

NT24k[®] Modular Industrial Switch

N-Tron[®] Networking Series



Managed Gigabit Industrial Ethernet Switch

The N-Tron[®] series NT24k[®] is a modular managed switch designed for factory automation, utilities, SCADA, security surveillance and other industrial applications.



The Red Lion N-Tron series NT24k managed industrial Ethernet switch features connectivity for up to 24 Gigabit ports and offers a wide range of connectivity options—including 100Base, Gigabit, fiber optic and copper options—in a rugged 1U 19" rackmount enclosure. Designed to handle the most demanding environments, the NT24k delivers wire-speed throughput and includes dual power inputs, expanded shock and vibration tolerances, extreme operating temperature range and three slots to accommodate mix-and-match port modules. N-Ring[™] 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 24 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 three 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 85°C operating temperature
- > Dual power input options:
 - 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 redundant ring technology
 - N-View[™] monitoring technology
 - EtherNet/IP[™] CIP[™] messaging
 - 802.1AB-2005 LLDP (Link Layer Discovery Protocol)



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 μ s
 Switching Method: Store & Forward
 MTBF: >1 million hours
 Jumbo Frame Support

POWER INPUT

Input Voltages:
 Low Voltage: 18-49 VDC
 High Voltage: 90-264 VAC or 90-300 VDC
 Input Current (max): 2.26A @ 24VDC
 Input Current (max): 790mA @120 VAC/450mA @ 124VDC
 BTU/hr: 185 @ 24VDC
 BTU/hr: 365 @ 120VAC/190 @ 124VDC

CONNECTORS

10/100/1000BaseT(X): Up to 24 RJ45 copper ports
 100BaseFX: Up to 24 SC or ST fiber ports
 1000BaseFX: Up to 24 SC fiber ports
 100BaseSX/LX SFP: Up to 24 LC fiber ports
 1000BaseGX SFP: Up to 24 LC fiber ports

RELIABILITY

MTBF: >1 million hours

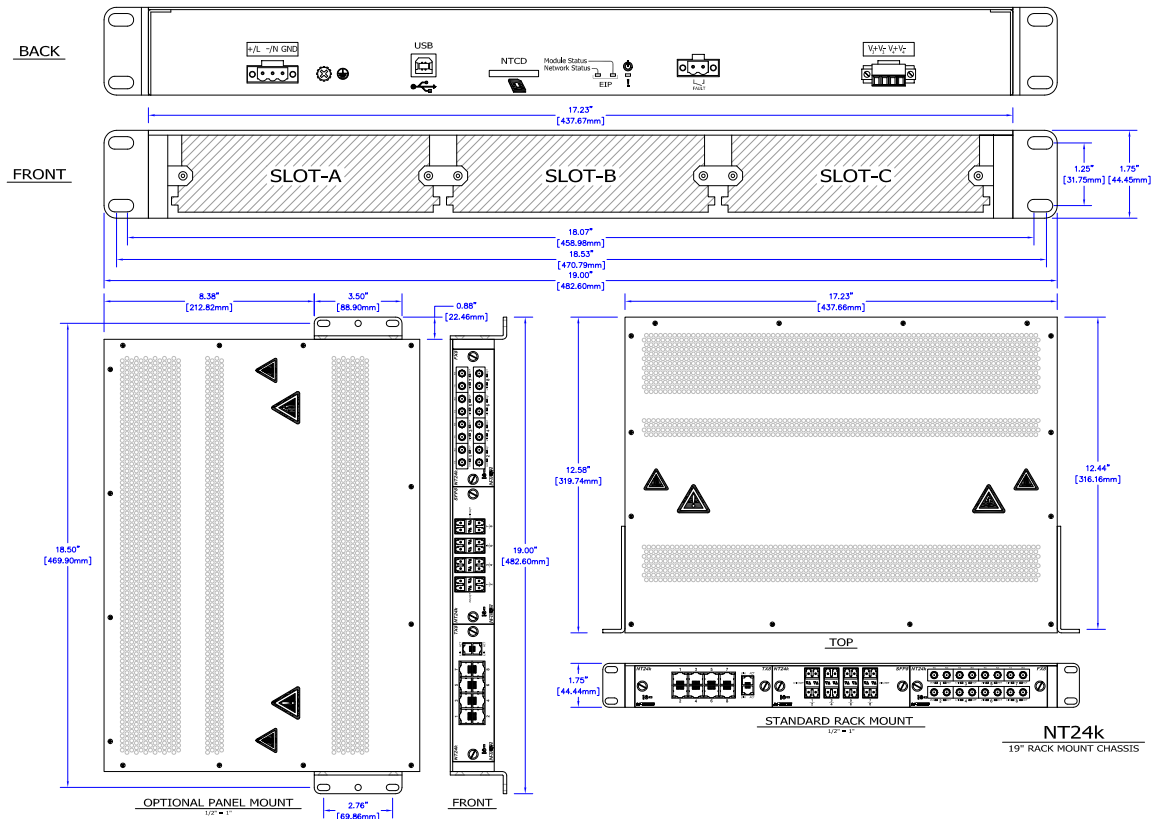
NETWORK MEDIA

10BaseT: \geq Cat3 cable
 100BaseTX: \geq Cat5 cable
 1000BaseT: \geq Cat5 cable
 100BaseFX, 1000BaseSX Multimode: 50-62.5/125 μ m
 100BaseFX, 1000BaseLX Singlemode: 7-10/125 μ m

RECOMMENDED WIRING CLEARANCE

Front and Back: 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, RoHS Compliant

ENVIRONMENTAL

Operating Temperature: -40° C to 85° 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: 1.9" (4.8 cm)
 Width: 17.5" (44.5 cm)
 Depth: 12.7" (32.0 cm)
 Weight (maximum): 12.85 lbs (5.83 kg)
 Mount: Rackmount 1U

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-DC1 | 1U rackmount 3-slot modular Gigabit switch with one redundant 18-49 VDC power input |
| NT24K-DC1-PT | 1U rackmount 3-slot modular Gigabit switch with one redundant 18-49 VDC power input PTP Enabled |
| NT24K-DC2 | 1U rackmount 3-slot modular Gigabit switch with two redundant 18-49 VDC power inputs |
| NT24K-DC2-PT | 1U rackmount 3-slot modular Gigabit switch with two redundant 18-49 VDC power inputs PTP Enabled |
| NT24K-AC1 | 1U rackmount 3-slot modular Gigabit switch with one 90-264 VAC/90-300 VDC power input |
| NT24K-AC1-PT | 1U rackmount 3-slot modular Gigabit switch with one 90-264 VAC/90-300 VDC power input PTP Enabled |
| NT24K-AC2 | 1U rackmount 3-slot modular Gigabit switch with two 90-264 VAC/90-300 VDC power input |
| NT24K-AC2-PT | 1U rackmount 3-slot modular Gigabit switch with two 90-264 VAC/90-300 VDC power input PTP Enabled |
| NT24K-AC1-DC1 | 1U rackmount 3-slot modular Gigabit switch with one each 90-264 VAC/90-300 VDC and 18-49 VDC power inputs |
| NT24K-AC1-DC1-PT | 1U rackmount 3-slot modular Gigabit switch with one each 90-264 VAC/90-300 VDC and 18-49 VDC power inputs PTP Enabled |
| NT24K-FP | Filler panel (required to fill vacant module slots) |
| NT24-PMK | Panel mount kit |
| NTCD-CFG | Configuration recovery device |
| NTPC-AC-US | AC power cord |
| NTPS-24-3 | DIN rail power supply 3.0 Amp@24 VDC |
| 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



For over 50 years, Red Lion has strived to be THE Industrial Data Company™. The company empowers industrial organizations around the world to unlock the value of data by developing and manufacturing innovative solutions to access, connect and visualize their information. Red Lion products make it easy for companies to gain real-time data visibility that drives productivity. Red Lion is part of Spectris plc, the experts in providing insight through precision measurement. For more information, please visit www.redlion.net.

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