716TX Industrial Ethernet Switch

N-Tron Networking Series

red lion®

▶▶▶ Managed Industrial Ethernet Switch

The fully-managed N-TRON® 716TX Industrial Ethernet switch combines outstanding performance and ease of use. It ideal for connecting Ethernet-enabled industrial and/or security equipment.

PRODUCT FEATURES

- Sixteen 10/100BaseTX RJ-45 Ports
- -40ºC to 70ºC Operating Temperature
- 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 (10-30 VDC)
- Configurable Alarm Contact & Bi-Color Fault Status LED

FULLY MANAGED FEATURES

- SNMP v1, v2, v3 and Web Browser Management
- Detailed Ring Map and Fault Location Charting
- N-Ring™ Technology with ~30ms Healing
- N-View™ OPC Monitoring
- N-Link™ Redundant N-Ring Coupling
- Plug-and-Play IGMP Support
- 802.1Q tag VLAN and Port VLAN; 802.1p QoS and Port QoS; 802.1d, 802.1w, 802.1D RSTP
- EtherNet/IP™ CIP Messaging
- LLDP (Link Layer Discovery Protocol)
- Trunking and Port Mirroring
- DHCP Server, Option 82 Relay, Option 61, IP Fallback
- Port Security—MAC Address Based

IGMP (Internet Group Management Protocol) Snooping - intelligent forwarding and filtering of multicast traffic.

VLAN (Virtual Local Area Network) - enables switch segmentation; allows creation of two or more separate local area network domains.

QoS (Quality of Service) - prioritizes network traffic and improves latency of prioritized Ethernet packets required for ring management, real-time, and other interactive applications.

Trunking (link aggregation) - enables multiple physical ports to be linked together and function as one uplink to another identically configured N-TRON switch; increases bandwidth and redundancy to applications requiring high levels of fault tolerant operation.

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

DHCP (DHCP Server / Client) - automates the assignment of IP addresses; Option 82 assures that a replacement device on a specific port receives the same IP address as the original.

RSTP (Rapid Spanning Tree Protocol) - allows configuration in a ring or mesh topology; provides support for redundant path communications with high-speed (rapid) healing.

Remote Monitoring Options

For ease of configuration and monitoring, the 716TX offers web browser management and N-View OLE for process control (OPC) server software. The N-TRON N-View software can be combined with popular HMI software packages to add network traffic monitoring, trending, and alarming to any application using N-TRON switches. In addition, SNMP is available for switch link and status monitoring. The alarm contact and status LED can be configured to respond to power failure on power input 1 or input 2, N-Ring broken, partial break high, partial break low, or if multiple ring managers are detected.

N-Ring Technology

N-TRON's 716TX ring manager using the company's N-Ring technology offers expanded ring size capacity, detailed fault diagnostics, and a standard healing time of ~30ms. The 716TX ring manager periodically checks the health of the ring via packets. If the ring manager stops receiving these health check packets, it converts the ring to a linear topology within ~30ms. When all switches in the ring are N-TRON fully managed switches, a detailed ring map and fault location chart will also be provided on the ring manager's web browser and OPC server to identfy the health status of the ring. N-Link allows the linking of two N-Ring. Up to 250 fully managed N-TRON switches can participate in N-Ring topologies.

Industrial Packaging and Specifications

The 716TX is designed to operate in industrial environments. It is housed in a rugged steel DIN-Rail enclosure. It has extended industrial specifications and features to meet or exceed the operating parameters of connected equipment. These include extended temperature ratings, extended shock and vibration specs, redundant power inputs, and high MTBF (greater than 2M hours).

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 enables wire speed on all 100BaseTX ports simultaneously.

industrial networking

Specifications

Switch Properties

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

Case Dimensions

Height:	2.3"	(5.8 cm)
Width:	8.3"	(21.0 cm)
Depth:	4.8"	(12.1 cm)
Weight (max):	3.3 lbs	(1.5 kg)
DIN-Rail Mount:	35mm	

Electrical

Redundant Input Voltage:	10-30 VDC (Regulated)
Input Current (max):	620mA max. @ 24 VDC
BTU/hr:	50.8@24 VDC
N-TRON Power Supply:	NTPS-24-1.3 (1.3A@24V)

Environmental

Operating Temperature:	-40ºC to 70ºC
Storage Temperature:	-40ºC to 85ºC
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:	Sixteen (16) RJ-45 Copper Ports

Recommended Wiring Clearance

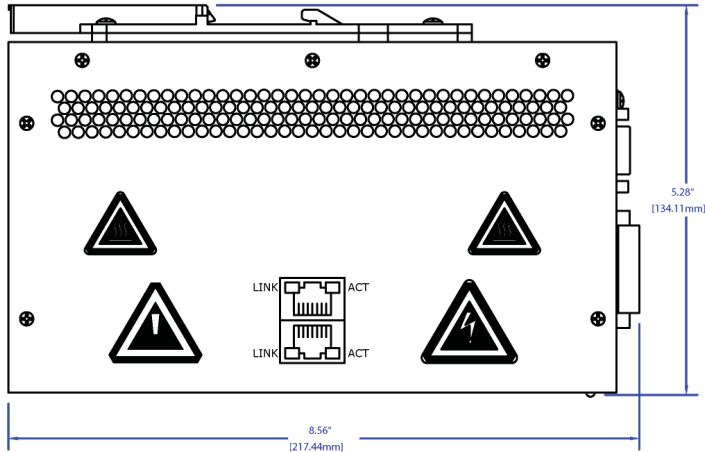|		
Front:	4"	(10.16 cm)
Side:	1"	(2.54 cm)

Regulatory Approvals

FCC Title 47, Part 15, Subpart B - Class A; ICES-003 - Class A
UL Listed (US and Canada) 1604; ANSI/ISA-12.12.01-2007
Class I, Div 2, Groups A, B, C, D, and T4A
CE: EN61000-6-2:2001: EN61000-4-2, 3, 4, 5, 6
EN55011:1998+A1:1999+A2:2002-Class A
EN50155 for Railway applications
GOST-R Certified, RoHS Compliant

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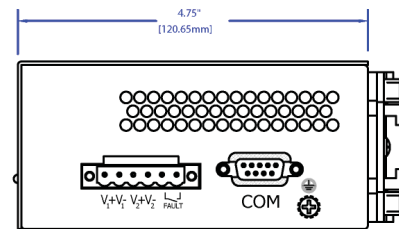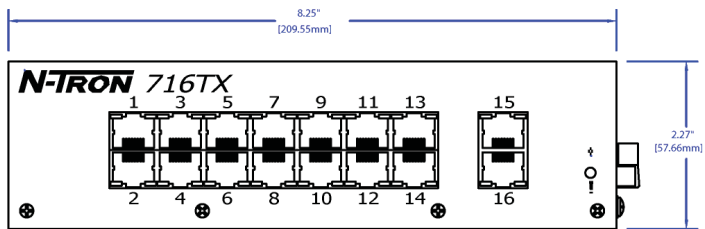NEMA TS1/ TS2 for Traffic control

EtherNet/IP

ORDERING INFORMATION

PART NUMBER	DESCRIPTION
716TX	16-port 10/100BaseTX, Fully Managed Industrial Ethernet Switch
700-PM	Panel Mount kit
URMK	Universal Rack Mount Kit
NTPS-24-1.3	N-TRON Power Supply - (1.3 Amp @ 24 VDC)

5.28"
[134.11mm]

716TX

8.56"
[217.44mm]

8.25"
[209.55mm]

4.75"
[120.65mm]

N-TRON 716TX

1 3 5 7 9 11 13 15

2 4 6 8 10 12 14 16

2.27"
[57.66mm]

LINK ACT
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V₁+V₁- V₂+V₂- FAULT COM

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