TLS4/8601 Series Consoles

Software/Hardware Upgrade & Replacement Manual



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Introduction

This manual contains instructions for TLS4/8601 Series ATG hardware assembly replacement and software maintenance procedures.

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 (Level 1) Certification: 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.

ATG Technician (Level 2/3 or 4) Certification: Contractors holding valid ATG 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

Related Documents

577014-022 TLS4 Certification Site Prep Manual 577014-058 TLS4 Troubleshooting Manual

Safety Precautions

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

F	EXPLOSIVE Fuels and their vapors are extremely explosive if ignited.	FLAMMABLE Fuels and their vapors are extremely flammable.
4	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 associ- ated accessories when servicing the unit.
	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.	WARNING Heed the adjacent instructions to avoid damage to equipment, property, environment or personal injury.
	STATIC SENSITIVE COMPONENTS Wear grounded anti-static wrist strap before handling the printed circuit boards and mounted components.	

 This product is to be installed and operated in the highly combustible environment of a gasoline station where flammable liquids and explosive vapors may be present. ATTEMPTING TO SERVICE TANK MONITORS AND EQUIPMENT WITHOUT PROPER TRAINING CAN CAUSE DAMAGE TO PROPERTY, ENVIRONMENT, RESULTING IN PERSONAL INJURY OR DEATH. The following hazards exist: Electrical shock resulting in serious injury or death may result if power is on during component installation. Observe the following precautions: Read and follow all instructions in this manual, including all safety warnings. Comply with all applicable codes including: the National Electrical Code; federal, state, and local codes; and other applicable safety codes. Before installing this device, turn Off, tag/lock out power to the system.

TLS4/8601 Kits

-	Table 1. Miscellaneou	s Upgrade/Replacement Kits	

Part No.	Kit
330020-742	Upgrade DL4 To TLS4, EDIM, With Touch Screen
333530-002	Feature Upgrade (TLS4, TLS4B, TLS4c, TLS4i, TLS-S1, DL4)
330020-744	Operating Software Upgrade (TLS4, TLS4B, TLS4c, TLS4i, TLS-S1, DL4, DL)
330020-745	SD Card Kit, 4G (TLS4, TLS4B, TLS4c, TLS4i, TLS-S1, DL4, DL)
330020-746	CPU Board Replacement Kit, EDIM, With Touch Screen (TLS4)
333530-005	CPU Board Replacement Kit, EDIM, No Screen (TLS4, DL4)
333530-006	CPU Board Replacement Kit With Touch Screen (TLS4B, TLS-S1)
333530-007	CPU Board Replacement Kit, No Screen (TLS4B, TLS-S1, DL)
333530-009	CPU Board Replacement Kit, CDIM, With Touch Screen (TLS4)
333530-010	CPU Board Replacement Kit, CDIM, With No Touch Screen (TLS4, DL4)
333530-011	CPU Board Replacement Kit With Touch Screen (TLS4c)
333530-012	CPU Board Replacement Kit, No Screen (TLS4c)
333530-013	CPU Board Replacement Kit With Touch Screen (TLS4i)
333530-014	CPU Board Replacement Kit, No Screen (TLS4i)
333530-015	CPU Board Replacement Kit With IFSF LON, No Screen (TLS4)
333530-016	CPU Board Replacement Kit With IFSF LON, With Touch Screen (TLS4)

Part No.	Kit
333530-017	CPU Board Replacement Kit With IFSF LON, No Screen (TLS4B, TLS-S1)
333530-018	CPU Board Replacement Kit With IFSF LON, With Touch Screen (TLS4B, TLS-S1)
330020-750	USIOM Board Replacement Kit, AC (TLS4, TLS4i, DL4)
330020-753	USIOM Board Replacement Kit, DC (TLS4B)
330020-752	USIOM Board Replacement Kit, DC (TLS4)
330020-751	USIOM Board Replacement Kit, AC (TLS4B, TLS4c, TLS-S1, DL)
330020-769	iButton Replacement Kit (TLS4, TLS4B, TLS4c, TLS4i, TLS-S1, DL4, DL)
330020-754	USB Back-up Thumb Drive (TLS4, TLS4B, TLS4c, TLS4i, TLS-S1, DL4, DL)
330020-755	Replacement TLS4 Cover
330020-756	Replacement DL4 Cover
330020-757	Replacement Cover, Blank
330020-758	Replacement DL Cover
330020-764	Replacement TLS4B Cover
330020-810	Replacement TLS4c Cover
330020-811	Replacement TLS4i Cover
330020-812	Replacement TLS-S1 Cover
330020-759	Replacement CPU Battery
330020-779	Cable Kit (USIOM To CPU)

Table 1. Miscellaneous Upgrade/Replacement Kits

Component Identification





Figure 1. TLS4/8601 Series Console - Dimensions

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)

- 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 (Ack) button panel shown belowl)





Figure 3. Component Locations Underside Of Display/CPU Board Ass'y.

- 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. Ack switch cable connector (J40) Consoles without display only
- 6. 20-pin CPU-to-USIOM board cable
- 7. Optional CDIM module or IFSF module (CDIM module shown)



Figure 4. Component Locations USIOM Board

- 1. Power Supply Board (protective cover removed)
- 2. 20-pin connector for Display/CPU-to-USIOM board cable
- 3. DC output cable
- 4. AC input cable

- 5. Fuses F7 and F1
- 6. Relay output fuses F2 (R2) and F4 (R1)
- 7. Fuse F6 24 Vdc (Expansion option)

7

Component Replacement Procedures

In non-display consoles the Ack/CPU assembly is, except for the display screen itself, essentially the same as the Display/CPU assembly. The Display ribbon cable connects to a different CPU board connector than the Ack switch panel cable plug (see Items 4 and 5 in Figure 3). Other than the GUI display and Ack switch panel difference, the additional removal procedures discussed in this section are identical.

Removing Display/CPU Assembly



Avoid unnecessary contact with the CPU board components to avoid static damage to the board's circuitry. Wear grounded anti-static wrist strap before handling printed circuit boards.

- 1. Turn Off, tag and lockout power to the console.
- 2. Remove the two T15 Torx shoulder screws under the front cover of the console (Item 6 in Figure 1). Tilt the bottom of the cover out as you lift it off of the two hooks in the top of the console's housing.
- 3. Using masking tape, mark each connected comm cable with the port to which each cable is attached and remove the comm cables.
- 4. Remove the T15 #8 x 0.3125 screw (Item 4 in Figure 2) and the T20 #8 x 0.875 screw (Item 7 in Figure 2) securing the Display/CPU assembly to the console and set them aside. Slide the Display/CPU assembly up as far as it will go and tilt out the bottom of the assembly to access the short 20-pin cable connecting the Display/CPU assembly to the USIOM board in the console. Disconnect the cable plug from its USIOM board socket by pressing against the vertical locking lever in the middle of the plug as you lift it away from the socket.
- 5. The CPU board is on the underside of the Display/CPU assembly.

Removing The SD Card

1. Follow the steps above to remove the Display/CPU or Ack/CPU assembly.

With the Display/CPU assembly removed, set it on a clean surface, display side down. The SD card (Item 2 in Figure 3) is removed by pushing in gently on the end of the card and quickly releasing it so it springs free of its enclosure's latch.

2. When replacing the SD card, always check the read/write-protect switch on the side of the card is in the position shown in Figure 5. Orient the card, contacts down and angled corner to the left, as you gently push the card into its enclosure until it clicks into the enclosure's latch.



Figure 5. Inserting SD Card In Its CPU board Enclosure

1. Check the SD Card read/write slide position.

2. Insert the SD card into its enclosure with the contact side facing the CPU board.

Replacing The Features iButton

- 1. Remove the Display/CPU Assembly as discussed on page 8.
- 2. Place the Display/CPU Assembly on a clean surface, display side down.
- 3. Locate the Features iButton (Item 3 in Figure 3).
- 4. Slide the iButton out from under the retaining clip until it is free of the holder.
- 5. With the flanged end up, slide the replacement iButton under the retaining clip until it snaps securely into the holder.

Replacing the Backup Battery

- 1. Remove the front cover of the TLS4 following step 1 and 2 of the Display/CPU Assembly removal instructions on page 8.
- 2. Locate the backup battery beneath the display (Item 5 in Figure 2).
- 3. Slide the battery out from under the retaining clip until it is free of the holder.
- 4. With the '+' side up, slide the replacement battery under the retaining clip until it snaps securely into the holder.

Replacing the USIOM Board

- 1. Remove the Display/CPU Assembly as discussed on page 8.
- 2. Place the Display/CPU Assembly aside on a clean surface.

- 3. Remove all plugs connected to the USIOM board (identified by arrows in Figure 6).
- 4. Remove the two T15 #8 x 0.3125 screws securing the expansion comm port plate to the bottom of the console enclosure and set them aside with the comm plate. (see Figure 7).
- 5. Remove the two T15 #6 x .375 screws securing the I.S. cover and right side of the USIOM board to the console chassis (see Figure 10). Set the plastic I.S. cover, the two T15 screws holding the cover aside.
- 6. Remove the T15 #6 x 0.375 screw from the lower left corner of the USIOM board (see Figure 9) and set it aside.
- 7. Remove the two T10 #4 x 0.625 screws from the opposite corners of the power supply board and set them aside (see Figure 8).
- 8. With your fingers under the two I.S. sockets and your thumbs positioned on top of them, lift/pry the right side of the USIOM board out enough to release the USIOM board from the snap-on retaining post between the two I.S. sockets (see Figure 11).
- 9. With the USIOM board now free from the retaining post, swing the right side of the USIOM board toward you as you lift it free of the chassis.
- 10. Install the replacement USIOM board by reversing steps 9 through 3 above.



Figure 6. Remove all plugs attached to USIOM board



Figure 7. Remove Two T15 Screws Securing Comm Plate



Figure 8. Remove Two Corner T10 Screws From Power Supply Board



Figure 9. Remove Lower Left Corner USIOM Board T15 Screw



Figure 10. Remove Two T15 Screws Securing I.S. Cover



Figure 11. USIOM Board Snap-On Retaining Post

Software Maintenance and Upgrades

The Main or Home screen is the primary entry to TLS4 software maintenance screens. Touch the Menu>Software Upgrade icons to view a list of the available Software Maintenance screens:



Figure 12. Software Maintenance Screen

Activate/Revert Screen (Menu>Software Maintenance>Activate/Revert)



This screen lets you activate newly installed software or revert to a previously stored version of software. During the activation process, several dialog boxes will be displayed to inform you of key events.

NOTES ON REVERTING TO A PREVIOUS SOFTWARE VERSION

A copy of the previous (older) system software and databases is stored on the console SD card. If the current (newer) version of system software/features does not perform properly, the Revert operation gives you the ability to revert to the previous software version stored in the SD card. No USB devices are required for the revert operation.



During feature activation, there must be no dispensing (the activation process only takes a few minutes, however).

Field	Description	
Current Version	Current version of software (x.xx xxx.x) installed in the console	
Available Version	Version of software that can be accessed by the console (Not Available will display if a version of software has not been stored).	
Current Operation	Status of the console: Idle (no software is being installed or reverted), or Activating (a software install is in progress)	
Connection Message	Not applicable to a revert or upgrade process.	
Disclaimer	Lists any messages for the newly activated software.	
Click to acknowledge the system will be stopped [check box]	Select this check box to agree to start a software install/reversion procedure.	
Revert	Starts the actual Revert process. Note: When you click Revert , a confirmation prompt displays, letting you know that the system will restart (reboot) to do the revert. If the system is not in use, Touch the verteous the button to continue. The system reboots and the system is reverted.	
Activate	Starts the actual Activate process. Note: When you click Activate , a confirmation prompt displays, letting you know that the system will restart (reboot) to do the revert. If the system is not in use, Touch the button to continue. The system reboots and the new system software is activated.	

Table 2. Activate/Revert Screen Field Descriptions

DB Backup (Menu>Software Maintenance>DB Backup)

	System Status		0 Warning(s) 0 Alarms(s)	07/20/2013	09:10 AM
	Software Maintenance	DB Backup			🖶 Print (0)
Home	Current Version	1.gB 230.4			
\mathbf{x}	Available Version	Not available			
Favorites	Current Operations	IDLE			
Menu	Backup Destination	Select destination device	•	•	
	Version	Select a source to retriev	e versions	available	
Actions					

This screen lets you backup the data file of the console. A valid V-R USB recovery thumb drive is required. For ultimate protection against possible loss of data and to protect against system crashes, run the DB Backup operation daily.

It is very important that you keep the V-R Code/Feature and Recovery USB thumb drives in a secure location.

Field	Description
Current Version	Current version of software (x.xx xxx.x) installed in the console
Available Version	Not applicable to a backup.
Current Operation	Status of the console: Idle (no backup procedure is executing), or Discovering Backup Device (system is validating installed thumbdrive) Backup Operation has started (backup is in progress)
Connection Message	Lists any messages that may occur between the device and the console.
Backup destination	Backup destination (device) for your data files (the normal choice is "Thumbdrive")
Version	USB drive name.
Backup	Starts the actual backup.
Backup Progress	Completion percentage of backup process.

Table 3. DB Backup Screen Field Descriptions

EXAMPLE DATABASE BACKUP PROCEDURE

NOTE: A valid Backup Thumbdrive must be Windows[©] FAT32 formatted and must have at least 4 GB of available memory.

- 1. Insert your valid USB backup thumbdrive into one of the console's USB ports.
- 2. Navigate to the Menu>Software Maintenance>DB Backup screen.

- 3. Select thumbdrive as the backup destination. Notice the Version field displays thumbdrive information.
- 4. Touch **Backup** button to begin the backup.
- 5. After completing the backup, the 'Backup Completed Successfully!' message appears.

6.Remove the thumbdrive and put it in a secure location.

NOTE: The DB Backup procedure should performed on a weekly basis.

DB Restore (Menu>Software Maintenance>DB Restore)

$\bigcirc \bigcirc \bigcirc$	System Status	0 Warning(s) 0 Alarms(s) 07/20/2013 09:10 AM
	Software Maintenance	DB Restore Print (0)
Home	Current Version Available Version Current Operations	1.gB 230.4 Not available IDLE
Menu	Backup Destination	Select destination device
Actions	Version	Select a source to retrieve versions available

This screen lets you restore the data files of the console. A valid V-R USB recovery thumb drive (with previously backed up data) is required. For ultimate protection against possible loss of data and to protect against system crashes, run the Backup operation daily.

It is very important that you keep the V-R Code/Feature and Recovery USB thumb drives in a secure location.

Field	Description
Current Version	Current version of software (x.xx xxx.x) installed in the console
Available Version	Version of software that can be accessed by the console (Not applicable to a backup).
Current Operation	Status of the console: Idle (no restore procedure is executing), or Discovering Restore Device (system is validating installed thumbdrive) Restore Operation in Progress (restore is in progress)
Connection Message	Lists any messages that may occur between the device and the console.
Restore destination	Select the device containing the data files for the restore (the normal choice is "Thumb- drive").
Version	Date and software version of when the data archive was created.

Field	Description
Restore	Starts the actual restore. Note: When you click Restore , a confirmation prompt displays, letting you know that the system will restart (reboot) to do the restore. If the system is not in use, touch the button to continue. The system reboots and the database is restored.
Restore Progress	Completion percentage of restore process.

Table 4. DB Restore Screen Field Descriptions

Download (Menu>Software Maintenance>Download)

$\bigcirc \bigcirc \bigcirc$	System Status		0 Warning(s) 0 Alarms(s)	07/20/201	3 09:10 AM
	Software Maintenance	Download			🖶 Print (0)
Home	Current Version	1.gB 230.4			
(\star)	Available Version	Not available			
Favorites	Current Operations	IDLE			
Menu	Backup Destination	Select Source		•	
Actions	Version	Select a source to retriev	ve versions	available	
Actions					

This screen lets you do USB downloads from either a valid V-R Code/Features USB thumb drive or a V-R Recovery USB thumb drive that is plugged into a USB port in the console.

It is very important that you keep the V-R Code/Feature and Recovery USB thumb drives in a secure location.

Table 5. Download Screen Field Descriptions

Field	Description
Current Version	Current version of software (x.xx xxx.x) installed in the console
Available Version	Version of software that can be accessed on the USB drive.
Current Operation	Status of the console: Idle (no backup procedure is executing), Scanning Devices (system is validating installed thumbdrive), Reading Update List Downloading
Connection Message	Lists any messages that may occur between the device and the console.
Download Source	Device where the files are coming from.
Version	Date and software version of when the data archive was created.

Table 5. Download Screen Field Descriptions

Field	Description
Restore	Starts the actual download. NOTE: When you click Download, a confirmation prompt displays, letting you know that the system will restart (reboot) to do the download. If the system is not in use, touch the substant to continue. The system reboots and the database is restored.
Restore Progress	Completion percentage of download process.

EXAMPLE SOFTWARE DOWNLOAD PROCEDURE

- 1. Insert the software upgrade thumbdrive into one of the USB ports.
- 2. Navigate to the Menu>Software Maintenance>Download screen.
- 3. Touch the Download Source down arrow and select the thumbdrive. Notice the Version field displays contained software version.
- 4. Touch the **Download** button to begin the software download.
- 5. After successful completion of the download (approximately 30 minutes), the 'Download Completed' message appears.
- 6. Navigate to the Menu>Software Maintenance>Activate/Revert screen. Notice the Current version and Available (downloaded) version are displayed. (screen shot?)
- 7. Touch the box beside the message 'Click to acknowledge the system will be stopped.'
- 8. Touch the Activate button to overwrite the Current of software with the Available (just downloaded) version of software.
- 9. The Confirmation Needed dialog box displays. Touch the ✓ button to confirm and activate the new software, or touch the X button to cancel the activation.

System Snapshot (Menu>Software Maintenance>System Snapshot)

	System Status	a o	Warning(s) Alarms(s)	07/20/2013	09:10 AM
	Software Maintenance	System Snapshot			🖶 Print (0)
Home	Current Version	1.gB 230.4			
	Available Version	Not available			
Favorites	Current Operations	IDLE			
Menu	Snapshot Destination	Select destination device		•	
	Version	Select a source to retrieve	e versions a	available	
Actions					

If a problem cannot be diagnosed over the phone with technical support, tech support may request a System Snapshot be taken and returned V-R. The System Snapshot captures comprehensive system data to facilitate a thorough problem analysis. This screen lets you copy a System Snapshot to a USB thumb drive that is plugged into a USB port in the console.

Field	Description
Current Version	Current version of software (x.xx xxx.x) installed in the console
Available Version	Previous version of software or Not Available message.
Current Operation	Status of the console: Idle Activate Snapshot
Snapshot Destination	Select destination device
Version	Describes the destination device.

Table 6. System Snapshot Screen Field Descriptions

EXAMPLE SYSTEM SNAPSHOT PROCEDURE

- 1. Insert a USB thumbdrive with at least 10 Mb of free space into one of the USB ports.
- 2. Navigate to the Menu>Software Maintenance>System Snapshot screen.
- 3. Touch the Snapshot Destination field down arrow and select the thumbdrive. Notice the Version field displays information about the thumbdrive.
- 4. Touch the Take Snapshot button to begin the procedure.
- 5. After successful completion of the snapshot (approximately 3 minutes), the 'Snapshot Completed' message appears and you can remove the thumbdrive.

Upgrade Features (Menu>Software Maintenance>Upgrade Features)

	System Status	0 Warning(s) 0 Alarms(s)	07/20/2013 09:10 AM
	Software Maintenance Upgrade Features		Print (0)
Home Favorites	Expansion box SLD 3.0 GPH PLLD ATG Functionality Datalogger Functionality		
Actions	Install features		

This screen lets you activate features that were newly installed on your console. During the activation process, several dialog boxes will be displayed to inform you of key events.

During feature activation there must be no dispensing. However, the activation process only takes a few minutes.

Following activation, the console converts the setup databases. If new features are installed and activated, setup(s) relevant to the new feature(s) will be required.

Field	Description
Feature (box)	List features which are available to be activated. Multiple features may be activated concurrently. Select the boxes beside each of the desired items in this column. If you change your mind about a selection, select the box again to remove the check.
Install features button	Touch to start the installation process.
Status [during installation]	Current status of each feature with one of the following messages: Ready to Activate Activation in Progress

Table	7.	Upgrade	Features	Screen	Field	Descriptions



