

509FX-A Industrial Ethernet Switch

N-Tron Networking Series



▶▶▶ Unmanaged Industrial Ethernet Switch

PRODUCT FEATURES

- Full IEEE 802.3 and 1613 Compliance
- NEMA TS1/TS2 Compliance
- American Bureau of Shipping (ABS) Type Approval
- Eight (8) 10/100 BaseTX RJ-45 Ports
- One (1) 100BaseFX Port, ST (shown) or SC
- -40°C to 85°C Operating Temperature
- Auto Sensing 10/100BaseTX, Duplex, and MDIX
- Store-and-Forward Technology
- Up to 1.8 Gb/s Maximum Throughput
- Rugged Industrial DIN-Rail Enclosure
- Redundant Power Inputs (10-30 VDC)
- Bi-Color LEDs For Link, Speed, Activity & Duplex Status

Advanced Management Functions (With -A option only):

- IGMP Snooping
- VLAN
- QoS
- Trunking and Mirroring
- N-View™ (Remote Monitoring Using OPC Technology)

PRODUCT OVERVIEW

The N-TRON® 509FX Series Industrial Ethernet Switch offers outstanding performance and ease of use. It is ideally suited for connecting Ethernet enabled industrial and/or security equipment and can be optionally configured with advanced Ethernet communication management functions.

Industrial Packaging and Specifications

The 509FX, designed to operate in industrial environments, is housed in a rugged DIN-rail-mounted steel enclosure. Optional panel and rack mount kits are also available. The switch comes standard with extended temperature rating, extended shock and vibration specs, redundant power inputs, and a high MTBF (greater than 2M hours).

Ease of Use

The 509FX requires no setup unless the advanced port functions are utilized. The eight 10/100BaseTX ports are auto sensing and auto configuring. Each copper port automatically negotiates for maximum speed and performance by default. The fiber optic port supports full 200Mb/s communications via 100BaseFX. Bi-color LEDs are provided to display the link status, link speed and activity of each port as well as power on/off status.

Performance

The 509FX supports up to 4,000 MAC addresses and uses advanced IEEE 802.3 Fast Ethernet 10/100BaseTX switching technology to eliminate network collisions and increase network determinism. A high-speed processor and backplane allow full-wire speed capability on all ports simultaneously.



ADVANCED MANAGEMENT FEATURES

The 509FX-A offers several management functions that can be easily configured using the COM Port (DB 9 connector located on the right side of the switch).

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

VLAN: Virtual Local Area Network allows switch segmentation in order to create two or more separate local area network domains.

QoS: Quality of Service streamlines network operation by managing packet priority. 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 (aggregation) enables multiple physical ports to be linked together and function as one uplink to another identically configured trunking-capable switch. This feature increases the bandwidth between switches and creates redundancy for applications requiring high levels of fault tolerant operation.

Port Mirroring: Port mirroring allows traffic on one port to be duplicated and sent to a designated mirror port. This function can be used to monitor Ethernet traffic on the designated source port using the assigned mirror port.

N-View OPC Switch Monitoring: (With -A or -N Option Only) N-View OPC server software can be used with popular HMI software packages to transmit operational information from N-View-capable switches. This technology enables network traffic monitoring, as well as alarm and trending details. In all, the N-View OPC Server collects 41 different traffic variables per port and five system level variables per switch, providing a complete overview of network load, service quality, and packet traffic. Empowered with N-View OPC Server data, users can resolve network problems faster and make more informed decisions about overall system performance.

509FX-A Specifications

Specifications

Switch Properties

Number of MAC Addresses: 4,000
 Aging Time: 300s, Programmable (-A option)
 Latency Typical: 2.1 μ s
 Switching Method: Store & Forward

Case Dimensions

Height: 2.3" (5.8 cm)
 Width: 5.5" (13.9 cm)
 Depth: 3.5" (8.9 cm)
 Weight: 1.6 lbs (0.8 kg)
 Din-Rail: 35 mm

Electrical

Redundant Input Voltage: 10-30 VDC
 Input Current: 260 mA @ 24 VDC
 BTU/hr: 21.3 @ 24 VDC
 Inrush: 8.5 amp/0.7ms @24 VDC

Environmental

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

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

Shock and Vibration (bulkhead mounted)

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

Reliability

MTBF: >2 Million Hours

Serial Configuration Port

Com Parameters: 9600,n,8,1

Network Media

10BaseT: \geq Cat3 Cable
 100BaseTX: \geq Cat5 Cable
 100BaseFX:
 Multimode: 50-62.5/125 μ m
 Singlemode: 7-10/125 μ m

Connectors

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

Recommended Wiring Clearance

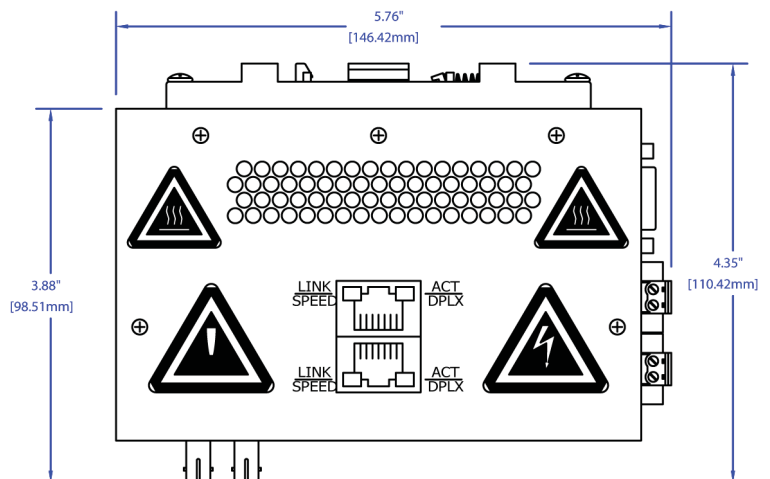
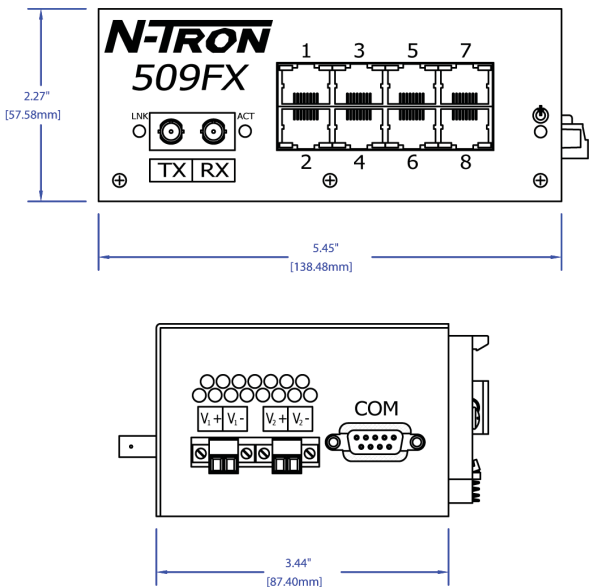
Front: 4" (10.2 cm)
 Side: 1" (2.6 cm)

Regulatory Approvals

FCC/CE (CFR 47, Part 15, Subpart B, Class A); ICES-003
 EMC Dir 89/336/EEC, EN 50204, EN 55011
 EN61000-4-2, 3, 4, 5, 6, 8, 11, EN61000-6-2, 4
 ANSI C63.4
 UL /cUL: Class I, Div 2, Groups A, B, C, D and T4
 UL 508 and UL 1604
 CAN/CSA-C22.2 No.213, ATEX II 3 G Ex nA
 IEEE 1613 for Electric Utility Substations
 ABS Type Approval for Shipboard Applications
 GOST-R Certified, RoHS Compliant

Designed to comply with:

NEMA TS1/TS2 for Traffic Control



ORDERING INFORMATION

| PART NUMBER | DESCRIPTION |
|----------------------|--|
| 509FX-A-XX | 9-port (8 10/100BaseTX, 1 100BaseFX Fiber Uplink, Multimode) Industrial Ethernet Switch, DIN-Rail with Advanced Management Features (includes N-View) |
| 509FXE-A-XX-YY | 9-port (8 10/100BaseTX, 1 100BaseFX Fiber Uplink, Singlemode) Industrial Ethernet Switch, DIN-Rail with Advanced Management Features (includes N-View) |
| 509FX-N-XX | 9-port (8 10/100BaseTX, 1 100BaseFX Fiber Uplink, Multimode) Industrial Ethernet Switch, DIN-Rail with N-View OPC switch monitoring |
| 509FXE-N-XX-YY | 9-port (8 10/100BaseTX, 1 100BaseFX Fiber Uplink, Singlemode) Industrial Ethernet Switch, DIN-Rail with N-View OPC switch monitoring |
| 509FX-XX | 9-port (8 10/100BaseTX, 1 100BaseFX Fiber Uplink, Multimode) Industrial Ethernet Switch, DIN-Rail |
| 509FXE-XX-YY | 9-port (8 10/100BaseTX, 1 100BaseFX Fiber Uplink, Singlemode) Industrial Ethernet Switch, DIN-Rail |
| NTPS-24-1.3 | N-Tron Power Supply (1.3 amp @ 24 VDC) |
| 900-PM | Panel Mount Kit - converts switch from DIN-rail to panel mount. |
| URMK | Universal Rack Mount Kit |
| 500-UTA89 | Metal DIN-Rail Clip |

Where:

- A = Advanced Management Features (includes N-View)
- N = N-View OPC Switch Monitoring
- 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