4 was originally setup, in which case, you can verify the settings as you step through the complete enabling process.

BIR Protocol DIM

POS SYSTEM REQUIREMENTS AND LIMITATIONS

For sites using the Datalogger DIM, the Point of Sales (POS) system must conform to established Veeder-Root protocol and allow the Datalogger to collect the metered sales data necessary for it to perform its Business Inventory Reconciliation (BIR) and Wet Stock Management (WSM) tasks. This protocol is separate and distinct from the inventory protocol commonly used by POS and other systems to collect inventory data from Veeder-Root TLS consoles.

The following POS systems (Table B-1) are known to have implemented the Veeder-Root protocol and thus support BIR protocol DIM (Dispenser Interface Module).

Table B-1. POS Systems Using V-R Protocol*

Forecourt Controller	Protocol Name	TLS-350R	TLS-450PLUS
Allied	Station Site Controller (SSC)	X	X
Gilbarco	T-4 (Australia)	X	
PEC	8850	X	
POSTEC	RCC	X	
Wayne	Marketer 2000 (Sweden)	X	

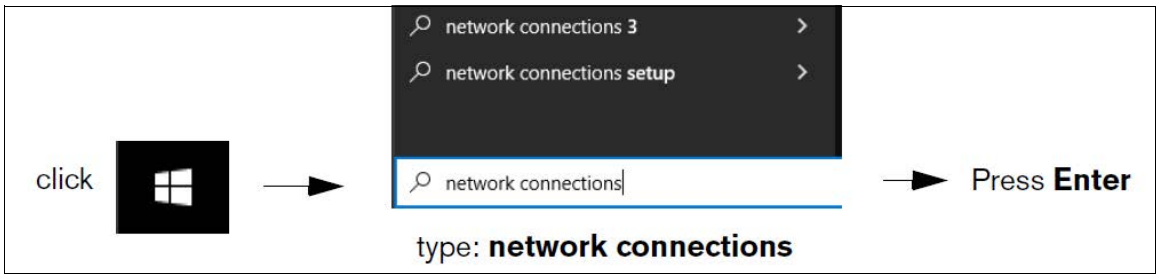
*When the proper hardware/software combinations are used.

Datalogger Site Connection and Initialization

After you are connected the Datalogger to the appropriate site equipment follow the steps below to setup the Datalogger.

NOTE: You must wait at least 5 minutes after powering on the Datalogger before starting this procedure.

1. Using an ethernet crossover cable, connect a laptop PC to ethernet port ETH 1 on the Datalogger (see Figure 1 on page 1 of this manual).
2. You must configure the laptop's wired integrated Local Area Network by clicking on the Windows Start Icon in the task bar, and typing 'Network Connections' and then pressing Enter (see below):



3. **NOTE: The screen shots contained in this appendix are for reference purposes only. The actual settings and data shown in the following examples are dependent on the laptop or PC operating system used to configure this hardware.**

   In the Network Connections screen, right click on the wired (not wireless) integrated Local Area Connection where the Ethernet cable is connected to the Datalogger. In the example below (Figure B-1), you would right click Ethernet.

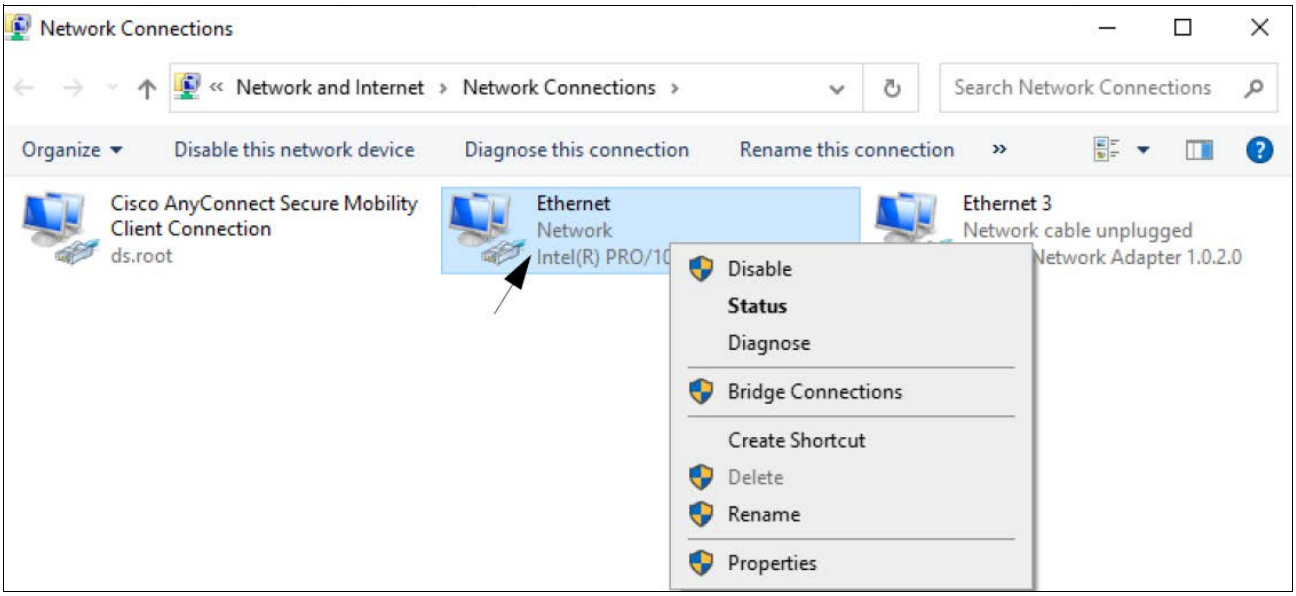


Figure B-1. Configuring LAN

4. When the selected Local Area Connection Properties dialog box opens make the selection shown in Figure B-2.

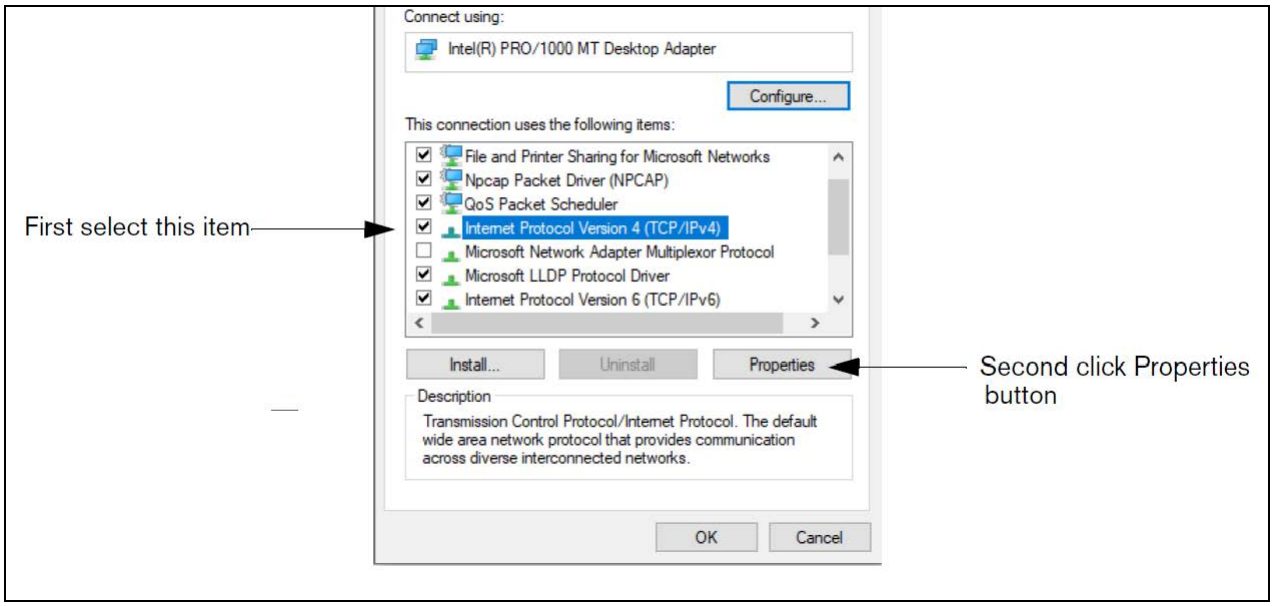


Figure B-2. Local Area Connection 'X' Properties dialog box selections

5. When the Internet Protocol Version 4 (TCP/IPv4) Properties dialog box opens make the selections shown in Figure B-3.

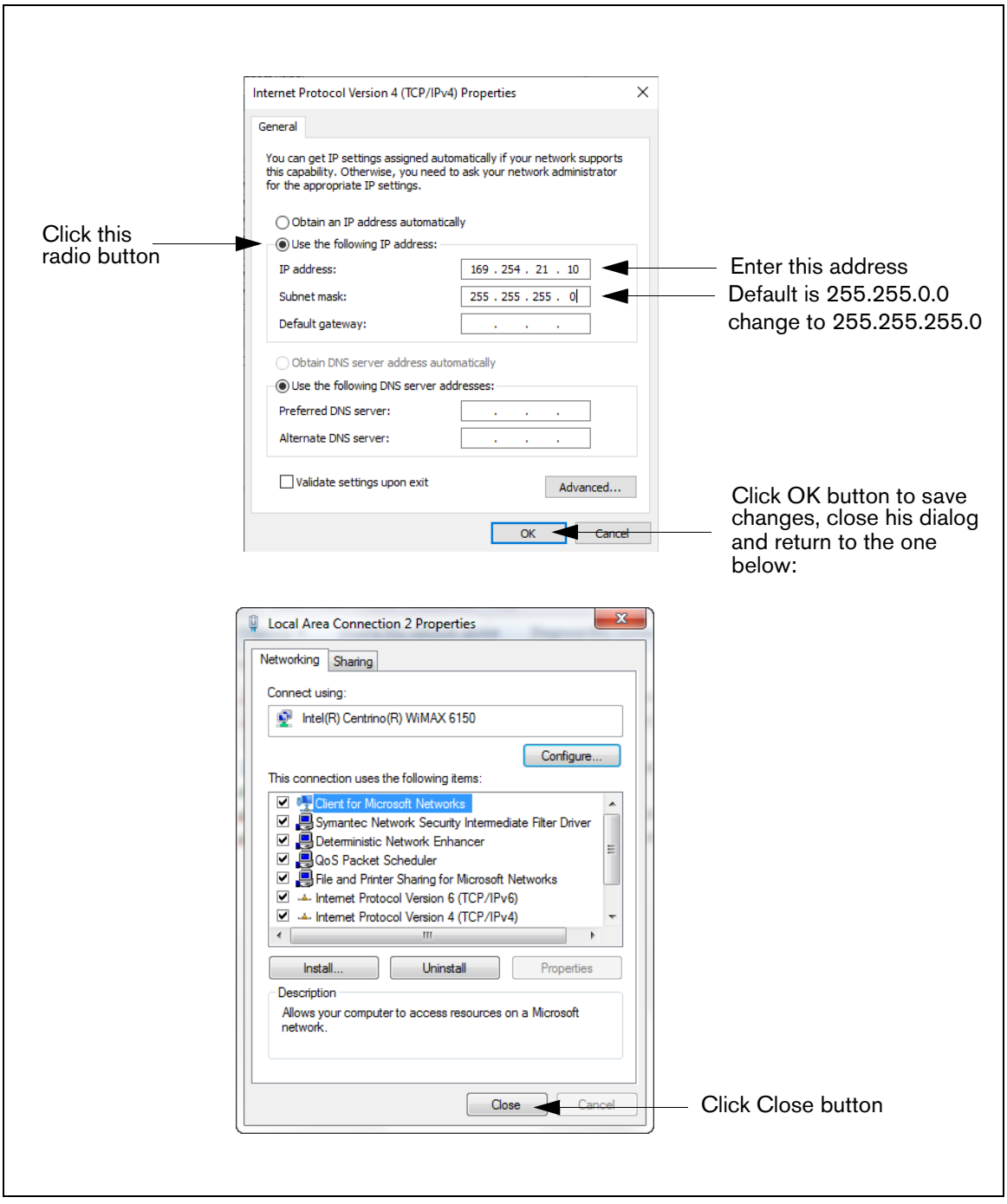


Figure B-3. Internet Protocol Version 4 (TCP/IPv4) Properties dialog box selections

6. On the laptop, open an internet browser and enter the IP address **https://169.254.21.12/GeneralSetup** in the browser's address bar. When the login page displays, enter 'guest' for the User Name, and enter the 'CPU Serial Number' for the password. The CPU Serial Number can be found on the GUI's **Menu>Overview>About** screen

   NOTE: The Datalogger simultaneously runs two applications; one programs the general communication protocols (GeneralSetup), and the other programs how the Datalogger gathers its information (DLSetup). Pressing the blue arrow at the top middle of the screen will toggle you between the two programs (see Figure B-4). After entering selections/changes to fields on any page, click the Save button to save your entries, or Cancel to discard them. Programming screens used to setup the Datalogger are listed in Table B-2.

Table B-2. Datalogger User Interface Screens

GeneralSetup Application Pages		See Example	DLSetup Application Pages		See Example
Communication Setup	Ethernet Port Setup	Step 7.	System Setup	FMS Identification	Step 16.
	Serial Port Setup	Step 8.			
	CDIM Setup	Diag. use only		ATG Commands	Step 9.
	TDIM Setup	Step 10.		DIM Commands	Step 11.
	Site Id Server Setup	Diag. use only	Communication Testing	FMS Heartbeat	Step 19.
System Setup	Hostname	Step 11.		ATG	Step 17.
	Date and Time	Step 13.		POS	Step 18.
	Units	Step 14.		DIM	Diag. use only
	Alarm Filtering	Diag. use only			
Diagnostics	DIM Communications	Step 12.			
	Ping	Diag. use only			
	Traceroute				
Software Maintenance	DB Backup				
	DB Restore				
	Download New Version				
	Activate/Revert				
	Upgrade Features				

7. On the "Communication Setup" page (see Figure B-4), click on "Ethernet Port Setup" (1) and select the Device type "ETH 1" (2) from the drop-down menu. In the IP Address Type field (3):

   If the site is using a static IP address, select "Static IP"; and enter the IP address assigned by your network administrator. Once this is complete, click the "Save" button to keep these settings (see example in Figure B-4).

   If the site is using a dynamic IP address, select "Dynamic IP" (the remaining parameters will auto-fill once the Datalogger is reconnected to the site network). Click "Save" (4) to accept your entries.

   NOTE: If you receive an error message after clicking "Save", click "OK" and refresh the page.

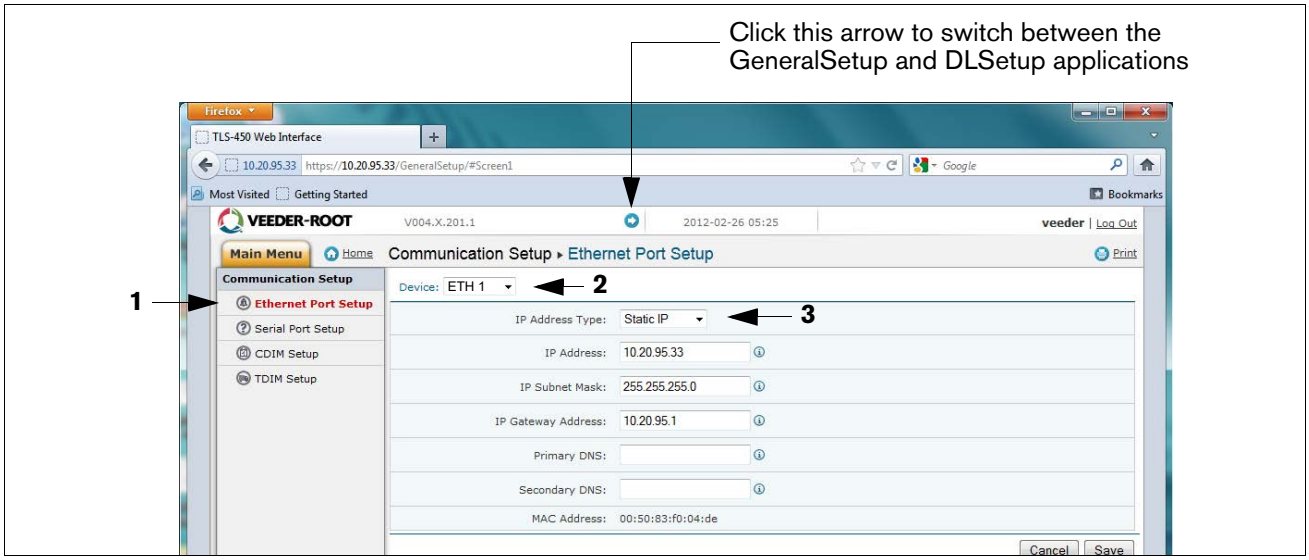


Figure B-4. Ethernet Port Setup

8. Click on “Serial Port Setup” (1) and in the “Device” field, select “SERIAL 2:”. Use this connection for the connection to the POS, and enter “POS” for the Label. Set the correct communications parameters for the POS using the drop down menus. Click the “Save” button to keep these settings (see example in Figure B-5).

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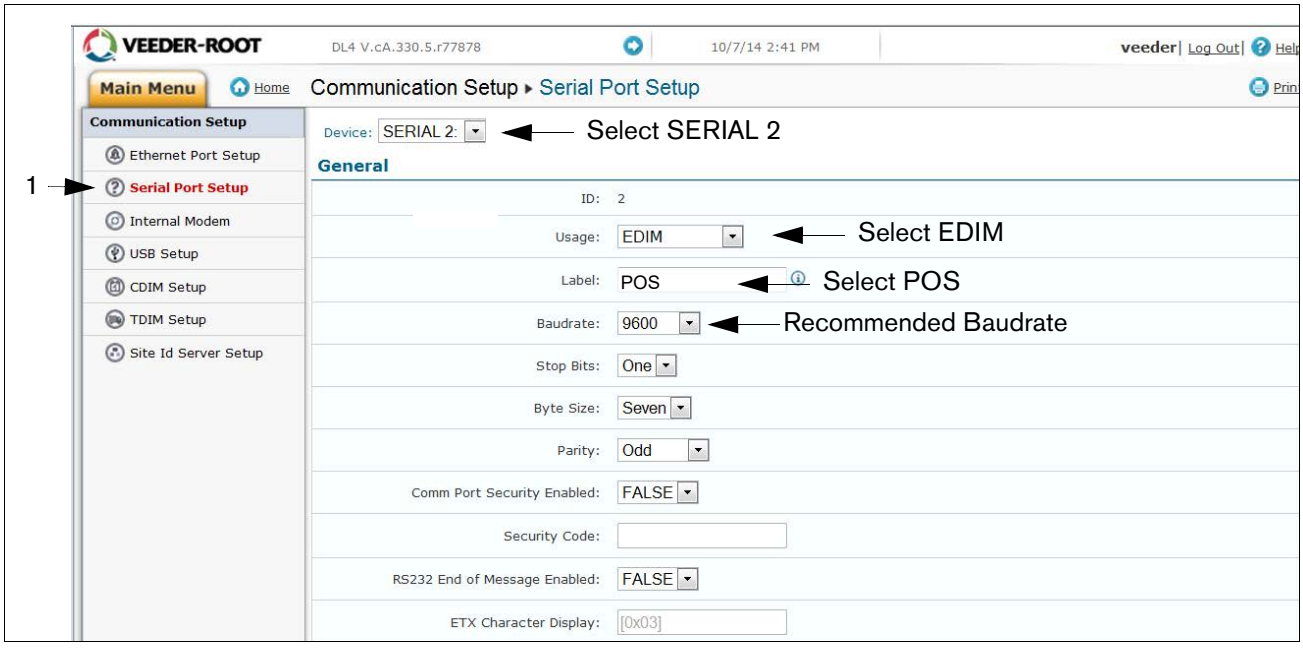

Figure B-5. Serial Port Setup, SERIAL 2-POS

9. Go to the “DLSetup” application by clicking on white arrow in blue circle top center of screen (see Figure B-6), and under “System Setup”, click on “ATG Commands (1 in Figure B-6)”. Then click on the “+ Add New Command” text at top right of screen (2 in figure). When the Add Command dialog box appears enter the command “i@C300”, add the Description “DIM_EVENTS”, set the Repeat Interval to “60” (3 in figure) and click Save (4 in figure).

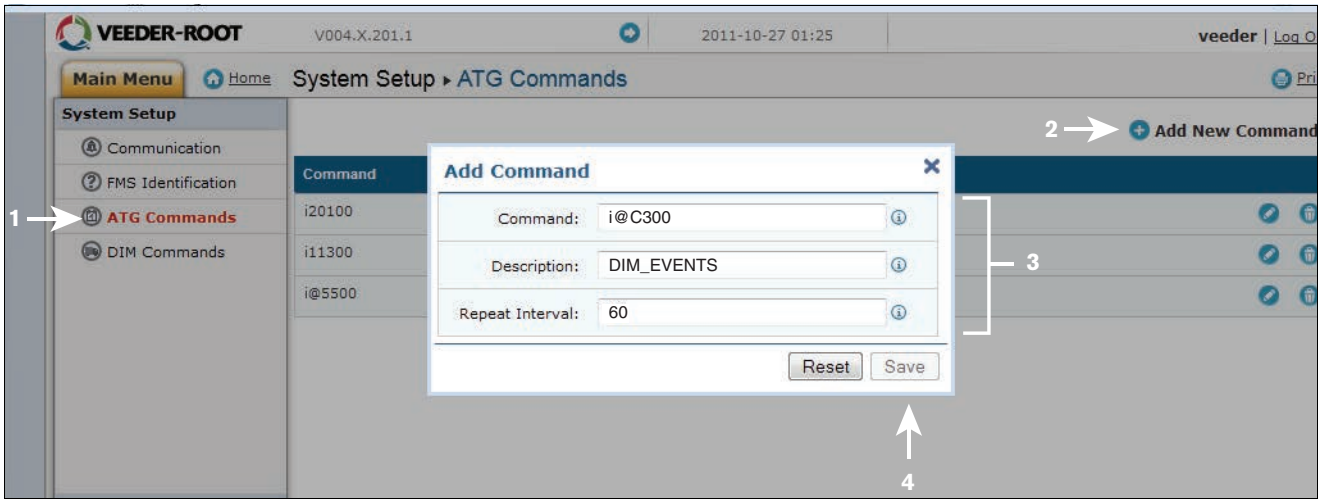

Figure B-6. Entering ATG Command

Click on the DIM Command page and then click on the trash can icon on the right end of the i@C300 command line to delete the i@C300 command (see Figure B-7). Jump back to the "General Setup" application by clicking on arrow top center of screen.

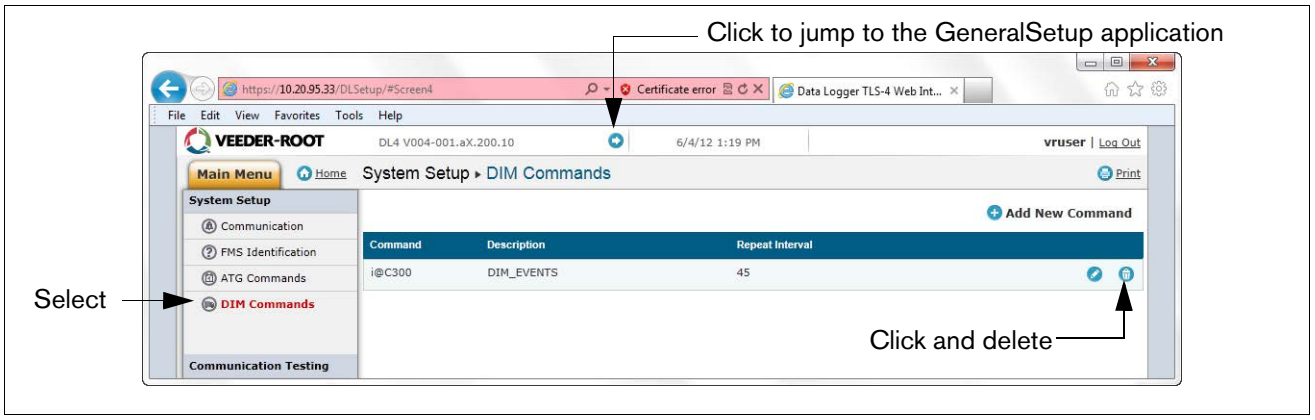

Figure B-7. Deleting ATG Command

10. Select "TDIM" set-up. Select "TDIM (ETH1)" from the drop-down menu. On the "TDIM Enable" drop down, select "TRUE" and type in a label (maximum of 20 characters). Then select the DIM protocol being used and click "Save". Accept the default Listen Port (unless there is a conflict with another device) and select the desired units (see example in Figure B-8). Once this is complete, click on "Save" to keep these settings.

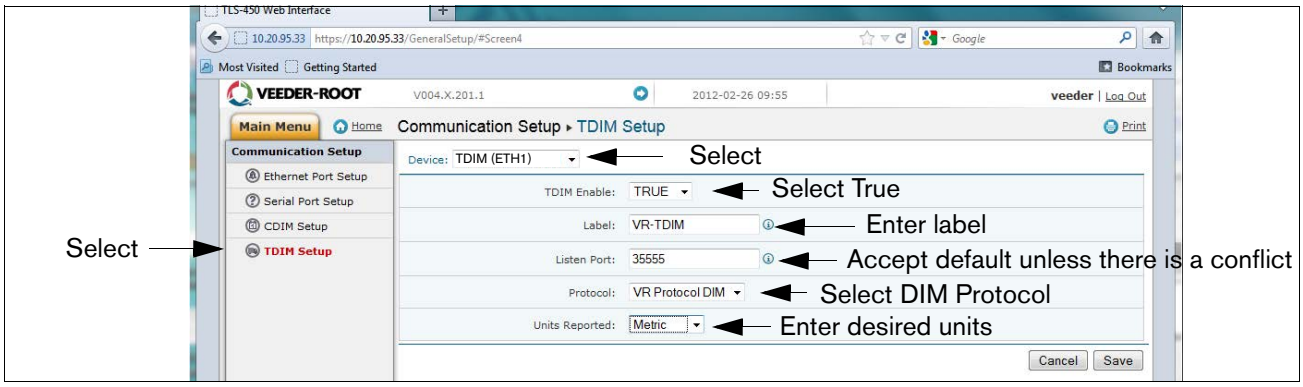

Figure B-8. TDIM Setup

11. Select the "System Setup" page and type in the Host name and then click the "Save" button (see example in Figure B-9). It is recommended that you use the network name assigned by the network administrator or some other name that identifies the location. While on this page click the Diagnostic Page link (bottom Left).

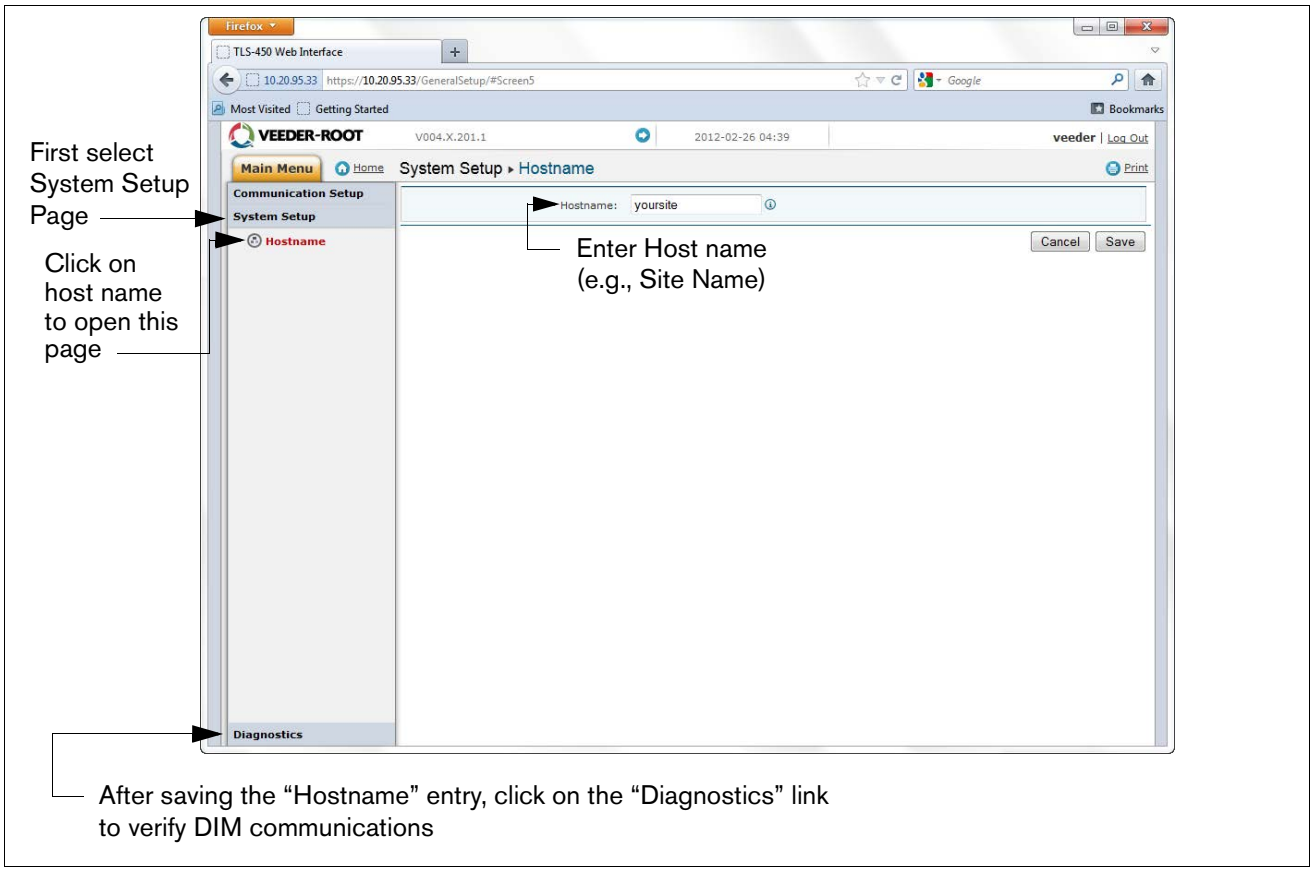

Figure B-9. Entering Host name

12. In the "Diagnostics" page (lower left in above figure), click on "DIM Communications" to verify that the DIM communications are successfully being recorded by the Datalogger. Any transactions occurring after the Datalogger was configured will be shown on the screen (see example in Figure B-10).

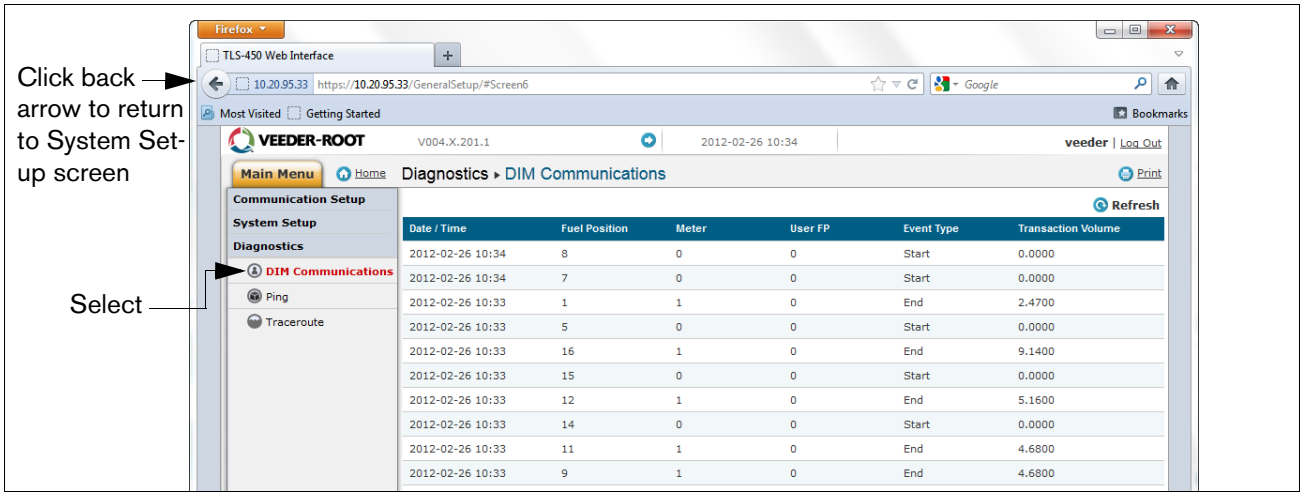

Figure B-10. Verifying DIM Communication

13. From the System Setup menu, select Date and Time link to access the current date/time entry screen (see example in Figure B-11).

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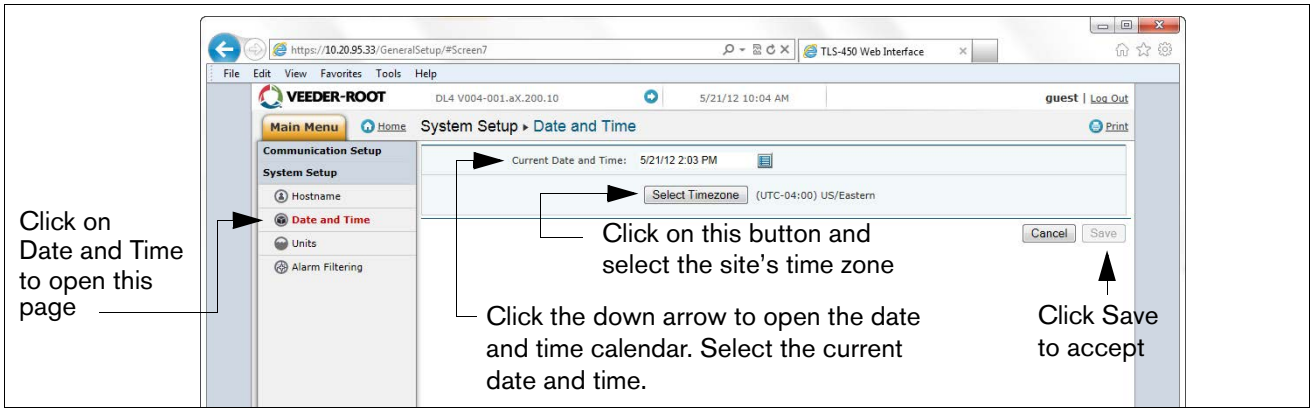

Figure B-11. Entering Date and Time

14. From the System Setup menu, click on the Units page(1), select the desired units (2), click Save (3) (see example in Figure B-12).

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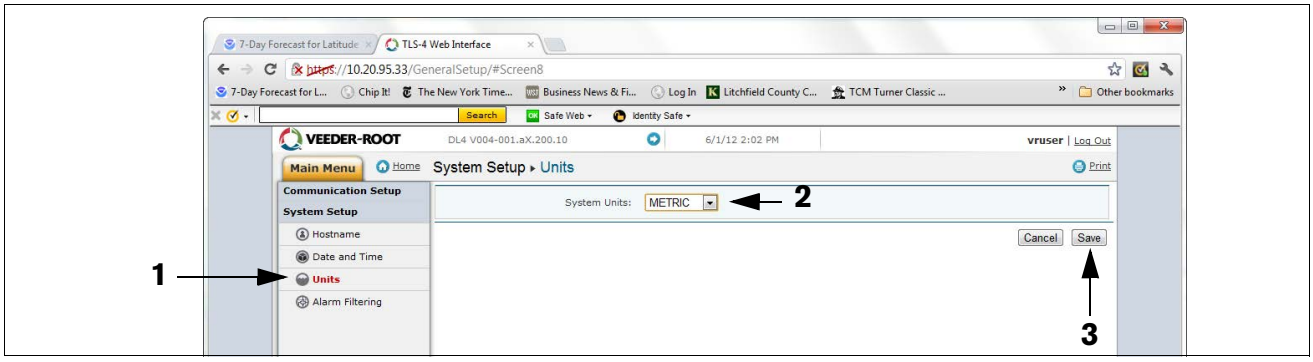

Figure B-12. Selecting System Units

15. Click on arrow just to the left of the date to switch to DLSetup application (see Figure B-13).

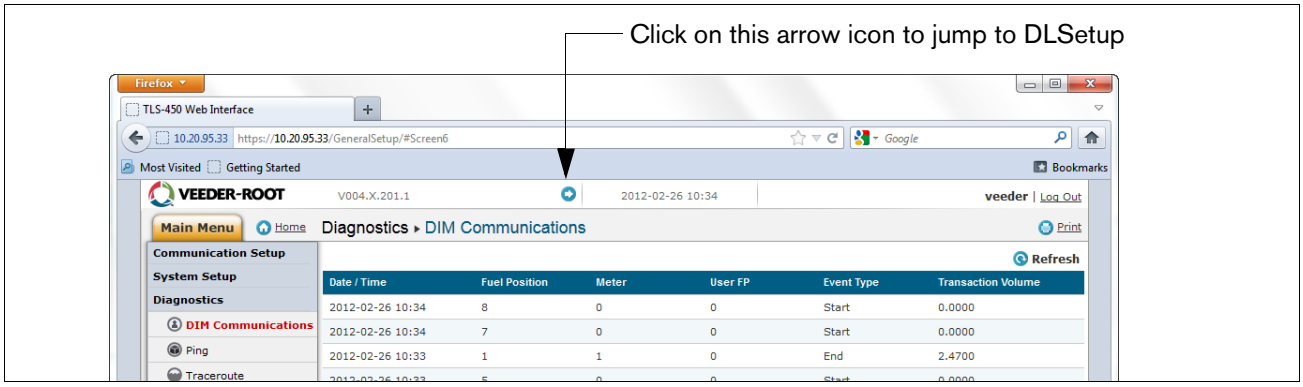

Figure B-13. Switching to DL Setup

16. Select the "FMS Identification" screen and enter the six-digit FMS site identification number. Then click on the "Save" button (see Figure B-14).

Figure B-14. Example FMS ID Entry

17. Wait at least 30 seconds from the completion of the previous step to allow for the system to re-initialize with the new settings. Then click on the "Communication Testing" link at the lower left bottom of the System Setup column (see above figure), then click on "ATG". Click on the "Inventory" button, which will enter the command "I20100". After several seconds, a Response should appear providing the current inventory data from the ATG. If no response is received, there is a problem in the setup parameters.

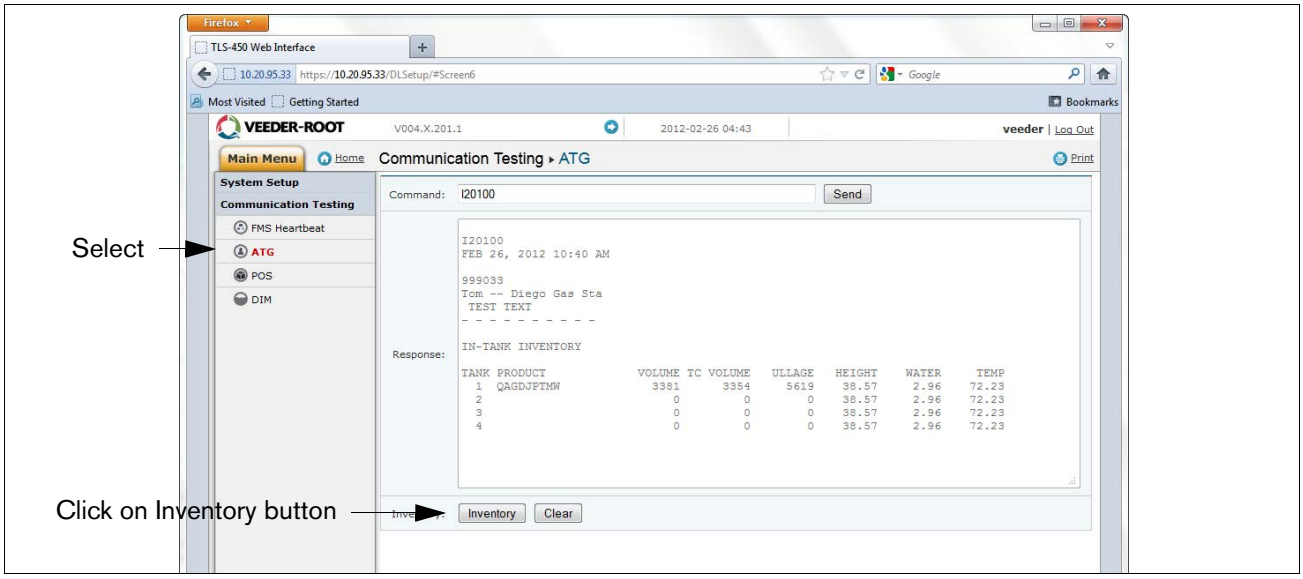

Figure B-15. Inventory Command Results

18. Click on “POS” to detect the POS protocol. Click the “START” button next to “Auto Detect Protocol” and wait for the Protocol Type to appear (see example in Figure B-16.

Figure B-16. POS Protocol Type Query

Verify that this is the correct protocol that was entered in the DIM setup in Step 10. Then click on the “Stop” button (see example in Figure B-17).

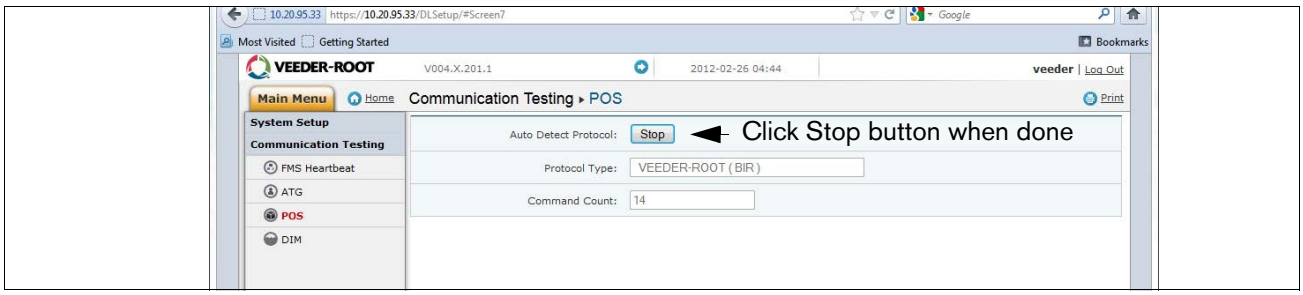

Figure B-17. POS Protocol Type Results

19. The Datalogger should now be configured to collect inventory and transactional data, which will be periodically retrieved by FMS. To verify connectivity with FMS, reconnect the Datalogger to the network or cell modem. Go to the “DLSetup” application’s Communication Testing screen, click on “FMS Heartbeat”, then click on the “Send Heartbeat” button (see Figure B-18). Wait for the “Response” text to indicate PASS or

FAIL. A PASS confirms that the Datalogger is successfully communicating with FMS. A FAIL indicates that the connection has failed and you will need to contact FMS or the network administrator for troubleshooting assistance.

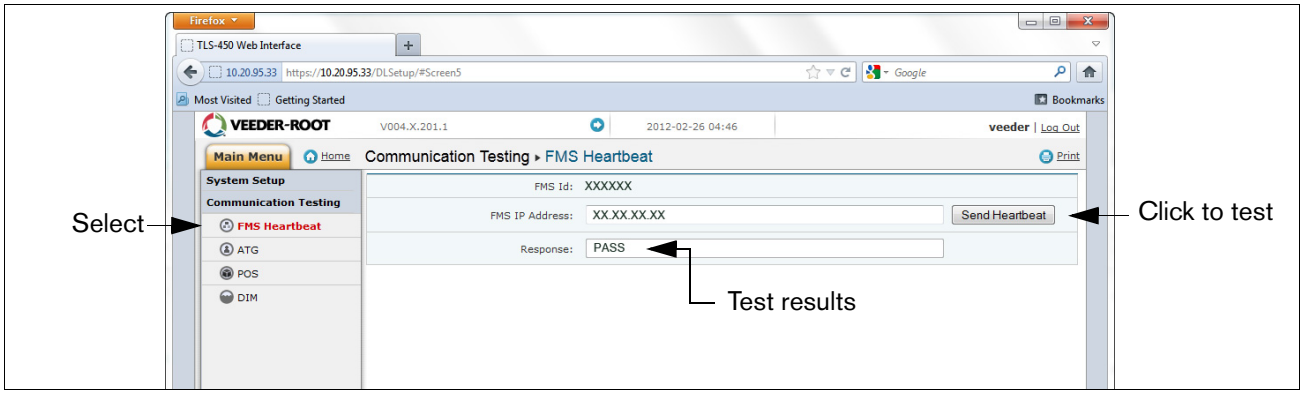

Figure B-18. FMS Heartbeat Screen

IMPORTANT! Connectivity between the Datalogger and FMS must be verified prior to completing the installation.

Return your laptop PC to the network settings originally set prior to the changes you made in Step 5.

Appendix C: 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	控制台 8601XX-XXX	[Ex ia Ga] IIA	2020312304000807
2	84633x-yzz, 84733x-yzz, 85633x-yzz, 84623x-yzz,	Ex ia IIA T4 Ga/Gb, Ex ia IIA T4 Ga	2022312305000549

依据标准

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

安全使用条件 Specific conditions of safety use:	-- 使用环境温度：0℃≤Ta≤50℃。 - 该设备必须作为已认证液位控制器的本质安全系统的一部分进行安装。 - 安装时，必须遵守随附的系统文件和安装手册 557013-578（英文版）或 577014-022C（中文版）。 - 为了保证安全运行，盒盖必须安装到位。 - Ambient temperature range: 0℃≤Ta≤50℃. - The device must be installed as part of the intrinsic safety system defined in Inventory Measurement/Leak Detection System. - The descriptive system documents and installation manual 577013-578 (English) or 577014-022C (Chinese) included with the aforementioned certificate must be followed during installation. - To ensure safe operation the cover must be in place.

安全使用条件 ***Specific conditions of safety use:***	- Ambient Temperature: -40°C~+60°C. The devices have been evaluated with the intrinsic safety system, and it shall be combined with the whole system during installation. The descriptive system documents and manuals included in the aforementioned certificate must be followed during installation and the appropriate Veeder Root accessories must be used. - The following condition of safe use applies to the Mag Sump Sensor: 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 unit prior to installation. Cleaning is not required under normal service conditions; 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 the unit, use of anti-static footwear & clothing is required. - The enclosure contains aluminium. Care must be taken to avoid ignition hazards due to impact of friction. - See instruction for other information.

VEEDER-ROOT

Ver.: J.2, 06/04/2025