708M12 Industrial Ethernet Switch
N-Tron Networking Series

red lion®

▶▶▶ Managed Industrial Ethernet Switch

The N-TRON® 708M12 Industrial Ethernet Switch offers outstanding performance and ease of use. It is a fully managed switch, ideally suited for connecting Ethernet enabled devices in railway, industrial and security applications.

PRODUCT FEATURES:
- IP67-Rated Hardened Metal Enclosure
- Bulkhead Mountable (Optional DIN-Rail mounting)
- Dustproof
- Protection against low/high pressure water jets
- Temporary immersion in water
- Eight 10/100BaseTX M12 D-Coded Ports
- -40ºC to 80ºC Operating temperature
- ESD and Surge Protection Diodes on all Ports
- Auto Sensing 10/100BaseTX, Duplex, and MDIX
- Store-and-Forward Technology
- Redundant Power Inputs (10-30 VDC)

Fully Managed Features:
- Full SNMP and Web Browser Management
- Detailed Ring Map and Fault Location Charting
- N-Ring™ Technology with ~30ms Healing
- N-View™ OPC Monitoring
- N-Link™ Redundant N-Ring Coupling
- Plug-and-Play IGMP Support
- 802.1Q tag VLAN and Port VLAN
- 802.1p QoS and Port QoS
- EtherNet/IP™ CIP Messaging
- LLDP (Link Layer Discovery Protocol)
- Trunking
- Port Mirroring
- 802.1d, 802.1w, 802.1D RSTP
- DHCP Server, Option 82 relay, Option 61, IP Fallback
- Port Security—MAC Address Based
- Optional N-TRON Auto Configuration Device for saving and restoring configuration. (P/N 700-NTCD-M12)

Management Features
The 708M12 offers several management functions that can be easily configured using a web browser.

IGMP Snooping - Internet Group Management Protocol allows the switch to forward and filter multicast traffic intelligently.

VLAN - Virtual Local Area Network allows you to segment the switch in order to create two or more separate local area network domains.

QoS - Quality of Service provides prioritization of network traffic in order to provide better network service. QoS improves the latency of prioritized Ethernet packets required for ring management, real-time, and other interactive applications.

Trunking - Trunking (link aggregation) enables multiple physical ports to be linked together and function as one uplink to another N-TRON trunking capable switch configured in the same manner, thereby increasing the bandwidth between switches. This configuration can provide increased bandwidth and redundancy to applications requiring high levels of fault tolerant operation.

Port Mirroring - Allows the traffic on one port to be duplicated and sent to a designated mirror port. Port mirroring is used to monitor Ethernet traffic on the designated source port using the assigned mirror port.

DHCP - DHCP Server/Client automates the assignment of IP addresses. DHCP Option 82 assures that if a device on a specific port is replaced, the replacement receives the same IP address as the original device.

Rapid Spanning Tree - This function allows the switch to be configured in a Ring or Mesh topology, and provides support for redundant path communications with high-speed (rapid) healing.

Remote Monitoring Options
For ease of configuration and monitoring, the 708M12 offers Web Browser Management and N-View OLE for Process Control (OPC) Server Software. The N-TRON N-View Software can be combined with popular HMI software packages to add network traffic monitoring, trending, and alarming to any application using N-TRON switches. In addition SNMP is available for switch link and status monitoring The 708M12 Switch Status LED can be configured to respond to power failure on power input 1 or input 2, N-Ring Broken, Partial Break High, Partial break Low, or if multiple Ring managers are detected.

N-Ring Technology
N-TRON's N-Ring technology offers expanded ring size capacity, detailed fault diagnostics, and a standard healing time of ~30ms. The 708M12 Ring Manager periodically checks the health of the Ring via packets. If the Ring Manager stops receiving these health check packets, it converts the Ring to a linear bus topology within ~30ms. In addition to standard Ring Manager protocol, when using all N-TRON fully managed switches in the ring, a detailed ring map and fault location chart will also be provided on the Ring Manager's web browser and OPC Server to identify the health status of the ring. Up to 250 fully managed N-TRON switches can participate in N-Ring topologies.

Industrial Packaging and Specifications
The 708M12 is specifically designed to operate in industrial environments. The rugged IP67 enclosure combined with extended industrial specifications and features to meet or exceed the operating parameters of the connected equipment. These include extended temperature ratings, extended shock and vibrations specs, redundant power inputs, and high MTBF (greater than 2M hours).

Ease of Use
The 10/100BaseTX ports are auto sensing and auto configuring. Each copper port is automatically negotiated for maximum speed and performance by default, but can also be hard coded using the web browser. A high-speed processor allows wire speed capability on all 100BaseTX ports simultaneously.

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Switch Properties

Number of MAC Addresses: 8000
Aging Time: Programmable
Latency Typical: 2.9 µs
Switching Method: Store-and-Forward

Case Dimensions

Height: 6.7" (16.9cm)
Width: 6.7" (16.9cm)
Depth (incl. DIN rail mount): 1.8" (4.6cm)
Weight (max): 3.4 lbs (1.6kg)
DIN-Rail Mount: 35mm (with optional clips)

Environmental

Operating Temperature: -40°C to 80°C
Storage Temperature: -40°C to 85°C
Operating Humidity: 5% to 100% (Non Condensing)
Operating Altitude: 0 to 10,000 ft.

Electrical

Redundant Input Voltage: 10-30 VDC
Input Current (max): 250mA max @ 24 VDC
BTU/hr: 20.5 @ 24 VDC
N-TRON Power Supply: NTPS-24-1.3 (1.3A @ 24VDC)

Shock and Vibration (bulkhead mounted)

Shock: 200g @ 10ms
Vibration/Seismic: 50g, 5-200Hz, Triaxial

Reliability

MTBF: >2 Million Hours

Network Media

10BaseT: >Cat3 Cable
100BaseTX: >Cat5 Cable

Connectors

10/100BaseTX: Eight (8) M12 D-Coded 4 Pin Female Ports
RS-232 Com One (1) M12 A-Coded 5 Pin Female Port
NTCD-M12 One (1) M12 A-Coded 5 Pin Female Port

Recommended Wiring Clearance

Front: ~4" (10.16cm)

Regulatory Approvals:

FCC/CE (CFR 47, Part 15, Subpart B, Class A)
EN 55011, ICES-003- Class A
EN61000-4-2/3/4/5/6/8/11, EN61000-6-2/4
UL /cUL: Class I, Div 2, Groups A, B, C, D and T4A
ANSI/ISA 12.12.01-2007
ABS Type Approval for Shipboard Applications
DNV Type Approval Certification
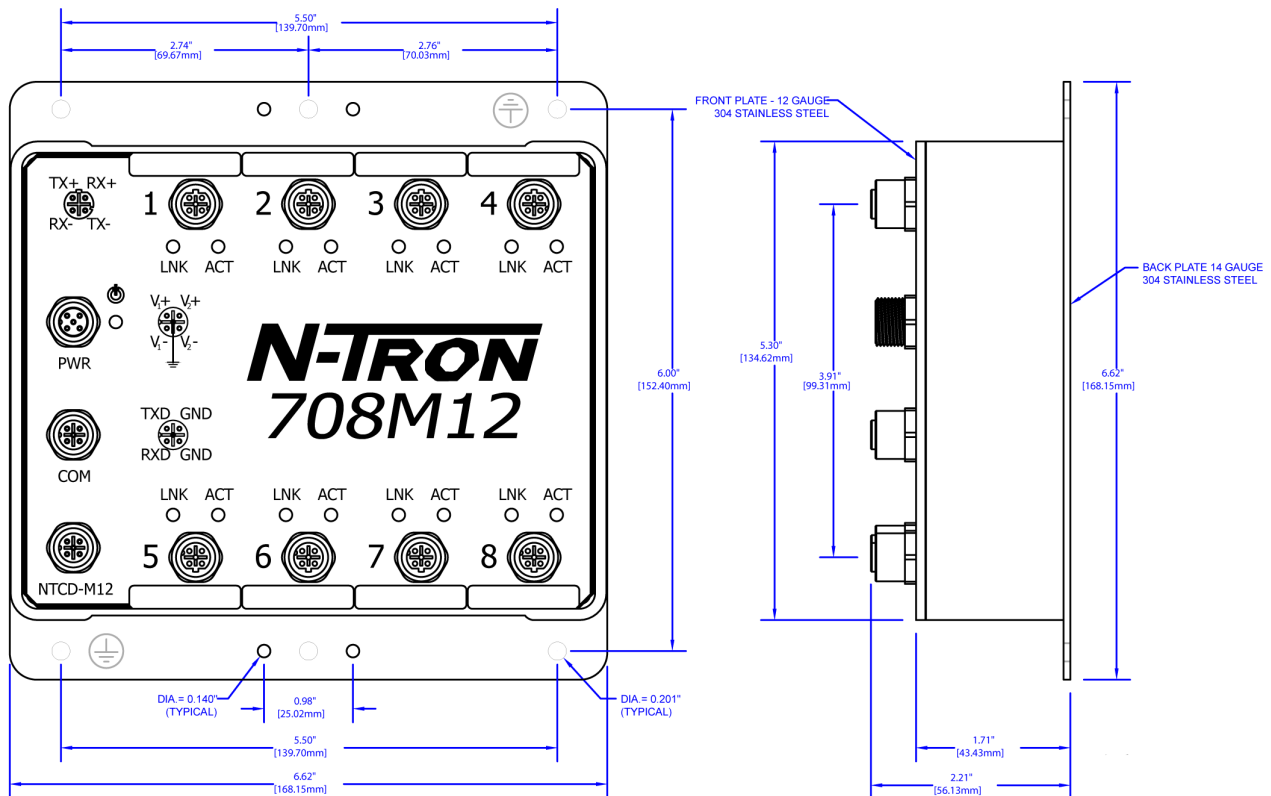*GOST-R Certified, RoHS Compliant*
EN50155 for Railway Applications

Designed to comply with:
IEEE 1613 for Electric Utility Substations
NEMA TS1/TS2 for Traffic Control

EtherNet/IP

708M12 Industrial Ethernet Switch

Ordering Information

708M12	IP67-rated Ethernet Switch with eight 10/100BaseTX Ports with M12 D-Coded connectors, 10-30 VDC
700-NTCD-M12	Configuration device for saving and restoring configuration parameters
NTPS-24-1.3	DIN-Rail Power Supply 24V @ 1.3 Amp recommended for 708M12
M12DRC-ISO	DIN-Rail kit, two isolated plastic clips
M12DRC-MTL	DIN-Rail kit, two metal clips

Cat5E STP Cables with M12 connectors

CAT5E-M12-M12-X	Straight M12 to Str. M12, Shielded
CAT5E-M12-RJ45-X	Straight M12 to RJ-45, Shielded
CAT5E-M12-X	Straight M12 to bare end, Shielded
CAT5E-RM12-M12-X	90º M12 to Str. M12, Shielded
CAT5E-RM12-RM12-X	90º M12 to 90º M12, Shielded
CAT5E-RM12-RJ45-X	90º M12 to RJ-45, Shielded
CAT5E-RM12-X	90º M12 to bare end, Shielded
PWR-M12-A-X	Power Cable, M12 A-Coded Straight Female to bare end, Shielded
PWR-RM12-A-X	Power Cable, M12 A-Coded 90º Female to bare end, Shielded
SERIAL-DB9-M12	Serial cable, DB-9 to M12 5 ft, shielded
SERIAL-DB9-RM12	Serial cable, DB-9 to 90º M12, 5 ft, shielded

Where:
X = length of cable, fill in desired amount in feet.
Example: CAT5E-RM12-10 (for a 10 ft cable)

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