



PRODUCT DATASHEET

LoRaWAN ULTRASONIC DISTANCE SENSOR

OVERVIEW

NetOP Ultrasonic Distance Sensor is a which can be used for distance measurement by using highly optimized ultrasonic sensor. This sensor is fully compatible with technology by using LoRaWAN.

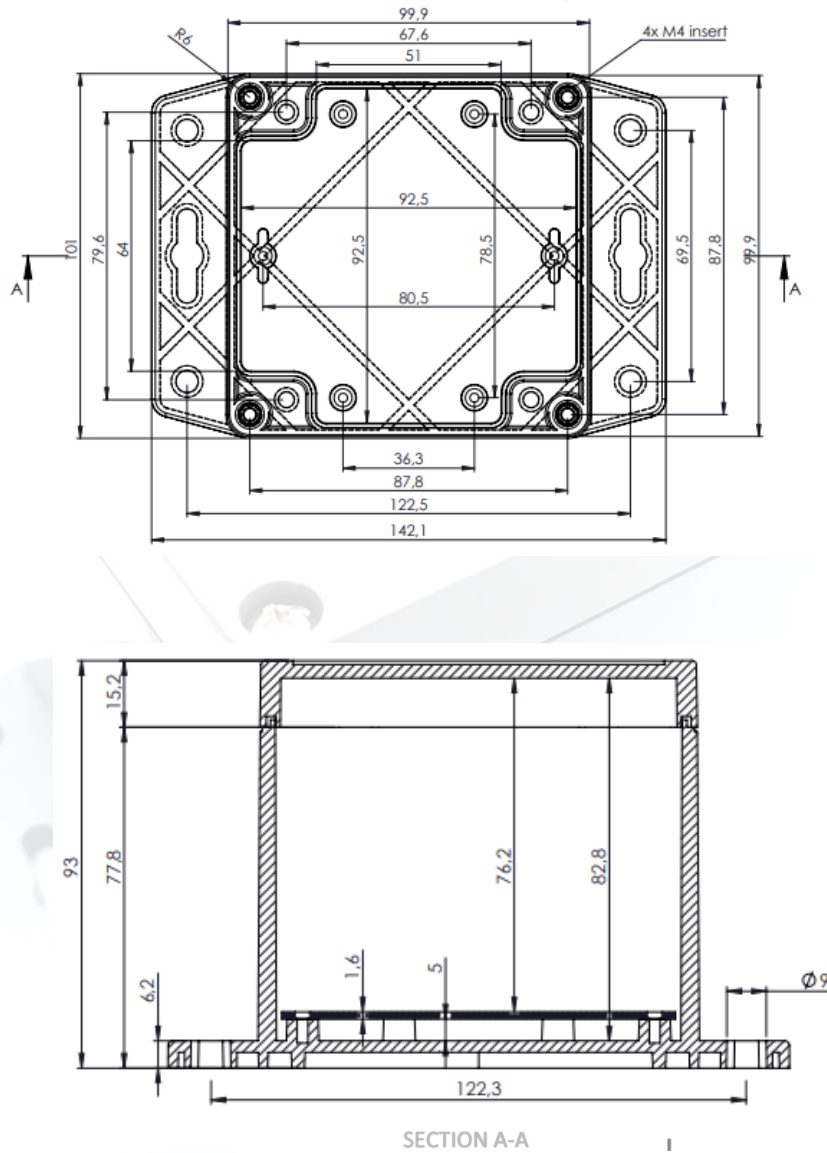




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TECHNICAL DRAWING

Heavy Duty Enclosure





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KEY FEATURES

Real Plug & Play

Easy to mount & install

Compatible with LoRaWAN™ specification

Maintenance free

Secure communication (AES-128)

Ultra -Low Power Consumption

Certificate: LoRaWAN™

COMMUNICATION SPECS

Compatible with LoRaWAN Specification 1.0.3

The sensor uses Low Power Wide Area Network-LPWAN technology (LoRa) for connectivity

Compliant with Low and High Frequencies (AS923, AU915, CN470, CN779, EU433, EU868, IN865, KR920, RU864, US915 MHz ISM bands)

Supports High power and Low power LoRa RF applications: - Up to +22 dBm at US915 and AU915, - Up to +14 dBm elsewhere

Ultra -low power consumption. Excellent long-term stability.

170 dB maximum link budget

Radio Performance: High RX sensitivity down to -148 dBm

Full ADR, OTAA and ABP support

Long range wireless data transmission





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MECHANICS

Housing: ABS (IP65 or higher)

Dimensions: 142 x 100 x 93mm

Operating Temperature: -40°C to 85°C

POWER SUPPLY

AA Battery 3.6 V Li-SOCI2-Saft LS 14500

INDICATORS

Status LED (on board)

ULTRASONIC DISTANCE SENSOR SPECIFICATIONS

Detection range:15-300 cm

Accuracy: ± 1 cm

CERTIFICATIONS & RELIABILITY

EN 60950-1;2006/A2:2013

ETSI EN 301 489-17 V3.1.1(2017-02)

EN 55032:2015



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LoRaWAN FRAME FORMAT

Standard packet size: 24 Bytes

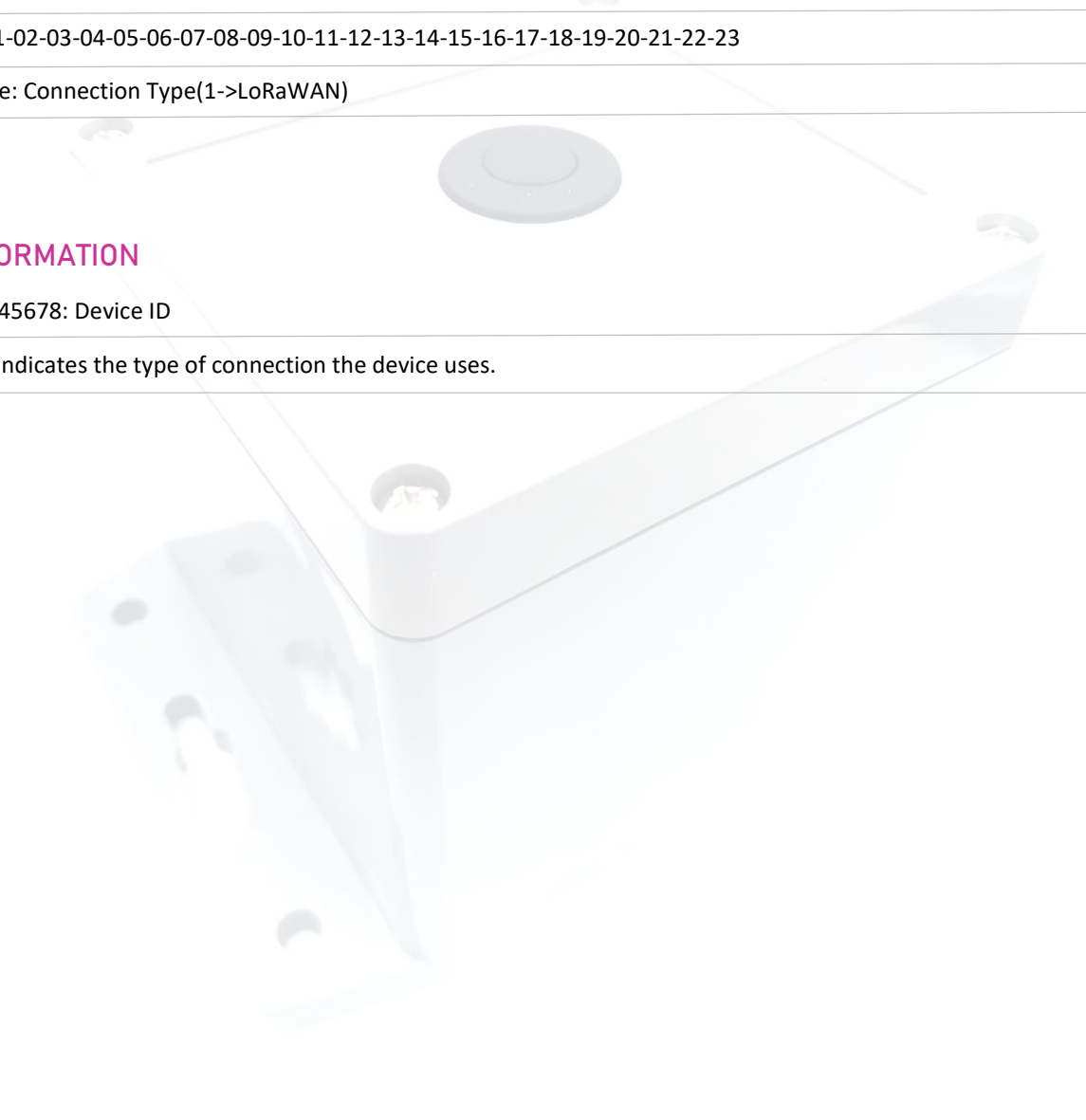
00-01-02-03-04-05-06-07-08-09-10-11-12-13-14-15-16-17-18-19-20-21-22-23

1 byte: Connection Type(1->LoRaWAN)

INFORMATION

012345678: Device ID

|1|: Indicates the type of connection the device uses.





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LoRaWAN ULTRASONIC DISTANCE PROTOCOL

01-17-01-23-YY-YY-YY-YY-YY-YY-YY-YY-YY-YY-YY-YY-YY-01-2C-25-01-12-0D-EF

01: Selected Slot (1 byte)

17: Ultrasonic Distance Sensor Board ID (1 byte)

0123: 0x0123H -> 291D -> Distance as cm (2 bytes)

YY-YY: Empty Data (13 bytes)

012C: Sleeping Period 0x012CH -> 300D Seconds (2 bytes)

25: Payload Counter 0x25H -> 37D (1 byte)

01: Sensor Message Type Periodic (02->Sensor Message Type Interrupt) (1 byte)

12: Sensor FW Version (1 byte)

- i. Main Version 1
- ii. Sub Version 2

0DEF: 0x3567H -> 3567D -> 3567 mV -> 3.567 V (2 bytes)





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INFORMATION

01: Selected slot

17: This slot determines the sensor type.

0123: Indicates distance 291 as cm.

YY-YY: Dummy Data

012C: Sleep interval along 300S.

25: Data is live or not. Each measurement is incremented by degree.

01: When the sensor message 02 comes, it enters the interrupt.

12: Sensor firmware version 1.2

0DEF: Outputs the measurement in Volt (3.567V).