



## Ultrasonic LoRaWAN Waste Bin Sensor

The Ultrasonic LoRaWAN Waste Bin sensor is a flexible and configurable, battery operated ultrasonic level sensor with an integrated LoRaWAN radio.

### Applications

- Ultrasonic level monitoring of solid waste
  - Glass
  - Metal
  - Cardboard
  - Residential waste
  - And more
- Optimise delivery or collections
- Spot and continuous inventory measurement
- 24/7 monitoring
- Low and high level alarms



Extended Horn Adaptor – Standard



2" extended threaded mounting adaptor



No Adaptor



### Benefits

- Accurate, reliable waste level monitoring
- Reduces cost of waste collection
- LoRaWAN Communication
- Spot and continuous inventory management
- Remote configurability
- Easy to install
- Minimum 2 year warranty
- Up to 14 year battery life
- Cost effective for large scale deployment
- CE Conformance and ROHS Compliant
- External antenna extends Ultrasonic LoRaWAN reach
- Up to 15km/9.3 mile range

WEEE Reg. 00232

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## Specification

| Characteristic                  | Transmitter                                                                                              |
|---------------------------------|----------------------------------------------------------------------------------------------------------|
| Dimensions                      | 92mm(W) x 133mm(L) x 170.5mm(H) ±1mm / 3.6"(W) x 5.2"(L) x 6.7"(H) ±0.1"                                 |
| Weight                          | 341g (13oz) including battery                                                                            |
| Housing material                | UV Stabilized Polypropylene (compatible with Oil)                                                        |
| Operating temperature           | -20°C to +50°C (-4°F to +122°F) <b>Note 1</b>                                                            |
| Recommended storage temperature | +20°C to +25°C (+68°F to +77°F) clean, cool, dry and ventilated. <b>Note 1</b>                           |
| Humidity range                  | 15% - 95%                                                                                                |
| Altitude range                  | <2Km (<6,000') above sea level                                                                           |
| Environmental Protection        | IP67 – Outdoors                                                                                          |
| Radio standard                  | Supports LoRaWAN 1.0.2 compliant 125/250 KHz bands.                                                      |
| Frequency                       | 868MHz nominal                                                                                           |
| Output power                    | Up to +14dBm (25mW) (as measured into the internal antenna on the PCB; internal antenna gain = -3dB typ) |
| Gauge Type                      | Ultrasonic                                                                                               |
| Ultrasonic Range                | >12cm to <300cm (>5" to <120")                                                                           |
| Ultrasonic Signal Diversion     | 30° ( <b>Note 2</b> )                                                                                    |
| Ultrasonic Resolution           | ±1cm (±0.5")                                                                                             |
| Accuracy                        | Typically ±2cm (±1")                                                                                     |
| Material compatibility          | Suitable for use in tanks for the storage of glass , metal , cardboard, residential waste etc.           |
| Battery type                    | 3.6V Li-SOCl <sub>2</sub> Size 2/3AA                                                                     |
| Expected battery life           | Typically 14 Years from activation ( <b>Note 3</b> )                                                     |
| Enclosure colour                | Grey Pantone 422C                                                                                        |

### Accessories

|                      |                                                                                                                                                                                                     |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Mounting options     | Vertical and horizontal mounting options for mounting under waste bin lid.                                                                                                                          |
| Antenna (detachable) | Antenna has a variable length cable with an SMA RF connector (10mm diameter) to allow easier installation.                                                                                          |
| Adaptor options      | <ul style="list-style-type: none"> <li>Extended Horn Adaptor – Standard</li> <li>2" extended threaded mounting adaptor</li> <li>No Adaptor (Bracket attached directly to base of sensor)</li> </ul> |

### Conformity

|                           |                                                                                                                                                                                                                                                                                              |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EMC directive 2014/30/EU  | The Electromagnetic Compatibility (EMC) Directive ensures that electrical and electronic equipment does not generate, or is not affected by, electromagnetic disturbance.                                                                                                                    |
| LVD directive 2014/35/EU  | The Low Voltage Directive (LVD) ensures that electrical equipment within certain voltage limits provides a high level of protection for European citizens, and benefits fully from the Single Market.                                                                                        |
| RED directive 2014/53/EU  | The Radio Equipment Directive ensures a Single Market for radio equipment by setting essential requirements for safety and health, electromagnetic compatibility, and the efficient use of the radio spectrum.                                                                               |
| RoHs directive 2011/65/EU | This Directive lays down rules on the restriction of the use of hazardous substances in electrical and electronic equipment (EEE) with a view to contributing to the protection of human health and the environment, including the environmentally sound recovery and disposal of waste EEE. |
| LoRa Alliance             | Compliant to LoRaWAN 1.0.2 Specification                                                                                                                                                                                                                                                     |
| CE compliance             | Yes                                                                                                                                                                                                                                                                                          |

**Note 1:** Storage and operation above 25°C/77°F may reduce battery life. Shelf life recommended not to exceed 12 months

**Note 2:** The maximum spatial diversion of the ultrasonic signal will be < 30° from the central axis of the transducer.

**Note 3:** Based on activation within 6 months of the manufacturing date of the product, and device configuration for one LoRaWAN connection every six hours and one ultrasonic measurement every 15 minutes from an excellent LoRaWAN coverage (SF7), and a normal distribution over the operating temperature range centered at +25°C (77°F).

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