Installation Manual

Schlumberger Dispenser Interface Kits

For Veeder-Root TLS-350R Systems

Manual Number 577013-487, Revision D

Current Loop Dispenser Interface Module (DIM)
Part No. 330404-001 and Part No. 84749X-400

SAM Dispenser Interface Module (DIM) 848731-XXX
Part No. 330404-002 and Part No. 84749X-401

MicroMax with Allied DIM Installation Kit No. 848711-XXX

Pro Series with XPIC/SAM DIM Installation Kit No. 848731-XXX

MicroMax with XPIC/Tokheim DHC DIM Installation Kit No. 848751-XXX
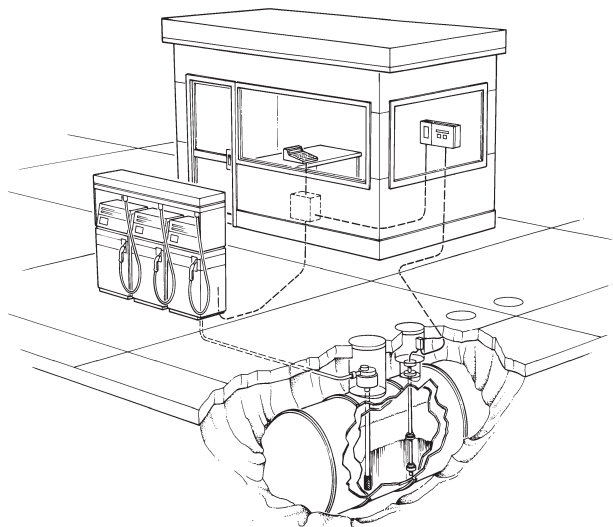
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Introduction

General

This manual contains installation procedures for the Schlumberger Current Loop Dispenser Interface Module (DIM), SAM (Schlumberger Access Module) Dispenser Interface Module (DIM), MicroMax with Allied DIM Installation Kit, Pro Series with XPIC DIM Installation Kit or SAM DIM Installation Kit, and MicroMax with XPIC DIM Installation Kit or Tokheim DHC DIM Installation Kit.

For additional information regarding DIMs, refer to the Veeder-Root TLS-350R *System Setup* manual. If this is a new installation or if site preparation is necessary, refer to the Veeder-Root TLS-350R *Site Preparation and Installation Instructions* manual, or contact your Veeder-Root representative for assistance.

Dispenser Interface Modules (DIMs)

DIMs provide an interface for the TLS-350R to certain Point-of-Sale (POS) systems. This manual describes the operation, installation, and set-up of the Current Loop DIM.

The DIM allows the TLS-350R console to gather relevant dispensing information, including how much product has been dispensed from each fueling station.

DIM Installation Kits

DIM Installation Kits provide hardware and cable to interconnect the TLS-350R and DIM to the POS systems. The installation kits vary for each DIM, and include all adapter boxes and cables for installation. Different length cables are available.

Safety Symbols

The following safety symbols are used throughout this manual to alert you to important safety hazards and precautions

Electricity
High voltage exists in, and is supplied to, the device. A potential shock hazard exists.

Explosive
Fuels and their vapors are extremely explosive if ignited.

Turn Power Off
Live power to a device creates a potential shock hazard. Always turn power off to the device and associated STPs when servicing unit.

Read all instructions and symbol warnings.

Safety Warnings

⚠ WARNING

You are working with a device in which potentially lethal voltages may be present.

Death or injury may result if safety precautions are not followed.

1. **Read all instructions and symbol warnings.**
2. **Turn power off before installing this kit.**

DIM and CAB Installation

Requirements

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

1. For each module, a corresponding expansion slot must be available.

2. ALL unused expansion slots MUST be covered.

3. Only three slots are available in the communication compartment of the console of which one is typically used for an internal printer.

Dispenser Interface Module (DIM) Installation

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

Important ☞ *Communications interface module expansion slots 3 and 4 CANNOT be used at the same time, unless they are occupied by the RS-232 with auxiliary port interface module. Equipment malfunction will result if both slots are used.*

1. Read and follow all instructions carefully.

2. Open the left-hand door of the TLS-350R console by unscrewing the left-top and left-bottom locking bolts.

3. To retain current programming, be sure that the ECPU board battery switch is set to "ON" (see Figure 1 on page 4, but put in the "up" position). To avoid electrical shock or damage to components if accessing the battery switch, avoid touching any circuit components with your hand, any conductive tool or metallic jewelry.

4. Turn console power off before installing the kit.

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 device.

6. Remove the existing retaining bracket panel from the communication compartment. One DIM can accept connections from three Cable Adapter Boxes.

Important ☞ *A maximum of three modules of any type can be used in the communication compartment. The module is to be installed in only the communications interface area of the console.*

7. Hold the DIM module (ordered separately) with its snap-in fastener positioned at the lower edge and carefully slide the module into its slot.

8. To secure the 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 at the bottom of the communication compartment ARE COVERED!

10. Check that the three DIM jacks are accessible through the slot opening at the bottom of the console once installation is complete.

Front Panel Display Enabled (DIP Switch 3 in the OPEN position) HRM Features (Europe Only) - Enabled (DIP Switch 3 in the CLOSED position)

DIP rocker switch 4 - Unused

RS-232 Security Code Disabled (DIP Switch 2 in the OPEN position)

Battery Backup Switch - Shown in OFF position (down)

Front Panel Security Code Disabled (DIP Switch 1 in the OPEN position)

DIP rocker switches: OPEN position - open end down, number end up CLOSED position - open end up, number end down

consoles\ecpubbsw.eps

Figure 1. ECPU Board Battery Switch ON (SW1)

The following shows placement of a DIM Card into a module expansion slot (can only be installed in slots 1, 2, or 3):

console/commstal.eps
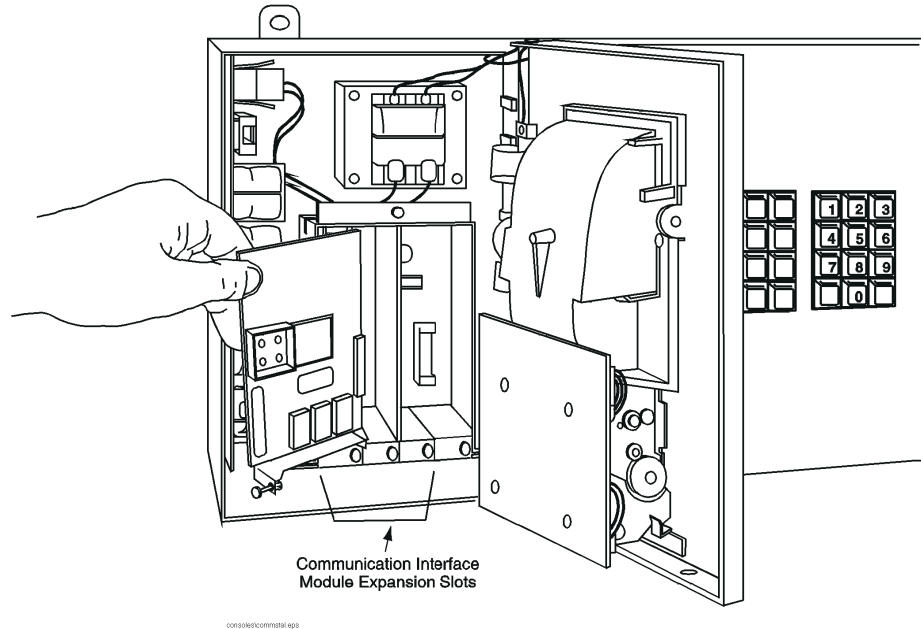
Figure 2.   DIM Card Installation

Mounting the Current Loop and RS-232 CAB

Important ☞   *When wiring from the Cable Adapter Box (CAB) to the TLS-350R, keep wires physically separated from any other wiring or conduits (Any unused wire should be coiled up.)*

Do not disconnect the dispenser communication wiring during a customer transaction because doing so may result in a loss of dispenser data.

The Cable Adapter Box (CAB) should be placed as close as possible (within 6 feet) to the Pump Controller Box (see Figure 3 on page 6 and Figure 4 on page 7).

1.   To activate the CAB, make sure the slide switch is in the "RUN" position. When trouble shooting pump controller problems, move the CAB switch to the "BY-PASS" position. The CAB is now removed from the pump controller circuit.

2.   Identify the four-wire cable with the RJ-45 connectors (communications style) on each end. This cable must be connected from the CAB to the DIM located in the communication section of the Tank Gauge. Each DIM circuit board has three port connections. Any port may be used.

Important ☞   *The presence or absence of the four-wire cable from the tank gauge has no influence on dispenser communications.*

3. Mount the CAB using either the 3M "hook and loop" pads provided in the kit, or utilize the mounting ears on the CAB (see Figure 3 on page 6 and Figure 4 on page 7). Choose a surface that is clean, dry, and oil-free. For the 3M "hook and loop" pads, remove the backing paper from the back of the pad. Place the adhesive side on the surface and press firmly into position. The adhesive must be allowed to set for a minimum of one hour before attaching or removing the CAB.

Important ☞ *The Cable Adapter Box can be mounted on any flat surface located indoors in a non-hazardous location.*

The following shows the top, side, and end dimensions of the Current Loop Cable Adapter Box:
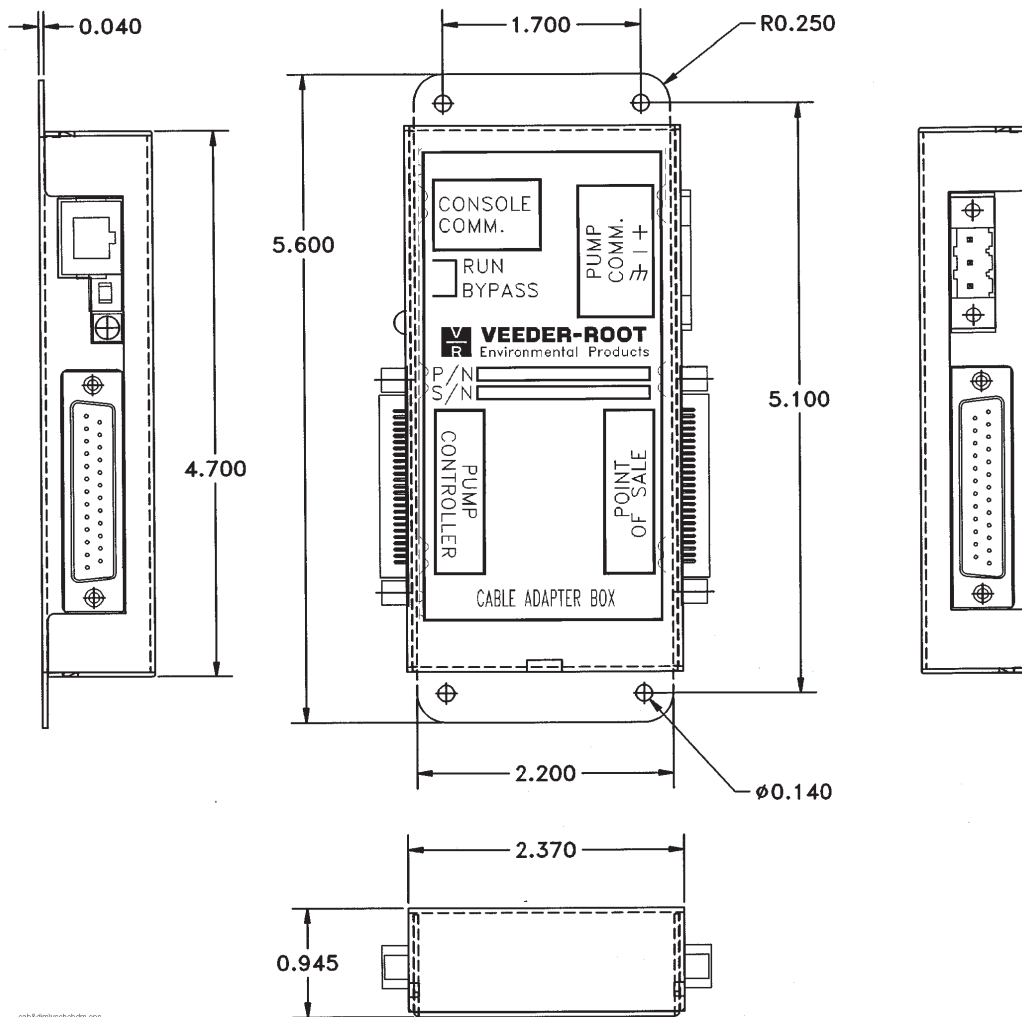
Figure 3. Dimensions of Current Loop Cable Adapter Box

The following shows the top, side, and end dimensions of the RS-232 Cable Adapter Box (which is used with XPIC and SAM applications):
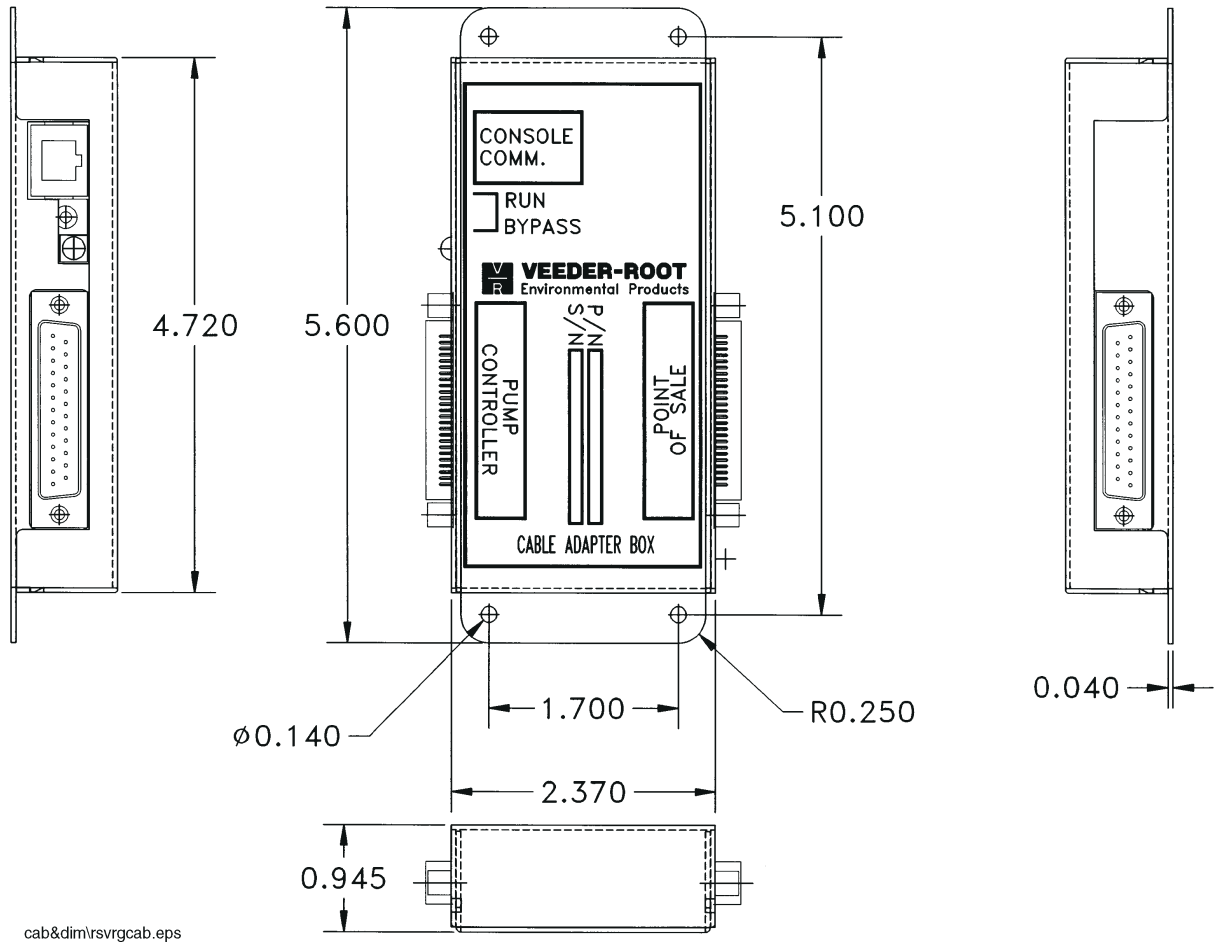
Figure 4. Dimensions of RS-232 Cable Adapter Box

MicroMax/Pro Series/SAM Generic Point-Of-Sale (POS)

System Requirements

Veeder Root Hardware Requirements

The following equipment is required to interface to the Schlumberger MicroMax/Pro Series POS System:

❑ TLS-350R console with Business Inventory Reconciliation (BIR)

❑ One Schlumberger Current Loop Dispenser Interface Module (DIM) (For up to 32 fueling positions):
Part No. 330404-001 when ordered with the console
Part No. 84749X-400 when ordered as an upgrade or replacement
DIM Software Item No. 330435-001B (or higher)

❑ One Schlumberger SAM Dispenser Interface Module (DIM) (For up to 36 fueling positions):
Part No. 330404-002 when ordered with the console
Part No. 84749X-401 when ordered as an upgrade or replacement
DIM Software Item No. 331274-001

❑ One Schlumberger DIM Installation Kit:
MicroMax/Allied Part No. 848711-XXX
OR
Pro Series/XPIC/SAM Part No. 848731-XXX
OR
MicroMax/XPIC/DHC Part No. 848751-XXX

Table 1 contains Installation Kit numbers based on the length of the cable.

Table 1: Kit Numbers for RS-232 DIMs

Cable Lengths	Kit Number MicroMax/ Allied	Kit Number Pro Series/ XPIC/SAM	Kit Number MicroMax/ XPIC/DHC
5-foot cable	848711-005	848731-005	848751-005
10-foot cable	848711-010	848731-010	848751-010
25-foot cable	848711-025	848731-025	848751-025
50-foot cable	848711-050	848731-050	848751-050
100-foot cable	848711-100	848731-100	848751-100
200-foot cable	848711-200	848731-200	848751-200

Important ☞ *The installation kit includes a Cable Adapter Box (CAB) and cable to the TLS-350R. The CAB should be installed as close as possible to the pump controller box. Select the shortest suitable cable, measuring from the CAB to the TLS-350R.*

TLS-350R Software Requirements

❏ System Software: 349511-109-A, or 309-A (or higher)

❏ Peripheral Controller Software: 002B (or higher)

❏ Parameter String: B1ESVG (when operating in the metric mode, the last "G" should be replaced with an "M"). Refer to the Veeder-Root TLS-350R *System Setup* manual for further information.

System Limitations

❏ Dispenses single product only; no blenders.

Important ☞ *In-Dispenser credit card readers ARE supported by the Schlumberger Dispenser Interface Module.*

MicroMax/Allied Hardware Requirements

❏ An Allied Protocol Box (PCB) or an Allied Station Site Controller (SSC) Box.

❏ Schlumberger MicroMax Point-of-Sale (POS) console (other POS terminals are not supported).

Important ☞ *Schlumberger, Gilbarco, Wayne, or Tokheim dispensers may be used.*

Wiring New Installations

Using a Station Site Controller (SSC) Box

Important ☞ *To insure proper operation of the tank gauge, the switch on the Cable Adapter Box (CAB) must be in the "RUN" position.*

1. On channel 1 of the SSC Box, disconnect the communication cable coming from the POS terminal.

2. Connect the communication cable to the POS connector on the CAB.

3. Connect the 24-inch SSC cable supplied in this kit to the Pump Controller connector of the CAB and channel 1 of the SSC.

Important ☞ *The 2-position plug connector is not used with the SSC.*

The following is a typical interconnection diagram:

Communications Cable

RJ-45

(Note: This port is only to be used with Allied Protocol Box))

RJ-45

6" VR Supplied Short
25 Pin to 25 Pin Patch Cable

(+)
(−)

Cable
Adapter
Box

P
O
S

S
S
C

C1
Allied
Station Site Controller
(SSC)
(Pump Distribution Box)

Communications Cable

POS

Schlumberger MicroMax 3000 or Equivalent

cab&dim\schalssc.eps
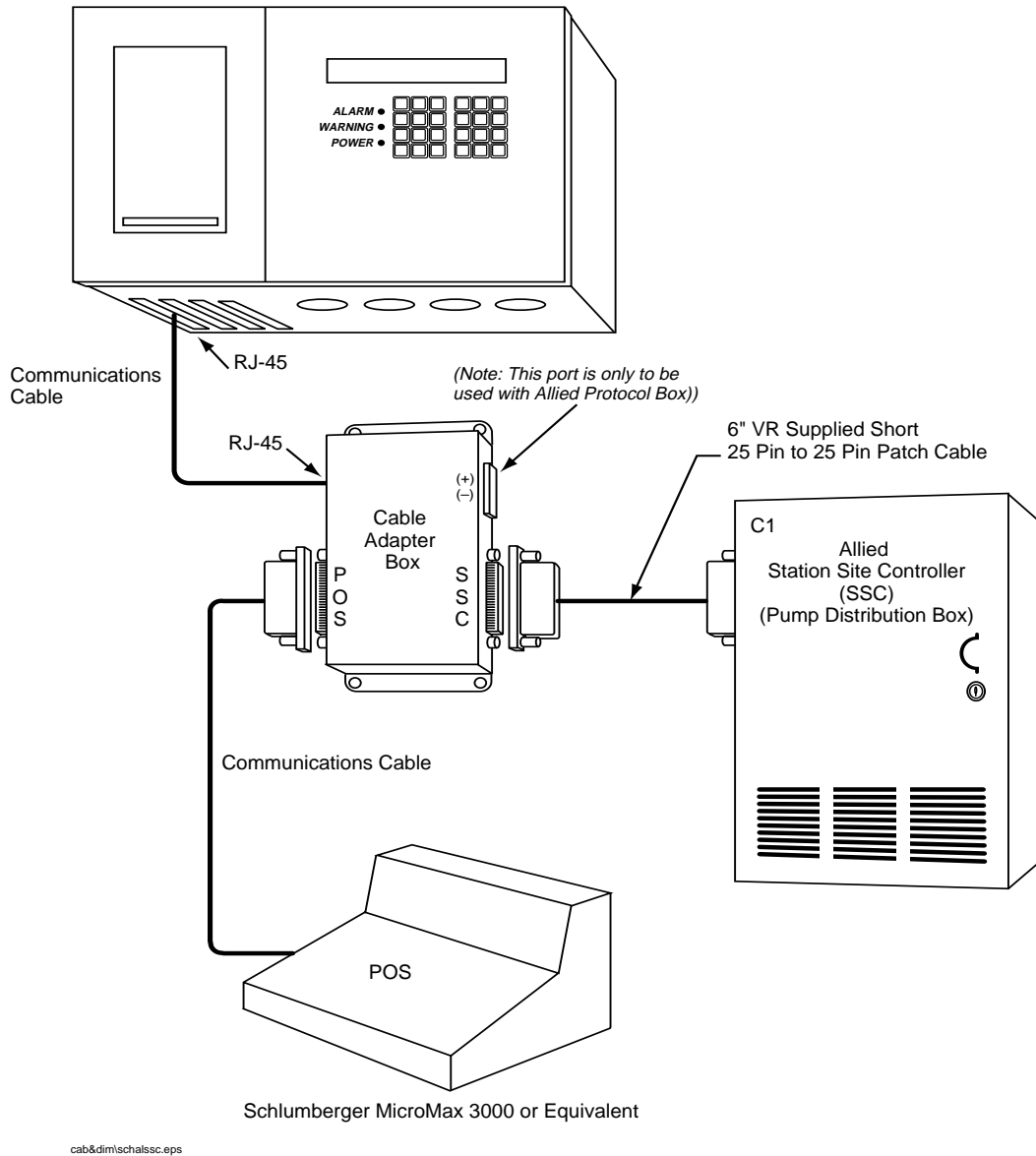
Figure 5. MicroMax POS with Allied Station Site Controller Box Current Loop Interface

Wiring Existing Installations

Using An Allied Protocol Box (PCB)

Important ☞ *To insure proper operation of the tank gauge, the switch on the Cable Adapter Box (CAB) must be in the "RUN" position.*

1. Complete all fueling transactions in process. Do not start any new transactions until the following connections are made.

2. For Allied Protocol Boxes (PCBs), identify the communication cable coming from the Point-of-Sale (POS) terminal. This cable should connect to TB1 (terminal block) located inside the lower left hand corner of the PCB.

3. Remove the wire connected to position 2 of TB1. Connect this wire to contractor supplied two-wire cable, selecting the conductor which terminates at the "+CL" on the CAB. Attach using wire nut.

4. To complete the loop, connect the original POS wire to conductor of contractor supplied two-wire cable, terminating at "-CL" on the CAB to position 2 of TB1.

Important ☞ *For applications using an Allied PCB, the two position plug connector on the bottom of the CAB must be used. The 24-inch controller cable and both of the DB-25 connectors are not used.*

The following is a typical interconnection diagram:

Figure 6. MicroMax POS with Allied Protocol Box Current Loop Interface
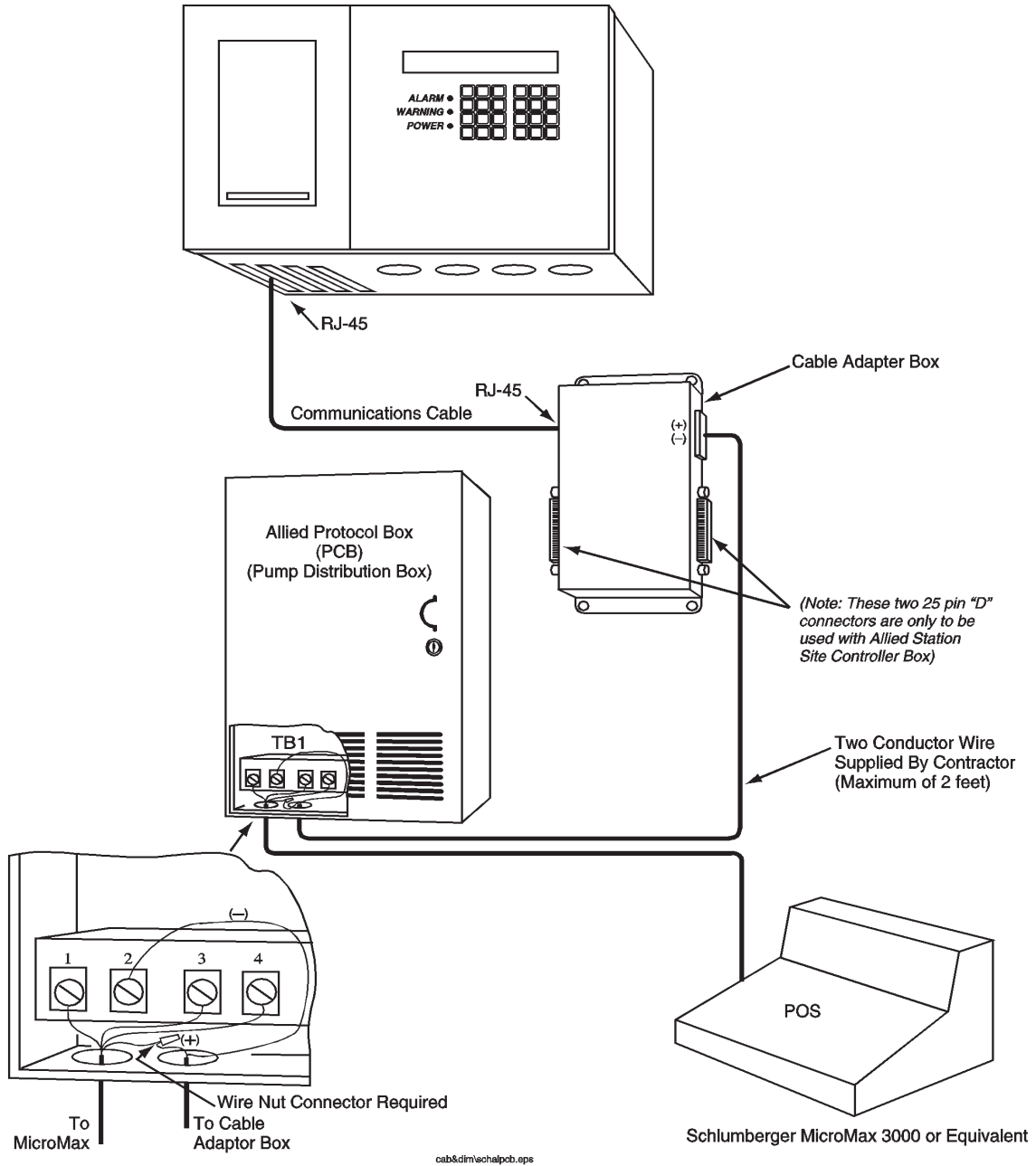
Using Pro Series or MicroMax POS / XPIC or SAM Pump Controller Box

Important ☞ *When wiring from the Pump Controller Box to the Cable Adapter Box (CAB), keep wires physically separated from any other wiring or conduits (Any unused wire should be coiled up.)*

Do not disconnect the dispenser communication wiring during a customer transaction because doing so may result in a loss of dispenser data.

To insure proper operation of the tank gauge, the switch on the Cable Adapter Box (CAB) must be in the "RUN" position.

1. Complete all fueling transactions in process. Do not start any new transactions until the following connections are made (see Figure 7 on page 15).

2. For either the Pro Series or MicroMax POS, identify the communication cable coming from Port 5 and going to Port 1 of either the XPIC or SAM Controller. This communications cable should be marked with Schlumberger part number 1410838 (for 10 foot cable), 1410839 (for 25 foot cable), or 1410840 (for 50 foot cable). Locate where the 25 pin D male connector interfaces with the 25 pin D female connector.

Important ☞ *Some applications may configure different ports on the XPIC or SAM. If so, identify the correct port by inspecting the back of the POS terminal. Locate the pump control serial port (marked Port 5) on the Pro Series or MicroMax. Trace this cable to the designated port on the back of the XPIC or SAM.*

    a. For the Pro Series, disconnect the two 25 pin D connectors and connect the 25 pin D male connector from the XPIC or SAM Controller to the RS-232 Cable Adapter Box (CAB) port labeled CONTROLLER. Connect the 25 pin D female from the POS to the 25 pin D male port labeled POS.

    b. For the MicroMax, disconnect the 25 pin D connector located in Port 5. Connect this cable to the RS-232 CAB port labeled CONTROLLER. Connect the supplied serial cable to the RS-232 CAB port labeled POS and the other end to the MicroMax Port 5.

The following is a typical interconnection diagram:

RJ-45

Communications
Cable

RJ-45

Cable
Adapter
Box

CONTROLLER

POS

25 Pin "D"

PORT 1

25 Pin "D"

9 Pin "D"

25 Pin Serial M/F
Communications Cable

PORT 2

XPIC
or
SAM

9 Pin "D"
Port 5

cab&dim\schxpic3.eps

POS

Schlumberger Pro Series or MicroMax

Figure 7. Pro Series or MicroMax POS with SAM or XPIC Controller Box and
RS-232 Cable Adapter Box Interface

Using MicroMax and Tokheim DHC Pump Controller Box

Important ☞ *When wiring from the Pump Controller Box to the Cable Adapter Box (CAB), keep wires physically separated from any other wiring or conduits (Any unused wire should be coiled up.)*

Do not disconnect the dispenser communication wiring during a customer transaction because doing so may result in a loss of dispenser data.

To insure proper operation of the tank gauge, the switch on the Cable Adapter Box (CAB) must be in the "RUN" position.

1. Complete all fueling transactions in process. Do not start any new transactions until the following connections are made (see Figure 8 on page 17).

2. For MicroMax POS, identify the communication cable coming from Port 5 (of the MicroMax POS) and going to Port 2 of the Tokheim Controller.

3. Disconnect the 25 pin D connector located in Port 5 of the MicroMax. Connect this cable to the RS-232 CAB port labeled CONTROLLER. Connect the supplied serial cable to the RS-232 CAB port labeled POS and the other end to the MicroMax Port 5.

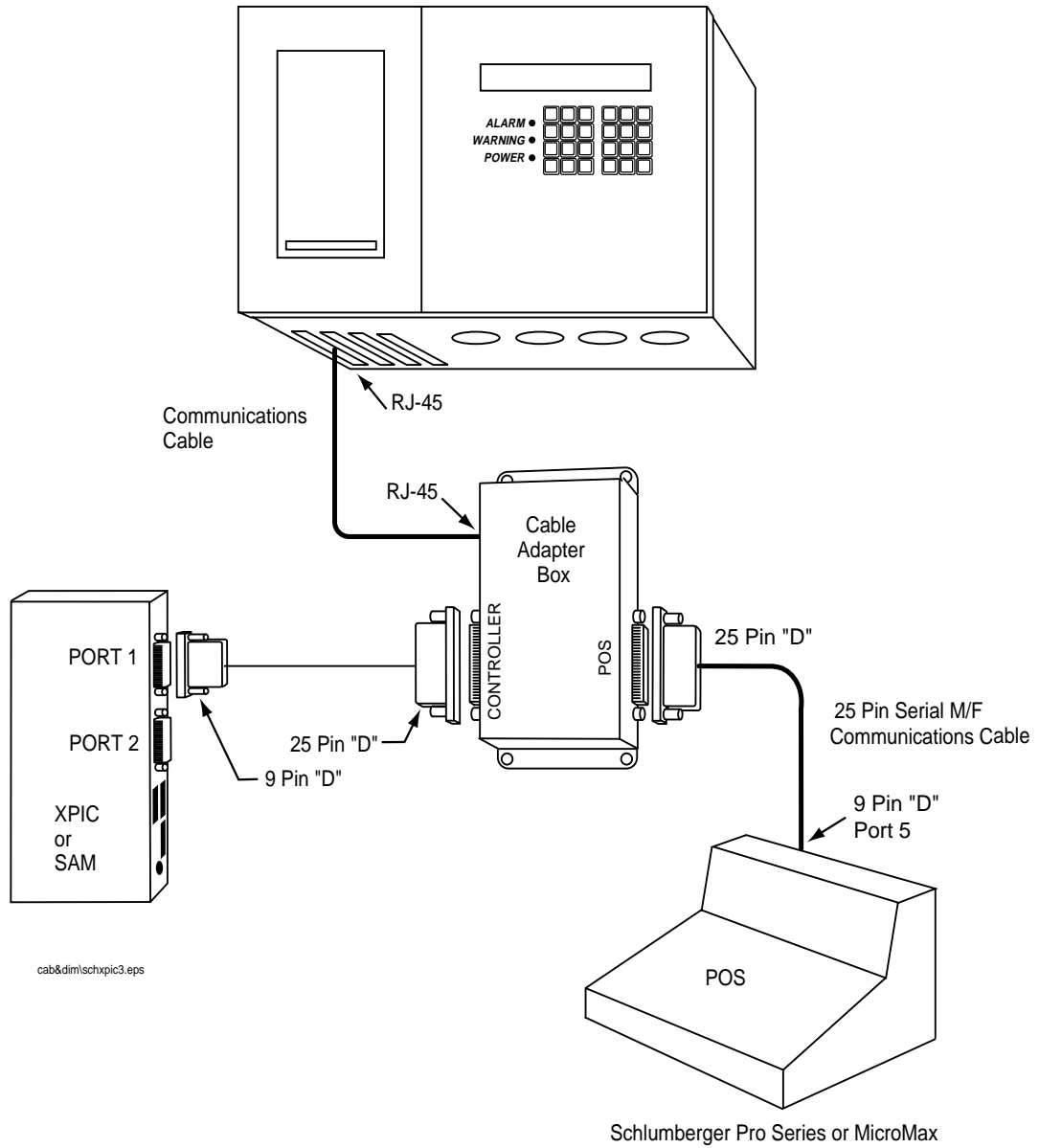The following is a typical interconnection diagram:
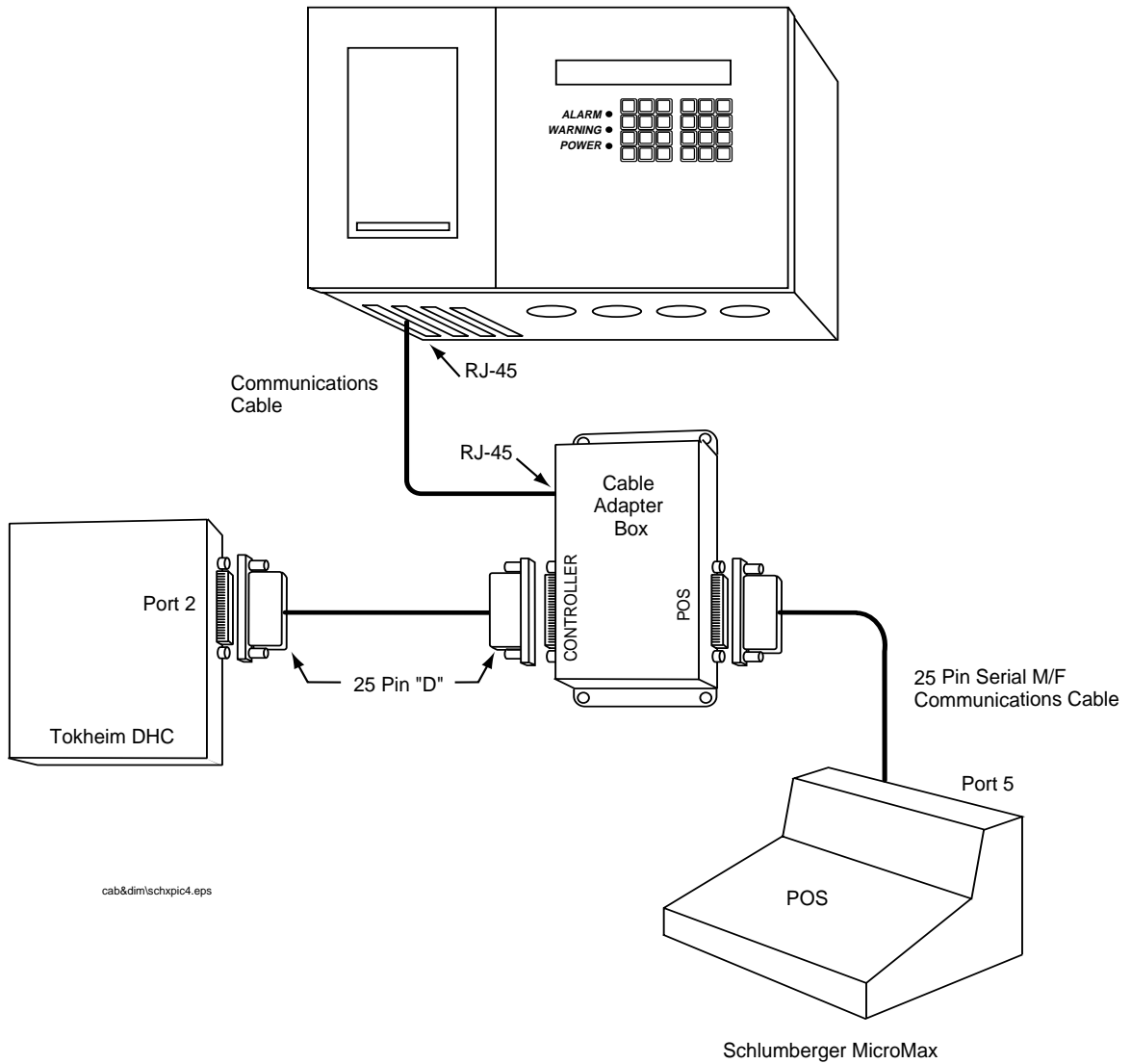
Figure 8.   MicroMax POS with Tokheim DHC Controller Box and RS-232 Cable
Adapter Box Interface

ALARM ●
WARNING ●
POWER ●

RJ-45

9 Pin Male to 25 Pin
Male "D" Connector

RJ-45

Cable
Adapter
Box

9 Pin "D" Male
Connector

25 Pin Female to 9 Pin
Female "D" Connection

CONTROLLER

POS

9 Pin "D" Male
Connector

PORT 1

PORT 2

6 Foot Cable

9 Pin "D" Female
Connector

SAM

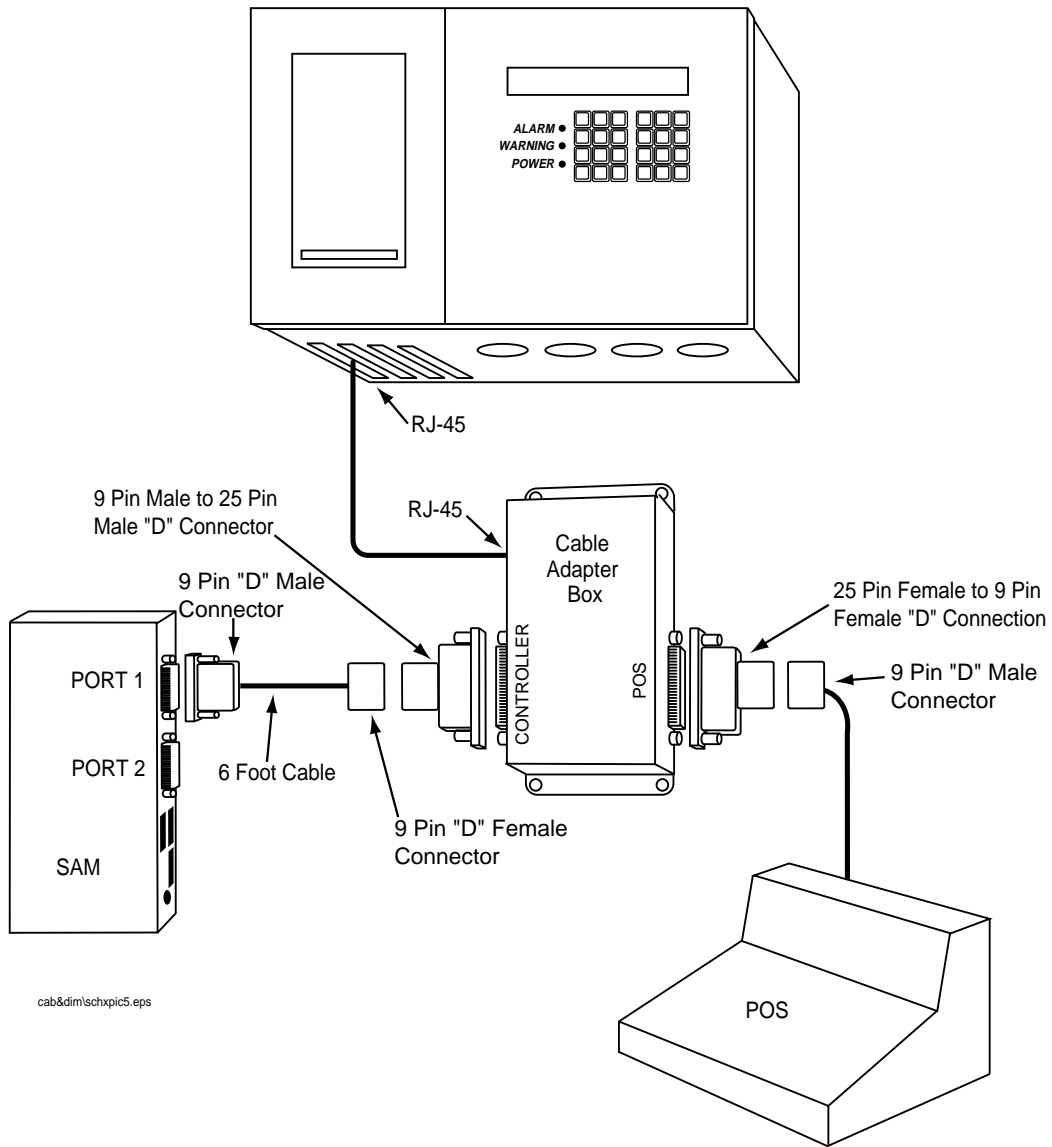cab&dim\schxpic5.eps

POS

Figure 9.   Verifone with SAM and RS-232 Cable Adapter Box Interface

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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 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.

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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.

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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

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

Glossary

ASC	Authorized Service Contractor
AST	Aboveground Storage Tank
auxiliary port	Second serial port used for daisy chaining another console.
baud rate	Transmission speed for serial communications.
Business Inventory Reconciliation (BIR)	The process of reconciling product dispensed with product received (deliveries), and product remaining in the tank.
Current Loop Dispenser Interface Module (CDIM)	Installs in a communication port of TLS-350R. More than one CDIM can be installed. May be installed with any combination of other DIM types. CDIM has three 4-pin phone jack connectors and three green LEDs inside, under cover. The green LEDs indicate data transmitted to DIM from an external device. CDIM cannot transmit to an external device. Connects via 4-wire cable to Adapter Box. Adapter box converts target communication format to RS-422 format for CDIM. Adapter boxes are configured with two-wire flying leads, 25-pin "D" or nine-pin "D" T-cable connectors for various applications.
coefficient of thermal expansion	The amount of contraction or expansion that will occur with temperature changes in a specific liquid.
communications	Data transmissions between two or more pieces of equipment.
configuration	Relative arrangement of parts of a system.
containment sump	An enclosure used to contain submersible pumps and related piping to prevent the release of product into the environment.
Continuous Statistical Leak Detection (CSLD)	CSLD eliminates the need to shut down the station to run leak tests. Height data is collected during idle times and new tank information is used to produce highly accurate leak detection results.
data	Information collected by the console.
default parameter setting	System set-up parameter that is pre-set by the factory.
diagnostics	Indicators of the current conditions in the system.
differentiating	See discriminating.
discriminating	Also referred to as differentiating. A sensor that provides different alarms in the presence of hydrocarbon (fuel) leaks compared with water or other liquids.
dispenser	Dispenses fuel through a nozzle, typically to a motor vehicle.
dispenser pan	An enclosure used to contain dispenser piping to prevent release of product into the environment.
double wall tank (DW tank)	A tank with a secondary wall to prevent leakage of product into the environment.

Electronic Dispenser Interface Module (EDIM)	Installs in a communication port of TLS-350R. More than one EDIM can be installed. May be installed with any combination of other DIM types. EDIM has one 25-pin "D" connector outside of the port and a red and green LED inside, under cover: Red - DIM transmits to external device; Green - external device transmits to DIM.
external output	Field wiring locations where devices can be connected to the system, such as overfill alarms and warning lights.
float switch	A sensing device in which a float is used to indicate the presence of liquid.
groundwater	Water within the earth that supplies wells and springs.
hydrostatic sensor	A sensor used to monitor liquid-filled double walled tanks, such as brine-filled tanks.
inventory	How much product you have left.
interstitial	Relates to the interstice, a space or gap between the walls of a double wall tank. Also referred to as annulus.
intrinsically safe	A circuit in which any spark or thermal effect is incapable of causing ignition of combustible material.
magnetostriction	The deformation of any substance due to the existence of magnetism.
Mechanical Dispenser Interface Module (MDIM)	Installs in the power side of TLS-350R. As many as eight MDIMs can be installed. MDIM has external eight-pin rectangular connector. May be installed with any combination of other DIM types. Connects to a maximum of four pulsers via intrinsically safe barriers which are mounted in any unused 1/2" or 1/4" hub of the dispenser junction box. Each barrier connects to a pulser with two wires that can be run anywhere inside the dispenser, without the need for conduit, because of the intrinsic safety provided by the barrier.
module	An electronic component that plugs into the console to perform a special function.
probe	A device used to obtain specific information in the tank and send the data to the console.
sensor	A device that responds to a physical stimulus (such as water or gasoline).
tri-state sensors	Tri-state sensors are piping sump sensors and steel and fiberglass tank interstitial sensors. The three conditions of this sensor are normal, fuel alarm, or sensor out.
Ullage	Amount of empty space in tank
95% Ullage	Amount of fuel required to fill tank to 95% capacity.
UST	Underground Storage Tank
vapor	A substance in the gaseous state as opposed to a liquid.
volumetric	A method of detecting leaks in pressurized piping.

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