N-TRON

THE INDUSTRIAL NETWORK COMPANY

708FX2

The *N-TRON ® 708FX2* Industrial Ethernet Switch combines outstanding performance and ease of use. It is ideally suited for connecting Ethernet enabled industrial and/or security equipment and is a fully managed switch.

PRODUCT FEATURES

- Six 10/100BaseTX RJ-45 Ports
- Two 100BaseFX Fiber ports, ST or SC style
- -40ºC to 85ºC Operating temperature
- ESD and Surge Protection Diodes on all Ports
- Auto Sensing 10/100BaseTX, Duplex, and MDIX
- Store-and-forward Technology
- Rugged DIN-Rail Enclosure
- Redundant Power Inputs (10-30 VDC)
- Configurable Alarm Contact
- 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
- EtherNet/IP™ CIP Messaging
- LLDP (Link Layer Discovery Protocol)
- Trunking
- Mirroring
- 802.1d, 802.1w, 802.1D RSTP
- DHCP

Management Features

The *708FX2* 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 *708FX2* 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 *708FX2* 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 Alarm Contact and 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 *708FX2* ring manager using *N-TRON*'s N-Ring technology offers expanded ring size capacity, detailed fault diagnostics, and a standard healing time of ~30ms. The *708FX2* 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. When all switches in the ring are *N-TRON* fully managed switches, a detailed ring map and fault location chart will also be provided on the ring manager's web browser and OPC server to identfy the health status of the ring. *N-Link* allows the linking of two *N-Rings*. Up to 250 fully managed *N-TRON* switches can participate in N-Ring topologies.

Industrial Packaging and Specifications

The *708FX2* is designed to operate in industrial environments. It is housed in a rugged steel DIN-Rail enclosure. It has 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 user interface. A high speed processor allows wire speed capability on all 100BaseTX ports simultaneously.

1881-090805

708FX2 Industrial Ethernet Switch Ordering Information

708FX2-XX	Six 10/100BaseTX Ports, Two Multimode 100BaseFX Fiber Optic Ports
708FXE2-XX-YY	Six 10/100BaseTX Ports, Two Singlemode 100BaseFX Fiber Optic Ports
700-PM	Panel Mount Kit
NTPS-24-1.3	*N-TRON* Power Supply - (1.3 Amp @ 24VDC)
URMK	19" Universal Rack Mount Kit

Where: XX = ST or SC, YY = 15, 40 or 80 for Singlemode, Blank for Multimode E = Singlemode, and Blank Otherwise

708FX2 Specifications

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

Physical
Height:	2.3"	(5.8cm)
Width:	6."	(15.3cm)
Depth:	3.8"	(9.6cm)
Weight (max):	1.65 lbs	(0.75kg)
DIN-Rail Mount:	35mm	

Electrical
Redundant Input Voltage:	10-30 VDC
Input Current (max):	330mA max @24VDC
N-TRON Power Supply:	NTPS-24-1.3 (1.3 A @24V)

Environmental
Operating Temperature:	-40ºC to 85ºC
Storage Temperature:	-40ºC to 85ºC
Operating Humidity:	5% to 95% (Non Condensing)
Operating Altitude:	0 to 10,000 ft.

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
100BaseFX Multimode:	50-62.5/125μm
100BaseFXE Singlemode:	7-10/125μm

100 Mb Fiber Transceiver Characteristics

Fiber Length	2km*	15km**	40km**	80km**
TX Power Min	-19dBm	-15dBm	-5dBm	-5dBm
RX Sensitivity Max	-32dBm	-29dBm	-34dBm	-34dBm
Wavelength	1310nm	1310nm	1310nm	1550nm

* Multimode Fiber Optic Cable
** Singlemode Fiber Optic Cable

Connectors
10/100BaseTX:	Six (6) RJ-45 Copper Ports
100BaseFX:	Two (2) SC or ST Fiber Duplex Ports

Recommended Wiring Clearance
Front:	4"	(10.16cm)
Side:	1"	(2.54cm)

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

ATEX II 3 G Ex nC (DEMKO 03 ATEX 0316686U)
ABS Type Approval for Shipboard Applications
DNV Type Approval Certification
EN50155 for Railway Applications
GOST-R Certified
RoHS Compliant

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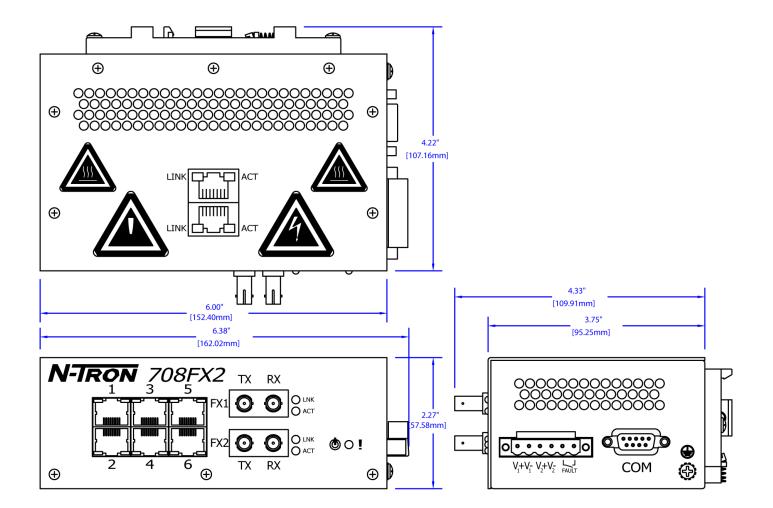*NEMA TS1/TS2 for Traffic Control*

Contact Information

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REV 090805

THE INDUSTRIAL NETWORK COMPANY

4.22"
[107.16mm]

LINK | ACT
LINK | ACT

6.00"
[152.40mm]

6.38"
[162.02mm]

4.33"
[109.91mm]

3.75"
[95.25mm]

N-TRON 708FX2

1   3   5
FX1   TX   RX
LNK
ACT
FX2
LNK
ACT
2   4   6
TX   RX

2.27"
[57.58mm]

$V_1^+ V_1^-$ $V_2^+ V_2^-$ FAULT   COM