

# NT24k<sup>®</sup>-DR16 Modular Industrial Switch

N-Tron<sup>®</sup> Networking Series



## Managed Gigabit Industrial Ethernet Switch

The N-Tron<sup>®</sup> series NT24k<sup>®</sup>-DR16 is a modular managed switch designed for factory automation, utilities, security surveillance, SCADA and other industrial applications.

The Red Lion N-Tron series NT24k-DR16 managed industrial Ethernet switch features connectivity for up to 16 Gigabit ports and offers a wide range of connectivity options—including 100Base, Gigabit, fiber optic and copper options—in a rugged DIN-rail mountable enclosure. Designed to handle the most demanding environments, the NT24k-DR16 delivers wire-speed throughput and includes expanded shock and vibration tolerances, extreme operating temperature range and two slots to accommodate mix-and-match port modules. N-Ring<sup>™</sup> technology restores network communication within ~30ms of fault detection. Robust remote monitoring capabilities make management easy.



### APPLICATIONS

- > Factory Automation
- > Utilities
- > SCADA
- > Security Surveillance
- > Transportation
- > Alternative Energy

### PRODUCT HIGHLIGHTS

- > All Gigabit Modular Design
- > Up to 16 Port Connections
- > High Environmental Specifications
- > N-Ring Advanced Ring Technology
- > Robust Remote Monitoring
- > Smart Plug-and-Play Operation

### IEEE 1588v2 PTP OPTIONS

- Boundary Clock
  - Transparent Clock
- IEEE 1588v2 applications include
- Coordinated motion control
  - Time-stamped data logging
  - Time-stamped fault detection

**PTP Models & Upgrade Kit Available**

### FEATURES & BENEFITS

- > Supports up to two of the following port modules:
  - 8-port 10/100/1000BaseT(X) module
  - 8-port 100Base fiber module
  - 8-port 1000Base fiber module
  - 8-port Gigabit SFP module
  - 8-port dual mode SFP module (100Base or 1000Base SFP transceivers)
- > -40° C to 75° C operating temperature
- > Power input selections:
  - Low Voltage: 18-49 VDC
  - High Voltage: 90-264 VAC or 90-300 VDC
- > Onboard temperature sensor
- > ESD and surge protection diodes on all copper ports
- > Auto-sensing 10/100/1000BaseT(X), duplex and MDIX
- > USB configuration port
- > Configurable alarm contact
- > Optional backup/restore configuration device
- > Fully managed features include:
  - SSH/SSL/HTTPS
  - SNMP v1, v2, v3
  - Web browser management
  - Detailed ring map and fault location charting
  - RSTP - 802.1d, 802.1w, 802.1D
  - Trunking and port mirroring
  - 802.1Q tag VLAN and port VLAN
  - IEEE 802.1x with RADIUS remote server authentication
  - DHCP Server, Option 82 relay, Option 61, IP fallback
  - Port Security – MAC address based
  - 802.1p QoS, port QoS and DSCP
  - Event Log/Syslog
  - SNTP (Simple Network Time Protocol)
  - IEEE 1588v2 (PTP) models available
  - Multi-Member N-Ring technology with ~30ms healing
  - N-Link<sup>™</sup> redundant ring technology
  - N-View<sup>™</sup> monitoring technology
  - EtherNet/IP<sup>™</sup> CIP<sup>™</sup> messaging

industrial  
networking



EtherNet/IP<sup>®</sup>

# Managed Gigabit Industrial Ethernet Switch Specifications

## SWITCH PROPERTIES

Number of MAC Addresses: 16K  
 IEEE 1588v2 Software-Based Option  
 Aging Time: Programmable  
 Latency (typical): 1.6 µs  
 Switching Method: Store & Forward  
 MTBF: >1 million hours  
 Jumbo Frame Support

## POWER INPUT OPTIONS

Select one:  
 Low Voltage: 18-49 VDC  
 High Voltage: 90-264 VAC or 90-300 VDC  
 Input Current (max): 1.52A @ 24VDC  
 Input Current (max): 580mA @120 VAC/300mA @ 124VDC  
 BTU/hr: 125 @ 24VDC  
 BTU/hr: 268 @ 120VAC/127 @ 124VDC

## CONNECTORS

10/100/1000BaseT(X): Up to sixteen (16) RJ45 copper ports  
 100BaseFX: Up to sixteen (16) SC or ST fiber ports  
 1000BaseGX: Up to sixteen (16) SC fiber ports  
 100BaseSX/LX SFP: Up to sixteen (16) LC fiber ports  
 1000BaseSX/LX SFP: Up to sixteen (16) LC fiber ports

## RELIABILITY

MTBF: >1 million hours

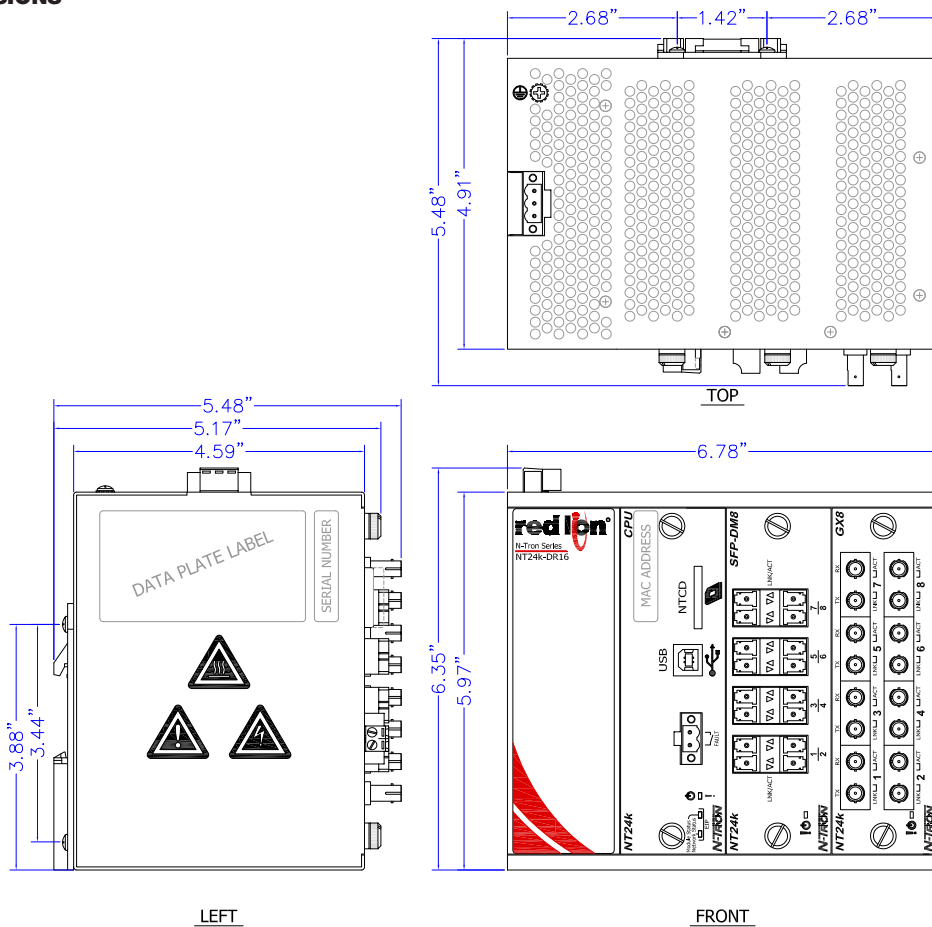
## NETWORK MEDIA

10BaseT: ≥Cat3 cable  
 100BaseTX: ≥Cat5 cable  
 1000BaseT: ≥Cat5 cable  
 100BaseFX, 1000BaseSX Multimode: 50-62.5/125µm  
 100BaseFX, 1000BaseLX Singlemode: 7-10/125µm

## RECOMMENDED WIRING CLEARANCE

Front and Top: 4" (10.2 cm)

## DIMENSIONS



## CERTIFICATION & COMPLIANCE

Product Safety:  
 ANSI/ISA 12.12.01-2013 Class I and II, Div. 2 and Class III, Div. 1 and 2, Groups A, B, C and D Hazardous Locations  
 UL508 Industrial Control Equipment  
 CAN/CSA-C22.2 No. 213-M1987 Class I Div. 2 Hazardous Locations  
 CAN/CSA-C22.2 No. 14-M1987 Industrial Control Equipment  
 Emissions:  
 FCC Title 47, Part 15, Radio Frequency Devices, Subpart B ANSI C63.4-2009; Industry Canada ICES-003, EN 55011; EN 61000-6-4, EN 61000-3-2, EN61000-3-3, EN 55032  
 Immunity:  
 EN 55024, EN 61000-6-2; IEC 61000-4-2 (ESD); IEC 61000-4-3 (RFAM); IEC 61000-4-4 (EFT); IEC 61000-4-5 (SURGE); IEC 61000-4-6 (RFCM); IEC 61000-4-8 (PFMF); IEC 61000-4-11 (VDI)  
 Other:  
 ABS Type Approval for Shipboard Applications; EMC Directive 2014/30/EU; LV Directive 2014/35/EU GOST-R, RoHS Compliant

## ENVIRONMENTAL

Operating Temperature: -40° C to 75° C  
 Operating Humidity: 5% to 95% (Non Condensing)  
 Operating Altitude: 0 to 10,000 ft.  
 Shock: 50g @ 10ms  
 Vibration/Seismic: 30g, 10-200 Hz, triaxial

## MECHANICAL

Case Dimensions  
 Height: 5.97" (15.20 cm)  
 Width: 6.78" (17.22 cm)  
 Depth: 4.59" (11.65 cm)  
 Weight (maximum): 6.4 lbs (2.9 kg)  
 Mount: DIN rail

# Managed Gigabit Industrial Ethernet Switch Specifications

## NT24K-FX8 MODULE - 100 MB FIBER TRANSCEIVER CHARACTERISTICS

Fiber Mode	MM	SM	SM	SM
Fiber Length*	2km	15km	40km	80km
TX Power Min	-19 dBm	-15 dBm	-5 dBm	-5 dBm
RX Sensitivity Max	-31 dBm	-31 dBm	-34 dBm	-34 dBm
Wavelength	1310 nm	1310 nm	1310 nm	1550 nm

## NT24K-GX8 MODULE - GIGABIT FIBER TRANSCEIVER CHARACTERISTICS

Fiber Mode	MM	SM	SM	SM
Fiber Length*	550m @ 50/125µm 300m @ 62.5/125µm	10km	40km	80km
TX Power Min	-9.5 dBm	-9.5 dBm	-5 dBm	0 dBm
RX Sensitivity Max	-17 dBm	-20 dBm	-23 dBm	-24 dBm
Wavelength	850 nm	1310 nm	1310 nm	1550 nm
Laser Type	VCSEL	FP	DFB	DFB

## NT24K-SFP-DM8 MODULE - SFP 100BASE FIBER TRANSCEIVER CHARACTERISTICS

Fiber Mode	MM	SM	SM	SM
Fiber Length*	2km	15km	40km	80km
TX Power Min	-19 dBm	-15 dBm	-5 dBm	-5 dBm
RX Sensitivity Max	-31 dBm	-34 dBm	-34 dBm	-34 dBm
Wavelength	1310 nm	1310 nm	1310 nm	1550 nm
Laser Type	FP	FP	FP	DFB

## NT24K-SFP-DM8 OR NT24K-SFP8 MODULES- SFP GIGABIT FIBER TRANSCEIVER CHARACTERISTICS

Fiber Mode	MM	SM	SM	SM
Fiber Length*	550m @ 50/125µm 275m @ 62.5/125µm	10km	40km	80km
TX Power Min	-9.5 dBm	-9.5 dBm	-2 dBm	0 dBm
RX Sensitivity Max	-17 dBm	-20 dBm	-22 dBm	-24 dBm
Wavelength	850 nm	1310 nm	1310 nm	1550 nm
Laser Type	VCSEL	FP	DFB	DFB

\* Fiber Length distances represent typical performance.  
Link budgets should be evaluated based on specific application conditions.

## ORDERING GUIDE

PART NUMBER	DESCRIPTION
NT24K-DR16-DC	Managed Industrial Ethernet Switch; modular DIN rail design with 2 expansion slots; redundant 18-49VDC power input
NT24K-DR16-DC-PT	Managed Industrial Ethernet Switch; modular DIN rail design with 2 expansion slots; redundant 18-49VDC power input PTP Enabled
NT24K-DR16-AC	Managed Industrial Ethernet Switch; modular DIN rail design with 2 expansion slots; 90-264VAC / 90-300VDC power inputs
NT24K-DR16-AC-PT	Managed Industrial Ethernet Switch; modular DIN rail design with 2 expansion slots; 90-264VAC / 90-300VDC power inputs PTP Enabled
NT24K-FP	Filler panel (required to fill vacant module slots)
NTCD-CFG	Configuration recovery device
NTPC-AC-US	AC power cord
NTPS-24-3	DIN rail power supply 3.0 Amp@24 VDC
NT24K-DR-PMK	NT24k DR panel mount kit
NT24K-KIT-PTP	NT24k Upgrade License to Enable IEEE 1588/PTP on Non-PT NT24k Switches

## PORT MODULES & TRANSCEIVERS

NT24K-TX8	8-port 10/100/1000BaseT module
NT24K-FX8-XX	Slide-in module with 8 100BaseFX multimode fiber ports, 2km (SC or ST)
NT24K-FXE8-XX-YY	Slide-in module with 8 100BaseFX singlemode fiber ports (SC or ST)
NT24K-GX8-SC	Slide-in module with 8 1000BaseFX multimode fiber ports, 550m (SC)
NT24K-GXE8-SC-ZZ	Slide-in module with 8 1000BaseFX singlemode fiber ports (SC)
NT24K-SFP8	Slide-in module with 8 SFP expansion slots; supports 1000Base SFP transceivers*
NT24K-SFP-DM8	Slide-in module with 8 dual mode SFP expansion slots; supports 100Base or 1000Base SFP transceivers*
NTSFP-FX	100BaseFX multimode fiber SFP pluggable mini-GBIC transceiver (LC style connector, 2km)**
NTSFP-FXE-YY	100BaseFX singlemode fiber SFP pluggable mini-GBIC transceiver (LC style connector)**
NTSFP-TX	1000BaseT copper SFP pluggable mini-GBIC transceiver
NTSFP-SX	1000BaseSX multimode fiber SFP pluggable mini-GBIC transceiver
NTSFP-LX-ZZ	1000BaseLX singlemode fiber SFP pluggable mini-GBIC transceiver

Where: XX = ST or SC connector (ST not available on some GX modules); YY = 15, 40, or 80 for FX singlemode, blank for multimode; ZZ = 10, 40, or 80 for GX singlemode; \*SFP transceivers sold separately; \*\*For use with SFP DM8 module only



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As 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 automation, Ethernet and cellular M2M 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. Red Lion is part of Spectris plc, the productivity-enhancing instrumentation and controls company. For more information, please visit [www.redlion.net](http://www.redlion.net).

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