

## INSTALLATION / OPERATION / MAINTENANCE

### VERSALEVEL SENSORS

#### For Floating Roof Tanks

#### OVERVIEW

The "Versalevel" Sensor series were designed specifically for providing reliable electrical contact closures when the floating roof or membrane of a storage tank actuates the sensor. The typical sensor has one or more of the following features: All wetted parts are of stainless steel construction. An operating rod or handle is provided to "lift" the float from outside the tank. A NEMA 7-9 enclosure provides wiring access. The sensor frequently is supplied with a 2" NPT-M mounting plug providing gas and liquidtight connection to the tank. There is a 120" stainless cable supplied with up to two Stainless Floats. These floats are adjustable and can be set to any desired length along the 120" cable. A 6" minimum spacing between floats is required.

#### INSPECTION AND INSTALLATION

Unpack and verify operation of the sensor by using a multimeter to check proper contact operation and insure no damage has occurred in transit. Move the spring-loaded shuttle upward; minimum resistance should be a .3 to .5 ohms. The high alarm, lower float is a normally open switch and the hi-hi alarm, upper float is a normally closed switch. Grasp the operating handle and pull up slowly, the float and cable assembly will rise and both contacts should change states as in the preceding operation. Check the sensor for any other signs of damage. When satisfied that the sensor is operational you may begin installation.

The sensor is normally equipped with a 2" NPT-M mounting plug that fits the female 2" NPT on top of the tank, access cover, or equipment flange. Note— **the floats and shuttle will not pass thru a 2" NPT pipe.** Determine the proper length of chain to provide the proper trip point for the tank. When the moving roof or liquid lifts the float, the contacts inside the sensor will close/open as specified when ordered. When the float and chain are relaxed (extended) the contacts will transfer back to their original state. After trimming the chain to length and attaching to the shuttle and float you are ready to install the sensor itself. Coat the threads with Stainless anti seize sealant / pipe dope, lower the float and chain slowly into the tank, place the sensor on the female boss and **tighten into the female 2" NPT utilizing the square wrench area only.**

Observe the maximum ratings of your sensors' reedswitches, and wire in accordance with local codes.

**CALIBRATION:** None

#### OPERATION / VERIFICATION OF OPERATION

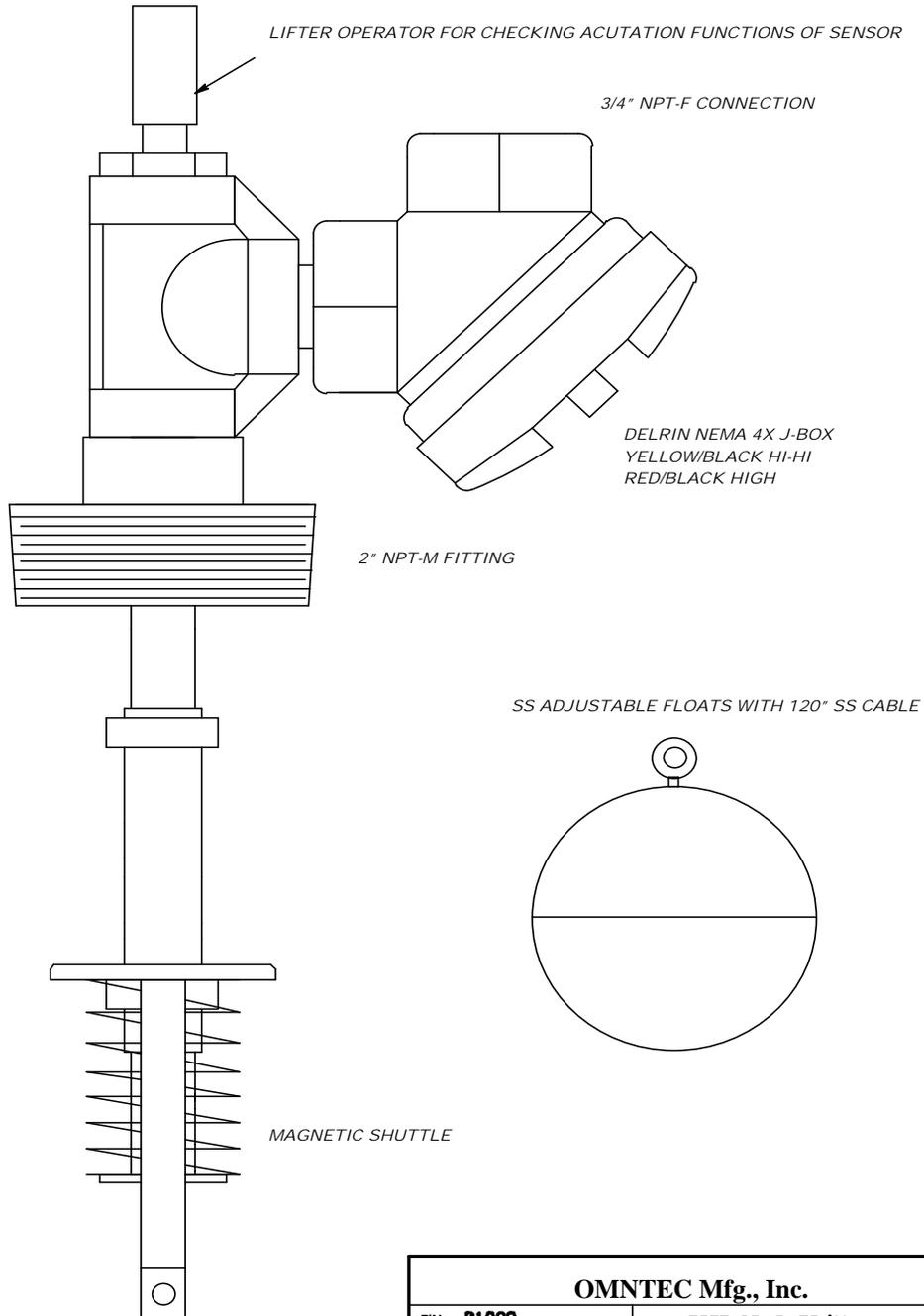
The Versalevel provides positive contact operation. The spring-loaded shuttle contains a magnetic field that operates a hermetically sealed reed sensor inside the stem of the sensor. In normal operation, the shuttle, chain and float collapse the spring and lower the magnetic field so as to prevent it from closing the reed sensor. When the floating roof takes the weight of the float off the shuttle, it rises and closes/opens the contact.

Before a tank filling or transfer operation begins, automatic operation of the high level sensor may be verified by simply lifting the operator handle on top of the sensor. The contacts will transfer and this will be verified by the Control room or other alarm means. This operation may be done repeatedly until all concerned are reassured of proper operation. The sensors operating handle magnetically lifts the shuttle, chain, and float /weight from inside the stem (atmosphere) while the shuttle, chain and float /weight are inside the tank proper (vapor side). **This system has no seals, O-Rings, glands, or other devices to allow fugitive emissions as they decompose over time.** It can also be installed in pressure vessels for this very reason.

#### MAINTENANCE

There are no field replaceable internal parts in the Versalevel Sensors. The contacts are hermetically sealed, and are further sealed inside the stainless stem. Inspection of the sensor for corrosion is the only recommended maintenance procedure.





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