VEEDER-ROOT
IN STATION DIAGNOSTICS (ISD)

THE KEY TO CALIFORNIA COMPLIANCE

Veeder-Root's California Air Resources Board (CARB) certified In-Station Diagnostics (ISD) system provides the most accurate vapor recovery detection available in the industry.

Veeder-Root's ISD system continuously monitors the vapor recovery equipment, maintains test records, provides test reports, and generates warnings or alarms following equipment failure.

The Veeder-Root ISD system can be added to any TLS-350 console. This provides you with a cost effective solution with the Veeder-Root quality and support that you expect.

The Most Installed ISD Solution

Starting September 2010, ISD is required on all gasoline dispensing facilities with an annual throughput over 600,000 gallons.

Whether assist or balance vapor recovery, over 90% of California customers have selected Veeder-Root's ISD system. New stations select the Veeder-Root balance ISD solution due to simpler nozzle alarm requirements.

Veeder-Root's ISD is the only certified solution that supports all vapor processor configurations and all certified vapor recovery nozzles.

Flexible shutdown solutions allows customers to choose between STP shutdown, single dispenser shutdown or use both configurations.

Product Components

- **Assist Vapor Flow Meter** – Designed to withstand the harsh vapor recovery environment found in systems with vapor vacuum pumps. It provides ISD with the volume of vapor recovered during vehicle refueling for continuous vapor collection monitoring

- **Balance Flow Meter** – Designed for use in pressure sensitive balance systems to maintain accuracy and minimize false alarms. It provides ISD with the volume of vapor recovered during vehicle refueling for continuous vapor collection monitoring

- **Vapor Pressure Sensor** – Provides ISD with tank ullage pressure for vapor containment leakage and overpressure monitoring

- **ISD Software Enhancement Module (SEM)** – Unlocks the ISD software in the TLS-350 to provide continuous vapor recovery monitoring

- **NVMEM 2 Board** – Provides memory expansion necessary for ISD report storage

TLS-350

Vapor Flow Meter

Vapor Pressure Sensor

Benefits of the Veeder-Root ISD System

Exceeds Compliance Requirements

- CARB certified with all approved hanging hardware, providing California customers with the most options

- Maximizes site uptime using Single Dispenser Shutdown functionality

- Flexible ISD solution certified with all Vapor Processor configurations

- CARB certified to meet all ISD performance requirements as defined by CP201 including at least a 95% probability of failure detection while operating at no more than a 1% probability of false alarms

- Continuous monitoring identifies failed vapor recovery equipment during warranty periods without expensive manual testing

Cost Effective Solution

- ISD OEM can be added to any TLS-350 console, leveraging existing TLS-350 equipment

- Minimizes initial equipment and installation costs

- ISD Sensors can share wiring conduit with other Veeder-Root intrinsically safe (IS) sensors

- Simple installation, compatible with all Dispensers

- Single Dispenser or STP Shutdown

- Wireless option available

- Veeder-Root warranty for one year from date of installation for all new ISD components

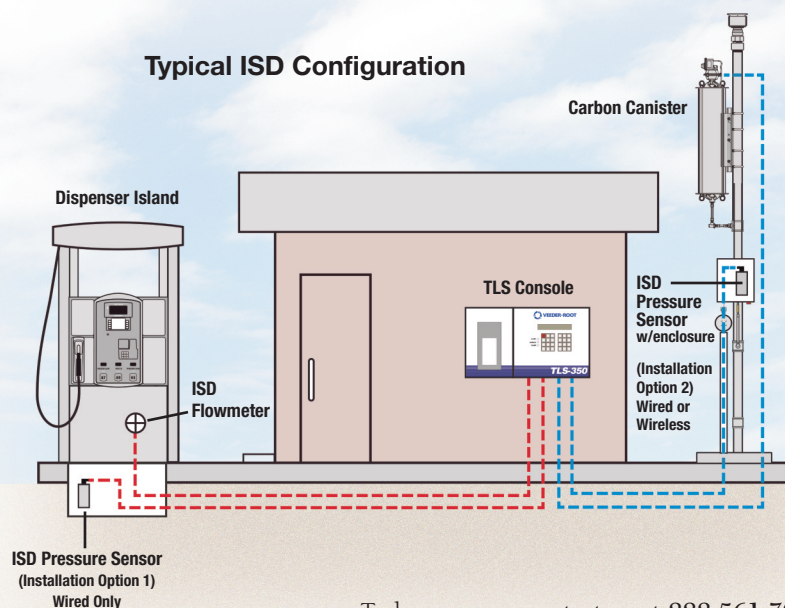# VEEDER-ROOT

TLS-350 Monitoring System Requirements

- TLS-350 with ECPU2
- NVMEM 203
- RS-232 Interface Module for On-site PC report access
- Smart Sensor Module
- Dispenser Interface Module (DIM)
- ISD Software Enhancement Module (SEM)
- Site Shutdown Control Hardware

Alarm Table

The following table contains a list of warnings and alarms posted or used by the ISD system:

Balance ISD	Assist ISD	Warning	Days to Alarm	Description
X	X	ISD DEGRD PRESSURE	30	75th percentile of 30 days' ullage pressure that exceeds 0.3 IWC
X	X	ISD GROSS PRESSURE	7	95th percentile of 7 days' ullage pressure that exceeds 1.3 IWC
X	X	ISD VAPOR LEAKAGE	7	Containment system leaks at two times the TP 201.3 standard
X	X	ISD SENSOR OUT	7	Failure of Sensor Self-test
X	X	ISD SETUP	7	Failure of Setup Test
	X	Hnn: DEGRD COLLECT	7	7-day Degradation A/L Test
	X	Hnn: GROSS COLLECT	1	1-day Gross A/L Test Warning
X		Hnn: FLOW COLLECT	1	Vapor collection flow perfomance is less than 50%
X		ISD VP PRESSURE	1	90th percentile of 1-day ullage pressure exceeds 2.5 IWC
X		ISD VP EMISSIONS	1	Mass emission exceeded the certified threshold
X		ISD VP Status	1	Failure of Vapor Processor Effluent Emissions or Duty Cycle Test

Typical ISD Configuration

Assist ISD

Part Numer	Description	Requirement
330020-445	Assist Vapor Flow Meter Kit	1 per dispenser
330020-515	Wired Vapor Pressure Sensor Kit[1]	
861190-201	NEW Wireless Vapor Pressure Sensor Kit[2]	1 per site
330020-715	NEW Vapor Pressure Sensor Site Start-up Kit[3]	
332250-110	Seven Input Smart Sensor Module[5]	1 per seven or eight Smart Sensors
329356-004	Eight Input Smart Sensor Module	

Balance ISD

Part Numer	Description	Requirement
330020-585	Balance Vapor Flow Meter Kit	1 per dispenser
330020-515	Wired Vapor Pressure Sensor Kit[1]	
861190-201	NEW Wireless Vapor Pressure Sensor Kit[2]	1 per site
330020-715	NEW Vapor Pressure SensorSite Start-up Kit[3]	
332250-001	Seven Input Smart Sensor Module[5]	1 per seven or eight Smart Sensors
329356-004	Eight Input Smart Sensor Module	
847490-315	PMC Port Controller Module[4]	1 per TLS Console

TLS-350 Software/Memory Upgrade Options for ISD

Part Numer	Description	Requirement
331500-358	ECPU2, latest V.3XX software, NVMEM 203	
331500-322	Latest V.3XX software, NVMEM 203	
332966-203	NVMEM 203 (report storage)	1 per Console
330160-004	ISD Software Enhancement Module (SEM)	
331500-353	TLS V.3XX software	

Optional ISD Components

Part Numer	Description	Requirement
331408-001	Dispenser Control Module for Single Dispenser Shutdown	1 module per 4 dispensers
330020-630	Vapor Pressure Sensor Kit for Mounting on Vent Stack[1]	1 per Console
330020-716	Universal Enclosure Box	1 per Pressure Sensor when mounted on Vent Stack
330020-717	NEW Vapor Pressure Sensor Drying Tube Kit	Replacement Part

1. Can only be used on wired installations.
2. Can only be used on wireless installations.
3. Required when ordering 861190-201 sensor for wireless installations.
4. Only required for VST Vapor Processors.
5. At least one seven channel module required when installing Carbon Canister Vapor Polisher, optional on all other ISD sites.

To learn more, contact us at **888.561.7942**, or visit **www.veeder.com**.