

The 708M12 is an IP67 rated Fully managed Industrial Ethernet Switch combining outstanding performance and ease of use. It is ideally suited for connecting Ethernet enabled industrial and/or security equipment in extreme environmental conditions.

## 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
- Auto Sensing 10/100BaseTX, Duplex, and MDIX
- -40°C to 80°C Operating Temperature
- Redundant Power Inputs (10-49 VDC or 40-160 VDC)
- ESD and surge protection diodes on all Ports
- Configurable Bi-Color Fault Status LED

## 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
- Plug-and-play IGMP Support
- 802.1Q tag VLAN and Port VLAN
- 802.1p QoS and Port QoS
- Trunking
- Mirroring
- 802.1d, 802.1w, 802.1D RSTP
- DHCP Client
- 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 is a feature that allows the 708M12 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. The primary goal of QoS is to improve 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** - This function allows the traffic on one port to be duplicated and sent to a designated mirror port. Port mirroring can be used to monitor Ethernet traffic on the designated source port using the assigned mirror port.

**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.

## Specifications

### Switch Properties

Number of MAC Addresses:	8000
Aging Time:	Programmable
Latency Typical:	2.9 $\mu$ s
Switching Method:	Store-and-Forward

### Physical

Height:	6.62"	(16.81cm)
Width:	6.62"	(16.81cm)
Depth (incl. DIN rail mount):	2.09"	(5.31cm)
Weight (max):	3.35 lbs	(1.52kg)
DIN-Rail Mount:	35mm	(with optional clips)

## 708M12 Industrial Ethernet Switch

### Ordering Information

<b>708M12</b>	IP67 rated Ethernet Switch with Eight 10/100BaseTX Ports with M12 D-Coded connectors, 10-49 VDC
<b>708M12-HV</b>	IP67 rated Ethernet Switch with Eight 10/100BaseTX Ports with M12 D-Coded connectors, 40-160 VDC
<b>700-NTCD-M12</b>	Configuration device for saving and restoring configuration parameters
<b>NTPS-24-1.3</b>	DIN-Rail Power Supply 24V@1.3 Amp recommended for 708M12
<b>NTPS-48-5</b>	DIN-Rail Power Supply 48V@5 Amp recommended for 708M12-HV

### 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	90° M12 to Str. M12, Shielded
CAT5E-RM12-RM12-X	90° M12 to 90° M12, Shielded
CAT5E-RM12-RJ45-X	90° M12 to RJ-45, Shielded
CAT5E-RM12-X	90° 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 90° 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 90° M12, 5 ft, shielded

### Where:

X = length of cable, fill in desired amount in feet.

Example: CAT5E-RM12-10 (for a 10ft cable)

### 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.
N-TRON Power Supply:	NTPS-24-1.3

### Electrical

<b>708M12</b>	
Redundant Input Voltage:	10-49 VDC
Input Current (max):	250mA max @24 VDC

### 708M12-HV

Redundant Input Voltage:	40-160 VDC
Input Current (max):	70mA max @110 VDC

### Shock and Vibration (bulkhead mounted)

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

### Reliability

MTBF:	>2 Million Hours
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### 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)
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### 708M12 Regulatory Approvals

FCC Title 47, Part 15, Subpart B - Class A,  
CE: EN61000-6-2, 4, EN55011, EN61000-4-2, 3, 4, 5, 6, 8, 11,  
GOST-R Certified, RoHS Compliant,  
Submitted for EN50155 certification

### Designed to comply with:

UL ANSI/ISA-12.12.01-2000 (US and Canada)  
Class I, Div 2, Groups A, B, C, D, and T4A  
IEEE 1613 for Electric Utility Substations  
NEMA TS1/ TS2 for Traffic control

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