

NL34

Robust 24-Port Fully Managed Ethernet Switch with PoE Layer 2/3 Switch with M12 Front Connectors & Fiber Option

- » 24x 10/100/1000BASE-TX ports
- » 2x 10/100/1000BASE-TX uplink ports with bypass relay on one uplink pair
- » M12 A-, D- or X-coded (screwed and push-pull)
- » 22x PoE+ Power Sourcing Equipment, up to 600 W
- » Ultra-wide range rail power supply: 24 V DC to 110 V DC
- » ITU-T G.8031/G.8032 Ethernet linear and ring protection switching
- » 2x 1000BASE-SX fiber uplink (Q-ODC) (optional)
- » -40 °C to +70 °C (+85 °C), fanless
- » EN 50155 compliant (railways)



"NL" Family Principle

MEN's "NL" Ethernet switch family principle is based on a wide range of configuration options (e.g., amount of Ethernet ports, fiber connections or Power over Ethernet) to easily adapt the switch to application requirements.

Flexible Concept in a Small Housing

The NL34 is a 24+2-port fully managed layer 2/3 Ethernet switch, providing a wide range of configuration options with 24 M12 Gigabit Ethernet ports. M12 connectors can be configured to be A-, D- or X-coded and combinations are also possible. The X-coded connectors are designed as push-pull and screwed variants (Harting concept). The NL34 offers two optional Ethernet fiber ports with 1000BASE-SX as standard variant. The mechanical concept is an extremely compact, high-quality aluminum housing providing high port density and ultra-high ruggedness. It is designed for wall-mounting, but mounting in a 19" rack is also an option.

Performance, Security and Diagnostic Features

The 29 Gbit/s, TCAM based, store-and-forward switching matrix of the NL34 allows high-performance layer 2 switching over all connected interfaces. For easy remote management and access, layer 3 protocols, e.g., IPv4/IPv6 and DHCP, are integrated. The switch provides extended security features like SNMPv3, SSH and HTTPS.

Traffic isolation (VLAN) and switching redundancy protocols (e. g., STP, RSTP, MSTP) provide safe running of the network using redundant data paths in the event of a fault. The ITU-T G.8031/G.8032 ring and linear protection switching feature set makes NL34 able to create network ring scenarios with recovery time under 50 ms. Monitoring and diagnosis functions, e.g., sFlow or SNMPv1, v2c, v3 are provided.

Wide-Range Power Supply and Power over Ethernet

The EN 50155 compliant supply voltage range of 24 V DC to 110 V DC provides maximum flexibility for using the switch. The NL34 comes with internal Power over Ethernet for 22 ports with a maximum of 30 W per port and a total of 90 W. With external PoE supply PU28, up to 600 W PoE output power are available (in load sharing mode with internal PoE power supply).

Maintenance Free and Extremely Rugged

The NL34 is designed for fanless operation at temperatures ranging from -40 °C to +70 °C (10 min @+85 °C). The cooling fins serve as a heat sink for the internal electronics. It is maintenance-free and developed specifically for rough environmental conditions in rolling stock applications. Long-term availability until 2026 from product start minimizes lifecycle management by making the system available at least for this period of time.

Switch Key Features

- Switching Matrix
 - 29 Gbit/s switching matrix for seamless throughput on all ports
 - MAC address table size: 8192 max.
 - Switching algorithm: Store-and-Forward with TCAM support
 - TCAM high-speed switching (Ternary Content-Addressable Memory)
- General Network Support
 - IPv4
 - IPv6 Ready
 - IPv6 Ready Phase 2
- Protocols and Functionality
 - DHCP Option 82
 - DHCP Server/Client
 - DHCP snooping
 - DHCP ARP inspection
 - DNS Client (RFC 2136)
 - DNS Proxy (RFC 5625)
- Ports and Port Control
 - Energy Efficient Ethernet (IEEE 802.3az)
 - ETH Signal Equalization and Power Control
 - Port state (admin), speed, duplex mode and flow control
 - Port frame size (Jumbo Frames: 9216 bytes/packet max.)
 - Port status (link monitoring) and statistics (MIB counters)
 - Port VeriPHY (cable diagnostics), ActiPHY and PerfectReach
 - Inband management (VRAP)
 - PerfectReach
- User Configuration Interfaces
 - HTTP/HTTPS
 - CLI
 - Telnet
 - Console
- [For more information on the switch firmware features see the firmware product page.](#)

Power Over Ethernet

- PSE (Power Sourcing Equipment)
- Supply classes 0, 1, 2, 3, 4
- Number of PoE ports: 22
- Total PoE power available: 90 W (600 W with external power supply)

Interfaces

- Ethernet
 - 2x 1000BASE-SX, Q-ODC, receptacle
 - 24x 10/100/1000BASE-T, M12, X-coded, receptacle
 - 24x 10/100/1000BASE-T, M12, A-coded, receptacle
 - 22x 10/100BASE-T, M12, D-coded, receptacle
 - 2x 10/100/1000BASE-T, M12, A-coded, receptacle
 - D-coded connectors are typically combined with two A-coded connectors for uplink.
 - [For other combination options contact MEN.](#)
- Serial
 - 1x RS232, M12, A-coded, receptacle
- LED
 - Status: power status, system status
 - Ethernet: link, activity
- Power
 - 1x power in, M12, A-coded, plug
 - 1x PoE in, M12, L-coded, plug

Supervision and Control

- Temperature measurement
- Watchdog timer

Electrical Specifications

- Supply voltage
 - 24 V DC to 110 V DC nom. (EN 50155)
 - 52 V DC (PoE+)
- Power consumption
 - 130 W max. (with maximum PoE load)

Mechanical Specifications

- Dimensions
 - (W) 390 mm, (D) 236 mm, (H) 89 mm
- Weight: 6.5 kg max.
- Mounting possibilities
 - Wall-mount
 - Rack-mount in 19" cabinet
- Cooling
 - Air cooling, natural convection, airflow 0.4 m/s
- Protection rating: IP30

**Product Compliance: Rail
- Rolling Stock**

- Operating temperature: -40 °C to +70 °C, +85 °C for 10 min (EN 50155:2017, class OT4, ST1)
- Storage temperature: -40 °C (EN 50155:2017) to +85 °C (EN 60068-2-2, Bb)
- Humidity: +55 °C and +25 °C, 100 % max. (EN 50155:2017)
- Shock: 30 ms @ 50 m/s² (EN 61373:2010/AC:2017-09, vehicle body, cat. 1, class B)
- Vibration: 10 min @ 2.02 m/s² and 5 h @ 11.44 m/s² (EN 61373:2010/AC:2017-09, vehicle body, cat. 1, class B x 2)
- Power supply
 - General compliance with power supply requirements of EN 50155:2017
 - Interruption of voltage supply: 10 ms (EN 50155:2017, class S2)
- Electrical Safety
 - EN 50155:2017
 - EN 50153:2014 + A1:2017
 - EN 50124-1:2017
 - EN ISO 13732-1:2008
- Fire protection: EN 45545-2:2013 + A1:2015, HL3
- EMC emission: EN 50121-3-2:2016
- EMC immunity: EN 50121-3-2:2016
- Useful life: 20 years (EN 50155:2017, class L4)
- Protective coatings: EN 50155:2017, class PC2 (Any PCB protected on both sides)

Reliability

- MTBF: 330 000 h @ 40 °C according to IEC/TR 62380 (RDF 2000)

Germany

MEN Mikro Elektronik GmbH

Neuwieder Straße 3-7
90411 Nuremberg
Phone +49-911-99 33 5-0

sales@men.de
www.men.de

USA

MEN Micro Inc.

860 Penllyn Blue Bell Pike
Blue Bell, PA 19422
Phone 215-542-9575

sales@menmicro.com
www.menmicro.com

France

MEN Mikro Elektronik SAS

18, rue René Cassin
ZA de la Châtelaine
74240 Gaillard
Phone +33-450-955-312

sales@men-france.fr
www.men-france.fr

China

MEN Mikro Elektronik Co., Ltd.

Room 301A, #971 Dongfang Road
200122 Shanghai
Phone +86-21-5058-0963

sales@men-china.cn
www.men-china.cn

Up-to-date information, documentation and ordering information:

www.men.de/products/nl34/

MEN is not responsible for the results of any actions taken on the basis of information in the publication, nor for any error in or omission from the publication. MEN expressly disclaims all and any liability and responsibility to any person, whether a reader of the publication or not, in respect of anything, and of the consequences of anything, done or omitted to be done by any such person in reliance, whether wholly or partially, on the whole or any part of the contents of the publication.

The correct function of MEN products in mission-critical and life-critical applications is limited to the environmental specification given for each product in the technical user manual. The correct function of MEN products under extended environmental conditions is limited to the individual requirement specification and subsequent validation documents for each product for the applicable use case and has to be agreed upon in writing by MEN and the customer. Should the customer purchase or use MEN products for any unintended or unauthorized application, the customer shall indemnify and hold MEN and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim or personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that MEN was negligent regarding the design or manufacture of the part.

In no case is MEN liable for the correct function of the technical installation where MEN products are a part of.

© 2018 MEN Mikro Elektronik GmbH