

# In-Station Diagnostics

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.**

The Veeder-Root ISD system continuously monitors the vapor recovery equipment, maintains test records, provides test reports, and generates warnings or alarms following equipment failure. It can now be added to the TLS-450PLUS console, which provides remote access and enhanced security, in addition to the latest features not available on legacy TLS consoles.



## ▶ MEET COMPLIANCE REQUIREMENTS

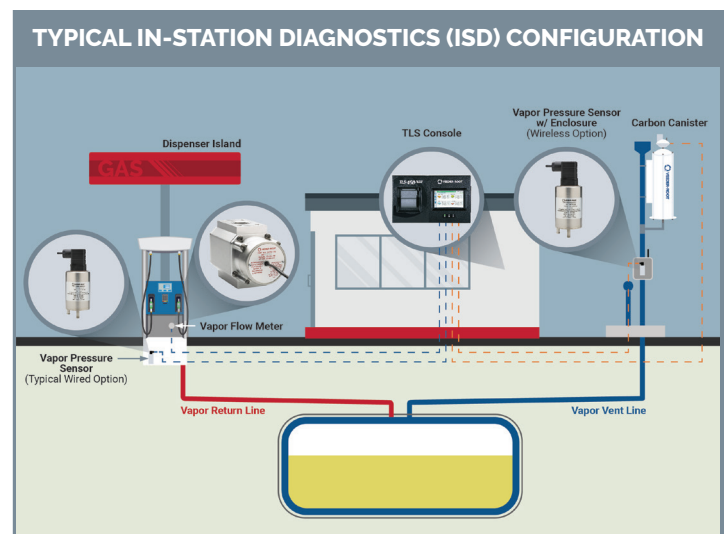
- CARB certified to meet all ISD performance requirements as defined by CP-201, including at least a 95% probability of failure detection while operating at no more than a 1% probability of false alarms
- CARB certified with the following equipment: Veeder-Root Carbon Canister, Healy Clean Air Separator, ARID Permeator, and HIRT Processor
- CARB certified with all approved hanging hardware
- Flexible ISD solution certified with multiple Vapor Processor configurations

## ▶ SYSTEM COMPONENTS

- **Vapor Flow Meter** – Provides ISD with the volume of vapor recovered during vehicle refueling for continuous vapor collection monitoring
  - **Assist Vapor Flow Meter** – Designed to withstand the harsh vapor recovery environment found in systems with vapor vacuum pumps
  - **Balance Flow Meter** – Designed for use in pressure sensitive balance systems to maintain accuracy and minimize false alarms
- **Vapor Pressure Sensor** – Provides ISD with tank ullage pressure for vapor containment leakage and overpressure monitoring
- **ISD Software Enhancement Feature** – Unlocks the ISD software in the TLS console to provide continuous vapor recovery monitoring

## ▶ THE MOST INSTALLED ISD SOLUTION

In California, 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 supports a variety of vapor processor configurations and all certified vapor recovery nozzles. Flexible shutdown solutions allow customers to choose between Submersible Turbine Pump (STP) shutdown, single dispenser shutdown, or use both configurations to maximize site uptime.



## ► COST EFFECTIVE SOLUTION

The TLS-450PLUS console provides an expanded, advanced feature set at a lower price point than the TLS-350 console without needing to replace existing probes or sensors\*.

- 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 to maximize site uptime
- Wireless option available

\* With the exception of PLLD Sensors

## ► TLS-450PLUS MONITORING SYSTEM REQUIREMENTS

- Universal Sensor Module (USM), Universal Input/Output Interface Module (UIOM), RS-232/485
- Dispenser Interface Module (DIM)
- ISD Software Enhancement
- Site Shutdown Control Hardware

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

Assist ISD		
Part Number	Description	Requirement
0330020-445	Assist Vapor Flow Meter Kit	1 per Dispenser
0330020-515	Wired Vapor Pressure Sensor Kit <sup>1</sup>	1 per Site
0861190-201	Wireless Vapor Pressure Sensor Kit <sup>2</sup>	
0330020-715	Vapor Pressure Sensor Site Start-up Kit <sup>3</sup>	
0332812-001	USM Interface for Probes, Sensors, and DPLLD <sup>4</sup>	Interface for Air Flow Meters, Pressure Sensors
0332813-001	UIOM for Relay Control and Input Signal Monitoring**	Supports up to 5 STPs

\*\* Required to ensure STP pump control or ARID Permeator Status

Optional ISD Components		
Part Number	Description	Requirement
0333564-001	10-Amp Relay Module for TLS-450PLUS	1 per Console, up to 6 Dispensers
0330020-630	Vapor Pressure Sensor Kit for Mounting on Vent Stack*** <sup>1</sup>	1 per Console
0330020-716	Universal Enclosure Box	1 per Pressure Sensor when mounted on Vent Stack
0330020-717	Vapor Pressure Sensor Drying Tube Kit	Replacement Part

\*\*\* 0330020-630 includes the Vapor Pressure Sensor so it does not need to be ordered separately, if ordering this kit

Balance ISD		
Part Number	Description	Requirement
0330020-585	Balance Vapor Flow Meter Kit	1 per Dispenser
0330020-515	Wired Vapor Pressure Sensor Kit <sup>1</sup>	1 per Site
0861190-201	Wireless Vapor Pressure Sensor Kit <sup>2</sup>	
0330020-715	Vapor Pressure Sensor Site Start-up Kit <sup>3</sup>	
0332812-001 / or 0332812-006	USM Interface for Probes, Sensors, and DPLLD <sup>4</sup>	Interface for Air Flow Meters, Pressure Sensors, and Carbon Canister Control Valve
0332813-001	UIOM for Relay Control and Input Signal Monitoring****	Supports up to 5 STPs

\*\*\*\* Required to ensure STP pump control or HIRT Processor Status

<sup>1</sup> Can only be used on wired installations.

<sup>2</sup> Can only be used on wireless installations.

<sup>3</sup> Required when ordering 0861190-201 sensor for wireless installations.

<sup>4</sup> At least one 16 Channel USM with Atmospheric Pressure Module (ATM) is required for Carbon Canister applications. Non-Carbon Canister applications can use the standard USM 0332812-001.