Sensor Products
Application Guide

VEEDER-ROOT

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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

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Sensor Description	Part #	Page #	Dispenser Pan	Spill Containment	STP Sump	Convault Tank	Annular Space	Monitoring Well	Oil/Water Separator Tank	Discriminating	Non-Discriminating	Position Sensitive	Level Sensing	Static Testing	Hydrostatic	100% Gasoline	Diesel (ASTM D975)	Kerosene	Jet Fuel (ASTM D7547)	Aviation Gas	E-15	E-85	E-100	Bio-Diesel 20 (ASTM D7467)	Bio-Diesel 100 (ASTM D6751)	Renewable (Green) Diesel (ASTM D975)	Diesel Exhaust Fuel (DEF)	Waste Oil	Motor Oil
Discr. Dispenser Pan	794380-322	2	X	X						X						X	X	X	X	X	X	X[1]		X		X		X	X
Discriminating Containment Sump	794380-352	3		X	X					X						X	X	X	X	X	X	X[1]		X		X		X	X
Solid-State (Optical) Discr. Dispenser Pan	794380-320	4	X	X						X						X	X	X	X	X	X	X[1]		X	X			X	X
Solid-State (Optical) Discr. Containment Sump	794380-350	5		X	X					X						X	X	X	X	X	X	X[1]		X		X		X	X
Mag. Discr. Level Indicating Containment Sump	857080-XXX	6	X	X	X					X		X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X
Solid-State Non-Discriminating Dispenser Pan	794380-321	7	X	X							X					X	X	X	X	X	X			X	X	X		X	X
Solid-State Non-Discriminating Containment Sump	794380-351	8		X	X						X					X	X	X	X	X	X			X	X	X		X	X
Piping Sump-12' (3.66m) Cable	794380-208	9	X	X	X						X					X	X	X	X	X	X			X		X		X	X
Non-Discriminating Standalone Dispenser Pan	847990-001	10	X	X	X						X					X	X	X	X	X	X			X		X		X	X
Position Sensitive	794380-323	11	X	X	X						X	X				X	X	X	X	X	X	X	X	X		X		X	X
Solid-State Discr. Interstitial for Fiberglass Tanks	794380-343	12					X			X						X	X	X	X	X	X			X	X	X	X	X	X
Interstitial for Double-Wall Fiberglass Tanks	794390-409	13					X				X					X	X	X	X	X	X			X		X			
Solid-State Interstitial for Fiberglass Tanks, High Alcohol	794380-345	14					X				X					X	X	X	X	X	X	X	X	X	X	X	X	X	X
Interstitial for Steel Tanks	794390-4X0	15			X		X				X					X	X	X	X	X	X			X		X		X	X
Interstitial for Steel Tanks, Position Sensitive[2]	794380-333	16		X			X				X	X				X	X	X	X	X	X	X	X	X		X		X	X
Interstitial for Steel Tanks, High Alcohol	794380-430	17					X				X					X	X	X	X	X	X	X	X	X		X		X	X
MicroSensor	794380-344	18		X			X				X					X	X	X	X	X	X	X	X	X		X		X	X
(Dual-Point) Hydrostatic Reservoir	794380-303	19					X								X	X	X	X	X	X	X	X[1]	X[1]	X		X		X	X
Single-Point Hydrostatic	794380-301	20					X								X	X	X	X	X	X	X	X[1]	X[1]	X		X			
Single-Point Mini-Hydrostatic Reservoir (High Alcohol)	794380-304	21					X								X	X	X	X	X	X	X	X	X	X		X		X	X
Monitoring Well Vapor	794390-700	22						X								X			X	X	X								
Groundwater	794380-62X	23						X								X	X	X	X	X	X			X		X		X	X
Oil Water Separator	794690-XXX	24							X							X	X	X	X	X	X			X		X		X	X

1 Single use only if sensor was exposed to E85 or E100
(Test per Sensor Operability Guide [P/N 577013-814] in E-10 or less)

2 Small containment areas (i.e. spill buckets)

NOTE: P/Ns with X included represent multiple part numbers.

Sensor Description	**Discriminating Dispenser Pan Sensor**	This type of discriminating sensor is installed in a dispenser pan and will detect the presence of, and differentiate between, hydrocarbons and other liquids.
Part Number	**794380-322**	

Category	☑ Discriminating ☐ Non-Discriminating ☐ Position Sensitive	☐ Level Sensing ☐ Static Testing ☐ Hydrostatic	

Fuel Compatibility

☑ Gas	☑ E-15	☑ Green Diesel
☑ Diesel	☑ E-85[1]	☐ DEF
☑ Kerosene	☐ E-100	☑ Waste Oil
☑ Jet Fuel	☑ Bio-Diesel 20	☑ Motor Oil
☑ Aviation Gas	☐ Bio-Diesel 100	

[1]Single use only (Test per Sensor Operability Guide in E-10 or less)

Sensor Interface Modules

Console Compatibility (International Only[2])	**Recommended Min. Console Software**	**Module Part #**	**Module Description**	**# of Modules per Console**	**# of Sensor Inputs per Module**	**Availability**
TLS-450PLUS (8600 Series)	6A or Higher	332812-001	Universal Sensor Module (USM)	Up to 4 - TLS-4XX Up to 8 - TLS-4XX w/ opt. TLS-XB	16	Sold Separately
TLS-450	4A or Higher					
TLS4 (8601 Series)[2]	6A or Higher	330020-750	Universal Sensor Input/Out-put Module (USIOM-AC)	1	12	Included
TLS4i (8601 Series)						
TLS4B (8601 Series)[2]		330020-751			6	
TLS4c (8601 Series)						
TLS-350/R/PLUS	124/324 or Higher	329358-001	Interstitial Sensor Interface Module	Up to 8	8	Sold Separately
TLS-350J		329356-003	4 Probe / 4 Sensor Interface Module	1	4	Sold Separately
TLS-300i		330230-001	4 Probe / 8 Sensor Interface Module		8	Included
TLS-300C		330513-001	2 Probe / 8 Sensor Options			

Alarm Notification	Normal	Sensor in Normal State - No liquid detected
	Low Liquid	Liquid detected at a minimum of 1.37" (3.48cm)
	High Liquid	Liquid detected at a minimum of 7.66" (19.45cm)
	Fuel Alarm	Permeable material saturated with Fuel
	Sensor Out	Sensor not communicating to ATG/Console

Installation Kit	330020-012	Universal Sensor Mounting Kit (Sold separately)

Specifications		**Example Installation**
Operating Principle	Product Permeable, Reed Switch/Float	
Product Activation Height	Gas - 0.125" (3.175mm); Water - Low 1.37" (3.48cm), High 7.66" (19.45cm)	
Operating Temperature	+32 to +140°F (0 to +60°C)	
Dimensions	11.6" (29.4cm) high, 2.2" (5.6cm) dia.	
Miscellaneous/Notes	Standard Cable Length: 12ft (3.66m)	
Third Party Evaluation Links	*TLS-3XX/TLS-450 Series Consoles* *TLS4 (8601 Series) Consoles*	
Product Link	*Discriminating Dispenser Pan Sensor*	
Warranty with System	1 Yr Parts & Labor	
Warranty (When purchased separately)	1 Yr Parts Only	

Example Installation

- U-channel
- Brackets, clamp, etc., from Universal sensor mounting kit
- Cord grip
- Weatherproof junction box with 1/2" (1.27cm) NPT threads (16 cubic inch (262cm³) volume minimum)
- Product line
- Seal-off
- Dispenser containment sump
- Rubber grommet seal clamped on inside - or as recommended by dispenser pan manufacturer
- 1/2" (1.27cm) Rigid conduit to console
- Dispenser pan sensor*

IMPORTANT! DO NOT MOUNT SENSOR TO FLEXIBLE PRODUCT LINE.

*Dispenser pan sensor should:
1. Rest in the cup or the lowest point of the dispenser containment sump.
2. Be positioned so as to be removable by pulling the sensor straight up out of the pan.
3. Be mounted in a true vertical position.

Where Used (Typical)

☑ Dispenser Pan	☐ Annular Space
☑ Spill Containment	☐ Monitoring Well
☐ STP Sump	☐ Oil/Water Separator Tank
☐ Convault Tank	

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Sensor Description	Discriminating Containment Sump Sensor	This type of discriminating sensor is installed in a containment sump area. It detects the presence of, and differentiates between, hydrocarbons and other liquids.

Part Number	794380-352

Category	☑ Discriminating ☐ Level Sensing ☐ Non-Discriminating ☐ Static Testing ☐ Position Sensitive ☐ Hydrostatic

Fuel Compatibility	☑ Gas ☑ E-15 ☑ Green Diesel ☑ Diesel ☑ E-85[1] ☐ DEF ☑ Kerosene ☐ E-100 ☑ Waste Oil ☑ Jet Fuel ☑ Bio-Diesel 20 ☑ Motor Oil ☑ Aviation Gas ☐ Bio-Diesel 100 [1]Single use only (Test per Sensor Operability Guide in E-10 or less)

Console Compatibility (International Only[2])	Recommended Min. Console Software	Sensor Interface Modules				
		Module Part #	Module Description	# of Modules per Console	# of Sensor Inputs per Module	Availability
TLS-450PLUS (8600 Series)	6A or Higher	332812-001	Universal Sensor Module (USM)	Up to 4 - TLS-4XX Up to 8 - TLS-4XX w/ opt. TLS-XB	16	Sold Separately
TLS-450	4A or Higher					
TLS4 (8601 Series)[2]	6A or Higher	330020-750	Universal Sensor Input Out-put Module (USIOM-AC)	1	12	Included
TLS4i (8601 Series)						
TLS4B (8601 Series)[2]		330020-751			6	
TLS4c (8601 Series)						
TLS-350/R/PLUS	124/324 or Higher	329358-001	Interstitial Sensor Interface Module	Up to 8	8	Sold Separately
TLS-350J		329356-003	4 Probe / 4 Sensor Interface Module		4	Sold Separately
TLS-300i		330230-001	4 Probe / 8 Sensor Interface Module	1	8	Included
TLS-300C		330513-001	2 Probe / 8 Sensor Options			

Alarm Notification	Normal	Sensor in Normal State - No liquid detected
	Low Liquid	Liquid detected at a minimum of 1.35" (3.4cm)
	High Liquid	Liquid detected at a minimum of 12.28" (31.19cm)
	Fuel Alarm	Permeable material saturated with Fuel
	Sensor Out	Sensor not communicating to ATG/Console

Where Used (Typical)

☐ Dispenser Pan   ☐ Annular Space
☑ Spill Containment   ☐ Monitoring Well
☑ STP Sump   ☐ Oil/Water Separator Tank
☐ Convault Tank

Installation Kit	330020-012	Universal Sensor Mounting Kit (Sold separately)

Specifications		**Example Installation**
Operating Principle	product permeable, reed switch/float	
Product Activation Height	Gas - 0.125" (3.175mm); Water - Low 1.35" (3.4cm), High 12.28" (31.19cm)	
Operating Temperature	+32 to +140°F (0 to +60°C)	
Dimensions	22.1" (56.1cm) high, 2.2" (5.6cm) dia.	
Miscellaneous/Notes	Standard Cable Length: 12 ft (3.66m)	
Third Party Evaluation Links	TLS-3XX/TLS-450 Series Consoles TLS4 (8601 Series) Consoles	
Product Link	Discriminating Containment Sump Sensor	
Warranty with System	1 Yr Parts & Labor	
Warranty (When purchased separately)	1 Yr Parts Only	

Example Installation: Submersible pump, Containment sump sensor, 1/2" (1.27cm) NPT cord grip supplied w/ cable, Weatherproof junction box, Seal-off, Rigid conduit to console, Product line, Brackets, clamp, etc., from optional Universal Sensor Mounting Kit. **IMPORTANT! DO NOT MOUNT SENSOR TO FLEXIBLE PRODUCT LINE.**
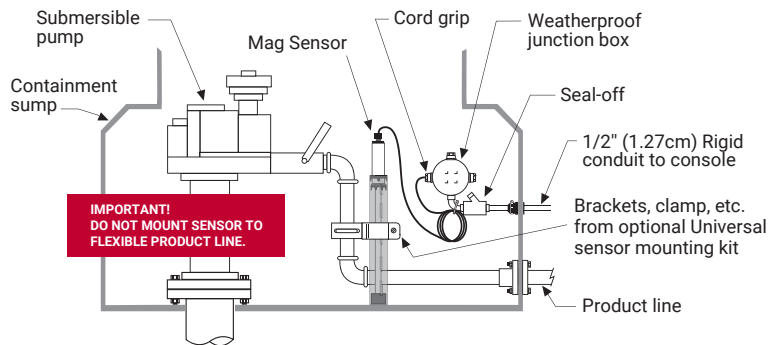
Sensor Description	Solid-State (Optical) - Discriminating Dispenser Pan Sensor	This type of discriminating sensor is installed in a dispenser containment sump area. It detects the presence of, and differentiates between, hydrocarbons and other liquids.

Part Number	794380-320

Category	☑ Discriminating ☐ Non-Discriminating ☐ Position Sensitive	☐ Level Sensing ☐ Static Testing ☐ Hydrostatic

Fuel Compatibility

☑ Gas   ☑ E-15   ☑ Green Diesel
☑ Diesel   ☑ E-85[1]   ☐ DEF
☑ Kerosene   ☐ E-100   ☑ Waste Oil
☑ Jet Fuel   ☑ Bio-Diesel 20   ☑ Motor Oil
☑ Aviation Gas   ☐ Bio-Diesel 100

[1]Single Use Only (Test per Sensor Operability Guide in E-10 or less)

Console Compatibility (*International Only[2])	Recommended Min. Console Software	Sensor Interface Modules				
		Module Part #	Module Description	# of Modules per Console	# of Sensor Inputs per Module	Availability
TLS-450PLUS (8600 Series)	6A or Higher	332812-001	Universal Sensor Module (USM)	Up to 4 - TLS-4XX Up to 8 - TLS-4XX w/ opt. TLS-XB	8	Sold Separately
TLS-450	4A or Higher					
TLS4 (8601 Series)[2]	6A or Higher	330020-750	Universal Sensor Input Out-put Module (USIOM-AC)	1	6	Included
TLS4i (8601 Series)						
TLS4B (8601 Series)[2]		330020-751			4	
TLS4c (8601 Series)						
TLS-350/R/PLUS	124/324 or Higher	329950-001	Type B Interface Module	Up to 8	6	Sold Separately
TLS-300i		N/A				
TLS-300C						

Alarm Notification	Normal	Sensor in Normal State - No liquid detected
	Low Liquid	Liquid detected at a minimum of 1.37" (3.4cm)
	High Liquid	Liquid detected at a minimum of 7.66" (19.45cm)
	Fuel Alarm	Permeable material saturated with fuel
	Sensor Out	Sensor not communicating to ATG/Console

Installation Kit	330020-012	Universal Sensor Mounting Kit (sold separately)

Specifications		Example Installation
Operating Principle	Electrical conductivity/optical	
Product Activation Height	Gas - 0.125" (3.175mm); Water - Low 1.37" (3.4cm), High 7.66" (19.45cm)	
Operating Temperature	-40 to +122°F (-40 to +50°C)	
Dimensions	11.6" (29.4cm) high, 2.2″ (5.6cm) dia.	
Miscellaneous/Notes	Standard Cable Length: 12ft (3.66m)	
Third Party Evaluation Links	*TLS-350/TLS-450 Series Consoles* *TLS4 (8601 Series) Consoles*	
Product Link	*Solid-State Discriminating Dispenser Pan Sensor*	
Warranty with System	1 Yr Parts & Labor	
Warranty (When purchased separately)	1 Yr Parts Only	

Brackets, clamp, etc., from Universal sensor mounting kit
U-channel
Weatherproof junction box with 1/2" (1.27cm) NPT threads (16 cubic inch (262cm³) volume minimum).
Seal-off
Cord grip
Rubber grommet seal clamped on inside - or as recommended by dispenser pan manufacturer
Dispenser pan sensor*
1/2" (1.27cm) Rigid conduit to console
Dispenser pan

*Dispenser pan sensor should:
1. Rest in the cup or the lowest point of the dispenser pan.
2. Be positioned so as to be removable by pulling the sensor straight up out of the pan.
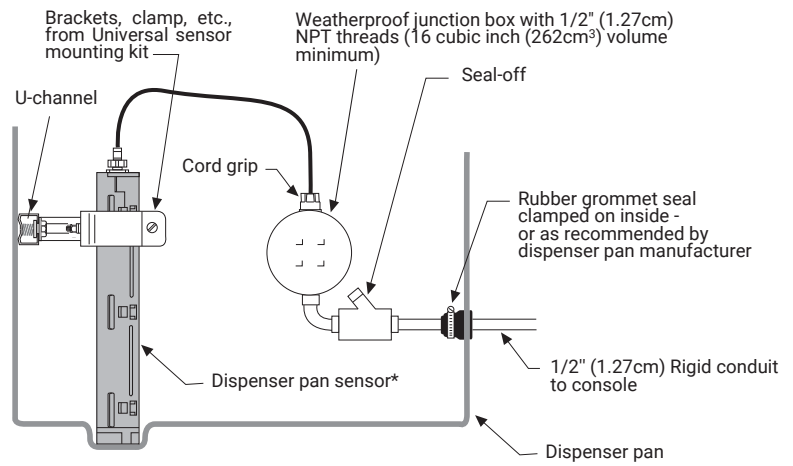3. Be mounted in a true vertical position.

Where Used (Typical)

☑ Dispenser Pan   ☐ Annular Space
☑ Spill Containment   ☐ Monitoring Well
☐ STP Sump   ☐ Oil/Water Separator Tank
☐ Convault Tank

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Sensor Description	Solid-State (Optical)-Discriminating Containment Sump Sensor	This type of discriminating sensor is installed in a containment sump and will detect the presence of, and differentiate between, hydrocarbons and other liquids.

Part Number	**794380-350**

Category	☑ Discriminating ☐ Non-Discriminating ☐ Position Sensitive	☐ Level Sensing ☐ Static Testing ☐ Hydrostatic

Fuel Compatibility	☑ Gas ☑ E-15 ☑ Green Diesel ☑ Diesel ☑ E-85[1] ☐ DEF ☑ Kerosene ☐ E-100 ☑ Waste Oil ☑ Jet Fuel ☑ Bio-Diesel 20 ☑ Motor Oil ☑ Aviation Gas ☐ Bio-Diesel 100 [1]Single use only (Test per Sensor Operability Guide in E-10 or less)

Console Compatibility (*International Only[2])	Recommended Min. Console Software	Sensor Interface Modules				
		Module Part #	Module Description	# of Modules per Console	# of Sensor Inputs per Module	Availability
TLS-450PLUS (8600 Series)	6A or Higher	332812-001	Universal Sensor Module (USM)	Up to 4 - TLS-4XX Up to 8 - TLS-4XX w/ opt. TLS-XB	8	Sold Separately
TLS-450	4A or Higher					
TLS4 (8601 Series)[2]	6A or Higher	330020-750	Universal Sensor Input Out-put Module (USIOM-AC)	1	6	Included
TLS4i (8601 Series)						
TLS4B (8601 Series)[2]		330020-751			4	
TLS4c (8601 Series)						
TLS-350/R/PLUS	124/324 or Higher	329950-001	Type B Interface Module	Up to 8	6	Sold Separately
TLS-300i	N/A					
TLS-300C						

Alarm Notification	Normal	Sensor in Normal State - No liquid detected
	Low Liquid	Liquid detected at a minimum of 1.37" (3.48cm)
	High Liquid	Liquid detected at a minimum of 10.3" (26.2cm)
	Fuel Alarm	Permeable material saturated with Fuel
	Sensor Out	Sensor not communicating to ATG/Console

Installation Kit	330020-012	Universal Sensor Mounting Kit (Sold separately)

Specifications		Example Installation
Operating Principle	Electrical conductivity/optical	
Product Activation Height	Gas - 0.125" (3.175mm); Water - Low - 1.37" (3.4cm), High - 10.3" (26.2cm)	
Operating Temperature	-40 to +122°F (-40 to +50°C)	
Dimensions	22.1" (56.1cm) high, 2.2" (5.6cm) dia.	
Miscellaneous/Notes	Standard Cable Length: 12ft (3.66m)	
Third Party Evaluation Links	*TLS-350/TLS-450 Series Consoles* *TLS4 (8601 Series) Consoles*	
Product Link	*Solid-State Discriminating Containment Sump Sensor*	
Warranty with System	1 Yr Parts & Labor	
Warranty (When purchased separately)	1 Yr Parts Only	

Where Used (Typical)

☐ Dispenser Pan   ☐ Annular Space
☑ Spill Containment   ☐ Monitoring Well
☑ STP Sump   ☐ Oil/Water Separator Tank
☐ Convault Tank

Example Installation diagram labels:
- Containment sump sensor
- 1/2" (1.27cm) NPT cord grip supplied w/ cable
- Submersible pump
- Weatherproof junction box
- Containment sump
- Seal-off
- Rigid conduit to console
- **IMPORTANT! DO NOT MOUNT SENSOR TO FLEXIBLE PRODUCT LINE.**
- Product line
- Brackets, clamp, etc., from optional Universal Sensor Mounting Kit

Sensor Description	**Magnetostrictive Discriminating Level Indicating Containment Sump Sensor**	This type of sensor is installed in a dispenser pan or containment sump and will detect the presence of, and differentiate between, fuel and other liquids.

Part Number	**857080-111 (12"/30.48cm), -112 (24"/60.96cm) / 857080-211 (12"/30.48cm), -212 (24"/60.96cm).** **The -211 and -212 sensors are capable of performing a Sump Integrity Test.**

Category
- ☑ Discriminating
- ☐ Non-Discriminating
- ☑ Position Sensitive
- ☑ Level Sensing
- ☑ Static Testing
- ☐ Hydrostatic

Fuel Compatibility
- ☑ Gas
- ☑ Diesel
- ☑ Kerosene
- ☑ Jet Fuel
- ☑ Aviation Gas
- ☑ E-15
- ☑ E-85
- ☑ E-100
- ☑ Bio-Diesel 20
- ☑ Bio-Diesel 100
- ☑ Green Diesel
- ☑ DEF
- ☑ Waste Oil
- ☑ Motor Oil

Console Compatibility (*International Only[1])	Recommended Min. Console Software	Sensor Interface Modules				
		Module Part #	Module Description	# of Modules per Console	# of Sensor Inputs per Module	Availability
TLS-450PLUS (8600 Series)	6A or Higher	332812-001	Universal Sensor Module (USM)	Up to 4 - TLS-4XX Up to 8 - TLS-4XX w/ opt. TLS-XB	16	Sold Separately
TLS-450	4A or Higher					
TLS4 (8601 Series)[1]	6A or Higher	330020-750	Universal Sensor Input/Out-put Module (USIOM-AC)	1	12	Included
TLS4i (8601 Series)						
TLS4B (8601 Series)[1]		330020-751			6	
TLS4c (8601 Series)						
TLS-350/R/PLUS	124/324 or Higher (-211 and -212 sensors require 126/326 or higher)	329356-004	Smart Sensor Interface Module	Up to 8	8	Sold Separately
TLS-300i	N/A					
TLS-300C						

Alarm Notification	Normal	Sensor in Normal State - No liquid detected
	Water Alarm	Water detected at a minimum of 1.614" (2.83cm)
	Fuel Alarm	Fuel detected 1.368" (3.47cm)
	Sensor Comm. Alarm	Sensor not communicating to ATG/Console

Where Used (Typical)
- ☑ Dispenser Pan
- ☑ Spill Containment
- ☑ STP Sump
- ☐ Convault Tank
- ☐ Annular Space
- ☐ Monitoring Well
- ☐ Oil/Water Separator Tank

Installation Kit	330020-012	Universal Sensor Mounting Kit (Sold separately)

Specifications		Example Installation
Operating Principle	Magnetostrictive probe with dual floats	
Product Activation Height	Water 1.614" (4.1cm), Fuel 1.368" (3.47cm)	
Operating Temperature	-40°F to +140°F (-40°C to +60°C)	
Dimensions	2.4" (6.1cm) Diameter; 21.4" (54.4cm) Long (-111 and -211 models), 33.4" (84.8cm) Long (-112 and -212 models)	
Miscellaneous/Notes	Standard Cable Length: 10ft (3.66m)	
Third Party Evaluation Links	*TLS-350/TLS-450 Series Consoles* *TLS4 (8601 Series) Consoles*	
Product Link	*Mag Sump Sensor*	
Warranty with System	1 Yr Parts & Labor	
Warranty (When purchased separately)	1 Yr Parts Only	

Example Installation diagram labels: Submersible pump, Containment sump, Mag Sensor, Cord grip, Weatherproof junction box, Seal-off, 1/2" (1.27cm) Rigid conduit to console, Brackets, clamp, etc. from optional Universal sensor mounting kit, Product line
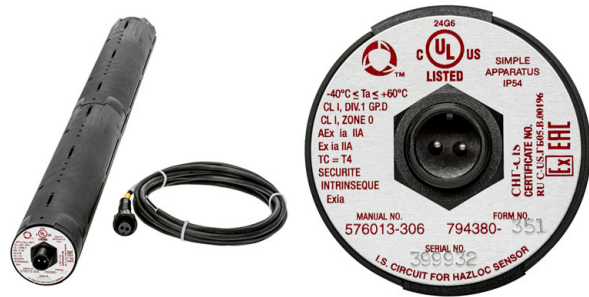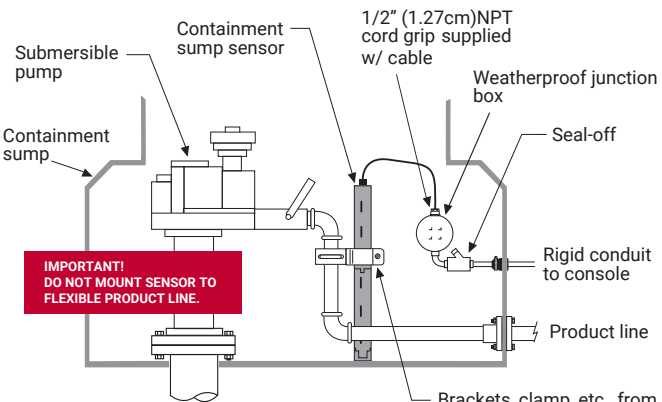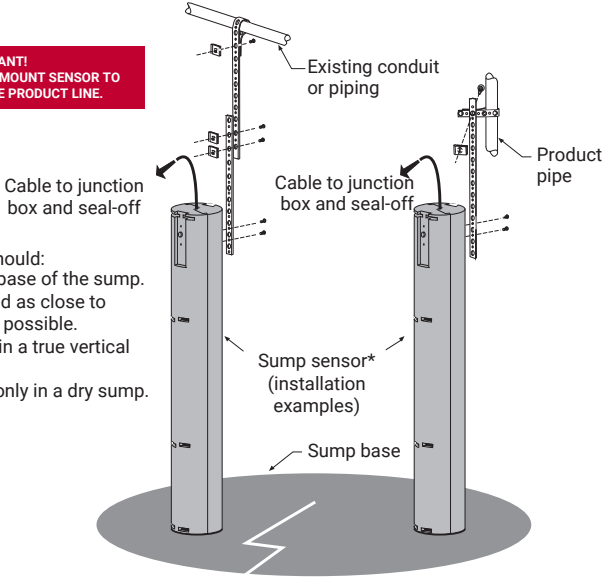
IMPORTANT! DO NOT MOUNT SENSOR TO FLEXIBLE PRODUCT LINE.

Sensor Description	Solid-State - Non-Discriminating Dispenser Pan Sensor	This Solid-State, Non-Discriminating Sensor is installed typically in a dispenser pan location to detect the presence of a liquid. Its optical liquid level technology requires no moving parts, allowing it to operate in sub-zero temperatures.

Part Number	**794380-321**

Category	☐ Discriminating ☐ Level Sensing ☑ Non-Discriminating ☐ Static Testing ☐ Position Sensitive ☐ Hydrostatic

Fuel Compatibility	☑ Gas ☑ E-15 ☑ Green Diesel ☑ Diesel ☐ E-85 ☐ DEF ☑ Kerosene ☐ E-100 ☑ Waste Oil ☑ Jet Fuel ☑ Bio-Diesel 20 ☑ Motor Oil ☑ Aviation Gas ☑ Bio-Diesel 100

Console Compatibility (*International Only[1])	Recommended Min. Console Software	Sensor Interface Modules				
		Module Part #	Module Description	# of Modules per Console	# of Sensor Inputs per Module	Availability
TLS-450PLUS (8600 Series)	6A or Higher	332812-001	Universal Sensor Module (USM)	Up to 4 - TLS-4XX Up to 8 - TLS-4XX w/ opt. TLS-XB	16	Sold Separately
TLS-450	4A or Higher					
TLS4 (8601 Series)[1]	6A or Higher	330020-750	Universal Sensor Input Out-put Module (USIOM-AC)	1	12	Included
TLS4i (8601 Series)						
TLS4B (8601 Series)[1]		330020-751			6	
TLS4c (8601 Series)						
TLS-350/R/PLUS	124/324 or Higher	329956-001	Type A Sensor Interface Module	Up to 8	8	Sold Separately
TLS-350J		N/A				
TLS-300i						
TLS-300C						

Alarm Notification	Normal	Sensor in Normal State - No liquid detected
	Fuel Alarm	Liquid detected - Approx. 1.0" (2.54cm)
	Sensor Out	Sensor not communicating to ATG/Console

Installation Kit	330020-012	Universal Sensor Mounting Kit (sold separately)

Specifications		Example Installation
Operating Principle	Optical - Looking at phase changes in the light beams by causing them to interact or interfere with one another	
Product Activation Height	Fuel or Water - Approx. 1" (2.54cm)	
Operating Temperature	-40 to +122°F (-40 to +50°C)	
Dimensions	11.6" (29.4cm) high, 2.2" (5.6cm) dia.	
Miscellaneous/Notes	Standard Cable Length: 12ft (3.66m)	
Third Party Evaluation Links	*TLS-3XX/TLS-450 Series Consoles* *TLS4 (8601 Series) Consoles*	
Product Link	*Solid-State - Non-Discriminating Dispenser Pan Sensor*	
Warranty with System	1 Yr Parts & Labor	
Warranty (When purchased separately)	1 Yr Parts Only	

Example Installation

Brackets, clamp, etc., from Universal sensor mounting kit

U-channel

Weatherproof junction box with 1/2" (1.27cm) NPT threads (16 cubic inch (262cm³) volume minimum)

Seal-off

Cord grip

Rubber grommet seal clamped on inside - or as recommended by dispenser pan manufacturer

Dispenser pan sensor*

1/2" (1.27cm) Rigid conduit to console
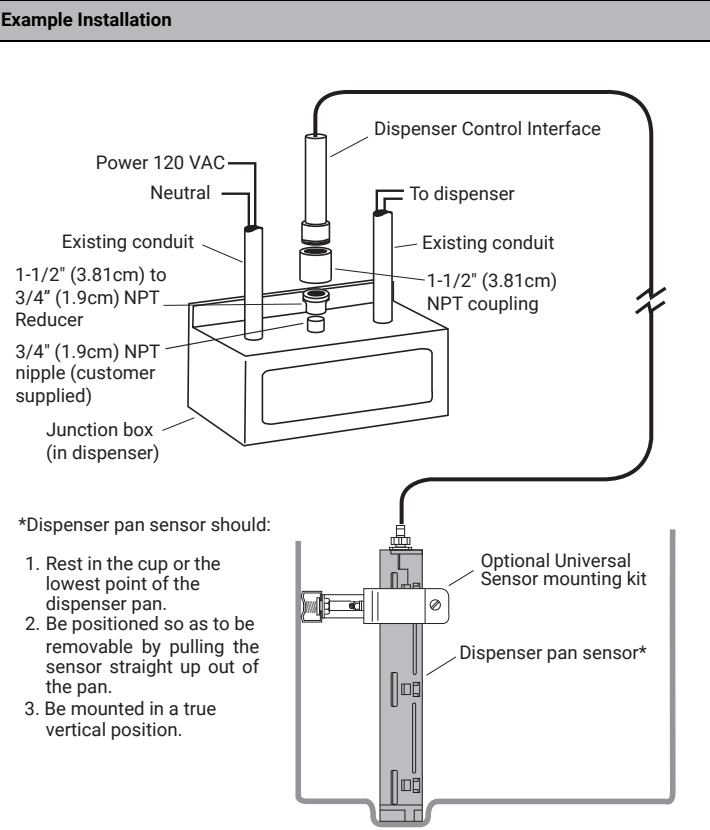
Dispenser pan

*Dispenser pan sensor should:
1. Rest in the cup or the lowest point of the dispenser pan.
2. Be positioned so as to be removable by pulling the sensor straight up out of the pan.
3. Be mounted in a true vertical position.

Where Used (Typical)	
☑ Dispenser Pan ☐ Convault Tank ☑ Spill Containment ☐ Annular Space ☐ STP Sump ☐ Monitoring Well ☐ Oil/Water Separator Tank	

Sensor Description	Solid-State - Non-Discriminating Containment Sump Sensor	This Solid-State, Non-Discriminating Sensor is installed typically in a containment sump area to detect the presence of a liquid. Its optical liquid level technology requires no moving parts, allowing it to operate in sub-zero temperatures.

Part Number	794380-351

Category	☐ Discriminating ☑ Non-Discriminating ☐ Position Sensitive	☐ Level Sensing ☐ Static Testing ☐ Hydrostatic

Fuel Compatibility: ☑ Gas ☑ Diesel ☑ Kerosene ☑ Jet Fuel ☑ Aviation Gas ☑ E-15 ☐ E-85 ☐ E-100 ☑ Bio-Diesel 20 ☑ Bio-Diesel 100 ☑ Green Diesel ☐ DEF ☑ Waste Oil ☑ Motor Oil

Console Compatibility (*International Only[1])	Recommended Min. Console Software	Module Part #	Module Description	# of Modules per Console	# of Sensor Inputs per Module	Availability
TLS-450PLUS (8600 Series)	6A or Higher	332812-001	Universal Sensor Module (USM)	Up to 4 - TLS-4XX Up to 8 - TLS-4XX w/ opt. TLS-XB	16	Sold Separately
TLS-450	4A or Higher					
TLS4 (8601 Series)[1]	6A or Higher	330020-750	Universal Sensor Input Out-put Module (USIOM-AC)	1	12	Included
TLS4i (8601 Series)						
TLS4B (8601 Series)[1]		330020-751			6	
TLS4c (8601 Series)						
TLS-350/R/PLUS	124/324 or Higher	329956-001	Type A Sensor Interface Module	Up to 8	8	Sold Separately
TLS-350J						
TLS-300i		N/A				
TLS-300C						

Alarm Notification	Normal	Sensor in Normal State - No liquid detected
	Fuel Alarm	Liquid detected - Approx. 1.0" (2.54cm)
	High Liquid	Sensor not communicating to ATG/Console

Installation Kit	330020-012	Universal Sensor Mounting Kit (Sold separately)

Specifications		Example Installation
Operating Principle	Optical - Looking at phase changes in the light beams by causing them to interact or interfere with one another	
Product Activation Height	Fuel or Water - Approx. 1" (2.54cm)	
Operating Temperature	-40 to +122°F (-40 to +50°C)	
Dimensions	22.1" (56.1cm) high, 2.2" (5.6cm) dia.	
Miscellaneous/Notes	Standard Cable Length: 12ft (3.66m)	
Third Party Evaluation Links	TLS-350/TLS-450 Series Consoles TLS4 (8601 Series) Consoles	
Product Link	Solid-State Non-Discriminating Containment Sump Sensor	
Warranty with System	1 Yr Parts & Labor	
Warranty (When purchased separately)	1 Yr Parts Only	

Where Used (Typical): ☐ Dispenser Pan ☑ Spill Containment ☑ STP Sump ☐ Convault Tank ☐ Annular Space ☐ Monitoring Well ☐ Oil/Water Separator Tank
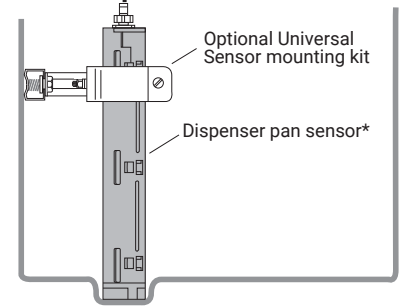

Example Installation diagram

Sensor Description	**Piping Sump Sensor**	The Piping Sump Sensor is installed in a tank piping sump (STP Containment Sump) and will detect the presence of a liquid.
Part Number	**794380-208**	

Category	☐ Discriminating ☑ Non-Discriminating ☐ Position Sensitive	☐ Level Sensing ☐ Static Testing ☐ Hydrostatic	
Fuel Compatibility	☑ Gas ☑ Diesel ☑ Kerosene ☑ Jet Fuel ☑ Aviation Gas	☑ E-15 ☐ E-85 ☐ E-100 ☑ Bio-Diesel 20 ☐ Bio-Diesel 100	☑ Green Diesel ☐ DEF ☑ Waste Oil ☑ Motor Oil

Console Compatibility (*International Only[1])	Recommended Min. Console Software	Sensor Interface Modules				
		Module Part #	Module Description	# of Modules per Console	# of Sensor Inputs per Module	Availability
TLS-450PLUS (8600 Series)	6A or Higher	332812-001	Universal Sensor Module (USM)	Up to 4 - TLS-4XX Up to 8 - TLS-4XX w/ opt. TLS-XB	16	Sold Separately
TLS-450	4A or Higher					
TLS4 (8601 Series)[1]	6A or Higher	330020-750	Universal Sensor Input Out-put Module (USIOM-AC)	1	12	Included
TLS4i (8601 Series)						
TLS4B (8601 Series)[1]		330020-751			6	
TLS4c (8601 Series)						
TLS-350/R/PLUS	124/324 or Higher	329358-001	Interstitial Sensor Interface Module	Up to 8	8	Sold Separately
TLS-350J		329356-003	4 Probe / 4 Sensor Interface Module	1	4	Sold Separately
TLS-300i		330230-001	4 Probe / 8 Sensor Interface Module		8	Included
TLS-300C		330513-001	2 Probe / 8 Sensor Options			

Alarm Notification	Normal	Sensor in Normal State - No liquid detected
	Fuel Alarm	Liquid detected at a minimum of 1.84" (4.67cm)
	Sensor Out	Sensor not communicating to ATG/Console

Installation Kit	330020-076	Piping Sump Sensor Mounting Kit is included (see example installation below).

Specifications		Example Installation
Operating Principle	Float/magnetic reed switch	
Product Activation Height	Liquid 1.84" (4.67cm)	
Operating Temp	+32 to +140°F (0 to +60°C)	
Dimensions	12" (30.5cm) high, 1.9" (4.8cm) dia.	
Miscellaneous/Notes	Standard Cable Length: 12ft (3.66m) Installation kit 330020-076 included (see example installation).	
Third Party Evaluation Links	*TLS-3XX/TLS-450 Series Consoles* *TLS4 (8601 Series) Consoles*	
Product Link	*Piping Sump Sensor*	
Warranty with System	1 Yr Parts & Labor	
Warranty (When purchased separately)	1 Yr Parts Only	

IMPORTANT! DO NOT MOUNT SENSOR TO FLEXIBLE PRODUCT LINE.

Existing conduit or piping

Product pipe

Cable to junction box and seal-off

Cable to junction box and seal-off

*Sump sensor should:
1. Rest on the base of the sump.
2. Be positioned as close to outer wall as possible.
3. Be mounted in a true vertical position.
4. Be installed only in a dry sump.

Sump sensor* (installation examples)

Sump base

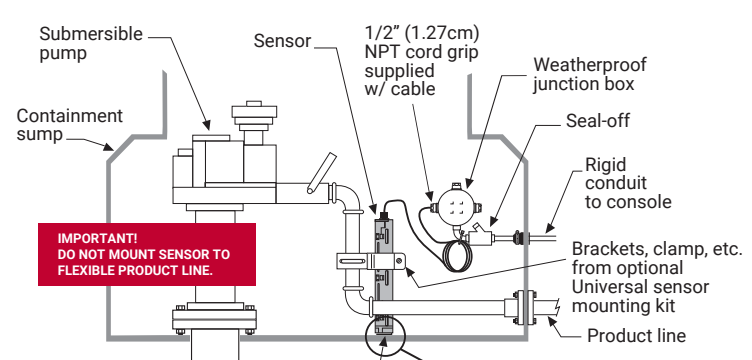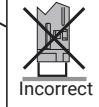| Where Used (Typical)		
☑ Dispenser Pan ☑ Spill Containment ☑ STP Sump ☐ Convault Tank	☐ Annular Space ☐ Monitoring Well ☐ Oil/Water Separator Tank	

Sensor Description	Non-Discriminating Standalone Dispenser Pan Sensor	The Non-Discriminating Standalone Dispenser Pan Sensor is designed to detect liquid in a dispenser pan containment. When fluid is detected in the dispenser pan, this sensor shuts down (removes) AC power to the dispenser without the need for additional relays, circuitry, wiring, or an ATG System. The separate sensor control interface ensures intrinsically-safe integrity in a Class 1 Div. 1 Group D; Class 1 Zone 0 IIA hazardous area.
Part Number	**847990-001**	

Category	☐ Discriminating ☑ Non-Discriminating ☐ Position Sensitive ☐ Level Sensing ☐ Static Testing ☐ Hydrostatic	
Fuel Compatibility	☑ Gas ☑ E-15 ☑ Green Diesel ☑ Diesel ☐ E-85 ☐ DEF ☑ Kerosene ☐ E-100 ☑ Waste Oil ☑ Jet Fuel ☑ Bio-Diesel 20 ☑ Motor Oil ☑ Aviation Gas ☐ Bio-Diesel 100	

Console Compatibility	**Not Required**	
Alarm Notification	Normal	Dispenser operational
	Liquid Detected	Remove power to the dispenser
	Sensor Out	Remove power to the dispenser
Installation Kit	330020-012	Universal Sensor Mounting Kit (Sold separately)

Specifications		Example Installation
Operating Principle	Reed switch/float	
Product Activation Height	Gasoline: 1.71" (4.34cm), water: 1.62" (4.11cm)	
Operating Temperature	+32 to +140°F (0 to +60°C) (freezing liquids)	
Dimensions	11.6" (29.4cm) high, 2.2" (5.6cm) dia.	
Miscellaneous/Notes	• Latching alarm circuitry ensures dispenser can not be restarted until hazardous condition has been corrected. • Connects directly to dispenser wiring. • Controls most manufacturer's dispensers. • Cable length: 5ft (1.5m). • Control interface dimensions: 9.4" (23.9cm) high, 2.2" (5.6cm) dia.	
Third Party Evaluation Link	*http://nwglde.org/evals/veeder_root_p.html*	
Product Link	*Non-Discriminating Stand-Alone Dispenser Pan Sensor*	
Warranty with System	1 Yr Parts & Labor	
Warranty (When purchased separately)	1 Yr Parts Only	

Where Used (Typical)

☑ Dispenser Pan   ☐ Annular Space
☑ Spill Containment   ☐ Monitoring Well
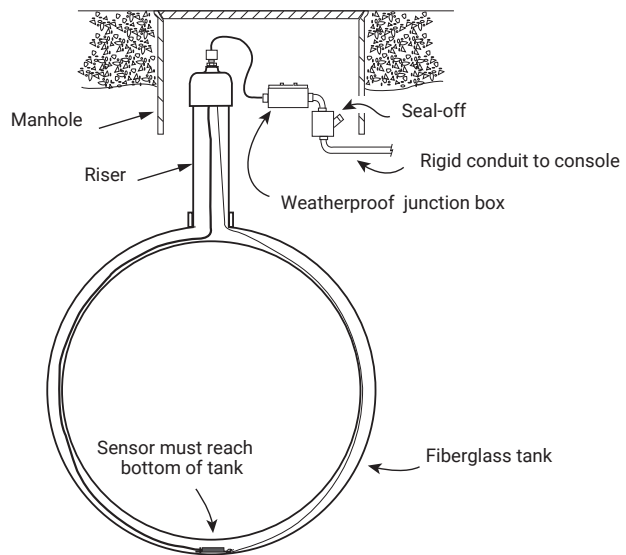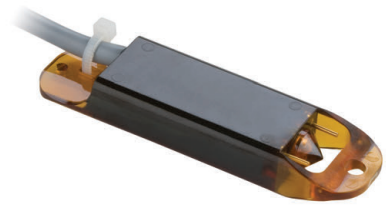☑ STP Sump   ☐ Oil/Water Separator Tank
☐ Convault Tank

*Dispenser pan sensor should:
1. Rest in the cup or the lowest point of the dispenser pan.
2. Be positioned so as to be removable by pulling the sensor straight up out of the pan.
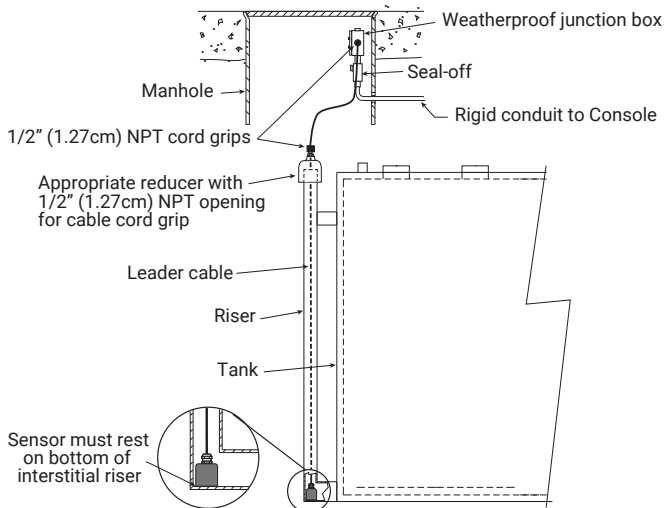3. Be mounted in a true vertical position.

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Sensor Description	**Position Sensitive Sensor**	This sensor is installed in a containment sump or dispenser pan and will detect the presence of, and differentiate between, hydrocarbons and other liquids.

Part Number	**794380-323**

Category	☐ Discriminating ☑ Non-Discriminating ☑ Position Sensitive	☐ Level Sensing ☐ Static Testing ☐ Hydrostatic

Fuel Compatibility	☑ Gas ☑ Diesel ☑ Kerosene ☑ Jet Fuel ☑ Aviation Gas	☑ E-15 ☑ E-85 ☑ E-100 ☑ Bio-Diesel 20 ☐ Bio-Diesel 100	☑ Green Diesel ☐ DEF ☑ Waste Oil ☑ Motor Oil

Console Compatibility (*International Only[1])	Recommended Min. Console Software	Sensor Interface Modules				
		Module Part #	Module Description	# of Modules per Console	# of Sensor Inputs per Module	Availability
TLS-450PLUS (8600 Series)	6A or Higher	332812-001	Universal Sensor Module (USM)	Up to 4 - TLS-4XX Up to 8 - TLS-4XX w/ opt. TLS-XB	16	Sold Separately
TLS-450	4A or Higher					
TLS4 (8601 Series)[1]	6A or Higher	330020-750	Universal Sensor Input Output Module (USIOM-AC)	1	12	Included
TLS4i (8601 Series)						
TLS4B (8601 Series)[1]		330020-751			6	
TLS4c (8601 Series)						
TLS-350/R/PLUS	124/324 or Higher	329358-001	Interstitial Sensor Interface Module	Up to 8	8	Sold Separately
TLS-350J		329356-003	4 Probe / 4 Sensor Interface Module	1	4	Sold Separately
TLS-300i		330230-001	4 Probe / 8 Sensor Interface Module		8	Included
TLS-300C		330513-001	2 Probe / 8 Sensor Options			

Alarm Notification	Normal	Sensor in Normal State - No liquid detected
	Sensor Out	Sensor not resting on bottom of containment or sensor not communicating to ATG/Console
	Fuel Alarm	Liquid detected in containment area at approx. 1.5" (3.81cm)

Installation Kit	330020-012	Universal Sensor Mounting Kit (Sold separately)

Specifications		Example Installation
Operating Principle	Product Permeable, Reed Switch /Float	
Product Activation Height	Liquid - Approx. 1.5" (3.81cm)	
Operating Temperature	+32 to +140°F (0 to +60°C)	
Dimensions	12" (30.5cm) high, 2.2" (5.6cm) dia.	
Miscellaneous/Notes	Standard Cable Length: 12ft (3.66m).	
Third Party Evaluation Links	*TLS-3XX/TLS-450 Series Consoles* *TLS4 (8601Series) Consoles*	
Product Link	*Position Sensitive Sensor*	
Warranty with System	1 Yr Parts & Labor	
Warranty (When purchased separately)	1 Yr Parts Only	

IMPORTANT! DO NOT MOUNT SENSOR TO FLEXIBLE PRODUCT LINE.

IMPORTANT! Housing must compress position indicator against bottom of the sump or you will have a 'Sensor Out' alarm.

Where Used (Typical)		
☑ Dispenser Pan ☑ Spill Containment ☑ STP Sump	☐ Convault Tank ☐ Annular Space ☐ Monitoring Well ☐ Oil/Water Separator Tank	

Sensor Description	Solid-State (Optical)-Discriminating Interstitial Sensor for Double-Wall Fiberglass Tanks	The Discriminating Interstitial Sensor for Double-Wall Fiberglass Tanks uses solid-state liquid level sensing technology to detect liquid in the interstitial space of the tank.
Part Number	**794380-343**	

Category	
☑ Discriminating ☐ Level Sensing	
☐ Non-Discriminating ☐ Static Testing	
☐ Position Sensitive ☐ Hydrostatic	

Fuel Compatibility	
☑ Gas ☑ E-15 ☑ Green Diesel	
☑ Diesel ☐ E-85 ☑ DEF	
☑ Kerosene ☐ E-100 ☑ Waste Oil	
☑ Jet Fuel ☑ Bio-Diesel 20 ☑ Motor Oil	
☑ Aviation Gas ☑ Bio-Diesel 100	

Console Compatibility (*International Only[1])	Recommended Min. Console Software	Sensor Interface Modules				
		Module Part #	Module Description	# of Modules per Console	# of Sensor Inputs per Module	Availability
TLS-450PLUS (8600 Series)	6A or Higher	332812-001	Universal Sensor Module (USM)	Up to 4 - TLS-4XX Up to 8 - TLS-4XX w/ opt. TLS-XB	16	Sold Separately
TLS-450	4A or Higher					
TLS4 (8601 Series)[1]	6A or Higher	330020-750	Universal Sensor Input Out-put Module (USIOM-AC)	1	12	Included
TLS4i (8601 Series)						
TLS4B (8601 Series)[1]		330020-751			6	
TLS4c (8601 Series)						
TLS-350/R/PLUS	124/324 or Higher	329956-001	Type A Sensor Interface Module	Up to 8	8	Sold Separately
TLS-350J		N/A				
TLS-300i						
TLS-300C						

Alarm Notification		
Normal	Sensor in Normal State - No liquid detected	
Liquid Alarm	Water detected	
Fuel Alarm	Fuel or Fuel/Water detected	
Sensor Out	Sensor not communicating to ATG/Console	

Specifications		Example Installation
Operating Principle	Optical sensor and conductivity	
Product Activation Height	Fuel or Water - <0.1" (0.25cm)	
Operating Temperature	-40 to +122°F (-40 to +50°C)	
Dimensions	4.3" (11cm) length, 1.5" (3.8cm) width, 0.5" (1.3cm) thick	
Miscellaneous/Notes	Standard Cable 25ft (7.6m) Fits 4 to 10ft (1.2 to 3m) I.D.fiberglass tanks	
Third Party Evaluation Links	*TLS-350/TLS-450 Series Consoles* *TLS4 (8601 Series) Consoles*	
Product Link	*Solid-State Discriminating Interstitial Sensor*	
Warranty with System	1 Yr Parts & Labor	
Warranty (When purchased separately)	1 Yr Parts Only	

Example Installation: Manhole, Riser, Seal-off, Rigid conduit to console, Weatherproof junction box, Sensor must reach bottom of tank, Fiberglass tank

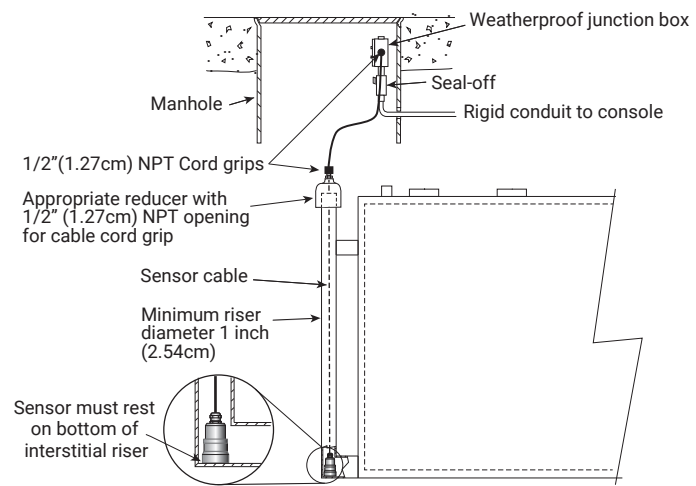| Where Used (Typical)	
☐ Dispenser Pan ☑ Annular Space	
☐ Spill Containment ☐ Monitoring Well	
☐ STP Sump ☐ Oil/Water Separator Tank	
☑ Convault Tank	

Sensor Description	**Interstitial Sensor for Double-Wall Fiberglass Tanks**	The Non-Discriminating Interstitial Sensor for Double-Wall Fiber-Glass Tanks detects the presence of liquid in the interstitial space of the tank.

Part Number	**794390-409**

Category	☐ Discriminating ☐ Level Sensing ☑ Non-Discriminating ☐ Static Testing ☐ Position Sensitive ☐ Hydrostatic

Fuel Compatibility	☑ Gas ☑ E-15 ☑ Green Diesel ☑ Diesel ☐ E-85 ☐ DEF ☑ Kerosene ☐ E-100 ☑ Waste Oil ☑ Jet Fuel ☑ Bio-Diesel 20 ☑ Motor Oil ☑ Aviation Gas ☐ Bio-Diesel 100

Console Compatibility (*International Only[1])	Recommended Min. Console Software	Sensor Interface Modules				
		Module Part #	Module Description	# of Modules per Console	# of Sensor Inputs per Module	Availability
TLS-450PLUS (8600 Series)	6A or Higher	332812-001	Universal Sensor Module (USM)	Up to 4 - TLS-4XX Up to 8 - TLS-4XX w/ opt. TLS-XB	16	Sold Separately
TLS-450	4A or Higher					
TLS4 (8601 Series)[1]	6A or Higher	330020-750	Universal Sensor Input Out-put Module (USIOM-AC)	1	12	Included
TLS4i (8601 Series)						
TLS4B (8601 Series)[1]		330020-751			6	
TLS4c (8601 Series)						
TLS-350/R/PLUS	124/324 or Higher	329358-001	Interstitial Sensor Interface Module	Up to 8	8	Sold Separately
TLS-350J		329356-003	4 Probe / 4 Sensor Interface Module		4	Sold Separately
TLS-300i		330230-001	4 Probe / 8 Sensor Interface Module	1	8	Included
TLS-300C		330513-001	2 Probe / 8 Sensor Options			

Alarm Notification	Normal	Sensor in Normal State - No liquid detected
	Liquid Alarm	Liquid detected
	Sensor Out	Sensor not communicating to ATG/Console

Specifications		Example Installation
Operating Principle	Reed Switch / Float	
Product Activation Height	0.28" (0.71cm)	
Operating Temperature	-4 to +140°F (-20 to +60°C)	
Dimensions	2.2" (5.6cm) length, 1.3" (3.3cm) width, 0.6" (1.5cm) thick	
Miscellaneous/Notes	Standard Cable 25ft (7.6m) Fits 4 to 10ft (1.2 to 3m) I.D.fiberglass tanks	
Third Party Evaluation Links	*TLS-3XX/TLS-450 Series Consoles* *TLS4 (8601 Series) Consoles*	
Product Link	*Non-Discriminating Interstitial Sensor*	
Warranty with System	1 Yr Parts & Labor	
Warranty (When purchased separately)	1 Yr Parts Only	

Where Used (Typical)

☐ Dispenser Pan   ☑ Annular Space
☐ Spill Containment   ☐ Monitoring Well
☐ STP Sump   ☐ Oil/Water Separator Tank
☑ Convault Tank

Example Installation labels: Manhole, Riser, Seal-off, Rigid conduit (to console), Weatherproof junction box, Sensor must reach bottom of tank, Fiberglass tank
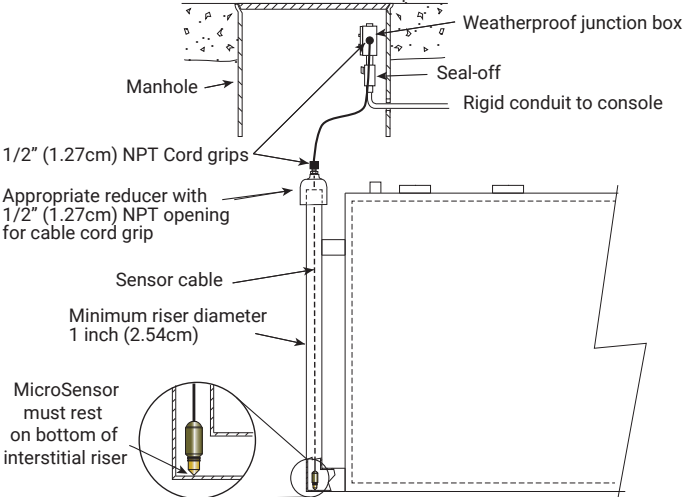
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Sensor Description	Solid-State Alternative Ethanol Fluid Interstitial Sensor for Double-Wall Fiberglass Tanks	The Interstitial Sensor for Double-Wall Fiberglass Tanks with high alcohol product uses solid-state liquid level sensing technology to detect liquid in the interstitial space of the tank.

Part Number	**794380-345**

Category	☐ Discriminating ☐ Level Sensing ☑ Non-Discriminating ☐ Static Testing ☐ Position Sensitive ☐ Hydrostatic

Fuel Compatibility	☑ Gas ☑ E-15 ☑ Green Diesel ☑ Diesel ☑ E-85 ☑ DEF ☑ Kerosene ☑ E-100 ☑ Waste Oil ☑ Jet Fuel ☑ Bio-Diesel 20 ☑ Motor Oil ☑ Aviation Gas ☑ Bio-Diesel 100

Console Compatibility (*International Only[1])	Recommended Min. Console Software	Sensor Interface Modules			
		Module Part #	Module Description	# of Modules per Console	# of Sensor Inputs per Module	Availability
TLS-450PLUS (8600 Series)	6A or Higher	332812-001	Universal Sensor Module (USM)	Up to 4 - TLS-4XX Up to 8 - TLS-4XX w/ opt. TLS-XB	16	Sold Separately
TLS-450	4A or Higher					
TLS4 (8601 Series)[1]	6A or Higher	330020-750	Universal Sensor Input Out-put Module (USIOM-AC)	1	12	Included
TLS4i (8601 Series)						
TLS4B (8601 Series)[1]		330020-751			6	
TLS4c (8601 Series)						
TLS-350/R/PLUS	124/324 or Higher	329956-001	Type A Sensor Interface Module	Up to 8	8	Sold Separately
TLS-350J		N/A				
TLS-300i						
TLS-300C						

Alarm Notification	Normal	Sensor in Normal State - No liquid detected
	Fuel Alarm	Liquid detected
	Sensor Out	Sensor not communicating to ATG/Console

Specifications		Example Installation
Operating Principle	Optical - looking at phase changes in the light beams by causing them to interact or interfere with one another	
Product Activation Height	Fuel or Water <0.2" (0.5cm); E85 <0.4" (1cm)	
Operating Temperature	-40 to +122°F (-40 to +50°C)	
Dimensions	4.3" (11cm) length, 1.5" (3.8cm) width, 0.5" (1.3cm) thick	
Miscellaneous/Notes	Standard Cable 25ft (7.6m) fits 4 to 10ft (1.2 to 3m) I.D. fiberglass tanks	
Third Party Evaluation Links	*TLS-350/TLS-450 Series Consoles* *TLS4 (8601 Series) Consoles*	
Product Link	*Solid-State Alternative Ethanol Fluid Interstitial Sensor*	
Warranty with System	1 Yr Parts & Labor	
Warranty (When purchased separately)	1 Yr Parts Only	

Example Installation:
- Manhole
- Riser
- Seal-off
- Rigid conduit (to console)
- Weatherproof junction box
- Sensor must reach bottom of tank
- Fiberglass tank

Where Used (Typical)	☐ Dispenser Pan ☑ Convault Tank ☐ Spill Containment ☑ Annular Space ☐ STP Sump ☐ Monitoring Well ☐ Oil/Water Separator Tank

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Sensor Description	Interstitial Sensor for Steel Tanks	The Interstitial Sensor for Steel Tanks is non-discriminating and detects the presence of liquid between the double walls of the tank.

Part Number	794390-420 (16'/4.88m cable); 794390-460 (30'/9.14m cable)

Category	☐ Discriminating ☑ Non-Discriminating ☐ Position Sensitive	☐ Level Sensing ☐ Static Testing ☐ Hydrostatic

Fuel Compatibility	☑ Gas ☑ Diesel ☑ Kerosene ☑ Jet Fuel ☑ Aviation Gas	☑ E-15 ☐ E-85 ☐ E-100 ☑ Bio-Diesel 20 ☐ Bio-Diesel 100	☑ Green Diesel ☐ DEF ☑ Waste Oil ☑ Motor Oil

Console Compatibility (*International Only[1])	Recommended Min. Console Software	Sensor Interface Modules				
		Module Part #	Module Description	# of Modules per Console	# of Sensor Inputs per Module	Availability
TLS-450PLUS (8600 Series)	6A or Higher	332812-001	Universal Sensor Module (USM)	Up to 4 - TLS-4XX Up to 8 - TLS-4XX w/ opt. TLS-XB	16	Sold Separately
TLS-450	4A or Higher					
TLS4 (8601 Series)[1]	6A or Higher	330020-750	Universal Sensor Input Out-put Module (USIOM-AC)	1	12	Included
TLS4i (8601 Series)						
TLS4B (8601 Series)[1]		330020-751			6	
TLS4c (8601 Series)						
TLS-350/R/PLUS	124/324 or Higher	329358-001	Interstitial Sensor Interface Module	Up to 8	8	Sold Separately
TLS-350J		329356-003	4 Probe / 4 Sensor Interface Module	1	4	Sold Separately
TLS-300i		330230-001	4 Probe / 8 Sensor Interface Module		8	Included
TLS-300C		330513-001	2 Probe / 8 Sensor Options			

Alarm Notification	Normal	Sensor in Normal State - No liquid detected	**Where Used (Typical)**		☑ Annular Space
	Fuel Alarm	Liquid detected	☐ Dispenser Pan ☐ Spill Containment	☐ STP Sump ☑ Convault Tank	☐ Monitoring Well ☐ Oil/Water Separator Tank
	Sensor Out	Sensor not communicating to ATG/Console			

Installation Kit	312020-928	2" (50mm) Interstitial Sensor Riser Cap and Adaptor kit (sold separately)

Specifications		**Example Installation**
Operating Principle	Reed Switch / Float	
Product Activation Height	1.4" (3.56cm)	
Operating Temperature	-4 to +140°F (-20 to +60°C)	
Dimensions	2.5" (6.4cm) high, 1.5" (3.8cm) diameter	
Miscellaneous/Notes	794380-420 (cable 16ft (4.9m)); 794380-460 (cable 30ft (9.1m)); 312020-928 (2" (50mm) Riser cap and adapter kit)	
Third Party Evaluation Links	*TLS-3XX/TLS-450 Series Consoles* *TLS4 (8601 Series) Consoles*	
Product Link	*Interstitial Sensor for Steel Tanks*	
Warranty with System	1 Yr Parts & Labor	
Warranty (When purchased separately)	1 Yr Parts Only	

Weatherproof junction box
Seal-off
Manhole
Rigid conduit to Console
1/2" (1.27cm) NPT cord grips
Appropriate reducer with 1/2" (1.27cm) NPT opening for cable cord grip
Leader cable
Riser
Tank
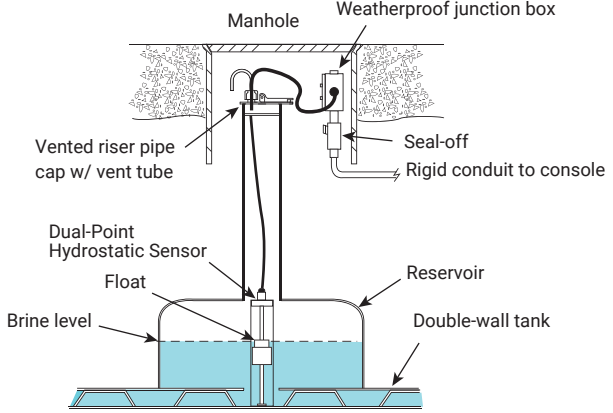Sensor must rest on bottom of interstitial riser

Sensor Description	**Position Sensitive Interstitial Sensor for Steel Tanks**	This type of sensor detects the presence of liquid in small containment areas (i.e., spill buckets) of double-wall steel tanks. In addition, it provides an alarm when the sensor is not positioned correctly on the bottom of the interstitial space.

Part Number	**794380-333**

Where Used (Typical)

☐ Dispenser Pan　☑ Annular Space
☑ Spill Containment　☐ Monitoring Well
☐ STP Sump　☐ Oil/Water Separator Tank
☐ Convault Tank

Category

☐ Discriminating
☑ Non-Discriminating
☑ Position Sensitive
☐ Level Sensing
☐ Static Testing
☐ Hydrostatic

Fuel Compatibility

☑ Gas　☑ E-15　☑ Green Diesel
☑ Diesel　☑ E-85　☐ DEF
☑ Kerosene　☑ E-100　☑ Waste Oil
☑ Jet Fuel　☑ Bio-Diesel 20　☑ Motor Oil
☑ Aviation Gas　☑ Bio-Diesel 100

Console Compatibility (*International Only[1])	Recommended Min. Console Software	Sensor Interface Modules				
		Module Part #	Module Description	# of Modules per Console	# of Sensor Inputs per Module	Availability
TLS-450PLUS (8600 Series)	6A or Higher	332812-001	Universal Sensor Module (USM)	Up to 4 - TLS-4XX Up to 8 - TLS-4XX w/ opt. TLS-XB	16	Sold Separately
TLS-450	4A or Higher					
TLS4 (8601 Series)[1]	6A or Higher	330020-750	Universal Sensor Input Out-put Module (USIOM-AC)	1	12	Included
TLS4i (8601 Series)						
TLS4B (8601 Series)[1]		330020-751			6	
TLS4c (8601 Series)						
TLS-350/R/PLUS	124/324 or Higher	329358-001	Interstitial Sensor Interface Module	Up to 8	8	Sold Separately
TLS-350J		329356-003	4 Probe / 4 Sensor Interface Module		4	Sold Separately
TLS-300i		330230-001	4 Probe / 8 Sensor Interface Module	1	8	Included
TLS-300C		330513-001	2 Probe / 8 Sensor Options			

Alarm Notification	Normal	Sensor in Normal State - No liquid detected
	Fuel alarm	Not sitting correctly on bottom of interstitial space or liquid detected
	Sensor out	Sensor not communicating to ATG/Console

Installation Kit	312020-928	2" (50mm) Interstitial Sensor Riser Cap kit (Sold separately)

Specifications		Example Installation
Operating Principle	Reed Switch/Float	
Product Activation Height	1.4" (3.6cm)	
Operating Temperature	-4 to +140°F (-20 to +60°C)	
Dimensions	3.5" (8.9cm) high, 1.75" (4.4cm) diameter	
Miscellaneous/Notes	Standard Cable Length: 20ft (6.09m); 312020-928 (2" (50mm) Riser cap and adapter kit)	
Third Party Evaluation Links	*TLS-3XX/TLS-450 Series Consoles* *TLS4 (8601 Series) Consoles*	
Product Link	*Position Sensitive Interstitial Sensor for Steel Tanks*	
Warranty with System	1 Yr Parts & Labor	
Warranty (When purchased separately)	1 Yr Parts Only	

Example Installation labels:
- Weatherproof junction box
- Seal-off
- Rigid conduit to console
- Manhole
- 1/2"(1.27cm) NPT Cord grips
- Appropriate reducer with 1/2" (1.27cm) NPT opening for cable cord grip
- Sensor cable
- Minimum riser diameter 1 inch (2.54cm)
- Sensor must rest on bottom of interstitial riser

Sensor Description	Interstitial High Alcohol Sensor for Steel Tanks	The Interstitial Sensor for Steel Tanks with high alcohol product detects the presence of liquid between the double walls of the tank.

Part Number	794380-430	

Category	☐ Discriminating ☑ Non-Discriminating ☐ Position Sensitive	☐ Level Sensing ☐ Static Testing ☐ Hydrostatic

Fuel Compatibility	☑ Gas ☑ Diesel ☑ Kerosene ☑ Jet Fuel ☑ Aviation Gas	☑ E-15 ☑ E-85 ☑ E-100 ☑ Bio-Diesel 20 ☑ Bio-Diesel 100	☑ Green Diesel ☐ DEF ☑ Waste Oil ☑ Motor Oil

Console Compatibility (*International Only[1])	Recommended Min. Console Software	Sensor Interface Modules			
		Module Part #	Module Description	# of Modules per Console	# of Sensor Inputs per Module	Availability
TLS-450PLUS (8600 Series)	6A or Higher	332812-001	Universal Sensor Module (USM)	Up to 4 - TLS-4XX Up to 8 - TLS-4XX w/ opt. TLS-XB	16	Sold Separately
TLS-450	4A or Higher					
TLS4 (8601 Series)[1]	6A or Higher	330020-750	Universal Sensor Input Out-put Module (USIOM-AC)	1	12	Included
TLS4i (8601 Series)						
TLS4B (8601 Series)[1]		330020-751			6	
TLS4c (8601 Series)						
TLS-350/R/PLUS	124/324 or Higher	329358-001	Interstitial Sensor Interface Module	Up to 8	8	Sold Separately
TLS-350J		329356-003	4 Probe / 4 Sensor Interface Module	1	4	Sold Separately
TLS-300i		330230-001	4 Probe / 8 Sensor Interface Module		8	Included
TLS-300C		330513-001	2 Probe / 8 Sensor Options			

Alarm Notification	Normal	Sensor in Normal State - No liquid detected
	Fuel Alarm	Water or Fuel detected
	Sensor Out	Sensor not communicating to ATG/Console

Installation Kit	312020-928	2" (50mm) Interstitial Sensor Riser Cap kit (Sold separately)

Specifications		Example Installation
Operating Principle	Reed Switch/Float	
Product Activation Height	1.1" (2.8cm)	
Operating Temperature	-4 to +140°F (-20 to +60°C)	
Dimensions	2.5" (6.4cm) high, 1.5" (3.8cm) diameter	
Miscellaneous/Notes	Standard cable 15ft (4.57m); 312020-928 2" (50mm) Riser cap and adapter kit)	
Third Party Evaluation Links	TLS-3XX/TLS-450 Series Consoles TLS4 (8601 Series) Consoles	
Product Link	Interstitial High Alcohol Sensor for Steel Tanks	
Warranty with System	1 Yr Parts & Labor	
Warranty (When purchased separately)	1 Yr Parts Only	

Example Installation

- Weatherproof junction box
- Manhole
- Seal-off
- Rigid conduit to console
- 1/2" (1.27cm) NPT cord grips
- Appropriate reducer with 1/2" (1.27cm) NPT opening for cable cord grip
- Leader cable
- Riser
- Tank
- Sensor must rest on bottom of interstitial riser

Where Used (Typical)

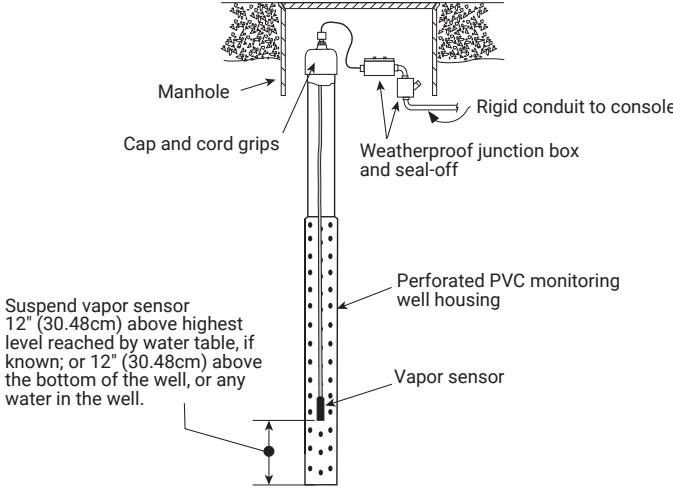|		
☐ Dispenser Pan	☐ STP Sump	☑ Annular Space
☐ Spill Containment	☑ Convault Tank	☐ Monitoring Well
		☐ Oil/Water Separator Tank

Sensor Description	MicroSensor	The non-discriminating small, easy to install solid-state MicroSensor is designed to detect liquid in the interstitial space of a steel tank or a fill riser containment.

Part Number	794380-344

Category	☐ Discriminating ☑ Non-Discriminating ☐ Position Sensitive	☐ Level Sensing ☐ Static Testing ☐ Hydrostatic

Fuel Compatibility	☑ Gas ☑ Diesel ☑ Kerosene ☑ Jet Fuel ☑ Aviation Gas	☑ E-15 ☑ E-85 ☑ E-100 ☑ Bio-Diesel 20 ☑ Bio-Diesel 100	☑ Green Diesel ☑ DEF ☑ Waste Oil ☑ Motor Oil

Console Compatibility (*International Only[1])	Recommended Min. Console Software	Sensor Interface Modules				
		Module Part #	Module Description	# of Modules per Console	# of Sensor Inputs per Module	Availability
TLS-450PLUS (8600 Series)	6A or Higher	332812-001	Universal Sensor Module (USM)	Up to 4 - TLS-4XX Up to 8 - TLS-4XX w/ opt. TLS-XB	16	Sold Separately
TLS-450	4A or Higher					
TLS4 (8601 Series)[1]	6A or Higher	330020-750	Universal Sensor Input Out-put Module (USIOM-AC)	1	12	Included
TLS4i (8601 Series)						
TLS4B (8601 Series)[1]		330020-751			6	
TLS4c (8601 Series)						
TLS-350/R/PLUS	124/324 or Higher	329958-001	Interstitial Sensor Interface Module	Up to 8	8	Sold Separately
TLS-350J		N/A				
TLS-300i						
TLS-300C						

Alarm Notification	Normal	Sensor in Normal State - No liquid detected
	Fuel Alarm	Liquid detected at a minimum of 1" (2.54cm)
	Sensor Out	Sensor not communicating to ATG/Console

Installation Kit	312020-928	2" (50mm) Interstitial Sensor Riser Cap and Adapter kit (Sold separately)

Specifications		Example Installation
Operating Principle	Optical	
Product Activation Height	1" (2.54cm)	
Operating Temperature	-40 to +122°F (-40 to +50°C)	
Dimensions	Dia. 0.63" (16mm), Length 2" (51mm)	
Miscellaneous/Notes	Standard Cable Length: 25ft (7.6m); 312020-928 (2" (50mm) Riser cap and Adapter kit)	
Third Party Evaluation Links	*TLS-350/TLS-450 Series Consoles* *TLS4 (8601 Series) Consoles*	
Product Link	*MicroSensor*	
Warranty with System	1 Yr Parts & Labor	
Warranty (When purchased separately)	1 Yr Parts Only	

Example Installation:

- Weatherproof junction box
- Seal-off
- Rigid conduit to console
- Manhole
- 1/2" (1.27cm) NPT Cord grips
- Appropriate reducer with 1/2" (1.27cm) NPT opening for cable cord grip
- Sensor cable
- Minimum riser diameter 1 inch (2.54cm)
- MicroSensor must rest on bottom of interstitial riser

Where Used (Typical)		
☐ Dispenser Pan ☐ Spill Containment ☐ STP Sump ☑ Convault Tank	☑ Annular Space ☐ Monitoring Well ☐ Oil/Water Separator Tank	

Sensor Description	Dual-Point Hydrostatic Reservoir Sensor (Brine-Filled Double-Wall Tank Sensor)	The Hydrostatic Reservoir Sensor accurately detects fluid level change in the reservoir and interstice of a double wall storage tank. The Dual-Point version is ideal for high groundwater areas, and can differentiate between a high level alarm condition and a low level alarm condition. If an inner-wall leak occurs, the brine seeps into the tank triggering a low level alarm. If an outer wall leak occurs, fluid seeps into the interstice triggering a high level alarm.
Part Number	**794380-303**	

Category	☐ Discriminating ☐ Level Sensing ☐ Non-Discriminating ☐ Static Testing ☐ Position Sensitive ☑ Hydrostatic

Fuel Compatibility	☑ Gas ☑ E-15 ☑ Green Diesel ☑ Diesel ☑ E-85[1] ☐ DEF ☑ Kerosene ☐ E-100 ☑ Waste Oil ☑ Jet Fuel ☑ Bio-Diesel 20 ☑ Motor Oil ☑ Aviation Gas ☐ Bio-Diesel 100 [1]Single use only (Test per Sensor Operability Guide in E-10 or less)

Console Compatibility (*International Only[1])	Recommended Min. Console Software	Sensor Interface Modules				
		Module Part #	Module Description	# of Modules per Console	# of Sensor Inputs per Module	Availability
TLS-450PLUS (8600 Series)	6A or Higher	332812-001	Universal Sensor Module (USM)	Up to 4 - TLS-4XX Up to 8 - TLS-4XX w/ opt. TLS-XB	16	Sold Separately
TLS-450	4A or Higher					
TLS4 (8601 Series)[1]	6A or Higher	330020-750	Universal Sensor Input Out-put Module (USIOM-AC)	1	12	Included
TLS4i (8601 Series)						
TLS4B (8601 Series)[1]		330020-751			6	
TLS4c (8601 Series)						
TLS-350/R/PLUS	124/324 or Higher	329958-001	Interstitial Sensor Interface Module	Up to 8	8	Sold Separately
TLS-350J		329356-003	4 Probe / 4 Sensor Interface Module	1	4	Sold Separately
TLS-300i		330230-001	4 Probe / 8 Sensor Interface Module		8	Included
TLS-300C		330513-001	2 Probe / 8 Sensor Options			

Alarm Notification	Normal	Float is in the Center position (correct amount of brine in reservoir)
	Low Liquid	Brine drops below 1.2" (3cm)
	High Liquid	Brine rises above 13.13" (33.4cm)
	Sensor Out	Sensor not communicating to ATG/Console

Where Used (Typical)

☐ Dispenser Pan ☐ STP Sump ☑ Annular Space
☐ Spill Containment ☑ Convault Tank ☐ Monitoring Well
  ☐ Oil/Water Separator Tank

Specifications		Example Installation
Operating Principle	Reed Switch /Float	
Product Activation Height	Low 1.2" (3cm), High 13.13" (33.4cm)	
Operating Temp	-13 to +122°F (-25 to +50°C)	
Dimensions	17.3" (43.9cm) High, 2.5" (6.4cm) Dia.	
Miscellaneous/Notes	• Standard Cable Length: 12ft (3.65m) • Vented riser cap assembly included • Reservoir solutions: Up to 50% ethylene glycol in water; up to 50% propylene glycol in water; salt brine solution of up to 30% CaCl.	
Third Party Evaluation Links	TLS-3XX/TLS-450 Series Consoles TLS4 (8601 Series) Consoles	
Product Link	Dual-Point Hydrostatic Reservoir Sensor	
Warranty with System	1 Yr Parts & Labor	
Warranty (When purchased separately)	1 Yr Parts Only	

Sensor Description	Single-Point Hydrostatic Reservoir Sensor (Brine-Filled Double-Wall Tank Sensor)	The Hydrostatic Reservoir Sensor accurately detects fluid level change in the reservoir and interstice of a double-wall storage tank. The Single-Point version can be used in low groundwater locations. If an inner-wall leak occurs, the brine seeps into the tank triggering a fuel alarm. If the outer wall leaks, the brine seeps out of the tank interstice triggering a fuel alarm.

Part Number	794380-301

Category

- ☐ Discriminating
- ☐ Non-Discriminating
- ☐ Position Sensitive
- ☐ Level Sensing
- ☐ Static Testing
- ☑ Hydrostatic

Fuel Compatibility

- ☑ Gas
- ☑ Diesel
- ☑ Kerosene
- ☑ Jet Fuel
- ☑ Aviation Gas
- ☑ E-15
- ☑ E-85[1]
- ☐ E-100
- ☑ Bio-Diesel 20
- ☐ Bio-Diesel 100
- ☑ Green Diesel
- ☐ DEF
- ☐ Waste Oil
- ☐ Motor Oil

[1]Single use only (Test per Sensor Operability Guide in E-10 or less)

Console Compatibility (*International Only[1])	Recommended Min. Console Software	Sensor Interface Modules				
		Module Part #	Module Description	# of Modules per Console	# of Sensor Inputs per Module	Availability
TLS-450PLUS (8600 Series)	6A or Higher	332812-001	Universal Sensor Module (USM)	Up to 4 - TLS-4XX Up to 8 - TLS-4XX w/ opt. TLS-XB	16	Sold Separately
TLS-450	4A or Higher					
TLS4 (8601 Series)[1]	6A or Higher	330020-750	Universal Sensor Input Out-put Module (USIOM-AC)	1	12	Included
TLS4i (8601 Series)						
TLS4B (8601 Series)[1]		330020-751			6	
TLS4c (8601 Series)						
TLS-350/R/PLUS	124/324 or Higher	329958-001	Interstitial Sensor Interface Module	Up to 8	8	Sold Separately
TLS-350J		329356-003	4 Probe / 4 Sensor Interface Module	1	4	Sold Separately
TLS-300i		330230-001	4 Probe / 8 Sensor Interface Module		8	Included
TLS-300C		330513-001	2 Probe / 8 Sensor Options			

Alarm Notification	Normal	Float is in the UP position (correct amount of brine in reservoir)
	Fuel Alarm	Brine level below 1.74" (4.4cm)
	Sensor Out	Sensor not communicating to ATG/Console

Where Used (Typical)

- ☐ Dispenser Pan
- ☐ Spill Containment
- ☐ STP Sump
- ☑ Convault Tank
- ☑ Annular Space
- ☐ Monitoring Well
- ☐ Oil/Water Separator Tank

Specifications	
Operating Principle	Reed Switch /Float
Product Activation Height	1.75" (4.4cm)
Operating Temperature	-13 to +135°F (-25 to +57°C)
Dimensions	6" (15cm) high, 2.5" (6.4cm) dia.
Miscellaneous/Notes	• Standard Cable Length: 12ft (3.65m) • Vented riser cap assembly included • Reservoir solutions: Up to 50% ethylene glycol in water; up to 50% propylene glycol in water; salt brine solution of up to 30% CaCl
Third Party Evaluation Links	*TLS-3XX/TLS-450 Series Consoles* *TLS4 (8601 Series) Consoles*
Product Link	*Single-Point Hydrostatic Reservoir Sensor*
Warranty with System	1 Yr Parts & Labor
Warranty (When purchased separately)	1 Yr Parts Only

Example Installation

Sensor Description	**Single-Point Mini-Hydrostatic Sensor for Double-Wall Sumps**	The Single-Point Mini-Hydrostatic Sensor accurately detects fluid level change in the interstice reservoir of a double-wall sump. If a leak occurs in the sump interstice, the brine seeps out of the reservoir triggering a low level alarm.

Part Number	**794380-304**

Category

- [ ] Discriminating
- [ ] Non-Discriminating
- [ ] Position Sensitive
- [ ] Level Sensing
- [ ] Static Testing
- [x] Hydrostatic

Fuel Compatibility

- [x] Gas
- [x] Diesel
- [x] Kerosene
- [x] Jet Fuel
- [x] Aviation Gas
- [x] E-15
- [x] E-85
- [x] E-100
- [x] Bio-Diesel 20
- [x] Bio-Diesel 100
- [x] Green Diesel
- [ ] DEF
- [x] Waste Oil
- [x] Motor Oil

Console Compatibility (*International Only[1])	Recommended Min. Console Software	Sensor Interface Modules				
		Module Part #	Module Description	# of Modules per Console	# of Sensor Inputs per Module	Availability
TLS-450PLUS (8600 Series)	6A or Higher	332812-001	Universal Sensor Module (USM)	Up to 4 - TLS-4XX Up to 8 - TLS-4XX w/ opt. TLS-XB	16	Sold Separately
TLS-450	4A or Higher					
TLS4 (8601 Series)[1]	6A or Higher	330020-750	Universal Sensor Input Out-put Module (USIOM-AC)	1	12	Included
TLS4i (8601 Series)						
TLS4B (8601 Series)[1]		330020-751			6	
TLS4c (8601 Series)						
TLS-350/R/PLUS	124/324 or Higher	329958-001	Interstitial Sensor Interface Module	Up to 8	8	Sold Separately
TLS-350J		329356-003	4 Probe / 4 Sensor Interface Module	1	4	Sold Separately
TLS-300i		330230-001	4 Probe / 8 Sensor Interface Module		8	Included
TLS-300C		330513-001	2 Probe / 8 Sensor Options			

Alarm Notification	Normal	Float is in UP position (correct amount of brine in reservoir)
	Fuel Alarm	Float is in DOWN position (low brine level in reservoir)
	Sensor Out	Sensor not communicating to ATG/Console

Specifications		**Example Installation**
Operating Principle	Reed Switch/Float	
Product Activation Height	0.79" (2cm)	
Operating Temperature	-13 to +122°F (-25 to +50°C)	
Dimensions	2.5" (6.4cm) high, 1.5" (3.8cm) dia.	
Miscellaneous/Notes	Standard Cable Length: 8ft (2.43m); up to 50% ethylene glycol in water; up to 50% propylene glycol in water; salt brine solution of up to 30% CaCl.	
Third Party Evaluation Links	*TLS-3XX/TLS-450 Series Consoles* *TLS4 (8601 Series) Consoles*	
Product Link	*Single-Point Mini-Hydrostatic Sensor*	
Warranty with System	1 Yr Parts & Labor	
Warranty (When purchased separately)	1 Yr Parts Only	

Where Used (Typical)

- [ ] Dispenser Pan
- [ ] Spill Containment
- [ ] STP Sump
- [ ] Convault Tank
- [x] Annular Space
- [ ] Monitoring Well
- [ ] Oil/Water Separator Tank

Example Installation diagram labels: Concrete pad; Double-wall sump; Sensor in interstitial fluid reservoir; Coupling and seals as required for conduit egress (customer supplied); Seal-off and junction box (customer supplied); Rigid conduit to console; Use tie wraps to keep cable clear of sump components and lid; Tank

Sensor Description	Vapor Sensor	The Vapor Monitoring Well Sensor detects hydrocarbon vapor exceeding the programmed threshold limit in the monitoring well.

Part Number	**794390-700**

Category	☐ Discriminating ☐ Non-Discriminating ☐ Position Sensitive ☐ Level Sensing	☐ Static Testing ☐ Hydrostatic ☑ Vapor ☐ Groundwater ☐ Oil/Water Separator	

Fuel Compatibility	☑ Gas ☐ Diesel ☐ Kerosene ☑ Jet Fuel ☑ Aviation Gas	☑ E-15 ☐ E-85 ☐ E-100 ☐ Bio-Diesel 20 ☐ Bio-Diesel 100	☐ Green Diesel ☐ DEF ☐ Waste Oil ☐ Motor Oil	

Console Compatibility (*International Only[1])	Recommended Min. Console Software	Sensor Interface Modules			
		Module Part #	Module Description	# of Modules per Console	# of Sensor Inputs per Module	Availability
TLS-450PLUS (8600 Series)	6A or Higher	332812-001	Universal Sensor Module (USM)	Up to 4 - TLS-4XX Up to 8 - TLS-4XX w/ opt. TLS-XB	8	Sold Separately
TLS-450	4A or Higher					
TLS4 (8601 Series)[1]	6A or Higher	330020-750	Universal Sensor Input Out-put Module (USIOM-AC)	1	6	Included
TLS4i (8601 Series)						
TLS4B (8601 Series)[1]		330020-751			4	
TLS4c (8601 Series)						
TLS-350/R/PLUS	124/324 or Higher	329357-001	Vapor Sensor Interface Module	Up to 8	5	Sold Separately
TLS-350J		N/A				
TLS-300i						
TLS-300C						

Alarm Notification	Short Alarm	A short has occurred in the sensor wiring or in the sensor.
	Water Alarm	The vapor sensor is immersed in water and is incapable of detecting fuel vapors.
	Fuel Alarm	Fuel vapors are present in the area being monitored by the sensor.
	Sensor Out alarm	Sensor setup was performed incorrectly; it is disconnected, or, it is not functioning properly.

Installation Kit	312020-939	4" (100mm) Vapor Sensor Riser Cap (Sold separately)

Specifications		Example Installation
Operating Principle	Adsistor	
Product Activation Height	Gasoline Vapor >500 ppm	
Operating Temperature	-4 to +140°F (-20 to +60°C)	
Dimensions (Sensor)	4.9" (12.4cm) long, 1.1" (2.8cm) dia.	
Miscellaneous/Notes	Standard Cable 18ft (5.5m)	
Third Party Evaluation Links	*TLS-350/TLS-450 Series Consoles* *TLS4 (8601 Series) Consoles*	
Product Link	*Vapor Sensor*	
Warranty with System	1 Yr Parts & Labor	
Warranty (When purchased separately)	1 Yr Parts Only	

Manhole

Cap and cord grips

Rigid conduit to console

Weatherproof junction box and seal-off

Perforated PVC monitoring well housing

Suspend vapor sensor 12" (30.48cm) above highest level reached by water table, if known; or 12" (30.48cm) above the bottom of the well, or any water in the well.

Vapor sensor

Where Used (Typical)		
☐ Dispenser Pan ☐ Spill Containment ☐ STP Sump ☐ Convault Tank	☐ Annular Space ☑ Monitoring Well ☐ Oil/Water Separator Tank	

VEEDER-ROOT

Sensor Description	**Groundwater Sensor**	The Groundwater Sensor detects free hydrocarbons in the C5 to C16 range on the water table in up to 20ft (6.1m) deep monitoring wells.

Part Number	**794380-621 for 7-10ft (2-3m) wells; 794380-622 for 10-5ft (3-4.5m) wells; 794380-624 for 15-20 ft (4.5-6m) wells**

Category

☐ Discriminating ☐ Static Testing
☐ Non-Discriminating ☐ Hydrostatic
☐ Position Sensitive ☐ Vapor
☐ Level Sensing ☑ Groundwater
☐ Oil/Water Separator

Fuel Compatibility

☑ Gas ☑ E-15 ☑ Green Diesel
☑ Diesel ☐ E-85 ☐ DEF
☑ Kerosene ☐ E-100 ☑ Waste Oil
☑ Jet Fuel ☑ Bio-Diesel 20 ☑ Motor Oil
☑ Aviation Gas ☐ Bio-Diesel 100

Console Compatibility (*International Only[1])	Recommended Min. Console Software	Module Part #	Module Description	# of Modules per Console	# of Sensor Inputs per Module	Availability
TLS-450PLUS (8600 Series)	6A or Higher	332812-001	Universal Sensor Module (USM)	Up to 4 - TLS-4XX Up to 8 - TLS-4XX w/ opt. TLS-XB	8	Sold Separately
TLS-450	4A or Higher					
TLS4 (8601 Series)[1]	6A or Higher	330020-750	Universal Sensor Input Out-put Module (USIOM-AC)	1	6	Included
TLS4i (8601 Series)						
TLS4B (8601 Series)[1]		330020-751			4	
TLS4c (8601 Series)						
TLS-350/R/PLUS	124/324 or Higher	329399-001	Groundwater Sensor Interface Module	Up to 8	5	Sold Separately
TLS-350J		N/A				
TLS-300i						
TLS-300C						

Alarm Notification

Normal	Sensor in water - no hydrocarbons detected
Water Out	Sensor not in water - well dry
Fuel Alarm	Permeable material saturated with Fuel
Sensor Out	Sensor not communicating to ATG/Console

Specifications

Operating Principle	Electrical conductivity
Product Activation Height	0.02" (0.5mm)
Operating Temperature	+32 to +104°F (0 to +40°C)
Dimensions (Water Float)	4.9" (12.4cm) long, 1.1" (2.8cm) dia.
Miscellaneous/Notes	Locking cap included; cable length 64" (162.6cm)
Third Party Evaluation Links	TLS-3XX/TLS-450 Series Consoles TLS4 (8601 Series) Consoles
Product Link	Groundwater Sensor
Warranty with System	1 Yr Parts & Labor
Warranty (When purchased separately)	1 Yr Parts Only

Example Installation

Cord grips
Sensor well cap w/ locking handle
Extra sensor length should not exceed 2ft (60cm)
Sensor
Water float
Rigid conduit to console
Weatherproof junction box and seal off
Perforated PVC monitoring well housing
Suspend water float 2"- 4" (5 - 10cm) above bottom of well. NOTE: Water float must be submerged or console will indicate WATER OUT alarm.

Where Used (Typical)

☐ Dispenser Pan ☐ Annular Space
☐ Spill Containment ☑ Monitoring Well
☐ STP Sump ☐ Oil/Water Separator Tank
☐ Convault Tank

Sensor Description	Oil / Water Separator Sensor (OWSS)	The Oil Water Separator Sensor (OWSS) allows you to utilize your existing Veeder-Root system for your Oil Water Separator tank. The OWSS facilitates operation of the tank by monitoring product thresholds, and will activate alarms on the TLS monitoring system when tank contents exceed a predetermined threshold. The probe also provides the conditions for these alarms and a full alarm history.

Part Number	**794690-xxx**

Category	☐ Discriminating ☐ Non-Discriminating ☐ Position Sensitive ☐ Level Sensing	☐ Static Testing ☐ Hydrostatic ☐ Vapor ☐ Groundwater ☑ Oil/Water Separator

Fuel Compatibility	☑ Gas ☑ Diesel ☑ Kerosene ☑ Jet Fuel ☑ Aviation Gas	☑ E-15 ☐ E-85 ☐ E-100 ☑ Bio-Diesel 20 ☐ Bio-Diesel 100	☐ Green Diesel ☐ DEF ☑ Waste Oil ☑ Motor Oil

Console Compatibility (International Only[1])	Recommended Min. Console Software	Sensor Interface Modules				
		Module Part #	Module Description	# of Modules per Console	# of Sensor Inputs per Module	Availability
TLS-450PLUS (8600 Series)	6A or Higher	332812-001	Universal Sensor Module (USM)	Up to 4 - TLS-4XX Up to 8 - TLS-4XX w/ opt. TLS-XB	16	Sold Separately
TLS-450	4A or Higher					
TLS4 (8601 Series)[1]	6A or Higher	330020-750	Universal Sensor Input Out-put Module (USIOM-AC)	1	12	Included
TLS4i (8601 Series)						
TLS4B (8601 Series)[1]		330020-751			6	
TLS4c (8601 Series)						
TLS-350/R/PLUS	124/324 or Higher	329358-001	Interstitial Sensor Interface Module	Up to 8	8	Sold Separately
TLS-350J		329356-003	4 Probe / 4 Sensor Interface Module	1	4	Sold Separately
TLS-300i		330230-001	4 Probe / 8 Sensor Interface Module		8	Included
TLS-300C		330513-001	2 Probe / 8 Sensor Options			

Alarm Notification	Normal	Tank is properly setup with liquid
	Liquid Warning	Oil is present in tank
	Liquid Alarm	Oil has reached its maximum volume, remove from tank
	Sensor Out	Sensor not communicating to ATG/Console

Specifications	
Operating Principle	Reed Switch/Float
Product Activation Height	Custom-Based on Tank Configuration
Operating Temperature	0 to +140°F (0 to +60°C)
Dimensions	Custom-Based on Tank Configuration
Miscellaneous/Notes	Standard Cable Length: 12ft (3.66m) - See Appendix B in this manual for sensor sizing
Product Link	*Oil Water Separator Sensor*
Warranty with System	1 Yr Parts & Labor
Warranty (When purchased separately)	1 Yr Parts Only

Where Used (Typical)	
☐ Dispenser Pan ☐ Spill Containment ☐ STP Sump ☐ Convault Tank	☐ Annular Space ☐ Monitoring Well ☑ Oil/Water Separator Tank

Appendix A - Sensor Type Programming Table

The table below is helpful when selecting Sensor Type (for TLS3 Series consoles) or Sensor Model (for TLS4/8601 and TLS-450 and TLS-450PLUS consoles) during sensor setup.

Sensor Type Programming Table for TLS Consoles

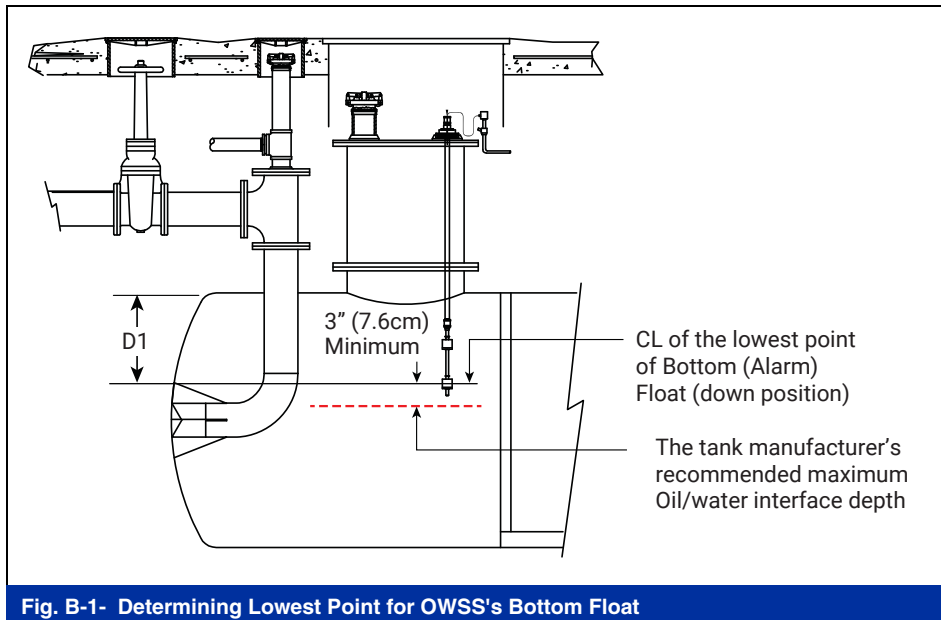| Sensor	Part Number	Sensor Category (Location)	TLS3 Series Sensor Type	TLS4/8601 Series TLS-450 and TLS-450PLUS Sensor Model
Discriminating Dispenser Pan and Sump - Standard	794380-322 (DPS), 794380-352 (CSS)	Sump/Pan	Liquid Sensor Setup: Sensor Type - Dual Float Discriminating	Device Setup Liquid Sensor: Model - Dual Float Discriminating
Solid-State Discr. Dispenser Pan and Containment Sump - 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	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 - Ultra 2	Device Setup Type A Sensor: Model - Ultra 2
Piping Sump-12' (3.66m)	794380-208	Sump/Pan	Liquid Sensor Setup: Sensor Type - Tri-State Liquid	Device Setup Liquid Sensor: Model - Tri-State
Position Sensitive [High Alcohol Compatible!]	794380-323 (12' Cable)	Sump/Pan	Liquid Sensor Setup: Sensor Type - Tri-State Liquid	Device Setup Liquid Sensor: Model - Tri-State
Solid-State Discr. Interstitial for Double-Wall Fiberglass Tanks with 25' (7.62m) Cable	794380-343	Annular Space	2-Wire C.L. Setup: Sensor Type - Discrim Interstitial	Device Setup Type A Sensor: Model - Discrim. Interstitial
Interstitial for Double-Wall Fiberglass Tanks	794380-409	Annular Space	Liquid Sensor Setup: Sensor Type - Tri-State Liquid	Device Setup Liquid Sensor: Model - Tri-State
Solid-State Interstitial High Alcohol 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 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 for Steel Tanks with 20' (6.1m) Cable [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 for Steel Tanks with 15' (4.57m) Cable [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 - Ultra 2	Device Setup Type A Sensor: Model - Ultra 2
Hydrostatic Reservoir	794380-301 (1 float)	Annular Space	Liquid Sensor Setup: Sensor Type - Tri-State Liquid	Device Setup Liquid Sensor: Model - Tri-State
	794380-303 (1 float)	Annular Space	Liquid Sensor Setup: Sensor Type - Dual Point Hydrostatic	Device Setup Liquid Sensor: Model - Dual-Point Hydrostatic
Single-Point Mini-Hydrostatic for Double-Wall Sumps	794380-304	Annular Space	Liquid Sensor Setup: Sensor Type - Tri-State Liquid	Device Setup Liquid Sensor: Model - Tri-State
Vapor Monitoring Well	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

Appendix B - How To Order An Oil Water Separator Sensor (OWSS)

Sensor Sizing

To determine the correct sensor length for the oil water separator tank application use the manufacturer's tank chart to determine height-to-volume thresholds for warning and alarm conditions and make three measurements, including verifying fluid depths on the manufacturer's tank chart.

1. **Determining the Lowest Point of the Bottom (Alarm) Float**
   Measure and record the distance from inside the top of the tank to the maximum depth of waste oil water interface in the tank as recommended by the tank's manufacturer (Fig.B-1). Subtract 3" (7.62cm) from this measurement to determine the lowest permissible point in the tank for the centerline of the sensor's bottom (alarm) float and **note this measurement as D1**.

D1

3" (7.6cm) Minimum

CL of the lowest point of Bottom (Alarm) Float (down position)

The tank manufacturer's recommended maximum Oil/water interface depth

Fig. B-1- Determining Lowest Point for OWSS's Bottom Float

2. **Determining Distance from Top of Riser to Top of Tank**
   Measure from the top of the riser down to the top of the tank and if using the riser reducing 4x2 fitting, **note this measurement as D2**. OR, if using the riser reducing 4x2 coupling, add 3" (7.62cm) to the measured distance and **note this measurement as D2** (Fig.B-2).

Top of O/W Sensor's riser to top of tank

D2

If using a 4" (10.16cm) to 2" (5.08cm) reducing fitting riser adapter (example at right) **no height adjustment is needed to measurement D2.**

If using a 4" (10.16cm) to 2" (5.08cm) reducing coupling riser adapter (example at right) **add 3" (7.62cm) to the results of measurement D2.**

Fig. B-2- Determining Distance from Top of Riser to Top of Tank
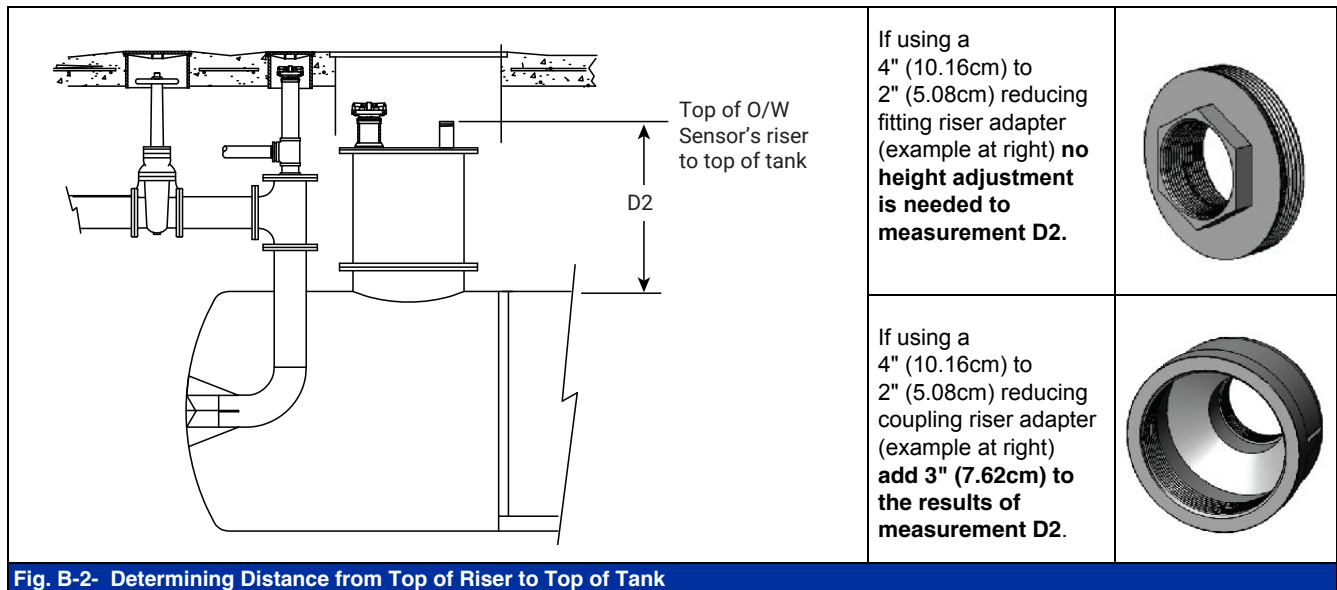
3. **Determining the Top (Warning) Float Position**
    Consult the tank chart to determine the height of the top warning level (centerline of the Top Float).
    Measure the distance from the top of the tank to the centerline of the Top Float (Fig.B-3).
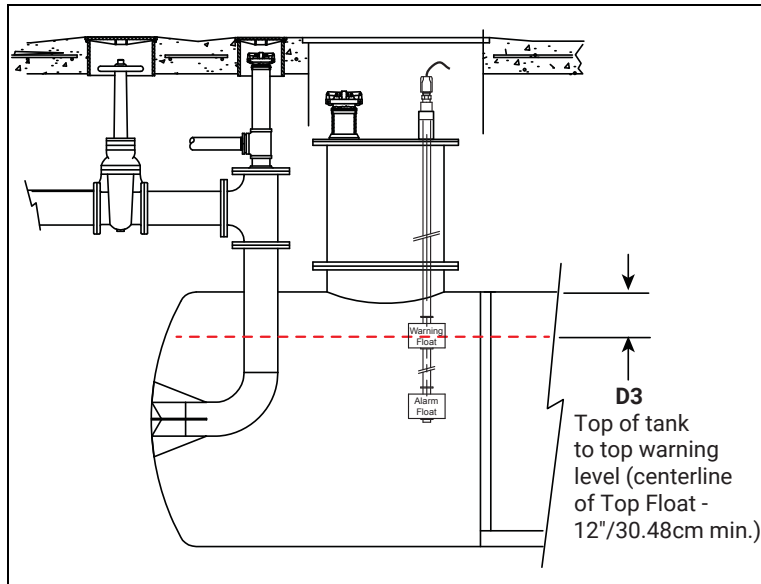   **Note this measurement as D3.**

Fig. B-3- Determining the Top (Warning) Float Position

4. **Determining Correct Sensor to Order**
    Use the D1, D2 and D3 measurements made in steps 1 - 3 to determine the part number of the sensor from
    the Veeder-Root Oil Water Separator Sensor matrix shown in Fig.B-4.

    For example: D1 = 33" (83.82cm), D2 = 24.5" (62.23cm), D3 = 13" (33.02cm)
    D2 + D3 = Top Float position, i.e., 24.5" (62.23cm) + 13" (33.02cm) = 37.5" (95.25cm) (Dimension A in the
    Veeder-Root P/N matrix)
    D1 - D3 = Bottom Float position, i.e., 33" (83.82cm) - 13" (33.02cm) = 20" (50.8cm) (Dimension B in the
    Veeder-Root P/N matrix)

    Using the OWSS float positions calculated in the example above, the Top Float (Warning Float) would
    activate at 13" (33.02cm) below the top of the tank and the Bottom Float (Alarm Float) would activate at
    33" (83.82cm) below the top of the tank. The correct part number for these example float positions would be
    794690-053.

    Round dimension A or B down to the nearest available option if necessary. Note: Doing so will impact the float
    Warnings and Alarms generated on the TLS system.

Alarm Conditions

Alarm Type	Alarm Condition
Liquid Warning	Oil present in tank
Liquid Alarm	Oil has reached its maximum volume, remove from tank
Sensor Out Alarm	No communication to ATG
Normal	Tank is properly setup with liquid

Order OWSS part number 794690-XXX, where XXX equals the three digits where Dimensions A and B intersect in the part number matrix:

		5"	10"	15"	20"	25"	30"	35"	40"	45"	50"
	18"	−010	−011	−012	−013	−014	−015	−016	−017	−018	−019
	22"	−020	−021	−022	−023	−024	−025	−026	−027	−028	−029
	26"	−030	−031	−032	−033	−034	−035	−036	−037	−038	−039
	30"	−040	−041	−042	−043	−044	−045	−046	−047	−048	−049
	34"	−050	−051	−052	−053	−054	−055	−056	−057	−058	−059
	38"	−060	−061	−062	−063	−064	−065	−066	−067	−068	−069
	42"	−070	−071	−072	−073	−074	−075	−076	−077	−078	−079
	46"	−080	−081	−082	−083	−084	−085	−086	−087	−088	−089
	50"	−090	−091	−092	−093	−094	−095	−096	−097	−098	−099
	54"	−100	−101	−102	−103	−104	−105	−106	−107	−108	−109
	58"	−110	−111	−112	−113	−114	−115	−116	−117	−118	−119
	62"	−120	−121	−122	−123	−124	−125	−126	−127	−128	−129
	66"	−130	−131	−132	−133	−134	−135	−136	−137	−138	−139
	70"	−140	−141	−142	−143	−144	−145	−146	−147	−148	−149
	74"	−150	−151	−152	−153	−154	−155	−156	−157	−158	−159
	78"	−160	−161	−162	−163	−164	−165	−166	−167	−168	−169
	82"	−170	−171	−172	−173	−174	−175	−176	−177	−178	−179
	86"	−180	−181	−182	−183	−184	−185	−186	−187	−188	−189
	90"	−190	−191	−192	−193	−194	−195	−196	−197	−198	−199

DIMENSION "B" / DIMENSION "A"

Fig. B-4- Oil Water Separator Sensor Part Number Matrix

Appendix C - Direct Burial Cable

The Veeder-Root direct burial cable system provides everything needed for an alternative wiring installation method for use with our probes and sensors. Installation of buried cable should only be done in those locations where existing conduit is not available, and where local codes permit the use of buried cable instead of conduit, and epoxy splices instead of junction boxes. Before considering buried cable runs, check with the local authority having jurisdiction to be sure that direct burial practices are acceptable at your location.

If you are unfamiliar with direct burial techniques, you should consider either of two Veeder-Root kits:

•   Direct Burial Cable Site Preparation Kit (P/N 848100-500) which contains the Direct Burial Installation Manual, a splice kit installation manual and the 890-SL joint sealant instruction guide.

•   Direct Burial Cable Demonstration Kit (P/N 848100-502) which contains one splice kit with installation instructions, a 890-SL joint sealant instruction guide, a 6" (15.24cm) piece of 2 conductor direct burial wire and filler rod.

After reviewing the contents of these kits, and after verifying local code requirements, you should be much more informed as to the applicability of this wiring method for your site.

Direct Burial Cable Specifications

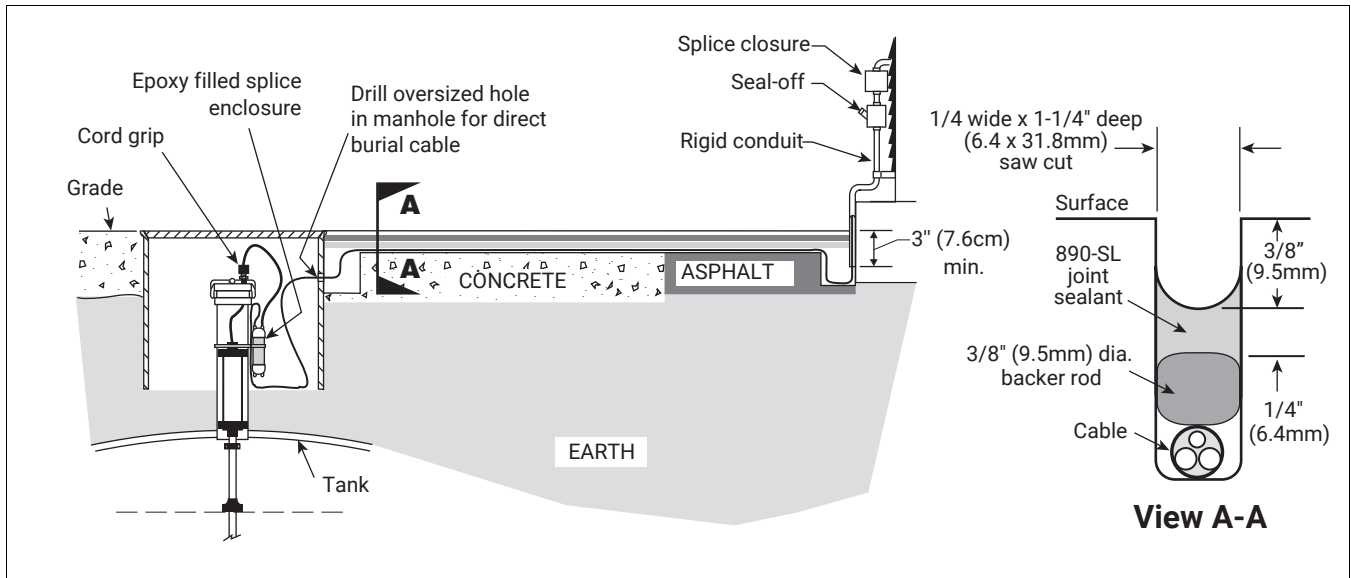| 2-CONDUCTOR, SHIELDED CABLE		3-CONDUCTOR, SHIELDED CABLE	
Item	Description	Item	Description
Primaries		Primaries	
Conductor	#18 AWG (19/30) tinned copper	Conductor	#18 AWG (19/30) tinned copper
Insulation Type	Fluoropolymer	Insulation Type	Fluoropolymer
Primary O.D.	0.063" (1.6mm) nominal	Primary O.D.	0.063" (1.6mm) nominal
Drain	#20 AWG (7/28) tinned copper, located under the tape	Drain	#20 AWG (7/28) tinned copper, located under the tape
Jacket		Jacket	
Insulation Type	Fluoropolymer	Insulation Type	Fluoropolymer
Final O.D.	0.161" (4.1mm)	Final O.D.	0.171" (4.34mm)
Color	Red tint	Color	Blue tint
UL Temp Rating	257°F (125°C)	UL Temp Rating	392°F (200°C)

Direct Burial Cable Components

Order equal lengths of filler rod and either type cable. Refer to Veeder-Root manual 576013-858 to estimate length.

•   Filler rod - P/N 848100-1XX, lengths of 100' to 2000' (30.5 to 610m), in increments of 100' (30.5m)

•   Filler rod installation tool-P/N 848100-904, adjusts to 1/8" (0.32cm), 1/4" (6.4mm), 3/8" (9.5mm), or 1/2" (12.7mm) saw cuts

•   2-conductor cable - P/N 848100-2XX, lengths of 100' to 2000' (30.5 to 610m), in increments of 100')

•   3-conductor cable - P/N 848100-3XX, lengths of 100' to 2000', in increments of 100')

•   29oz. cartridge of 890-SL Sealant - P/N 848100-800, 60 linear feet (18m) in 1/4" (6.4mm) wide cut

•   4.5 gallon (17 liter) can of 890-SL Sealant - P/N 848100-805, 1200 linear feet (365m) in 1/4" (6.4mm) wide cut

- Sealant Cartridge Gun, Manual Driven - P/N 848100-901 (for use with P/N 848100-800 cartridge)

- Sealant Bulk Gun, Air Driven - P/N 848100-903 (for use with P/N 848100-805 4.5 gallon (17 liter) can)

Direct Burial Cable Installation Example