

Monitoring your diesel tanks and other liquid stores so that you don't get caught short

Most farms have a range of liquid storage tanks – diesel, water, fertiliser etc. All need monitoring for operational preparedness and some for security and/or cost allocation. Not all tanks are conveniently placed nor have remote monitoring.

Do you keep a log of use and status, so that you always have what you need when you go to the tank? How good would it be if it was done automatically, and alarms raised if you got below certain levels?

Liquid tanks are generally vertical or horizontal cylinders and, in farming, have a wide variety of uses. In each case it is important for us to know how full they are or how close to empty. There's no point in heading over to a remote site to perform a spray job if the tank is empty. Having an app on your phone where you can check your stock levels, before setting off, can save a lot of time and money.

Similarly, diesel stocks are a vital part of the farms inventory at busy times of the year. Having a monitor on the tank allows you to easily check and restock, or even have your supplier check for you when they have a tanker in your area and plan on your behalf to always keep you around an agreed level.

Remotely 'watching' the level and spotting irregular movements out with expected hours of work, for a given time of year, is a hugely important part of crime prevention and detection. Linking the monitored data to an alarm centre configured with preset rules would help a lot in deterring this aspect of rural crime.

Techniques for monitoring liquid levels in a tank fall into two main groups:

- Ultrasonic – mounted in the top of the tank – measuring the distance to the liquid-air interface
- Pressure/Head – pressure transducer suspended in the liquid at the bottom of the tank or on the tank side of the outlet valve

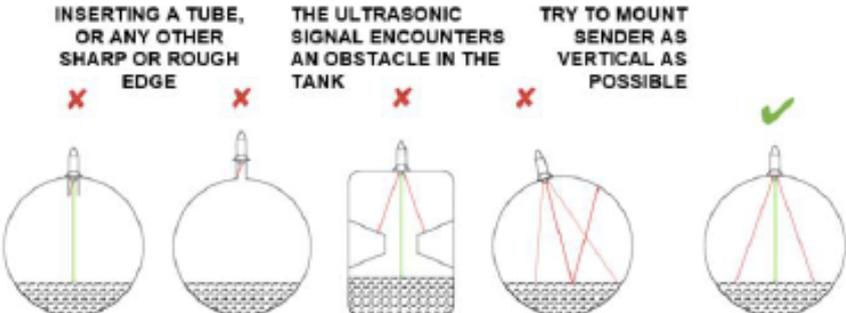
The following outlines the Ultrasonic LoRaWAN sensor mounting options.

- The sensor must sit in a vertical position on top of the tank and be fitted such that the sensor has a clear path to the tank contents. Position it so that there are no internal obstructions that may interfere with the ultrasonic signal.

INSERTING A TUBE, OR ANY OTHER SHARP OR ROUGH EDGE

THE ULTRASONIC SIGNAL ENCOUNTERS AN OBSTACLE IN THE TANK

TRY TO MOUNT SENDER AS VERTICAL AS POSSIBLE



The ultrasonic sensors have advantages in terms of ease of installation, they aren't in contact with the liquid and they have no moving parts, but they need to be mounted correctly and there can be no obstructions in the tank.

Suspended pressure gauges don't have this problem, but are obviously exposed to the tank contents and are potentially impacted during filling etc.

