

# NB3800-LGrWac-G

## Railway Router with LTE + GSM-R + WLAN-ac + 5x ETH + GNSS + EN50155

Railway approved, modular onboard communication platform for future proof IP solutions.



### Keyfeatures

<b>Mobile / Cellular</b>	1x GSM-R, 1x LTE, UMTS, GSM
<b>SIM</b>	4x Mini SIM
<b>WiFi / WLAN</b>	1x Dual Band IEEE 802.11a/b/g/n/ac (Wi-Fi 5), 100 Clients in Access Point Mode
<b>Ethernet</b>	2x Gigabit Ethernet, 3x Fast Ethernet
<b>Power</b>	24 VDC to 48 VDC
<b>Positioning</b>	Multi-GNSS
<b>Temperature Range</b>	40 °C to +70 °C, EN 50155 class OT4/ST0
<b>Software</b>	Routing, Network Services, VPN, Firewall, Link Management, Supervisor, SDK, free updates
<b>Compliance</b>	CE (RED), Railway (EN50155, EN45545), ITxPT optional
<b>Modularity</b>	Extensions on request

### Product description

The powerful NB3800, with its equipment, rail approvals and interfaces to on-board electronics, is ideal for applications such as fleet management, telematics or ticketing systems.

### Applications

- Fleet Management
- Passenger Infotainment
- Ticketing
- Telematics
- Smart Traffic

### Specifications

Mobile / Cellular	Standard	
		1x Multimode LTE, UMTS, GSM for EMEA
		<b>4G - LTE</b> B1, B3, B7, B8, B20, B28A
		<b>3G - DC-HSPA+/UMTS</b> B1 (2100), B3 (1800), B8 (900)
		<b>2G - GSM/GPRS/EDGE</b> B3 (1800), B8 (900)
		<b>Category</b> LTE Cat 4
		<b>Antenna ports</b> 2x2 MIMO
		<b>Data rate down / up (max)</b> 150 Mbps / 50 Mbps
		<b>Voice</b> CSFB, VoLTE (with optional Software License)
		<b>FCC ID</b> -
		<b>Region</b> Europe
		1x GSM-R for EMEA
		<b>4G - LTE</b> n.a.
		<b>3G - DC-HSPA+/UMTS</b> n.a.
		<b>2G - GSM/GPRS</b> GSM-R (876-880 / 921-925), B8 (900), B3 (1800)
		<b>Category</b> GPRS Multislot class 10
		<b>Output Power</b> GSM-R Power Class 4 (2W)
		<b>Antenna ports</b> SISO
		<b>Data rate down / up (max)</b> 85.6 kbps / 42.8 kbps
		<b>Voice</b> GSM (HR/FR/EFR/AMR)
		<b>ASCI</b> n.a.
		Europe
		4x TNC female
		4x Mini SIM - 2FF
	<b>Region</b>	
	<b>Connectors</b>	
	<b>SIM</b>	

<b>WiFi / WLAN</b>	<b>Standard</b>	<p>1x WLAN 2.4/5 GHz a/b/g/n/ac (Wi-Fi 5)  <b>Wireless standard</b> IEEE 802.11a/b/g/n/ac (Wi-Fi 5)  <b>Frequency</b> 2.4/5 GHz  <b>Diversity</b> 2x2 MIMO  <b>Data rate (max)</b> 300 Mbps (2.4 GHz) / 866 Mbps (5 GHz)  <b>Modes</b> Client or access point (up to 100 clients)  <b>FCC ID</b> TK4WLE600VX</p>
	<b>Connector</b>	2x TNC female
<b>Ethernet</b>	<b>Standard</b>	<p>2x Gigabit Ethernet  <b>Ethernet standard</b> 1000BASE-T, Auto MDIX  <b>Speed</b> 10/100/1000 Mbps  3x Fast Ethernet  <b>Ethernet standard</b> 100BASE-TX, Auto MDIX  <b>Speed</b> 10/100 Mbps</p>
	<b>Connector</b>	2x M12 X-coded female, 3x M12 D-coded female
<b>Positioning</b>	<b>Standard</b>	<p>1x Multi-GNSS  <b>Receiver</b> BeiDou, Galileo, GLONASS, GPS  gpsOne Gen 9  <b>Antennas</b> Active or passive  <b>Tracking Sensitivity</b> Up to -160 dBm  <b>Services</b> Standalone  <b>CEP (Circular Error Probability)</b> &lt; 2m (CEP 50), (Open sky conditions, Horizontal)</p>
	<b>Connector</b>	1x TNC female
<b>USB</b>	<b>Standard</b>	1x USB 2.0 Host
	<b>Connector</b>	1x Type A
<b>Serial, Fieldbus</b>	<b>Protocol</b>	<p>1x RS-232  <b>Protocol</b> EIA-232  <b>Signals</b> TX, RX  <b>Signal level</b> High &gt; 5 VDC, low &lt; -5 VDC  <b>Bit rate</b> Up to 115 200 Bit/s</p>
	<b>Connector</b>	1x M12 A-coded female
<b>System</b>	<b>Core</b>	1.3 GHz dual-core, 1 GB RAM, 4 GB flash
	<b>Module Slots</b>	2x miniPCIe (PCIe + USB), 4x miniPCIe (USB)
<b>Software</b>	<b>Features</b>	<p>NetModule Router Software (supported features depending on product variant)  <b>Package</b> The standard software package includes an intuitive user interface, covering all modern routing protocols and enables efficient mass deployment.  <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  <b>Remote Management</b> Manage and monitor devices with SNMP V1/V2/V3, Netmodule vendor MIB, telnet, SSH, or HTTP/HTTPS  <b>Cellular Networking</b> Multi-SIM / eSIM support (optional license), multi-APN support, signal strength monitoring, dedicated bearers, CSFB/VoLTE calls (optional license)  <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  <b>Link Management</b> Link prioritization, link aggregation, load balancing, multipath-TCP, IP-passthrough, link supervision,  <b>Services</b> DHCP Client/Server, DNS Caching Server, Email, SMS Service, NTP Client/Server, SNMP 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  <b>Routing</b> Destination, policy, multipath, mobile-IP, OSPF, BGP, multicast, TCP-MSS clamping, bridging discovery protocols LLDP, CDP, SONMP, EDP, FDP, IRDP, VRRP, STP/RSTP, VRRP, VLAN, PPPoE, VXLAN  <b>VPN</b> OpenVPN, IPsec (IKEv1 and IKEv2), PPTP, GRE, L2TP, CSD dial-in, Certificate revocation service  <b>Firewall</b> Stateful firewall, connection tracking, NAT, NAPT, masquerading, bridge filtering, Adress translation (based on SRC and DST ports)  <b>Encryption</b> supporting password protected PKCS12 files, integrated random certificate key generator, "Let's encrypt" certificate, ECC (Certificates with Elliptic Cryptography)  <b>Quality of Service</b> Diffserv, SFQ, HTB, Priority-based Queuing, Netflow (Softflow)  <b>Programmability</b> SDK  <b>Troubleshooting</b> Logging, Ping, Traceroute, Tcpdump, Speed-test</p>
	<b>Licenses</b>	<p>GNSS  <b>Enabled service</b> GNSS location service  Server with JSON-, NMEA stream</p>

<b>Power</b>	<b>Input Voltage</b>	24, 48 VDC <b>Nominal voltages</b> 24, 48 VDC <b>Absolute voltages</b> 24 VDC to 48 VDC (-30 % / +30 %) <b>Galvanic isolation</b> 1500 VDC <b>Standard</b> EN 50155 class S2/C1
	<b>Connector</b>	1x M12 A-coded male
	<b>Consumption</b>	25 W (max)
<b>Dimensions</b>	<b>W x H x D</b>	Width 167/190 mm x height 121.1 mm x depth 106.5 mm
<b>Weight</b>		1800 g
<b>Environment</b>	<b>Operating Temperature</b>	-40°C to +70°C
	<b>Ingress Protection Level</b>	IP40
<b>MTBF</b>		150'000 h / 17.1 years, according SN29500 at environmental temperature 40 °C
<b>Certifications</b>	<b>Compliance Domain</b>	CE according to 2014/53/EU (RED), 2011/65/EU (RoHS), Railway according to EN 50155 class OT4/ST0, EN 45545 Railway
<b>Order Code</b>		NB3800-LGrWac-G