SSI Technologies - Application Note FT-AN8
Liquid Level Sensors
for Diesel Generator Set (GenSet) Applications

Diesel Generator (Genset) Application

This application note covers using the Fluid-Trac® and Acu-Trac® cost competitive liquid level sensors as a alternative for standard 33-240 Ohm resistive float sender, voltage output reed-switch tube sensor, or capacitive tube sender in Diesel Generator Set (Genset) applications. SSI Technologies Inc. level sensors are designed for harsh environmental conditions with level sensing depths available up to 3.0 meters.

Diesel Generator Set (Genset) Background

A diesel generator also referred to as a genset is commonly used for temporary power needs and for maintaining a temperature controlled environment. Good level management with the correct level sensor used to indicate the level of the diesel fuel is the key to success.

- Standby Diesel Generator Sets are vital for Backup Emergency Power for hospitals, sewage pumping stations, data processing centers and communication service installations.

  When power outages due to local outages or natural disasters occur the backup diesel generator power is crucial. Bad diesel fuel level management on the emergency genset is simply not an option due to the critical nature of this work.

- For mobile refrigeration units, temperature control is provided by the diesel generator on insulated trailers or intermodal containers. If fuel runs out to the diesel generator set, the perishable loads are at risk of spoilage which may result in the loss of an entire shipment.

  Also, when the refrigeration units run out of fuel, there is a substantial cost to recharge the units with a third-party service vehicle.

Fluid-Trac® and Acu-Trac® Liquid Level Sensors

- Off the power grid locations – construction sites, mining and mineral extraction sites, cell towers, and even temporary locations such as amusement rides and outdoor concerts also require dependable diesel generator operation.

  Businesses lose money when the diesel generator runs out of fuel. Good level management can prevent the loss of sales revenue and employee downtime.

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Fluid-Trac® and Acu-Trac® liquid level sensors use ultrasonic technology to generate a high frequency sound wave and measure the time for the echo to reflect off the diesel fuel's surface and return. The distance from the liquid level sensor to the diesel fuel is calculated based on the speed of sound. The measured distance is converted into a voltage that drives the gauge based on a strapping table contained in the liquid level sensor.

SSI Technologies Inc liquid level sensors offers a choice of electrical outputs in the following forms – resistive, current, ratiometric voltage, non-ratiometric voltage and digital output on a RS-485 bus.

The liquid level sensor is mounted to the top of the diesel tank and has no parts protruding into the diesel. There are also no moving parts to wear

- **Easy Drop In Installations:** Mounting options include standard SAE 5 hole and threaded NPT. A European 6 hole adapter is also available.

- **Digital Filtering:** Digital filtering eliminates errors due Diesel Fuel sloshing on trailer mount diesel generator (genset).

- **Tank Profiling:** Factory programmable strapping tables for unique diesel fuel tank shapes.

- **Minimal Dead Band:** No bottom dead band like on other senders. Optional mounting adapters can be used to reduce or potentially eliminate the top dead band.

- **Operating Temperature:** -40°C to +85°C

SSI Technology Inc Ultrasonic Sensor Advantages

- **Non-Invasive:** Level sensor mounts to the same opening as the float senders but does not protrude into the tank or come into contact with the Diesel.

- **More Accurate Than Float-arm or Reed-Switch Senders:** Distance accuracy of up to +/- 0.125 inches (1/8th inch) for Fluid-Trac®.

- **More Reliable** – No moving parts to wear out.

Refer to www.ssitechnologies.com for more details on the SSI Technologies, Inc line of ultrasonic level sensors.

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