SENSOR (2-WIRE) CONTROL DRAWING

Sensor Type
- Containment Sump
- Discriminating Interstitial
- Dispenser Pan
- Hydrostatic
- Interstitial
- Micro Sensor
- Oil/Water Separator
- Position Sensitive
- Sump
- Temperature Sensor
- 2:1 Sensor Input Box

CLASS I Division 1, Group D
CLASS 1, Zone 0
Hazardous Location
Intrinsically Safe Apparatus

White (+)
Black (-)

Weatherproof Junction Box

I.S.

Rigid Conduit
Seal-Off

Non-Hazardous Location
Associated Apparatus
8485/TLS-300; 8470/TLS-350;
8482/TLS-350R ATG Consoles

I.S. Sensor Connections (+) (-)

Intrinsically Safe Wiring

I.S.
OR
I.S.   I.S.

Non-Hazardous Location Associated Apparatus
8601/TLS4 Console

1 + −
2 + −   I.S. Sensor Connections

2 − +
1 − +   I.S. Sensor Connections

Non-Hazardous Location
Associated Apparatus
8600/TLS-450/TLS-450PLUS
ATG Consoles,
TLS-XB/8603

POSITION SENSITIVE INTERSTITIAL SENSOR FOR STEEL TANKS CONTROL DRAWING
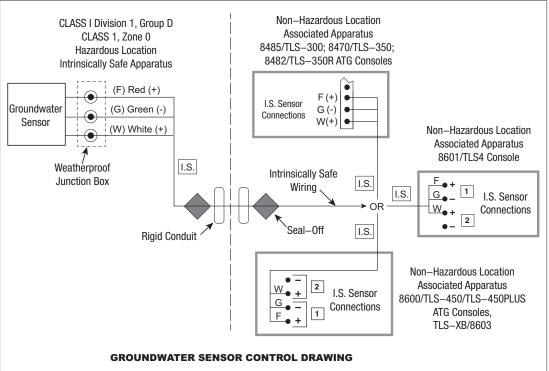**INTERSTITIAL SENSOR FOR STEEL TANKS CONTROL DRAWING**
CSTP LIQUID SWITCH CONTROL DRAWING

Sensor Type
- Interstitial Sensor For Steel Tanks
- CSTP Liquid Switch
- Position Sensitive Interstitial Sensor for Steel Tanks

CLASS I Division 1, Group D
CLASS 1, Zone 0
Hazardous Location
Intrinsically Safe Apparatus

Red (+)
Black (-)

Weatherproof Junction Box

I.S.

Rigid Conduit
Seal-Off

Non-Hazardous Location
Associated Apparatus
8485/TLS-300; 8470/TLS-350;
8482/TLS-350R ATG Consoles

I.S. Sensor Connections (+) (-)

Intrinsically Safe Wiring

I.S.
OR
I.S.   I.S.

Non-Hazardous Location
Associated Apparatus
8601/TLS4 Console

1 + −
2 + −   I.S. Sensor Connections

2 − +
1 − +   I.S. Sensor Connections

Non-Hazardous Location
Associated Apparatus
8600/TLS-450/TLS-450PLUS
ATG Consoles,
TLS-XB/8603

SMART SENSOR CONTROL DRAWING

Sensor Type
- Vapor Pressure
- Flow Meter
- Vacuum
- DPLLD
- Carbon Can/Vapor Valve

CLASS I Division 1, Group D
CLASS 1, Zone 0
Hazardous Location
Intrinsically Safe Apparatus

White (+)
Black (-)

Weatherproof Junction Box

I.S.

Rigid Conduit
Seal-Off

Non-Hazardous Location
Associated Apparatus
8485/TLS-300; 8470/TLS-350;
8482/TLS-350R ATG Consoles

I.S. Sensor Connections (+) (-)

Intrinsically Safe Wiring

I.S.
OR
I.S.

Non-Hazardous Location
Associated Apparatus
8600/TLS-450/TLS-450PLUS
ATG Consoles,
TLS-XB/8603

2 − +
1 − +   I.S. Sensor Connections

GROUNDWATER SENSOR CONTROL DRAWING

CLASS I Division 1, Group D
CLASS 1, Zone 0
Hazardous Location
Intrinsically Safe Apparatus

Groundwater Sensor

(F) Red (+)
(G) Green (-)
(W) White (+)

Weatherproof Junction Box

I.S.

Rigid Conduit
Seal-Off

Non-Hazardous Location
Associated Apparatus
8485/TLS-300; 8470/TLS-350;
8482/TLS-350R ATG Consoles

I.S. Sensor Connections
F (+)
G (-)
W (+)

Intrinsically Safe Wiring

I.S.
OR
I.S.   I.S.

Non-Hazardous Location
Associated Apparatus
8601/TLS4 Console

F + 1
G −
W + 2   I.S. Sensor Connections

Non-Hazardous Location
Associated Apparatus
8600/TLS-450/TLS-450PLUS
ATG Consoles,
TLS-XB/8603

W − 2
G −
F + 1   I.S. Sensor Connections

VAPOR SENSOR CONTROL DRAWING

CLASS I Division 1, Group D
CLASS 1, Zone 0
Hazardous Location
Intrinsically Safe Apparatus

Vapor Sensor

(V) Black (+)
(G) Green (-)
(W) White (+)

Weatherproof Junction Box

I.S.

Rigid Conduit
Seal-Off

Non-Hazardous Location
Associated Apparatus
8485/TLS-300; 8470/TLS-350;
8482/TLS-350R ATG Consoles

I.S. Sensor Connections
W (+)
G (-)
V (+)

Intrinsically Safe Wiring

I.S.
OR
I.S.   I.S.

Non-Hazardous Location
Associated Apparatus
8601/TLS4 Console

V + 1
G −
W + 2   I.S. Sensor Connections

Non-Hazardous Location
Associated Apparatus
8600/TLS-450/TLS-450PLUS
ATG Consoles,
TLS-XB/8603

W − 2
G −
V + 1   I.S. Sensor Connections

PLLD SENSOR CONTROL DRAWING

CLASS I Division 1, Group D
CLASS 1, Zone 0
Hazardous Location
Intrinsically Safe Apparatus

PLLD Sensor

White (+)
Black (-)

Weatherproof Junction Box

I.S.

Rigid Conduit
Seal-Off

Non-Hazardous Location
Associated Apparatus
TLS-350 ATG Console

PRESSURE LINE LEAK INTERFACE MODULE

I.S. Sensor Connections (+) (-)

Intrinsically Safe Wiring

I.S.

Sensor Type Programming Table for TLS Consoles

Sensor	Form Number	Sensor Category (Location)	TLS-3XX Series Sensor Type	TLS4/8601 Series TLS-450 and TLS-450PLUS Sensor Model
Discriminating Dispenser Pan and Sump Sensors - Standard	794380-322 (DPS), 794380-352 (CSS)	Sump/Pan	Liquid Sensor Setup: Sensor Type - Dual Float Discriminating	Device Setup Liquid Sensor: Model - Dual Float Discriminating
Discriminating Dispenser Pan and Sump Sensors - Optical	794380-320 (DPO), 794380-350 (CSO)	Sump/Pan	3-Wire C.L. Setup: Sensor Mode - Standard	Device Setup Type B Sensor: Model - Ultra/Z-1 (Standard)
Mag Sump Sensor	857080-XXX	Sump/Pan	Smart Sensor Setup: Sensor Category- Mag Sensor	Device Setup MAG Sensor
Solid-State Dispenser Pan and Containment Sump	794380-321 (DP); 794380-351 (CS)	Sump/Pan	2-Wire C.L. Setup: Sensor Type - Discrim Interstitial	Device Setup Type A Sensor: Model - Discrim. Interstitial
Piping Sump	794380-208	Sump/Pan	Liquid Sensor Setup: Sensor Type - Tri-State Liquid	Device Setup Liquid Sensor: Model - Tri-State
Position-Sensitive Sensor **High Alcohol Compatible!**	794380-323	Sump/Pan	Liquid Sensor Setup: Sensor Type - Tri-State Liquid	Device Setup Liquid Sensor: Model - Tri-State
Discriminating Interstitial Sensor for Double-Wall Fiberglass Tanks	794380-343	Annular Space	2-Wire C.L. Setup: Sensor Type - Discrim Interstitial	Device Setup Type A Sensor: Model - Discrim. Interstitial
Interstitial Sensors for Double-Wall Fiberglass Tanks	794380-409	Annular Space	Liquid Sensor Setup: Sensor Type - Tri-State Liquid	Device Setup Liquid Sensor: Model - Tri-State
Interstitial High Alcohol Sensor for Double-Wall Fiberglass Tanks **High Alcohol Compatible!**	794380-345	Annular Space	2-Wire C.L. Setup: Sensor Type - Ultra 2	Device Setup Type A Sensor: Model - Ultra 2
Interstitial Sensors for Steel Tanks	794380-4X0	Annular Space	Liquid Sensor Setup: Sensor Type - Tri-State Liquid	Device Setup Liquid Sensor: Model - Tri-State
Position Sensitive Interstitial Sensor for Steel Tanks **High Alcohol Compatible!**	794380-333	Annular Space	Liquid Sensor Setup: Sensor Type - Tri-State Liquid	Device Setup Liquid Sensor: Model - Tri-State
Interstitial High Alcohol Sensors for Steel Tanks **High Alcohol Compatible!**	794380-430	Annular Space	Liquid Sensor Setup: Sensor Type - Tri-State Liquid	Device Setup Liquid Sensor: Model - Tri-State
MicroSensor **High Alcohol Compatible!**	794380-344	Annular Space	2-Wire C.L. Setup: Sensor Type - Discrim Interstitial	Device Setup Type A Sensor: Model - Discrim Interstitial
Hydrostatic Reservoir	794380-301 (1 float)	Annular Space	Liquid Sensor Setup: Sensor Type - Tri-State Liquid	Device Setup Liquid Sensor: Model - Tri-State
Hydrostatic Reservoir	794380-303 (2 float)	Annular Space	Liquid Sensor Setup: Sensor Type - Dual Float Hydrostatic	Device Setup Liquid Sensor: Model - Dual Float Hydrostatic
Single-Point Mini Hydrostatic Sensor for Double Wall Sumps	794380-304	Annular Space	Liquid Sensor Setup: Sensor Type - Tri-State Liquid	Device Setup Liquid Sensor: Model - Tri-State
Vapor	794390-700	Monitor Well	Vapor Sensor Setup	Device Setup Vapor Sensor
Groundwater	794380-62X	Monitor Well	Groundwater Sensor Setup	Device Setup Groundwater Sensor
Oil/Water Separator	794690-XXX	Oil/Water Separator Tank	Liquid Sensor Setup: Sensor Type - Dual Float Discriminating	Device Setup Liquid Sensor: Model -Dual Float Discriminating
Liquid Temperature Sensor	794380-210	Liquid/Line	Temperature Sensor	Device Setup Liquid Sensor: Model-VR-Temp-Sensor

4SITE SOLID-STATE DISCRIMINATING CONTAINMENT SUMP SENSOR CONTROL DRAWING
4SITE SOLID-STATE DISCRIMINATING DISPENSER PAN SENSOR CONTROL DRAWING

TLS RF CONTROL DRAWING

Installation Reference

You must reference the appropriate documents in the table below for installation instructions and to plan and install wiring that will connect the sensor to the console.

⚠️ **Important Notice: Failure to install this product in accordance with its instructions and warnings will result in voiding of all warranties connected with this product and may damage the environment.**

Equipment	UL/cUL Control Drawing Document No.	Manual No.
ASSOCIATED APPARATUS		
TLS–450/8600/ TLS–450PLUS	331940–008	577013–934
TLS–350, TLS–350R	331940–011	**576013–879**
TLS–300	331940–013	576013–879
TLS–50	331940–014	577013–608
TLS2	331940–014	577013–756
TLS–IB	331940–014	577013–719
TLS4/8601	331940–018	577014–022
TLS–XB/8603	331940–019	577014–033
INTRINSICALLY SAFE APPARATUS FOR WIRELESS APPLICATIONS		
Tank Gauge Accessories	331940–012	577013–964

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 Certification (Level 1): 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.

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

VR Vapor Products Certification: Contractors holding a certification with the following designations are approved to perform installation checkout, startup, programming, system tests, troubleshooting, service techniques and operations training on the designated system.

- ISD – In Station Diagnostics
- PMC – Pressure Management Control
- CCVP – Veeder–Root Vapor Polisher
- Wireless – ISD/PMC Wireless
- A current Veeder–Root Technician Certification is a prerequisite for the VR Vapor Products course.

Warranty Registrations may only be submitted by selected Distributors.