


Console Description	<p>The TLS-350PLUS Automatic Tank Gauge offers the benefits of in-tank inventory, leak detection, and compliance. It is intended for retail and commercial operations.</p>			
TLS-350PLUS Consoles, Standard Hardware & Software	Part # & Description	Software Enhancement Modules		
	<ol style="list-style-type: none"> 848290-022 TLS-350PLUS Console with Integral Printer - 120V UL/cUL 848290-002 TLS-350PLUS Console without Integral Printer - 120V UL/cUL 	<ol style="list-style-type: none"> 330160-002 Continuous Statistical Leak Detection (CSLD) for TLS-350 Series Consoles 330160-003 Fuel Manager for TLS-350 Series Consoles 330160-010 Ultimate Testing: Pressurized Line Leak Detection (PLLD) for TLS-350 Series Consoles 330160-060 Risk Management: Wireless/Pressurized Line Leak Detection (PLLD) for TLS-350 Series Consoles 330160-050 Base Compliance: Wireless/Pressurized Line Leak Detection (PLLD) for TLS-350 Series Consoles 330160-004 In-Station Diagnostics (ISD): for TLS-350 Series Consoles 		
TLS-350PLUS Device Modules	Low Power Compartment Interface Modules (Limit 8 per console unless otherwise noted)		High Power Compartment Interface Modules (Limit 8 per console unless otherwise noted)	
	Description	Part #	Interfacing Device Part #'s	Description
	Four-Input Probe Module	329356-002	Used for interface to all Mag Probes	Four-Relay Output Module – Provides dry contact switch for 120 VAC source (used for positive shutdown or external alarms)
	Eight-Input Smart Sensor Module	329356-004	Used to Interface with Mag Sump Sensors only	Two-Input/Two-Relay Output Interface – 2 inputs provide 12VDC - 35VDC rated input, outputs rated 120V for Generator applications and Pump Sensing
	Vacuum Sensor Module, Seven-Input Smart Sensor w/ Embedded Pressure Sensor Interface for Vac Sensor Monitoring & ISD (min. 1 req'd for Vac Sensor Monitoring)	332250-001	Used to Interface with vacuum sensors and Mag Sump Sensors	Four-Input Pump Sense Module (1 per 4 STPs req'd for Continuous STP Run Monitor feature with software V27 or higher) – Used with Continuous STP run Monitor and CSLD, 120V
	Eight-Input Interstitial/Liquid Sensor Module for use with Series 7943 Liquid Sensors	329358-001	Series 7943 Liquid Sensors include 794380-322/352, 794380-209/209/323/333, 794390-409/420/430/460, 794380-301/303/304, 794690-xxx	Pump Relay Monitor Module (1 per 4 STPs req'd for Continuous STP Run Monitor feature with software V27 or higher). Rated for 240V – Designed to detect faulty STP control relay
	Five-Input Vapor Sensor Module for use with Series 7943 Vapor Sensors	329357-001	Series 7943 Vapor sensors include 794390-700	Dispenser Controller Module – 10 amp relay, 120V – controls dispenser power for shut down purposes
	Five-Input Groundwater Sensor Module for use with Series 7943 Groundwater Sensors	329399-001	Series 7943 Groundwater Sensors include 794380-621/622/624	Three-Output Pressurized Line Leak Controller (Max 2/console for use w/ PLLD) – Provides dispenser handle inputs and high power output to STP control relays – 120V
	Eight-Input Type A Sensor Module for use with Series 7943 Non-Discriminating Dispenser Pan & Containment Sump Sensors	329956-001	Series 7943 Non-Discriminating Dispenser Pan & Containment Sump Sensors include 794380-321/351, 794380-343/344/345	
	Six-Input Type B Sensor Module for use with Series 7943 Discriminating Dispenser Pan & Containment Sump Sensors	329950-001	Series 7943 Discriminating Dispenser Pan & Containment Sump Sensors include 794380-320/350	
TLS-350PLUS Communications & Memory Expansion Modules	Communication Compartment Modules (Limit 4 per console unless otherwise noted)		Memory Expansion Modules	
	Description	Part #	Description	Part #
	RS-232 Interface Module with Auxiliary Port	330148-001	Memory Expansion Module for ECPU1 board, 1 MEG	333760-102

TLS-350PLUS Communications & Memory Expansion Modules (Continued)	Communication Compartment Modules (limit 4 per console unless otherwise noted)		Memory Expansion Modules	
	Description	Part #	Description	Part #
	RS-232 Interface Module (Max 3/console)	329362-001	Memory Expansion Module for ECPU2 board, 1 MEG (req'd for version 27 or higher on > 8 tanks or BIR w/ manifold tanks)	333760-201
	RS-232 Satellite Module	329362-003	Memory Expansion Module for ECPU2 board, 2 MEG (req'd for ISD or Maintenance Tracker)	333760-203
	RS-232 Serial Satellite Module	329362-004	System Compatibilities Guide	
	RS-232 Single Port Module, DB25, w/ Maintenance Tracker ID Resistor	329362-005	Feature/Console	TLS-350R PC-350R TLS-350PLUS PC-350PLUS
	Dual Port RS-232/RS-485 Module Interface (only used in Comm. Slots 3 & 4)	330586-001	CONSOLE DESIGN	
	Dual Port Remote Display Module Satellite RS-232	330586-011	Modular/Expandable Features	•
	Dual Port Remote Display Module Satellite RS-485 (Amoco)	330586-015	Fixed Features	
	Dual Port RS-485 Module/Serial Satellite (Shell)	330586-016	Integral Printer	Optional
Dual Port RS-232/RS-485 Module DB9 with Maintenance Tracker ID Resistor (only used in Comm Slots 3 & 4)	330586-017	INVENTORY CONTROL		
SiteFax™ Module 300/1200/2400-Baud Fax/Modem Interface (Max 3/console, phone cable included)	330149-002	Business Inventory Reconciliation	•*	
Ethernet TCP/IP Communications Module	330020-425	Variance Analysis	•*	
Specifications		Fuel Manager	Optional	
Operating Temperature	+32 to +118°F (0 to +45°C)		Complete Inventory Reports	•
Storage Temperature	-40 to +162°F (-40 to +74°C)		Programmable Auto Report Times	•
Installation Location	NEMA 4 or indoors		Inventory Increase Report	•
Relative Humidity	0-90% (non-condensing)		IN-TANK LEAK TEST	
External Dimensions	19.75" x 11.25" x 7.1875" (50.165cm x 28.575cm x 18.26cm)		0.1 GPH Tank Tightness Testing	•
Construction	16GA (0.060 in/0.1524 cm) powder coated steel		0.2 GPH Tank Tightness Testing	•
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. mm, rated for at least 90C for barrier ground.		Continuous Statistical Leak Detection	Optional
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. 		Selectable Test Rates	•
System Power Requirements	Universal AC power supply: 100 to 249VAC, 50/60Hz, 2A max.		Programmable Automatic Test Schedules	•
Display Specifications	20 character liquid crystal display		PASS, FAIL, or INVALID Indicators	•
Custom User Access	Front Panel Display control through user specific log-in		LINE LEAK DETECTION	
Approvals	UL cUL, ATEX, IECEx		Integral Line Leak Detector	Optional
Third Party Evaluations	http://www.nwglde.org/evals/veeder_root_zf.html		Programmable Line Test Features	Optional
Product Installation Guide	https://www.veeder.com/us/technical-document-library		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	•
			SECONDARY CONTAINMENT VACUUM SENSING SYSTEM (SCVS)	
			Vacuum Sensors	•
			AIR VAPOR MONITORING	
			In-Station Diagnostics (ISD)	Optional
			Carbon Canister Vapor Polisher	Optional
			Vapor Pressure Sensor	Optional
			Vapor Flowmeter	Optional

* Standard in TLS-350R, Upgradeable in TLS-350PLUS

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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>