NG800 – Automotive IoT

Multi-Functional Connectivity Platform with LTE, NB-IoT, WiFi, BLE, GNSS, CAN-FD, BroadR-Reach, V2X, IP65

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Applications

- Fleet Management
- Asset tracking
- Autonomous Vehicles
- Vehicle to Everything (V2X)
- Diagnostics
- Onboard internet
- E-Mobility
- Condition Monitoring

With the progression of digitalization in daily life also the demand for multi-functional connectivity in vehicles of any kind is rapidly growing. Applications like Fleet Management, Asset Tracking, Autonomous Driving, V2X, E-Mobility require enormous amounts of data from different sources. Therefore, it is important to collect real-time data about the location, fuel consumption, driver behavior, machine health status and others to optimize business and save costs.

The NetModule NG800 multifunctional IoT-Device, suitable for harsh environments, provides the necessary robust communication between on-board vehicle equipment and cloud applications.

The modular concept of software, electronics and mechanical components to be optimized for specific target applications.

For wireless communication, NG800 is equipped with an LTE Cat 4, NB1 or M1 modem, 2 SIM slots for failover links, WiFi 802.11abgn as client or small in- vehicle access point, GNSS dead reckoning, IMU and Bluetooth. A Molex CMC 48 pin connector may serve for all wired interfaces such as CAN, Broad-R Reach, Fast Ethernet, DIO or RS-232.

The platform core features can be extended with a customized module to provide additional interfaces or embed parallel CPU subsystems using the Ethernet backplane. Alternatively, other connectors such as M12 can be equipped.

With the robust IP65 protection level using a thermoplastic cover and an aluminum bottom plate, it is made for outdoor/ out of vehicle use. Optional internal LTE, WiFi and GNSS antennas can reduce the overall costs.

The product platform includes the software support for all components in a Yocto Linux Distribution. Customers can deploy their own applications or make use of existing frameworks such as Automotive Grade Linux (AGL).

For further information please contact us: info@netmodule.com

Key Features

- 1x LTE/UMTS/GSM
- 2x SIM
- 1x WLAN and BT4.2
- GNSS NEO-M8L
- 2x BroadR-Reach
- 1x Fast Ethernet
- 2x CAN
- 6-Axis IMU
- Cable Harness Optimized
- -40 to +75°C (85°C), IP65
- Yocto Linux OS or AGL
- Internal Antennas

Specifications

Mobile / Cellular	1 multimode LTE , UMTS and GSM modem, voice call support 4G - LTE: B1 (2100 MHz), B3 (1800 MHz), B5 (850 MHz), B7 (2600 MHz), B8 (900 MHz), B20 (800 MHz) 3G - DC-HSPA+/UMTS: B1 (2100 MHz), B2 (1900 MHz), B5 (850 MHz), B8 (900 MHz) 2G - GSM/GPRS/EDGE: B5 (850 MHz), B8 (900 MHz), B3 (1800 MHz), B2 (1900 MHz) Data rates: max. 150 Mbps downlink / 50 Mbps uplink (Bandwidth 20M CAT4) Other LTE categories (optional): LTE Cat NB1/M1 Other regions (optional): North America, South America, Japan 2 SMA female antenna connectors supporting 2x2MIMO
SIM	Internal SIMs: 1x micro SIM card (3FF), 1x eSIM (MFF2)
WLAN / WiFi	1x WiFi IEEE 802.11abgn up to 80 Mbps 2.4/5GHz 2x2MIMO 2 SMA female supporting MIMO or standard antennas
Bluetooth / BLE	1x Dual-Mode Bluetooth 4.2 and Bluetooth Low Energy. Up to 10 BLE connections 1 SMA female, shared with WLAN by Bluetooth single antenna coexistence
Ethernet	2x Automotive Ethernet, 100BASE-T1 (BroadR-Reach), 2x2 pins on CMC-48 connector 1x Fast Ethernet, 100BASE-TX, 4 pins on CMC-48 connector
CAN	2x CAN 2.0B bus interfaces, up to 1Mbps, 2x2 pins on CMC-48 connector
GNSS	Neo-M8L chipset with dead reckoning and GPS/QZSS, GLONASS, BeiDou, Galileo; active antenna supply
IMU	1x Inertial Motion Unit with 3-axis Accelerometer, 3-axis Gyroscope
Serial	1x UART console (EIA-232), bitrates: 9'600 / 115’200bps, 2 pins on CMC-48 connector
Processor System	CPU: ARM Cortex A8 (1 GHz); Memory: 1024 MB RAM; Storage: 8 GB Flash
Extension Modules (optional)	Application specific interfaces can be realized on the extension module. The modules interfaces via SPI, I2C, GPIO, SIM, USB, RMII to the host CPU and has access to 24 pins on the CMC-48 connector. Currently under evaluation: CAN-FD; RS-232 or RS-485 serial interfaces; Digital/analog inputs and outputs; Ethernet Switch; V2X 802.11p
User Interface (under development)	2x Micro SIM cards 3FF; 2x LED; 1x Reset Button, 1x USB Host; 1x Console Micro-USB B
Internal Antennas (optional)	Internal antennas for MIMO LTE, MIMO WiFi/BT and GNSS
Dimensions	Width 200mm x height 40mm x depth 120mm (without connectors)
Power	Nominal voltages: 12VDC, 24VDC; Absolute voltages: 9VDC to 36VDC Power Consumption: Active State <10W, Power Down State <2mA @ 24V Pins KI30, KI15, GND on CMC-48 connector Options under evaluation: Battery pack (up to 70Wh), railway power supply or PoE
Environment	Temperature range -40°C to +75°C (+85°C extended); Ingress Protection Level IP65; Max altitude: 4000 m.a.s.l.; Humidity: 5 – 95% non-condensing
Compliance (pending)	CE according to 2014/53/EU (RED), 2011/65/EU (RoHS), 2012/19/EU (WEEE), 1907/2006/EC (REACH); E1 according to UN ECE R10; Under evaluation: EN50155, EN45545
Order Codes NG800-LWWtGe2Br2C	Samples Available Gateway with LTE +WLAN +BT/BLE +GNSS-DR +2xBroadR +2xCAN

NetModule AG
Maulbeerstrasse 10
3011 Bern
T +41 31 985 25 10
F +41 31 985 25 11
Switzerland

NetModule GmbH
Frankfurter Strasse 92
65760 Eschborn
T +49 6196 77 99 79 0
F +49 6196 77 99 79 9
Germany