

nemi WAMS Bridge

Battery powered 4G-Gateway for wireless data transmission over long distances

Description

nemi WAMS Bridge is the gateway in i4M's wireless **Wide Area Monitoring System**. It receives data from up to 30 wireless sensors at a distance of up to 1000 m and forwards the data to a server via 4G cellular connection - all with minimal energy consumption.

nemi WAMS was developed for applications that do not require high data rates but large area coverage with sensors and long battery runtimes. This is made possible by i4M's own highly efficient radio technology nemi Link 868.

Key Features

- **Receiver of up to 30 sensor nodes** in the radio network nemi Link 868 (star topology)
- **Completely wireless** due to radio connection nemi Link 868 and external battery supply / solar panel
- **Low energy demand**
- **Data transmission** via secured 4G NB-IoT cellular connection
- Transmission of raw data or pre-evaluated / smart data by **edge computing** via MQTT streams
- Robust, weatherproof **IP 67** housing



nemi Link 868 - i4M's own robust **long-range radio technology** in the 868 MHz frequency band; range up to 1000 m



Connection of **external 6 - 17 V battery** / solar panel



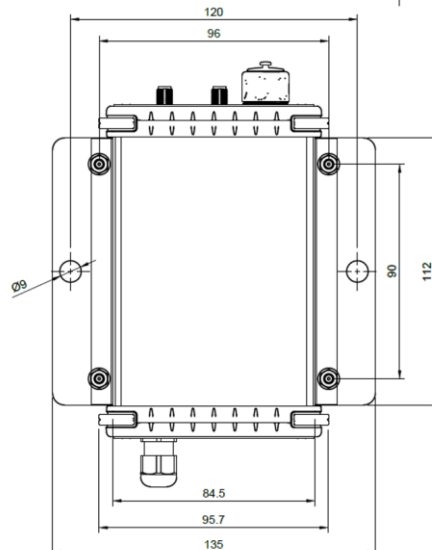
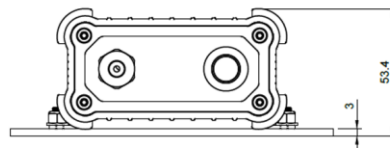
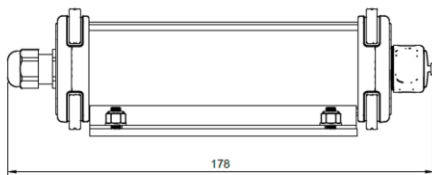
4G cellular connection; energy-efficient NB-IoT protocol

Specifications

General information		
Dimensions (without antenna and connectors; with retaining plate)	135 x 140 x 53.4	mm
Weight (with retaining plate)	approx. 550	grams
Onboard MCU (usable for edge computing)	48 MHz ARM Cortex M0+, 256 KB Flash, 32 KB RAM	-
Data transmission	MQTT data streams	-
Cellular connection	4G modem with energy-efficient NB-IoT protocol; 300 kbit/s download, 375 kbit/s upload	
External power supply	6 - 17 Connection of external battery / solar panel	V
Average current consumption (at 12 V with 30 sensors connected)	10	mA
Peak current consumption (at 12 V with 30 sensors connected)	500	mA
Over Current Protection	1600	mA
Temperature range permitted during operation	-20 to 60	°C
Housing protection class	IP 67	-

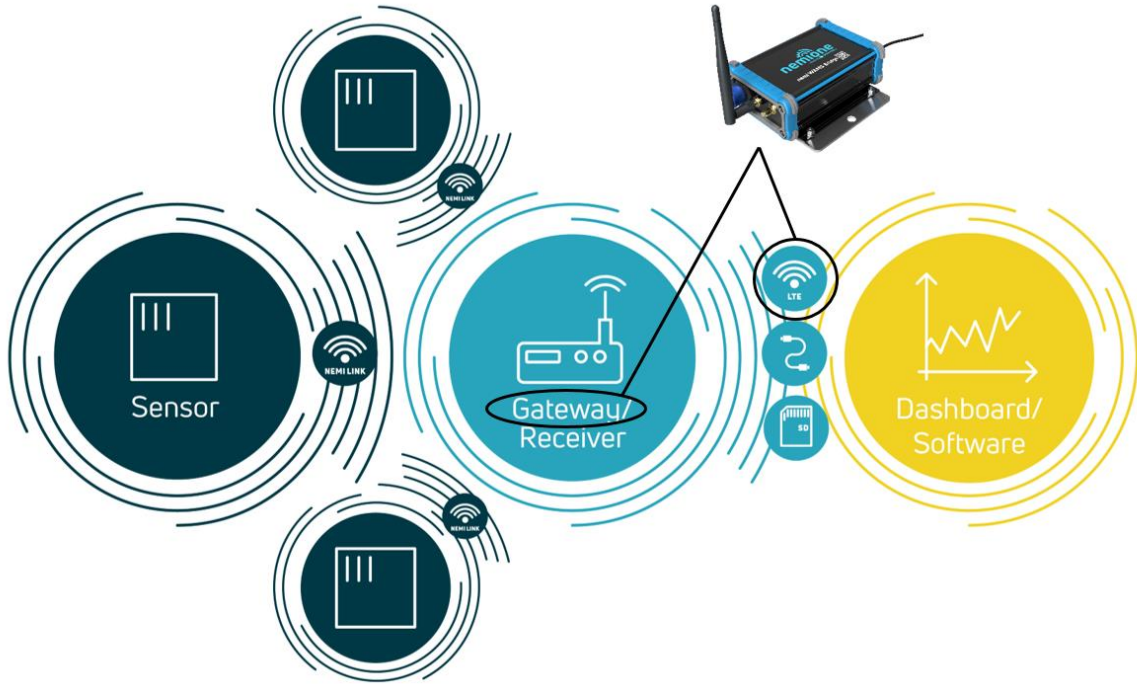
Dimensions

(All dimensions in mm)



Data transmission

The nemi WAMS Bridge is a gateway for receiving and forwarding data. It can be used to receive data from up to 30 wireless sensors / telemetry modules in the nemi Link 868 radio network. It then temporarily stores the data and forwards it via 4G cellular radio.



Radio technology nemi Link 868

Long-range radio network

Our own radio technology nemi Link 868 is a **wireless, battery-powered sensor network** in the 868 MHz frequency band with star topology and receiver / gateway module. It is the **high efficiency of** our robust radio technology that **enables the long battery runtimes** of our products. Our wireless sensors synchronize their internal clocks to the clock of the receiver module with small deviations.

Radio technology nemi Link 868		
Radio channel	868 MHz ISM frequency band	-
Time synchronization deviation	100	ms
Radio range	up to 1.000	m
Max. Sum sample rate at 24 bit pr o Sample	approx. 200	Hz
Sensor nodes per gateway	30	-

Compatible sensor / telemetry modules in the nemi Link 868 wireless network

nemi WAMS Bridge is compatible with all sensors / telemetry modules in i4M's nemi Link 868 network. The following product is available under the nemione® trademark:

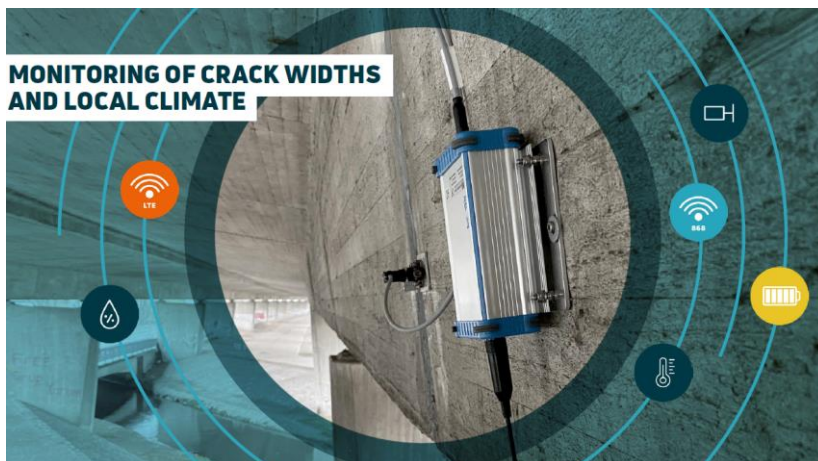


[nemi WAMS Node](#)

Application

Due to the elimination of cabling, nemi WAMS enables easy installation even on large assets and structures. Examples for use cases are climate or crack monitoring on bridges or continuous temperature monitoring on rolling bearings in big facilities.

Download Use Case:



Data Analysis

Upon request, we will be happy to support you with data analysis. The data analyses can be performed directly in the sensor or in the gateway by edge analytics as well as on the server or measuring computer. A great advantage of edge analytics is the **reduction of the transmitted data to the essentials** ("smart data"). This **reduces storage space** and **increases battery runtimes**.

Based on our knowledge from a multitude of previous projects, we have developed **algorithms for data evaluation** to generate **maximum added value** for our customers. We will gladly advise you on this. In addition to our existing algorithms we create **individualized scripts** upon request.

At the same time, the **data remains your capital**: We do not rely on big cloud providers but **keep the data in your IT ecosystem**. Alternatively, you can rely on our nemione® cloud solutions - hosted in the European Union.

Contact

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