NET MODULE

NB3800-2NWac-G

Railway Router with 2x 5G + WLAN-ac + 5x ETH + GNSS + EN50155

With excellent 5G mobile radio technology for wireless internet access in the vehicle incl. 5-port Ethernet switch.

Keyfeatures

Mobile / Cellular	2x 5G-NR, LTE-A Pro, UMTS
SIM	4x Mini SIM
WiFi / WLAN	1x Dual Band IEEE 802.11a/b/g/n/ac (Wi-Fi 5), 100 Clients in Access Point Mode
Ethernet	2x Gigabit Ethernet, 3x Fast Ethernet
Power	24 VDC to 48 VDC
Positioning	Multi-GNSS
Temperature Range	-25 °C to +55 °C, EN 50155 class OT1/ST2
Software	Routing, Network Services, VPN, Firewall, Link Management, Supervisor, SDK, free updates
Compliance	CE (RED), Railway (EN50155, EN45545), ITxPT optional
Modularity	Extensions on request

Product description

The powerful NB3800 with its features, railway approvals and interfaces to on-board electronics, is ideal for applications like passenger WiFi, passenger information systems or video surveillance.

Applications

• Fleet Management
• Mining
• Passenger Infotainment
• Ticketing
• CCTV
• Telematics

Specifications

Mobile / Cellular	Standard	2x Multimode 5G-NR, LTE-A Pro, UMTS
		5G - NR n1, n3, n7, n8, n20, n28, n38, n40, n77, n78
		4G - LTE-A Pro B1, B3, B7, B8, B20, B28, B38, B40
		3G - DC-HSPA+/UMTS B1 (2100), B3 (1800), B8 (900)
		5G NR Modes Sub-6 FDD and TDD
		LTE Category Cat. 20 up to 7CA
		MIMO 4x4 MIMO in 5G-NR support on n1, n3, n7, n38, n40, n77, n78 and LTE B1, B3, B7, B38, B40
		Antenna ports 4
		Power Class 23dBm (Power Class 3)
		Data rate down / up (max) up to 5.5 Gbps DL / 2.7 Gbps UL
		Operation Mode 5G Core SA and NSA operations
		3GPP 4G/5G Rel. 15, 3G HSPA+ Rel. 18
		FCC ID RI7FN980
		Voice -
		Region Europe, Middle East and Africa (EMEA), on request: North America (NA), Asia and Pacific (APAC)
	Region	Europe, Middle East and Africa (EMEA)
	Connectors	8x TNC female
	SIM	4x Mini SIM - 2FF
WiFi / WLAN	Standard	1x WLAN 2.4/5 GHz a/b/g/n/ac (Wi-Fi 5)
		Wireless standard IEEE 802.11a/b/g/n/ac (Wi-Fi 5)
		Frequency 2.4/5 GHz
		Diversity 2x2 MIMO
		Data rate (max) 300 Mbps (2.4 GHz) / 866 Mbps (5 GHz)
		Modes Client or access point (up to 100 clients)
		FCC ID TK4WLE600VX
	Connector	2x TNC female

Ethernet	**Standard**	2x Gigabit Ethernet
		Ethernet standard 1000BASE-T, Auto MDIX
		Speed 10/100/1000 Mbps
		3x Fast Ethernet
		Ethernet standard 100BASE-TX, Auto MDIX
		Speed 10/100 Mbps
	Connector	2x M12 X-coded female, 3x M12 D-coded female
Positioning	**Standard**	1x Multi-GNSS
		Receiver BeiDou, Galileo, GLONASS, GPS
		gpsOne Gen 9
		Antennas Active or passive
		Sensitivity Up to –161 dBm
		CEP (Circular Error Probability) <2m (Open sky conditions. Standalone)
		Min Update Rate 1Hz
		Services Standalone
	Connector	1x TNC female
USB	**Standard**	1x USB 2.0 Host
	Connector	1x Type A
Serial, Fieldbus	**Protocol**	1x RS-232
		Protocol EIA-232
		Signals TX, RX
		Signal level High > 5 VDC, low < -5 VDC
		Bit rate Up to 115 200 Bit/s
	Connector	1x M12 A-coded female
System	**Core**	1.3 GHz dual-core, 1 GB RAM, 4 GB flash
	Module Slots	2x miniPCIe (PCIe + USB), 4x miniPCIe (USB)

Software	**Features**	NetModule Router Software (supported features depending on product variant)

Package The standard software package includes an intuitive user interface, covering all modern routing protocols and enables efficient mass deployment.

General Fail-safe update (FOTA), upgrade via USB, HTTP(S), (S)FTP or TFTP, remote CLI & WebGUI, RADIUS authentication, Simple Certificate Enrollment Protocol (SCEP), Hardware- und Software Watchdog

Remote Management Manage and monitor devices with SNMP V1/V2/V3, Netmodule vendor MIB, telnet, SSH, or HTTP/HTTPS

Cellular Networking Multi-SIM / eSIM support (optional license), multi-APN support, signal strength monitoring, dedicated bearers, CSFB/VoLTE calls (optional license)

Wireless LAN 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

Link Management Link prioritization, link aggregation, load balancing, multipath-TCP, IP-passthrough, link supervision,

Services 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

Routing 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

VPN OpenVPN, IPsec (IKEv1 and IKEv2), PPTP, GRE, L2TP, CSD dial-in, Certificate revocation service

Firewall Stateful firewall, connection tracking, NAT, NAPT, masquerading, bridge filtering, Adress translation (based on SRC and DST ports)

Encryption supporting password protected PKCS12 files, integrated random certificate key generator, "Let's encrypt" certificate, ECC (Certificates with Elliptic Cryptography)

Quality of Service Diffserv, SFQ, HTB, Priority-based Queuing, Netflow (Softflow)

Programmability SDK

Troubleshooting Logging, Ping, Traceroute, Tcpdump, Speed-test

	Licenses	GNSS
		Enabled service GNSS location service
		Server with JSON-, NMEA stream

Power	**Input Voltage**	24, 48 VDC
		Nominal voltages 24, 48 VDC
		Absolute voltages 24 VDC to 48 VDC (−30 % / +30 %)
		Galvanic isolation 1500 VDC
		Standard EN 50155 class S2/C1
	Connector	1x M12 A-coded male
	Consumption	25 W (max)

Dimensions	**W x H x D**	Width 167/190 mm x height 121.1 mm x depth 106.5 mm

Weight		1800 g

Environment	**Operating Temperature**	-25°C to +55°C
	Ingress Protection Level	IP40

MTBF		150'000 h / 17.1 years, according SN29500 at environmental temperature 40 °C

Certifications	**Compliance**	CE according to 2014/53/EU (RED), 2011/65/EU (RoHS), Railway according to EN 50155 class OT1/ST2, EN 45545
	Domain	Railway

Order Code		NB3800-2NWac-G