



## Wireless ultrasonic sensor

### **WILSEN.sonic.distance**

**WS-UCC4000-F406-B41-01-02-Y**

- Battery operated
- Data transfer via LoRaWAN
- LoRaWAN downlink channel for querying and adjusting parameter values
- Bluetooth interface for commissioning, parameterization and diagnostics

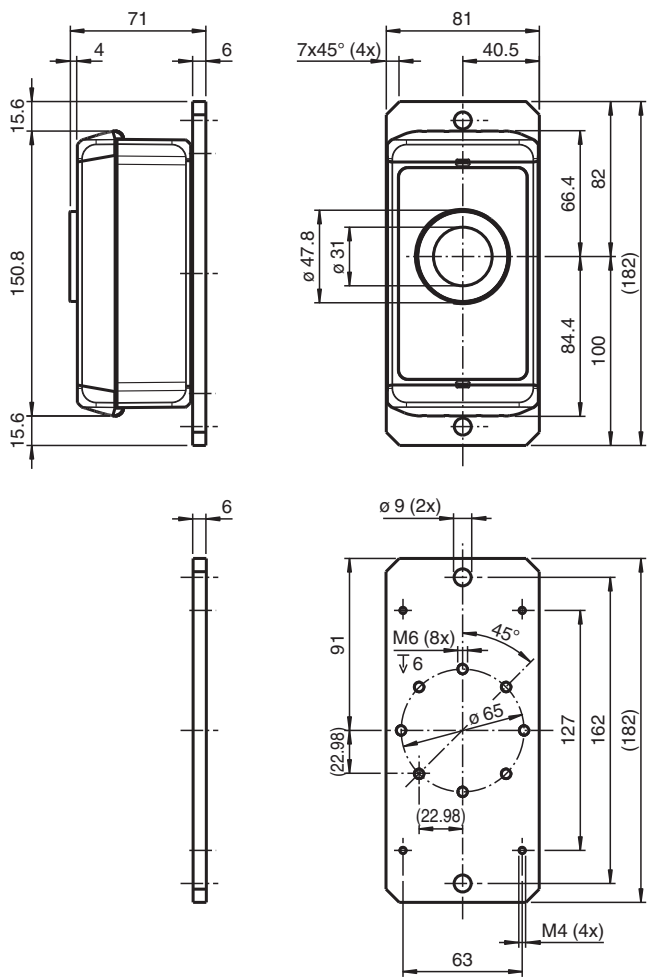
Wireless ultrasonic sensor with LoRaWAN interface, especially for level monitoring in rivers and distance measurement, sensing range 250 ... 4000 mm, resolution 1 mm



### Function

The wireless ultrasonic sensor can be remotely used for fill level measurement, level monitoring and distance measurement. The measured variables and other measurement and status data of the sensor are recorded in configurable time intervals and transmitted to a counterpart in the LoRa network. There, the data is available for pure display or further processing. The sensor's downlink channel can be used to remotely access the sensor from the LoRa network to query or adjust sensor parameter values. Sensor parameterization is additionally also possible via the integrated Bluetooth interface using a mobile device (smartphone or tablet) and the WILSEN app associated with the sensor.

Dimensions



Technical Data

|                                     |                                                                                                                                                                                                                            |
|-------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Main sensor</b>                  |                                                                                                                                                                                                                            |
| Detection type                      | ultrasonic                                                                                                                                                                                                                 |
| Sensing range                       | 250 ... 4000 mm                                                                                                                                                                                                            |
| Dead band                           | 0 ... 250 mm                                                                                                                                                                                                               |
| Resolution                          | 1 mm                                                                                                                                                                                                                       |
| Accuracy                            | ± 3 % of full-scale value over the entire temperature range                                                                                                                                                                |
| Measurement interval                | 10 min ... 24 h                                                                                                                                                                                                            |
| <b>Integrated sensor technology</b> |                                                                                                                                                                                                                            |
| GPS sensor                          | for geo-positioning                                                                                                                                                                                                        |
| Acquisition interval                | 30 min ... 24 h                                                                                                                                                                                                            |
| Temperature sensor                  |                                                                                                                                                                                                                            |
| Resolution                          | 0.5 °C                                                                                                                                                                                                                     |
| Accuracy                            | ± 2 °C                                                                                                                                                                                                                     |
| <b>Electrical specifications</b>    |                                                                                                                                                                                                                            |
| Power supply                        | high capacity lithium battery 3.6 V , 13000 mAh<br>battery lifetime approx. 10 years under Central European environmental conditions, 3 measurements and 3 wireless transmission per day with sufficient network coverage. |
| <b>Interface 1</b>                  |                                                                                                                                                                                                                            |
| Interface type                      | Bluetooth 5.0 LE                                                                                                                                                                                                           |
| Transmitter radiated power          | + 8 dBm                                                                                                                                                                                                                    |
| Frequency range                     | 2402 ... 2480 MHz                                                                                                                                                                                                          |
| <b>Interface 2</b>                  |                                                                                                                                                                                                                            |
| Interface type                      | LoRaWAN                                                                                                                                                                                                                    |

Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

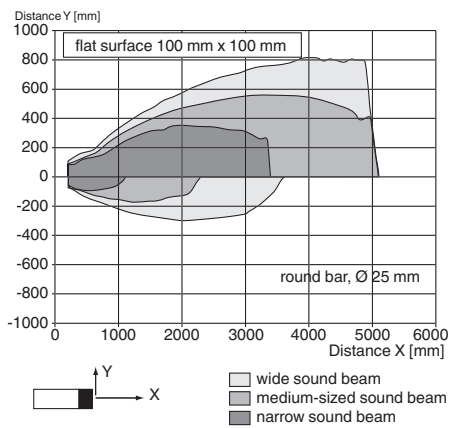
## Technical Data

|                                                |                                        |                                                                                                                |
|------------------------------------------------|----------------------------------------|----------------------------------------------------------------------------------------------------------------|
| Specification                                  | LoRaWAN interface specification V1.0.3 |                                                                                                                |
| Device type                                    |                                        | LoRaWAN class A device                                                                                         |
| Downlink channel                               |                                        | yes                                                                                                            |
| Transmitter frequency                          |                                        | 868 MHz                                                                                                        |
| Transmitter radiated power                     |                                        | + 8 dBm                                                                                                        |
| Frequency range                                |                                        | 863 ... 870 MHz (Europe)                                                                                       |
| Transmission interval                          |                                        | 10 min ... 24 h                                                                                                |
| <b>Directive conformity</b>                    |                                        |                                                                                                                |
| Electromagnetic compatibility                  |                                        |                                                                                                                |
| Directive 2014/30/EU                           |                                        | EN 301 489-1 V2.2.3:2019<br>EN 301 489-3 V2.1.1:2019<br>EN 301 489-17 V3.2.4:2020<br>EN 301 489-19 V2.1.1:2019 |
| Radio and telecommunication terminal equipment |                                        |                                                                                                                |
| Directive 2014/53/EU                           |                                        | EN 300 220-2 V3.1.1:2017<br>EN 300 328 V2.2.2:2019<br>EN 303 413 V1.1.1:2017                                   |
| RoHS                                           |                                        |                                                                                                                |
| Directive 2011/65/EU (RoHS)                    |                                        | EN 63000:2018                                                                                                  |
| <b>Conformity</b>                              |                                        |                                                                                                                |
| Mech. capacity                                 |                                        | EN 60947-5-2:2020<br>IEC 60947-5-2:2019                                                                        |
| Shock resistance                               |                                        | EN 60947-5-2:2020<br>IEC 60947-5-2:2019                                                                        |
| Vibration resistance                           |                                        | EN 60947-5-2:2020<br>IEC 60947-5-2:2019                                                                        |
| Climatic conditions                            |                                        | EN 60947-5-2:2020<br>IEC 60947-5-2:2019                                                                        |
| <b>Ambient conditions</b>                      |                                        |                                                                                                                |
| Ambient temperature                            |                                        | -25 ... 70 °C (-13 ... 158 °F)                                                                                 |
| Storage temperature                            |                                        | -40 ... 85 °C (-40 ... 185 °F)                                                                                 |
| <b>Mechanical specifications</b>               |                                        |                                                                                                                |
| Degree of protection                           |                                        | IP66 / IP67                                                                                                    |
| Material                                       |                                        |                                                                                                                |
| Housing                                        |                                        | PC (UL94-V0)                                                                                                   |
| Transducer                                     |                                        | PTFE coated<br>housing: PBT                                                                                    |
| Mass                                           |                                        | 620 g                                                                                                          |
| <b>Factory settings</b>                        |                                        |                                                                                                                |
| Beam width                                     |                                        | wide                                                                                                           |
| Transmission interval                          |                                        | 24 h                                                                                                           |
| Measurement interval                           |                                        | 24 h                                                                                                           |

Release date: 2023-07-27 Date of issue: 2023-07-27 Filename: 70150491\_eng.pdf

## Characteristic Curve

### Characteristic response curve



## Additional Information

### Further Documentation

For commissioning, parameterization and usage of the sensor, there are also a brief commissioning instructions, a manual and further technical information for download from the product page at [www.pepperl-fuchs.com](http://www.pepperl-fuchs.com).