


Console Description	<p>The TLS4i Automatic Tank Gauge has the same graphical user interface as the TLS-450PLUS tank gauge, increasing technician familiarity for quick setup using the easy-to-navigate color touch screen. It is a simplified, self-contained solution, ideal for the commercial and industrial businesses monitoring up to four tanks.</p>		
TLS4i Consoles, Standard Hardware & Software	Console Part # & Description	Standard Hardware & Application Software	
	<ol style="list-style-type: none"> 860199-120 TLS4i Console, 12 Inputs, Ethernet, 7" Color LCD Display 860199-110 TLS4i Console, 12 Inputs, Ethernet, No Display 	<p>Software – 333578-001 TLS4i Application Software (must order one per Console) includes Web-enabled, Custom Alarm, On-Console Help, Extended Storage Hardware – Two Configurable RS-232 or RS-485 Ports, One Ethernet Port, Two USB Ports, 2 Relay Outputs (120/240 VAC 5A; 30 VDC 5A; Fuse Ratings 5A, 250 VAC Type T (Slo-Blo)), 1 Low Voltage Input (max contact closure ratings 12 VDC 0.015A Class I wiring is required for 12 volt closure circuits)</p>	
TLS4i Optional Software	Part # & Description		
	Static In-Tank Leak Detection (SLD) for TLS4i and TLS4c, for USTs only	333410-015	
	Continuous Statistical Leak Detection (CSLD) for TLS4i and TLS4c, for USTs only	333410-006	
	Timed Sudden Loss Detection for TLS4i and TLS4c	333410-018	
Note: If software features are added to an existing console, the Feature Enhancement will be shipped with a kit that includes a wrist strap, manual, iButton holder and programmed iButton – P/N 333530-002.			
Optional Printer for TLS4 Series Consoles	Part # & Description		
	Direct Connect External Printer for TLS4 Series Consoles (Epson Model: TM-T88V)	330020-832	
	Wall Mounting Bracket for External Printer for TLS4 Series Consoles	330020-839	
Specifications			
Operating Temperature	+32 to +104°F (0 to +40°C)		
Storage Temperature	-40 to +158°F (-40 to +70°C)		
Installation Location	NEMA 4 or indoors		
Relative Humidity	0-90% (non-condensing)		
External Dimensions	13" x 8" x 3.5" (33.02cm x 20.32cm x 8.89cm)		
Construction	16GA (0.060 in/0.1524 cm) powder coated steel		
Console Power Wiring Requirements	AC Power Wiring – Wires carrying 120 or 240 VAC from power panel to the console should be #14 AWG (or larger) wire for line, neutral & chassis ground (3); and 4 sq. For barrier ground, 4 sq. mm wire, rated for at least 90C.		
Probe & Sensor to Console Wiring Requirements	<ol style="list-style-type: none"> Wire Type – Shielded cable required regardless of conduit material or application. It must be rated less than 100 picofarad per ft manufactured with a suitable material such as Carol C2534 or Belden 88760, 8760, or 8770. Wire Length – Maximum 1,000ft (304.8m) to meet intrinsic safety requirements. Improper system operation could result for runs over 1,000ft (304.8m). Wire Gauges – Color coded – shielded cable used in all installations. 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 88761 may be suitable with the following requirements: wire run is less than 750ft (228.6m); Capacitance does not exceed 100 pF/ft; Inductance does not exceed 0.2 uH/ft. 		

Specifications (continued)		System Compatibilities Guide																																																																																																														
System Power Requirements	Either AC input or DC input, but not both. 1. Universal AC power supply: 100 to 249 VAC, 50/60Hz, 2A max. 2. DC power supply: +24 VDC, 2A max. and +5 VDC, 4A max. Um <= 250 Vrms or 250 VDC	<table border="1"> <thead> <tr> <th>Feature/Console</th> <th>TLS4i</th> </tr> </thead> <tbody> <tr> <td colspan="2">CONSOLE DESIGN</td> </tr> <tr> <td>Modular/Expandable Features</td> <td>•</td> </tr> <tr> <td>LCD with Touch Screen</td> <td>7" WVGA Color</td> </tr> <tr> <td>Integral Roll Printer</td> <td></td> </tr> <tr> <td>Universal Power Supply</td> <td>•</td> </tr> <tr> <td colspan="2">INVENTORY CONTROL</td> </tr> <tr> <td>Graphical Inventory Status</td> <td>•</td> </tr> <tr> <td>Complete Inventory Reports</td> <td>•</td> </tr> <tr> <td>Programmable Auto Report Times</td> <td>•</td> </tr> <tr> <td>Inventory Increase Report</td> <td>•</td> </tr> <tr> <td>Timed Sudden Loss Detection</td> <td>Optional</td> </tr> <tr> <td colspan="2">BUSINESS INVENTORY RECONCILIATION</td> </tr> <tr> <td>Shift-Based Reconciliation</td> <td></td> </tr> <tr> <td>Reconciliation by Tank</td> <td></td> </tr> <tr> <td colspan="2">TANK CALIBRATION</td> </tr> <tr> <td>Multi-Pass Tank Calibration</td> <td></td> </tr> <tr> <td>Single-Pass / Metered Drop</td> <td></td> </tr> <tr> <td>Limited Range Calibration</td> <td></td> </tr> <tr> <td>Supports Multiple Tank Charts per Tank</td> <td></td> </tr> <tr> <td>Supports Multiple Line Manifold Tanks</td> <td></td> </tr> <tr> <td>Graphical / Text Calibration Diagnostics</td> <td></td> </tr> <tr> <td>Automatic and Manual Meter Mapping</td> <td></td> </tr> <tr> <td colspan="2">IN-TANK LEAK TEST</td> </tr> <tr> <td>0.1 GPH Tank Tightness Testing</td> <td>Optional</td> </tr> <tr> <td>0.2 GPH Tank Tightness Testing</td> <td>Optional</td> </tr> <tr> <td>Continuous Statistical Leak Detection</td> <td>Optional</td> </tr> <tr> <td>Selectable Test Rates</td> <td>Optional</td> </tr> <tr> <td>Programmable Automatic Test Schedules</td> <td>Optional</td> </tr> <tr> <td>PASS, FAIL, or INVALID Indicators</td> <td>Optional</td> </tr> <tr> <td colspan="2">LINE LEAK DETECTION</td> </tr> <tr> <td>Integral Line Leak Detector</td> <td></td> </tr> <tr> <td>Programmable Line Test Features</td> <td></td> </tr> <tr> <td colspan="2">INTERSTITIAL/SUMP LEAK SENSING</td> </tr> <tr> <td>Tank Annulus</td> <td>•</td> </tr> <tr> <td>Sump</td> <td>•</td> </tr> <tr> <td>Dispenser Pan</td> <td>•</td> </tr> <tr> <td>Mag Sump</td> <td>•</td> </tr> <tr> <td>Sensor Location Identifiers</td> <td>•</td> </tr> <tr> <td colspan="2">VAPOR WELL MONITORING</td> </tr> <tr> <td>Hydrocarbon Vapor Detection</td> <td>•</td> </tr> <tr> <td>High Water Level Alarm</td> <td>•</td> </tr> <tr> <td colspan="2">GROUNDWATER MONITORING</td> </tr> <tr> <td>Hydrocarbon Liquid Detection</td> <td>•</td> </tr> <tr> <td>Low Water Alarm</td> <td>•</td> </tr> <tr> <td colspan="2">AIR VAPOR MONITORING</td> </tr> <tr> <td>Vapor Collection Monitor</td> <td></td> </tr> <tr> <td colspan="2">ALARMS</td> </tr> <tr> <td>Leak</td> <td>•</td> </tr> <tr> <td>Overfill</td> <td>•</td> </tr> <tr> <td>High Level</td> <td>•</td> </tr> <tr> <td>Sudden Loss</td> <td>Optional</td> </tr> <tr> <td>High Water</td> <td>•</td> </tr> <tr> <td>Low Inventory</td> <td>•</td> </tr> <tr> <td>Programmable Alarm Limits</td> <td>•</td> </tr> </tbody> </table>	Feature/Console	TLS4i	CONSOLE DESIGN		Modular/Expandable Features	•	LCD with Touch Screen	7" WVGA Color	Integral Roll Printer		Universal Power Supply	•	INVENTORY CONTROL		Graphical Inventory Status	•	Complete Inventory Reports	•	Programmable Auto Report Times	•	Inventory Increase Report	•	Timed Sudden Loss Detection	Optional	BUSINESS INVENTORY RECONCILIATION		Shift-Based Reconciliation		Reconciliation by Tank		TANK CALIBRATION		Multi-Pass Tank Calibration		Single-Pass / Metered Drop		Limited Range Calibration		Supports Multiple Tank Charts per Tank		Supports Multiple Line Manifold Tanks		Graphical / Text Calibration Diagnostics		Automatic and Manual Meter Mapping		IN-TANK LEAK TEST		0.1 GPH Tank Tightness Testing	Optional	0.2 GPH Tank Tightness Testing	Optional	Continuous Statistical Leak Detection	Optional	Selectable Test Rates	Optional	Programmable Automatic Test Schedules	Optional	PASS, FAIL, or INVALID Indicators	Optional	LINE LEAK DETECTION		Integral Line Leak Detector		Programmable Line Test Features		INTERSTITIAL/SUMP LEAK SENSING		Tank Annulus	•	Sump	•	Dispenser Pan	•	Mag Sump	•	Sensor Location Identifiers	•	VAPOR WELL MONITORING		Hydrocarbon Vapor Detection	•	High Water Level Alarm	•	GROUNDWATER MONITORING		Hydrocarbon Liquid Detection	•	Low Water Alarm	•	AIR VAPOR MONITORING		Vapor Collection Monitor		ALARMS		Leak	•	Overfill	•	High Level	•	Sudden Loss	Optional	High Water	•	Low Inventory	•	Programmable Alarm Limits	•
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Software Security Features	Centralized Device Management to protect your network of TLS4 series consoles																																																																																																															
Custom User Access	Front Panel Display control through user specific log-in; User defined roles to restrict access / functionality. Screen permissions can be limited to view, edit, perform																																																																																																															
System Security	1. Port availability control: SSH Port (22), HTTPS Port (443), Serial Command Port (10001) 2. Reassign Port Numbers (i.e., HTTPS on 50443) 3. System Integrator CVE Scans & Fixes 4. Periodic System Updates to protect against persistent threats																																																																																																															
Customized Alarm Features	Customizable for all alarms																																																																																																															
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Third Party Evaluations	http://www.nwglde.org/evals/veeder_root_zf.html																																																																																																															
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Example Illustrations

Illustrations used in this guide for example sensor installations may contain components that are customer supplied and not included with the sensor. Please check with your Veeder-Root Distributor for recommended installation accessories.

Third Party Evaluations

Third party evaluations of the Veeder-Root sensors contained in this application guide can be found under the Veeder-Root vendor name on the National Work Group on Leak Detection Evaluations (NWGLDE) website:

<http://www.nwglde.org>