

LTE-M / NB-IoT

Wireless nitrogen dioxide (NO₂) logger

SKU:



Efento LTE-M / NB-IoT wireless nitrogen dioxide (NO₂) logger measures gas concentration and transmit its values over a cellular network (Narrowband IoT or LTE-M). On top of the gas concentration, the logger also measures temperature and humidity. Sensors are also equipped with Bluetooth Low Energy interface, which allows quick and easy configuration with a smartphone. Efento LTE -M / NB-IoT gas sensors can be integrated with any cloud platform.

Key features

- **Works with Efento Cloud**
Together with Efento Cloud, the sensors enable constant monitoring, alerting about exceeding safe limits, generating reports and analyzes.
- **Long battery life**
Loggers have been designed to work for up to 10 years on batteries. You do not have to remember about changing the batteries frequently or troublesome batteries charging.
- **Lower costs**
Choosing wireless sensors and a cloud platform reduces the installation and maintenance costs.
- **Wide range of sensors**
Efento sensors can measure various physical and chemical values. If you decide on one sensor today, you can expand your sensors fleet to another types anytime you want.
- **Integration**
Standard communication protocols allow integration with any cloud platform or mobile application.
- **Easy set up**
All you need to set up a logger is a smartphone with a free mobile application. The whole configuration takes no more than 15 minutes.

Technical data

Gas sensor

- Range: 0-4 ppm (4 000 ppb)
- Accuracy: at: -20°C (% output at -20°C/output at 20°C) at 2ppm NO₂ 50 to 80, at: 50°C (% output at 50°C/output at 20°C) at 2ppm NO₂ 115 to 130
- Memory size: 60 000 measurements
- Measurement interval: 1 minute to 10 days, configurable

Temperature sensor

- Range: -35° to 70°C
- Accuracy up to 0.25°C in the -20°C to +70°C range and 0.5°C in the -35°C to -20°C range
- Resolution: 0.1°C
- Drift: <0.1°C / year
- Measurement interval: 1 minute to 10 days, configurable
- Memory size: 60 000 measurements

Humidity sensor

- Humidity: 0 to 100% RH
- Accuracy: 4% in the range of 0 to 80% and 7% in the range of 81 to 99%
- Measurement interval: 1 minute to 10 days, configurable
- Memory size: 60 000 measurements

Additional information

Gas sensor calibration

The gas sensors are pre-calibrated at the factory. If needed, user can independently calibrate the device using mobile application and a gas tank with a known gas concentration. The user places the gas sensor near the tank with a known gas concentration and specifies the concentration level using a free mobile application, the sensor measures the concentration and corrects the parameters based on the concentration of the gas in the tank.

Edge analytics

Devices analyse the data and send it to cloud platform when needed. This allows to decrease the number of cellular transmissions and increase the battery lifetime. There are several types of analyses that can be performed by the sensor: from a simple comparison of the measured value to the threshold to more complex mathematical operations.

Software over the air updates (SOTA)

The sensors are equipped with over the air software update mechanism, thanks to which, your fleet of sensors will always have the latest version of software. Moreover, SOTA is based on delta mechanism and only the difference between the current and the new version of the software is sent to the device. This saves both the battery and data transfer.

Full remote configuration

All the settings of the NB-IoT sensors can be changed remotely in a secure way. This allows you to easily reconfigure thousands of the deployed devices, no matter how far they are located.

Integration

We believe that the Internet of Things is about integrating data sources, analysing the data and drawing conclusions based on it. If you want to integrate Efento loggers with your software, cloud platform or mobile application, we will provide you with the necessary documentation, libraries, SDKs and we will gladly assist you.

Sensor's passport

Sensor's passport documents the entire lifecycle of a device. By accessing the data on Efento Cloud platform, the user can check all information about the sensor: date of sale, warranty status, date of calibration, information on all service activities. In addition, the user can download all documents regarding the device – a duplicate of calibration certificate or service protocols.

Communication

- Protocol: CoAP;
- Transmission interval: 5 minutes – 10 days, configurable

LTE band (FDD)

- LTE band (FDD): 8, 20, devices working on other bands available on request
- 3GPP: Release 13 (LTE-Cat M1)
- Power: 23 dBm (LTE-M NB-IoT)

Bluetooth Low Energy interface

- Radio module frequency: 2,4 GHz
- Power: 2,5 mW (4 dBm)
- Range: up to 100 m (LOS)
- Transmission period: 1 s

Battery

- Battery: 4,2 V, size AA, capacity 4 200 mAh
- Battery operating time: at least 10 years

Mechanical

- Dimensions: 27 x 71 x 71 mm
- Weight: 100 g (including batteries)
- Enclosure: plastic ABS, color white
- Enclosure IP rating: IP30

Environmental

- Operating
 - ◆ Temperature: -35° to 70°C
 - ◆ Humidity: 0 to 99% non-condensing
- Storage and transportation
 - ◆ Temperature: -40° to 70°C