Fludia
Smart Energy Components

BelSenso FM442e
Plug & Play IoT Sensor for
Electricity Consumption Monitoring

NB-IoT
LTE-M

BelSenso

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Electricity Consumption Monitoring

The FM442e is a plug-and-play IoT sensor designed for monitoring electricity consumption in all types of buildings. The optical head can be quickly attached to the main electricity meter or a submeter, and the NB-IoT/LTE-M modem connects through standard cellular networks. Measurement data is transmitted to an MQTT broker and can be retrieved by any energy data management solution.
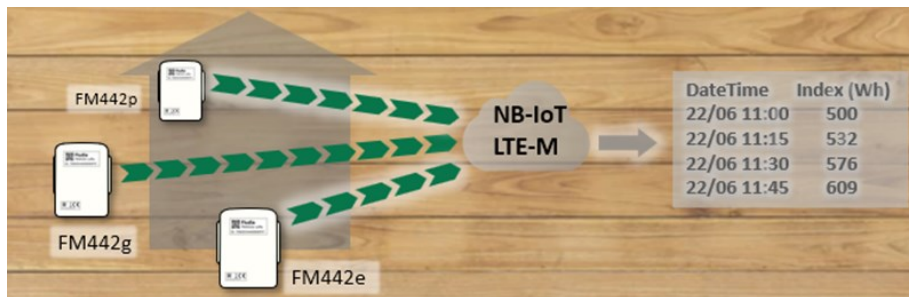
Benefits

⇒ **Universal:** Compatible with most electricity meters (electronic with blinking LED or electromechanical with rotating disk)

⇒ **Plug & Play:** Optical head installed in seconds without tools

⇒ **Reliable:** Adaptive detection and signal filtering built into the optical head

⇒ **Configurable:** Measurement and transmission intervals remotely adjustable

⇒ **Autonomous:** Battery-powered for multiple years of operation

⇒ **Made in France:** Designed and manufactured by Fludia, with full support and product evolution handled in-house

Operational

Use Cases

⇒ **Energy audits:** Verifying time schedules, power sequences, and energy blocks

⇒ **Energy monitoring:** Triggering alerts and ensuring long-term energy efficiency

⇒ **ESG reporting:** Harmonizing data collection and formats across countries and building types

General and technical features

	BelSenso FM442e
Input	- Electromechanical meters: Optical reading via disk rotation detection → Switch position: A - Electronic meters: Optical reading via LED flash detection → Switch position: B
Output	- NB-IoT and LTE-M supported - MQTTs protocol
Installation & Operation	- Optical head mounted on a plastic holder with specialized 3M adhesive - Meter type selected via switch on the side of the optical head - Red and green LEDs for commissioning and diagnostics
Data	- Energy index and power load curve every 5, 10, 15, 30, or 60 minutes (remotely adjustable) - Default configuration: index increment every 15 minutes, data sent every 4 hours
Power supply	Two replaceable A-size batteries: 3.6V Lithium-Thionyl Chloride (Li-SoCl$_2$)
Size & Weight	- Optical reader: 19 g (with cable), 24 mm (height), 40 mm (width), 19 mm (depth) - Cable length: 50 cm - Radio box: 130 g, 95 mm (height), 75 mm (width), 30 mm (depth)

FM442e

References

FM442e_ap_1mn	IoT Sensor for Electricity Consumption Monitoring - data 1mn
FM442e_ap_10mn	IoT Sensor for Electricity Consumption Monitoring - data 10mn
FM442e_ap_15mn	IoT Sensor for Electricity Consumption Monitoring - data 15mn
FM442e_ap_1h	IoT Sensor for Electricity Consumption Monitoring - data 1h

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