

Thank you for purchasing the Tekelek Ultrasonic LoRaWAN sensor which uses ultrasonic technology to measure the liquid level of your tank and then communicates this data to a LoRaWAN network.



STEP 1: Activation

The Ultrasonic LoRaWAN sensor works in conjunction with a LoRaWAN network and a connected platform and before activation must first be registered with both. Access to the LoRaWAN backend server is required to verify that the unit has correctly joined the network. See User Manual for further details.

Ensure that the LoRaWAN™ network is within communication range of the sensor. This should occur before the sensor is physically fitted onto the Tank. The sensor supports one factory configurable sub-band between 1 and 8.

Place the sensor as close as possible to the point of installation, press the button for 1 second to connect to the LoRaWAN network and upload a status message.

- The LED will stay illuminated as the sensor registers:
 - **Red** LED flashing = The sensor is registering & connecting for the first time. (Sensor is shipped in dormant state).
 - **Green** LED flashing = The sensor is already registered. The connection process will take between 20 & 40 seconds.
- After the connection has completed, the LED will flash on & off (to indicate whether the connection was a success or failure).

LED Patterns

- Press and hold the button for approximately 1 second, until the LED turns green.
- Wait approximately 10-20 seconds and observe if the LED flashes green or red.

See the following for description of Green/Red LED flash codes.

LED Radio Signal Strength Flash Codes:

LED Pattern	Function
Green X 3 Flashes	Excellent signal strength
Green X 2 Flashes	Good signal strength
Green X 1 Flash	Adequate signal strength
Alternate Green/Red Flash	Weak signal strength

Weak signal strength: Try 5 times and if this response is stable then it's deemed adequate. If the sensor shows some double red flashes during this signal strength test - Sensor may need to be elevated for best performance.

LED Error Flash Codes:

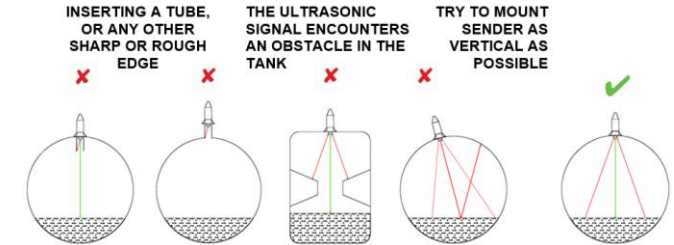
LED Pattern	Function
Red X 1 Flash	Device registered with an incorrect AppKey.
Red X 2 Flashes	No response from LoRaWAN network
Red X 3 Flashes	General Error. Please try again. If the error persists, contact the supplier for support.



STEP 2: Installation

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.



- Locate a suitably positioned threaded opening on the top of the tank to hold the sensor.
- This sensor has a long-range horn to give extended measurement distance. Ensure the opening allows a clear path to the bottom of the tank free of obstructions.
 - The sensor will fit directly into threaded 2" BSP (British Standard Pipe) existing tank connections.
 - Ensure that the rubber seal is placed, and that the sensor is screwed correctly into the tank. Do not over-tighten!

