

# NB3800-NWac2D2CmDb-Glx

**Bahn-Router mit 1x 5G + 1x WLAN-ac + 5x ETH + Digital I/O + CAN-passiv + 64GB + GNSS + ITxPT + EN50155**

Leistungsstarker und modularer Mobilfunk-Router mit 5-Port Ethernet Switch für drahtlosen Internetzugang im Fahrzeug.



## Hauptmerkmale

<b>Mobilfunk</b>	1x 5G-NR, LTE-A Pro, UMTS
<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 im Access Point Mode
<b>Ethernet</b>	2x Gigabit Ethernet, 3x Fast Ethernet
<b>Serielle / Feldbus</b>	1x CAN passiv (Lesezugriff), 1x DI/DO
<b>Speisung</b>	24 VDC bis 48 VDC
<b>Ortung</b>	Multi-GNSS
<b>Betriebstemperatur</b>	-40 °C bis +70 °C, EN 50155 class OT4/ST0
<b>Software</b>	Routing, Network Services, VPN, Firewall, Link Management, Supervisor, SDK, freie Updates
<b>Konformität</b>	CE (RED), Bahn (EN50155, EN45545), ITxPT, Automotive (UN ECE R10, UN ECE R118)
<b>Modularität</b>	Erweiterungen auf Anfrage

## Produktbeschreibung

Der NB3800 ist mit seinen Bahnzulassungen und ITxPT Konformität und Schnittstellen zur Bordelektronik z.B. ideal für WLAN und Information für Fahrgäste oder Betriebsdatenerfassung geeignet.

## Anwendungen

- Passagier-WLAN
- Passagier-Infotainment
- Intelligenter Verkehr
- Telematik
- Videüberwachung

## Spezifikation

<b>Mobile / Cellular</b>	<b>Standard</b>	1x Multimode 5G-NR, LTE-A Pro, UMTS <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 <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 <b>3G - DC-HSPA+/UMTS</b> B1, B2, B4, B5, B8 <b>5G -NR Modes</b> Sub-6 FDD and TDD for global deployment <b>LTE Category</b> Cat. 19 up to 5CA <b>MIMO</b> 4x4 MIMO <b>Antenna ports</b> 4, 4x RX/TX on every port <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 <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 <b>Operations Modes</b> 5G SA and NSA operations <b>3GPP</b> 5G/4G Rel. 16, 3G HSPA+ Rel. 8 <b>Voice -</b> <b>FCC ID</b> R17FN990A28HP <b>Region</b> Europe, Middle East and Africa (EMEA), North America (NA), Asia and Pacific (APAC)
	<b>Region</b>	Europe
	<b>Connectors</b>	2x TNC female
	<b>SIM</b>	4x Mini SIM - 2FF
<b>WiFi / WLAN</b>	<b>Standard</b>	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
	<b>Connector</b>	4x TNC female

<b>Ethernet</b>	<b>Standard</b>	2x Gigabit Ethernet <b>Ethernet standard</b> 1000BASE-T, Auto MDIX <b>Speed</b> 10/100/1000 Mbps
	<b>Connector</b>	3x Fast Ethernet <b>Ethernet standard</b> 100BASE-TX, Auto MDIX <b>Speed</b> 10/100 Mbps 2x M12 X-coded female, 3x M12 D-coded female
<b>Positioning</b>	<b>Standard</b>	1x Multi-GNSS <b>Receiver</b> BeiDou, Galileo, GLONASS, GPS/QZSS 72-channel u-blox M8 engine 3 concurrent GNSS channels <b>Antennas</b> Active or passive <b>Accuracy</b> Up to 2.5 m CEP <b>Sensitivity</b> Up to -167 dBm <b>Services</b> Standalone, Assisted GPS Data server with JSON, NMEA data stream
	<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>	1x CAN <b>Protocol</b> Controller Area Network V2.0B (ISO 11898) <b>Signals</b> CANH, CANL <b>Signal level</b> High > 2.75 V, low < 2.0 V <b>Frames/s</b> Up to 8000 Frames/s <b>Isolation</b> 1500 VDC <b>Termination</b> No internal bus termination <b>Bus access</b> Passive - read access only 1x RS-232/485 combo (software switchable) <b>Protocol</b> EIA-232 <b>Signals</b> TX, RX <b>Signal level</b> High > 5 VDC, low < -5 VDC <b>Bit rate</b> Up to 115'200 Bit/s <b>Protocol</b> EIA-485 <b>Signals</b> A, B <b>Signal level</b> Differential output voltage, loaded 1.5 VDC - 3.6 VDC <b>Bit rate</b> Up to 115'200 Bit/s <b>Termination</b> 120 Ω for RS-485 configurable by software
	<b>Connector</b>	1x M12 A-coded female, EP2
<b>IOs</b>	<b>Type</b>	1x Digital I/O <b>Signals</b> 1x DI, 1x DO <b>DI signals</b> +, - <b>DI level</b> Low: 0 - 5 VDC, high 9 - 60 VDC <b>DI isolation</b> 1'500 VDC <b>DO level</b> 0 - 60 VDC/1A <b>DO signals</b> Relay outputs with NO, NC, COM (normally open, normally closed) <b>DO isolation</b> 1'500 VDC
	<b>Connector</b>	1x M12 A-coded female, EP1
<b>Extended Storage</b>		64 GB SSD <b>Capacity</b> 64 GB <b>Technology</b> SSD <b>Data</b> Application data such as logs, media content, ...
<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</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, 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</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>	<p>GNSS/GPS,</p> <p><b>Services</b> Server with JSON-, NMEA stream</p> <p>ITxPT</p> <p><b>Services</b> Module Inventory, Time, GNSS Location, MQTT</p>
<b>Power</b>	<b>Input Voltage</b>	<p>24, 48 VDC</p> <p><b>Nominal voltages</b> 24, 48 VDC</p> <p><b>Absolute voltages</b> 24 VDC to 48 VDC (-30 % / +30 %)</p> <p><b>Galvanic isolation</b> 1500 VDC</p> <p><b>Standard</b> EN 50155 class S2/C1</p>
	<b>Connector</b> <b>Consumption</b>	<p>1x M12 A-coded male</p> <p>25 W (max)</p>
<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>	-40°C to +70°C
	<b>Ingress Protection Level</b>	IP40
<b>MTBF</b>		148'000 h / 16.9 years, according SN29500 at environmental temperature 40 °C
<b>Certifications</b>	<b>Compliance</b>	CE according to 2014/53/EU (RED), 2011/65/EU (RoHS), Railway according to EN 50155 class OT4/ST0, EN 45545, ITxPT (Hardware compliance requires adapter cables), Automotive according UN ECE R10 (e-Mark), UN ECE R118
	<b>Domain</b>	Railway
<b>Order Code</b>		NB3800-NWac2D2CmDb-Glx