

# NB2800-NLWac-GV

## Vehicle Router with 5G +LTE +WLAN-ac +2x GbE + GNSS +Voice +E-Mark

High-performance and modular mobile router for wireless Internet access in vehicles.



### Keyfeatures

<b>Mobile / Cellular</b>	1x 5G-NR, LTE-A Pro, UMTS 1x LTE-A Pro, UMTS
<b>SIM</b>	4x Micro SIM
<b>WiFi / WLAN</b>	1x IEEE 802.11a/b/g/n/ac (Wi-Fi 5), 100 Clients im Access Point Mode
<b>Ethernet</b>	2x Gigabit Ethernet
<b>Power</b>	12 VDC to 48 VDC, Ignition Sense
<b>Positioning</b>	Multi-GNSS
<b>Operation Temperature</b>	-25 °C to +70 °C
<b>Software</b>	Routing, Network Services, VPN, Firewall, Link Management, Supervisor, SDK, free updates
<b>Compliance</b>	CE (RED), Vehicle (UNECE-R10, UNECE-R118), ITxPT optional
<b>Modularity</b>	Extensions on request

### Product description

The NB2800 provides in-vehicle wireless Internet access.

### Applications

- Passenger Infotainment
- CCTV
- Ticketing
- Smart Traffic
- Emergency Services

### Specifications

<b>Mobile / Cellular</b>	<b>Standard</b>	<p>1x Multimode 5G-NR, LTE-A Pro, UMTS</p> <p><b>5G - NR</b> n1, n2, n3, n5, n7, n8, n12*, n20, n25, n28, n38, n40, n41, n48, n66, n71, n77, n78, n79</p> <p>2014/53/EU (RED): n1, n3, n7, n8, n20, n28, n38, n40, n77, n78</p> <p><b>4G - LTE-A Pro</b> B1, B2, B3, B4, B5, B7, B8, B12, B13, B14, B17, B18, B19, B20, B25, B26, B28, B29DL, B30, B32, B34, B38, B39, B40, B41, B42, B43*, B46(LAA), B48(CRS), B66, B71</p> <p>2014/53/EU (RED): B1, B3, B7, B8, B20, B28, B38, B40</p> <p><b>3G - DC-HSPA+/UMTS</b> B1, B2, B3, B4, B5, B6, B8, B9, B19</p> <p>2014/53/EU (RED): B1 (2100), B3 (1800), B8 (900)</p> <p><b>5G NR Modes</b> Sub-6 FDD and TDD</p> <p><b>LTE Category</b> Cat. 20 up to 7CA</p> <p><b>MIMO</b> 4x4 MIMO in 5G-NR support on n1, n2 n3, n7, n25, n38, n40, n41, n48, n66, n77, n78, n79 and LTE B1, B2, B3, B4, B7, B25, B30, B38, B39, B40, B41, B42, B43, B46, B48, B66</p> <p><b>Antenna ports</b> 4</p> <p><b>Power Class</b> 23dBm (Power Class 3)</p> <p><b>Data rate down / up (max)</b> up to 5.5 Gbps DL / 2.7 Gbps UL</p> <p><b>Operation Mode</b> 5G Core SA and NSA operations</p> <p><b>3GPP</b> 4G/5G Rel. 15, 3G HSPA+ Rel. 18</p> <p><b>FCC ID</b> RI7FN980</p> <p><b>Voice -</b></p> <p><b>Region</b> Europe, Middle East and Africa (EMEA), on request: North America (NA), Asia and Pacific (APAC)</p> <p>* future Module Firmware release</p> <p>1x Multimode LTE, UMTS, GSM for EMEA</p> <p><b>4G - LTE</b> B1, B3, B7, B8, B20, B28A</p> <p><b>3G - DC-HSPA+ / UMTS</b> B1 (2100), B3 (1800), B8 (900)</p> <p><b>2G - GSM/GPRS/EDGE</b> B3 (1800), B8 (900)</p> <p><b>Category</b> LTE Cat 4</p> <p><b>Antenna ports</b> 2x2 MIMO</p> <p><b>Data rate down / up (max)</b> 150 Mbps / 50 Mbps</p> <p><b>Voice</b> CSFB, VoLTE (with optional Software License)</p> <p><b>FCC ID</b> -</p>
	<b>Region Connectors SIM</b>	<p>Europe, Middle East and Africa (EMEA)</p> <p>6x FAKRA D-coded male</p> <p>4x Micro SIM - 3FF</p>
<b>WiFi / WLAN</b>	<b>Standard</b>	<p>1x WLAN 2.4/5 GHz a/b/g/n/ac (Wi-Fi 5)</p> <p><b>Wireless standard</b> IEEE 802.11a/b/g/n/ac (Wi-Fi 5)</p> <p><b>Frequency</b> 2.4/5 GHz</p> <p><b>Diversity</b> 2x2 MIMO</p> <p><b>Data rate (max)</b> 300 Mbps (2.4 GHz) / 866 Mbps (5 GHz)</p> <p><b>Modes</b> Client or access point (up to 100 clients)</p> <p><b>FCC ID</b> TK4WLE600VX</p>
	<b>Connector</b>	2x FAKRA I-coded male
<b>Ethernet</b>	<b>Standard</b>	<p>2x Gigabit Ethernet</p> <p><b>Ethernet standard</b> 1000BASE-T, Auto MDIX</p> <p><b>Speed</b> 10/100/1000 Mbps</p>
	<b>Connector</b>	2x RJ45
<b>Positioning</b>	<b>Standard</b>	<p>1x Multi-GNSS</p> <p><b>Receiver</b> BeiDou, Galileo, GLONASS, GPS</p> <p>gpsOne Gen 9</p> <p><b>Antennas</b> Active or passive</p> <p><b>Sensitivity</b> Up to -161 dBm</p> <p><b>CEP (Circular Error Probability)</b> &lt;2m (Open sky conditions. Standalone)</p> <p><b>Min Update Rate</b> 1Hz</p> <p><b>Services</b> Standalone</p>
	<b>Connector</b>	1x FAKRA C-coded male
<b>USB</b>	<b>Standard Connector</b>	<p>1x USB 3.0 Host</p> <p>1x Type A</p>
<b>Serial, Fieldbus</b>	<b>Protocol Connector</b>	<p>1x RS-232</p> <p><b>Protocol</b> EIA-232</p> <p><b>Signals</b> TX, RX</p> <p><b>Signal level</b> High &gt; 5 VDC, low &lt; -5 VDC</p> <p><b>Bit rate</b> Up to 115 200 Bit/s</p> <p>1x Terminal block header 5 mm</p>
<b>System</b>	<b>Core Module Slots</b>	<p>1.3 GHz dual-core, 1 GB RAM, 4 GB flash</p> <p>2x miniPCIe (PCIe + USB), 2x miniPCIe (USB)</p>

<b>Software</b>	<b>Features</b>	<p>NetModule Router Software (supported features depending on product variant)</p> <p><b>Package</b> The standard software package includes an intuitive user interface, covering all modern routing protocols and enables efficient mass deployment.</p> <p><b>General</b> Fail-safe update (FOTA), upgrade via USB, HTTP(S), (S)FTP or TFTP, remote CLI &amp; WebGUI, RADIUS authentication, Simple Certificate Enrollment Protocol (SCEP), Hardware- und Software Watchdog</p> <p><b>Remote Management</b> Manage and monitor devices with SNMP V1/V2/V3, Netmodule vendor MIB, telnet, SSH, or HTTP/HTTPS</p> <p><b>Cellular Networking</b> Multi-SIM / eSIM support (optional license), multi-APN support, signal strength monitoring, dedicated bearers, CSFB/VoLTE calls (optional license)</p> <p><b>Wireless LAN</b> Access Point, Client Mode, Mesh Point or Dual Modes (Mesh Access Point / Access Point - Client), WLAN Pseudo-Bridge Client Mode: Multiple Client SSID Profile, Encryption: Open, WEP, WPA1/2/3-Personal, WPA1/2/3-Enterprise. Fast Roaming: Fast BSS Transition (802.11r), PreAuthentication, Protected Management Frames (802.11w) AP Mode: Multi-SSIDs (up to 8) Encryption: Open WPA1/2/3-Personal, WPA1/2/3-Enterprise Fast Roaming: Fast BSS Transition (802.11r), PreAuthentication, DFS support Protected Management Frames (802.11w) Client Tracking, Band Steering, Hide SSID broadcasting, Isolate Clients, Accounting, Short guard Intervall Mesh Mode (802.11s): Encryption: None, SAE. Gateway announcements</p> <p><b>Link Management</b> Link prioritization, link aggregation, load balancing, multipath-TCP, IP-passthrough, link supervision,</p> <p><b>Services</b> DHCP Client/Server, DNS Caching Server, Email, SMS Service, NTP Client/Server, SNTP Server, DynDNS, SSH Server, SNMP Agent, HTTP/HTTPS/FTP Server, IPv6 for WAN, 802.1x over Ethernet, MQTT Broker Voice Gateway (SIP, Call Routing, Audio with optional license) Coovachilli Hotspot</p> <p><b>Routing</b> Destination, policy, multipath, mobile-IP, OSPF, BGP, multicast, TCP-MSS clamping, bridging discovery protocols LLDAP, CDP, SONMP, EDP, FDP, IRDP, VRRP, STP/RSTP, VRRP, VLAN, PPPoE, VXLAN</p> <p><b>VPN</b> OpenVPN, IPsec (IKEv1 and IKEv2), PPTP, GRE, L2TP, CSD dial-in, Certificate revocation service</p> <p><b>Firewall</b> Stateful firewall, connection tracking, NAT, NAPT, masquerading, bridge filtering, Adress translation (based on SRC and DST ports)</p> <p><b>Encryption</b> supporting password protected PKCS12 files, integrated random certificate key generator, "Let's encrypt" certificate, ECC (Certificates with Elliptic Cryptography)</p> <p><b>Quality of Service</b> Diffserv, SFQ, HTB, Priority-based Queuing, Netflow (Softflow)</p> <p><b>Programmability</b> SDK</p> <p><b>Troubleshooting</b> Logging, Ping, Traceroute, Tcpdump, Speed-test</p>
	<b>Licenses</b>	<p>GNSS</p> <p><b>Enabled service</b> GNSS location service</p> <p>Server with JSON-, NMEA stream</p>
<b>Power</b>	<b>Input Voltage</b>	<p>12, 24, 48 VDC</p> <p><b>Nominal voltages</b> 12, 24, 48 VDC</p> <p><b>Absolute voltages</b> 12 VDC to 48 VDC (-25 % / +25 %)</p> <p><b>Ignition sense</b> Input with delayed shutdown</p>
	<b>Ignition Sense</b>	Yes
	<b>Connector</b>	1x Terminal block header 5 mm
	<b>Consumption</b>	20 W (max)
<b>Mounting</b>		Bracket
<b>Dimensions</b>	<b>W x H x D</b>	Width 164/190 mm x height 58 mm x depth 139.5 mm
<b>Weight</b>		800 g
<b>Environment</b>	<b>Operating Temperature</b>	-25°C to +70°C
	<b>Ingress Protection Level</b>	IP40
<b>MTBF</b>		230'000 h / 26.3 years, according SN29500 at environmental temperature 40 °C
<b>Certifications</b>	<b>Compliance Domain</b>	CE according to 2014/53/EU (RED), Vehicle according to UNECE-R10, UNECE-R118 Vehicle
<b>Order Code</b>		NB2800-NLWac-GV