

# NB3800-N2LWacDf-G

## Bahn-Router mit 1x 5G +2x LTE + WLAN-ac + 5x ETH + 1 TB Speicher + GNSS + EN50155

Mit herausragender 5G Mobilfunktechnik für drahtlosen Internetzugang im Fahrzeug inkl. 5-Port Ethernet Switch.



### Hauptmerkmale

<b>Mobilfunk</b>	1x 5G-NR, LTE-A Pro, UMTS 2x 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>Erweiterter Speicher</b>	1 TB
<b>Speisung</b>	24 VDC bis 48 VDC
<b>Ortung</b>	Multi-GNSS
<b>Betriebstemperatur</b>	-25 °C bis +55 °C, EN 50155 class OT1/ST2
<b>Software</b>	Routing, Network Services, VPN, Firewall, Link Management, Supervisor, SDK, freie Updates
<b>Konformität</b>	CE (RED), Bahn (EN50155, EN45545), ITxPT optional
<b>Modularität</b>	Erweiterungen auf Anfrage

### Produktbeschreibung

Der leistungsstarke NB3800 ist mit seiner Ausstattung, seinen Bahnzulassungen und Schnittstellen zur Bordelektronik z.B. ideal für Fahrgastinformation, Fahrkartensysteme oder auch Mining geeignet.

### Anwendungen

- Flottenmanagement
- Mining
- Passagier-Infotainment
- Fahrkartensysteme
- Videoüberwachung
- Telematik

### Spezifikation

<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, n13, n14, n20, n25, n26, n28, n30, n38, n40, n41, n48, n66, n71, n77, n78</p> <p><b>4G - LTE Advanced Pro</b> B1, B2, B3, B4, B5, B7, B8, B12, B13, B14, B17, B20, B25, B26, B28, B30, B34, B38, B40, B41, B42, B43, B48, B66, B71</p> <p><b>3G - DC-HSPA+/UMTS</b> B1, B2, B4, B5, B8</p> <p><b>5G -NR Modes</b> Sub-6 FDD and TDD for global deployment</p> <p><b>LTE Category</b> Cat. 19 up to 5CA</p> <p><b>MIMO</b> 4x4 MIMO</p> <p><b>Antenna ports</b> 4, 4x RX/TX on every port</p> <p><b>Power Class</b> 23 dBm (Power Class 3) 26 dBm (Power Class 2) on B41 29 dBm (Power class 1.5) on n41, n77, n78</p> <p><b>Module Data rate down / up (max)</b> 5G NSA up to: 3.4 Gbps DL / 0.46 Gbps UL 5G SA up to: 2.5 Gbps DL / 0.90 Gbps UL 4G up to: 1.6 Gbps DL / 211 Mbps UL 3G up to: 42 DL/11 UL Mbps</p> <p><b>Operations Modes</b> 5G SA and NSA operations</p> <p><b>3GPP</b> 5G/4G Rel. 16, 3G HSPA+ Rel. 8</p> <p><b>Voice</b> -</p> <p><b>FCC ID</b> RI7FN990A28HP</p> <p><b>Region</b> Europe, Middle East and Africa (EMEA), North America (NA), Asia and Pacific (APAC)</p> <p>2x 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 (mit optionaler Software-Lizenz)</p> <p><b>FCC ID</b> -</p> <p><b>Region</b> Europe</p>
	<b>Region</b> <b>Connectors</b> <b>SIM</b>	<p>Europe</p> <p>8x TNC female</p> <p>4x Mini SIM - 2FF</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 TNC female
<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> <p>3x Fast Ethernet</p> <p><b>Ethernet standard</b> 100BASE-TX, Auto MDIX</p> <p><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</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>Tracking Sensitivity</b> Up to -161 dBm</p> <p><b>CEP (Circular Error Probability)</b> &lt; 2m (CEP 50), (Open sky conditions, Horizontal)</p> <p><b>Min update rate</b> 1Hz</p> <p><b>Services</b> Standalone</p>
	<b>Connector</b>	1x TNC female
<b>USB</b>	<b>Standard</b> <b>Connector</b>	<p>1x USB 2.0 Host</p> <p>1x Type A</p>
<b>Serial, Fieldbus</b>	<b>Protocol</b>          <b>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 M12 A-coded female</p>
<b>Extended Storage</b>		<p>1 TB SSD</p> <p><b>Capacity</b> 1 TB</p> <p><b>Technology</b> SSD</p> <p><b>Data</b> Application data such as logs, media content, ...</p>

<b>System</b>	<b>Core Module Slots</b>	1.3 GHz dual core, 1 GB RAM, 4 GB flash 2x miniPCle (PCIe + USB), 4x miniPCle (USB)
<b>Software</b>	<b>Features</b>	<p>NetModule Router Software</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, SMTP 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 LLDP, 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>	GNSS/GPS <b>Services</b> Server with JSON-, NMEA stream
<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>		2000 g
<b>Environment</b>	<b>Operating Temperature</b>	-25°C to +55°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 OT1/ST2, EN 45545 Railway
<b>Order Code</b>		NB3800-N2LWacDf-G