

TLS-450PLUS Console

Module Replacement Instructions

Notice

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

DAMAGE CLAIMS / LOST EQUIPMENT

Thoroughly examine all components and units as soon as they are received. If any cartons are damaged or missing, write a complete and detailed description of the damage or shortage on the face of the freight bill. The carrier's agent must verify the inspection and sign the description. Refuse only the damaged product, not the entire shipment.

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

VEEDER-ROOT'S PREFERRED CARRIER

1. Contact Veeder-Root Customer Service at 800-873-3313 with the specific part numbers and quantities that were missing or received damaged.
2. Fax signed Bill of Lading (BOL) to Veeder-Root Customer Service at 800-234-5350.
3. Veeder-Root will file the claim with the carrier and replace the damaged/missing product at no charge to the customer. Customer Service will work with production facility to have the replacement product shipped as soon as possible.

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2. Customer may submit a replacement purchase order. Customer is responsible for all charges and freight associated with replacement order. Customer Service will work with production facility to have the replacement product shipped as soon as possible.
3. If "lost" equipment is delivered at a later date and is not needed, Veeder-Root will allow a Return to Stock without a restocking fee.
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For the parts return procedure, please follow the appropriate instructions in the "General Returned Goods Policy" pages in the "Policies and Literature" section of the Veeder-Root **North American Environmental Products** price list. Veeder-Root will not accept any return product without a Return Goods Authorization (RGA) number clearly printed on the outside of the package.

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Introduction

This manual contains procedures for installation or replacement of the following TLS-450PLUS console modules:

Table 1. Module Bay Modules

Part No.	Item
332812-001	Universal 16 Sensor/Probe Interface Module
332813-001	Universal Input/Output Interface Module
332812-005	MDIM Module
332812-004	LVDIM Module
333564-001	10 Amp Controller Interface Module
332812-006	Universal 16 Sensor/Probe Interface Module w/ATM Pressure Board
332665-001	ATM Board

Table 2. Communication Bay Modules

Part No.	Item
332818-001	SiteFax/Modem Single Port Module
333460-001	Ethernet Module
333477-001	USB module
332866-001	RS-232 Single Port Module (also used for EDIM or Satellite S-SAT or Satellite H-JBox Modules apps.)
332868-001	RS-232 Dual Port Module (also used for EDIM or Satellite S-SAT or Satellite H-JBox Modules apps.)
332867-001	RS-485 Single Port Module
332869-001	RS-485 Dual Port Module
333140-001	CDIM Module
333651-001	IFSF LON Module

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 console to the sensor junction box is in place. If site preparation is necessary, refer to the TLS-450PLUS Site Prep and Installation manual, or contact your Veeder-Root representative for assistance. Also included in this manual is the procedure for upgrading software features.

Related Manuals

577014-073 TLS-450PLUS Site Prep And Installation Manual

577013-401 POS Application Guide

577014-110 TLS-450PLUS/TLS4 Operator's Manual

Contractor Certification Requirements

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

Installer Certification (Level 1): Contractors holding valid Installer Certification are approved to perform wiring and conduit routing; equipment mounting; probe, sensor and carbon canister vapor polisher installation; wireless equipment installation; tank and line preparation; and line leak detector installation.









Technician Certification (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. In addition, Contractors with the following sub-certification designations are approved to perform installation checkout, startup, programming, system tests, troubleshooting, service techniques and operations training on the designated system.

- Wireless 2
- Tall Tank


Warranty Registrations may only be submitted by selected Distributors.

Safety Precautions

The following safety symbols may be used throughout this manual to alert you to important safety hazards and precautions.

 <p>ELECTRICITY High voltage exists in, and is supplied to, the device. A potential shock hazard exists.</p>	 <p>TURN POWER OFF Live power to a device creates a potential shock hazard. Turn Off power to the device and associated accessories when servicing the unit.</p>
 <p>INJURY Careless or improper handling of tools can cause bodily injury.</p>	 <p>READ ALL RELATED MANUALS Knowledge of all related procedures before you begin work is important. Read and understand all manuals thoroughly. If you do not understand a procedure, ask someone who does.</p>
 <p>STATIC SENSITIVE COMPONENTS Static electricity could result in an overload – too much electricity – or short circuit that can permanently damage electronic components. Touch the grounded console’s metal case before handling Comm Modules or Interface Modules.</p>	 <p>NOTICE NOTICE is used to address practices not related to physical injury.</p>
 <p>WARNING WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.</p>	 <p>CAUTION CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.</p>

⚠ WARNING



This system operates on 120/240 Vac power. Serious injury or death from electrical shock could occur if the power ON/OFF warnings in this manual are not heeded.

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

1. Read and follow all instructions in this manual, including all safety warnings.
2. Remove rings from hands, metal watch bands and bracelets, and loose hanging neck jewelry before performing these procedures.
3. Do not modify or use service parts other than those provided by Veeder-Root.

Precautions Against Static Electricity



Before removing electronic components from their anti-static bags read the following static electricity precautions.

1. Before handling any components, discharge your body's static electric charge by touching a grounded surface such as the TLS-450PLUS console's case.
2. Do not remove parts from their anti-static bags until you are ready to install them.
3. Do not lay parts on the anti-static bags! Only the insides are anti-static.
4. When handling parts, hold them by their edges and their metal mounting brackets.
5. Never slide parts over any surface.
6. Avoid plastic, vinyl, and Styrofoam in your work area.

Before Turning Off Power

Before powering off the console perform a system backup:

1. Beneath the left side of the TLS-450PLUS console, locate the USB module and insert the V-R Backup thumb drive, minimum 4 GB, (P/N 332970-004) into one of the external USB ports, P/N 333477-001 (see item 3 in Figure 1).

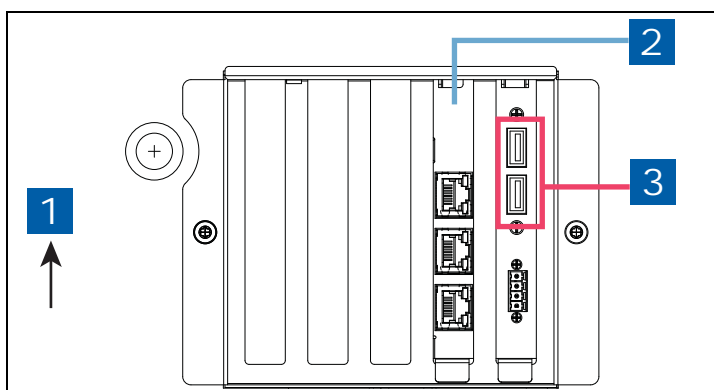


Figure 1. USB Module - USB ports

LEGEND FOR NUMBERED BOXES IN Figure 1

1. Front of console
2. Ethernet Interface Module
3. USB Ports on USB module

2. As a precaution, prior to replacing system modules perform a DB Backup. From the Home Screen touch **Menu > Software Maintenance > DB Backup** to view the Database Backup Screen (see Figure 2). Touch the down arrow in the Backup Destination field to select the Backup thumb drive inserted in Step 1, then follow the on-screen instructions to backup TLS-450PLUS console data.

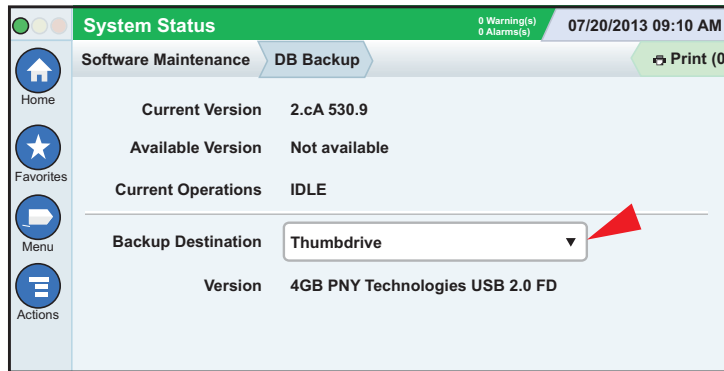


Figure 2. DB Backup Screen

Console Module Locations

Figure 3 illustrates the maximum number of modules allowed in each of the two bays of the console.

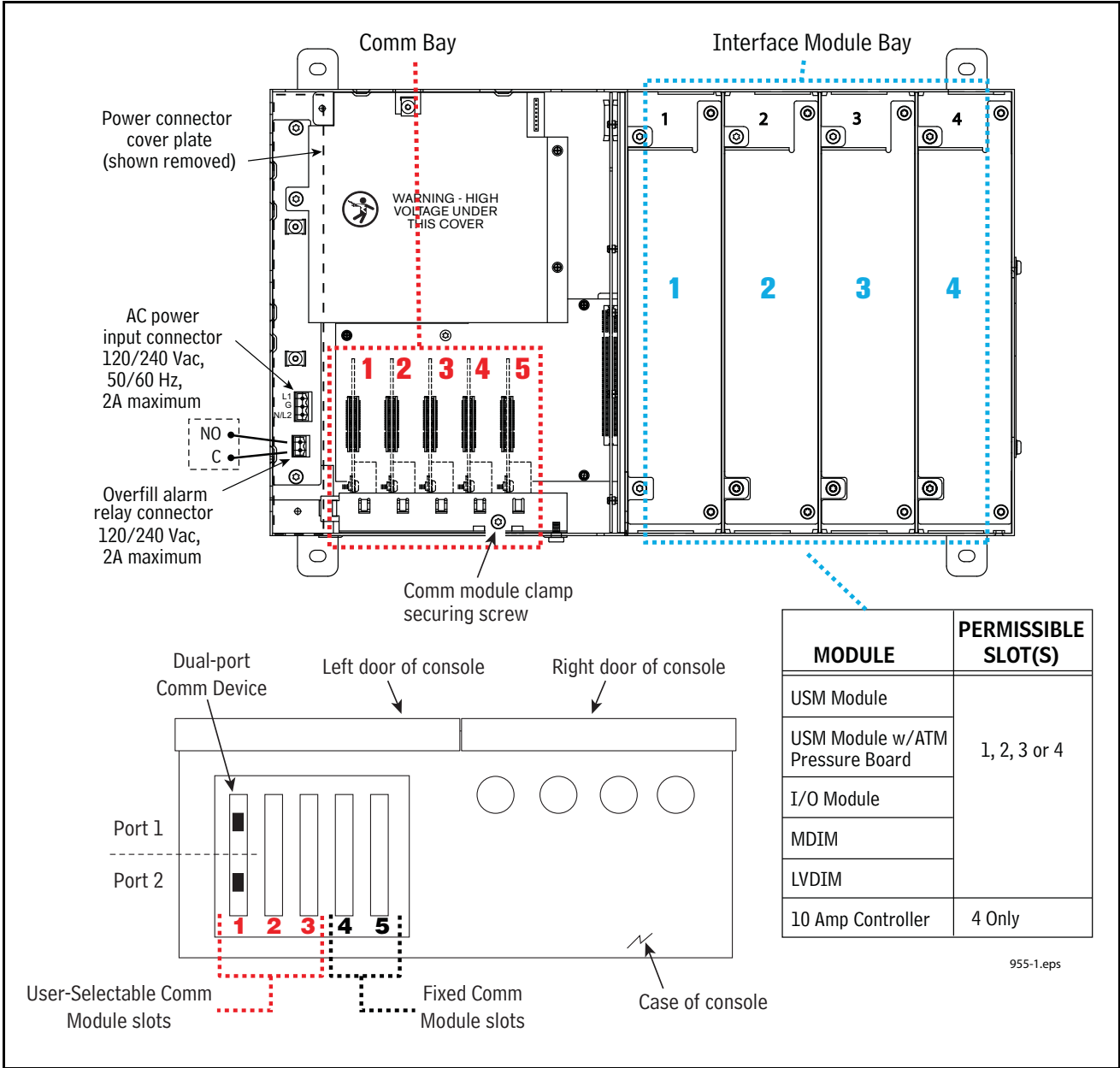


Figure 3. TLS-450PLUS Console Plug-In Module Bays

Console Comm Modules

Table 3 lists optional comm modules, their permissible slots in the comm bay and the configurable (C) and non-configurable (NC) ports for each module in each slot.

Slots 4 (Ethernet module) and 5 (USB module) are fixed and are unavailable for user-selectable Comm modules.

Table 3. User Selectable Comm Module Permissible Slots and Port Availability

Comm Module	Comm Type	Slot 1		Slot 2		Slot 3	
		Port		Port		Port	
		1	2	1	2	1	2
RS-232 Single Port (also EDIM, Satellite S-SAT and Satellite H-JBox apps.)	Serial	NC	C	NC	C	NC	C
RS-232 Dual Port (also EDIM, Satellite S-SAT and Satellite H-JBox apps.)		C	C	C	C	NC	C
RS-485 Single Port		NC	C	NC	C	NC	C
RS-485 Dual Port		C	C	C	C	NC	C
RS-232/RS-485 Dual Port		C (RS-232)	C (RS-485)	C (RS-232)	C (RS-485)	NC	C (RS-485)
SiteFax / Modem		NC	C	NC	C	NC	C
CDIM	DIM	C	NC	C	NC	----	----
IFSF LON		C	NC	C	NC	C	NC

Module Removal/Installation

Removing An Interface Module

WARNING



Disconnect, tag and lockout power to the TLS-450PLUS console before starting this procedure.

- Remove the both left and right door screws (with a T-15 Torx driver) and swing open both doors to the left (see Figure 4).

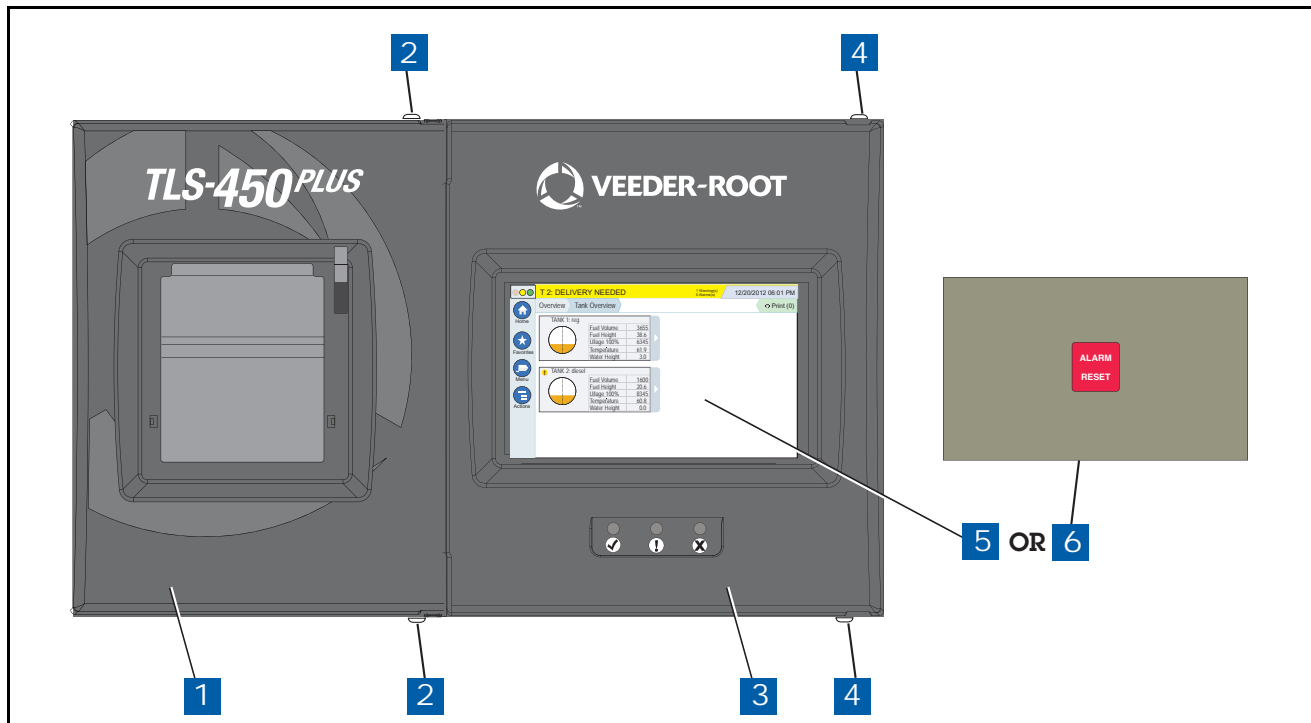


Figure 4. Opening The TLS-450PLUS Console Doors

LEGEND FOR NUMBERED BOXES IN Figure 4

- | | |
|--|--|
| 1. Left (Printer) door | 4. Using a T-15 Torx driver, remove the top and bottom screws securing left door and swing door to left. |
| 2. Using a T-15 Torx driver, remove the top and bottom screws securing left door and swing door to left. | 5. Optional Display |
| 3. Right (Display) door. | 6. Acknowledge Switch Panel |

- Each Interface Module slot is numbered from 1 to 4 from left to right as shown in Figure 3.
- An empty slot will have a blank cover in place of an actual Interface Module. Interface Modules and covers are secured by two Torx head screws. Use a T-15 Torx driver to remove the securing screws.
- Once the two Torx head screws securing the Interface Module are removed, grasp the Interface Module by its 3.5 inch 'handle' and pull it out of the slot.
- Once an Interface Module is removed it must be replaced with another Interface Module or blank cover (P/N 332580-001) in the opening.

Installing A USM Module

Try not to have too much wire in the console. Pull unneeded wire back into the wiring trough and loop it neatly.

The TLS-450PLUS doesn't have pre-assigned slots for the Interface Modules so any of the four slots can accommodate intrinsically safe (USM) or non-intrinsically safe (I/O, MDIM, etc.) Interface Modules (see Figure 3). Since the Interface Modules can be installed in any of these 4 slots, install them where it makes the most sense for conduit connections.

CAUTION USM wiring inputs are intrinsically safe and conduit containing this wiring must attach to the knockouts above or below the slot in which the USM module is installed.

Never use a drill to open up the knockout; this could potentially result in metal filings getting into the console and causing electrical shorts to Interface Modules. Knock out the smallest size needed. The normal pre-punched knockout sizes are 3/4" and 1" for Interface Module slots. A 1-1/4" size is available if needed. Normally this is only when direct burial cable has been used. Make sure that the conduit fitting ring is tight.

WARNING Only intrinsically-safe wiring can enter a USM module slot knockout.

WARNING



Disconnect, tag and lockout power to the TLS-450PLUS console before starting this procedure.

1. Referencing Figure 4, open the left and right doors of the console.



Ground yourself and avoid touching module components or edge connectors that plug into slots.

2. Install the Interface Module into a blank slot. Figure 3 illustrates acceptable non-intrinsically safe module positions in the Interface Module Bay of the console.
3. Remove the plug-in wiring terminal block from the front of the Interface Module, loosen the terminal screws, insert all appropriate device wiring (observing polarity) and tighten the screws.
4. Write in the device name for each wire connection on the module's wiring label attached to the inside of the door. Once all devices are connected, plug the terminal block back into its receptacle on the module.

NOTICE Terminate the ground shields to the ground lug on the module. The other end at the probe or sensor is NOT grounded.

CAUTION Any slot that does not have an interface module installed must have a blank module cover installed (P/N 332580-001).

5. Loop the wire neatly under the lip of the module. This will keep wires from interfering with the door when it closes.
6. Record on the circuit directory (on the inside front panel of the console) the type of module installed in the slot. Once a particular type of module has been installed in a slot, the system will always look for that type of module in the slot. Identify all inputs to an Interface Module's connector(s) according to the 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, the terminal position may not be changed without reprogramming the system.
7. Close the console's front doors, reversing the procedure in Step 2 of "Removing An Interface Module" on page 7.
8. Power up the console and perform a DB Restore, then setup the newly installed module using the TLS-450PLUS Online help.

Installing An ATM Pressure Board Onto A USM Module

WARNING



Disconnect, tag and lockout power to the TLS-450PLUS console before starting this procedure.

1. Referencing Figure 4, open the left and right doors of the console.
2. Remove both the left and right door screws (with a T-15 Torx driver) and swing open both doors to the left (see Figure 4).
3. USM Modules are secured by two Torx head screws. Use a T-15 Torx driver to remove the securing screws of the USM module chosen for the ATM Pressure board and set them aside.
4. Grasp the USM Module by its 3.5 inch 'handle' and pull it out of the slot.



Ground yourself and avoid touching module components or edge connectors that plug into slots.

5. Place the USM Module on a clean surface. Get the ATM Pressure Board (P/N 332665-001).
6. Align the male connector and two support posts of the ATM Pressure board over the female mating connector and two support post holes of the USM module board (image 1 of Figure 5).
7. Press firmly down on the ATM board at the 'A' arrow to seat the ATM/USM board connectors. Press down at each of the 'B' arrows until you hear a click to secure the ATM board onto the USM board (image 2 of Figure 5).
8. Replace the USM module in the same slot of the console from which it was removed and secure it with the two Torx head screws.
9. Close the console's front doors, reversing the procedure in Step 2 above.
10. Power up the TLS-450PLUS console and perform a DB Restore, then setup the newly installed ATM Pressure Sensor using the TLS-450PLUS Online help.

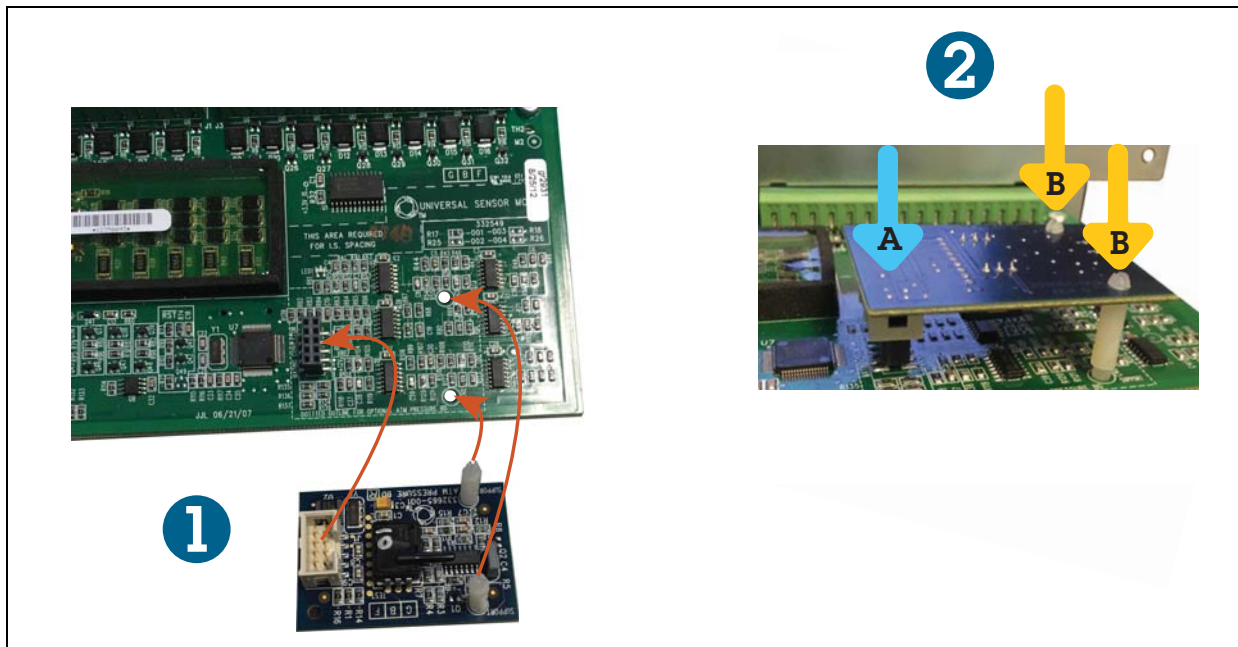


Figure 5. Attaching ATM Pressure Board Onto USM Module

Installing An I/O, MDIM, LVDIM or 10 Amp Controller Interface Module

Try not to have too much wire in the console. Pull unneeded wire back into the wiring trough and loop it neatly.

⚠ WARNING Intrinsic-safe wiring cannot enter a I/O, MDIM, LVDIM or 10 Amp Controller module's slot knockout.

⚠ WARNING   Disconnect, tag and lockout power to the TLS-450PLUS console before starting this procedure.

1. Referencing Figure 4, open the left and right doors of the console.



Ground yourself and avoid touching module components or edge connectors that plug into slots.

2. Install the Interface Module into a blank slot. Figure 3 illustrates acceptable non-intrinsically safe module positions in the Interface Module Bay of the console.

⚠ CAUTION Any slot that does not have an interface module installed must have a blank cover installed (P/N 332580-001).

⚠ CAUTION The 10 Amp Controller Module can only be installed in slot 4.

3. Remove the plug-in wiring terminal block from the front of the Interface Module, loosen the terminal screws, insert all appropriate device wiring (observing polarity) and tighten the screws.
4. Write in the device name for each wire connection on the module's wiring label attached to the inside of the door. Once all devices are connected, plug the terminal block back into its receptacle on the module.
5. Loop the wire neatly under the lip of the module. This will keep wires from interfering with the door when it closes.
6. For MDIM and LVDIM modules only, connect applicable interface wiring to these modules as defined in the POS Application Guide (P/N 577013-401).
7. Record on the circuit directory (on the inside front panel of the console) the type of module installed in the slot. Once a particular type of module has been installed in a slot, the system will always look for that type of module in the slot. Identify all inputs to an Interface Module's connector(s) according to the 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, the terminal position may not be changed without reprogramming the system.
8. Close the console's front doors, reversing the procedure in Step 2 of "Removing An Interface Module" on page 7.
9. Power up the console and perform a DB Restore, then setup the newly installed module using the TLS-450PLUS Online help.

Installing A Comm Module

WARNING



Disconnect, tag and lockout power to the TLS-450PLUS console before starting this procedure.

1. Referencing Figure 4, open the left and right doors of the console.
2. The Comm Bay is divided into 5 communication slots numbered from 1 to 5 going left to right (see Figure 3). Only slots 1-3 are available for user-selectable Comm modules (ref. Table 3). The Comm modules in Slots 4 and 5 are fixed and cannot be moved.
3. Using a T-15 Torx driver, loosen the module clamp securing screw and remove the clamp (see Figure 3).
4. Remove the blank cover from underneath the desired comm slot by punching it into the console or by using pliers to remove it from the inside of the console. Be careful not to damage any internal components in the process of removing the blank cover.
5. Place the new Comm module in the slot. Align the edge connector on the back of the board in the center of the vertical connector on the Comm Backplane board, then push the board firmly in as far as it can go. The sheet metal bracket of the Comm module slides into the slot and the front edge of the bracket fits into the keyed slot in the front of the Comm Bay.

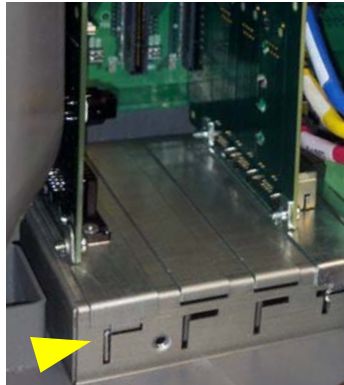


Figure 6. Comm Module Bracket Keyed Slot

6. After the Comm module(s) is installed, replace the comm module clamp and the screw that secures it.
7. Connect applicable interface cable(s) to the module(s) as defined in the POS Application Guide 577013-401. Record the slot/configurable port for each installed module which will be needed in the communication setup procedure.
8. Close the console's front doors, reversing the procedure in Step 2 of "Removing An Interface Module" on page 7.
9. Power up the console and perform a DB Restore, then follow the communication setup procedure for the newly installed module(s) using the TLS-450PLUS Online help.

Installing Software Features

Before installing a software feature upgrade, perform a system backup using a V-R Backup thumb drive (P/N 332970-004) following the procedure described in “Before Turning Off Power” on page 3.

NOTICE The V-R Backup thumb drive is different from a V-R Software Upgrade thumb drive - the two are not interchangeable.

Software Features Installation Procedure

1. Get the USB Adapter and upgrade i-button from the upgrade kit. Remove the plastic end cap from the USB Adapter and Insert the i-button in the adapter as shown in Figure 7 below.

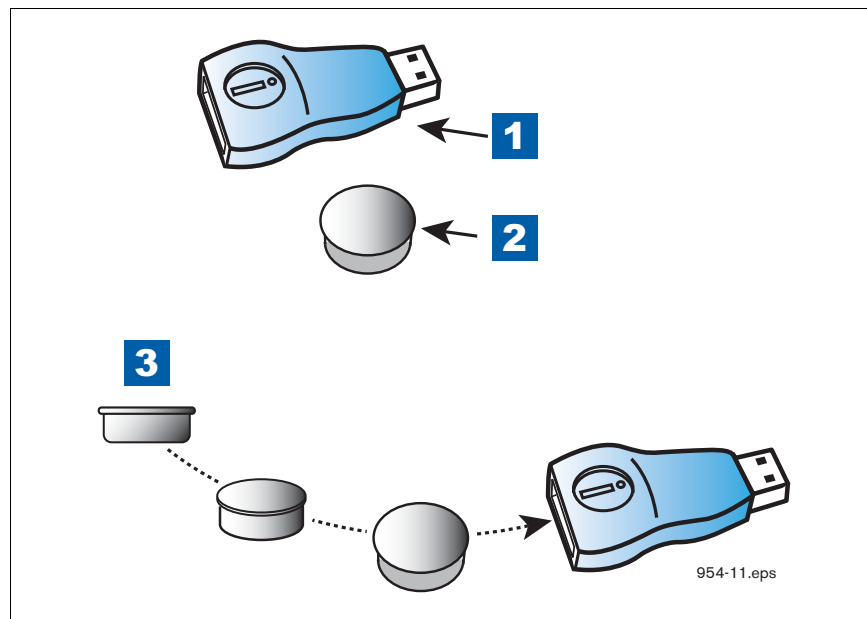


Figure 7. Inserting iButton Into USB Adapter

LEGEND FOR NUMBERED BOXES IN Figure 7

- | | |
|----------------|----------------------------------|
| 1. USB adapter | 3. Insert i-Button, large end up |
| 2. i-Button | |

2. Replace the plastic retaining cap on the adapter after inserting the i-Button.
3. Plug the USB Adapter into one of the two USB ports in the console's USB module (see Figure 1).
4. From the Home Screen, touch the following: **Menu>Software Upgrade>Upgrade Features**.
5. When you have completed the Upgrade Features procedure remove the upgrade thumb drive.
6. With the new software features installed, perform a system backup using the V-R Backup thumb drive (P/N 332970-004) as discussed in “Before Turning Off Power” on page 3.

NOTICE The V-R Backup thumb drive is different from a V-R Software Upgrade thumb drive - the two are not interchangeable.

