

Ultrasonic Fuel Level Sensor - UFLS



Ultrasonic Fuel Level Sensor

If your business infrastructure relies on backup generators, the chances are you are also relying on fuel to power those. By using the AKCP Ultrasonic Fuel Level Sensor you can ensure that your fuel tanks are filled and ready for the most critical moments.

The AKCP Ultrasonic Fuel Level Sensor is a liquid level detector that will monitor the level of liquid in a tank and display this level on the securityProbe 5E's web interface and send alerts accordingly.

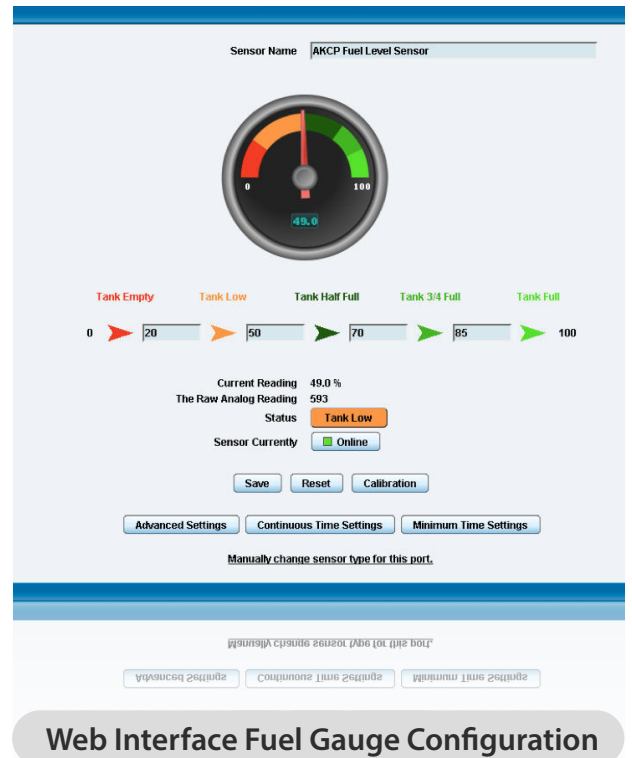
The RJ-45 intelligent sensor port on base unit powers the sensor. It is compatible with any of the securityProbe series units, or the E-sensor 8 expansion modules.

You can instantly be alerted should there be any drop below critical levels in your liquid. Advance alerting, including an additional feature that alerts you if you tank level is dropping too quickly, protects you from possible liquid leaks or theft.

The sensor assembly incorporates an advanced tank sender based on the Ultrasonic measurement technology and can monitor a variety of liquids in many types of tanks. These tank level thresholds can then be linked to the advanced notification alerts on the securityProbe 5E's web interface or the AKCess Pro Server Application.

This sensor is designed for liquid levels in tanks. These tanks can be in linear and non-linear sizes as they are easily calibrated from a simple wizard that is run from the securityProbe 5E's web interface. Linearization parameters are used to adjust the measurement accuracy for non-linear tanks. For example a tank is non-linear if the tank height is not proportional to its capacity.

The low profile design and standard SAE 5 hole mounting pattern make it easy to install and setup and it has no moving parts for long lasting functionality.



Ultrasonic Fuel Level Sensor's Main Features

- Ideal for remote sites that depend on backup generator power
- Normal, Low and Critical alerting
- Easy setup and installation
- Can monitor several liquids
- Monitor your tanks for critically low levels of liquid
- Requires 12V external power supply (This is Included)
- Extremely low profile only 20mm high once mounted
- Operating distance of 0mm to 2000mm
- Programmable tank dimensions via windows application
- Linear and non linear tank calibration at 5 levels
- Supports metal and plastic tanks
- Supports tanks wall thickness up to 6mm (or larger if spacer is used and top limit adjusted)
- Industry standard SAE-5 stud mounting pattern with gasket seal and washers.

Example Uses

Rate of Change / Theft Detection

The Ultrasonic Fuel Level Sensor comes equipped with advanced rate of change detection that measures the level rate in a percentage from 1% to 50% over a period of time from 1 to 20 minutes.

You can set the direction to Up, Down, or Both and you can set the Status when the limit is exceeded to show either High Critical or Low Critical.

The screenshot displays the configuration interface for an Ultrasonic Fuel Level Sensor. The interface has a blue header with the title "Ultrasonic Fuel Level Sensor" and four tabs: "Normal Settings", "Advanced Settings", "Continuous Time Settings", and "Minimum Time Settings". The "Advanced Settings" tab is selected. The settings are as follows:

- Rearm: 2
- Reading Offset: 0
- Data Collection Type: Average (dropdown)
- Display Style: Basic Style Gauge Style
- Check rate of change: Enable Disable
- Maximum acceptance of change: 10 % (dropdown)
- Period of time: 5 minutes (dropdown)
- Direction: Both (dropdown)
- Status when exceeds limit: High Critical (dropdown)
- Enable Graph: On Off

A red rounded rectangle highlights the "Check rate of change" section, including the "Check rate of change" radio buttons, "Maximum acceptance of change", "Period of time", "Direction", and "Status when exceeds limit" settings.

By linking this sensor alert to a notification you can get an SMS, E-Mail, SNMP Alert instantly. This feature is designed for our Ultrasonic Fuel Level Sensor to prevent theft of liquid or be alerted to leaks in storage tanks.

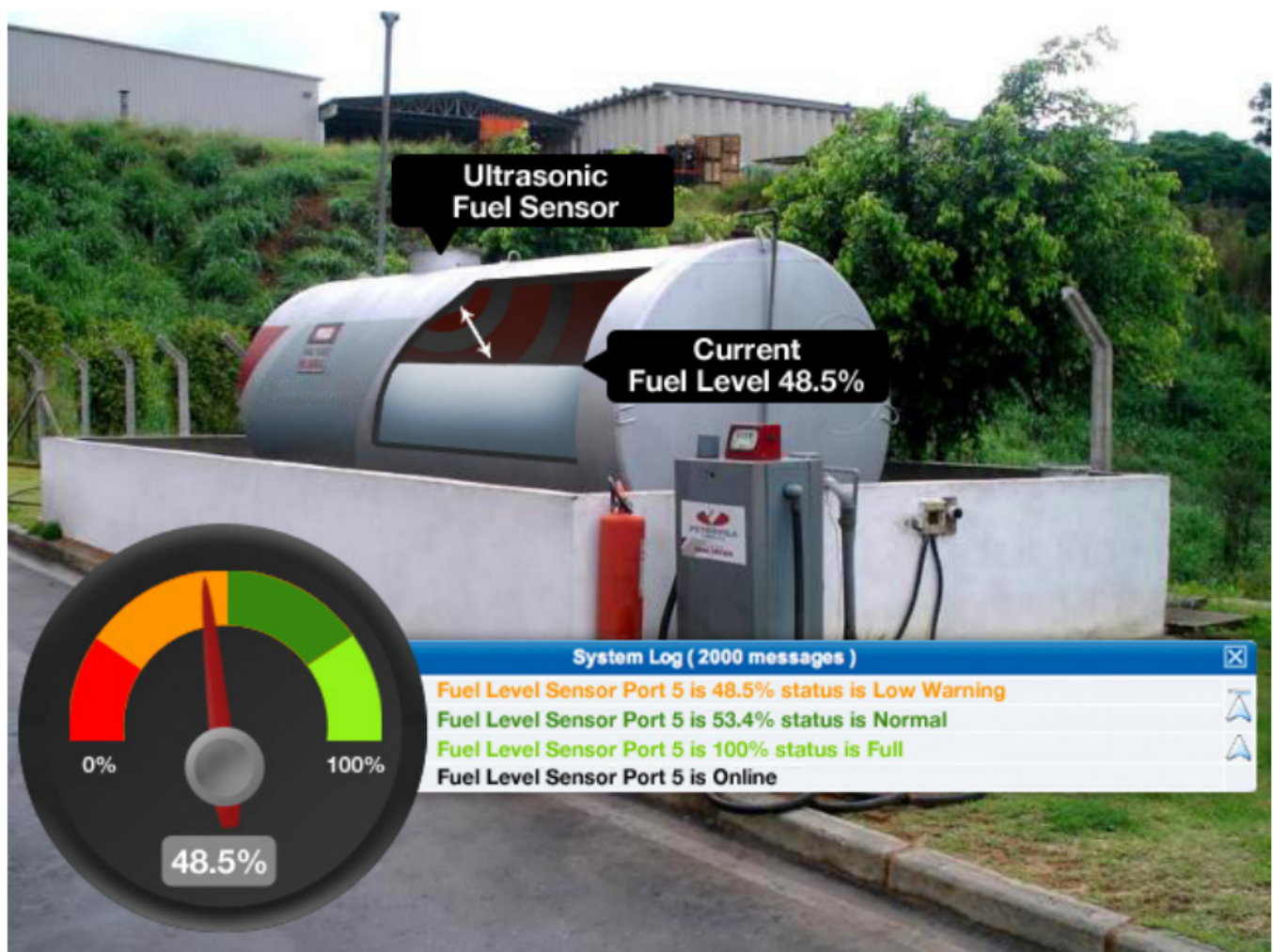
This feature is replicated in the AKCess Pro Server where many more notifications types are offered so that you can alert and protect your valuable assets.

How it Works

The Ultrasonic Fuel Level Sensor

Once the Sensor has been installed and configured on the securityProbe or AKCess Pro Server interface, the Ultrasonic Fuel Level Sensor works by emitting an Ultrasonic Beam directly at the liquid in use as shown in the diagram below.

Once the Ultrasonic Beam has made contact with the liquid it bounces back to the Sensor to give a highly accurate measurement. This measurement is passed to AKCP's securityProbe Unit where is processed and



transmitted directly via Ethernet or an EDGE/GPRS/GSM Modem to the AKCess Pro Server. Sudden changes in Liquid Level or Liquid Volume can be used to trigger Notifications and Alerts to protect against theft and general Service Outages.

Technical Specifications

All size tanks with depth up to 2 meters

Accurate measurement for non-linear size tank

Standard SAE 5 mounting hole and easy fit

Is set for 0-2000 mm depth off the shelf (not suitable for tank depths less than 200 mm)

Measurement Method : Acoustic sonic measurement

Tank Depth : 0–2000 mm (6.5 ft)

Accuracy Distance : 0–2000 mm (6.5 ft) at 2 mm accuracy

Full Scale Accuracy : +/- 2%-5% Full-Scale Accuracy

Mounting : SAE 5 stud mounting pattern with gasket, seal and screws (top mount only).

Tank Type Style : Metal and plastic with non linear capacity

Works with certain types of fuel, fresh water, grey water and black water.

It is advised that the UFLS is not to be used with explosive chemicals of any kind.

Requires securityProbe 5E or E-Sensor8 expansion module

Communications Cable : RJ-45 jack to base unit using UTP CAT5 cable.

Communications Cable Max. length: 100ft (30 meters)

Comes fully assembled, only needs calibration and installation.

Leader cable from the tank sender to the converter box is 18 inches

Ships with a 15 foot CAT6 LAN extension cable

CAT6 LAN extension cable can be extended up to 100 feet.

Environmental

Chemical Resistance : Petrol, diesel, water, toilet chemicals

Operating Temperature Range : 4°C to 65°C

Electrical

Operates from a 12 volt external power supply (included)

Current Draw : 25 mA with 5 V gauge output

Ignition Protected : ISO 8846

Fire Resistance : Tested to ABYC, US Coast guard and ISO10088

Output types: Analogue 10-180, 10-300, 240-33 ohm gauges and 0-5volt

Maximum Tank depths

Operating distance of 0mm to 1100mm for certain fuel tanks

Operating distance of 0mm to 2000mm for Water tanks

Operating distance of 0mm to 2000mm for Diesel tanks

Operating distance of 0mm to 1500mm at 55°C

Manufacturers Warning : It is advised that the UFLS is not to be used with explosive chemicals of any kind.

Frequently Asked Questions

- **How long until a reading is received after powering on or configuring the UFLS?**

If the liquid is steady, an accurate reading is retrieved in under 5 seconds. If not level, or the liquid is moving, it may take up to 60 seconds.

- **Does the Full-Scale Accuracy vary depending on the tank's size and shape?**

Yes, a +/- 5% accuracy is possible if the liquid is very close and/or on an angle greater than 4.5 degree's. For deep tank's the full-scale accuracy percentage is less. For shallow tank's full-scale accuracy is higher.

Technical Drawings

