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Pressure Monitor LoRaWAN

SKU: PRELWE02

Version: 2.0.0



1. Product Description

The Aqua-Scope pressure sensor detects water consumption, and leaks by analyzing pressure waves in the water supply. It continuously records the temperature, the water consumption, and water pressure. When leaks are detected or when pressure or temperature thresholds are exceeded or not reached, the user is alerted wirelessly. The device consists of two parts:

- The main housing for signal processing and wireless communication with a battery compartment.
- The external sensor head is connected to the water pipe. The stainless steel sensor head features a silicon sensor suspended in silicone oil for highly accurate and low-noise pressure measurements. The pressure measurement range is between 1 to 10 bar. The sensor head is installed somewhere in the



building at a standardized 1/4-inch inspection opening or with a provided T-piece under any sink at the edge or corner valve.

The sensor can send an alarm message when predefined threshold values are exceeded or not reached. The polling frequency of the sensor is adjustable between 0.1 seconds and several minutes, defining the battery life. For a measurement interval of 1 second, a battery life of approximately 10 years is calculated.

The device can be powered either by an external power supply with a USB-C adapter or by an optional internal ER26500 battery (Bobbin Cell C). Both the sensor head and the main housing are waterproof, allowing them to be used outdoors or in particularly damp and/or dirty environments.

The device is controlled via LoRaWAN commands and operates as a LoRaWAN Class A/C device. The use of the device requires LoRaWAN network coverage. Otherwise, you need to install and operate your own LoRaWAN gateway.

2. Scope of Delivery

- Water Monitor main device (without battery)
- Pressure sensor head with 80 cm cable
- 3/8 Inch water pipe connector (T-shaped)
- One external flood sensor with cable
- USB-C power cable and power supply
- 19 mm wrench to unfasten and fasten the 3/8 Inch connections of the pipe connector

3. Information related to Drinking Water Directive EU 98/83/EC

The t-shaped part of the device is exposed to drinking water and therefore subject to the European Drinking Water Directive. The certified used material is called CW509L, which is in the list of approved materials of the German Environment Agency (UBA) in the version from May 14th, 2020 under section 2.1.3.1.

4. Technical Data

- Power Supply: External USB Power Plug 5 V/ 1A
- Battery: Bobbin Cell C ER26500, Lithium-Thionyl Chloride
- Processor: ESP32-WROOM_32E (Xtensa Dual Core 32 Bit, 240 MHz, 520 KB RAM)
- Wireless Connection:
 - LoRaWAN
 - Frequency EU868



- Class A or Class, depends on battery status
 - LoRaWAN 1.0.3
- Bluetooth 5 (LE)
 - UART Profile
- Pressure Sensor Head:
 - Range : 0 ... 1000 kPa (10 bar)
 - Overload: 150 Percent of maximum pressure
 - Connection: G ¼ " female
 - Communication: I2C
 - Precision: < 1 Percent dynamically
 - Built-in High-Precision Temperature Sensor
- Dimensions (Main): 91 mm x 91 mm x 30 mm
- Weight (Main Device): 105 gr
- Weight (Sensor Head): 140 gr
- Protection: Main Device: IP 65, Sensor Head: IP 67
- User Interface: 4 colored LED, single touchless button
- Environmental Conditions:
 - Shipment and Storage: -65 °C ... 125 °C
 - Operation: - 20 °C ... 50 °C
 - Rel. Humidity: 0...90 %