## 509FX-A Industrial Ethernet Switch <br> N-Tron Networking Series

## - $1>$ 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
- $-40^{\circ} \mathrm{C}$ to $85^{\circ} \mathrm{C}$ Operating Temperature
- Auto Sensing 10/100BaseTX, Duplex, and MDIX
- Store-and-Forward Technology
- Up to $1.8 \mathrm{~Gb} / \mathrm{s}$ MaximumThroughput
- 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 ${ }^{\text {m }}$ (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 2 M 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 $200 \mathrm{Mb} /$ 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 trunkingcapable 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.

Specifications

## Switch Properties

Number of MAC Addresses:
Aging Time:
Latency Typical:
Switching Method:
Case Dimensions
Height:
Width:
Depth:
Weight:
Din-Rail:
Electrical
Redundant Input Voltage: Input Current:
BTU/hr:
Inrush:
Environmental
Operating Temperature:
Storage Temperature:
Operating Humidity: Operating Altitude:

4,000
300s, Programmable (-A option)
$2.1 \mu \mathrm{~s}$
Store \& Forward
$2.3^{\prime \prime}(5.8 \mathrm{~cm})$
5.5 " ( 13.9 cm )
3.5 " $(8.9 \mathrm{~cm})$
$1.6 \mathrm{lbs}(0.8 \mathrm{~kg})$
35 mm

10-30 VDC
260 mA @ 24 VDC
21.3 @ 24 VDC
$8.5 \mathrm{amp} / 0.7 \mathrm{~ms}$ @24 VDC
$-40^{\circ} \mathrm{C}$ to $85^{\circ} \mathrm{C}$
$-40^{\circ} \mathrm{C}$ to $85^{\circ} \mathrm{C}$
10\% to 95\% (Non Condensing) 0 to 10,000 ft.

Fiber Transceiver Characteristics

| Fiber Length | $2 \mathrm{~km}^{*}$ | $15 \mathrm{~km}^{* *}$ | $40 \mathrm{~km}{ }^{* *}$ | $80 \mathrm{~km}{ }^{* *}$ |
| :--- | :---: | :---: | :---: | :---: |
| TX Power Min | -19 dBm | -15 dBm | $-5 d \mathrm{Bm}$ | -5 dBm |
| RX Sensitivity Max | -31 dBm | -31 dBm | -34 dBm | -34 dBm |
| Wavelength | 1310 nm | 1310 nm | 1310 nm | 1550 nm |
| $* *$ Multimode Fiber Optic Cable |  |  |  |  |
| Singlemode Fiber Optic Cable |  |  |  |  |



Shock and Vibration (bulkhead mounted)
Shock: $\quad 200 \mathrm{~g}$ @ 10ms
Vibration/Seismic: $\quad 50 \mathrm{~g}, 5-200 \mathrm{~Hz}$, Triaxial
Reliability
MTBF: $\quad>2$ Million Hours
Serial Configuration Port
Com Parameters: $\quad 9600, \mathrm{n}, 8,1$
Network Media

| 10BaseT: | $\geq$ Cat3 Cable |
| :--- | :--- |
| 100BaseTX: | $\geq$ Cat5 Cable |
| 100BaseFX: |  |
| Multimode: | $50-62.5 / 125 \mu \mathrm{~m}$ |
| Singlemode: | $7-10 / 125 \mu \mathrm{~m}$ |

Connectors
10/100BaseTX: Eight (8) RJ-45 Copper Ports
100BaseFX: One (1) SC or ST Duplex Port
Recommended Wiring Clearance
$\begin{array}{ll}\text { Front: } & 4^{\prime \prime}(10.2 \mathrm{~cm}) \\ \text { Side: } & 1^{\prime \prime}(2.6 \mathrm{~cm})\end{array}$

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 $\qquad$ 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 $\qquad$ 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 $\qquad$ 9-port (8 10/100BaseTX, 1 100BaseFX Fiber Uplink, Singlemode) Industrial Ethernet Switch, DIN-Rail I with $N$-View OPC switch monitoring
509FX-XX $\qquad$ 9-port (8 10/100BaseTX, 1 100BaseFX Fiber Uplink, Multimode) Industrial Ethernet Switch, DIN-Rail
509FXE-XX-YY. $\qquad$ 9-port (8 10/100BaseTX, 1 100BaseFX Fiber Uplink, Singlemode) Industrial Ethernet Switch, DIN-Rail
NTPS-24-1.3 $\qquad$ N-Tron Power Supply (1.3 amp @ 24 VDC)
900-PM $\qquad$ Panel Mount Kit - converts switch from DIN-rail to panel mount.

URMK $\qquad$ Universal Rack Mount Kit

500-UTA89 $\qquad$ Metal DIN-Rail Clip

Where: $\quad \mathrm{A}=$ 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 15 km max. fiber segment length
40 for 40 km max. fiber segment length
80 for 80 km max. fiber segment length

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 Africa europe@redlion.netAs the global experts in communication, monitoring and control for industrial automation and networking, Red Lion has been delivering innovative solutions for over forty years. Our award-winning technology enables companies worldwide to gain real-time data visibility that drives productivity. Product brands include Red Lion, N -Tron and Sixnet. With headquarters in York, Pennsylvania, the company has offices across the Americas, Asia-Pacific and Europe. For more information, please visit www.redlion.net. Red Lion is a Spectris company.

