



Department of Environmental Protection

2600 Blair Stone Road ♦ Tallahassee, Florida 32399-2400

DEP Form: 62-762.901(9)

Form Title: Storage Tank Equipment

Registration Form

Effective Date: July 2019

Incorporated in Rule 62-762.851, F.A.C.

Storage Tank System Equipment Registration Form

Fill out completely

General Information

Company Name: Morrison Bros. Co. Contact Name: Jerry Schollmeyer
Company Address: 570 East 7th Street City, State: Dubuque, IA Zip: 52001
E-mail: jschollmeyer@morbros.com Contact Number: (563)587.2119
Product Name: Liquid Level Sensors
Model Number(s): 924;924S;924LS;925;925S Product Type: Overfill Prevention, Liquid Level Sensor
Rule(s) citation that registration is being requested within Chapter 62-761 (UST), and/or 62-762 (AST), F.A.C.: 62-762 (AST)

Write a brief description of equipment registration request including product limitations:

The Morrison 924 & 925 Series Liquid level sensors are simple switch sensors used to monitor liquid level at a desired set point. When paired with Morrison 918AC, 918S/D/Q and Model 918SB/DB/QB, these sensors may be used to meet overfill protection by providing fill level information. Sensor can also provide release detection for the interstices of a storage tank system. Multi point sensors are factory set.

Information Checklist (Choose Yes, No, or N/A - Not Applicable):

	Yes	No	N/A
1. Third-party Certification by a Nationally Recognized Testing Laboratory? (Required)	☒	☐	☐
2. Documentation of third-party evaluation that the equipment meets DEP Rules?	☒	☐	☐
3. Documents included about the qualifications of the Nationally Recognized Testing Laboratory?	☒	☐	☐
4. Technical information and drawings included?	☒	☐	☐
5. Installation instructions included?	☒	☐	☐
6. Annual Operability Testing Requirements (Rules 62-761.500, 62-762.501, & 62-762.502 F.A.C.)?	☒	☐	☐
7. Integrity Testing Requirements (Rules 62-761.700, 62-762.701, & 62-762.702, F.A.C.)?	☒	☐	☐
8. Compatible with fuel blends containing >10% ethanol or >20% biodiesel?	☒	☐	☐
9. Has the product been approved or registered in other countries or states? (If so provide list)	☐	☒	☐
10. Any requirements for company-certified installers or trainers?	☐	☒	☐
11. Was this product(s) previously approved or registered by the Department? If yes, EQ- <u>862</u>	☒	☐	☐
12. Any changes or modifications to the equipment since the last submittal to DEP?	☐	☒	☐

Document Information: Provide supporting documents indicated as "Yes" above including this form via email to Tanknotify@floridadep.gov, or documents can be sent to FDEP, Division of Waste Management, 2600 Blair Stone Road, MS 4560, Tallahassee, FL 32399.

Write a brief description of equipment installation and performance in the U.S.:

924 & 925 liquid level sensors install in a minimum of a 2 inch tank top or interstitial opening. Sensors can be set as normally open or normally closed positions.

Equipment Registration Certification:

To the best of my knowledge and belief, all information submitted on this form is true, accurate and complete.

Gerald Schollmeyer, National Sales Manager

Printed Name and Title

Gerald Schollmeyer

Signature (right click to sign)

Digitally signed by Gerald Schollmeyer
Date: 2022.03.08 14:36:25 -06'00'

03/08/2022

Date

For Department Use Only:

Date Application Received: 03/08/2022 Application complete: Yes: ☒ No: ☐

EQ- 862 Date of complete or incomplete letter sent: 03/16/2022 Date Equipment Requires Renewal: 3/16/2027

Storage tank system equipment requires renewal every 5 years in accordance with subsection 62-762.851(2), F.A.C.



Model 924 Adjustable Level Sensor

SPECIFICATION SHEET

Adjustable float activated simple switch device; used to monitor liquid level at a desired set point.

Application

- Level sensor in liquid storage tanks
- Activates audible and visual alarm

Features and Details

- Four sensor length ranges
- Fully adjustable within the sensor range length
- Installs into a 2" female threaded opening
- ½" NPT fitting at top of sensor
- Normally open switch easily converted to normally closed operation
- Compatible with 918S/D/Q Alarm Box and 918AC System Interface or similar listed systems that are designed for use with sensing devices located in a hazardous location

Materials of Construction

- Wires... Teflon® jacketed
- Floats... Nitrophenyl®-M (924); 316 stainless steel (924S)
- Tube... brass (924); 304 stainless steel (924S)
- Bushing... e-coated steel (924); 304 stainless steel (924S)

Approved Use Locations

UL/ULC Class I, Div 1, Group D (when used in conjunction with the model 918AC, model 918S/D/Q, and model 918SB)

Electrical Switch Ratings

- 100 watt resistive load, 300VAC - 700mA max / 350VDC - 1.0A max, SPST

**Switch ratings are for resistive loads only.*

**Do not use for inductive loads.*

Approvals

National Work Group on Leak Detection Evaluations list (www.nwglde.org);
Florida DEP EQ-862



Item numbers and drawing on next page.



MORRISON BROS. CO.

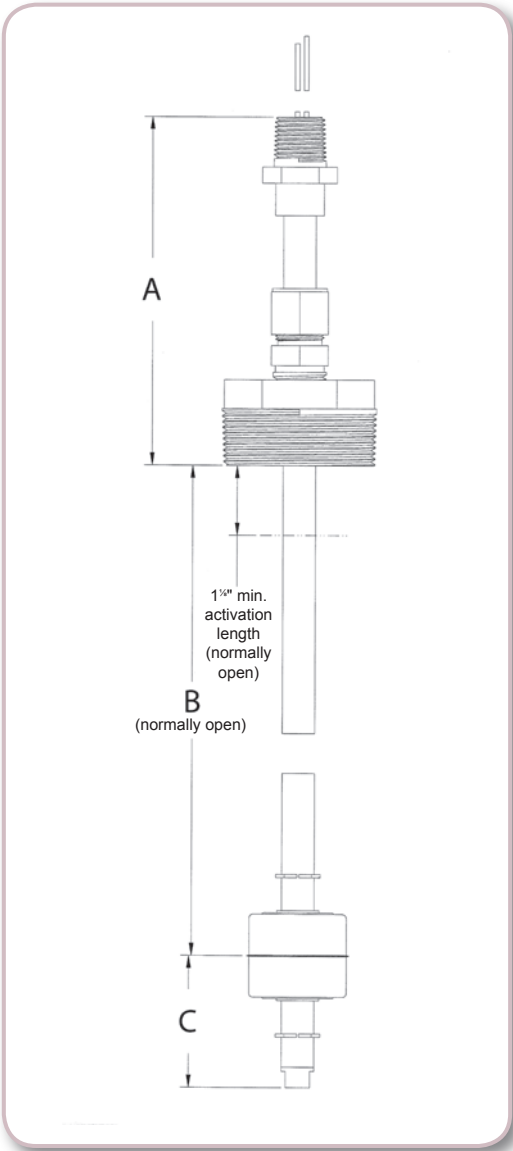


Model 924 Adjustable Level Sensor (continued)

SPECIFICATION SHEET

Item Number	Description	Activation Length		A	B	C	Overall Length	Weight (lbs)
		Minimum*	Maximum					
924---0600 AS	6" Brass adjustable level sensor	1"	6"	5.35" $\pm$ $\frac{3}{8}$ "	6"	2" $\pm$ $\frac{1}{4}$ "	13.35"	3.30
924---1200 AS	12" Brass adjustable level sensor	1"	12"	5.35" $\pm$ $\frac{3}{8}$ "	12"	2" $\pm$ $\frac{1}{4}$ "	19.35"	3.60
924---2000 AS	20" Brass adjustable level sensor	1"	20"	5.35" $\pm$ $\frac{3}{8}$ "	20"	2" $\pm$ $\frac{1}{4}$ "	27.35"	4.20
924---3000 AS	30" Brass adjustable level sensor	1"	30"	5.35" $\pm$ $\frac{3}{8}$ "	30"	2" $\pm$ $\frac{1}{4}$ "	37.35"	4.40
924S--0600 AS	6" Stainless steel adjustable level sensor	1"	6"	5.35" $\pm$ $\frac{3}{8}$ "	6"	2" $\pm$ $\frac{1}{4}$ "	13.35"	4.70
924S--1200 AS	12" Stainless steel adjustable level sensor	1"	12"	5.35" $\pm$ $\frac{3}{8}$ "	12"	2" $\pm$ $\frac{1}{4}$ "	19.35"	5.00
924S--2000 AS	20" Stainless steel adjustable level sensor	1"	20"	5.35" $\pm$ $\frac{3}{8}$ "	20"	2" $\pm$ $\frac{1}{4}$ "	27.35"	5.50
924S--3000 AS	30" Stainless steel adjustable level sensor	1"	30"	5.35" $\pm$ $\frac{3}{8}$ "	30"	2" $\pm$ $\frac{1}{4}$ "	37.35"	5.70
925---0113 2B	Conduit junction housing (NEMA 4)							
925---0114 2B	Conduit junction housing (NEMA 7, Group C & D)							

*May depend on specific gravity of liquid.



924/924S Adjustable Sensor

Installation & Maintenance Instructions

The 924/924S detects the level of liquid in a tank or sump application when used in conjunction with an alarm device like the Morrison Figures 918S, 918D, 918Q Series or 918AC. Once the liquid has reached the level of actuation, the sensor will send a signal causing the alarm, to which the sensor is connected, to be activated. This sensor is shipped in the Normally Open state, but can also be used as Normally Closed by flipping the float over so the letters “NC” are facing upright.



Failure to follow any or all of the warnings and instructions in this document could result in a hazardous liquid spill, which could result in property damage, environmental contamination, fire, explosion, serious injury or death.

Installation



WARNINGS

- **Fire Hazard** – Death or serious injury could result from spilled liquids.
- Any modification of this sensor other than those stated in these installation instructions will void the product warranty.
- This device is intended to be used as an auxiliary warning to the operator of a possible alarm condition and should not be the only system in place to prevent a tank or sump from overfilling. It is the sole responsibility of the operator to continuously prevent any spillage regardless of the situation or status of the sensor.
- Install in accordance with all applicable local, state, and federal laws.
- For your safety, it is important to follow local, state, federal and/or OSHA rules that apply to working inside, above, or around the storage tank and piping area. Use all personal protective equipment required for working in the specific environment.
- Tanks could be under pressure. Vapors could be expelled from tank vents, piping, valves or fittings while performing installation. Vapors could catch fire or cause an explosion. Avoid sparks, open flame, or hot tools when working on gauge.
- In the event of malfunction, contact Morrison Bros. Customer Service.

Electrical Switch Ratings

100 watt resistive load, 300VAC/350VDC - 1.0A max, SPST (*Ratings for resistive loads only.*)

*Do not use for inductive loads.

Wiring

NOTE: As defined in article 501 – Class 1 Locations of the National Electric Code, this apparatus and its connected wiring are intrinsically safe. Under normal conditions this apparatus and its wiring cannot release sufficient energy to ignite a specific ignitable atmospheric mixture by opening, shorting, or grounding. Important: Wiring must be performed by a qualified technician, licensed by the appropriate local, state, and federal authority. All appropriate precautions and electrical codes should be followed.

WARNING: Interconnect wiring between the Sensor and its destination must be kept isolated and separate from other wiring. This wiring must not share any junction box, conduit, raceway, or fixtures with circuits other than those defined by NEC as being intrinsically safe for all Class 1 locations.

NOTE: The 918S, 918D and 918Q Series Alarm Boxes are intrinsically safe devices for use with Class 1, Division I Group D. T4 Hazardous locations when powered by Morrison Bros. Co. battery pack part number 918SB-0128 2B.

Steps

1. Inspect unit for shipping damage. Replace unit if damage is found.
2. Check inside float area for foreign matter such as packaging material. Remove any that is found.
3. This sensor is designed to be connected to an alarm device like the Morrison Figures 918S, 918D, 918Q Series or 918AC.
4. Turn off power to alarm device.

5. Before installing sensor into the tank or sump, temporarily connect the wires coming from the alarm device to the sensor.
6. Once sensor is attached properly to the alarm device, power the alarm.
7. With the sensor in the vertical position, slowly move float up on tube until the alarm device is actuated.
8. For proper actuation point height adjustment, loosen the compression fitting nut on the top of the 2" NPT Bushing and move the entire tube up or down to the desired height, see Figure 1. You can fine tune your adjustment by raising the float again to see if the alarm actuation occurs at your desired point. **Note that the specific gravity of your liquid will have an impact on the amount of liquid required to move the float and activate the alarm. See Figure 2. Take this into consideration when making final adjustment.**
9. Once you are satisfied with your adjustment, tighten compression fitting nut finger tight to tube. Then tighten nut with wrench an additional 1¼ turns.
10. Turn off power to alarm device.
11. Disconnect temporary wire connections.

WARNING: If alarm does not actuate, wires may have been sliced, cut, and/or damaged. Do not use if alarm does not actuate.

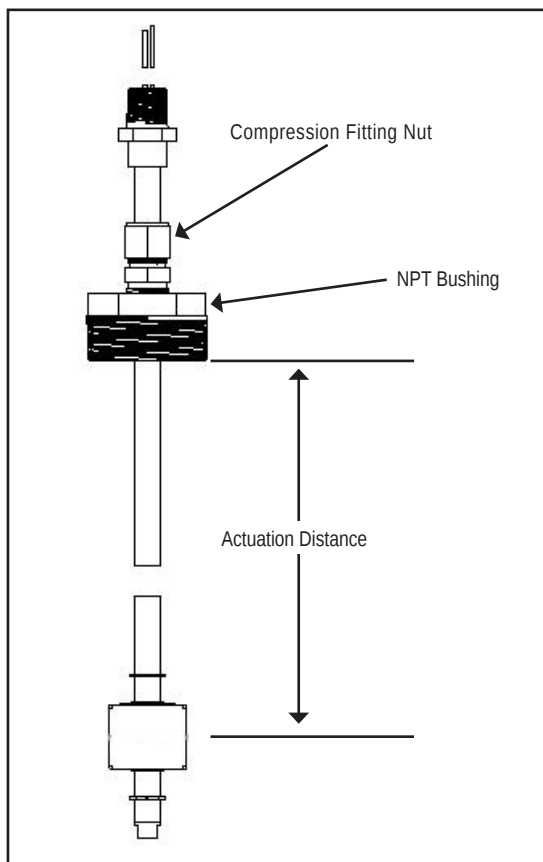
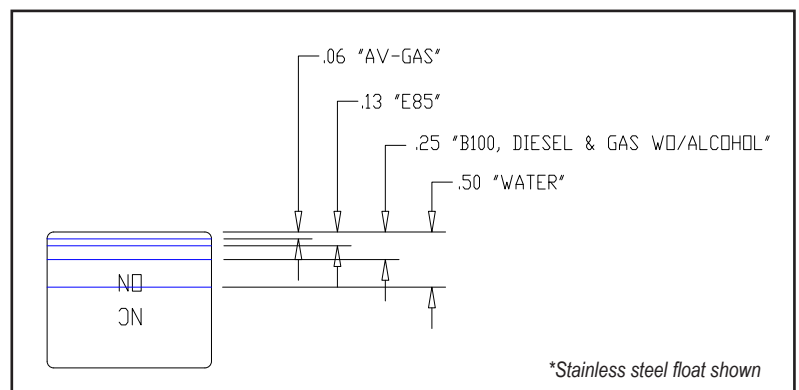


Figure 1



**(liquid levels are for both stainless and Nitrophyl®-M floats)
Figure 2**

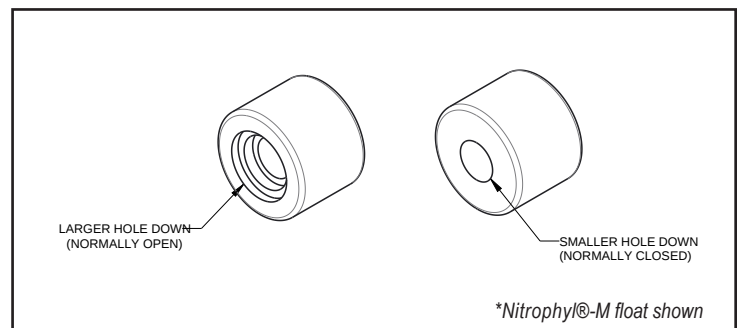


Figure 3

Sensor Installation

1. To ensure proper function, the sensor must be installed in the vertical position.
2. Locate the opening, on the top of the tank, where the sensor is to be installed. If possible, select a location away from the fill port to avoid excessive turbulence that could affect the float. Also make certain that there are no objects inside the tank or sump, near the selected opening, that could interfere with float function.
3. Verify the compression fitting nut is securely tightened.
4. Apply a non-hardening fuel resistant pipe sealant to the threads on the 2" NPT threaded bushing.
5. Lower the Sensor into the Tank.
6. Thread the bushing into the tank bung and tighten until secure.
7. Complete permanent wiring to alarm device.

The retaining clips are not to be moved, unless the operation needs to be changed from Normally Open to Normally Closed. If this is desired, remove the lower retaining clip, slide the float off the tube, flip the float over so the NC position (see Figure 2 or 3) is facing upright. Test the function of the float in the NC position to make certain it performs as desired. You may need to reposition the lower retaining clip to achieve desired performance.

Alarm Installation and Testing

If unit is supplied with and 918S, 918D, 918Q Series Alarm refer to Installation, Operation and Maintenance Instructions.



Failure to follow any or all of the warnings and instructions in this document could result in a hazardous liquid spill, which could result in property damage, environmental contamination, fire, explosion, serious injury or death.

Maintenance

This device should be maintained and checked for proper operation per applicable codes or at least once a year.



WARNINGS

- **Fire Hazard** – Death or serious injury could result from spilled liquids.
- Any modification of this sensor other than those stated in these installation instructions will void the product warranty.
- This device is intended to be used as an auxiliary warning to the operator of a possible alarm condition and should not be the only system in place to prevent a tank or sump from overflowing. It is the sole responsibility of the operator to continuously prevent any spillage regardless of the situation or status of the sensor.
- Install in accordance with all applicable local, state, and federal laws.
- For your safety, it is important to follow local, state, federal and/or OSHA rules that apply to working inside, above, or around the storage tank and piping area. Use all personal protective equipment required for working in the specific environment.
- Tanks could be under pressure. Vapors could be expelled from tank vents, piping, valves or fittings while performing installation. Vapors could catch fire or cause an explosion. Avoid sparks, open flame, or hot tools when working on gauge.
- In the event of malfunction, contact Morrison Bros. Customer Service.

Steps

1. Turn power off to alarming device.
2. If sensor is not accessible to manually move float, remove sensor from tank or sump. This may require disconnecting wiring from sensor to alarming device.
3. Visually inspect the level sensor for damage or excessive wear. If either is found, replace the sensor or alarm.
4. If necessary, temporarily connect wiring to alarming device.
5. Turn on power to alarming device.
6. With the sensor in the vertical position, slowly move float up on tube until the alarm device is actuated.
7. If the sensor did not activate, replace sensor with new unit.
8. Reinstall sensor to original position in tank or sump.
9. Turn off power to alarming device.
10. Complete permanent wiring to alarming device.
11. Turn on power to alarming device.

Refer to 918S, 918D, 918Q Series Alarm Installation, Operation and Maintenance Instructions.



Failure to follow any or all of the warnings and instructions in this document could result in a hazardous liquid spill, which could result in property damage, environmental contamination, fire, explosion, serious injury or death.



Model 924LS Liquid Sensor

SPECIFICATION SHEET

The 924LS is a stainless steel float-actuated sensor capable of detecting the presence of liquid in containment areas.

Features and Details

- Compatible with all 918 tank alarms and system interfaces
- 1/2" male NPT connection point to allow for rigid piping installations
- Balanced for increased stability when free-standing on flat containment surfaces
- 3/8" and 1/2" cable connector included

Materials of Construction

- Teflon® coated wires in Teflon® coated jacket
- Fuel compatible Nitrophyl float
- 304 Stainless steel shroud

Applications

- Interstitial space of double wall tanks
- Containment sumps
- Dispenser pans
- Other applications requiring the detection of a liquid leak

Liquid Detection Level

Normally Open (NO) 0.625 ± 0.125

Normally Closed (NC) $0.125 + 0.125 / - 0.0$

Approved Use Locations

UL/ULC Class I, Div 1, Group D (when used in conjunction with the model 918AC, model 918S/D/Q, and model 918SB)

Electric Switch Ratings

5 watt resistive load, 100VAC-250mA max / 140VDC-350mA max

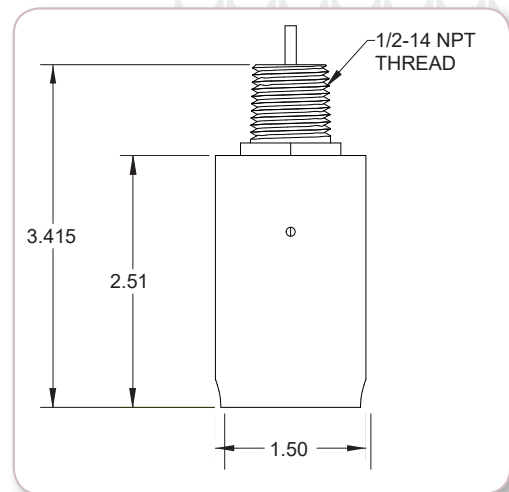
**Switch ratings are for resistive loads only.*

**Do not use for inductive loads.*

Approvals

National Work Group on Leak Detection Evaluations list (www.nwglde.org);

Florida DEP EQ-862



Item Number	Description	Weight (lbs)
924LS-0150 AS	Level sensor with 15' lead wire	1.20
924LS-0250 AS	Level sensor with 25' lead wire	1.30
924LS-0400 AS	Level sensor with 40' lead wire	1.50
924LS-0600 AS	Level sensor with 60' lead wire	1.70
925---0113 2B	Conduit junction housing (NEMA 4)	
925---0114 2B	Conduit junction housing (NEMA 7, Group C & D)	

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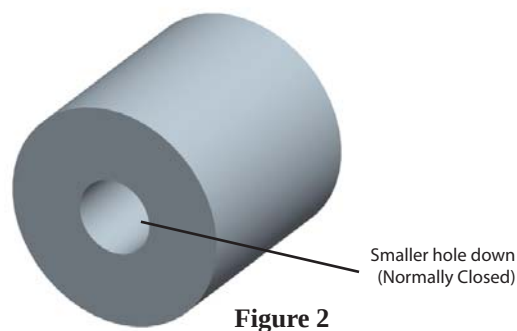
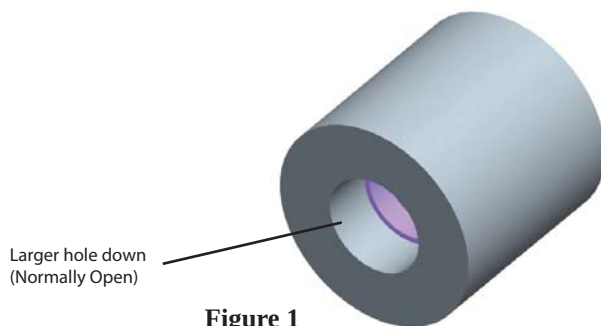


MORRISON BROS. CO.

924LS Interstitial Liquid Sensor

Installation & Maintenance Instructions

The 924LS detects the presence of liquid in the interstitial space of a double wall tank or sump application. Once the liquid has reached the level of actuation, the sensor will send a signal causing the alarm, to which the sensor is connected, to be activated. This sensor is shipped in the Normally Open state with larger hole down (see Figure 1), but can also be used as Normally Closed by placing the smaller hole down (see Figure 2).



Failure to follow any or all of the warnings and instructions in this document could result in a hazardous liquid spill, which could result in property damage, environmental contamination, fire, explosion, serious injury or death.

Installation



Warnings

- **Fire Hazard** – Death or serious injury could result from spilled liquids.
- Any modification to this device other than those stated in these installation instructions will void the product warranty.
- This device is intended to be used as an auxiliary warning to the operator of a possible leak into an interstitial space/sump or of a tank overfill situation. It should not be the only system in place to prevent a tank from overfilling. It is the sole responsibility of the operator to continuously prevent any spillage regardless of the situation.
- Install in accordance with all applicable local, state, and federal laws.
- For your safety, it is important to follow local, state, federal and/or OSHA rules that apply to working inside, above, or around the storage tank and piping area. Use all personal protective equipment required for working in the specific environment.
- Tanks could be under pressure. Vapors could be expelled from tank vents, piping, valves or fittings while performing installation. Vapors could catch fire or cause an explosion. Avoid sparks, open flame, or hot tools when working on gauge.
- In the event of malfunction, contact Morrison Bros. Customer Service.

Sensors can be installed either resting on the floor of the tank interstitial space/sump, or suspended.

Steps

1. Inspect unit for shipping damage. Replace unit if damage is found.
2. Check float and inside float shroud area for foreign matter such as packaging material. Remove any that is found.
3. Turn power OFF to the alarming device.
4. No liquid should be present in the double wall tank or the sump and it should be clean of any debris.
5. Make sure the path that the wire takes is free of burrs or sharp edges that could damage the wire.
6. To ensure proper function, the sensor must be installed in the vertical position and the cable must be taut.
7. If using the 924LS sensor in a suspended application, it is recommended that the sensor is attached to a ½" npt fitting.

Electrical Switch Ratings

5 watt resistive load, 100VAC-250mA max / 140VDC-350mA max (*Ratings for resistive loads only.*)

*Do not use for inductive loads.

Wiring

Note: As defined in article 501 – Class 1 Locations of the National Electric Code, this apparatus and its connected wiring are intrinsically safe. Under normal conditions this apparatus and its wiring cannot release sufficient energy to ignite a specific ignitable atmospheric mixture by opening, shorting, or grounding.

Important: Wiring must be performed by a qualified technician, licensed by the appropriate local, state, and federal authority. All appropriate precautions and electrical codes should be followed.

Warning: Interconnect wiring between the Sensor and its destination must be kept isolated and separate from other wiring. This wiring must not share any junction box, conduit, raceway, or fixtures with circuits other than those defined by NEC as being intrinsically safe for all Class 1 locations.

A. All wires should run in conduits as appropriate per local, state, and federal codes.

B. The wires must be #18-22 AWG fuel and oil resistant wire.

8. Attach sensor to alarming device.

Sensor Testing

1. Once sensor is attached properly to the alarm device turn device on.

2. Slowly move float up on sensor until you here an audible alarm on your device.



Failure to follow any or all of the warnings and instructions in this document could result in a hazardous liquid spill, which could result in property damage, environmental contamination, fire, explosion, serious injury or death.

Maintenance

This device should be maintained and checked for proper operation per applicable codes or at least once a year.



Warnings

- **Fire Hazard** – Death or serious injury could result from spilled liquids.
- Any modification to this device other than those stated in these installation instructions will void the product warranty.
- This device is intended to be used as an auxiliary warning to the operator of a possible leak into an interstitial space/sump or of a tank overfill situation. It should not be the only system in place to prevent a tank from overfilling. It is the sole responsibility of the operator to continuously prevent any spillage regardless of the situation.
- Install in accordance with all applicable local, state, and federal laws.
- For your safety, it is important to follow local, state, federal and/or OSHA rules that apply to working inside, above, or around the storage tank and piping area. Use all personal protective equipment required for working in the specific environment.
- Tanks could be under pressure. Vapors could be expelled from tank vents, piping, valves or fittings while performing installation. Vapors could catch fire or cause an explosion. Avoid sparks, open flame, or hot tools when working on gauge.
- In the event of malfunction, contact Morrison Bros. Customer Service.

Steps

1. Turn power OFF to alarming device.
2. Remove 924LS sensor from containment device or gain access to the float.
4. No liquid should be present in the interstitial space/sump and it should be clean of any debris.
5. Inspect wires for any damage that may have occurred over time. If damage is present, replace the unit.
3. Turn power ON to alarming device.
4. Slowly move float up on sensor until you hear the audible alarm on your device, verifying that the float has full range of travel.



Failure to follow any or all of the warnings and instructions in this document could result in a hazardous liquid spill, which could result in property damage, environmental contamination, fire, explosion, serious injury or death.

Model 925 Multi-Level Sensor

SPECIFICATION SHEET

Application

Float-activated simple switch device capable of sensing liquid levels from 1 to 5 specified set points.

Features and Details

- 1 to 5 user-specified liquid level set points (1 $\frac{1}{8}$ " minimum to 141 $\frac{3}{4}$ " maximum set point range)
- 3" stem height adjustability (downward) to assist in desired set point alignment
- Installs into a 2" NPT female threaded opening
- $\frac{1}{2}$ " NPT fitting at top of sensor
- 24" lead wire length
- Normally open or normally closed switch orientations available (specified at time of order)
- Audible and visual alarm functionality when paired with Morrison 918AC System Interface or 918S/D/Q Tank Alarm

Materials of Construction

- Wires... PTFE jacketed wires
- Floats... Nitrophenyl®-M (925); 316 stainless steel (925S)
- Stem... brass (925); 304 stainless steel (925S)
- Bushing... e-coated steel (925); 304 stainless steel (925S)

Operational Criteria—Electrical Switch Ratings

- 100 watt resistive load, 300VAC - 700mA max / 350VDC - 1.0A max, SPST

**Switch ratings are for resistive loads only.*

**Do not use for inductive loads.*

Approved Use Locations

UL/ULC Class I, Div 1, Group D (when used in conjunction with the model 918AC, model 918S/D/Q, and model 918SB)

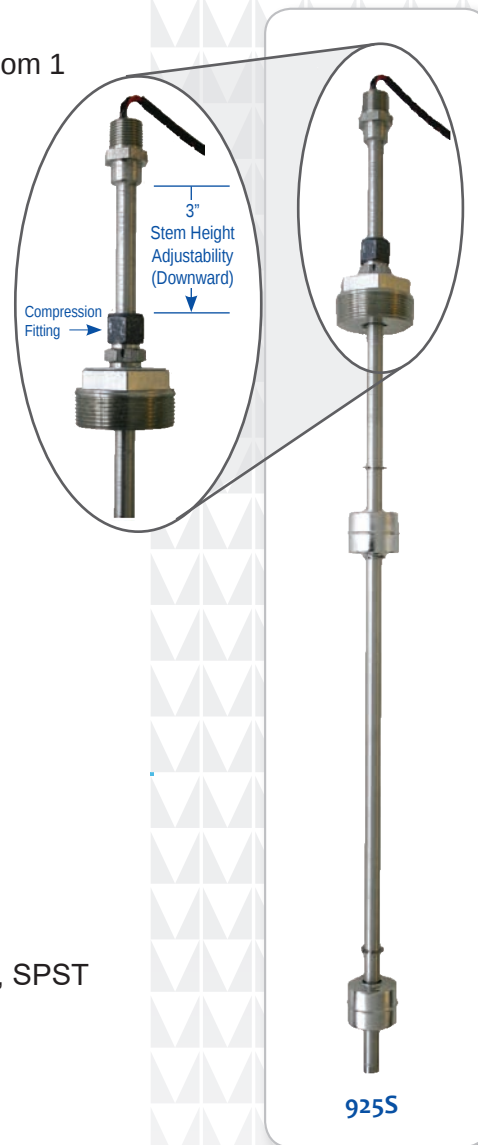
Ordering

To order, please complete the **925 Multi-Level Sensor Order Form** and send with your purchase order to Morrison Bros. Please note that each unit is made to order specifically to the requirements on the order form; longer lead times may apply.

Approvals

National Work Group on Leak Detection Evaluations list (www.nwglde.org); Florida DEP EQ-862

Item numbers on next page.



Package pricing available when purchased with a 918AC system interface or 918S/D/Q tank alarm.



Model 925 Multi-Level Sensor (continued)

SPECIFICATION SHEET

Item Number	Number of Floats	Stem Material	Stem Length	Weight (lbs)
925---1030 AS	1	Brass	3¾" to 36"	5.00
925---1060 AS	1	Brass	Greater than 36" to 72"	8.50
925---1090 AS	1	Brass	Greater than 72" to 108"	10.50
925---1120 AS	1	Brass	Greater than 108" to 144"	13.00
925---2030 AS	2	Brass	3¾" to 36"	5.00
925---2060 AS	2	Brass	Greater than 36" to 72"	8.50
925---2090 AS	2	Brass	Greater than 72" to 108"	10.50
925---2120 AS	2	Brass	Greater than 108" to 144"	13.00
925---3030 AS	3	Brass	3¾" to 36"	5.00
925---3060 AS	3	Brass	Greater than 36" to 72"	8.50
925---3090 AS	3	Brass	Greater than 72" to 108"	10.50
925---3120 AS	3	Brass	Greater than 108" to 144"	13.00
925---4030 AS	4	Brass	3¾" to 36"	5.00
925---4060 AS	4	Brass	Greater than 36" to 72"	8.50
925---4090 AS	4	Brass	Greater than 72" to 108"	10.50
925---4120 AS	4	Brass	Greater than 108" to 144"	13.00
925---5030 AS	5	Brass	3¾" to 36"	5.00
925---5060 AS	5	Brass	Greater than 36" to 72"	8.50
925---5090 AS	5	Brass	Greater than 72" to 108"	10.50
925---5120 AS	5	Brass	Greater than 108" to 144"	13.00
925S--1030 AS	1	Stainless steel	3¾" to 36"	5.00
925S--1060 AS	1	Stainless steel	Greater than 36" to 72"	8.50
925S--1090 AS	1	Stainless steel	Greater than 72" to 108"	10.50
925S--1120 AS	1	Stainless steel	Greater than 108" to 144"	13.00
925S--2030 AS	2	Stainless steel	3¾" to 36"	5.00
925S--2060 AS	2	Stainless steel	Greater than 36" to 72"	8.50
925S--2090 AS	2	Stainless steel	Greater than 72" to 108"	10.50
925S--2120 AS	2	Stainless steel	Greater than 108" to 144"	13.00
925S--3030 AS	3	Stainless steel	3¾" to 36"	5.00
925S--3060 AS	3	Stainless steel	Greater than 36" to 72"	8.50
925S--3090 AS	3	Stainless steel	Greater than 72" to 108"	10.50
925S--3120 AS	3	Stainless steel	Greater than 108" to 144"	13.00
925S--4030 AS	4	Stainless steel	3¾" to 36"	5.00
925S--4060 AS	4	Stainless steel	Greater than 36" to 72"	8.50
925S--4090 AS	4	Stainless steel	Greater than 72" to 108"	10.50
925S--4120 AS	4	Stainless steel	Greater than 108" to 144"	13.00
925S--5030 AS	5	Stainless steel	3¾" to 36"	5.00
925S--5060 AS	5	Stainless steel	Greater than 36" to 72"	8.50
925S--5090 AS	5	Stainless steel	Greater than 72" to 108"	10.50
925S--5120 AS	5	Stainless steel	Greater than 108" to 144"	13.00
925---0113 2B	Conduit junction housing (NEMA 4)			
925---0114 2B	Conduit junction housing (NEMA 7, Group C & D)			

570 E. 7th Street, P.O. Box 238 | Dubuque, IA 52004-0238
t. 563.583.5701 | 800.553.4840 | f. 563.583.5028

www.morbros.com



MORRISON BROS. CO.

925 Series Multi-Level Sensors

Installation & Maintenance Instructions

The 925 detects the level(s) of liquid in a tank when used in conjunction with an alarm device like the Morrison Figures 918S, 918D, 918Q or 918AC. Once the liquid has reached the level of actuation, the sensor will send a signal causing the alarm, to which the sensor is connected, to be activated. The 925 may be ordered with 1-5 user specified set points for the level floats.



Failure to follow any or all of the warnings and instructions in this document could result in a hazardous liquid spill, which could result in property damage, environmental contamination, fire, explosion, serious injury or death.

Installation



WARNINGS

- **Fire Hazard** – Death or serious injury could result from spilled liquids.
- Any modification of this sensor other than those stated in these installation instructions will void the product warranty.
- This device is intended to be used as an auxiliary warning to the operator of a possible alarm condition and should not be the only system in place to prevent a tank from overfilling. It is the sole responsibility of the operator to continuously prevent any spillage regardless of the situation or status of the sensor.
- Install in accordance with all applicable local, state, and federal laws.
- For your safety, it is important to follow local, state, federal and/or OSHA rules that apply to working inside, above, or around the storage tank and piping area. Use all personal protective equipment required for working in the specific environment.
- Tanks could be under pressure. Vapors could be expelled from tank vents, piping, valves or fittings while performing installation. Vapors could catch fire or cause an explosion. Avoid sparks, open flame, or hot tools when working on gauge.
- In the event of malfunction, contact Morrison Bros. Customer Service.

Electrical Switch Ratings

100 watt resistive load, 300VAC/350VDC - 1.0A max, SPST (*Ratings for resistive loads only.*)

*Do not use for inductive loads.

Wiring

NOTE: As defined in article 501 – Class 1 Locations of the National Electric Code, this apparatus and its connected wiring are intrinsically safe. Under normal conditions this apparatus and its wiring cannot release sufficient energy to ignite a specific ignitable atmospheric mixture by opening, shorting, or grounding. Important: Wiring must be performed by a qualified technician, licensed by the appropriate local, state, and federal authority. All appropriate precautions and electrical codes should be followed.

WARNING: Interconnect wiring between the Sensor and its destination must be kept isolated and separate from other wiring. This wiring must not share any junction box, conduit, raceway, or fixtures with circuits other than those defined by NEC as being intrinsically safe for all Class 1 locations.

NOTE: The 918S, 918D and 918Q alarm boxes are intrinsically safe devices for use with Class 1, Division L Group D. T4 Hazardous locations when powered by Morrison Bros. Co. battery pack part number 918S--0113 2B.

	Level	Wire Color
	L5	Blue
	L4	White
	L3	Yellow
	L2	Black
	L1	Red

Steps

1. Inspect unit for shipping damage. Replace unit if damage is found. Remove packaging material.
2. Check inside float area(s) for foreign matter such as packaging material. Remove any that is found.
3. This sensor is designed to be connected to an alarm device like the Morrison Figures 918S, 918D, 918Q or 918AC.
4. Turn off power to alarm device.
5. Before installing sensor into the tank, temporarily connect the wires coming from the alarm device to the sensor.
6. Once the sensor is attached properly to the alarm device, power the alarm.
7. With the sensor in the vertical position, slowly move float up on tube until the alarm device is actuated; repeat for every float.
8. Turn off power to alarm device.
9. Disconnect temporary wire connections.

WARNING: If alarm does not actuate, wires may have been sliced, cut, and/or damaged. Do not use if alarm does not actuate.

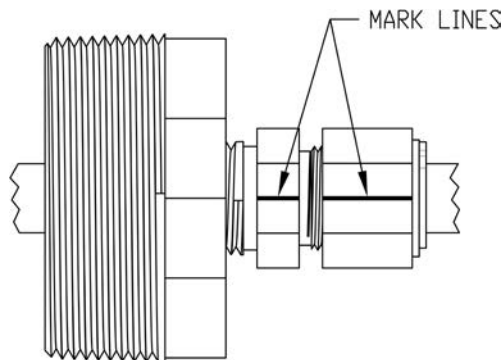
Sensor Installation

1. To ensure proper function, the sensor must be installed in the vertical position.
2. Locate the opening, on the top of the tank, where the sensor is to be installed. If possible, select a location away from the fill port to avoid excessive turbulence that could affect the float. Also make certain that there are no objects inside the tank or sump, near the selected opening, that could interfere with float function.
3. Apply a non-hardening fuel resistant pipe sealant to the threads on the 2" NPT threaded bushing.
4. Lower the Sensor into the Tank.
5. Thread the bushing into the tank bung and tighten until secure, making sure bushing doesn't move from original position..
6. Complete permanent wiring to alarm device.

Float Height Adjustment (if necessary)

Adjusting the float height impacts all the floats at the same time, individual adjustment is not obtainable.

1. Mark the fitting and the nut on the compression fitting before loosening the nut, see example below.



2. Loosen nut enough so the tubing can slide up and down on the fitting.
3. Slide tubing up or down to obtain your desired float height adjustment.

NOTE: You cannot slide the tube up more than the gap between bottom of bushing and top retaining ring of the highest float.

4. Retighten the nut by hand.
5. Rotate the nut with a wrench to the original position as indicated by previous marks lining up.
6. Double check your float height, repeat steps 3 thru 5 if needed.



Failure to follow any or all of the warnings and instructions in this document could result in a hazardous liquid spill, which could result in property damage, environmental contamination, fire, explosion, serious injury or death.

Maintenance

This device should be maintained and checked for proper operation per applicable codes or at least once a year.



WARNINGS

- **Fire Hazard** – Death or serious injury could result from spilled liquids.
- Any modification of this sensor other than those stated in these installation instructions will void the product warranty.
- This device is intended to be used as an auxiliary warning to the operator of a possible alarm condition and should not be the only system in place to prevent a tank from overfilling. It is the sole responsibility of the operator to continuously prevent any spillage regardless of the situation or status of the sensor.
- Install in accordance with all applicable local, state, and federal laws.
- For your safety, it is important to follow local, state, federal and/or OSHA rules that apply to working inside, above, or around the storage tank and piping area. Use all personal protective equipment required for working in the specific environment.
- Tanks could be under pressure. Vapors could be expelled from tank vents, piping, valves or fittings while performing installation. Vapors could catch fire or cause an explosion. Avoid sparks, open flame, or hot tools when working on gauge.
- In the event of malfunction, contact Morrison Bros. Customer Service.

Steps

1. Turn power off to alarming device.
2. If sensor is not accessible to manually move float, remove sensor from tank. This may require disconnecting wiring from sensor to alarming device.
3. Visually inspect the level sensor for damage or excessive wear. If either is found, replace the sensor or alarm.
4. If necessary, temporarily connect wiring to alarming device.
5. Turn on power to alarming device.
6. With the sensor in the vertical position, slowly move float(s) up on tube until the alarm device is actuated.
7. If the sensor did not activate, replace sensor with new unit.
8. Reinstall sensor to original position in tank.
9. Turn off power to alarming device.
10. Complete permanent wiring to alarming device.
11. Turn on power to alarming device.



Failure to follow any or all of the warnings and instructions in this document could result in a hazardous liquid spill, which could result in property damage, environmental contamination, fire, explosion, serious injury or death.



Evaluation of the Morrison Bros. Co. Liquid Sensor, Adjustable Level Sensor and Multi-Level Sensor

924LS, 924 and 925 Sensor
for use with the 918AC, 918S, 918D and 918Q Alarm Consoles

Final Report

PREPARED FOR:
Morrison Bros. Co.

September 30, 2015

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Evaluation of the Morrison Bros. Co. Liquid Sensor, Adjustable Level Sensor and Multi-Level Sensor

Final Report

**PREPARED FOR:
Morrison Bros. Co.
570 East 7th Street
Dubuque, IA 52001**

September 30, 2015

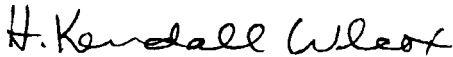
Preface

This report presents the results of an independent third-party evaluation of the Morison Bros. Co. 924LS, 924 and 925 liquid level sensors. The evaluation was conducted by Ken Wilcox Associates, Inc. using procedures described in the standard protocol "Alternative Test Procedures for Evaluating Leak Detection Methods: Evaluation of Liquid Level Sensors", September 1996. The official results of this evaluation are contained in Attachment A of this report on the EPA Results forms. All work was conducted by Ken Wilcox Associates, Inc. at the Fuels Management Research Center in Grain Valley, Missouri.

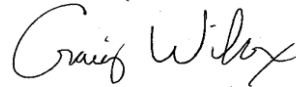
Although every effort was made to assure that this testing meets the requirements for Alternative Testing as described by the federal EPA, Ken Wilcox Associates, Inc. makes no claims that the evaluation will be accepted by any or all regulatory agencies. The test procedures are listed with the National Workgroup on Leak Detection Evaluations (NWGLDE) and meet the federal EPA requirements for Alternate Test Protocols as described in the forward to all of the standard EPA protocols for evaluating leak detection methods.

This report was prepared by Dr. Ken Wilcox, Ken Wilcox Associates, Inc. Technical questions regarding this evaluation should be directed to Morrison Bros. Co. at (563) 583-5701.

KEN WILCOX ASSOCIATES, INC



H. Kendall Wilcox, Ph.D., President
September 30, 2015



Craig Wilcox, Vice President
September 30, 2015

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1.0 Background

The federal Environmental Protection Agency (EPA) has provided a series of documents, which describe the procedures that are to be used to verify that leak detection equipment meets the performance requirements of the Federal Register. The requirements for evaluating liquid level sensors were not, however, included in those documents. It has therefore been necessary to develop independent methods for evaluating the performance of these systems. The objective is, of course, to provide an evaluation procedure which will provide testing which is at least as rigorous as those described for other types of leak detectors. At a minimum the evaluation method must determine the minimum liquid threshold for which a liquid level sensor will alarm.

To achieve this objective, the applicable sections of standard EPA protocols have been adapted to the specialized requirements of liquid level sensors. The test procedures followed in this evaluation are the KWA document "Alternative Test Procedures for Evaluating Leak Detection Methods: Liquid Level Sensors" September 1996. The procedures described in this document meet the requirements specified by the EPA for alternative test protocols and they were based on the procedures described in the EPA protocols. Additionally, the test procedures are listed with the National Workgroup on Leak Detection Evaluations (NWGLDE).

2.0 Description of the Equipment

918AC, 918S, 918D and 918Q Alarm Consoles

There were two different Morrison Bros. Co. consoles that were used in this evaluation. The two consoles used were the Morrison Bros. Co. 918AC and 918S. The 918AC and 918S consoles are functionally identical with one exception. The only exceptions between the 918AC and 918S is that the 918AC is powered by AC power and the 918S is powered by battery. Both alarm boxes indicate alarms with an audible alarm as well as a visual alarm. The 918S console has 1 single channel. There are two additional versions identical to the 918S with the exception that they include additional channels that allow for more sensors to be connected. The additional versions include the 918D, which is a 2 channel, and the 918Q that has 4 channels.

924LS sensor

Morrison Bros. Co. 924LS sensor is a single float liquid level sensor. The 924LS sensor detects the presence of fluid anywhere the sensor is installed. If the liquid level rises above the threshold of the 924LS sensor, an alarm condition is generated. The 924 LS sensor float can be configured in the normally closed (NC) or normally open (NO) position. If the liquid level rises above (float in NO position) or falls below (float in NC position) the threshold of the 924 LS sensor, an alarm condition is generated. This would indicate there is liquid present or a loss of liquid in the place where the sensor is installed. The sensor can easily be removed, cleaned and reinstalled if an alarm is triggered or for periodic testing.

924 adjustable level sensor

Morrison Bros. Co. 924 sensor is an adjustable level single float liquid level sensor. The 924 sensor detects the presence of fluid anywhere the sensor is installed. The sensor float can be configured in the normally closed (NC) or normally open (NO) position. If the liquid level rises above (float in NO position) or falls below (float in NC position) the threshold of the 924 sensor, an alarm condition is generated. This would indicate there is liquid present or a loss of liquid in the place where the sensor is installed. The sensor can easily be removed, cleaned and reinstalled if an alarm is triggered or for periodic testing.

925 multi-level sensor

Morrison Bros. Co. 925 sensor is a multi-level liquid level sensor. The 925 sensor can have up to 5 floats installed at different levels by the manufacturer. Each of the floats can be configured in the normally closed (NC) or normally open (NO) position. The 925 sensor detects the presence or loss of fluid at multiple levels anywhere the sensor is installed. If the liquid level rises above (float in NO position) or below (float in NC position) the threshold of the 925 sensor, an alarm condition is generated. The sensor can easily be removed, cleaned and reinstalled if an alarm is triggered or for periodic testing. This 925 sensor was evaluated using the floats setup to alarm at the lowest level as well as the highest level. The manufacture has the ability to configure the 925 sensor to alarm at an additional 3 points between the lowest and highest level.

3.0 Evaluation Procedures

Test Apparatus

The evaluation of this system was designed to determine if the liquid level sensor operates as described by the vendor. The sensor was mounted in a test container in which water, E85, unleaded gasoline and diesel fuel was added.

Threshold Determination

A peristaltic pump was used to add or remove the liquid from the test cylinder containing the sensor until the sensor alarmed. The threshold was measured directly with a dial micrometer. This procedure was repeated a total of 6 times for each test fluid and an alarm was verified for both the 918AC and 918S console.

Detection Time

The time required for the sensor to respond to product levels beyond the sensor's threshold is the sensor's detection time. The average time to alarm for the six tests conducted for each product type is reported as the detection time. In the case of on/off float switches this time is very short.

Fall Times

The time required for the sensor to stop responding once the product level has been raised or lowered within the sensor's threshold is the sensor's fall time. The average fall time for the six tests conducted for each product type is reported as the fall time.

Specificity

The specificity defines the different products that liquid level sensors will respond to. Most sensors will respond to any liquid once the sensor's threshold level has been exceeded unless the sensor has been designed otherwise. Although this sensor will respond to any liquid, the testing conducted for this evaluation determined the sensor's response to water, unleaded gasoline and diesel fuel.

4.0 Test Results

The data and results for the 924LS, 924 and 925 sensors are contained in Table 1.

Lower Detection Level (Threshold)

The sensor was only tested for its ability to detect liquid levels at the alarm levels.

Precision (Standard Deviation)

Six replicates were conducted for the liquid level for each of the sensors and an alarm was verified for both the 918AC and 918S console. Also included in this report are the 918D and 918Q since they are functionally identical with the exception of additional channels. The standard deviation was determined from these replicates.

Detection Time

The sensor alarms within a few seconds after the threshold was reached. This will be true for any liquid in the reservoir. The manufacturer supports a detection time of less than 5 seconds.

Fall Time

The sensor stops alarming within a few seconds after the liquid level is within the threshold of the sensor. This will be true for any liquid in the reservoir. The manufacturer supports a fall time of less than 5 seconds.

Specificity

This sensor will respond to any liquid that is compatible with the system in which it is installed. Water, unleaded gasoline and diesel fuel were used for this evaluation.

Time to Alarm under Operating Conditions

The time for a liquid level sensor to alarm will depend on the size and geometry of the space in which it is installed and the rate of leakage into this space. The time to alarm can be calculated by dividing the volume necessary to reach the threshold by the leak rate.

Table 1. Test Results for the Morrison Bros. Co. 924LS, 924 and 925 Sensors**Test Results for the 924 LS Sensor - Normally Closed**

Run #	Height at Alarm(inches)			
	Water	Diesel	E85	Unleaded
1	0.631	0.7075	0.715	0.722
2	0.628	0.703	0.717	0.725
3	0.633	0.694	0.72	0.724
4	0.6365	0.6945	0.7185	0.728
5	0.633	0.7	0.712	0.731
6	0.6265	0.707	0.7145	0.7285

Mean	0.6313	0.7010	0.7162	0.7264
STDEV	0.0037	0.0059	0.0029	0.0033
Threshold	0.6449	0.7229	0.7270	0.7387

Test Results for the 924 LS Sensor - Normally Open

Run #	Height at Alarm(inches)			
	Water	Diesel	E85	Unleaded
1	0.788	0.8945	0.9195	0.929
2	0.799	0.8955	0.9225	0.9315
3	0.794	0.888	0.927	0.932
4	0.795	0.8995	0.9175	0.929
5	0.801	0.8945	0.919	0.928
6	0.8015	0.893	0.9205	0.9345

Mean	0.7964	0.8942	0.9210	0.9307
STDEV	0.0051	0.0037	0.0034	0.0024
Threshold	0.8155	0.9080	0.9335	0.9397

Test Results for the 924 Sensor - NC position

Run #	Height at Alarm(inches)			
	Water	Diesel	E85	Unleaded
1	2.007	2.1625	2.219	2.2285
2	2.0115	2.175	2.216	2.224
3	2.001	2.1685	2.212	2.2165
4	2	2.176	2.1995	2.215
5	2.003	2.1695	2.199	2.227
6	2.0055	2.171	2.199	2.2235
Mean	2.0047	2.1704	2.2074	2.2224
STDEV	0.0043	0.0049	0.0093	0.0055
Threshold	2.0205	2.1886	2.2419	2.2428

Test Results for the 924 Sensor -NO position

Run #	Height at Alarm(inches)			
	Water	Diesel	E85	Unleaded
1	2.315	2.4965	2.5315	2.547
2	2.315	2.484	2.5375	2.552
3	2.326	2.487	2.5455	2.5465
4	2.321	2.484	2.5395	2.5505
5	2.314	2.485	2.5425	2.545
6	2.326	2.497	2.542	2.545
Mean	2.3195	2.4889	2.5398	2.5477
STDEV	0.0056	0.0062	0.0049	0.0029
Threshold	2.3403	2.5118	2.5578	2.5585

Test Results for the 925 Sensor - Low Level - Bottom Float - NC position

Run #	Height at Alarm(inches)			
	Water	Diesel	E85	Unleaded
1	2.2575	2.4405	2.479	2.506
2	2.2495	2.4345	2.486	2.5055
3	2.2525	2.4445	2.489	2.507
4	2.255	2.439	2.4815	2.5015
5	2.2565	2.44	2.486	2.5035
6	2.251	2.4385	2.4795	2.508
Mean	2.2537	2.4395	2.4835	2.5053
STDEV	0.0032	0.0032	0.0041	0.0024
Threshold	2.2654	2.4515	2.4986	2.5141

Test Results for the 925 Sensor - Low Level - Bottom Float - NO position

Run #	Height at Alarm(inches)			
	Water	Diesel	E85	Unleaded
1	2.566	2.768	2.8065	2.825
2	2.5785	2.7695	2.7995	2.8205
3	2.572	2.764	2.804	2.8295
4	2.569	2.7705	2.805	2.828
5	2.5725	2.7655	2.8035	2.8285
6	2.5685	2.767	2.8015	2.824
Mean	2.5711	2.7674	2.8033	2.8259
STDEV	0.0044	0.0024	0.0025	0.0034
Threshold	2.5872	2.7765	2.8126	2.8385

Test Results for the 925 Sensor -Low Level - Top Float - Normally Closed

Run #	Height at Alarm(inches)			
	Water	Diesel	E85	Unleaded
1	4.7705	4.921	4.955	4.981
2	4.7755	4.925	4.9525	4.9775
3	4.769	4.9265	4.948	4.975
4	4.7715	4.9275	4.9495	4.981
5	4.774	4.9205	4.955	4.982
6	4.771	4.923	4.9545	4.978

Mean **4.7719** **4.9239** **4.9524** **4.9791**
STDEV **0.0024** **0.0029** **0.0030** **0.0027**
Threshold **4.7808** **4.9346** **4.9636** **4.9891**

Test Results for the 925 Sensor - Low Level - Top Float - Normally Open

Run #	Height at Alarm(inches)			
	Water	Diesel	E85	Unleaded
1	5.0715	5.2585	5.2735	5.2875
2	5.069	5.247	5.271	5.292
3	5.0675	5.2495	5.274	5.297
4	5.0735	5.2515	5.275	5.2955
5	5.0695	5.2555	5.2705	5.2905
6	5.0705	5.251	5.273	5.296

Mean **5.0703** **5.2522** **5.2728** **5.2931**
STDEV **0.0021** **0.0042** **0.0018** **0.0037**
Threshold **5.0780** **5.2676** **5.2793** **5.3068**

Test Results for the 925 Sensor -High Level - Bottom Float - Normally Closed

Run #	Height at Alarm(inches)			
	Water	Diesel	E85	Unleaded
1	52.75	52.9895	53.0255	53.079
2	52.748	52.985	53.0215	53.0705
3	52.747	52.989	53.028	53.0775
4	52.7505	52.9905	53.0245	53.0765
5	52.752	52.9865	53.023	53.068
6	52.7525	52.987	53.028	53.0725

Mean **52.7500** **52.9879** **53.0251** **53.0740**
STDEV **0.0022** **0.0021** **0.0026** **0.0043**
Threshold **52.7580** **52.9956** **53.0349** **53.0901**

Test Results for the 925 Sensor - High Level - Bottom Float - Normally Open

Run #	Height at Alarm(inches)			
	Water	Diesel	E85	Unleaded
1	53.052	53.299	53.3295	53.3755
2	53.0505	53.3005	53.329	53.3745
3	53.055	53.309	53.3275	53.373
4	53.0575	53.2975	53.338	53.3795
5	53.052	53.3045	53.3285	53.3785
6	53.0545	53.3085	53.337	53.377

Mean **53.0536** **53.3032** **53.3316** **53.3763**
STDEV **0.0026** **0.0049** **0.0046** **0.0025**
Threshold **53.0631** **53.3214** **53.3488** **53.3855**

Test Results for the 925 Sensor -High Level - Top Float - Normally Closed

Run #	Height at Alarm(inches)			
	Water	Diesel	E85	Unleaded
1	55.225	55.466	55.5015	55.549
2	55.228	55.4625	55.504	55.5485
3	55.2295	55.4685	55.5055	55.5415
4	55.227	55.4675	55.506	55.545
5	55.223	55.4705	55.501	55.547
6	55.2245	55.4665	55.507	55.5435

Mean **55.2262** **55.4669** **55.5042** **55.5458**
STDEV **0.0024** **0.0027** **0.0025** **0.0029**
Threshold **55.2351** **55.4769** **55.5133** **55.5567**

Test Results for the 925 Sensor - High Level - Top Float - Normally Open

Run #	Height at Alarm(inches)			
	Water	Diesel	E85	Unleaded
1	55.553	55.8005	55.831	55.8765
2	55.5505	55.797	55.836	55.876
3	55.5535	55.7965	55.8385	55.8705
4	55.5565	55.8025	55.829	55.872
5	55.554	55.804	55.8365	55.8785
6	55.551	55.796	55.8355	55.876

Mean **55.5531** **55.7994** **55.8344** **55.8749**
STDEV **0.0022** **0.0034** **0.0036** **0.0030**
Threshold **55.5612** **55.8120** **55.8479** **55.8861**

***Detection Time for both alarm consoles and all liquids - <5 seconds**

***Fall Time for both alarm consoles and all liquids - <5 seconds**

Attachment A

Results Forms for the Morrison Bros. Co. Sensors

924LS, 924 and 925 Liquid Sensors

Results of U.S. EPA Alternative Evaluation

Liquid Level Sensor

This form documents the performance of the liquid level sensor described below. The evaluation was conducted by the equipment manufacturer or a consultant to the manufacturer according to the U.S. EPA's requirements for alternative protocols. The full evaluation report also includes a report describing the method, a description of the evaluation procedures, and a summary of the test data.

Tank owners using this system should keep this form on file to prove compliance with the federal regulations. Tank owners should check with state and local agencies to make sure this form satisfies their requirements.

Method Description

Name Morrison Bros. Co. Liquid Sensors

Version number(s) 924LS, 924 and 925 Sensors

For use with the 918AC, 918S, 918D and 918Q alarm boxes

Vendor Morrison Bros. Co.

(Name of Manufacturer)

570 East 7th Street

(Address)

Dubuque

(City)

IA

(State)

52001

(Zip Code)

(563) 583-5701

(Phone)

Evaluation Parameters

The sensor listed above was tested for the abilities to respond to liquids when the sensor is installed in underground storage tank applications. The following parameters were determined from this evaluation.

Threshold Levels – The liquid levels at which alarms are triggered.

Precision (standard deviation) - Agreement between multiple measurements of the same product level.

Detection Time - Amount of time the detector must be exposed to product before it responds.

Fall Time - Amount of time before the detector stops responding after being removed from the product.

Specificity - Types of products that the sensor will respond to.

Evaluation Results

Note: If the test data can be presented in a more appropriate manner, the evaluator may select to present the information below in a data table, which can be attached to these forms.

924 LS Sensor

Table 1. Results of the 924 LS with Water

Parameter	Data - NO	Data - NC
Threshold Level (inches)	0.8155	0.6449
Precision - Standard Deviation (inches)	0.0051	0.0037
Detection Time (seconds)	<5	<5
Fall Time (seconds)	<5	<5

Table 2. Results of the 924 LS with Diesel

Parameter	Data - NO	Data - NC
Threshold Level (inches)	0.9080	0.7229
Precision - Standard Deviation (inches)	0.0037	0.0059
Detection Time (seconds)	<5	<5
Fall Time (seconds)	<5	<5

Table 3. Results of the 924 LS with E85

Parameter	Data - NO	Data - NC
Threshold Level	0.9335	0.7270
Precision - Standard Deviation (inches)	0.0034	0.0029
Detection Time (seconds)	<5	<5
Fall Time (seconds)	<5	<5

Table 4. Results of the 924 LS with Unleaded

Parameter	Data - NO	Data - NC
Threshold Level	0.9397	0.7387
Precision - Standard Deviation (inches)	0.0024	0.0030
Detection Time (seconds)	<5	<5
Fall Time (seconds)	<5	<5

924 Sensor

Table 5. Results of the 924 with Water

Parameter	Data - NO	Data - NC
Threshold Level (inches)	2.3403	2.0205
Precision - Standard Deviation (inches)	0.0056	0.0043
Detection Time (seconds)	<5	<5
Fall Time (seconds)	<5	<5

Table 6. Results of the 924 with Diesel

Parameter	Data - NO	Data - NC
Threshold Level (inches)	2.5118	2.1886
Precision - Standard Deviation (inches)	0.0062	0.0049
Detection Time (seconds)	<5	<5
Fall Time (seconds)	<5	<5

Table 7. Results of the 924 with E85

Parameter	Data - NO	Data - NC
Threshold Level	2.5578	2.2419
Precision - Standard Deviation (inches)	0.0049	0.0093
Detection Time (seconds)	<5	<5
Fall Time (seconds)	<5	<5

Table 8. Results of the 924 with Unleaded

Parameter	Data - NO	Data - NC
Threshold Level	2.5585	2.2428
Precision - Standard Deviation (inches)	0.0029	0.0055
Detection Time (seconds)	<5	<5
Fall Time (seconds)	<5	<5

925 Sensor

Table 9. Results of the 925 lowest level bottom float with Water

Parameter	Data - NO	Data - NC
Threshold Level (inches)	2.5872	2.2654
Precision - Standard Deviation (inches)	0.0044	0.0032
Detection Time (seconds)	<5	<5
Fall Time (seconds)	<5	<5

Table 10. Results of the 925 lowest level bottom float with Diesel

Parameter	Data - NO	Data - NC
Threshold Level (inches)	2.7765	2.4515
Precision - Standard Deviation (inches)	0.0024	0.0032
Detection Time (seconds)	<5	<5
Fall Time (seconds)	<5	<5

Table 11. Results of the 925 lowest level bottom float with E85

Parameter	Data - NO	Data - NC
Threshold Level	2.8126	2.4986
Precision - Standard Deviation (inches)	0.0025	0.0041
Detection Time (seconds)	< 5	< 5
Fall Time (seconds)	< 5	< 5

Table 12. Results of the 925 lowest level bottom float with Unleaded

Parameter	Data - NO	Data - NC
Threshold Level	2.8385	2.5141
Precision - Standard Deviation (inches)	0.0034	0.0024
Detection Time (seconds)	< 5	< 5
Fall Time (seconds)	< 5	<5

Table 13. Results of the 925 lowest level top float with Water

Parameter	Data - NO	Data - NC
Threshold Level (inches)	5.0780	4.7808
Precision - Standard Deviation (inches)	0.0021	0.0024
Detection Time (seconds)	< 5	<5
Fall Time (seconds)	<5	<5

Table 14. Results of the 925 lowest level top float with Diesel

Parameter	Data - NO	Data - NC
Threshold Level (inches)	5.2676	4.9346
Precision - Standard Deviation (inches)	0.0042	0.0029
Detection Time (seconds)	< 5	< 5
Fall Time (seconds)	<5	<5

Table 15. Results of the 925 lowest level top float with E85

Parameter	Data - NO	Data - NC
Threshold Level	5.2793	4.9636
Precision - Standard Deviation (inches)	0.0018	0.0030
Detection Time (seconds)	< 5	< 5
Fall Time (seconds)	< 5	< 5

Table 16. Results of the 925 lowest level top float with Unleaded

Parameter	Data - NO	Data - NC
Threshold Level	5.3068	4.9891
Precision - Standard Deviation (inches)	0.0037	0.0027
Detection Time (seconds)	< 5	< 5
Fall Time (seconds)	< 5	< 5

Table 17. Results of the 925 highest level bottom float with Water

Parameter	Data - NO	Data - NC
Threshold Level (inches)	53.0631	52.7580
Precision - Standard Deviation (inches)	0.0026	0.0022
Detection Time (seconds)	< 5	<5
Fall Time (seconds)	<5	<5

Table 18. Results of the 925 highest level bottom float with Diesel

Parameter	Data - NO	Data - NC
Threshold Level (inches)	53.3214	52.9956
Precision - Standard Deviation (inches)	0.0049	0.0021
Detection Time (seconds)	< 5	< 5
Fall Time (seconds)	<5	<5

Table 19. Results of the 925 highest level bottom float with E85

Parameter	Data - NO	Data - NC
Threshold Level	53.3488	53.0349
Precision - Standard Deviation (inches)	0.0046	0.0026
Detection Time (seconds)	< 5	< 5
Fall Time (seconds)	< 5	< 5

Table 20. Results of the 925 highest level bottom float with Unleaded

Parameter	Data - NO	Data - NC
Threshold Level	53.3855	53.0901
Precision - Standard Deviation (inches)	0.0025	0.0043
Detection Time (seconds)	< 5	< 5
Fall Time (seconds)	< 5	< 5

Table 21. Results of the 925 highest level top float with Water

Parameter	Data - NO	Data - NC
Threshold Level (inches)	55.5612	55.2351
Precision - Standard Deviation (inches)	0.0022	0.0024
Detection Time (seconds)	< 5	< 5
Fall Time (seconds)	<5	<5

Table 22. Results of the 925 highest level top float with Diesel

Parameter	Data - NO	Data - NC
Threshold Level (inches)	55.8120	55.4769
Precision - Standard Deviation (inches)	0.0034	0.0027
Detection Time (seconds)	< 5	< 5
Fall Time (seconds)	<5	<5

Table 23. Results of the 925 highest level top float with E85

Parameter	Data - NO	Data - NC
Threshold Level	55.8479	55.5133
Precision - Standard Deviation (inches)	0.0036	0.0025
Detection Time (seconds)	< 5	< 5
Fall Time (seconds)	< 5	< 5

Table 24. Results of the 925 highest level top float with Unleaded

Parameter	Data - NO	Data - NC
Threshold Level	55.8861	55.5567
Precision - Standard Deviation (inches)	0.0030	0.0029
Detection Time (seconds)	< 5	< 5
Fall Time (seconds)	< 5	< 5

Specificity – The sensors will respond to any liquid after the threshold is exceeded.
This testing was specifically done to determine performance using water, E85, diesel fuel
and unleaded gasoline.

Additional Limitations or Considerations - None

> Safety Disclaimer: This test procedure only addresses the issue of the methods ability to respond to liquids. It does not test the equipment for safety hazards.

Certification of Results

I certify that the liquid level sensor was tested under conditions according to the vendor's operating instructions. I also certify that the evaluation was performed using methods described in the attached Alternative EPA Test Procedures for Liquid level sensors, and that the results presented above are those obtained during the evaluation.

H. Kendall Wilcox, Ph.D., President
(printed name)

Craig Wilcox, Vice President
(printed name)

H. Kendall Wilcox

Craig Wilcox

(Signature)

(Signature)

Ken Wilcox Associates, Inc.
(organization performing evaluation)

Grain Valley, MO 64029
(city, state, zip)

September 30, 2015
(date)

(816) 443-2494
(phone number)

Laboratory Data

Morrison Bros. Co. Sensor Data

Test Results for the 924 LS Sensor - Normally Closed

Run #	Height at Alarm(inches)			
	Water	Diesel	E85	Unleaded
1	0.631	0.7075	0.715	0.722
2	0.628	0.703	0.717	0.725
3	0.633	0.694	0.72	0.724
4	0.6365	0.6945	0.7185	0.728
5	0.633	0.7	0.712	0.731
6	0.6265	0.707	0.7145	0.7285
Mean	0.6313	0.7010	0.7162	0.7264
STDEV	0.0037	0.0059	0.0029	0.0033
Threshold	0.6449	0.7229	0.7270	0.7387

Test Results for the 924 LS Sensor - Normally Open

Run #	Height at Alarm(inches)			
	Water	Diesel	E85	Unleaded
1	0.788	0.8945	0.9195	0.929
2	0.799	0.8955	0.9225	0.9315
3	0.794	0.888	0.927	0.932
4	0.795	0.8995	0.9175	0.929
5	0.801	0.8945	0.919	0.928
6	0.8015	0.893	0.9205	0.9345
Mean	0.7964	0.8942	0.9210	0.9307
STDEV	0.0051	0.0037	0.0034	0.0024
Threshold	0.8155	0.9080	0.9335	0.9397

Test Results for the 924 Sensor - NC position

Run #	Height at Alarm(inches)			
	Water	Diesel	E85	Unleaded
1	2.007	2.1625	2.219	2.2285
2	2.0115	2.175	2.216	2.224
3	2.001	2.1685	2.212	2.2165
4	2	2.176	2.1995	2.215
5	2.003	2.1695	2.199	2.227
6	2.0055	2.171	2.199	2.2235
Mean	2.0047	2.1704	2.2074	2.2224
STDEV	0.0043	0.0049	0.0093	0.0055
Threshold	2.0205	2.1886	2.2419	2.2428

Test Results for the 924 Sensor -NO position

Run #	Height at Alarm(inches)			
	Water	Diesel	E85	Unleaded
1	2.315	2.4965	2.5315	2.547
2	2.315	2.484	2.5375	2.552
3	2.326	2.487	2.5455	2.5465
4	2.321	2.484	2.5395	2.5505
5	2.314	2.485	2.5425	2.545
6	2.326	2.497	2.542	2.545
Mean	2.3195	2.4889	2.5398	2.5477
STDEV	0.0056	0.0062	0.0049	0.0029
Threshold	2.3403	2.5118	2.5578	2.5585

Test Results for the 925 Sensor - Low Level - Bottom Float - NO position

Run #	Height at Alarm(inches)			
	Water	Diesel	E85	Unleaded
1	2.2575	2.4405	2.479	2.506
2	2.2495	2.4345	2.486	2.5055
3	2.2525	2.4445	2.489	2.507
4	2.255	2.439	2.4815	2.5015
5	2.2565	2.44	2.486	2.5035
6	2.251	2.4385	2.4795	2.508
Mean	2.2537	2.4395	2.4835	2.5053
STDEV	0.0032	0.0032	0.0041	0.0024
Threshold	2.2654	2.4515	2.4986	2.5141

Test Results for the 925 Sensor - Low Level - Bottom Float - NC position

Run #	Height at Alarm(inches)			
	Water	Diesel	E85	Unleaded
1	2.566	2.768	2.8065	2.825
2	2.5785	2.7695	2.7995	2.8205
3	2.572	2.764	2.804	2.8295
4	2.569	2.7705	2.805	2.828
5	2.5725	2.7655	2.8035	2.8285
6	2.5685	2.767	2.8015	2.824
Mean	2.5711	2.7674	2.8033	2.8259
STDEV	0.0044	0.0024	0.0025	0.0034
Threshold	2.5872	2.7765	2.8126	2.8385

Liquid Level Sensor - Results Form

Test Results for the 925 Sensor -Low Level - Top Float - Normally Closed

Run #	Height at Alarm(inches)			
	Water	Diesel	E85	Unleaded
1	4.7705	4.921	4.955	4.981
2	4.7755	4.925	4.9525	4.9775
3	4.769	4.9265	4.948	4.975
4	4.7715	4.9275	4.9495	4.981
5	4.774	4.9205	4.955	4.982
6	4.771	4.923	4.9545	4.978

Mean **4.7719** **4.9239** **4.9524** **4.9791**
STDEV **0.0024** **0.0029** **0.0030** **0.0027**
Threshold **4.7808** **4.9346** **4.9636** **4.9891**

Test Results for the 925 Sensor - Low Level - Top Float - Normally Open

Run #	Height at Alarm(inches)			
	Water	Diesel	E85	Unleaded
1	5.0715	5.2585	5.2735	5.2875
2	5.069	5.247	5.271	5.292
3	5.0675	5.2495	5.274	5.297
4	5.0735	5.2515	5.275	5.2955
5	5.0695	5.2555	5.2705	5.2905
6	5.0705	5.251	5.273	5.296

Mean **5.0703** **5.2522** **5.2728** **5.2931**
STDEV **0.0021** **0.0042** **0.0018** **0.0037**
Threshold **5.0780** **5.2676** **5.2793** **5.3068**

Test Results for the 925 Sensor -High Level - Bottom Float - Normally Closed

Run #	Height at Alarm(inches)			
	Water	Diesel	E85	Unleaded
1	52.75	52.9895	53.0255	53.079
2	52.748	52.985	53.0215	53.0705
3	52.747	52.989	53.028	53.0775
4	52.7505	52.9905	53.0245	53.0765
5	52.752	52.9865	53.023	53.068
6	52.7525	52.987	53.028	53.0725

Mean **52.7500** **52.9879** **53.0251** **53.0740**
STDEV **0.0022** **0.0021** **0.0026** **0.0043**
Threshold **52.7580** **52.9956** **53.0349** **53.0901**

Test Results for the 925 Sensor - High Level - Bottom Float - Normally Open

Run #	Height at Alarm(inches)			
	Water	Diesel	E85	Unleaded
1	53.052	53.299	53.3295	53.3755
2	53.0505	53.3005	53.329	53.3745
3	53.055	53.309	53.3275	53.373
4	53.0575	53.2975	53.338	53.3795
5	53.052	53.3045	53.3285	53.3785
6	53.0545	53.3085	53.337	53.377

Mean **53.0536** **53.3032** **53.3316** **53.3763**
STDEV **0.0026** **0.0049** **0.0046** **0.0025**
Threshold **53.0631** **53.3214** **53.3488** **53.3855**

Test Results for the 925 Sensor -High Level - Top Float - Normally Closed

Run #	Height at Alarm(inches)			
	Water	Diesel	E85	Unleaded
1	55.225	55.466	55.5015	55.549
2	55.228	55.4625	55.504	55.5485
3	55.2295	55.4685	55.5055	55.5415
4	55.227	55.4675	55.506	55.545
5	55.223	55.4705	55.501	55.547
6	55.2245	55.4665	55.507	55.5435
Mean	55.2262	55.4669	55.5042	55.5458
STDEV	0.0024	0.0027	0.0025	0.0029
Threshold	55.2351	55.4769	55.5133	55.5567

Test Results for the 925 Sensor - High Level - Top Float - Normally Open

Run #	Height at Alarm(inches)			
	Water	Diesel	E85	Unleaded
1	55.553	55.8005	55.831	55.8765
2	55.5505	55.797	55.836	55.876
3	55.5535	55.7965	55.8385	55.8705
4	55.5565	55.8025	55.829	55.872
5	55.554	55.804	55.8365	55.8785
6	55.551	55.796	55.8355	55.876
Mean	55.5531	55.7994	55.8344	55.8749
STDEV	0.0022	0.0034	0.0036	0.0030
Threshold	55.5612	55.8120	55.8479	55.8861

***Detection Time for both alarm consoles and all liquids - <5 seconds**

***Fall Time for both alarm consoles and all liquids - <5 seconds**



Florida Department of Environmental Protection

Bob Martinez Center
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Rick Scott
Governor

Carlos Lopez-Cantera
Lt. Governor

Jonathan P. Steverson
Secretary

VIA ELECTRONIC MAIL

Jerry Schollmeyer <jschollmeyer@morbro.com>

Mr. Jerry Schollmeyer
Morrison Brothers Co.
570 East 7th Street
Dubuque, IA 52001

Subject: Approval of the Morrison Brothers Co.
Model 924 & 924S, 924LS, 925 & 925S Series Liquid Sensors
File No. EQ-862

Dear Mr. Schollmeyer:

The Office of District and Business Support has concluded its review of the Equipment Approval request dated December 10, 2015, that was submitted by Morrison Brothers Co. for its Models 924 & 924S, 924LS, 925 & 925S Series Liquid Sensors, pursuant to Rules 62-761.500(5), 62-761.640(3)(a), 62-761.850(2), 62-762.501(2)(d), 62-762.641(3)(a), and 62-762.851(2), Florida Administrative Code (F.A.C.). The Morrison Brothers Co., Models 924 & 924S, 924LS, 925 & 925S Series Liquid Level Sensors measure the liquid level in the tank and may be used to meet the overfill protection requirements for underground and aboveground storage tanks by providing fill level information or an alarm to the operator that is filling the tank. The Liquid Sensors will provide release detection for the interstices of the storage tank systems.

Based on the information provided by Morrison Brothers Co., the Models 924 & 924S, 924LS, 925 & 925S Series Liquid Sensors provides environmental protection that is equivalent to that provided by compliance with the requirements established in Rules 62-761.500(5), 62-761.640(3)(a), 62-762.641(3)(3)(a), and 62-762.501(1)(e)2., F.A.C. The Morrison Brothers Co., Models 924 & 924S, 924LS, 925 & 925S Series Liquid Sensors may be used as an overfill protection device or release detection sensors for aboveground and underground storage tank systems, in accordance with the requirements of Chapter 62-761, and Chapter 62-762, F.A.C.

Pursuant to Rules 62-761.850(2), and 62-762.851(2), F.A.C., the request for the use of the Morrison Brothers Co. Models 924 & 924S, 924LS, 925 & 925S Series Liquid Sensors Level is approved in the State of Florida as overfill protection devices in the State of Florida, provided that the gauge is either visible to the operator during the filling of the tank, or is connected to an alarm that will alert the operator when the maximum fill level is reached, and as a release detection sensor in the interstices of storage tank systems. The installation and maintenance of the clock gauge device must be in accordance with the manufacturer's recommendations.

Please be advised that the above referenced DEP rules are subject to change. If the above rule standards are modified in the future, this order may be modified or rescinded for future upgrades and installations. Additionally, if the product(s) show a consistent pattern of failure(s), and therefore does not provide substantially equivalent environmental protection, the Department may rescind this order.

The Department's Order shall become final unless a timely petition for an administrative hearing is filed under sections 120.569 and 120.57, F.S., within **21** days of receipt of this Order. Persons who have filed such a petition may seek to mediate the dispute, and choosing mediation will not adversely affect the right to a hearing if mediation does not result in a settlement. The procedures for petitioning a hearing and pursuing mediation are set forth below.

Persons affected by this Order have the following options:

- A. If you choose to accept the Department's decision regarding the Order, you do not have to do anything. This Order is final and effective as of the date it is clerked and filed (see page 5).
- B. If you choose to challenge the decision, you may do the following:
 - 1. File a request for an extension of time to file a petition for hearing with the Department's Agency Clerk in the Office of General Counsel within **21** days of receipt of this Order. This request should be made if you wish to meet with the Department in an attempt to resolve any disputes without first filing a petition for hearing or negotiate an agreement to mediate; or
 - 2. File a petition for administrative hearing with the Department's Agency Clerk in the Office of General Counsel within **21** days of receipt of this Order.

In addition to requesting an administrative hearing, any petitioner may elect to pursue mediation under Section 120.573, F.S., and must negotiate an agreement to mediate within **10** days after the deadline for filing a petition.

How to Request an Extension of Time to File a Petition for Hearing

For good cause shown, pursuant to Rule 62-110.106(4), F.A.C., the Department may grant a request for an extension of time to file a petition for hearing. Such a request must be filed (received) by the Agency Clerk in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida, 32399-3000, within **21** days of receipt of this Order. Petitioner, if different from the applicant, shall mail a copy of the request to the applicant at the time of filing. Failure to file a petition within this time period shall waive the right of anyone who may request an administrative hearing under Sections 120.569 and 120.57, F.S.

How to File a Petition for Administrative Hearing

A person whose substantial interests are affected by this Order may petition for an administrative proceeding (hearing) under Sections 120.569 and 120.57, F.S. The petition must contain the

information set forth below and must be filed (received) by the Agency Clerk in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, MS 35, Tallahassee, Florida, 32399-3000, within **21** days of receipt of this Order. Petitioner, if different from the applicant, shall mail a copy of the petition to the applicant at the time of filing. Failure to file a petition within this time period shall waive the right of anyone who may request an administrative hearing under Sections 120.569 and 120.57, F.S.

Pursuant to Subsection 120.569(2), F.S., and Rule 28-106.201, F.A.C., a petition for administrative hearing shall contain the following information.

- a) The name, address, and telephone number of each petitioner; the name, address, and telephone number of the petitioner's representative, if any, the site owner's name and address, if different from the petitioner, the DEP facility number, and the name and address of the facility;
- b) A statement of when and how the petitioner received notice of the Department's action or proposed action;
- c) An explanation of how each petitioner's substantial interests are or will be affected by the Department's action or proposed action;
- d) A statement of the disputed issues of material fact, or a statement that there are no disputed facts;
- e) A concise statement of the ultimate facts alleged, including a statement of the specific facts the petitioner contends warrant reversal or modification of the Department's action or proposed action;
- f) A statement of the specific rules or statutes the petitioner contends requires reversal or modification of the Department's action or proposed action; and
- g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the Department to take with respect to the Department's action or proposed action.

How to Pursue Mediation

In addition to requesting an administrative hearing, any petitioner may elect to pursue mediation. The election may be accomplished by filing with the Department a mediation agreement with all parties to the proceeding (i.e., the applicant, the Department, and any person who has filed a timely and sufficient petition for hearing). The agreement must contain all the information required by Rule 28-106.404, F.A.C. The agreement, signed by all parties, must be received by the Agency Clerk in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida, 32399-3000 within **10** days after the deadline for filing a petition, as set forth above. Choosing mediation will not adversely affect the right to a hearing if mediation does not result in a settlement.

Pursuant to Rule 28-106.404, F.A.C., an agreement to mediate must include the following.

- (i) The name, address, and telephone number of the persons who may attend the mediation, (also the DEP facility number, the name and address of the facility if applicable);
- (ii) The name, address, and telephone number of the mediator agreed to by the parties;
- (iii) How the costs and fees associated with the mediation will be allocated (the Department will not pay any of the costs of mediation);

- (iv) The agreement of the parties regarding the confidentiality of discussions and documents introduced during mediation to the extent authorized by law;
- (v) The date, time, and place of the first mediation session;
- (vi) The name of the party's representative who shall have authority to settle or recommend settlement; and
- (vii) The signature of the parties.

As provided in Section 120.573, F.S., the timely agreement of all parties to mediate will toll the time limitations imposed by Sections 120.569 and 120.57, F.S., for holding an administrative hearing and issuing a final order. Unless otherwise agreed by the parties, the mediation must be concluded within sixty days of the execution of the agreement. If mediation results in settlement of the administrative dispute, the Department must enter a final order incorporating the agreement of the parties. Persons seeking to protect their substantial interests that would be affected by such a modified final decision must file their petitions within **21** days of receipt of this notice, or they shall be deemed to have waived their right to a proceeding under Sections 120.569 and 120.57, F.S. If mediation terminates without settlement of the dispute, the Department shall notify all parties in writing that the administrative hearing processes under Sections 120.569 and 120.57, F.S., are resumed.

This Order is final and effective as of the date it is clerked and filed (see page 5). Timely filing a petition for administrative hearing postpones the date this Order takes effect until the Department issues either a final order pursuant to an administrative hearing or mediation settlement.

Judicial Review

Any party to this Order has the right to seek judicial review of it under Section 120.68, F.S., by filing a notice of appeal under Rule 9.110 of the Florida Rules of Appellate Procedure with the Agency Clerk of the Department in the Office of General Counsel, Mail Station 35, 3900 Commonwealth Boulevard, Tallahassee, Florida 32399-3000, and by filing a copy of the notice of appeal accompanied by the applicable filing fees with the appropriate district court of appeal. The notice of appeal must be filed within thirty days after this order is filed with the clerk of the Department (see below).

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Mr. Jerry Schollmeyer

EQ-862

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Questions

Any questions regarding the Department's review of your equipment approval should be directed to John Svec at (850)245-8845. Questions regarding legal issues should be referred to Betsy Hewitt, Office of General Counsel, at (850)245-2267. Contact with any of the above does not constitute a petition for administrative hearing, a request for a time extension to file a petition for hearing or an agreement to mediate.

Sincerely,



John A. Coates, PE, Assistant Division Director
Division of Waste Management

JAC/js

FILING AND ACKNOWLEDGMENT FILED,
on this date, pursuant to §120.52 Florida Statutes,
with the designated Department Clerk, receipt of
which is hereby acknowledged.

2/1/2016


X

Judith Pennington

Signed by: Penningto_JA

Clerk
(or Deputy Clerk)

Date



Multi-Level Sensor

925

Float-activated simple switch device capable of sensing liquid levels from 1 to 4 specified set points.

[Features](#)[Ordering Instructions](#)[Downloads](#)

Features and Details

Audible and visual alarm functionality when paired with Morrison 918AC System Interface or 918S/D/Q Tank Alarm

1 to 4 user-specified liquid level set points (4¼" minimum to 141¼" maximum set point range)

Installs into a 2" NPT female threaded opening

24" lead wire length Normally open or normally closed switch orientations available (specified at time of order)

Materials of Construction

- Wires: Teflon® jacketed wires
- Floats: 316 stainless steel
- Stem: brass (925); 304 stainless steel (925S)
- Bushing: e-coated steel (925); 304 stainless steel (925S)

Operational Criteria—Electrical Switch Ratings

100 watt resistive load, 300VAC - 700mA max / 350VDC - 1.0A max, SPST

**Switch ratings are for resistive loads only.*

**Do not use for inductive loads.*

Code Compliance

Third party EPA evaluated with both 918AC System Interface and 918S/D/Q Tank Alarm.

Ordering

To order, please complete the 925 Multi-Level Sensor Order Form and send with your purchase order to Morrison Bros. Please note that each unit is made to order specifically to the requirements on the order form; longer lead times may apply.

Sales

Meet our Domestic and International Sales Team.



Product Literature

View and download Morrison product catalogs and literature.



CARB Certification

Morrison Bros. Co. has received approval from California's Air Resource Board for a Phase 1 Enhanced Vapor



Sensors/Probes



Adjustable Level Sensor with Alarm

Product SKU: 918S-924, 918S-924S

This adjustable float activated simple switch device with alarm is used to monitor liquid level at a desired set point.

**Note: Alarm & Sensor are packaged separately.*



Adjustable Level Sensor

Product SKU: 924, 924S

Adjustable float activated simple switch device; used to monitor liquid level at a desired set point.



Multi-Level Sensor

Product SKU: 925

Float-activated simple switch device capable of sensing liquid levels from 1 to 4 specified set points.



Liter Gauge Alarm

Product SKU: FIG 918C

The Morrison Model 818C and 918C Liter Gauges are used to measure the liquid level in an aboveground storage tank. The Liter Gauge provides an approximate read out clearly displayed in liters, and can easily be read from 6 meters away! The Morrison Liter Gauge eliminates the need to convert meters and centimeters gauge readings to liters. The 918C includes a high level audible alarm.



Liquid Sensor

Product SKU: FIG 924LS

The 924LS is a stainless steel float-actuated sensor capable of detecting the presence of liquid in containment areas.

High or Low Level/Interstitial Alarm

Product SKU: FIG 918TCP, 918TCPs

918TCP alarm and float level sensor can be set to provide an audible alarm for a high level, low level or serve as an interstitial alarm.