

Sensor Products

Application Guide

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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>



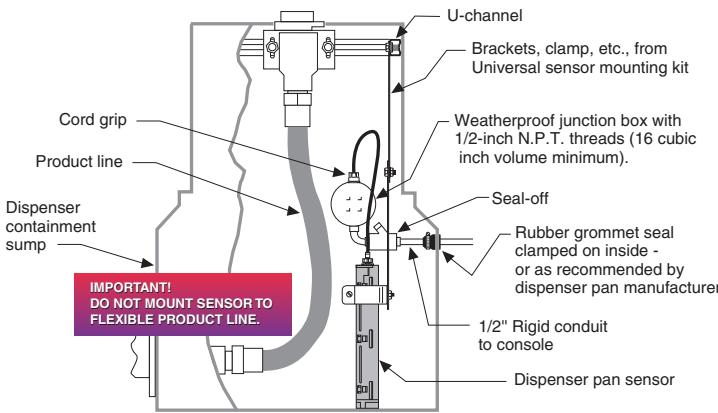
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Sensor Application Matrix

Sensor Description	Form #	Page #	Where Used							Category						Fuel Compatibility												
			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	Kerosene	Jet Fuel	Aviation Gas	E-15	E-85	E-100	Bio-Diesel 20	Bio-Diesel 100	Renewable (Green) Diesel	Diesel Exhaust Fuel (DEF)	Waste Oil
DPS Standard Dispenser Pan	794380-322	2	X	X					X						X	X	X	X	X	X	X ¹		X		X		X	X
CSS Standard Containment Sump	794380-352	3		X	X				X						X	X	X	X	X	X	X ¹		X		X		X	X
DPO Optical Dispenser Pan	794380-320	4	X	X					X						X	X	X	X	X	X	X ¹		X		X		X	X
CSO Optical Containment Sump	794380-350	5		X	X				X						X	X	X	X	X	X	X ¹		X		X		X	X
MSS Mag Sump Sensor	857080-XXX	6	X	X	X				X		X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X
SSDP Solid State Dispenser Pan	794380-321	7	X	X						X					X	X	X	X	X	X			X	X	X		X	X
SSCS Solid State Containment Sump	794380-351	8		X	X					X					X	X	X	X	X	X			X	X	X		X	X
Piping Sump	794380-208	9	X	X	X					X					X	X	X	X	X	X			X		X		X	X
Non-Discriminating Stand-Alone 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
Interstitial for Fiberglass Tanks, Discriminating	794380-343	12					X		X						X	X	X	X	X	X			X	X	X	X	X	X
Interstitial for Fiberglass Tanks	794390-409	13					X			X					X	X	X	X	X	X			X		X		X	X
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	X
Interstitial for Steel Tanks, High Alcohol	794380-430	17					X			X					X	X	X	X	X	X	X	X	X	X	X		X	X
Interstitial for Steel Tanks, High Alcohol, small footprint	794380-344	18					X			X					X	X	X	X	X	X	X	X	X	X	X	X	X	X
Hydrostatic Reservoir (Dual Point)	794380-303	19					X						X		X	X	X	X	X	X	X ¹		X		X		X	X
Single-Point Hydrostatic Sensor	794380-301	20					X						X		X	X	X	X	X	X	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	X
Vapor	794390-700	22					X								X		X	X	X									
Ground Water	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

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

²Small Containment Areas (i.e. Spill Buckets)

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.				Sensor Matrix 
Form Number	794380-322					
Where Used (Typical)	<input checked="" type="checkbox"/> Dispenser Pan <input type="checkbox"/> Annular Space <input checked="" type="checkbox"/> Spill Containment <input type="checkbox"/> Monitoring Well <input type="checkbox"/> STP Sump <input type="checkbox"/> Oil/Water Separator Tank <input type="checkbox"/> Convault Tank				Category	
Fuel Compatibility	 <input checked="" type="checkbox"/> Gas <input checked="" type="checkbox"/> E-15 <input checked="" type="checkbox"/> Green Diesel <input checked="" type="checkbox"/> Diesel <input checked="" type="checkbox"/> E-85 ¹ <input type="checkbox"/> DEF <input checked="" type="checkbox"/> Kerosene <input type="checkbox"/> E-100 <input checked="" type="checkbox"/> Waste Oil <input checked="" type="checkbox"/> Jet Fuel <input checked="" type="checkbox"/> Bio-Diesel 20 <input checked="" type="checkbox"/> Motor Oil <input checked="" type="checkbox"/> Aviation Gas <input type="checkbox"/> Bio-Diesel 100 <small>¹Single Use Only (Test per Sensor Operability Guide in E-10 or less)</small>				<input checked="" type="checkbox"/> Discriminating <input type="checkbox"/> Non-Discriminating <input type="checkbox"/> Position Sensitive <input type="checkbox"/> Level Sensing <input type="checkbox"/> Static Testing <input type="checkbox"/> Hydrostatic	
Console Compatibility (International Only²)	Min. Console Software	Sensor Interface Modules				
		Module Form #	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	332812-001				
² TLS4 (8601 Series)	6A or Higher	330020-750	Universal Sensor Input/Output Module (USIOM-AC)	1	12	Included
TLS4i (8601 Series)		330020-750				
² TLS4B (8601 Series)		330020-751				
TLS4c (8601 Series)		330020-751				
TLS-350/R/PLUS	124/324 or Higher	329356-001	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 Present				
	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	330020-440	Universal Sensor Mounting Kit (Sold separately)				
Specifications		Example Installation				
Operating Principle	Product Permeable, Reed Switch / Float	 <p>IMPORTANT! DO NOT MOUNT SENSOR TO FLEXIBLE PRODUCT LINE.</p> <p>Dispenser pan sensor should:</p> <ol style="list-style-type: none"> 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. 				
Product Activation Height	Gas - 0.0005" (0.127mm); Water - low 1.37" (3.4cm), High 7.66" (19.5cm)					
Operating Temp	0 to +140°F (0 to +60°C)					
Dimensions	11.6" (29.4cm) high, 2.2" (5.6cm) dia.					
Miscellaneous / Notes	Standard Cable Length: 12 Feet					
Third Party Evaluation	http://www.nwglde.org/evals/veeder_root_o.html					
Links	http://www.veeder.com/us/products/tls-automatic-tank-gauge-systems/sensors/dispenser-pan-monitoring-sensors					
Warranty with System	1 Yr Parts & Labor					
Warranty (When purchased separately)	1 Yr Parts Only					

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.	Sensor Matrix
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Form Number	794380-352
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Where Used (Typical)	<input type="checkbox"/> Dispenser Pan <input type="checkbox"/> Annular Space <input checked="" type="checkbox"/> Spill Containment <input type="checkbox"/> Monitoring Well <input checked="" type="checkbox"/> STP Sump <input type="checkbox"/> Oil/Water Separator Tank <input type="checkbox"/> Convault Tank	Category
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Fuel Compatibility	<input checked="" type="checkbox"/> Gas <input checked="" type="checkbox"/> E-15 <input checked="" type="checkbox"/> Green Diesel <input checked="" type="checkbox"/> Diesel <input checked="" type="checkbox"/> E-85 ¹ <input type="checkbox"/> DEF <input checked="" type="checkbox"/> Kerosene <input type="checkbox"/> E-100 <input checked="" type="checkbox"/> Waste Oil <input checked="" type="checkbox"/> Jet Fuel <input checked="" type="checkbox"/> Bio-Diesel 20 <input checked="" type="checkbox"/> Motor Oil <input checked="" type="checkbox"/> Aviation Gas <input type="checkbox"/> Bio-Diesel 100	<input checked="" type="checkbox"/> Discriminating <input type="checkbox"/> Non-Discriminating <input type="checkbox"/> Position Sensitive <input type="checkbox"/> Level Sensing <input type="checkbox"/> Static Testing <input type="checkbox"/> Hydrostatic
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¹Single Use Only (Test per Sensor Operability Guide in E-10 or less)

Console Compatibility (International Only ²)	Min. Console Software	Sensor Interface Modules				Availability
		Module Form #	Module Description	# Of Modules Per Console	# Of Sensor Inputs Per Module	
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	332812-001				
² TLS4 (8601 Series)	6A or Higher	330020-750	Universal Sensor Input Output Module (USIOM-AC)	1	12	Included
TLS4i (8601 Series)		330020-750				
² TLS4B (8601 Series)		330020-751			6	
TLS4c (8601 Series)		330020-751				
TLS-350/R/PLUS	124/324 or Higher	329356-001	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 Present
	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

Installation Kit	330020-440	Universal Sensor Mounting Kit (Sold separately)
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Specifications	Example Installation
Operating Principle	
Product Activation Height	
Operating Temp	
Dimensions	
Miscellaneous / Notes	
Third Party Evaluation	
Links	
Warranty with System	
Warranty (When purchased separately)	

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.	Sensor Matrix
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Form Number	794380-320		
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Where Used (Typical)	<input checked="" type="checkbox"/> Dispenser Pan <input type="checkbox"/> Annular Space <input checked="" type="checkbox"/> Spill Containment <input type="checkbox"/> Monitoring Well <input type="checkbox"/> STP Sump <input type="checkbox"/> Oil/Water Separator Tank <input type="checkbox"/> Convault Tank	Category	<input checked="" type="checkbox"/> Discriminating <input type="checkbox"/> Non-Discriminating <input type="checkbox"/> Position Sensitive <input type="checkbox"/> Level Sensing <input type="checkbox"/> Static Testing <input type="checkbox"/> Hydrostatic
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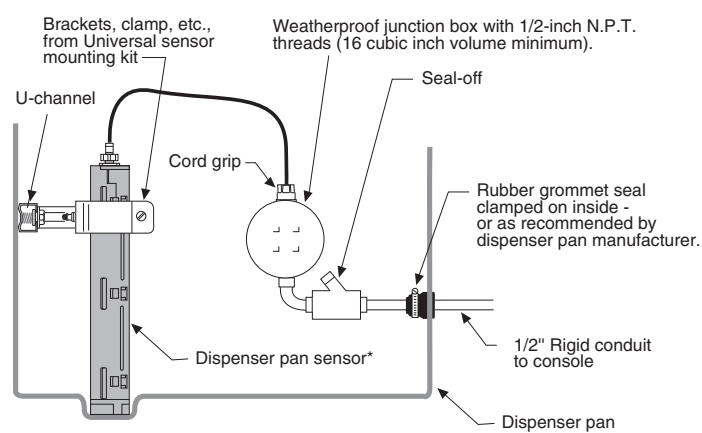
Fuel Compatibility	<input checked="" type="checkbox"/> Gas <input checked="" type="checkbox"/> E-15 <input checked="" type="checkbox"/> Green Diesel <input checked="" type="checkbox"/> Diesel <input checked="" type="checkbox"/> E-85 ¹ <input type="checkbox"/> DEF <input checked="" type="checkbox"/> Kerosene <input type="checkbox"/> E-100 <input checked="" type="checkbox"/> Waste Oil <input checked="" type="checkbox"/> Jet Fuel <input checked="" type="checkbox"/> Bio-Diesel 20 <input checked="" type="checkbox"/> Motor Oil <input checked="" type="checkbox"/> Aviation Gas <input type="checkbox"/> Bio-Diesel 100	
¹ Single Use Only (Test per Sensor Operability Guide in E-10 or less)		

Console Compatibility (*International Only ²)	Min. Console Software	Sensor Interface Modules				
		Module Form #	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	332812-001				
² TLS4 (8601 Series)	6A or Higher	330020-750	Universal Sensor Input Output Module (USIOM-AC)	1	6	Included
TLS4i (8601 Series)		330020-750				
² TLS4B (8601 Series)		330020-751			4	
TLS4c (8601 Series)		330020-751				
TLS-350/R/PLUS	124/324 or Higher	329950-001	Type B Interface Module	Up to 8	6	Sold Separately
TLS-350J		329356-003	4 Probe / 4 Sensor Interface Module	1	2	Sold Separately
TLS-300i	NA					
TLS-300C						

Alarm Notification	Normal	Sensor in Normal State- No Liquid Present
	Low Liquid	Electrical conductivity- 1.34" (3.4cm)
	High Liquid	Liquid detected at a minimum of 7.66" (19.45cm)
	Fuel Alarm	Optical - 1.34" (3.4cm)
	Sensor Out	Sensor not communicating to ATG / Console



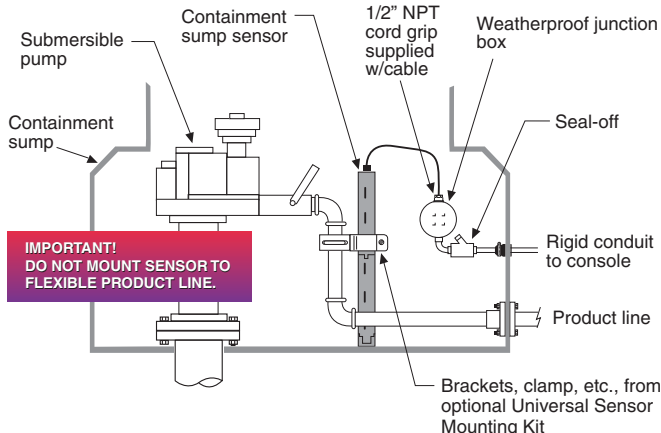
Installation Kit	330020-011	Universal Sensor Mounting Kit (Sold separately)
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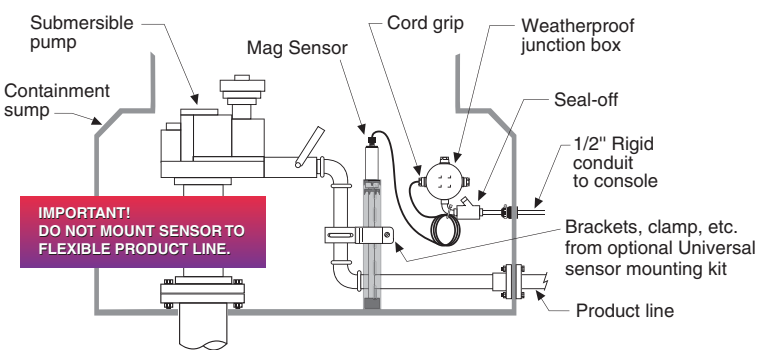
Specifications		Example Installation
Operating Principle	Electrical conductivity / optical	
Product Activation Height	Gas - 0.0005" (0.127mm); Water - low 1.37" (3.4cm), High 7.66" (19.45cm)	
Operating Temp	0 to +140°F (0 to +60°C)	
Dimensions	11.6" (29.4cm) high, 2.2" (5.6cm) dia.	
Miscellaneous / Notes	Standard Cable Length: 12 Feet	
Third Party Evaluation	http://www.nwglde.org/evals/veeder_root_o.html	
Links	http://www.veeder.com/us/products/tls-automatic-tank-gauge-systems/sensors/dispenser-pan-monitoring-sensors	
Warranty with System	1 Yr Parts & Labor	
Warranty (When purchased separately)	1 Yr Parts Only	





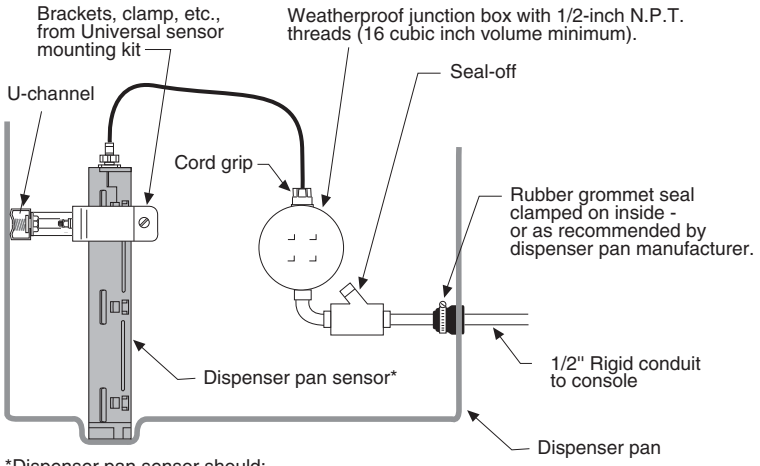
*Dispenser pan sensor should:



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.

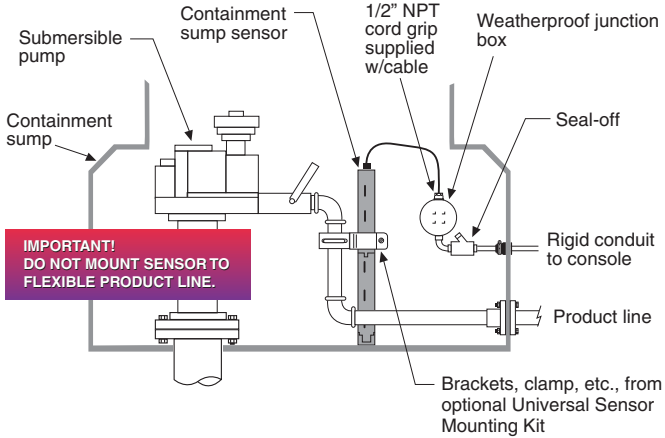
Sensor Description	Solid State - (Optical) Discriminating Containment Sump Sensor		This type of discriminating sensor is installed in a containment sump and will detect the presence of, and differentiate between, hydrocarbons and other liquids.		Sensor Matrix 	
Form Number	794380-350					
Where Used (Typical)	<input type="checkbox"/> Dispenser Pan <input type="checkbox"/> Annular Space <input checked="" type="checkbox"/> Spill Containment <input type="checkbox"/> Monitoring Well <input checked="" type="checkbox"/> STP Sump <input type="checkbox"/> Oil/Water Separator Tank <input type="checkbox"/> Convault Tank			Category		
Fuel Compatibility	 <input checked="" type="checkbox"/> Gas <input checked="" type="checkbox"/> E-15 <input checked="" type="checkbox"/> Green Diesel <input checked="" type="checkbox"/> Diesel <input checked="" type="checkbox"/> E-85 ¹ <input type="checkbox"/> DEF <input checked="" type="checkbox"/> Kerosene <input type="checkbox"/> E-100 <input checked="" type="checkbox"/> Waste Oil <input checked="" type="checkbox"/> Jet Fuel <input checked="" type="checkbox"/> Bio-Diesel 20 <input checked="" type="checkbox"/> Motor Oil <input checked="" type="checkbox"/> Aviation Gas <input type="checkbox"/> Bio-Diesel 100 <small>¹Single Use Only (Test per Sensor Operability Guide in E-10 or less)</small>			<input checked="" type="checkbox"/> Discriminating <input type="checkbox"/> Non-Discriminating <input type="checkbox"/> Position Sensitive <input type="checkbox"/> Level Sensing <input type="checkbox"/> Static Testing <input type="checkbox"/> Hydrostatic		
Console Compatibility (*International Only²)	Min. Console Software	Sensor Interface Modules				
		Module Form #	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-4XB	8	Sold Separately
TLS-450	4A or Higher	332812-001				
² TLS4 (8601 Series)	6A or Higher	330020-750	Universal Sensor Input Output Module (USIOM-AC)	1	6	Included
TLS4i (8601 Series)		330020-750				
² TLS4B (8601 Series)		330020-751				
TLS4c (8601 Series)		330020-751				
TLS-350/R/PLUS	124/324 or Higher	329950-001	Type B Interface Module	Up to 8	6	Sold Separately
TLS-350J		329356-003	4 Probe / 4 Sensor Interface Module	1	2	Sold Separately
TLS-300i	NA					
TLS-300C	NA					
Alarm Notification	Normal	Sensor in Normal State- No Liquid Present				
	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	Electrical conductivity / optical		 <p>IMPORTANT! DO NOT MOUNT SENSOR TO FLEXIBLE PRODUCT LINE.</p>			
Product Activation Height	Gas - 1.34" (3.4cm); Water - 1.34" (3.4cm)					
Operating Temp	-40 to +140°F (-40 to +60°C)					
Dimensions	22.1" (56.1cm) high, 2.2" (5.6cm) dia.					
Miscellaneous / Notes	Standard Cable Length: 12 Feet					
Third Party Evaluation	http://www.nwglde.org/evals/veeder_root_o.html					
Links	http://www.veeder.com/us/products/tls-automatic-tank-gauge-systems/sensors/dispenser-pan-monitoring-sensors					
Warranty with System	1 Yr Parts & Labor					
Warranty (When purchased separately)	1 Yr Parts Only					



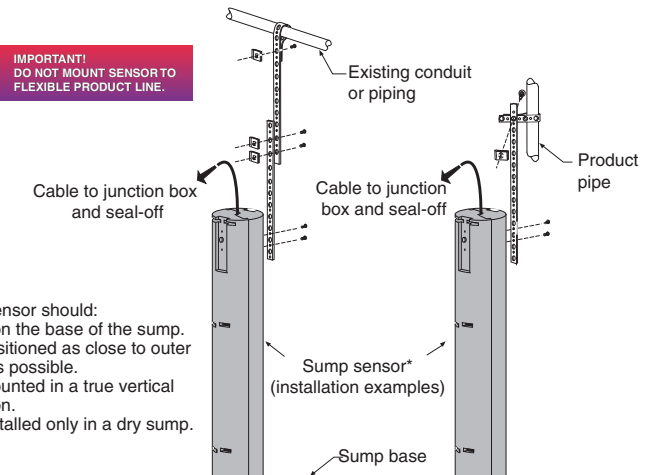
Sensor Description	Magnetostrictive Discriminating Level Indicating Containment Sump Sensor	This type of sensor is installed in a dispenser pan or containment sump will detect the presence of, and differentiate between, fuel and other liquids.	Sensor Matrix 			
Form Number	857080-111 (12"), -112 (24") / 857080-211 (12"), -212 (24"). The -211 and -212 sensors are capable of performing a 0.2 gph Hydrostatic test (SLD).					
Where Used (Typical)	<input checked="" type="checkbox"/> Dispenser Pan <input type="checkbox"/> Annular Space <input checked="" type="checkbox"/> Spill Containment <input type="checkbox"/> Monitoring Well <input checked="" type="checkbox"/> STP Sump <input type="checkbox"/> Oil/Water Separator Tank <input type="checkbox"/> Convault Tank			Category		
Fuel Compatibility	 <input checked="" type="checkbox"/> Gas <input checked="" type="checkbox"/> E-15 <input checked="" type="checkbox"/> Green Diesel <input checked="" type="checkbox"/> Diesel <input checked="" type="checkbox"/> E-85 <input checked="" type="checkbox"/> DEF <input checked="" type="checkbox"/> Kerosene <input checked="" type="checkbox"/> E-100 <input checked="" type="checkbox"/> Waste Oil <input checked="" type="checkbox"/> Jet Fuel <input checked="" type="checkbox"/> Bio-Diesel 20 <input checked="" type="checkbox"/> Motor Oil <input checked="" type="checkbox"/> Aviation Gas <input checked="" type="checkbox"/> Bio-Diesel 100			<input checked="" type="checkbox"/> Discriminating <input type="checkbox"/> Non-Discriminating <input checked="" type="checkbox"/> Position Sensitive <input checked="" type="checkbox"/> Level Sensing <input checked="" type="checkbox"/> Static Testing <input type="checkbox"/> Hydrostatic		
Console Compatibility (*International Only¹)	Min. Console Software	Sensor Interface Modules				
		Module Form #	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	332812-001	Universal Sensor Input/Output Module (USIOM-AC)	1	12	Included
¹ TLS4 (8601 Series)	6A or Higher	330020-750				
TLS4i (8601 Series)		330020-750				
¹ TLS4B (8601 Series)		330020-751				
TLS4c (8601 Series)		330020-751				
TLS-350/R/PLUS	124/324 or Higher	329356-004	Smart Sensor Interface Module	Up to 8	8	Sold Separately
TLS-350J	(-211 and -212 sensors require 126/326 or higher)	329356-003	4 Probe / 4 Sensor Interface Module	1	4	Sold Separately
TLS-300i	NA					
TLS-300C	NA					
Alarm Notification	Normal	Sensor in Normal State- No Liquid Present				
	Water Alarm	Water detected at a minimum of 1.116" (2.83cm)				
	Fuel Alarm	Fuel detected 1.368" (3.47cm)				
	Sensor Comm Alarm	Sensor not communicating to ATG / Console				
Installation Kit	330020-012	Universal Sensor Mounting Kit (Sold separately)				
Example Installation						



IMPORTANT!
DO NOT MOUNT SENSOR TO FLEXIBLE PRODUCT LINE.

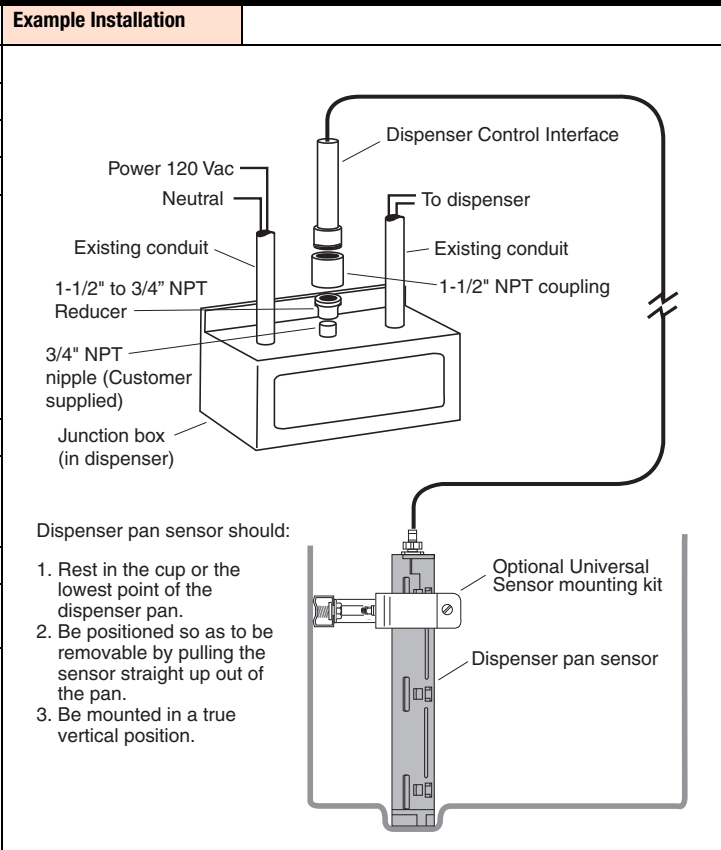
Sensor Description	Solid State - Non-Discriminating Dispenser Pan Sensor	This solid-state, non-discriminating sensor is installed typically in a dispenser pan location to detect the presence of a liquid. Its optical liquid level technology requires no moving parts, allowing it to operate in sub-zero temperatures.	Sensor Matrix 			
Form Number	794380-321					
Where Used (Typical)	<input checked="" type="checkbox"/> Dispenser Pan <input type="checkbox"/> Annular Space <input checked="" type="checkbox"/> Spill Containment <input type="checkbox"/> Monitoring Well <input type="checkbox"/> STP Sump <input type="checkbox"/> Oil/Water Separator Tank <input type="checkbox"/> Convault Tank	Category <input type="checkbox"/> Discriminating <input checked="" type="checkbox"/> Non-Discriminating <input type="checkbox"/> Position Sensitive <input type="checkbox"/> Level Sensing <input type="checkbox"/> Static Testing <input type="checkbox"/> Hydrostatic				
Fuel Compatibility 	<input checked="" type="checkbox"/> Gas <input checked="" type="checkbox"/> E-15 <input checked="" type="checkbox"/> Green Diesel <input checked="" type="checkbox"/> Diesel <input type="checkbox"/> E-85 <input type="checkbox"/> DEF <input checked="" type="checkbox"/> Kerosene <input type="checkbox"/> E-100 <input checked="" type="checkbox"/> Waste Oil <input checked="" type="checkbox"/> Jet Fuel <input checked="" type="checkbox"/> Bio-Diesel 20 <input checked="" type="checkbox"/> Motor Oil <input checked="" type="checkbox"/> Aviation Gas <input checked="" type="checkbox"/> Bio-Diesel 100					
Console Compatibility (*International Only¹)	Min. Console Software	Sensor Interface Modules				
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	332812-001				
¹ TLS4 (8601 Series)	6A or Higher	330020-750	Universal Sensor Input Output Module (USIOM-AC)	1	12	Included
TLS4i (8601 Series)		330020-750				
¹ TLS4B (8601 Series)		330020-751			6	
TLS4c (8601 Series)		330020-751				
TLS-350/R/PLUS	124/324 or Higher	329950-001	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 Present				
	Fuel Alarm	Gasoline or Water 1.02" (2.6cm)				
	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		 <p>*Dispenser pan sensor should:</p> <ol style="list-style-type: none"> 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. 			
Product Activation Height	Gasoline or Water 1.02" (2.6cm)					
Operating Temp	-40 to +140°F (-40 to +60°C)					
Dimensions	11.6" (29.4cm) high, 2.2" (5.6cm) dia.					
Miscellaneous / Notes	Standard Cable Length: 5 Feet					
Third Party Evaluation	http://www.nwglde.org/evals/veeder-root_o.html					
Links	http://www.veeder.com/us/products/tls-automatic-tank-gauge-systems/sensors/dispenser-pan-monitoring-sensors					
Warranty with System	1 Yr Parts & Labor					
Warranty (When purchased separately)	1 Yr Parts Only					



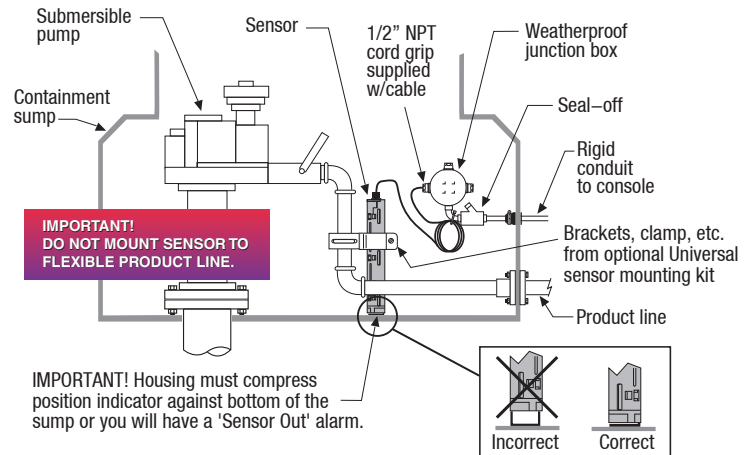


Sensor Description	Solid State - Non-Discriminating Containment Sump Sensor This solid-state, non-discriminating sensor is installed typically in a containment sump area to detect the presence of a liquid. Its optical liquid level technology requires no moving parts, allowing it to operate in sub-zero temperatures.		Sensor Matrix 			
Form Number	794380-351					
Where Used (Typical)	<input type="checkbox"/> Dispenser Pan <input type="checkbox"/> Annular Space <input checked="" type="checkbox"/> Spill Containment <input type="checkbox"/> Monitoring Well <input checked="" type="checkbox"/> STP Sump <input type="checkbox"/> Oil/Water Separator Tank <input type="checkbox"/> Convault Tank		Category <input type="checkbox"/> Discriminating <input checked="" type="checkbox"/> Non-Discriminating <input type="checkbox"/> Position Sensitive <input type="checkbox"/> Level Sensing <input type="checkbox"/> Static Testing <input type="checkbox"/> Hydrostatic			
Fuel Compatibility 	<input checked="" type="checkbox"/> Gas <input checked="" type="checkbox"/> E-15 <input checked="" type="checkbox"/> Green Diesel <input checked="" type="checkbox"/> Diesel <input type="checkbox"/> E-85 <input type="checkbox"/> DEF <input checked="" type="checkbox"/> Kerosene <input type="checkbox"/> E-100 <input checked="" type="checkbox"/> Waste Oil <input checked="" type="checkbox"/> Jet Fuel <input checked="" type="checkbox"/> Bio-Diesel 20 <input checked="" type="checkbox"/> Motor Oil <input checked="" type="checkbox"/> Aviation Gas <input checked="" type="checkbox"/> Bio-Diesel 100					
Console Compatibility (*International Only¹)	Sensor Interface Modules					
TLS-450PLUS (8600 Series)	Min. Console Software 6A or Higher	Module Form # 332812-001	Module Description Universal Sensor Module (USM)	# Of Modules Per Console Up to 4 - TLS-4XX Up to 8 - TLS-4XX w/opt. TLS-XB	# Of Sensor Inputs Per Module 16	Availability Sold Separately
¹ TLS4 (8601 Series) TLS4i (8601 Series) ¹ TLS4B (8601 Series) TLS4c (8601 Series)	6A or Higher	330020-750 330020-750 330020-751 330020-751	Universal Sensor Input Output Module (USIOM-AC)	1	12 6	Included
TLS-350/R/PLUS TLS-350J TLS-300i TLS-300C	124/324 or Higher	329356-0043 329356-003 330230-001 330513-001	Interstitial Sensor Interface Module 4 Probe / 4 Sensor Interface Module 4 Probe / 8 Sensor Interface Module 2 Probe / 8 Sensor Options	Up to 8 1	8 4 8	Sold Separately Sold Separately Included
Alarm Notification	Normal	Sensor in Normal State- No Liquid Present				
	Fuel Alarm	Gasoline or Water 1.02" (2.6cm)				
	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	Gasoline or Water 1.02" (2.6cm)					
Operating Temp	-40 to +140°F (-40 to +60°C)					
Dimensions	11.6" (29.4cm) high, 2.2" (5.6cm) dia.					
Miscellaneous / Notes	Standard Cable Length: 5 Feet					
Third Party Evaluation	http://www.nwglde.org/evals/veeder_root_o.html					
Links	http://www.veeder.com/us/products/tls-automatic-tank-gauge-systems/sensors/dispenser-pan-monitoring-sensors					
Warranty with System	1 Yr Parts & Labor					
Warranty (When purchased separately)	1 Yr Parts Only					



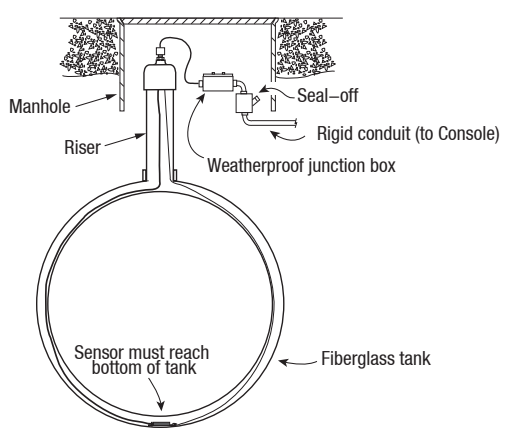




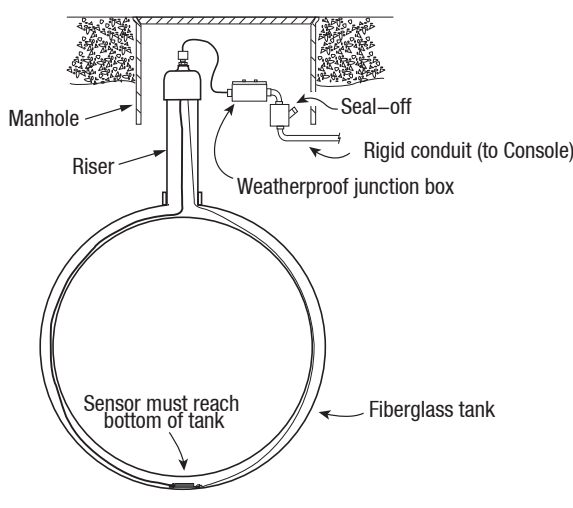
Sensor Description	Piping Sump Sensor	The piping Sump Sensor is install in a tank piping sump (STP Containment Sump) and will detect the presence of a liquid.	Sensor Matrix 			
Form Number	794380-208					
Where Used (Typical)	<input checked="" type="checkbox"/> Dispenser Pan <input type="checkbox"/> Annular Space <input checked="" type="checkbox"/> Spill Containment <input type="checkbox"/> Monitoring Well <input checked="" type="checkbox"/> STP Sump <input type="checkbox"/> Oil/Water Separator Tank <input type="checkbox"/> Convault Tank		Category			
Fuel Compatibility	 <input checked="" type="checkbox"/> Gas <input checked="" type="checkbox"/> E-15 <input checked="" type="checkbox"/> Green Diesel <input checked="" type="checkbox"/> Diesel <input type="checkbox"/> E-85 <input type="checkbox"/> DEF <input checked="" type="checkbox"/> Kerosene <input type="checkbox"/> E-100 <input checked="" type="checkbox"/> Waste Oil <input checked="" type="checkbox"/> Jet Fuel <input checked="" type="checkbox"/> Bio-Diesel 20 <input checked="" type="checkbox"/> Motor Oil <input checked="" type="checkbox"/> Aviation Gas <input type="checkbox"/> Bio-Diesel 100		<input type="checkbox"/> Discriminating <input checked="" type="checkbox"/> Non-Discriminating <input type="checkbox"/> Position Sensitive <input type="checkbox"/> Level Sensing <input type="checkbox"/> Static Testing <input type="checkbox"/> Hydrostatic			
Console Compatibility (*International Only¹)	Min. Console Software	Sensor Interface Modules				
		Module Form #	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	332812-001				
¹ TLS4 (8601 Series)	6A or Higher	330020-750	Universal Sensor Input Output Module (USIOM-AC)	1	12	Included
TLS4i (8601 Series)		330020-750				
¹ TLS4B (8601 Series)		330020-751				
TLS4c (8601 Series)		330020-751				
TLS-350/R/PLUS	124/324 or Higher	329356-004	Interstitial Sensor Interface Module	Up to 8	8	Sold Separately
TLS-350J		329356-003	4 Probe / 4 Sensor Interface Module			
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 Present				
	Fuel Alarm	Liquid present				
	High Liquid	Sensor not communicating to ATG / Console				
Installation Kit	330020-076	Sensor Mounting Kit is included (see example installation below).				
Specifications			Example Installation			
Operating Principle	Float/magnetic reed switch		 <p>*Sump sensor should:</p> <ol style="list-style-type: none"> 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. 			
Product Activation Height	Liquid 1.84" (4.67cm)					
Operating Temp	0 to +140°F (0 to +60°C)					
Dimensions	12" (30.5cm) high, 1.9" (4.8cm) dia.					
Miscellaneous / Notes	Standard Cable Length: 12Feet (3.66m). Installation kit 330020-076 included (see example installation).					
Third Party Evaluation	http://www.nwglde.org/evals/veeder_root_o.html					
Links	http://www.veeder.com/us/products/tls-automatic-tank-gauge-systems/sensors/dispenser-pan-monitoring-sensors					
Warranty with System	1 Yr Parts & Labor					
Warranty (When purchased separately)	1 Yr Parts Only					



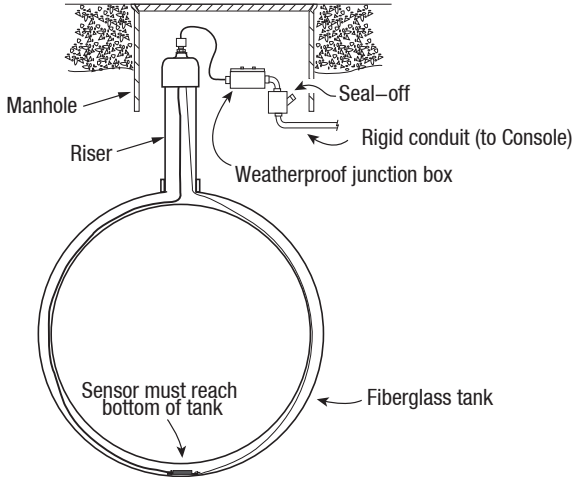
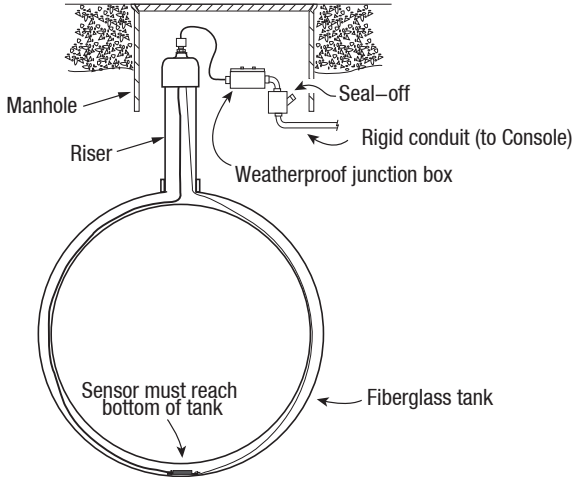
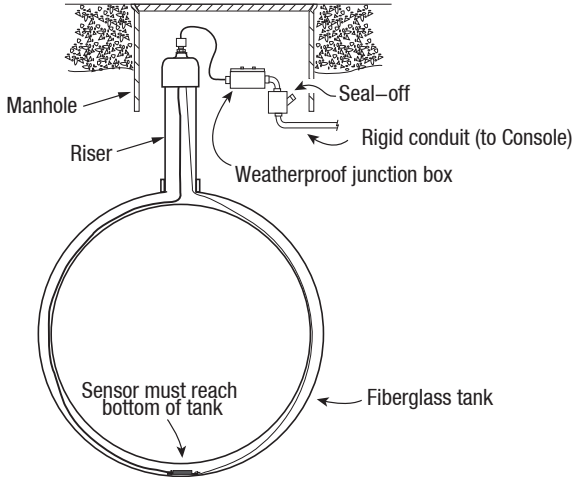
Sensor Description	Non-Discriminating Stand-Alone Dispenser Pan Sensor	The Non-Discriminating Stand-Alone Dispenser Pan Sensor is designed to detect liquid in a dispenser pan containment. When fluid is detected in the dispenser pan, this sensor shuts down (removes) AC power to the dispenser without the 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.	Sensor Matrix 
Form Number	847990-001		
Where Used (Typical)	<input checked="" type="checkbox"/> Dispenser Pan <input checked="" type="checkbox"/> Spill Containment <input checked="" type="checkbox"/> STP Sump <input type="checkbox"/> Convault Tank <input type="checkbox"/> Annular Space <input type="checkbox"/> Monitoring Well <input type="checkbox"/> Oil/Water Separator Tank	Category <input type="checkbox"/> Discriminating <input checked="" type="checkbox"/> Non-Discriminating <input type="checkbox"/> Position Sensitive <input type="checkbox"/> Level Sensing <input type="checkbox"/> Static Testing <input type="checkbox"/> Hydrostatic	
Fuel Compatibility 	<input checked="" type="checkbox"/> Gas <input checked="" type="checkbox"/> Diesel <input checked="" type="checkbox"/> Kerosene <input checked="" type="checkbox"/> Jet Fuel <input checked="" type="checkbox"/> Aviation Gas <input checked="" type="checkbox"/> E-15 <input type="checkbox"/> E-85 <input type="checkbox"/> E-100 <input checked="" type="checkbox"/> Bio-Diesel 20 <input type="checkbox"/> Bio-Diesel 100 <input checked="" type="checkbox"/> Green Diesel <input type="checkbox"/> DEF <input checked="" type="checkbox"/> Waste Oil <input checked="" type="checkbox"/> Motor Oil		
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 Temp	0 to +140°F (0 to +60°C) (freezing liquids)		
Dimensions	11.6" (29.4cm) high, 2.2" (5.6cm) dia.		
Miscellaneous / Notes	<ul style="list-style-type: none"> • Latching alarm circuitry ensures dispenser can't be restarted until hazardous condition has been corrected. • Connects directly to dispenser wiring. • Controls most manufacturer's dispensers. • Cable length: 5 feet (1.5m). • Control interface dimensions: 9.4" (23.9cm) high, 2.2" (5.6cm) dia. 		
Third Party Evaluation	http://www.nwglde.org/evals/veeder_root_o.html		
Links	http://www.veeder.com/us/products/tls-automatic-tank-gauge-systems/sensors/dispenser-pan-monitoring-sensors		
Warranty with System	1 Yr Parts & Labor		
Warranty (When purchased separately)	1 Yr Parts Only		



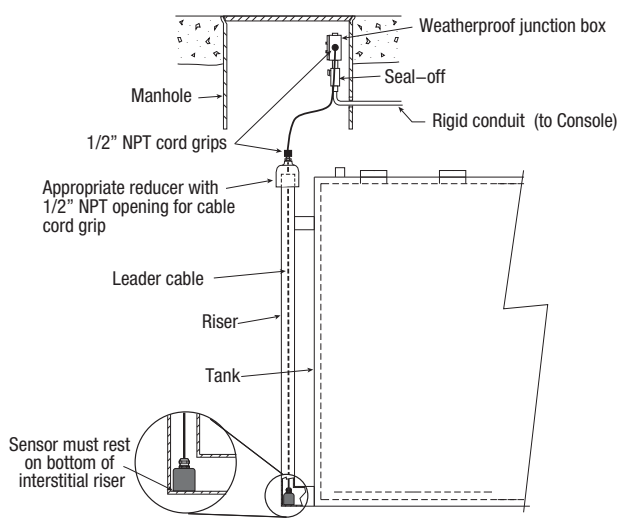




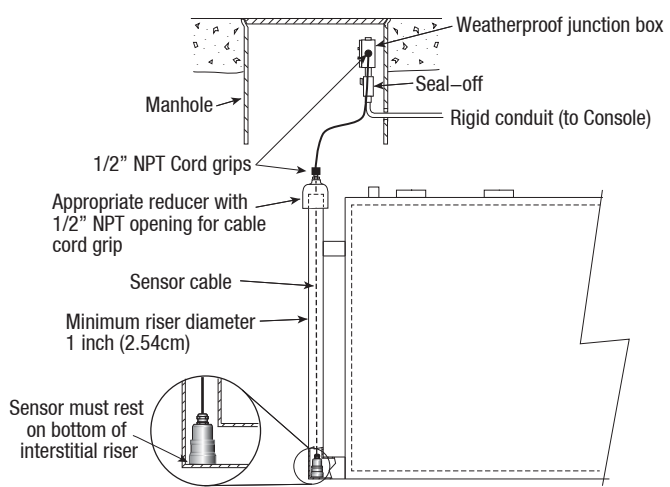
Sensor Description	Position Sensitive Sensor	This Sensor is installed in a containment sump or dispenser pan and will detect the presence of, and differentiate between, hydrocarbons and other liquids.		Sensor Matrix 		
Form Number	794380-323					
Where Used (Typical)	<input checked="" type="checkbox"/> Dispenser Pan <input type="checkbox"/> Annular Space <input checked="" type="checkbox"/> Spill Containment <input type="checkbox"/> Monitoring Well <input checked="" type="checkbox"/> STP Sump <input type="checkbox"/> Oil/Water Separator Tank <input type="checkbox"/> Convault Tank			Category		
Fuel Compatibility	 <input checked="" type="checkbox"/> Gas <input checked="" type="checkbox"/> E-15 <input checked="" type="checkbox"/> Green Diesel <input checked="" type="checkbox"/> Diesel <input checked="" type="checkbox"/> E-85 <input type="checkbox"/> DEF <input checked="" type="checkbox"/> Kerosene <input checked="" type="checkbox"/> E-100 <input checked="" type="checkbox"/> Waste Oil <input checked="" type="checkbox"/> Jet Fuel <input checked="" type="checkbox"/> Bio-Diesel 20 <input checked="" type="checkbox"/> Motor Oil <input checked="" type="checkbox"/> Aviation Gas <input type="checkbox"/> Bio-Diesel 100			<input type="checkbox"/> Discriminating <input checked="" type="checkbox"/> Non-Discriminating <input checked="" type="checkbox"/> Position Sensitive <input type="checkbox"/> Level Sensing <input type="checkbox"/> Static Testing <input type="checkbox"/> Hydrostatic		
Console Compatibility (*International Only¹)	Min. Console Software	Sensor Interface Modules				
		Module Form #	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	332812-001				
¹ TLS4 (8601 Series)	6A or Higher	330020-750	Universal Sensor Input Output Module (USIOM-AC)	1	12	Included
TLS4i (8601 Series)		330020-750				
¹ TLS4B (8601 Series)		330020-751				
TLS4c (8601 Series)		330020-751				
TLS-350/R/PLUS	124/324 or higher	329356-004	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 present				
	Sensor Out alarm	Sensor not resting on bottom of containment				
	Fuel alarm	Liquid present in containment area				
	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		 <p>IMPORTANT! DO NOT MOUNT SENSOR TO FLEXIBLE PRODUCT LINE.</p> <p>IMPORTANT! Housing must compress position indicator against bottom of the sump or you will have a 'Sensor Out' alarm.</p> <p>Incorrect  Correct </p>			
Product Activation Height	1.52" (3.86cm)					
Operating Temp	0 to +140°F (0 to +60°C)					
Dimensions	12" (30.5cm) high, 2.2" (5.6cm) dia.					
Miscellaneous / Notes	Standard Cable Length: 12Feet (3.66m).					
Third Party Evaluation	http://www.nwglde.org/evals/veeder_root_o.html					
Links	http://www.veeder.com/us/products/tls-automatic-tank-gauge-systems/sensors/dispenser-pan-monitoring-sensors					
Warranty with System	1 Yr Parts & Labor					
Warranty (When purchased separately)	1 Yr Parts Only					



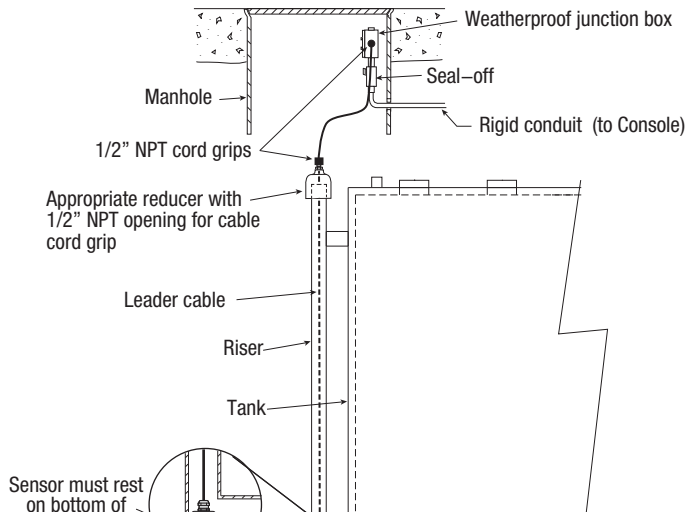
Sensor Description	Solid State (Optical) Discriminating Interstitial Sensor for Double-Wall Fiberglass Tanks	The Discriminating Interstitial Sensor for double-wall fiberglass tanks uses solid-state liquid level sensing technology to detect liquid in the interstitial space of the tank.	Sensor Matrix 			
Form Number	794380-343					
Where Used (Typical)	<input type="checkbox"/> Dispenser Pan <input type="checkbox"/> Spill Containment <input type="checkbox"/> STP Sump <input checked="" type="checkbox"/> Convault Tank <input checked="" type="checkbox"/> Annular Space <input type="checkbox"/> Monitoring Well <input type="checkbox"/> Oil/Water Separator Tank	Category				
Fuel Compatibility	 <input checked="" type="checkbox"/> Gas <input checked="" type="checkbox"/> Diesel <input checked="" type="checkbox"/> Kerosene <input checked="" type="checkbox"/> Jet Fuel <input checked="" type="checkbox"/> Aviation Gas <input checked="" type="checkbox"/> E-15 <input type="checkbox"/> E-85 <input type="checkbox"/> E-100 <input checked="" type="checkbox"/> Bio-Diesel 20 <input checked="" type="checkbox"/> Bio-Diesel 100 <input checked="" type="checkbox"/> Green Diesel <input checked="" type="checkbox"/> DEF <input checked="" type="checkbox"/> Waste Oil <input checked="" type="checkbox"/> Motor Oil	<input checked="" type="checkbox"/> Discriminating <input type="checkbox"/> Non-Discriminating <input type="checkbox"/> Position Sensitive <input type="checkbox"/> Level Sensing <input type="checkbox"/> Static Testing <input type="checkbox"/> Hydrostatic				
Console Compatibility (*International Only¹)	Sensor Interface Modules					
	Min. Console Software	Module Form #	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	332812-001				
¹ TLS4 (8601 Series)	6A or Higher	330020-750	Universal Sensor Input Output Module (USIOM-AC)	1	12	Included
TLS4i (8601 Series)		330020-750				
¹ TLS4B (8601 Series)		330020-751				
TLS4c (8601 Series)		330020-751				
TLS-350/R/PLUS	124/324 or Higher	329356-004	Type A 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 present				
	Liquid alarm	Liquid detected at a minimum of 0.1 inch (0.25cm)				
	Fuel alarm	Conductivity				
	Sensor out	Sensor not communicating to ATG / Console				
Installation Kit	330020-012	Universal Sensor Mounting Kit (Sold separately)				
Specifications			Example Installation			
Operating Principle	Optical sensor and conductivity					
Product Activation Height	Gasoline <0.1" (0.25cm); Water <0.1"					
Operating Temp	0 to +140°F (0 to +60°C)					
Dimensions	4.3" (11cm) length, 1.5" (3.8cm) width, 0.5" (1.3cm) thick					
Miscellaneous / Notes	Standard Cable 25 feet (7.6m) Fits 4 to 10 foot [1.2 to 3m] I.D.fiberglass tanks					
Third Party Evaluation	http://www.nwglde.org/evals/veeder_root_o.html					
Links	http://www.veeder.com/us/products/tls-automatic-tank-gauge-systems/sensors/dispenser-pan-monitoring-sensors					
Warranty with System	1 Yr Parts & Labor					
Warranty (When purchased separately)	1 Yr Parts Only					



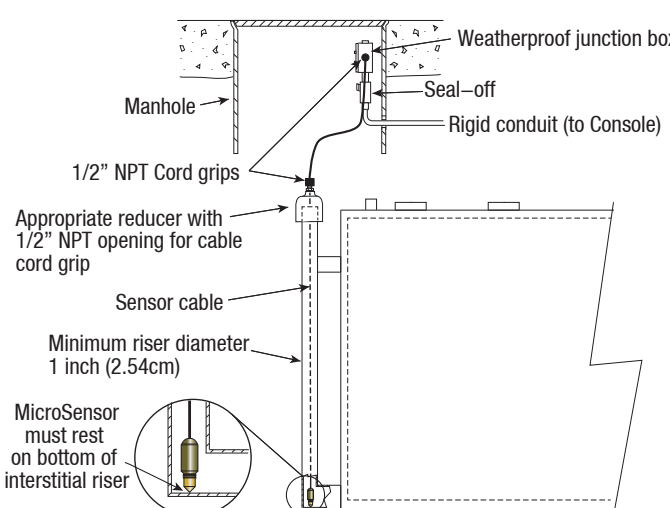
Sensor Description	Interstitial Sensor for Double-Wall Fiberglass Tanks	The Non-Discriminating Interstitial Sensor for double-wall fiberglass tanks detects the presence of liquid in the interstitial space of the tank.		Sensor Matrix 		
Form Number	794380-409					
Where Used (Typical)	<input type="checkbox"/> Dispenser Pan <input checked="" type="checkbox"/> Annular Space <input type="checkbox"/> Spill Containment <input type="checkbox"/> Monitoring Well <input type="checkbox"/> STP Sump <input type="checkbox"/> Oil/Water Separator Tank <input checked="" type="checkbox"/> Convault Tank			Category		
Fuel Compatibility	 <input checked="" type="checkbox"/> Gas <input checked="" type="checkbox"/> E-15 <input checked="" type="checkbox"/> Green Diesel <input checked="" type="checkbox"/> Diesel <input type="checkbox"/> E-85 <input type="checkbox"/> DEF <input checked="" type="checkbox"/> Kerosene <input type="checkbox"/> E-100 <input checked="" type="checkbox"/> Waste Oil <input checked="" type="checkbox"/> Jet Fuel <input checked="" type="checkbox"/> Bio-Diesel 20 <input checked="" type="checkbox"/> Motor Oil <input checked="" type="checkbox"/> Aviation Gas <input type="checkbox"/> Bio-Diesel 100			<input type="checkbox"/> Discriminating <input checked="" type="checkbox"/> Non-Discriminating <input type="checkbox"/> Position Sensitive <input type="checkbox"/> Level Sensing <input type="checkbox"/> Static Testing <input type="checkbox"/> Hydrostatic		
Console Compatibility (*International Only¹)	Min. Console Software	Sensor Interface Modules				
		Module Form #	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	332812-001				
¹ TLS4 (8601 Series)	6A or Higher	330020-750	Universal Sensor Input Output Module (USIOM-AC)	1	12	Included
TLS4i (8601 Series)		330020-750				
¹ TLS4B (8601 Series)		330020-751				
TLS4c (8601 Series)		330020-751				
TLS-350/R/PLUS	124/324 or Higher	329356-004	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 present				
	Liquid alarm	Reed switch closed, liquid present				
	Sensor out	Sensor not communicating to ATG / Console				
Installation Kit	330020-012	Universal Sensor Mounting Kit (Sold separately)				
Specifications			Example Installation			
Operating Principle	Reed switch / float					
Product Activation Height	0.72" (1.84cm)					
Operating Temp	-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 25 feet (7.6m) Fits 4 to 10 foot [1.2 to 3m] I.D.fiberglass tanks					
Third Party Evaluation	http://www.nwglde.org/evals/veeder_root_o.html					
Links	http://www.veeder.com/us/products/tls-automatic-tank-gauge-systems/sensors/dispenser-pan-monitoring-sensors					
Warranty with System	1 Yr Parts & Labor					
Warranty (When purchased separately)	1 Yr Parts Only					



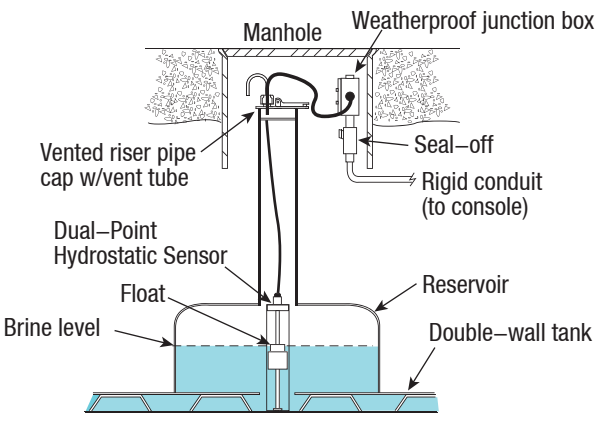
Sensor Description	Solid-State Alternative Ethanol Fluid Interstitial Sensor for Double-Wall Fiberglass Tanks		The interstitial sensor for double-wall fiberglass tanks with high alcohol product uses solid-state liquid level sensing technology to detect liquid in the interstitial space of the tank.		Sensor Matrix 																																												
Form Number	794380-345																																																
Where Used (Typical)	<input type="checkbox"/> Dispenser Pan <input checked="" type="checkbox"/> Annular Space <input type="checkbox"/> Spill Containment <input type="checkbox"/> Monitoring Well <input type="checkbox"/> STP Sump <input type="checkbox"/> Oil/Water Separator Tank <input checked="" type="checkbox"/> Convault Tank		Category <input type="checkbox"/> Discriminating <input checked="" type="checkbox"/> Non-Discriminating <input type="checkbox"/> Position Sensitive <input type="checkbox"/> Level Sensing <input type="checkbox"/> Static Testing <input type="checkbox"/> Hydrostatic																																														
Fuel Compatibility 	<input checked="" type="checkbox"/> Gas <input checked="" type="checkbox"/> E-15 <input checked="" type="checkbox"/> Green Diesel <input checked="" type="checkbox"/> Diesel <input checked="" type="checkbox"/> E-85 <input checked="" type="checkbox"/> DEF <input checked="" type="checkbox"/> Kerosene <input checked="" type="checkbox"/> E-100 <input checked="" type="checkbox"/> Waste Oil <input checked="" type="checkbox"/> Jet Fuel <input checked="" type="checkbox"/> Bio-Diesel 20 <input checked="" type="checkbox"/> Motor Oil <input checked="" type="checkbox"/> Aviation Gas <input checked="" type="checkbox"/> Bio-Diesel 100																																																
Console Compatibility (*International Only¹)	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">Min. Console Software</th> <th colspan="5" style="text-align: center;">Sensor Interface Modules</th> </tr> <tr> <th>Module Form #</th> <th>Module Description</th> <th># Of Modules Per Console</th> <th># Of Sensor Inputs Per Module</th> <th>Availability</th> <th></th> </tr> </thead> <tbody> <tr> <td>332812-001</td> <td rowspan="2">Universal Sensor Module (USM)</td> <td rowspan="2">Up to 4 - TLS-4XX Up to 8 - TLS-4XX w/opt. TLS-XB</td> <td rowspan="2">16</td> <td rowspan="2">Sold Separately</td> <td></td> </tr> <tr> <td>330020-750</td> </tr> <tr> <td>330020-750</td> <td rowspan="3">Universal Sensor Input Output Module (USIOM-AC)</td> <td rowspan="3">1</td> <td rowspan="3">12</td> <td rowspan="3">Included</td> <td></td> </tr> <tr> <td>330020-751</td> </tr> <tr> <td>330020-751</td> </tr> <tr> <td>329356-004</td> <td rowspan="4">Interstitial Sensor Interface Module</td> <td rowspan="4">Up to 8</td> <td rowspan="4">8</td> <td rowspan="4">Sold Separately</td> <td></td> </tr> <tr> <td>329356-003</td> <td>4 Probe / 4 Sensor Interface Module</td> <td>4</td> <td>Sold Separately</td> </tr> <tr> <td>330230-001</td> <td>4 Probe / 8 Sensor Interface Module</td> <td rowspan="2">1</td> <td rowspan="2">8</td> <td rowspan="2">Included</td> </tr> <tr> <td>330513-001</td> <td>2 Probe / 8 Sensor Options</td> </tr> </tbody> </table>					Min. Console Software	Sensor Interface Modules					Module Form #	Module Description	# Of Modules Per Console	# Of Sensor Inputs Per Module	Availability		332812-001	Universal Sensor Module (USM)	Up to 4 - TLS-4XX Up to 8 - TLS-4XX w/opt. TLS-XB	16	Sold Separately		330020-750	330020-750	Universal Sensor Input Output Module (USIOM-AC)	1	12	Included		330020-751	330020-751	329356-004	Interstitial Sensor Interface Module	Up to 8	8	Sold Separately		329356-003	4 Probe / 4 Sensor Interface Module	4	Sold Separately	330230-001	4 Probe / 8 Sensor Interface Module	1	8	Included	330513-001	2 Probe / 8 Sensor Options
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Alarm Notification	Normal Fuel alarm Sensor out	Sensor in normal state- optical phase correct - no liquid present Optical light phase change Sensor not communicating to ATG / Console																																															
Installation Kit	330020-012	Universal Sensor Mounting Kit (Sold separately)																																															
Specifications	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 40%;">Specifications</th> <th style="width: 60%;">Example Installation</th> </tr> </thead> <tbody> <tr> <td> Operating Principle Optical - looking at phase changes in the light beams by causing them to interact or interfere with one another </td> <td rowspan="8" style="text-align: center; vertical-align: middle;">  </td> </tr> <tr> <td> Product Activation Height Gasoline <0.2" (0.5cm); water <0.2" </td> </tr> <tr> <td> Operating Temp 14 to +140°F (-10 to +60°C) </td> </tr> <tr> <td> Dimensions 4.3" (11cm) length, 1.5" (3.8cm) width, 0.5" (1.3cm) thick </td> </tr> <tr> <td> Miscellaneous / Notes Standard Cable 25 feet (7.6m) Fits 4 to 10 foot [1.2 to 3m] I.D.fiberglass tanks </td> </tr> <tr> <td> Third Party Evaluation http://www.nwglde.org/evals/veeder_root_o.html </td> </tr> <tr> <td> Links http://www.veeder.com/us/products/tls-automatic-tank-gauge-systems/sensors/dispenser-pan-monitoring-sensors </td> </tr> <tr> <td> Warranty with System 1 Yr Parts & Labor </td> </tr> <tr> <td> Warranty (When purchased separately) 1 Yr Parts Only </td> </tr> </tbody> </table>					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 Gasoline <0.2" (0.5cm); water <0.2"	Operating Temp 14 to +140°F (-10 to +60°C)	Dimensions 4.3" (11cm) length, 1.5" (3.8cm) width, 0.5" (1.3cm) thick	Miscellaneous / Notes Standard Cable 25 feet (7.6m) Fits 4 to 10 foot [1.2 to 3m] I.D.fiberglass tanks	Third Party Evaluation http://www.nwglde.org/evals/veeder_root_o.html	Links http://www.veeder.com/us/products/tls-automatic-tank-gauge-systems/sensors/dispenser-pan-monitoring-sensors	Warranty with System 1 Yr Parts & Labor	Warranty (When purchased separately) 1 Yr Parts Only																																
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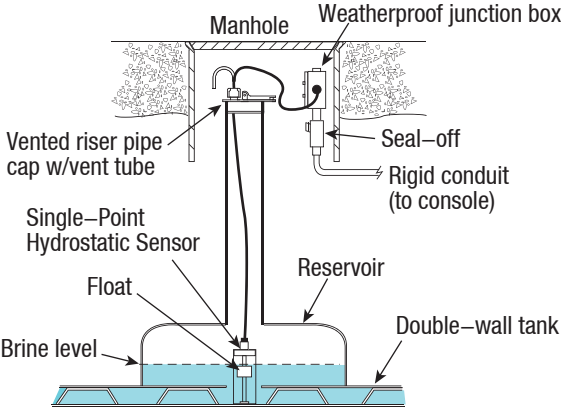
Sensor Description	Interstitial Sensors for Steel Tanks	The Interstitial Sensor for steel tanks is non-discriminating and detects the presence of liquid between the double walls of the tank.		Sensor Matrix 		
Form Number	794390-420 (16' cable); 794390-460 (30' cable)					
Where Used (Typical)	<input type="checkbox"/> Dispenser Pan <input checked="" type="checkbox"/> Annular Space <input type="checkbox"/> Spill Containment <input type="checkbox"/> Monitoring Well <input type="checkbox"/> STP Sump <input type="checkbox"/> Oil/Water Separator Tank <input checked="" type="checkbox"/> Convault Tank			Category		
Fuel Compatibility	 <input checked="" type="checkbox"/> Gas <input checked="" type="checkbox"/> E-15 <input checked="" type="checkbox"/> Green Diesel <input checked="" type="checkbox"/> Diesel <input type="checkbox"/> E-85 <input type="checkbox"/> DEF <input checked="" type="checkbox"/> Kerosene <input type="checkbox"/> E-100 <input checked="" type="checkbox"/> Waste Oil <input checked="" type="checkbox"/> Jet Fuel <input checked="" type="checkbox"/> Bio-Diesel 20 <input checked="" type="checkbox"/> Motor Oil <input checked="" type="checkbox"/> Aviation Gas <input type="checkbox"/> Bio-Diesel 100			<input type="checkbox"/> Discriminating <input checked="" type="checkbox"/> Non-Discriminating <input type="checkbox"/> Position Sensitive <input type="checkbox"/> Level Sensing <input type="checkbox"/> Static Testing <input type="checkbox"/> Hydrostatic		
Console Compatibility (*International Only¹)	Sensor Interface Modules					
	Min. Console Software	Module Form #	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	332812-001				
¹ TLS4 (8601 Series)	6A or Higher	330020-750	Universal Sensor Input Output Module (USIOM-AC)	1	12	Included
TLS4i (8601 Series)		330020-750				
¹ TLS4B (8601 Series)		330020-751				
TLS4c (8601 Series)		330020-751				
TLS-350/R/PLUS	124/324 or Higher	329356-004	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- optical phase correct - no liquid present				
	Fuel alarm	Liquid present				
	Sensor out	Sensor not communicating to ATG / Console				
Installation Kit	330020-012	Universal Sensor Mounting Kit (Sold separately)				
Specifications			Example Installation			
Operating Principle	Reed switch / float					
Product Activation Height	1.59" (4.05cm)					
Operating Temp	-4 to +140°F (-20 to +60°C)					
Dimensions	2.5" (6.4cm) high, 1.5" (3.8cm) diameter					
Miscellaneous / Notes	794380-420 (cable 16 feet [4.9m]); 794380-460 (cable 30 feet [9.1m]); 312020-928 (2" [50mm] Riser cap and adapter kit)					
Third Party Evaluation	http://www.nwglde.org/evals/veeder_root_o.html					
Links	http://www.veeder.com/us/products/tls-automatic-tank-gauge-systems/sensors/dispenser-pan-monitoring-sensors					
Warranty with System	1 Yr Parts & Labor					
Warranty (When purchased separately)	1 Yr Parts Only					



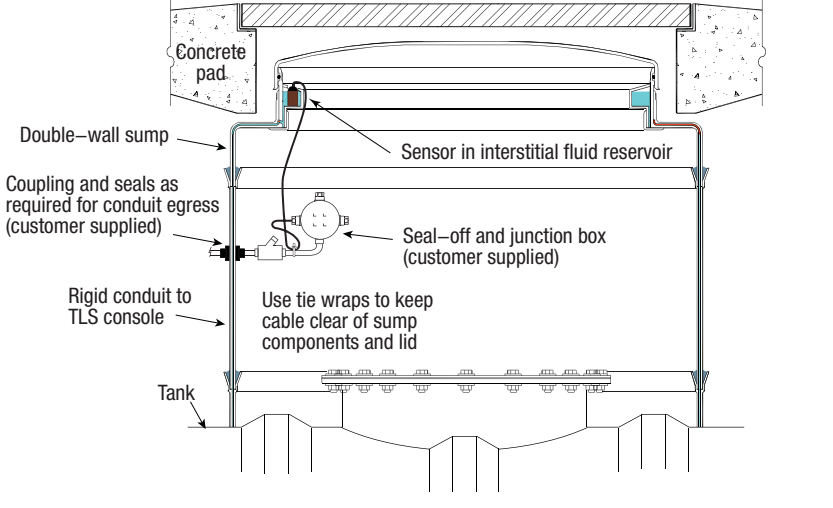
Sensor Description	Position Sensitive Interstitial Sensor for Steel Tanks	The sensor detects the presence of liquid in small containment areas (i.e., spill buckets) of double wall steel tanks. In addition, it provides an alarm when the sensor is not positioned correctly on the bottom of the interstitial space.	Sensor Matrix 			
Form Number	794380-333					
Where Used (Typical)	<input type="checkbox"/> Dispenser Pan <input checked="" type="checkbox"/> Spill Containment <input type="checkbox"/> STP Sump <input type="checkbox"/> Convault Tank <input checked="" type="checkbox"/> Annular Space <input type="checkbox"/> Monitoring Well <input type="checkbox"/> Oil/Water Separator Tank	Category				
Fuel Compatibility	 <input checked="" type="checkbox"/> Gas <input checked="" type="checkbox"/> Diesel <input checked="" type="checkbox"/> Kerosene <input checked="" type="checkbox"/> Jet Fuel <input checked="" type="checkbox"/> Aviation Gas <input checked="" type="checkbox"/> E-15 <input checked="" type="checkbox"/> E-85 <input checked="" type="checkbox"/> E-100 <input checked="" type="checkbox"/> Bio-Diesel 20 <input checked="" type="checkbox"/> Bio-Diesel 100 <input checked="" type="checkbox"/> Green Diesel <input type="checkbox"/> DEF <input checked="" type="checkbox"/> Waste Oil <input checked="" type="checkbox"/> Motor Oil	<input type="checkbox"/> Discriminating <input checked="" type="checkbox"/> Non-Discriminating <input checked="" type="checkbox"/> Position Sensitive <input type="checkbox"/> Level Sensing <input type="checkbox"/> Static Testing <input type="checkbox"/> Hydrostatic				
Console Compatibility (*International Only¹)	Min. Console Software	Sensor Interface Modules				
		Module Form #	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	332812-001				
¹ TLS4 (8601 Series)	6A or Higher	330020-750	Universal Sensor Input Output Module (USIOM-AC)	1	12	Included
TLS4i (8601 Series)		330020-750				
¹ TLS4B (8601 Series)		330020-751				
TLS4c (8601 Series)		330020-751				
TLS-350/R/PLUS	124/324 or Higher	329356-004	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 present				
	Fuel alarm	Not sitting correctly on bottom of interstitial space				
	Fuel alarm	Liquid present				
	Sensor out	Sensor not communicating to ATG / Console				
Installation Kit	330020-012	Universal Sensor Mounting Kit (Sold separately)				
Specifications		Example Installation				
Operating Principle	Reed Switch / Float					
Product Activation Height	1.25" (3.2cm)					
Operating Temp	-4 to +140°F (-20 to +60°C)					
Dimensions	3.5" (8.9cm) High, 1.75" (4.4cm) Diameter					
Miscellaneous / Notes	Standard Cable Length: 20 Feet (6.09m); 312020-928 (2" [50mm] Riser cap and adapter kit)					
Third Party Evaluation	http://www.nwglde.org/evals/veeder_root_o.html					
Links	http://www.veeder.com/us/products/tls-automatic-tank-gauge-systems/sensors/dispenser-pan-monitoring-sensors					
Warranty with System	1 Yr Parts & Labor					
Warranty (When purchased separately)	1 Yr Parts Only					



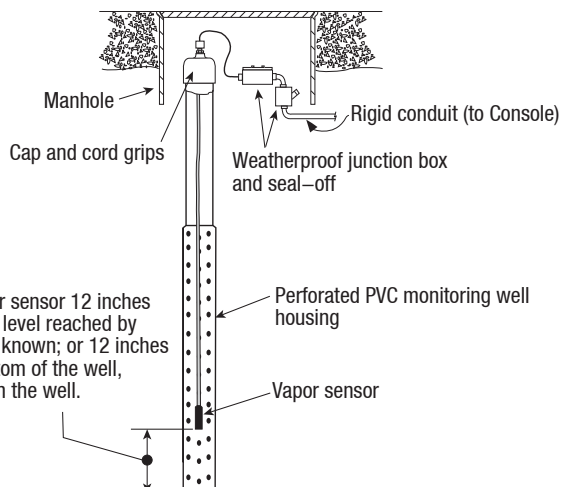
Sensor Description	Interstitial High Alcohol Sensors for Steel Tanks		The Interstitial Sensor for steel tanks with high alcohol product detects the presence of liquid between the double walls of the tank.		Sensor Matrix 	
Form Number	794380-430					
Where Used (Typical)	<input type="checkbox"/> Dispenser Pan <input checked="" type="checkbox"/> Annular Space <input type="checkbox"/> Spill Containment <input type="checkbox"/> Monitoring Well <input type="checkbox"/> STP Sump <input type="checkbox"/> Oil/Water Separator Tank <input checked="" type="checkbox"/> Convault Tank			Category		
Fuel Compatibility	 <input checked="" type="checkbox"/> Gas <input checked="" type="checkbox"/> E-15 <input checked="" type="checkbox"/> Green Diesel <input checked="" type="checkbox"/> Diesel <input checked="" type="checkbox"/> E-85 <input type="checkbox"/> DEF <input checked="" type="checkbox"/> Kerosene <input checked="" type="checkbox"/> E-100 <input checked="" type="checkbox"/> Waste Oil <input checked="" type="checkbox"/> Jet Fuel <input checked="" type="checkbox"/> Bio-Diesel 20 <input checked="" type="checkbox"/> Motor Oil <input checked="" type="checkbox"/> Aviation Gas <input checked="" type="checkbox"/> Bio-Diesel 100			<input type="checkbox"/> Discriminating <input checked="" type="checkbox"/> Non-Discriminating <input type="checkbox"/> Position Sensitive <input type="checkbox"/> Level Sensing <input type="checkbox"/> Static Testing <input type="checkbox"/> Hydrostatic		
Console Compatibility (*International Only¹)	Min. Console Software	Sensor Interface Modules				
		Module Form #	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	332812-001				
¹ TLS4 (8601 Series)	6A or Higher	330020-750	Universal Sensor Input Output Module (USIOM-AC)	1	12	Included
TLS4i (8601 Series)		330020-750				
¹ TLS4B (8601 Series)		330020-751				
TLS4c (8601 Series)		330020-751				
TLS-350/R/PLUS	124/324 or Higher	329356-004	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 present				
	Fuel alarm	Float switch raised				
	Sensor out	Sensor not communicating to ATG / Console				
Installation Kit	330020-012	Universal Sensor Mounting Kit (Sold separately)				
Specifications			Example Installation			
Operating Principle	Reed switch / float					
Product Activation Height	0.95" (2.4cm)					
Operating Temp	-4 to +140°F (-20 to +60°C)					
Dimensions	2.5" (6.4cm) high, 1.5" (3.8cm) diameter					
Miscellaneous / Notes	Standard cable 15 feet [4.5m] cable; 312020-928 (2" [50mm] Riser cap and adapter kit)					
Third Party Evaluation	http://www.nwglde.org/evals/veeder-root_o.html					
Links	http://www.veeder.com/us/products/tls-automatic-tank-gauge-systems/sensors/dispenser-pan-monitoring-sensors					
Warranty with System	1 Yr Parts & Labor					
Warranty (When purchased separately)	1 Yr Parts Only					



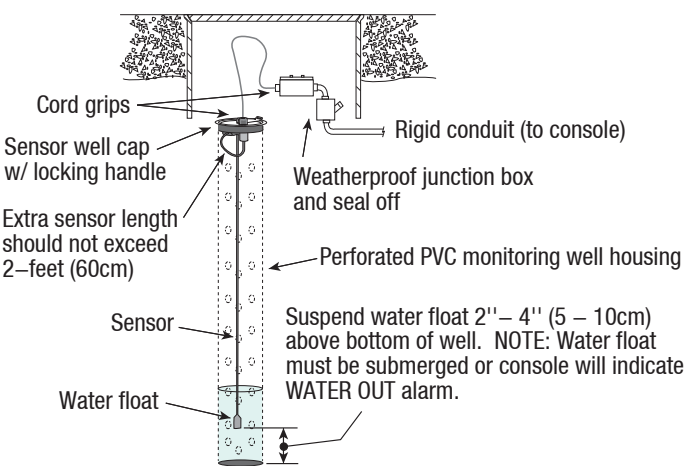
Sensor Description	MicroSensor	The non-discriminating small, easy to install solid-state MicroSensor is designed detect liquid in the interstitial space of a steel tank or a fill riser containment.		Sensor Matrix 	
Form Number	794380-344				
Where Used (Typical)	<input type="checkbox"/> Dispenser Pan <input checked="" type="checkbox"/> Annular Space <input type="checkbox"/> Spill Containment <input type="checkbox"/> Monitoring Well <input type="checkbox"/> STP Sump <input type="checkbox"/> Oil/Water Separator Tank <input checked="" type="checkbox"/> Convault Tank			Category	
Fuel Compatibility	 <input checked="" type="checkbox"/> Gas <input checked="" type="checkbox"/> E-15 <input checked="" type="checkbox"/> Green Diesel <input checked="" type="checkbox"/> Diesel <input checked="" type="checkbox"/> E-85 <input checked="" type="checkbox"/> DEF <input checked="" type="checkbox"/> Kerosene <input checked="" type="checkbox"/> E-100 <input checked="" type="checkbox"/> Waste Oil <input checked="" type="checkbox"/> Jet Fuel <input checked="" type="checkbox"/> Bio-Diesel 20 <input checked="" type="checkbox"/> Motor Oil <input checked="" type="checkbox"/> Aviation Gas <input checked="" type="checkbox"/> Bio-Diesel 100			<input type="checkbox"/> Discriminating <input checked="" type="checkbox"/> Non-Discriminating <input type="checkbox"/> Position Sensitive <input type="checkbox"/> Level Sensing <input type="checkbox"/> Static Testing <input type="checkbox"/> Hydrostatic	
Console Compatibility (*International Only¹)	Min. Console Software	Sensor Interface Modules			
		Module Form #	Module Description	# Of Modules Per Console	# Of Sensor Inputs Per Module
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
TLS-450	4A or Higher	332812-001			
¹ TLS4 (8601 Series)	6A or Higher	330020-750	Universal Sensor Input Output Module (USIOM-AC)	1	12
TLS4i (8601 Series)		330020-750			
¹ TLS4B (8601 Series)		330020-751			6
TLS4c (8601 Series)		330020-751			
TLS-350/R/PLUS	124/324 or Higher	329356-004	Interstitial Sensor Interface Module	Up to 8	8
TLS-350J		329356-003	4 Probe / 4 Sensor Interface Module	1	4
TLS-300i		330230-001	4 Probe / 8 Sensor Interface Module		8
TLS-300C		330513-001	2 Probe / 8 Sensor Options		
Alarm Notification	Normal	Sensor in normal state- no liquid present			
	Fuel alarm	Sensor in liquid			
	Sensor out	Sensor not communicating to ATG / Console			
Installation Kit	330020-012	Universal Sensor Mounting Kit (Sold separately)			
Specifications			Example Installation		
Operating Principle	Optical				
Product Activation Height	0.95" (2.4cm)				
Operating Temp	-25.6 to +140°F (-32 to +60°C)				
Dimensions	0.63" (16mm), 2" (51mm) max. diameter				
Miscellaneous / Notes	Standard Cable Length: 12 Feet; Up to 50% ethylene glycol in water; up to 50% propylene glycol in water; salt brine solution of up to 30% CaCl ₂ ; 312020-928 (2" [50mm] Riser cap and adapter kit)				
Third Party Evaluation	http://www.nwglde.org/evals/veeder_root_o.html				
Links	http://www.veeder.com/us/products/tls-automatic-tank-gauge-systems/sensors/dispenser-pan-monitoring-sensors				
Warranty with System	1 Yr Parts & Labor				
Warranty (When purchased separately)	1 Yr Parts Only				



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.	Sensor Matrix 			
Form Number	794380-303					
Where Used (Typical)	<input type="checkbox"/> Dispenser Pan <input checked="" type="checkbox"/> Annular Space <input type="checkbox"/> Spill Containment <input type="checkbox"/> Monitoring Well <input type="checkbox"/> STP Sump <input type="checkbox"/> Oil/Water Separator Tank <input checked="" type="checkbox"/> Convault Tank	Category <input type="checkbox"/> Discriminating <input type="checkbox"/> Non-Discriminating <input type="checkbox"/> Position Sensitive <input type="checkbox"/> Level Sensing <input type="checkbox"/> Static Testing <input checked="" type="checkbox"/> Hydrostatic				
Fuel Compatibility 	<input checked="" type="checkbox"/> Gas <input checked="" type="checkbox"/> E-15 <input checked="" type="checkbox"/> Green Diesel <input checked="" type="checkbox"/> Diesel <input checked="" type="checkbox"/> E-85 ¹ <input type="checkbox"/> DEF <input checked="" type="checkbox"/> Kerosene <input type="checkbox"/> E-100 <input checked="" type="checkbox"/> Waste Oil <input checked="" type="checkbox"/> Jet Fuel <input checked="" type="checkbox"/> Bio-Diesel 20 <input checked="" type="checkbox"/> Motor Oil <input checked="" type="checkbox"/> Aviation Gas <input type="checkbox"/> Bio-Diesel 100					
Console Compatibility (*International Only¹)	Min. Console Software	Sensor Interface Modules				
TLS-450PLUS (8600 Series) TLS-450	6A or Higher 4A or Higher	332812-001 332812-001	Universal Sensor Module (USM)	Up to 4 - TLS-4XX Up to 8 - TLS-4XX w/opt. TLS-XB	16	Sold Separately
¹ TLS4 (8601 Series) TLS4i (8601 Series) ¹ TLS4B (8601 Series) TLS4c (8601 Series)	6A or Higher	330020-750 330020-750 330020-751 330020-751	Universal Sensor Input Output Module (USIOM-AC)	1	12 6	Included
TLS-350/R/PLUS TLS-350J TLS-300i TLS-300C	124/324 or Higher	329356-004 329356-003 330230-001 330513-001	Interstitial Sensor Interface Module 4 Probe / 4 Sensor Interface Module 4 Probe / 8 Sensor Interface Module 2 Probe / 8 Sensor Options	Up to 8 1	8 4 8	Sold Separately Sold Separately Included
Alarm Notification	Normal Low liquid High liquid Sensor out	Float is in the UP position (correct amount of brine in reservoir) Brine drops below 1.27" (3.22cm) Brine rises above 13.33" (35.85cm) Sensor not communicating to ATG / Console				
Specifications	Example Installation					
Operating Principle Product Activation Height Operating Temp Dimensions Miscellaneous / Notes Third Party Evaluation Links Warranty with System Warranty (When purchased separately)	Reed Switch /Float Low 1.2" (3cm), High 13.13" (33.4cm) -13 to +122°F (-25 to +50°C) 6" (15cm) high, 2.5" (6.4cm) dia. Single-Point <ul style="list-style-type: none"> Standard Cable Length: 12 ft (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. http://nwglde.org/evals/veeder_root_q.html http://www.veeder.com/us/products/tls-automatic-tank-gauge-systems/sensors/dispenser-pan-monitoring-sensors 1 Yr Parts & Labor 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, or if the outer wall leaks, the brine seeps out of the tank interstice triggering a fuel alarm.	Sensor Matrix 			
Form Number	794380-301					
Where Used (Typical)	<input type="checkbox"/> Dispenser Pan <input type="checkbox"/> Spill Containment <input type="checkbox"/> STP Sump <input checked="" type="checkbox"/> Convault Tank <input checked="" type="checkbox"/> Annular Space <input type="checkbox"/> Monitoring Well <input type="checkbox"/> Oil/Water Separator Tank	Category <input type="checkbox"/> Discriminating <input type="checkbox"/> Non-Discriminating <input type="checkbox"/> Position Sensitive <input type="checkbox"/> Level Sensing <input type="checkbox"/> Static Testing <input checked="" type="checkbox"/> Hydrostatic				
Fuel Compatibility 	<input checked="" type="checkbox"/> Gas <input checked="" type="checkbox"/> Diesel <input checked="" type="checkbox"/> Kerosene <input checked="" type="checkbox"/> Jet Fuel <input checked="" type="checkbox"/> Aviation Gas <input checked="" type="checkbox"/> E-15 <input checked="" type="checkbox"/> E-85 ¹ <input type="checkbox"/> E-100 <input checked="" type="checkbox"/> Bio-Diesel 20 <input type="checkbox"/> Bio-Diesel 100 <input checked="" type="checkbox"/> Green Diesel <input type="checkbox"/> DEF <input type="checkbox"/> Waste Oil <input type="checkbox"/> Motor Oil					
Console Compatibility (*International Only¹)	Min. Console Software	Sensor Interface Modules				
		Module Form #	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	332812-001				
¹ TLS4 (8601 Series)	6A or Higher	330020-750	Universal Sensor Input Output Module (USIOM-AC)	1	12	Included
TLS4i (8601 Series)		330020-750				
¹ TLS4B (8601 Series)		330020-751			6	
TLS4c (8601 Series)		330020-751				
TLS-350/R/PLUS	124/324 or Higher	329356-004	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	Sensor out	Brine level below 1.7" (4.31cm)				
Sensor out		Sensor not communicating to ATG / Console				
Specifications			Example Installation			
Operating Principle	Reed Switch /Float					
Product Activation Height	1.74" (4.4cm)					
Operating Temp	-13 to +122°F (-25 to +50°C)					
Dimensions	6" (15cm) high, 2.5" (6.4cm) dia. Single-Point					
Miscellaneous / Notes	<ul style="list-style-type: none"> Standard Cable Length: 12 ft (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	http://nwgide.org/evals/veeder_root_q.html					
Links	http://www.veeder.com/us/products/tls-automatic-tank-gauge-systems/sensors/dispenser-pan-monitoring-sensors					
Warranty with System	1 Yr Parts & Labor					
Warranty (When purchased separately)	1 Yr Parts Only					

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.		Sensor Matrix 			
Form Number	794380-304					
Where Used (Typical)	<input type="checkbox"/> Dispenser Pan <input type="checkbox"/> Spill Containment <input type="checkbox"/> STP Sump <input checked="" type="checkbox"/> Convault Tank <input checked="" type="checkbox"/> Annular Space <input type="checkbox"/> Monitoring Well <input type="checkbox"/> Oil/Water Separator Tank		Category <input type="checkbox"/> Discriminating <input type="checkbox"/> Non-Discriminating <input type="checkbox"/> Position Sensitive <input type="checkbox"/> Level Sensing <input type="checkbox"/> Static Testing <input checked="" type="checkbox"/> Hydrostatic			
Fuel Compatibility 	<input checked="" type="checkbox"/> Gas <input checked="" type="checkbox"/> Diesel <input checked="" type="checkbox"/> Kerosene <input checked="" type="checkbox"/> Jet Fuel <input checked="" type="checkbox"/> Aviation Gas <input checked="" type="checkbox"/> E-15 <input checked="" type="checkbox"/> E-85 <input checked="" type="checkbox"/> E-100 <input checked="" type="checkbox"/> Bio-Diesel 20 <input checked="" type="checkbox"/> Bio-Diesel 100 <input checked="" type="checkbox"/> Green Diesel <input type="checkbox"/> DEF <input checked="" type="checkbox"/> Waste Oil <input checked="" type="checkbox"/> Motor Oil					
Console Compatibility (*International Only¹)	Min. Console Software	Sensor Interface Modules				
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	332812-001				
¹ TLS4 (8601 Series)		330020-750	Universal Sensor Input Output Module (USIOM-AC)	1	12	Included
TLS4i (8601 Series)	6A or Higher	330020-750			6	
¹ TLS4B (8601 Series)		330020-751				
TLS4c (8601 Series)		330020-751				
TLS-350/R/PLUS		329356-004	Interstitial Sensor Interface Module	Up to 8	8	Sold Separately
TLS-350J	124/324 or Higher	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 present				
	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	Reed Switch /Float					
Product Activation Height	0.79" (2cm)					
Operating Temp	-13 to +122°F (-25 to +50°C)					
Dimensions	2.5" (6.4cm) high, 1.5" (3.8cm) dia.					
Miscellaneous / Notes	Standard Cable Length: 8 Feet (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	http://nwgide.org/evals/veeder_root_z.html					
Links	http://www.veeder.com/us/products/tls-automatic-tank-gauge-systems/sensors/dispenser-pan-monitoring-sensors					
Warranty with System	1 Yr Parts & Labor					
Warranty (When purchased separately)	1 Yr Parts Only					

Sensor Description	Vapor Sensor	The Vapor Sensor detects hydrocarbon vapor exceeding the programmed threshold limit in the monitoring well.		Sensor Matrix 		
Form Number	794390-700					
Where Used (Typical)	<input type="checkbox"/> Dispenser Pan <input type="checkbox"/> Annular Space <input type="checkbox"/> Spill Containment <input checked="" type="checkbox"/> Monitoring Well <input type="checkbox"/> STP Sump <input type="checkbox"/> Oil/Water Separator Tank <input type="checkbox"/> Convault Tank			Category		
Fuel Compatibility	 <input checked="" type="checkbox"/> Gas <input checked="" type="checkbox"/> E-15 <input type="checkbox"/> Green Diesel <input type="checkbox"/> Diesel <input type="checkbox"/> E-85 <input type="checkbox"/> DEF <input type="checkbox"/> Kerosene <input type="checkbox"/> E-100 <input type="checkbox"/> Waste Oil <input checked="" type="checkbox"/> Jet Fuel <input type="checkbox"/> Bio-Diesel 20 <input type="checkbox"/> Motor Oil <input checked="" type="checkbox"/> Aviation Gas <input type="checkbox"/> Bio-Diesel 100			<input type="checkbox"/> Discriminating <input type="checkbox"/> Non-Discriminating <input type="checkbox"/> Position Sensitive <input type="checkbox"/> Level Sensing <input type="checkbox"/> Static Testing <input type="checkbox"/> Hydrostatic <input checked="" type="checkbox"/> Vapor <input type="checkbox"/> Groundwater		
Console Compatibility (*International Only¹)	Min. Console Software	Sensor Interface Modules				
		Module Form #	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	8	Sold Separately
TLS-450	4A or Higher	332812-001		Up to 8 - TLS-4XX w/opt. TLS-XB		
¹ TLS4 (8601 Series)	6A or Higher	330020-750	Universal Sensor Input Output Module (USIOM-AC)	1	6	Included
TLS4i (8601 Series)		330020-750				
¹ TLS4B (8601 Series)		330020-751				
TLS4c (8601 Series)		330020-751				
TLS-350/R/PLUS	124/324 or Higher	329356-004	Vapor Sensor Interface Module	Up to 8	5	Sold Separately
TLS-350J		329356-003	4 Probe / 4 Sensor Interface Module	1	2	Sold Separately
TLS-300i	NA					
TLS-300C	NA					
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 is present in the area being monitored by the sensor.				
	Out alarm	Sensor setup was performed incorrectly, it is disconnected or it is not functioning properly.				
Installation Kit	312020-939	4-inch (100mm) cap and adapter kit (Sold separately)				
Specifications			Example Installation			
Operating Principle	Adsistor		 <p>Suspend vapor sensor 12 inches above highest level reached by water table, if known; or 12 inches above the bottom of the well, or any water in the well.</p>			
Product Activation Height	Gasoline vapor >500 ppm					
Operating Temp	-4 to +140°F (-20 to +60°C)					
Dimensions	4.9" (12.4cm) long, 1.1" (2.8cm) dia.					
Miscellaneous / Notes	Standard Cable 12 feet (3.65m)					
Third Party Evaluation	http://www.nwglde.org/evals/veeder_root_t.html					
Links	http://www.veeder.com/us/products/tls-automatic-tank-gauge-systems/sensors/dispenser-pan-monitoring-sensors					
Warranty with System	1 Yr Parts & Labor					
Warranty (When purchased separately)	1 Yr Parts Only					

Sensor Description	Groundwater Sensor	The Groundwater Sensor detects free hydrocarbons in the C5 to C16 range on the water table in up to 20 feet deep monitoring wells.		Sensor Matrix 		
Form Number	794380-621 (7 - 10 foot [2 - 3m] wells); 794380-622 (10 - 15 foot [3 - 4.5m] wells); 794380-624 (15 - 20 foot [4.5 - 6m] wells)					
Where Used (Typical)	<input type="checkbox"/> Dispenser Pan <input type="checkbox"/> Annular Space <input type="checkbox"/> Spill Containment <input checked="" type="checkbox"/> Monitoring Well <input type="checkbox"/> STP Sump <input type="checkbox"/> Oil/Water Separator Tank <input type="checkbox"/> Convault Tank		Category			
Fuel Compatibility	 <input checked="" type="checkbox"/> Gas <input checked="" type="checkbox"/> E-15 <input checked="" type="checkbox"/> Green Diesel <input checked="" type="checkbox"/> Diesel <input type="checkbox"/> E-85 <input type="checkbox"/> DEF <input checked="" type="checkbox"/> Kerosene <input type="checkbox"/> E-100 <input checked="" type="checkbox"/> Waste Oil <input checked="" type="checkbox"/> Jet Fuel <input checked="" type="checkbox"/> Bio-Diesel 20 <input checked="" type="checkbox"/> Motor Oil <input checked="" type="checkbox"/> Aviation Gas <input type="checkbox"/> Bio-Diesel 100		<input type="checkbox"/> Discriminating <input type="checkbox"/> Non-Discriminating <input type="checkbox"/> Position Sensitive <input type="checkbox"/> Level Sensing <input type="checkbox"/> Static Testing <input type="checkbox"/> Hydrostatic <input type="checkbox"/> Vapor <input checked="" type="checkbox"/> Groundwater <input type="checkbox"/> Oil/Water Separator			
Console Compatibility (*International Only¹)	Min. Console Software	Sensor Interface Modules				
		Module Form #	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	8	Sold Separately
TLS-450	4A or Higher	332812-001		Up to 8 - TLS-4XX w/opt. TLS-XB		
¹ TLS4 (8601 Series)	6A or Higher	330020-750	Universal Sensor Input Output Module (USIOM-AC)	1	6	Included
TLS4i (8601 Series)		330020-750				
¹ TLS4B (8601 Series)		330020-751				
TLS4c (8601 Series)		330020-751				
TLS-350/R/PLUS	124/324 or Higher	329356-004	Groundwater Sensor Interface Module	Up to 8	5	Sold Separately
TLS-350J		329356-003	4 Probe / 4 Sensor Interface Module	1	2	Sold Separately
TLS-300i	NA					
TLS-300C	NA					
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				
Installation Kit	312020-939	4-inch (100mm) cap and adapter kit (Sold separately)				
Specifications			Example Installation			
Operating Principle	Electrical conductivity					
Product Activation Height	0.02" (0.5mm)					
Operating Temp	32 to +140°F -(20 to +60°C)					
Dimensions	4.9" (12.4cm) long, 1.1" (2.8cm) dia.					
Miscellaneous / Notes	Locking cap included; cable length dependent on sensor ordered.					
Third Party Evaluation	http://nwgide.org/evals/veeder_root_s.html					
Links	http://www.veeder.com/us/products/tls-automatic-tank-gauge-systems/sensors/dispenser-pan-monitoring-sensors					
Warranty with System	1 Yr Parts & Labor					
Warranty (When purchased separately)	1 Yr Parts Only					

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.				Sensor Matrix 
Form Number	794690-XXX					
Where Used (Typical)	<input type="checkbox"/> Dispenser Pan <input type="checkbox"/> Annular Space <input type="checkbox"/> Spill Containment <input type="checkbox"/> Monitoring Well <input type="checkbox"/> STP Sump <input checked="" type="checkbox"/> Oil/Water Separator Tank <input type="checkbox"/> Convault Tank			Category		
Fuel Compatibility	 <input checked="" type="checkbox"/> Gas <input checked="" type="checkbox"/> E-15 <input type="checkbox"/> Green Diesel <input checked="" type="checkbox"/> Diesel <input type="checkbox"/> E-85 <input type="checkbox"/> DEF <input checked="" type="checkbox"/> Kerosene <input type="checkbox"/> E-100 <input checked="" type="checkbox"/> Waste Oil <input checked="" type="checkbox"/> Jet Fuel <input checked="" type="checkbox"/> Bio-Diesel 20 <input checked="" type="checkbox"/> Motor Oil <input checked="" type="checkbox"/> Aviation Gas <input type="checkbox"/> Bio-Diesel 100			<input type="checkbox"/> Discriminating <input type="checkbox"/> Non-Discriminating <input type="checkbox"/> Position Sensitive <input type="checkbox"/> Level Sensing <input type="checkbox"/> Static Testing <input type="checkbox"/> Hydrostatic <input type="checkbox"/> Vapor <input type="checkbox"/> Groundwater <input checked="" type="checkbox"/> Oil/Water Separator		
Console Compatibility (International Only ¹)	Min. Console Software	Sensor Interface Modules				
		Module Form #	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	332812-001				
¹ TLS4 (8601 Series)	6A or Higher	330020-750	Universal Sensor Input Output Module (USIOM-AC)	1	12	Included
TLS4i (8601 Series)		330020-750				
¹ TLS4B (8601 Series)		330020-751				
TLS4c (8601 Series)		330020-751				
TLS-350/R/PLUS	124/324 or Higher	329356-004	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	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 Temp	0 to +140°F (0 to +60°C)					
Dimensions	Custom-Based on Tank Configuration					
Miscellaneous / Notes	Standard Cable Length: 12 Feet- See Appendix B in this manual for sensor sizing					
Links	http://www.veeder.com/us/products/tls-automatic-tank-gauge-systems/sensors/dispenser-pan-monitoring-sensors					
Warranty with System	1 Yr Parts & Labor					
Warranty (When purchased separately)	1 Yr Parts Only					

Appendix A - Sensor Type Programming Table

The table below is helpful when selecting Sensor Type (for TLS-3XX 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	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
	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

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 inches 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**.

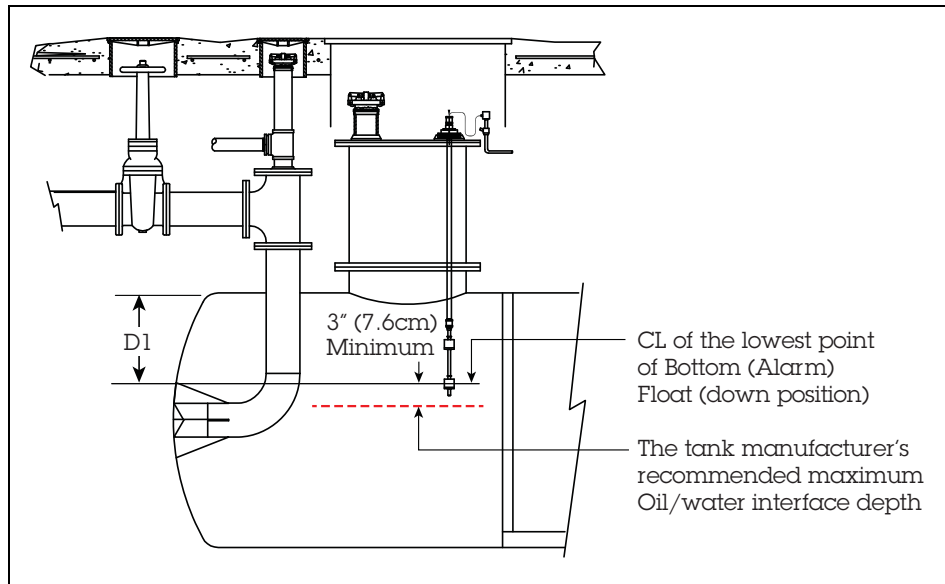


Fig. B-1.- Determining Lowest Point For O/W Sensor's Bottom Float

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" to the measured distance and **note this measurement as D2** (Fig.B-2)

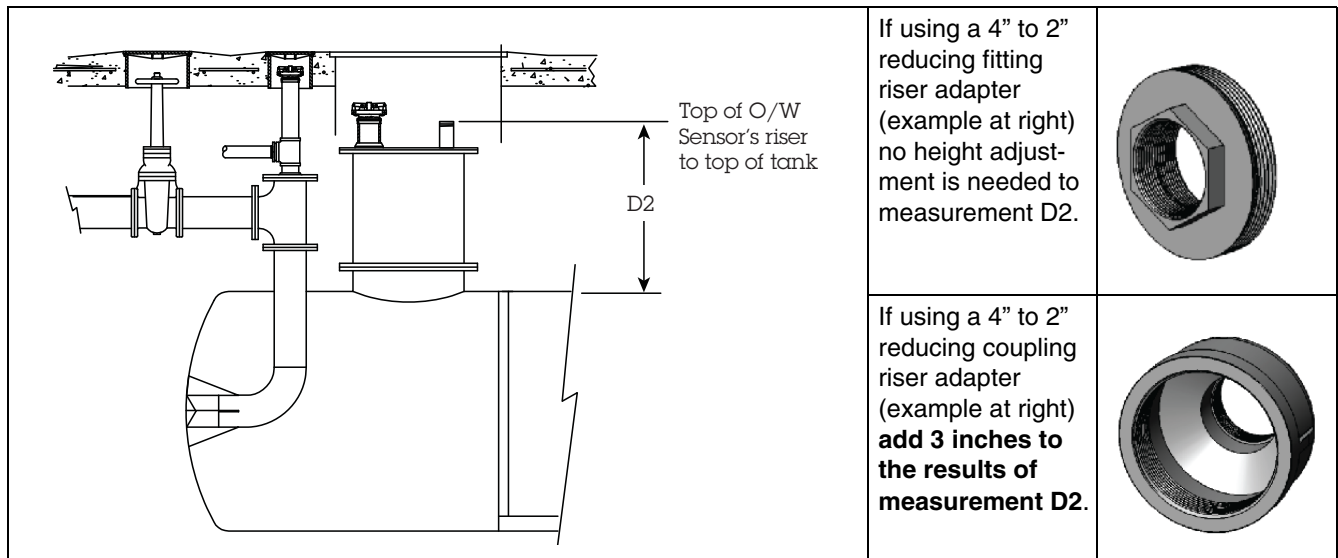


Fig. B-2.- Determining Distance D2

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.**

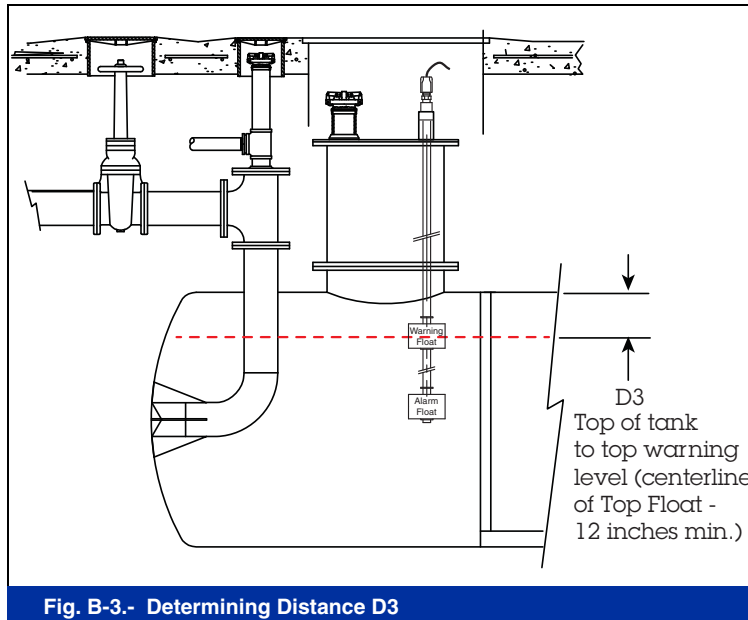


Fig. B-3.- Determining Distance D3

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 V-R Oil/Water Separator Sensor matrix shown in Fig.B-4.

For example: D1 = 33", D2 = 24.5, D3 = 13"

D2 + D3 = Top float position, i.e., 24.5 + 13 = 37.5" (Dimension A in the V-R P/N matrix)

D1 - D3 = Bottom float position, i.e., 33 - 13 = 20" (Dimension B in the V-R P/N matrix)

Using the OWSS float positions calculated in the example above, the top float (Warning) would activate at 13 inches below the top of the tank and the bottom float (Alarm) would activate at 33" below the top of the tank. The correct part number for these example float positions would be 764690-053.

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 764690-XXX, where XXX equals the three digits where Dimensions A and B intersect in the part number matrix:

		DIMENSION "B"									
		5"	10"	15"	20"	25"	30"	35"	40"	45"	50"
DIMENSION "A"	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

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 Site Demonstration kit (P/N 848100-502) which contains one splice kit with installation instructions, a 890-SL joint sealant instruction guide, a 6-inch piece of 2 conductor direct burial wire.

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)

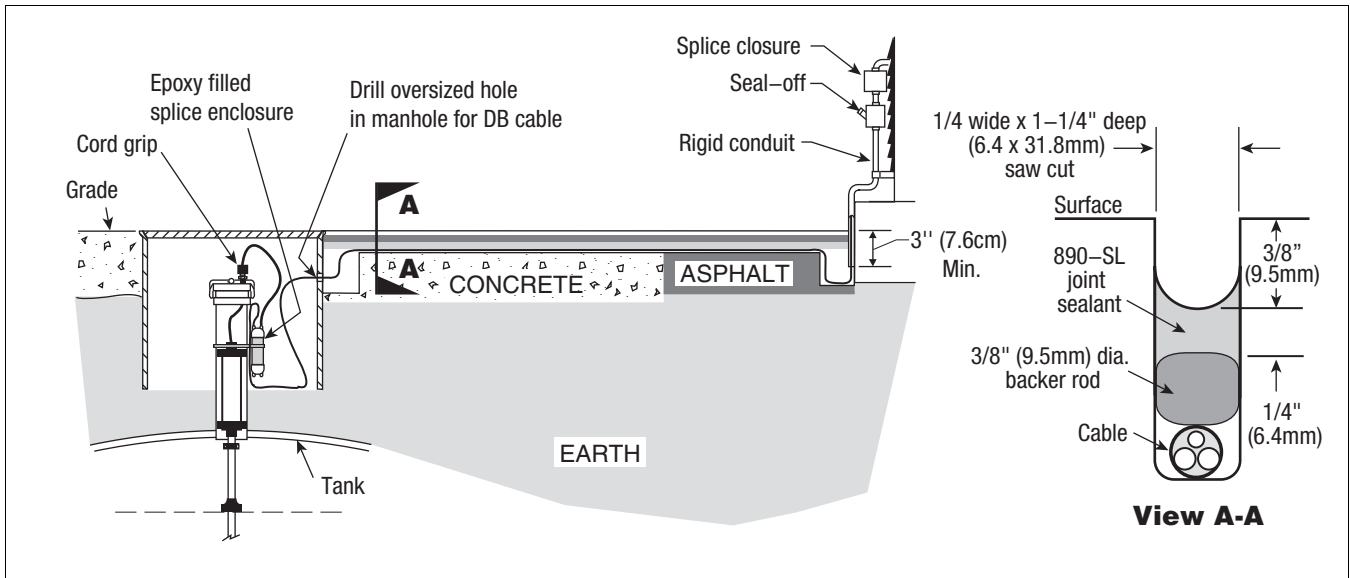
Direct Burial Cable Components


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

- Filler rod - P/N 848100-1XX (lengths of 100 to 2000 feet [30.5 to 610m], in increments of 100 feet [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 feet (30.5 to 610m), in increments of 100 feet)
- 3-conductor cable - P/N 848100-3XX (lengths of 100 to 2000 feet, in increments of 100 feet)
- 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 8481021 (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





For technical support, sales or
other assistance, please visit:
www.veeder.com

A blue rectangular box containing a white globe icon at the top and contact information below it.