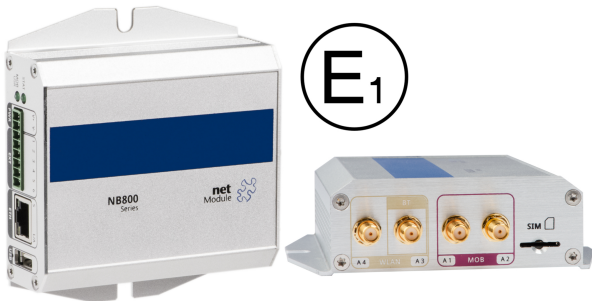


# NB800 E-Mark

Compact Vehicle Router with LTE, WiFi, Bluetooth and BLE



**The NB800 with E-Mark is a cost-effective solution for robust onboard Internet connection in vehicles. Its modular design supports a wide range of protocols addressing the fast-spreading Internet of Things (IoT).**

The NB800 with E-Mark is perfectly suited for mobile Connectivity in a multitude of applications in Transportation and Industry. The compact router provides key technologies to support access any kind of applications in the Internet, but also Intranet sites and remote stations which can be connected via its powerful VPN protocol suite including OpenVPN and IPsec.

The integrated modem supports MIMO LTE networks and ensures WWAN connectivity with up to 100 Mbps. WiFi IEEE 802.11abgn, Bluetooth 4.2 including Bluetooth Low Energy (BLE) or USB provide further options to connect sensors and actuators easily to a network. A hardware shield concept offers additional flexibility to extend the NB800 to an application optimized device (OEM) or to follow future technology trends. By now, shields with dual CAN or digital I/Os and serial interfaces are available, GPS shield in preparation.

A durable aluminum housing suitable for wall-mounting, tests acc. to ECE Type certification (E-Mark) and the supported temperature range -40 °C to 70 °C guarantee the necessary robustness.

The router software is based on well proven components including an embedded Linux operating system and a wide range of communication and routing protocols as VLAN, Mobile IP, OSPF, BGP and RSTP. It's possible to run customer applications in a LXC Container. An SDK gives programmers a great tool to implementing all kind of applications with simple scripts. Data preprocessing can be done directly on the router, thus saving an additional IPC. Other features include a smart Link Manager for optimized cellular connections, Quality of Service (QoS) for an efficient data exchange, E-Mail and SMS for alarming and notifications, a web server and RADIUS authentication and hidden SSID's for WLAN.

## Applications

- E-Ticketing
- Remote access
- Condition monitoring
- Predictive maintenance
- Passenger information systems
- Vehicle WiFi Hotspot
- CCTV

## Key Features

- E1 according to UN ECE R10
- Operating from -40°C to +70°C
- LTE/UMTS/GSM
- WLAN Client/Access Point
- Bluetooth with BLE
- Ethernet
- Expandability by shields
- NetModule Router Software
- SDK Scripting & LXC
- Small form factor

## Performance

- 600 MHz CPU
- 100 Mbps routing performance

## Specifications

Mobile / Cellular	<p>1 Multimode LTE, UMTS and GSM module</p> <p>4G - LTE/FDD Bands: B1(2100 MHz), B2(1900 MHz), B3(1800 MHz), B4(AWS), B5(850 MHz), B7(2600 MHz), B8(900 MHz), B20(800 MHz)</p> <p>3G - UMTS/DC-HSPA+: B1(2100 MHz), B2(1900 MHz), B5(850 MHz), B8(900 MHz)</p> <p>2G - GSM/GPRS/EDGE: B5(850 MHz), B8(900 MHz), B3(1800 MHz), B2(1900 MHz)</p> <p>Data rates: max. 150 Mbps downlink / 50 Mbps uplink (Bandwidth 20M CAT4)</p> <p>2 SMA antenna connectors supporting 2x2MIMO or standard antennas</p> <p>1 Micro SIM (3FF) ETSI TS 102 221 V9.0.0, Mini-UICC</p>
WLAN / WiFi	<p>1 WiFi IEEE 802.11abgn up to 144 Mbps 2.4 GHz 2x2 MIMO, 150 Mbps 5 GHz SISO</p> <p>Access point / client mode; Max users in access point mode: 10</p> <p>2 SMA female supporting MIMO or standard antennas</p>
Bluetooth / BLE	<p>1 Dual-Mode Bluetooth 4.2 and Bluetooth Low Energy. Up to 10 BLE connections.</p> <p>Antenna connector: SMA female, shared with WLAN by Bluetooth single antenna coexistence.</p>
Ethernet	<p>1 Ethernet port, 10/100 Mbps, auto MDIX - Connector type: RJ45</p>
USB	<p>USB 2.0 Host Port, USB A connector type</p>
Shields (Optional)	<p>COM/IO shield: Protocols: RS-232 (RXD, TXD) or RS-485 (D+, D-) configurable</p> <p>Bit Rates: up to 1Mbps; RS-485 bus termination: 120R (configurable)</p> <p>1 DI: level 0 (0-3VDC), level 1 (9-36VDC), isolation: 1500VAC</p> <p>1 DO: 0-36VDC/1A; isolation: 1500VAC</p> <p>-- or --</p> <p>2xCAN shield: Bit rates: up to 1Mbps; bus termination: 120Ohms (configurable)</p> <p>--</p> <p>Extension connector: 6 pin terminal block, 3.5 mm pitch</p>
Storage	<p>4GB internal</p>
Power	<p>Nominal Input Voltages: 12VDC (+/-20%), 24VDC (+/-20%)</p> <p>Average power consumption: 5W</p> <p>Connector type: 2 pin terminal block, 3.5 mm pitch</p>
Environment	<p>Operational temperature: -40 °C to +70 °C; Storage temperature: -40 °C to +85°C</p> <p>Ingress Protection Rating: IP40</p>
MTBF	<p>&gt;440.000h depending on model</p>
Dimensions, weight	<p>Width 85/111mm x height 32mm x depth 110mm, ca. 250g</p>
Compliance	<p>CE according to 2014/53/EU (RED), 2011/65/EU (RoHS), 2012/19/EU (WEEE), 1907/2006/EC (REACH)</p>
Standards	<p>EN 62368-1, EN 62311, EN 55024, EN 55032, EN 61000-6-2, EN 61000-6-3, EN 301 489-1, EN 301 489-7, EN 301 489-17, EN 301 489-24, EN 300 328, EN 301 511, EN 301 893, EN 301 908-1, EN 301 908-2, EN 301 908-13</p>
Order numbers	<p>(contact sales for more models, options or project specific adaptations)</p> <p>NB800-LSu-E LTE Router + USB + E-Mark</p> <p>NB800-LWWtSu-E LTE, WLAN a/b/g/n Router + Bluetooth 4.2 + USB + E-Mark</p> <p>NB800-LWWtSu2C-E LTE, WLAN a/b/g/n Router + Bluetooth 4.2 + USB + Dual-CAN + E-Mark</p>