

NM10

Smart Managed 8-Port Railway Ethernet Switch Rugged Embedded Network Box

- » Smart managed 8-port rugged Ethernet switch
- » M12 D-, A- or X-coded connectors
- » 10/100 (Fast) or 10/100/1000 Mbit/s variants
- » Fanless and maintenance-free design
- » Ultra wide range power supply input (14.4 to 154 VDC) with interruption class S2
- » -40 °C to +70 °C (+85 °C)
- » Compliant to EN 50155 (railways)



Maintenance-Free and Extremely Rugged

The NM10 family is a range of fanless, smart managed and maintenance-free Ethernet switches, which have been specifically designed for use in rolling stock applications operating in extremely rugged environmental conditions.

Versatile Application Possibilities

The NM10 range of switches provide eight channels at the front panel, accessible through M12 connectors, covering different application requirements, and either 100 Mb or 1 Gb Ethernet interfaces.

Compliant to Railway Standards

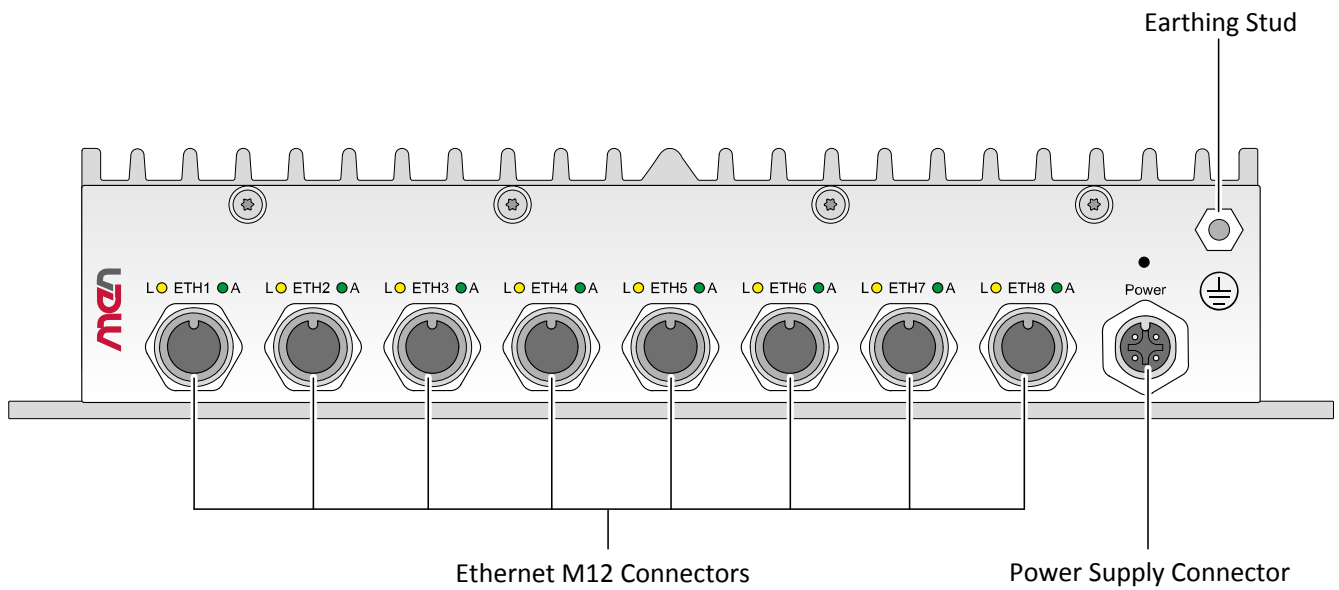
The voltage supply for the NM10 Ethernet switch is designed for maximum flexibility and supports wide range input supply voltages from 14.4 V DC to 154 V DC, and meets all EN 50155 requirements for voltages ranging from 24 V DC to 110 V DC.

Conduction Cooled

The NM10 Ethernet Switch is designed for fanless operation at temperatures ranging from -40 °C to +70 °C, with up to +85 °C for 10 minutes. The NM10 features IP40 protection when surface-mounted and cooling fins which serve as a heat sink for the internal electronics, and in this way provides conduction cooling.

Familiar Family Concept

As a member of MEN's family of extremely rugged industrial network boxes, the NM10 provides the same flexibility and scalability, as well as a look and feel which is common to the family.



Protocols and Functionality

- IEEE 802.3 for 10BASE-T
- IEEE 802.3u for 100BASE-T
- IEEE 802.3ab for 1000BASE-T
- Throughput
 - Dual-speed 10/100 Mbit/s smart managed switch (Model: 09NM10-00)
 - Tri-speed 10/100/1000 Mbit/s smart managed switch (Models: 09NM10-02 and 09NM10-04)
- MAC tables
 - 8192 MAC addresses
- Processing
 - Store-and-Forward
- Energy Efficient Ethernet (IEEE 802.3az) on all ports

Interfaces

- Ethernet
 - 8x 10/100BASE-T, M12, D-coded, receptacle
 - 8x 10/100/1000BASE-T, M12, A-coded, receptacle
 - 8x 10/100/1000BASE-T, M12, X-coded, receptacle
- LED
 - Status: power status (indicates power supply stability or range validity)
 - Ethernet: activity, link
- Power
 - 1x power in, M12
 - Earthing connection

Electrical Specifications

- Supply voltage
 - 24 V DC to 110 V DC nom. (EN 50155)
 - 14.4 V DC to 154 V DC
 - Power interruption class S2 (10 ms)
- Power consumption: 10 W max.

Mechanical Specifications

- Dimensions: (W) 220 mm, (D) 164 mm, (H) 44.1 mm
- Weight: 1.5 kg max. (depending on configuration)
- Cooling: Air cooling, natural convection, airflow 0.4 m/s
- Protection rating: IP40 when surface mounted

Environmental Specifications

- Temperature range (operation)
 - -40 °C to +70 °C, with up to +85 °C for 10 minutes according to class TX (EN 50155)
- Temperature range (storage): -40 °C to +85 °C
- Relative humidity (operation): max. 95% non-condensing
- Relative humidity (storage): max. 95% non-condensing
- Altitude: -300 m to +3000 m
- Shock: 50 m/s², 30 ms (EN 61373)
- Vibration (function): 1 m/s², 5 Hz to 150 Hz (EN 61373)
- Vibration (lifetime): 7.9 m/s², 5 Hz to 150 Hz (EN 61373)

Reliability

- MTBF: 511 624 h @ 40°C according to IEC/TR 62380 (RDF 2000)

Safety

- Fire Protection
 - EN 45545-2, hazard level HL3
- Electrical Safety
 - EN 50153:2014, EN 50155:2007

EMC Conformity (Railway)

- EN 50121-3-2:2015

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