

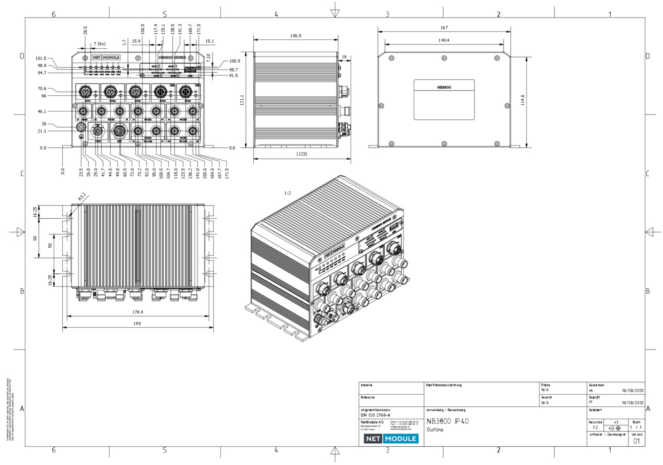
# Product: NB3800-2L2WacDe-G

Railway Router with 2x GbE, 3x FE, -40..+70°C, 2x LTE cat.4, 2x Wi-Fi AC, GNSS, 24-48VDC,

## Product Description

Railway approved, modular onboard communication platform for future proof IP solutions. 2x Gigabit Ethernet. 3x Fast Ethernet. Temperature range -40…+70°C. With two times LTE category 4 modem. With two times 802.11ac Wi-Fi modem. Global Navigation Satellite System (GNSS). Powered by 24 V DC.

## Technical Drawing



## Technical Specifications

### Product Overview

| | |
|---|---|
| Name: | NB3800-2L2WacDe-G |
| WAN: | IPv4; IPv6; IP Passthrough; DynDNS Client; PPPoE; Voice Gateway (SIP, Call Routing, Audio); |
| License: | NRSW 5.0 and newer version, included, if the hardware is capable: Vi(virtualization);V(voice);Ix(ITxPT);F(FMS2IP);Se(eSIM consum.);S(openVPN server); |

### Product Life Cycle

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| Life Cycle: | Active - Product is available |

### General Information

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| Scope of delivery: | Device, General safety instructions |

### More Interfaces

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| USB interface: | 1 x USB 2.0 socket to connect an approved USB storage device, USB Type A socket |
| SIM Cards: | 4x Mini SIM (2FF) |
| Local Management and Device Replacement: | Management via Web (HTTPs); Command Line Interface (CLI) over SSH/Serial/Web; SNMP v1/v2c/v3; Discovery via LLDP, CDP, FDP, SONMP, EDP, IRDP |
| Ethernet Connector Type: | 2x Gigabit Ethernet (1000Base-T, Auto MDIX, 10/100/1000 Mbps, M12 X-coded female); 3x Fast Ethernet (100Base-TX, Auto MDIX, 10/100 Mbps, M12 D-coded female) |
| Power Supply: | 1x M12 A-coded; EN50155 class S2/C1; |
| Serial: | 1x M12 A-coded female; RS-232; Protocol EIA-232; Signals TX, RX; Signal levels: High (≥5 VDC), Low (≤ -5VDC); Bit rate up to 115kbps |
| GPS (global positioning system): | Multi-GNSS, Receiver BeiDou, Galileo, GLONASS, GPS, gpsOne Gen 9, Antennas: active or passive, Sensitivity: Down to -161 dBm, CEP (Circular Error Probability) ≤2m (Open sky conditions, Standalone), Min Update Rate: 1Hz, Services: Standalone, GNSS Stream NMEA or JSON |
| CPU: | 1.3 GHz dual-core |

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|---|---|
| Memory: | 1 GB RAM |
| Storage: | 4 GB flash |
| LEDs: | 7 LEDs (STAT, MOBx, WLANx, …) |
| Reset Function: | Pin-hole push button for reboot and factory reset |

## Radio technology

**Modules**

| Description | 2G | 3G | 4G | MIMO | Antenna Connector | Additional Radio Features | Radio Protocol | Frequency Band | Access Point Functionality | Client / STA Functionality |
|---|---|---|---|---|---|---|---|---|---|---|
| Module 1 | | | | | GNSS: 1x TNC female; | | | | | |
| Module 2 | On each (2x) 4G module: GSM/GPRS/EDGE Bands: B3 (1800), B8 (900) | On each (2x) 4G module: DC-HSPA+/UMTS Bands: B1 (2100), B3 (1800), B8 (900) | On each (2x) 4G module: LTE Cat. 4 Bands: B1, B3, B7, B8, B20, B28A | On each (2x) 4G module: 2x2 MIMO | On each (2x) 4G: 2x TNC female; | On each (2x) 4G module: CSFB; VoLTE; | | | | |
| Module 4 | | | | On each (2x) WLAN module: 2x2 MIMO | On each (2x) WLAN: 2x TNC female | | On each (2x) WLAN module: 802.11 a/b/g/n/ac (Wi-Fi 5) | On each (2x) WLAN module: WLAN 2.4/5 GHz | On each (2x) WLAN module: Access Point (8 SSIDs, 128 clients total); Mesh (802.11s); Bridged; Routed; IAPP; 802.11r (FT); DFS supported; Client Tracking; Band Steering; Isolate Clients Function; Accounting; Coovachilli Hotspot; | On each (2x) WLAN module: Client; 802.11r (FT); Roaming Thresholds; Background Scan; Multiple Client SSID Profiles; |

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| Load Balance: | Link Prioritizatoin and Aggregation; Load Balancing; Diffserv; SFQ; HTB; Priority based Queuing |

## Power requirements

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| Operating Voltage: | 24 … 48 VDC (±30%); |
| Power Consumption: | max. 25W |

## Diagnostics features

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| Alarm and event actions: | Email; SMS sending |
| Monitoring: | Watchdogs (Hard- and Software); Link Supervision; MQTT Broker |

## Security features

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| Multipoint VPN: | VXLAN, CSD dial-in, OpenVPN, IPSec, GRE, L2TP, PPTP, IKEv1/v2 |

## Service

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| Other services: | DNS Cache; |

## Software

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|---|---|
| Firmware Storage: | Fail-safe update (FOTA); Software Update via USB, HTTP(s) (push), FTP (pull), SFTP (pull), TFTP (pull) |
| Radius Server: | External Radius Server Management User Authentication |
| Software features: | Software Development Kit (SDK); |
| Software Version: | 5.0 (updates free of charge) |
| Operating system: | NRSW (NetModule Router Software) |
| Switching: | VLAN (802.1Q) |
| Redundancy: | Multipath TCP, VRRP (Virtual Router Redundancy Protocol), RSTP (Rapid Spanning Tree Protocol) |
| Diagnostics: | Netflow (Softflow), Ping, Traceroute, Tcpdump, Speed TestGNSS Diagnostics |
| Configuration: | DHCP Client and Server |
| Security: | Certificate Management (SCEP Client, Signing Requests), Certificate formats: PKCS12, PKCS7, PEM/DER, RSA/Ed25519 (OpenSSH/Dropbear), "Let's encrypt" support, Elliptic Curve Certificates (ECC), 802.1x for LAN, Stateful Firewall, Connection Tracking, Bridge Filtering |
| Time synchronisation: | NTP Client and Server, SNTP Server |
| Routing: | Destination, Policy, Multipath, OSPF, BGP, Multicast, TCP-MSS Clamping, NAT, NAPT, Masquerading, Mobile-IP |
| Management Software: | Compatible with "Connectivity Suite" |
| Cellular Functions: | Multi-APN; Signal Strength Monitoring; Dedicated Bearers |

## Ambient conditions

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| Degree of Protection when Installed: | IP40 |
| Operating temperature: | -40-+70 °C |

## Mechanical construction

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| Dimensions (WxHxD): | 167/190 mm x 121.1 mm x 106.5 mm |
| Weight: | 1800 g |
| Mount Type: | Flat surface mounting |
| Mating Side: | all from front |

## EMC emitted immunity

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| EMV 06: | Yes |

## Approvals

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|---|---|
| Basis Standard: | CE according to 2014/53/EU (RED), 2011/65/EU (RoHS) |
| Transportation: | EN 45545, EN 50155 class OT4/ST0 |
| Wireless standards: | WLAN FCC ID: TK4WLE600VX; |
| UK Regulation Compliance: | UKCA Mark |
| Suitability - Indoor: | Yes |

## Reliability

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| Guarantee: | 5 years |

## WLAN Access Point

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| Security: | WPA3/2/1, WPA Personal (TKIP, CCMP), WPA Enterprise (Radius: EAP-PEAP/MSCHAPv2, EAP-TLS), Opportunistic Wireless Encryption (OWE), Mesh (Open, SAE) |

## WLAN Client

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| Security: | WPA3/2/1, WPA Personal (TKIP, CCMP), WPA Enterprise (Radius: EAP-PEAP/MSCHAPv2, EAP-TLS) |

## Further Instructions

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| Software Download: | https://share.netmodule.com/public/system-software/latest/ |

## History

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| Update and Revision: | Revision Number: 0.22 Revision Date: 08-11-2026 |

**Variants**

| Item # | Type |
|---|---|
| 942998162 | NB3800-2L2WacDe-G |

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