

# 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 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.

### Electrical Switch Ratings

100 watt resistive load, 300VAC-700mA max / 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.

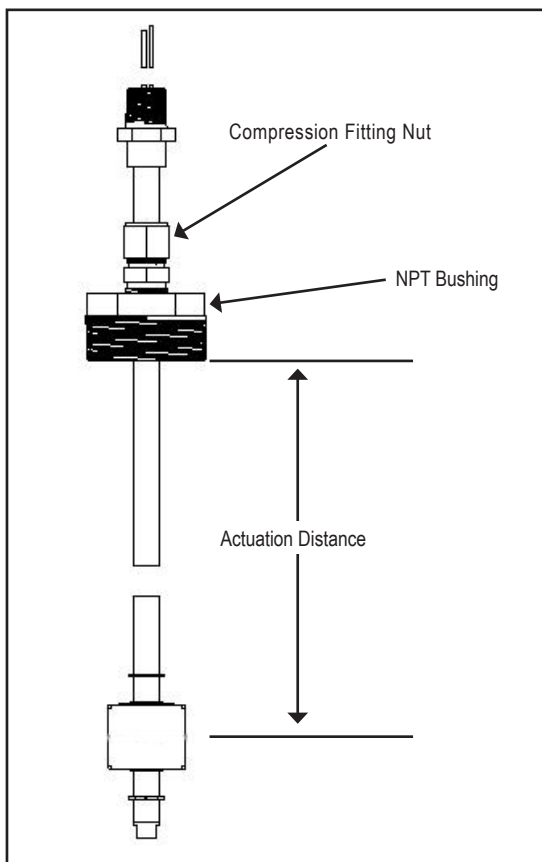
**NOTE:** The 918S, 918D and 918Q Series Alarm Boxes are intrinsically safe devices for use with Class 1, Division I Group D, T4 Hazardous locations when powered by Morrison Bros. Co. battery pack part number 918SB-0128 2B.

### Steps

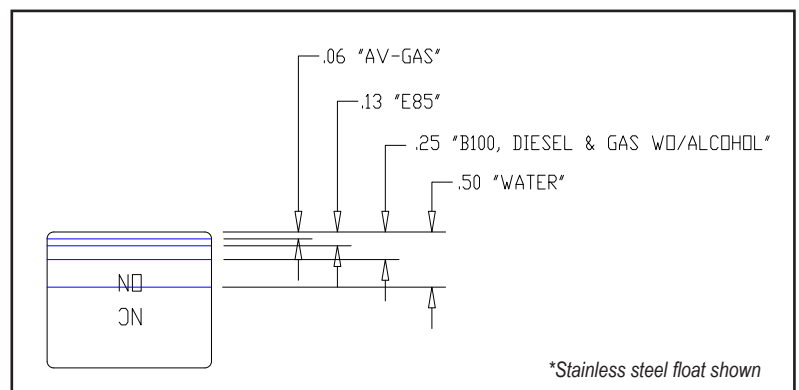
1. Inspect unit for shipping damage. Replace unit if damage is found.
2. Check inside float area for foreign matter such as packaging material. Remove any that is found.
3. This sensor is designed to be connected to an alarm device like the Morrison Figures 918S, 918D, 918Q Series or 918AC.
4. Turn off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

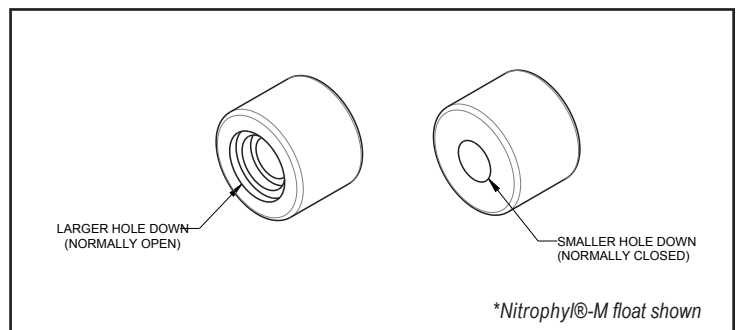


**Figure 1**



*\*Stainless steel float shown*

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



*\*NitrophyI®-M float shown*

**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.**