The N-TRON® 709FX compact, fully managed industrial Ethernet switch is housed in a rugged industrial metal enclosure and offers a powerful combination of eight 10/100BaseTX copper ports and one 100Base fiber port. It is ideally suited for use in industrial applications such as factory floor control networks, utilities, wind turbines, wastewater treatment facilities, rail car, intelligent traffic control and transportation applications, and any other application where high reliability, superior noise immunity, extreme ruggedness, and extended distance are required.

PRODUCT FEATURES

- Eight 10/100BaseTX RJ-45 Ports
- One 100BaseFX Port, ST or SC Style
- -40°C to 70°C Operating Temperature
- Onboard Temperature Sensor
- 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 (10-49 VDC)
- Configurable Bi-Color Fault Status LED

FULLY MANAGED FEATURES

- SNMP v1, v2, v3 and Web Browser Management
- Configuration backup via Optional SD card
- Detailed Ring Map and Fault Location Charting
- N-Ring™ Technology with ~30ms Healing
- N-Link™ Redundant N-Ring Coupling
- RSTP 802.1d, 802.1w, 802.1D
- N-View™ OPC Monitoring
- IGMP Auto configuration
- 802.1Q tag VLAN and Port VLAN
- 802.1p QoS, Port QoS, and DSCP
- EtherNet/IP™ CIP Messaging
- LLDP (Link Layer Discovery Protocol)
- Trunking
- Port Mirroring
- DHCP Server, Option 82 relay, Option 61, IP Fallback
- Local Port IP Addressing
- Port Security—MAC Address Based

Remote Monitoring Options

Web browser and N-View OPC (OLE for process control) server software provides configuration and monitoring capability. N-View software easily combines with HMI software to monitor network traffic, alarms, and trends. SNMP is also available for switch link and status monitoring. Status LEDs are configurable to indicate power failure and N-Ring status.

N-Ring Technology

N-Ring technology provides expanded ring capacity, detailed fault diagnostics, and fast 30ms healing time. The ring manager validates the integrity of the ring using health check packets and quickly converts the ring to a linear topology within ~30ms when an error is detected. The health status of a ring comprised of all N-TRON fully managed switches may be monitored. A detailed ring map and fault location chart may be accessed by the ring manager's web browser or the OPC server. N-Link allows the linking of two N-Rings. Up to 250 fully managed N-TRON switches are supported in an N-Ring topology.

Industrial Specifications

High MTBF, extended shock and vibration specifications, wide operating temperature range and redundant power inputs are standard features.

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 through the user interface. A high-speed processor allows wire speed capability on all 10/100BaseTX ports simultaneously.

709FX

Specifications

Switch Properties
Number of MAC Addresses: 8000
Aging Time: Programmable
Latency Typical: 2.6 µs
Switching Method: Store-and-Forward

Case Dimensions
Height: 4.3"   (10.8 cm)
Width: 2.4"   (6.1 cm)
Depth: 4.6"   (11.5 cm)
Weight (max):   1.4 lbs   (0.6 kg)
DIN-Rail Mount: 35mm

Electrical
Redundant Input Voltage: 10-49 VDC (Regulated)
Input Current (max):   365mA@24 VDC
BTU/hr: 29.89@24 VDC
N-TRON Power Supply: NTPS-24-1.3 (1.3A@24V)

Environmental
Operating Temperature: -40°C to 70°C
Storage Temperature: -40°C to 85°C
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

Connectors
10/100BaseTX: Eight (8) RJ-45 Copper Ports
100BaseFX: One (1) 100BaseFX Port, ST or SC Style

Recommended Wiring Clearance
Front: 4"   (10.2 cm)
Side: 1"   (2.6 cm)

Fiber Transceiver Characteristics

Fiber Length	2km*	15km**	40km**	80km**
TX Power Min	-19dBm	-15dBm	-5dBm	-5dBm
RX Sensitivity Max	-31dBm	-31dBm	-34dBm	-34dBm
Wavelength	1310nm	1310nm	1310nm	1550nm

* Multimode Fiber Optic Cable
** Singlemode Fiber Optic Cable

Regulatory Approvals
FCC: Title 47, Part 15, Subpart B, Class A; ICES-003: Class A;
ANSI C63.4
CE: EN 61000-6-2, 4; IEC 61000-4-2, 3, 4, 5, 6, 8, 11
GOST-R Certified, RoHS Compliant
UL/cUL: UL 508 and ANSI/ISA-12.12.01-2007
Class I, Div 2, Groups A, B, C, and D; T4
Designed to comply with:
IEEE 1613 for Electric Utility Substations
NEMA TS1/ TS2 for Traffic control
IEC-61850

4.77"
[121.25mm]

4.67"
[118.52mm]

4.51"
[114.58mm]

5.40"
[137.17mm]

4.86"
[123.39mm]

0.35"
[8.89mm]

6.25"
[158.75mm]

5.75"
[146.05mm]

MODEL DATAPLATE LABEL
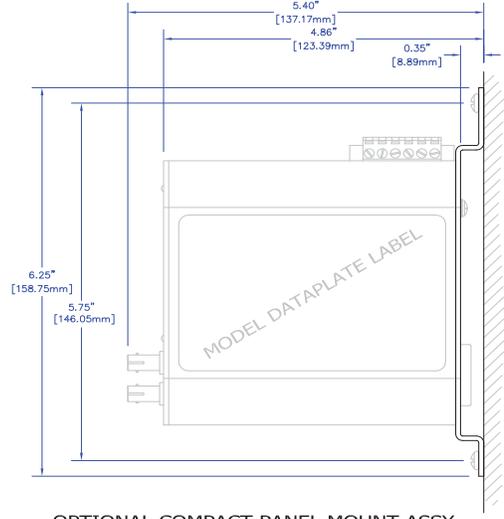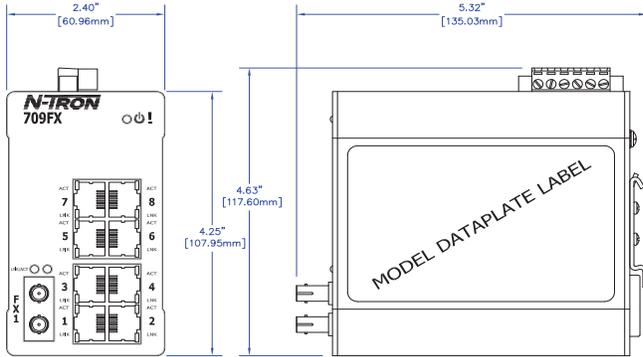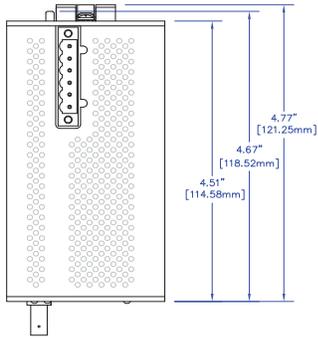
OPTIONAL COMPACT PANEL MOUNT ASSY.
(P/N: CPMA-1)

2.40"
[60.96mm]

5.32"
[135.03mm]

N-TRON
709FX

ACT
7   **8**
LNK
ACT   ACT
5   **6**
LNK

ACT
3   **4**
LNK
ACT   ACT
1   **2**
LNK

**F
X
1**

4.63"
[117.60mm]

4.25"
[107.95mm]

MODEL DATAPLATE LABEL

709FX

ORDERING INFORMATION

PART NUMBER	DESCRIPTION
709FX-XX-YY	9-Port (8 10/100BaseTX, 1 100BaseFX Fiber Uplink) Fully Managed Industrial Ethernet Switch, DIN-Rail
709FXE-XX-YY	9-Port (8 10/100BaseTX, 1 100BaseFX Fiber Uplink) Fully Managed Industrial Ethernet Switch, singlemode, DIN-Rail
NTCD128	Optional configuration card for backup / restore
NTPS-24-1.3	N-TRON Power Supply - (1.3 Amp @ 24 VDC)
CPMA-1	Compact panel mount (factory installed option only)
URMK	Universal Rack Mount Kit

Where: N = N-View Firmware Option
        E = Singlemode
     XX = ST for ST style fiber connector, SC for SC style fiber connector
     YY = Segment length:
          15 for 15km max. fiber segment length
          40 for 40km max. fiber segment length
          80 for 80km max. fiber segment length