NB1601-R

Industrial Router with 4x ETH

Modular wireline router with 4-port Ethernet switch to connect remote locations.

Keyfeatures

Ethernet	4x Fast Ethernet
IO	2x Digital I/O
Serial / Fieldbus	1x RS-232 Console
Operation Temperature	-40°C to +70 °C
Software	Routing, Network Services, VPN, Firewall, Link Management, Supervisor, SDK, free updates
Compliance	CE (RED), UKCA (RER), UL/IEC/EN 62368-1, FCC
Modularity	Extensions on request

Product description

The NB1601 offers the key technologies for stationary applications that require reliable Internet access.

Applications

- Industrial Security
- Factory Automation

Specifications

Mobile / Cellular	Region	United States of America (USA)
Ethernet	**Standard**	4x Fast Ethernet **Ethernet standard** 100BASE-TX, Auto MDIX **Speed** 10/100 Mbps
	Connector	4x RJ45
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 Terminal block header 3.5 mm (screw locking)
IOs	**Type**	2x Digital I/O **Signals** 1x DI, 1x DO **DI signals** +, - **DI level** Low: 0 - 3 VDC, high: 9 - 32 VDC **DO signals** Relay outputs with NO, NC, COM (normally open, normally closed) **DO level** 0 - 32 VDC/1A **Isolation** 1'500 VDC
	Connector	1x Terminal block header 3.5 mm (screw locking)
System	**Core**	600 MHz (HW Rev. A) or 1 GHz (HW Rev. B02) single core, 512 MB RAM, 4 GB flash
	Module Slots	1x miniPCIe / extension combo (USB), 1x Shield

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

Power	Input Voltage	12, 24 VDC
		Nominal voltages 12, 24 VDC
		Absolute voltages 12 VDC to 24 VDC (-20 % / +20 %)
	Connector	1x Terminal block header 3.5 mm (screw locking)
	Consumption	3 W (average), 5 W (max)

Mounting		DIN-Rail

Dimensions	W x H x D	Width 45 mm x height 124/134 mm x depth 110/121 mm

Weight		450 g

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

MTBF		300'000 h / 34.2 years, according SN29500 at environmental temperature 40 °C

Scope of delivery		Device, General safety instructions, Terminal block

Certifications	Compliance	CE according to 2014/53/EU (RED), UKCA according to Radio Equipment Regulations 2017 No. 1206 (RER), UL/IEC/EN 62368-1, 2011/65/EU (RoHS)
	Domain	Industrial

Order Code		NB1601-R

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