

NB3711 MultiRail+

High-Performance EN 50155 Router for Multiple LTE and WiFi 802.11ac Links



Status: End-of-Life

- Last Time Buy: 01.10.19
- Last Time Shipment: 01.07.20

The NB3711 MultiRail+ with enhanced performance wireless Internet access for applications like passenger WiFi & information and condition monitoring. Numerous additional communication interfaces guarantee an excellent interaction with onboard electronics.

With up to three UMTS/LTE modules, two WiFi modules or a GSM-R module, the NB3711 is perfectly well suited for train-to-ground communication. The preinstalled WAN link manager software automatically bundles individual communication links based on their current network availability and priority. In combination with the quad SIM feature, the total bandwidth and the connection availability can be maximized.

The in-vehicle WiFi coverage is enhanced by providing up to two WiFi access points with latest IEEE 802.11ac standard and 2x2MIMO beam forming technology.

A port-based subnet feature separates different application networks, thus avoiding interferences and guarantees dedicated communication paths. Quality of Service support allows prioritizing the traffic to avoid that less important tasks are blocking high priority data, e.g. SIP for voice communication.

To integrate with onboard electronics, the router is extendable by optional modules for CAN, RS-485, RS-232, Audio Line In/Out, IBIS interfaces or GNSS Advanced.

The software is based on well proven components including an embedded Linux operating system and a powerful communication protocol suite. The device is managed via web browser, command line interpreter or SNMP. Self-provisioning for new software or new configuration is possible. The device can be configured remotely by customer programs via a powerful application interface. Customer specific software extensions may be developed via a sophisticated SDK.

An optional power supply model can be chosen to support the nominal input voltages 72VDC, 96VDC and 110VDC according to EN 50155.

The router is qualified for operating under harsh environmental conditions defined by EN 50155 and fulfills fire safety requirements by EN 45545. The fanless and ruggedized design with an MTBF up to 296'000h guarantees a maintenance free operation.

Applications

- Passenger WiFi
- Passenger information
- Condition monitoring
- Passenger counting
- Ticketing
- Emergency calls
- CCTV

Key Features

- EN 50155 TX / EN 45545
- Multiple LTE/UMTS modems
- Quad SIM
- Multiple WiFi-ac AP/clients
- 5 Ethernet M12
- VLAN, RSTP, LLDP
- Multipath routing, load balancing, QoS
- Options: audio, RS-232, RS-485, CAN, IBIS, GSM-R
- Option: extended input voltage range 72, 96, 110V

Specifications

Mobile / Cellular	<p>1-3 Multimode LTE, UMTS and GSM module with seamless hand-over 4G - LTE/FDD Bands: B1(2100), B3(1800), B5(850), B7(2600), B8(900), B20(800) 3G - DC-HSPA+/UMTS: B5(850), B8(900), B2(1900), B1(2100) 2G - EDGE/GPRS/GSM: B5(850), B8(900), B3(1800), B2(1900) Data rates: LTE max. 150 Mbps downlink / 50 Mbps uplink (DC-HSPA+ 42/5.76), MIMO - or GSM-R module Frequency bands: GSM-R, EGSM900, GSM1800 Data only; GPRS class 10 up to 85.6 kbps (DL) and 42.8 kbps (UL) TNC female antenna connectors supporting MIMO or standard antennas SIM slots: 4 Mini-SIM ISO/IEC 7810:2003, ID-000</p>
WLAN / WiFi	<p>1-2 IEEE 802.11 a/b/g/n/ac up to 867 Mbps 2.4/5GHz 2x2 MIMO, access point or client TNC connectors female supporting MIMO or standard antennas</p>
Ethernet	<p>5 port Ethernet switch 10/100 Mbps, auto MDX, M12 connector 4 poles D-coded female</p>
GPS / GNSS	<p>GPS/GLONASS data server with JSON or NMEA data stream, tracking sensitivity -154dBm (typical); TNC connector, support for active and passive antennas Optional: GPS/GLONASS/BeiDu/Galileo, -160 dBm, 72-channel, 2m accuracy</p>
USB	<p>USB 2.0 Host; USB A connector type</p>
Digital I/O	<p>2 digital inputs, level 0 (not set): 0-4.0 VDC level 1 (set): 7.2-40 VDC 2 digital outputs, 0-60 VDC/1A, maximum switching capacity: 60 W M12 connector, 8 poles A-coded female</p>
Extension port	<p>Standard: RS-232 serial interface / Optional: CAN, RS-485, IBIS or Audio M12 connector 8 poles A-coded female</p>
Dimensions, weight	<p>Width 190mm x height 105mm x depth 104mm, approx. 1'500g</p>
Power	<p>Standard - Nominal voltages: 24VDC, 36VDC, 48VDC according to EN50155; Voltage range 24VDC-48VDC -30% / +30% Option - Nominal voltages: 72VDC, 96VDC and 110VDC according to EN50155; Voltage range 72VDC-110VDC -30% / +30% Compliant with EN50155 class S2/C1: interruptions up to 10ms tolerated, no batteries; M12 connector, 4 poles, A-coded male, Pin1 +, Pin3 - Max. power consumption depending on model: 20W</p>
Environment	<p>24-48VDC: Temp. range EN50155 TX (-40 °C to +70 °C) with max. 5 radio modules 72-110VDC: Temp. range EN50155 TX (-40 °C to +70 °C) with max. 3 radio modules 72-110VDC: Temp. range EN50155 T2 (-40 °C to +55 °C) with max. 4 radio modules Storage temperature: -40 °C to +85°C Conformal coating, IP40 with SIM / USB cover mounted, IP52 option</p>
MTBF	<p>117'000h-296'000h depending on model</p>
Compliance	<p>CE according to 2014/53/EU (RED), 2011/65/EU (RoHS), 2012/19/EU (WEEE), 1907/2006/EC (REACH); FCC according to 47 CFR, Part 15B; Railway according to EN 50155</p>
Standards	<p>EN 300 328, EN 300 440-2, EN 301 489-1, EN 301 489-17, EN 301 489-24, EN 301 489-7, EN 301 511, EN 301 893, EN 55024, EN 55032, EN 61000-6-2, EN 60950-1, EN 62311, EN 45545-2</p>
Order numbers	<p>(contact sales for more models, options or project specific adaptations)</p>
NB3711-LWacA-GV	<p>LTE, WLAN-ac Router + Audio + GPS + Voice</p>
NB3711-LWacDa-G	<p>LTE, WLAN-ac Router + 32GB Flash + GPS</p>
NB3711-LGrGaDa	<p>LTE, GSM-R Router +32GB Storage +GNSS-Adv.</p>
NB3711-2LWac-G	<p>Dual-LTE, WLAN-ac Router + GPS</p>
NB3711-2LWacPb-G	<p>Dual-LTE, WLAN-ac Router + 70, 96, 110V PSE + GPS</p>

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