7012FX2 Industrial Ethernet Switch

N-Tron Networking Series

▶▶▶ Managed Industrial Ethernet Switch



PRODUCT FEATURES

- Eight 10/100BaseTX RJ-45 ports
- Two 100BaseFX ports, ST or SC style
- Two SFP gigabit ports
- -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 (10-49VDC)

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
- N-View™ OPC monitoring
- RSTP - IEEE 802.1D
- 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 and port mirroring
- 802.1d, 802.1w, 802.1D RSTP
- DHCP server, option 82 relay, option 61, IP fallback
- Local port IP addressing
- Port security—MAC address-based

BUILT FOR EXTREME CONDITIONS

The compact N-TRON® 7012FX2 fully-managed industrial Ethernet switch is ideal for industrial and utility applications that demand extreme performance under harsh conditions. Housed in a rugged industrial metal enclosure, the switch offers a powerful combination of eight 10/100BaseTX copper ports, two 100Base fiber ports, two SFP gigabit ports, and redundant power inputs for robust network support. The device boasts exceptional MTBF and extended tolerances to shock, vibration, temperature fluctuations and noise—common elements in factory floor control networks, utilities, wastewater treatment, wind turbines, rail car, intelligent traffic control and transportation applications.

ADVANCED RING TECHNOLOGY

Advanced N-Ring technology provides expanded capacity, detailed fault diagnostics, and fast ~30ms healing time for N-TRON-based rings. The integrity of the ring is continually checked by sending heart beat packets around the network. If an error is detected, the ring converts to a linear topology within ~30ms and communication is immediately restored. A detailed ring map and fault location chart may be accessed by the ring manager's web browser or the OPC server. Each N-Ring accommodates up to 250 fully-managed N-TRON switches. To establish redundancy, N-Link technology easily connects multiple N-Rings, creating additional pathways to critical applications and increasing overall resiliency.

MONITORING OPTIONS

N-TRON provides multiple tools to monitor the 7012FX2. The robust web-based interface provides a convenient dashboard to view and configure switch options, as well as monitor network traffic, alarms, and trend information. For tightly controlled environments, N-View OPC server software easily combines with HMI control and monitoring applications to form a complete surveillance solution for N-View-enabled switches. The iSNMP Software Suite is also available for link and status monitoring. For local monitoring, each switch features configurable LEDs to indicate power failure and N-Ring status.

EASY TO USE

The 7012FX2 features auto-sensing and auto-configuring 10/100BaseTX ports. Each copper port automatically negotiates for maximum speed and performance but can be hardcoded through the user interface. A high-speed processor allows wire speed capability on all ports simultaneously.

industrial networking

▶▶▶ 7012FX2 Specifications

SPECIFICATIONS

Switch Properties
Number of MAC Addresses: 8000
Aging Time: Configurable
Latency (typical): 2.6 µs
Switching Method: Store-and-Forward

Case Dimensions
Height: 4.3" (10.8 cm)
Width: 3.1" (7.9 cm)
Depth: 4.6" (11.5 cm)
Weight (maximum): 1.4 lbs (0.64 kg)
DIN-Rail Mount: 35mm

Electrical
Redundant Input Voltage: 10-49VDC (regulated)
Input Current (max): 525mA@24VDC
BTU/hr: 44@24VDC
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
1000BaseT: ≥Cat5e cable

Connectors
10/100BaseTX: Eight (8) RJ-45 copper ports
100BaseFX: Two (2) SC or ST fiber duplex ports
1000BaseT: Up to two (2) RJ-45 gigabit copper ports
1000BaseSX: Up to two (2) LC duplex gigabit fiber ports

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

100 mb 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

SFP Gigabit Fiber Transceiver Characteristics

Fiber Length	550m for 50/125µm 275m @62.5/125µm*	10km**	40km**	80km**
TX Power Min	-9.5dBm	-9.5dBm	-2dBm	0dBm
RX Sensitivity Max	-17dBm	-20dBm	-22dBm	-24dBm
Wavelength	850nm	1310nm	1310nm	1550nm
Assumed Fiber Loss	-3.5 to 3.75 dB/km	-0.45dB/km	-0.35dB/km	-0.25dB/km

* SX Fiber Optic Cable
** LX Fiber Optic Cable

Designed to comply with
- IEEE 1613 for electric utility substations
- NEMA TS1/ TS2 for traffic control

Regulatory Certifications
Certificate
POCC
US.AB28.B06519

FCC Part 15
Class A

UL Listed
Class I, Div 2
Groups A/B/C/D
E214222

Industry Canada
ICES-003 Issue 3

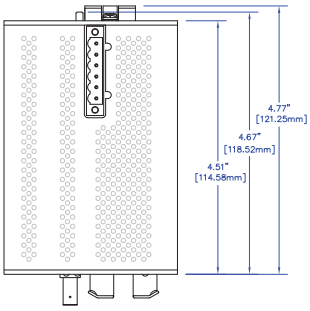
RoHS compliant

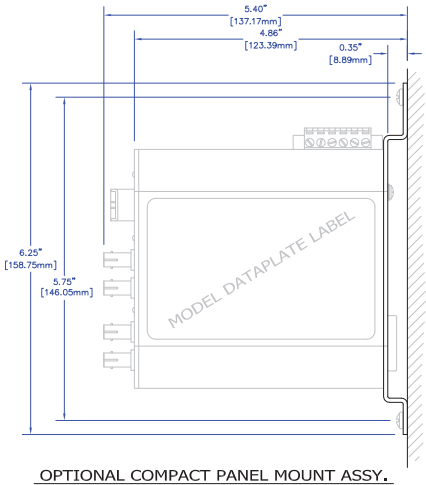
EtherNet/IP™

ORDERING INFORMATION

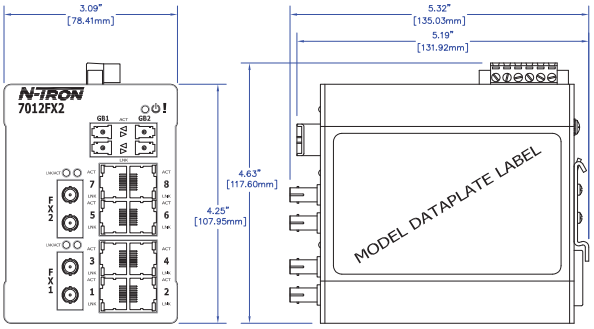
PART NUMBER	DESCRIPTION
7012FX2-XX	12-port (8 10/100BaseTX, 2 100BaseFX Fiber, and 2 SFP Mini-GBIC Gigabit Fiber Expansion Ports) switch
7012FXE2-XX-YY	12-port (8 10/100BaseTX, 2 100BaseFX Fiber, and 2 SFP Mini-GBIC Gigabit Fiber Expansion Ports) switch
NTSFP-TX	Optional SFP (mini-GBIC) transceiver with one 1000BaseT GB copper port
NTSFP-SX	Optional SFP (mini-GBIC) transceiver with one 1000BaseSX multimode GB fiber optic port
NTSFP-LX-ZZ	Optional SFP (mini-GBIC) transceiver with one 1000BaseLX singlemode GB fiber optic port
NTCD128	Optional configuration card for backup/restore
NTPS-24-1.3	N-TRON DIN-rail power supply (1.3 amp@24VDC)
CPMA-2	Compact panel mount (factory installed option)
URMK	Universal rack mount kit

Where: XX = ST or SC connector
YY = 15, 40, or 80 for singlemode, blank for multimode
ZZ = 10, 40, or 80 for GB singlemode (If SFP transceiver is not specified at the time of purchase, slots will remain blank with covers)
E = Singlemode





OPTIONAL COMPACT PANEL MOUNT ASSY.
(P/N: CPMA-2)



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