Universal Sensor Module

with LoRaWAN® connectivity

TRINEO Systems

The Universal Sensor Module (USE) is designed to work with a wide variety of sensors providing two-state output signal. The USE has 2 inputs, each capable of working with the following types of sensor outputs:

dry contact	**open collector**
resistive	**voltage source**

In addition, the USE also has a switched auxiliary power output (9V) for use with active sensors, which require supply voltage to operate. Each of the inputs can be independently configured for one of the two modes of operation:

asynchronous - triggered by the change of state of the input signal
polled - at user-defined intervals, the auxiliary power output is activated and the input state is sampled.

The user can define whether the reporting of the input states over LoRaWAN® network takes place at every state change or, instead, just as summary information for a given time period sent at regular intervals.

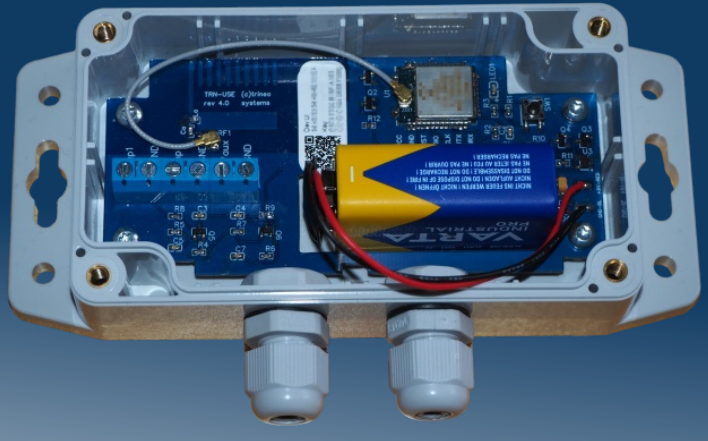
The USE module is powered by a single 9V alkaline battery. The battery lasts up to 3 years, depending on the heartbeat message period set by the user and current consumption by active sensors powered from the auxiliary power output (if any).

Radio section:

band:	868 MHz
protocol:	LoRaWAN®
network enrollment:	OTAA
spreading factor:	7 - 12 (dynamic)

Other characteristics:

operating temp.:	-30°C to 80°C
protection class:	IP65
dimensions:	145 x 85 x 40 mm



system description overleaf

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SENSOR TO CLOUD DIRECT!

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Product Overview

Trineo Systems offers innovative monitoring solutions using LoRaWAN® technology to enhance security, industrial safety, and efficiency. Our range includes both off-the-shelf sensors and custom-designed options to meet specific client needs. Whether you need to connect through a public or private LoRaWAN® network, we've got you covered. In the Netherlands, our sensors operate on KPN's public network, each sensor available with a 3-year communication plan for seamless operation.

We also provide a straightforward back-end service for managing these sensors, making it easy to monitor events and alarms. Our system supports direct alarm delivery to Alarm Receiving Centres (ARC) using the SIA DC-09 protocol, helping you respond quickly to emergencies.

Typical applications

Our system significantly reduces the total cost of protecting certain classes of locations where their size or infrastructure availability limits the use of traditional alarm and monitoring systems. Such premises can be monitored for smoke, flooding, intrusion, overheating, freezing, and many other emergencies. The cost efficiency is achieved through the following features:

- The sensors communicate directly with the cloud, eliminating the need for local network infrastructure.
- The sensors are managed remotely via our cloud-based back-end, eliminating the need for a local controller on the protected premises.
- Most of the sensors are battery-powered, eliminating the need for a local power source.
- All of the above significantly reduce installation effort, thereby substantially lowering the total cost.

Success Story

Our collaboration with PZU, the largest Polish insurance company, stands as a testament to the reliability and effectiveness of Trineo Systems' sensors. Integrated into PZU's industrial risk management program, "Ryzyko PRO", our sensors play a crucial role in safeguarding against industrial risks. "Ryzyko PRO" is an innovative industrial loss prevention program designed for corporate clients facing high risks due to their large operations and specialized processes.

By integrating our sensors into industrial settings, we help monitor vital parameters at critical control points, sending real-time data to PZU's Monitoring Center. This ensures that processes and practices are adhered to at all times in the protected facility, thus reducing the risk of loss occurrence.

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