



## ENAIKOON IIoT M3-O1 LoRa Sensor for Operating Hours

### M3-O1 Overview

The ENAIKOON IIoT M3-O1 LoRa sensor is a "Made in Germany" IP67 waterproof device designed to accurately track machine operating hours.

#### Key Features:

##### **Comprehensive Data Collection:**

- Measures total operating hours and idle time (engine running, machine not in use) with separate counters
- Utilizes a built-in 3-axis motion sensor for reliable data collection

##### **Flexible Connectivity:**

- Transmits data via LoRa
- Compatible with other ENAIKOON IIOT devices (e. g. M2-L1, M2-G1, M5-G1) for data transmission

##### **Robust performance:**

- Long range LoRa communication (<1000 meters)
- Secure binary protocol for data transmission
- Designed for professional applications
- Powered by a long-lasting 19 Ah battery (over 10 years of battery life)

##### **High-Performance Hardware:**

- Powered by CubeCell processor
- Internal memory for data storage
- Deep sleep mode for ultra-low power consumption
- Supports primary LiSOC12 battery
- 1 LED for signalling (inside housing, can be deactivated)

##### **Security:**

- Encrypted data transmission for enhanced security
- Compliant with European data protection regulations

##### **Data Handling:**

- Communication with LoRa Gateway for extended reach
- Data transmission to ENAIKOON inViu pro and to ginstr web

##### **Power Efficiency:**

- Deep sleep mode with ultra-low power consumption (<10 µA @ 3.6V internal battery)

##### **Environmental Robustness:**

- IP67 waterproof and dustproof

##### **Developer-Friendly:**

- Customizable firmware for specific needs
- Programmable with Arduino IDE like PlatformIO
- Update of parameter values over-the-air

##### **Applications:**

The ENAIKOON IIoT M3-O1 sensor is ideal for a wide range of IIoT applications, including:

- Industrial IoT
- Asset Management
- Construction machines management
- Smart Agriculture and Forestry

##### **Benefits:**

- "Made in Germany quality", reliability and support
- Strong performance and versatility
- Enhanced security and data privacy
- Ease of integration and customization
- Ideal for both indoor and outdoor deployments

## M3-O1 Device specification

**Motion sensor:**

- KXTJ3-1057

**Temperature sensor:**

- LM75B
- Range: -40 °C ~ +85 °C
- Accuracy:  $\pm 1.5 \%$
- Resolution: 0.125 °C

**Reed Relay****Processor:**

- HELTEC CubeCell (Arduino compatible)

**Memory:**

- RAM: 16 kB
- Flash: 128 kB

**LoRa radio module:**

- HELTEC CubeCell
- 868 MHz

**1 LED:**

- Programmable

**Housing:**

- IP67 waterproof
- Size: 80x80x55 mm
- Wall mountable

**Ultra-low power mode:**

**Max. 10  $\mu$ A @ 3.6 V in deep-sleep mode**

**Watchdog:**

automatic device restart in case of software problems

**Operating temperature:**

- -40 °C ~ +85 °C

**Battery:**

- LiSOCI2 battery
  - 19 Ah
  - Size Mono-D
  - Not rechargeable

**Programming cable connection (inside the device):**

- Installation of firmware and configuration file

**Programmable with any Arduino IDE**

- like PlatformIO

**Firmware update:**

- Thru programming cable

**Parameter update:**

- Thru programming cable
- Over-the-air (OTA)

**Server integration:**

- ginstr web integration
- ENAIKOON inViu pro integration

**Made in Germany**