NB-IoT

Wireless carbon monoxide (CO) logger

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Efento NB-IoT wireless carbon monoxide (CO) logger measures gas concentration and transmit its values over a cellular network (Narrowband IoT). 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 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, Temperature and Humidity sensors
➔ Range: 0 – 450 ppm
➔ Accuracy: at: -20°C (% output at -20°C/output at 20°C) at 5ppm CO 50 to 85, at: 50°C (% output at 50°C/output at 20°C) at 5ppm CO
➔ 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
➔ 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: 40 000 measurements

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

NB-IoT
➔ NB-IoT band: 8, 20
➔ 3GPP: Release 13
➔ Power: 23 dBm ±2 dB

Bluetooth Low Energy interface
➔ Radio module frequency: 2,4 GHz
➔ Power: 2,5 mW (4 dBm)
➔ Range: up to 100 m (LOS)
➔ Transmision period: 1 s

Battery
➔ Replaceable 3 x AA, 6300 mAh
➔ USB 5V with 1000 mAh rechargeable battery
➔ Battery operating time: at least 2 years (measurement interval: 15 min)

Mechanical
➔ Dimensions: 28 x 60 x 124 mm
➔ Weight: 140 g (including batteries)
➔ Enclosure: plastic ABS, color white, IP30

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

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.

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.