N-TRON
THE INDUSTRIAL NETWORK COMPANY

106FX2

The *N-TRON® 106FX2* is a low cost, unmanaged six port Industrial Ethernet Switch. It is housed in a hardened, metal, DIN-Rail enclosure, and is designed for use in industrial data acquisition, control, and Ethernet I/O applications.

PRODUCT FEATURES

- Compact Size, Small Footprint
- Unmanaged Operation
- Full IEEE 802.3 Compliance
- Four 10/100BaseTX RJ-45 Ports
- Two 100BaseFX Ports with ST or SC Connectors
- Extended Environmental Specifications
    - -40ºC to 70ºC Operating Temperature
    - >2M Hours MTBF
- RJ-45 Ports Support Full/Half Duplex Operation
- Auto Sensing Duplex, Speed, and MDIX (RJ-45)
- Up to 1.2 Gb/s Maximum Throughput
- Store-and-forward Technology
- LED Link/Activity Status Indication
- Redundant Power Inputs (10-30 VDC)
- Hardened Metal DIN-Rail Enclosure

PRODUCT OVERVIEW

The *106FX2* Industrial Network Switch is designed to solve the most demanding industrial communications requirements while providing high throughput and minimum downtime.

The *106FX2* provides four RJ-45 auto sensing 10/100BaseTX ports, plus two fiber based Fast Ethernet uplink ports. All TX ports are full/half duplex capable, using "state of the art" Ethernet switching technology. The *106FX2* auto-negotiates the speed and flow control capabilities of the four TX port connections, and configures itself automatically. The two fiber ports are 100BaseFX fiber optic uplinks utilizing industry standard ST or SC duplex connectors.

Since the TX ports of the *106FX2* are auto sensing, there will be no need to make extensive wiring changes if upgrades are made to the host computers, plant systems, or Ethernet I/O modules. The switching fabric simply scales up or down automatically to match your specific network environment.

The *N-TRON 106FX2* is an ideal candidate for upgrading existing hubs and repeaters to increase bandwidth and determinism by virtually eliminating network collisions. The product also keeps the network affordable, while maintaining the plug & play simplicity of a unmanaged hub. The *106FX2* can simplify plant wiring by eliminating the need to bring data acquisition and control network connections back to a climate controlled environment.

The *106FX2* has extended operating environmental specifications to meet the harsh needs of the industrial environment. For cost savings and convenience the *106FX2* can be DIN-Rail mounted alongside Ethernet I/O or other industrial equipment. The unique compact size provides a small footprint, conserving space in the most critical dimension.

To increase reliability, the *106FX2* contains redundant power inputs. LEDs are provided to display the link status and activity of each port, as well as power on/ off status.

SPECIFICATIONS

Case Dimensions
Height:	3.5"	(8.9 cm)
Width:	1.50"	(3.8 cm)
Depth:	3.6"	(9.0 cm)
Weight:	0.60 lbs.	(0.27 kg)
DIN-Rail:	35mm	

Electrical
Input Voltage:	10-30 VDC
Input Current:	330mA@24V
Inrush:	7.9Amp/0.7ms@24V

Environmental
Operating Temperature:	-40°C to 70°C
Storage Temperature:	-40°C to 85°C
Operating Humidity:	10% to 95% (Non Condensing)
Operating Altitude:	0 to 10,000 ft.

Network Media
10BaseT:	>Cat3 Cable
100BaseTX:	>Cat5 Cable
100BaseFX:	
	Multimode: 50-62.5/125µm
	Singlemode: 7-10/125µm

Connectors
10/100BaseTX:	Four (1) RJ-45 TX Ports
100BaseFX:	Two (2) ST or SC Duplex Ports

Recommended Wiring Clearance
Front:	5"	(12.7 cm)
Top:	1"	(2.54 cm)

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

BENEFITS

Industrial Network Switch
- Compact Size, Small Footprint
- Extended Environmental Specifications
- High Reliability/Availability
- Extended Environmental Specifications
- Hardened Metal DIN-Rail Enclosure
- High Performance
- High MTBF >2M Hours (measured)

Ease of Use
- Plug & Play Operation
- Four Auto Sensing 10/100BaseTX RJ-45 Ports
- RJ-45 Ports Auto Sense Duplex, Speed, and Cable Type
- Compact DIN-Rail Package

Increased Performance
- Full Wire Speed Capable
- Two 100BaseFX Fiber Uplinks
- Full Duplex Capable
- Eliminates Network Collisions
- Increases Network Determinism

Regulatory Approvals
FCC Title 47 Part 15 Class A, ICES-003-Class A,
CE: EN61000-6-2, EN61000-3-2,3; IEC61000-4-2,3,4,5,6,11
EN55011
UL/cUL: Hazardous and Non-Hazardous Locations
Class I Div 2, Groups A, B, C, D , T4A and
ANSI/ISA 12.12.01-2000

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

Ordering Information
106FX2-XX	100BaseFX multimode fiber
106FXE2-XX-YY	100BaseFX singlemode fiber
NTPS-24-1.3	DIN-Rail Power Supply 24V@1.3 Amp
100-MDR-2	Metal Din Rail Option - Tall Enclosures

Note: MDR option is not field upgradable and must be specified with switch order

Where "XX" is:	ST for ST style fiber connector
	SC for SC style fiber connector
Where "YY" is:	15 for 15km max. fiber segment length
	40 for 40km max. fiber segment length
	80 for 80km max. fiber segment length

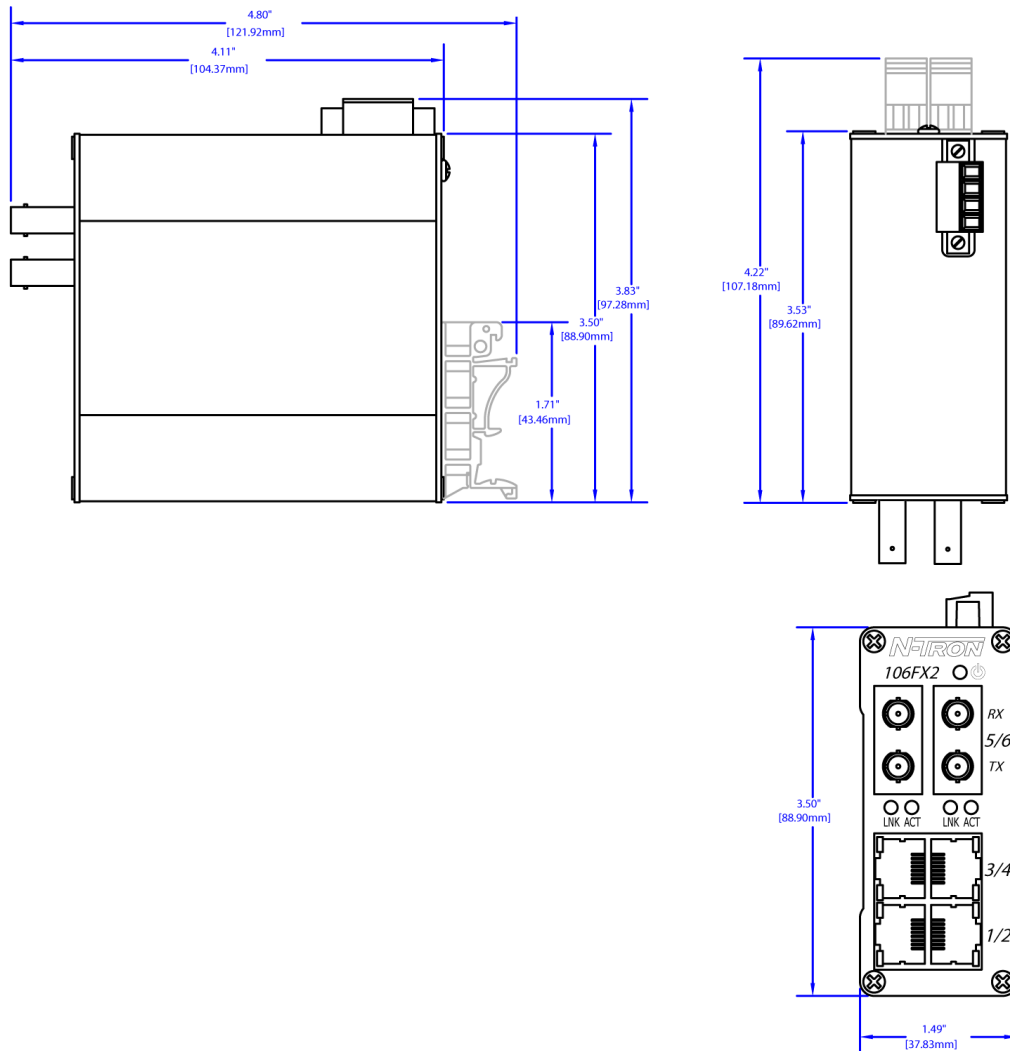## Contact Information

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106FX2 with Standard DIN rail Mount

4.80"
[121.92mm]

4.11"
[104.37mm]

3.83"
[97.28mm]

3.50"
[88.90mm]

1.71"
[43.46mm]

4.22"
[107.18mm]

3.53"
[89.62mm]

106FX2

RX
5/6
TX

LNK ACT   LNK ACT

3/4

1/2

3.50"
[88.90mm]

1.49"
[37.83mm]

Optional 100-MDR-2 Metal DIN Rail Mount

3.500
[88.90mm]

3.803
[96.58mm]

0.262
[6.67mm]

1.833
[46.56mm]

0.900
[22.86mm]