

# NT328G

Red Lion  
Networking Series



## Industrial Layer 3 Managed Gigabit Switch

THE RED LION SERIES NT328G IS AN INDUSTRIAL RACKMOUNT LAYER 3 MANAGED SWITCH DESIGNED FOR OIL & GAS, WATER & WASTEWATER, ENERGY, TRANSPORTATION, VIDEO, AND SECURITY.

Red Lion's NT328G Layer 3 rackmount industrial Ethernet switch offers 28 high speed ports (24 gigabit, 4 10 gigabit) to meet the performance requirements of bandwidth intensive applications. Designed to meet current and future needs with reliable wire-speed switching performance and a flexible mix of copper and fiber ports, the NT328G's robust feature set includes network redundancy, advanced security, policy-based traffic control and easy-to-use configuration and management. Housed in a rugged IP30 metal enclosure, the switch is designed for long-life use in harsh industrial environments, including wide operating temperature conditions and hazardous locations.

### APPLICATIONS

- ▲ Oil & Gas
- ▲ Water & Wastewater
- ▲ Energy
- ▲ Transportation
- ▲ Video & Security

### PRODUCT HIGHLIGHTS

- ▲ 24 Gigabit Copper Ports or 8 Gigabit Copper Ports and 16 Gigabit SFP Ports
- ▲ 4 10G SFP+ Ports  
Supports 10G SFP+ Fiber or 1G Copper/Fiber SFP Transceivers
- ▲ QoS: Traffic Policing, Traffic Shaping, Queue Scheduling
- ▲ Layer 3 Routing
- ▲ Advanced Security
- ▲ Fast Ring, RSTP/MSTP Redundancy Protocols

### FEATURES

#### MANAGEMENT

- ▲ Web Browser
- ▲ Configuration Backup/Restore
- ▲ DHCP Server/Client/Relay Agent with Option 61, Option 82
- ▲ IGMP v1, v2, v3
- ▲ SNMP v1, v2, v3
- ▲ Port Mirroring
- ▲ Event Log/Syslog
- ▲ Advanced VLAN Operations
- ▲ LLDP

#### NETWORK REDUNDANCY

- ▲ STP/RSTP/MSTP
- ▲ High-Speed Ring Protocol with <20ms Heal Time
- ▲ Chain Protocols
- ▲ LACP (Port Trunking)  
Up to 14 Trunks per Switch  
Up to 8 Ports per Trunk



# NT328G Specifications

## SWITCH PROPERTIES

Number of MAC Addresses: 16K  
Auto-sensing 10/100/1000BaseT(X), duplex and MDIX  
Aging Time: Programmable  
Latency (typical): 2.1  $\mu$ s  
Switching Method: Store & Forward  
MTBF: >1 Million Hours  
Jumbo Frame Support: Up to 9000 bytes  
LED Link/Activity Status Indication  
Hardened 19" IP30 1U Rackmount Enclosure  
802.3 Compliance  
Up to 128.0 Gb/s Maximum Throughput

## POWER INPUT

Input Voltages: 100-240 VAC  
See Tables Below for Unit Specific Power Specifications

## RECOMMENDED WIRING CLEARANCE

Front: 4" (10.16 cm)  
Back: 2" (5.08 cm)

## USER MANAGEMENT INTERFACES

Web Browser Management  
CL: Console, Telnet, SSH  
SNMP v1, v2, v3

## NETWORK REDUNDANCY

Ring Protocol: Proprietary Ring & Chain, < 20ms Recovery  
IEEE 802.1D STP, IEEE 802.1w RSTP, IEEE 802.1s, 802.1Q MSTP  
LACP/LAG: Static and Dynamic Link Aggregation

## QOS/RATE LIMITING/TRAFFIC CONTROL

QoS: Traffic Policing, Traffic Shaping, Queue Scheduling  
Policy/Profile-based Access Control List:  
IP/MAC/TCP/UDP/ToS/DSCP  
CoS/DSCP: SPQ, WRR, SPQ+WRR  
Rate Limiting / Traffic Control: Storm Control  
Multicast/Unicast Filtering

## ROUTING

GVRP  
IEEE802.1 AD (QinQ)  
VRRP v2, v3  
RIP v1, v2  
OSPF  
Static Routing  
L3 Forwarding

## SECURITY

SNMP v3  
SSH, SSL, HTTPS  
Access Control List  
802.1X Port Authentication  
802.1X User Login Authentication  
IP Source Guard (DHCP)

## CERTIFICATION & COMPLIANCE

Safety:  
UL 61010 Ordinary Locations  
ANSI/ISA-12.12.01, Class I and II, Division 2 and Class III, Divisions 1 and 2 Groups A, B, C and D Hazardous Locations  
C22.2 No. 61010 Ordinary Locations  
C22.2 No. 213 Class I, Division 2 Hazardous Locations  
EMI/EMC:  
CFR 47, Part 15, Subpart B  
Innovation, Science and Economic Development Canada ICES-003 Issue 6  
ANSI C63.4:2014  
EN 61000-6-2 Generic Standards - Immunity Standard for Industrial Environments  
EN 61000-6-4 Generic Standards - Emission Standard for Industrial Environments  
IEC 61000-4-2 (ESD)  
IEC 61000-4-3 (Radio-Frequency Electromagnetic Field)  
IEC 61000-4-4 (Fast Transient)  
IEC 61000-4-5 (Surge)  
IEC 61000-4-6 (Radio-Frequency Continuous Conducted)  
IEC 61000-4-8 (Power Frequency Magnetic Field)  
IEC 61000-4-11 (Voltage Dips, Short Interruptions)  
IEC 61000-4-16 (Mains Frequency Voltage)  
IEC 61000-4-18 (Damped Oscillatory Wave)  
Rail:  
EN 50155, EN 50121 and EN 61373  
Designed to Comply with:  
IEEE 1613 for Electric Utility Substations  
NEMA TS1/TS2 for Traffic Control  
IEC 61850-3

## ENVIRONMENTAL

Shock and Vibration:  
IEC 60068-2-6: 2 g @ 5-500 Hz 2 g Tri-Axle  
IEC 60068-2-27: 50 g @ 11 ms Tri-Axle  
IEC 60068-2-32: Test Ed: Free Fall  
Operating Temperature: -40°C to 75°C  
Storage Temperature: -40°C to 85°C  
Operating Humidity: 5% to 95% (Non-Condensing)  
Operating Altitude: Up to 10,000 ft.

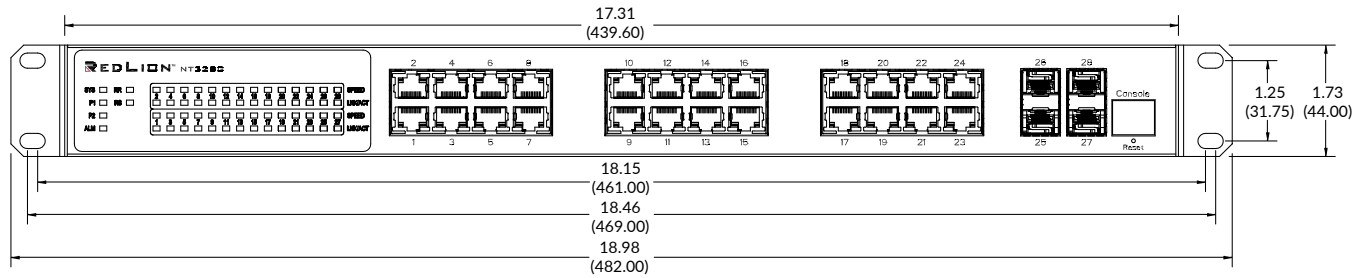
## WARRANTY

3 Years on Design and Manufacturing Defects

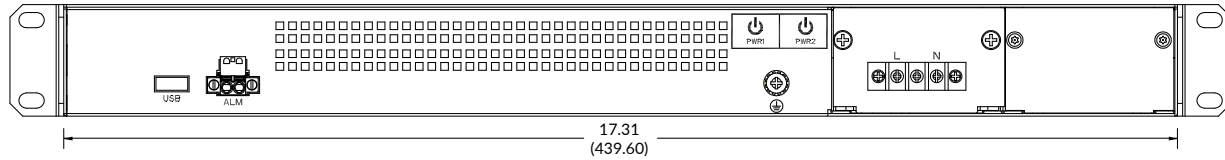
Specifications are Subject to Change. Visit [www.redlion.net](http://www.redlion.net) for More Information

# NT328G-04SFP Specifications

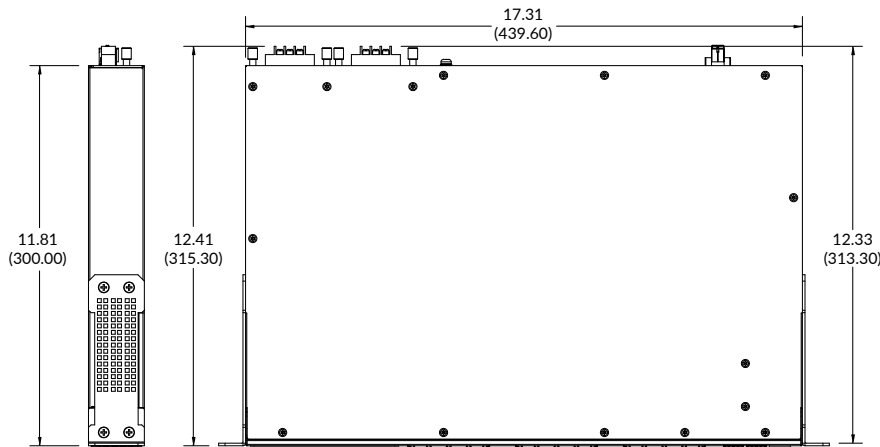
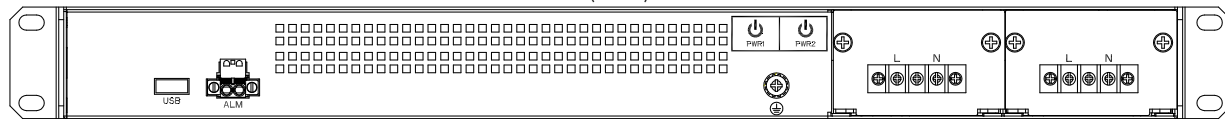
DIMENSIONS In inches (mm)



AC1



AC2



NT328G-04SFP-AC1 Specifications	
Weight:	6.28 lbs. (2.85 kg)
Input Voltage:	100-240 VAC
Steady Input Current:	470 mA @ 120 VAC
BTU/hr:	192 @ 120 VAC

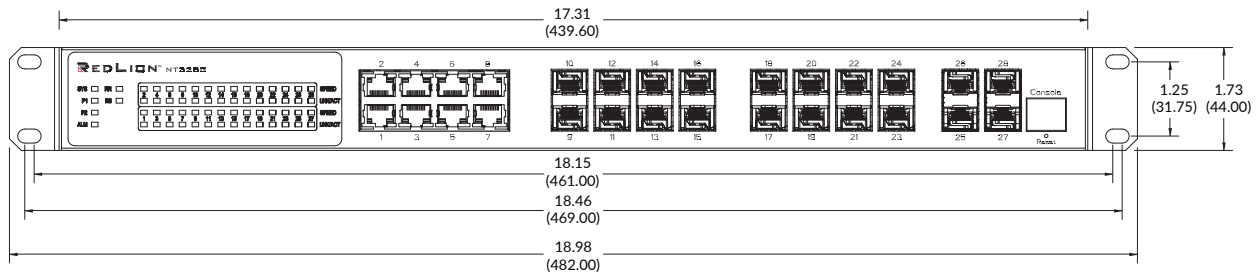
NT328G-04SFP-AC2 Specifications	
Weight:	6.75 lbs. (3.06 kg)
Input Voltage:	100-240 VAC
Steady Input Current:	470 mA @ 120 VAC
BTU/hr:	192 @ 120 VAC

Network Media Specifications	
10BaseT:	≥Cat3 Cable
100BaseTX:	≥Cat5 Cable
1000BaseT:	≥Cat5e Cable
1000BaseSX Multimode:	50-62.5/125 μm
1000BaseLX Singlemode:	7-10/125 μm
10GBaseSR Multimode:	50/125 μm
10GBaseLR Singlemode:	9/125 μm

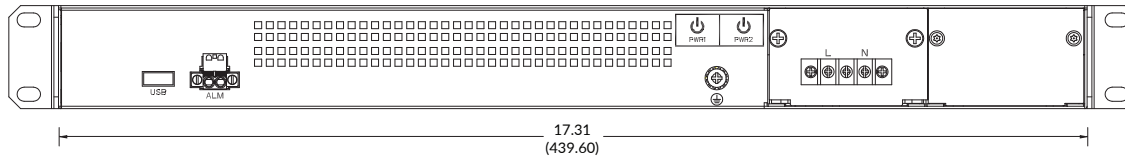
Connector Specifications	
10/100/1000BaseT(X):	Twenty-four (24) RJ45 TX Copper Ports
1000 BaseT SFP Port:	Up to four (4) RJ45 SFP Copper Transceiver Ports
1000 BaseSX/LX SFP Port:	Up to four (4) LC SFP Fiber Transceiver Ports
10G BaseSR/LR SFP Port:	Up to four (4) LC SFP Fiber Transceiver Ports

# NT328G-20SFP Specifications

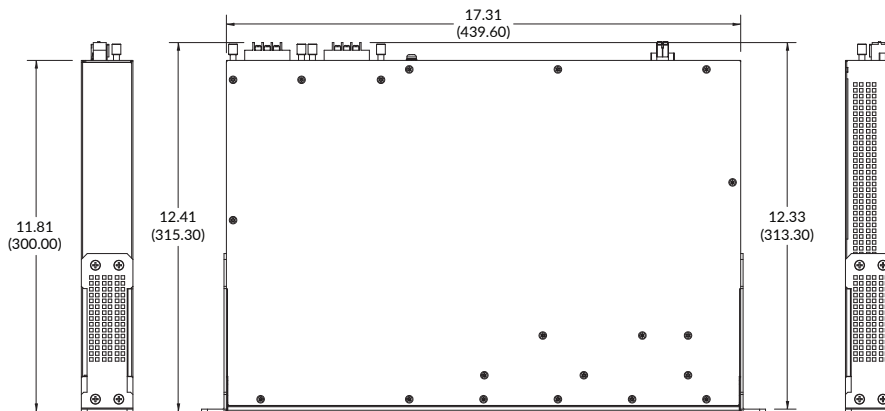
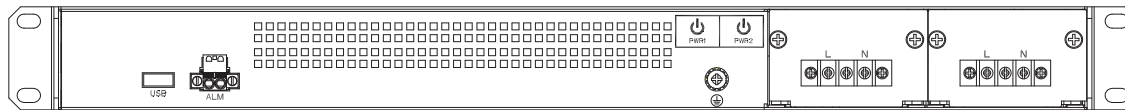
DIMENSIONS In inches (mm)



AC1



AC2



NT328G-20SFP-AC1 Specifications	
Weight:	6.72 lbs. (3.05 kg)
Input Voltage:	100-240 VAC
Steady Input Current:	500 mA @ 120 VAC
BTU/hr:	205 @ 120 VAC

NT328G-20SFP-AC2 Specifications	
Weight:	7.19 lbs. (3.26 kg)
Input Voltage:	100-240 VAC
Steady Input Current:	500 mA @ 120 VAC
BTU/hr:	205 @ 120 VAC

Network Media Specifications	
10BaseT:	≥Cat3 Cable
100BaseTX:	≥Cat5 Cable
1000BaseT:	≥Cat5e Cable
100BaseFX, 1000BaseSX Multimode:	50-62.5/125µm
100BaseFXE, 1000BaseLX Singlemode:	7-10/125 µm
10GBaseSR Multimode:	50/125 µm
10GBaseLR Singlemode:	9/125 µm

Connector Specifications	
10/100/1000BaseT(X):	Eight (8) RJ45 TX Copper Ports
100 BaseFX SFP Port:	Up to sixteen (16) LC SFP Fiber Transceiver Ports
1000 BaseT SFP Port:	Up to twenty (20) RJ45 SFP Copper Transceiver Ports
1000 BaseSX/LX SFP Port:	Up to twenty (20) LC SFP Fiber Transceiver Ports
10G BaseSR/LR SFP Port:	Up to four (4) LC SFP Fiber Transceiver Ports

# NT328G Specifications

## 100BASE SFP FIBER TRANSCEIVER CHARACTERISTICS (NT328G-20SFP MODEL ONLY)

Fiber Mode	MM	SM	SM	SM
Fiber Length*	2 km	15 km	40 km	80 km
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

## GIGABIT SFP FIBER TRANSCEIVER CHARACTERISTICS

Fiber Mode	MM	SM	SM	SM
Fiber Length*	550 m @ 50/125 $\mu$ m 275 m @ 62.5/125 $\mu$ m	10 km	40 km	80 km
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

## 10 GIGABIT SFP+ FIBER TRANSCEIVER CHARACTERISTICS

Fiber Mode	MM	SM	SM	SM
Fiber Length*	300 m	10 km	40 km	80 km
TX Power Min	-7.3 dBm	-8.2 dBm	-4.7 dBm	-1.0 dBm
RX Sensitivity Max	-11.1 dBm	-12.6 dBm	-15.8 dBm	-23.0 dBm
Wavelength	850 nm	1310 nm	1550 nm	1550 nm
Laser Type	VCSEL	DFB	EML	EML

\*Note:

Fiber length distances represent typical performance.

Link budgets should be evaluated based on specific application conditions.

# NT328G Specifications

## ORDERING GUIDE

PART NUMBER	DESCRIPTION
NT328G-20SFP-AC1	28-port Managed L3 Industrial Ethernet Switch (8 10/100/1000BaseT RJ45 ports; 20 Dual Mode (16 100/1000Base; 4 1000/10GBase) (SFP expansion slots); one 100-240 VAC power input
NT328G-20SFP-AC2	28-port Managed L3 Industrial Ethernet Switch (8 10/100/1000BaseT RJ45 ports; 20 Dual Mode (16 100/1000Base; 4 1000/10GBase) (SFP expansion slots); two 100-240 VAC power inputs
NT328G-04SFP-AC1	28-port Managed L3 Industrial Ethernet Switch (24 10/100/1000BaseT RJ45 ports; 4 Dual Mode (1000/10GBase) (SFP expansion slots); one 100-240 VAC power input
NT328G-04SFP-AC2	28-port Managed L3 Industrial Ethernet Switch (24 10/100/1000BaseT RJ45 ports; 4 Dual Mode (1000/10GBase) (SFP expansion slots); two 100-240 VAC power inputs
NTSFP-FX	100BaseFX multimode fiber SFP pluggable transceiver (LC style connector, 2km)
NTSFP-FXE-YY	100BaseFX singlemode fiber SFP pluggable transceiver (LC style connector)
NTSFP-TX	1000BaseT copper SFP pluggable transceiver
NTSFP-SX	1000BaseSX multimode fiber SFP pluggable transceiver (LC style connector, 550m)
NTSFP-LX-ZZ	1000BaseLX singlemode fiber SFP pluggable transceiver (LC style connector)
NT10GSFP-SR	10GBase multimode fiber SFP+ pluggable transceiver (LC style connector 300m)
NT10GSFP-LR-ZZ	10GBase singlemode fiber SFP+ pluggable transceiver (LC style connector)
NT328G-AC-US	US Industrial High-Temp Power Cord Assembly for use with the NT328G (Cord Length: 7 Ft., Gauge/Conductor: 18/3, Temp. Rating: 105°C, Plug: NEMA 5-15, Voltage Rating: 300V)

Where YY=15, 40, or 80 km

Where ZZ=10, 40, or 80 km

Note:

The four 10G SFP+ ports support 1 gigabit copper or fiber SFP transceivers, or 10 gigabit fiber SFP transceivers.



[www.redlion.net](http://www.redlion.net)

+1 (717) 767-6511



**Authorised Distributor**  
**ADITECH ICT PVT. LTD.**  
 803, sigma IT park,  
 plat no 203/204 Rabale,  
 TTC Industrial area,  
 Thane-Belapur road,  
 Rabale-400701  
 Tel: +91 9819884527  
 Email: [sales@aditech.in](mailto:sales@aditech.in)  
 Website: [www.aditech.in](http://www.aditech.in)

As 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).

ADLD0492 111219 © 2019 Red Lion Controls, Inc. All rights reserved. Red Lion, the Red Lion logo, N-Tron and Sixnet are registered trademarks of Red Lion Controls, Inc. All other company and product names are trademarks of their respective owners.

**AMERICAS**  
[SALES@REDLION.NET](mailto:SALES@REDLION.NET)

**ASIA-PACIFIC**  
[ASIA@REDLION.NET](mailto:ASIA@REDLION.NET)

**EUROPE, MIDDLE EAST, AFRICA**  
[EUROPE@REDLION.NET](mailto:EUROPE@REDLION.NET)