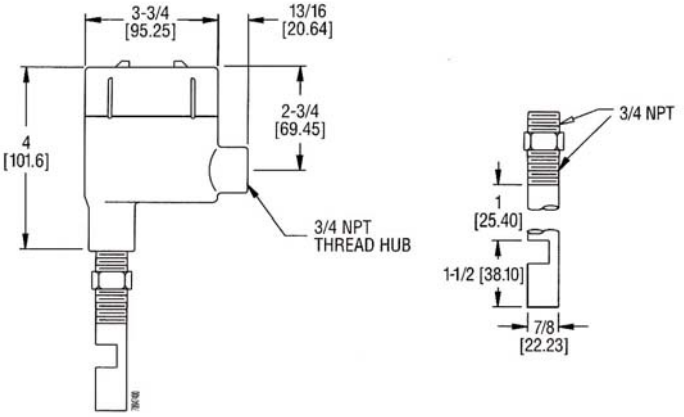
Series GS Gap Switch

Specifications - Installation and Operating Instructions



GENERAL

The Series GS Gap Switch can be used to monitor and control levels of water, chemicals, lubricants, acids, creams, lotions, beverages, or paints in vessels, storage bins, tanks, and pumps. The Gap Switch operates using ultrasonic sound wave propagation. Ultrasonic sound waves are greatly attenuated when transmitted through air. Conversely, when a liquid is present, the transmission of the sound waves is greatly enhanced. The unit generates electrical signals that are converted to bursts of ultrasonic energy at the sensor. The ultrasonic bursts are transmitted across the liquid sensing gap of the sensor. Upon receipt of a valid signal at the receiver, the solid state electronics generate a "data enable" condition indicating that a liquid is present. The signal energizes a relay and provides an output condition.

INSTALLATION

The Series GS with integral electronics can be mounted in any position or orientation desired. Make sure all wiring, conduit and electrical fittings conform to local electrical coded.

Preliminary Operational Check

Before installing the unit, a simple operation check should be performed as follows:

Warning: Never open the housing cover in a hazardous environment or connect the power leads without first disconnecting the electrical power at its source.

PHYSICAL DATA

Repeatability: 2 mm (0.078″) typical.
Delay [On]: 0.5 seconds.
Wet/Dry Ratio: 1000:1.
Supply Voltage: 115 VAC, 50/60 Hz standard, (230 VAC available).
Output: 10A DPDT relay.
Immersion Depth: 1″ (25.4 mm).
Sensor Material: 316 stainless steel.
Maximum Pressure: 1000 psig.
Temperature Range: Sensor: -40 to 200°F (-40 to 93°C), Electronics: -20 to 170°F (-4 to 77°C).
Housing: Epoxy-coated cast aluminum, NEMA 4 & 7 explosion proof; Class I, Groups C,D; Class II, Groups E,F,G; Class III, Div. 1 & 2.
Conduit Opening: 3/4″ NPT(M)
Weight: 1 lb (453 g).

Model Number	Immersion Depth	Supply Voltage
GS10001	1″ (25.4 mm)	115 VAC
GS20001	1″ (25.4 mm)	230 VAC

1) Fill a container with a liquid.
2) Open the housing cover and connect the power to the control unit. See Figure 1.
3) Apply power from the source.
4) Place the sensor in the liquid. The relay should energize.
5) Remove the sensor from the liquid. The relay will de-energize indicating the system is functioning properly.
6) Disconnect the power to the unit.
7) Proceed to final installation if results were positive.

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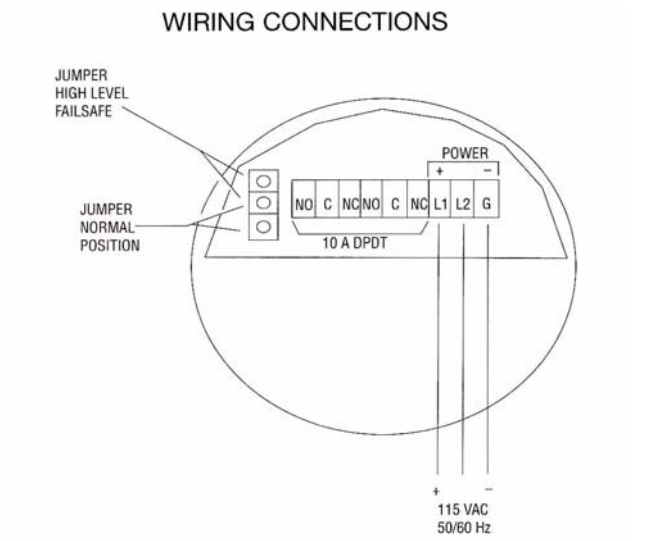

FIGURE 1

Final Installation

1. Drill a suitable hole in the vessel or pipe wall and tap for 3/4″ NPT. In a thin-walled vessel or when the material is not suitable for threading, weld or braze a brushing to accept the sensor.

2. Screw the sensor into the threaded section on the vessel, be sure there is a good seal. Use a pipe compound or sealing tape compatible with the materials and avoid excessive tightening.

3. Run the power and other wiring to the electronics in the sensor head, observing applicable wiring codes and procedures.

CAUTION: Never remove the unit from a vessel with power and/or output cables connected to the electronics. Cable damage may result.

4. To complete wiring, remove the housing cover and the encapsulated electronics. See Figure 1.

NOTE: All wiring and connections should conform to local codes. In a hazardous location, a conduit seal should be installed within 18 inches of the unit housing. Use a drain seal in a vertical conduit run to prevent condensation from entering the electronics.

5. Replace the encapsulated electronics. Make sure the wires are dressed carefully to prevent pinching between the cover and housing.

6. Replace housing cover.

MAINTENANCE

The electronics are constructed with solid state components and are epoxy encapsulated. Periodically check and clean the sensor when used with liquids which cause a coating build-up on the sensor. No other routine maintenance is required on the Series GS Gap Switch.

For Cleaning

If the pipe or vessel in which the unit is mounted is to be steam cleaned with abrasive detergents, remove the entire unit before cleaning by:
1) Disconnecting the power at the source.
2) Opening the housing cover.
3) Removing the power and control wiring cables.
4) Unthreading the sensor.
To reinstall, follow the installation procedures.

If the unit should need repairs, please contact Dwyer Instruments, Inc. before returning unit to review information relative to your application and obtain a return authorization number. When returning a product to the factory, carefully package and ship freight prepaid. Be sure to include a complete description of the application and problem and identify any hazardous material used with the product.

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