

# N-Tron® Series NT24k®-16M12-POE Industrial Ethernet Switch



## Industrial Managed Gigabit PoE+ IP67 Switch

Red Lion's N-Tron® series NT24k®-16M12-POE IP67 managed Gigabit Ethernet switch provides a rugged, dust proof and water resistant enclosure with sixteen 10/100/1000Base-T(X) M12 X-coded ports to create a reliable and secure network capable of delivering up to 30 Watts of power per port to connected PoE capable devices.

The versatile NT24k-16M12-POE managed switch features 16 M12 X-Code Gigabit copper ports and is housed in a dust proof and water resistant IP67-rated enclosure with redundant 22-49 VDC power inputs. Designed to handle the most demanding environments, the NT24k-16M12-POE offers wire-speed throughput, high shock and vibration tolerance and a wide -40° to 80°C operating temperature range. Rugged, reliable and easy to use, the NT24k-16M12-POE switch offers a 240 Watt PoE budget that can be allocated to any of its 16 ports, up to 30 Watts per port. IGMP auto-configuration, IEEE 802.1x with RADIUS remote server authentication and N-Ring™ fast healing ring technology ensure quick deployment and robust secure network communications. The NT24k-16M12-POE is designed to provide reliable operation in railway and other industrial applications subject to shock, vibration and other extreme conditions. Models with bypass relay ports enable data to continue to flow even in the event of a power outage, making this an ideal choice for rail applications.



### APPLICATIONS

- > Rail/Transportation
- > Manufacturing
- > Oil & Gas
- > Alternative Energy
- > Water/Wastewater

### PRODUCT HIGHLIGHTS

- > IEEE 802.3af/at (30 W per port/ 240 W per switch)
- > Secure M12 Copper Ports
- > Smart Plug-and-Play Operation
- > 22 to 49 VDC Redundant Power Inputs
- > -40° to 80°C Wide Operating Temperature
- > Bypass Relay Port Options
- > Robust Remote Monitoring
- > N-Ring™ & N-Link Network Ring Technology

### 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

- > 16 M12 Copper Ports
  - Sixteen 10/100/1000Base-T(X) copper M12 X-Code ports
- > Redundant 22 to 49 VDC Power Inputs
  - Boosts power to meet PoE+ output requirements
- > IEEE 802.3af/at PoE Output
  - 240 Watt PoE budget configurable across all 16 ports, up to 30 Watts per port
- > Bypass relay model
  - Bypass relay port pairs (2 pairs) allow network traffic to continue to flow through the switch bypass ports in the event of a power outage
- > N-View™ monitoring technology provides remote monitoring and firmware management
- > Extended Environmental Specifications
  - -40° to 80°C operating temperature range
  - > 2M hours MTBF
  - UL/cUL: Class I, Div. 2 Groups A, B, C and D
- > Plug-and-Play Operation:
  - IGMP auto-configuration
  - MDIX auto-sensing cable
  - Simple network ring configuration
  - Backup and restore via recovery card or XML configuration file



EtherNet/IP™

# NT24k-16M12-POE Specifications

## FEATURES & BENEFITS (CONT.)

> Fully Managed Features Include:

- SSH/SSL/HTTPS
- Jumbo frame support
- 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 and firmware management technology
- EtherNet/IP™ CIP™ messaging
- 802.1AB-2005 LLDP (Link Layer Discovery Protocol)

## SPECIFICATIONS

### SWITCH PROPERTIES

Operation: Managed  
IP67-rated hardened metal enclosure  
Dustproof  
Protection against low/high pressure water jets  
Safe for temporary immersion in water  
Number of MAC Addresses: 16,000  
IEEE Compliance: 802.3, 802.3u, 802.3ab, 802.3x, 802.3af/at, 802.1d/D/w, 802.1p, 802.1Q, 802.1x  
IEEE 1588v2 Software-Based Option  
Latency (Typical): 1.6 µs  
Switching Method: Store-and-Forward  
PoE Budget: Configurable up to 240 Watts  
Up to 30 Watts per port (25.5 at the PD)  
LED Status Indicators  
Onboard Temperature Sensor  
Supports Full/Half Duplex Operation  
Maximum Throughput: Up to 32 Gb/s  
MDIX Auto Sensing Cable  
Auto Sensing Speed and Flow Control  
Communications: Full Wire Speed  
MTBF: >2 million hours  
Bypass relay connection (model specific)  
Optional recovery device

### POWER INPUT

Input Voltage: 22-49 VDC  
Standard Model Steady Input Current: 11.5A @ 24VDC  
Inrush: 64.2 A/0.044 ms @ 24VDC  
BTU 123 (with 240 Watt PoE output)  
Bypass Relay Model Steady Input Current: 11.6A @ 24VDC  
Inrush: 64.2A/0.044ms @ 24VDC  
BTU 131 (with 240 Watt PoE output)

### CONNECTORS

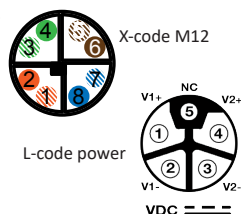
10/100/1000BASE-T: Sixteen (16) M12 X-Code connectors (wiring shown at right)  
ESD and surge protection diodes on all copper ports  
Configuration Port: One (1) USB Type B

### NETWORK MEDIA

10Base-T: ≥ CAT3 cable  
100Base-TX: ≥ CAT5 cable  
1000Base-T: ≥ CAT5e cable

### RECOMMENDED WIRING CLEARANCE

Front: 4" (10.16 cm)



### ENVIRONMENTAL

Operating Temperature: -40°C to 80°C  
Storage Temperature: -40°C to 85°C  
Operating Humidity: 10% to 95% (non condensing)  
Operating Altitude: 0 to 10,000 ft.  
Shock: 200 g @ 10 ms (bulkhead mounted)  
Vibration: 50 g @ 5-200 Hz, Triaxial (bulkhead mounted)

### CERTIFICATION & COMPLIANCE

Product Safety:  
ANSI/ISA-12.12.01-2015 - Nonincendive Electrical Equipment for Use in Class I and II, Division 2 and Class III, Divisions 1 and 2 Hazardous (Classified) Locations, Groups A, B, C and D Hazardous Locations  
UL 61010-1 Edition 3 - Revision Date 2016/04/29  
CAN/CSA C22.2 No. 213-16 - Nonincendive Electrical Equipment for Use in Class I and II, Division 2 and Class III, Divisions 1 and 2 Hazardous (Classified) Locations, Groups A, B, C and D Hazardous Locations  
CSA C22.2 NO. 61010-1-12  
Emissions:  
FCC 47 CFR Part 15, Radio Frequency Devices, Subpart B, ANSI C63.4-2014; ISED Canada ICES-003 Issue 6, EN 55011, EN 61000-3-2, EN61000-3-3, EN 55032  
Immunity:  
EN 55024, 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 61000-4-11 (VDI)  
Rail:  
EN 50155, EN 50121, EN 61373 and EN 45545-2  
Designed to Comply with:  
IEEE 1613 (Electric Utility Substations), NEMA TS1/TS2 (Traffic Control)  
Other:  
EMC Directive 2014/30/EU; LV Directive 2014/35/EU, RoHS Compliant

### MECHANICAL

Case Dimensions:  
Height: 5.90" (14.99 cm)  
Width: 12.84" (32.61 cm)  
Depth: 3.19" (8.10 cm)  
Depth with handles: 3.60" (9.14 cm)  
Weight: 5.5 lbs (2.49kg)  
Mount: Bulkhead

### WARRANTY

3 Years on Design and Manufacturing Defects

# NT24k-16M12-POE Ordering Information

## ORDERING GUIDE

| PART NUMBER          | DESCRIPTION                                                                                                                                                      |
|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| NT24K-16M12-POE      | IP67 rated 16-Port Gigabit Managed PoE+ Industrial Ethernet Switch with M12 8-pin X-coded female connectors (Max 240W PoE+ Load)                                 |
| NT24K-16M12-POE-PT   | IP67 rated 16-Port Gigabit Managed PoE+ Industrial Ethernet Switch with M12 8-pin X-coded female connectors (Max 240W PoE+ Load), PTP Enabled                    |
| NT24K-16M12-POE-R    | IP67 rated 16-Port Gigabit Managed PoE+ Industrial Ethernet Switch with M12 8-pin X-coded female connectors (Max 240W PoE+ Load), with bypass relay              |
| NT24K-16M12-POE-R-PT | IP67 rated 16-Port Gigabit Managed PoE+ Industrial Ethernet Switch with M12 8-pin X-coded female connectors (Max 240W PoE+ Load), with bypass relay, PTP Enabled |
| NTCD-CFG-M12         | NT24k Configuration Recovery Device, M12                                                                                                                         |
| NTPS-24-20           | DIN-Rail Power Supply 20 Amp @ 24 VDC                                                                                                                            |
| NTPS-48-10           | DIN-Rail Power Supply 10 Amp @ 48 VDC                                                                                                                            |
| NT24K-KIT-PTP        | NT24k Upgrade License to Enable IEEE 1588/PTP on Non-PT NT24k switches                                                                                           |

## CABLE ACCESSORIES ORDERING GUIDE

| PART NUMBER                                             | DESCRIPTION                                                                                 |
|---------------------------------------------------------|---------------------------------------------------------------------------------------------|
| <b>Ethernet Cables; XXX=Cable Length*</b>               |                                                                                             |
| CAT5E-XM12-RJ45-XXX                                     | Gigabit Shielded CAT5e Cable with X-Code Straight M12 to RJ45, XXXft                        |
| CAT5E-XM12-XM12-XXX                                     | Gigabit Shielded CAT5e Cable with X-Code Straight M12 to X-Code Straight M12, XXXft         |
| CAT5E-XM12-XAM12-XXX                                    | Gigabit Shielded CAT5e Cable with X-Code Straight M12 to X-Code 115deg Angle M12, XXXft     |
| CAT5E-XAM12-RJ45-XXX                                    | Gigabit Shielded CAT5e Cable with X-Code 115deg Angle M12 to RJ45, XXXft                    |
| CAT5E-XAM12-XAM12-XXX                                   | Gigabit Shielded CAT5e Cable with X-Code 115deg Angle M12 to X-Code 115deg Angle M12, XXXft |
| <b>Ethernet Connectors</b>                              |                                                                                             |
| CONN-M12-XCODE-STR-1                                    | X-Code M12 Straight Data Connector, 8-pin, Pack of 1                                        |
| CONN-M12-XCODE-STR-4                                    | X-Code M12 Straight Data Connector, 8-pin, Pack of 4                                        |
| CONN-M12-XCODE-STR-8                                    | X-Code M12 Straight Data Connector, 8-pin, Pack of 8                                        |
| CONN-M12-XCODE-ANG-1                                    | X-Code M12 115deg Angled Data Connector, 8-pin, Pack of 1                                   |
| CONN-M12-XCODE-ANG-4                                    | X-Code M12 115deg Angled Data Connector, 8-pin, Pack of 4                                   |
| CONN-M12-XCODE-ANG-8                                    | X-Code M12 115deg Angled Data Connector, 8-pin, Pack of 8                                   |
| <b>Power Cables and Connectors; XXX= Cable Length**</b> |                                                                                             |
| PWR-M12-L-XXX                                           | Power Cable, 4-Conductor 14AWG, L-Code Straight M12 to bare end, XXXft                      |
| CBL-4C-14G-XXX                                          | Power Cable, 4 Conductor 14AWG, W/ 4 Crimps, For Use with L-Code Connector, XXXft           |
| PWR-M12-L-CRM                                           | M12 L-Code Connector with 1M and 4F Crimps                                                  |
| <b>USB Cables</b>                                       |                                                                                             |
| USBA-M12                                                | 6.5' USB Type A to M12 Mini-USB Type B CABLE                                                |

\*Available category cable lengths in feet: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 50, 75, 100, 150, 200, 250, 300, 328

\*\*Available power cable lengths in feet: 5, 10, 15, 20, 25, 30, 40, 50, 60, 70, 80, 90, 100

