NET MODULE

NB3701-LWac-G

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

Proven multi-service onboard router for light rail and railways.

Keyfeatures

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

Product description

The NB3701 is the compact router for railways and other applications where similarly high demands are placed on the hardware. It is the ideal device for applications as mining or passenger WiFi.

Applications

- Smart Traffic
- Mining
- Passenger WiFi
- Passenger Infotainment
- CCTV

Specifications

Mobile / Cellular	**Standard**	1x Multimode LTE, UMTS, GSM for EMEA
		4G – LTE B1 (2100), B3 (1800), B5 (850), B7 (2600), B8 (900), B20 (800)
		3G - DC-HSPA+/UMTS B1 (2100), B2 (1900), B5 (850), B8 (900)
		2G - GSM/GPRS/EDGE B2 (1900), B3 (1800), B5 (850), B8 (900)
		Category LTE Cat 4
		Antenna ports 2x2 MIMO
		Data rate down / up (max) 150 Mbps / 50 Mbps
		Voice CSFB
		FCC ID XPYTOBYL210
	Region	Europe, Middle East and Africa (EMEA)
	Connectors	2x TNC female
	SIM	2x 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**	5x Fast Ethernet
		Ethernet standard 100BASE-TX, Auto MDIX
		Speed 10/100 Mbps
	Connector	5x M12 D-coded female

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Positioning	**Standard**	1x Multi-GNSS **Receiver** BeiDou, Galileo, GLONASS, GPS/QZSS 72-channel u-blox M8 engine 3 concurrent GNSS channels **Antennas** Active or passive **Accuracy** Up to 2.5 m CEP **Sensitivity** Up to –167 dBm **Services** Standalone, Assisted GPS Data server with JSON, NMEA data stream
	Connector	1x TNC female
USB	**Standard**	1x USB 2.0 Host
	Connector	1x Type A
IOs	**Type**	4x Digital I/O **Signals** 2x DI, 2x DO **DI signals** +, - **DI level** Low: 0 - 5 VDC, high: 7.2 - 40 VDC **DO signals** Relay outputs with NO, NC, COM (normally open, normally closed) **DO level** 0 - 60 VDC/1A, maximum switching capacity: 60 W **Isolation** 1'500 VDC
	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)
Software	**Features**	NetModule Router Software **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 / soft-SIM support, multi-APN support, signal strength monitoring, dedicated bearers, CSFB/VoLTE calls **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) 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	15 W (max)
Mounting		Bracket
Dimensions	**W x H x D**	Width 165/190 mm x height 85 mm x depth 104 mm
Weight		1400 g

Environment	Operating Temperature	-40°C to +70°C
	Ingress Protection Level	IP40

MTBF		210'000 h / 24 years, according SN29500 at environmental temperature 40 °C

Certifications	Compliance Domain	CE according to 2014/53/EU (RED), 2011/65/EU (RoHS), Railway according to EN 50155 class OT4/ST0, EN 45545 Railway

Order Code		NB3701-LWac-G