DELL EMC POWERSWITCH
N3000E SERIES SWITCHES

Energy-efficient, cost-effective 1GbE switches for modernizing and scaling network infrastructure

The N3000E switch series offers a power-efficient and resilient Gigabit Ethernet (GbE) switching solution with integrated 10GbE uplinks for advanced Layer 3 distribution for offices and campus networks. The series has high-performance capabilities and wire-speed performance utilizing a non-blocking architecture to easily handle unexpected traffic loads. Use dual internal hot-swappable 80PLUS-certified power supplies for high availability and power efficiency. The switches offer simple management and scalability via an 84Gbps (full duplex) high-availability stacking architecture that allows management of up to 12 switches from a single IP address. Note: With OS 6.5.1.x and higher, max stack for N3000 series is 8; however, N3000E series and N3132PX-ON support max stack of 12 members. N3000 series can be stacked with N3000E series; however, stack size is limited to 8 and active VLANs to 1024.

Modernize campus network architectures

Modernize campus network architectures with a power-efficient and resilient 1/10GbE switching solution with dense Power over Ethernet Plus (PoE+) and PoE 60W. Select N3000E models offer 24 or 48 ports of PoE+, or up to 32 ports of PoE 60W to deliver clean power to network devices such as wireless access points (APs), Voice-over-IP (VoIP) handsets, video conferencing systems and security cameras. For greater interoperability in multivendor networks, N3000E series switches offer the latest open-standard protocols and include technology to interface with Cisco protocol RPVST+ and devices using CDP.

Achieve high availability and full bandwidth utilization with Multi-chassis Link Aggregation (MLAG). N3000E series switches support MLAG to create active/active loop-free redundancy without spanning tree. Server rooms can deliver reliable server and storage connectivity with features to help save time and avoid configuration errors. N3000E supports VRF-lite, allowing it to be partitioned into multiple virtual routers with isolated control and data planes on the same physical switch.

Leverage familiar tools and practices

All N-Series switches include Dell EMC Networking OS6, designed for easier deployment, greater interoperability and a lower learning curve for network administrators. OS6 common command line interface (CLI) and graphic user interface (GUI) are intuitive, so skilled network administrators can get productive quickly. Select N3000E switches now support the Open Network Install Environment (ONIE), enabling installation of alternate network operating systems.

Deploy with confidence at any scale

N3000E series switches help create performance assurance with a data rate up to 328Gbps (full duplex) and a forwarding rate up to 428Mpps. Scale easily with built-in rear stacking ports. Switch stacks of up to 624 1GbE ports can be managed from a single screen using the highly available stacking architecture for high-density aggregation with seamless redundant availability. The N-Series switches’ lifetime warranty covers software upgrades, hardware repair or replacement, and optics and cables purchased with the switch.*

Hardware, performance and efficiency

- Up to 48 line-rate GbE ports of copper or fiber, two combo ports for fiber/copper flexibility, and two integrated 10GbE SFP+ ports.
- Up to 48 ports of PoE+ or 32 ports of PoE 60W in 1RU without an external power supply.
- Up to eight 2.5/5GbE ports delivering additional bandwidth for Wave 2 wireless access points.
- Hot swappable expansion module supporting dual-port SFP+ or dual-port 10GBaseT.
- Available with dual 80PLUS-certified hot swappable power supplies. Variable speed fan operation helps decrease cooling and power costs.
- Energy-Efficient Ethernet and lower power PHYs reduce power to inactive ports and idle links, providing energy savings from the power cord to the port.
- Dell EMC Fresh Air compliance for operation in environments up to 113°F (45°C) reduces cooling costs.

Deploying, configuring and managing

- USB auto-configuration rapidly deploys the switch without complex TFTP configurations or sending technical staff to remote offices.
- Management via an intuitive and familiar CLI, embedded web server (GUI), SNMP-based management console application (including Dell EMC OpenManage Network Manager), Telnet or serial connection.
- Private VLAN extensions and Private VLAN Edge support.

* Select Networking products carry a Lifetime Limited Warranty with Basic Hardware Service (repair or replacement) for life. Repair or replacement does not include troubleshooting, configuration, or other advanced service provided by Dell EMC ProSupport. For details, visit https://www.dell.com/en-us/work/shop/networkingwarranty/cp/networkingwarranty.
## Product Description

### N3000E series

<table>
<thead>
<tr>
<th>Product</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>N3024ET-ON</td>
<td>24x RJ45 10/100/1000Mb auto-sensing ports, 2x SFP+ ports, 2x GbE combo media ports, 1x hot swap expansion module bay, 1x 200W PSU included, 2Gb memory and 1Gb of flash</td>
</tr>
<tr>
<td>N3024EF-ON</td>
<td>24x 1000-SX (up to 500m distance) or 1000-LX (up to 10km distance) SFP GbE ports, 2x SFP+ ports, 2x GbE combo media ports, 1x hot swap expansion module bay, 1x 200W PSU included, 2Gb memory and 1Gb of flash</td>
</tr>
<tr>
<td>N3024EP-ON</td>
<td>12x RJ45 10/100/1000Mb PoE+ (up to 30.8W) auto-sensing ports, 12x RJ45 10/100/1000Mb PoE 60W auto-sensing ports, 2x SFP+ ports, 2x GbE combo media ports, 1x hot swap expansion module bay, 1x 715W PSU included (requires C15 plug), 2Gb memory and 1Gb of flash</td>
</tr>
<tr>
<td>N3048ET-ON</td>
<td>48x RJ45 10/100/1000Mb auto-sensing ports, 2x SFP+ ports, 2x GbE combo media ports, 1x hot swap expansion module bay, 1x 1100W PSU included (requires C15 plug)</td>
</tr>
<tr>
<td>N3048EP-ON</td>
<td>48x RJ45 10/100/1000Mb PoE+ (up to 30.8W) auto-sensing ports; first twelve RJ45 10/100/1000Mb can provide PoE 60W auto-sensing ports, 2x SFP+ ports, 2x GbE combo media ports, 1x hot swap expansion module bay, 1x 1100W PSU included (requires C15 plug); 2GB memory and 4GB flash (on product shipping from July 1st, 2019).</td>
</tr>
<tr>
<td>N3132PX-ON</td>
<td>24x RJ45 10/100/1000Mb PoE 60W auto-sensing ports, 8x RJ45 10/100/1000/2500/5000Mb PoE 60W auto-sensing ports, 4x SFP+ ports, 1x hot swap expansion module bay, 1x 1100W PSU included (requires C15 plug)</td>
</tr>
</tbody>
</table>

### Power cords

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>C13 to NEMA 5-15</td>
<td>3M</td>
</tr>
<tr>
<td>C13 to C14</td>
<td>2M</td>
</tr>
<tr>
<td>C15 to NEMA 5-15</td>
<td>2M (C15 for PoE N-Series only)</td>
</tr>
</tbody>
</table>

### Modules (optional)

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-port 10 Gigabit BASE-T RJ-45 hot swappable uplink module</td>
<td>2-port 10 Gigabit SFP+ hot swappable uplink module</td>
</tr>
<tr>
<td>2-port 40 Gigabit QSFP+ hot swappable module (N3132PX-ON only)</td>
<td>2-port 40 Gigabit QSFP+ hot swappable module (N3132PX-ON only)</td>
</tr>
</tbody>
</table>

### Power supplies (optional)

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>200W AC hot swappable with V-Lock, adds redundancy to non-PoE switches (N3024ET-ON, N3024EF-ON and N3048ET-ON only)</td>
<td>715W AC hot swappable, adds redundancy to N3024EP-ON</td>
</tr>
</tbody>
</table>

### Optics (optional)

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transceiver, SFP, 100BASE-FX, 1310nm wavelength, up to 2km reach</td>
<td>Transceiver, SFP, 100BASE-T</td>
</tr>
<tr>
<td>Transceiver, SFP, 1000BASE-SX, 850nm wavelength, up to 550m reach</td>
<td>Transceiver, SFP, 1000BASE-LX, 1310nm wavelength, up to 10km reach</td>
</tr>
<tr>
<td>Transceiver, SFP, 1000BASE-ZX, 1550nm wavelength, up to 80km reach</td>
<td>Transceiver, SFP+, 10GbE, LRM, 1310nm wavelength, up to 220m reach</td>
</tr>
<tr>
<td>Transceiver, SFP+, 10GbE, SR, 850nm wavelength, up to 300m reach Transceiver, SFP+, 10GbE, ER, 1310nm wavelength, up to 10km reach</td>
<td>Transceiver, SFP+, 10GbE, ER, 1550nm wavelength, up to 40km reach</td>
</tr>
</tbody>
</table>

### Cables (optional)

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stacking cable 0.25m, 1m and 3m</td>
<td>Dell Technologies Networking cable, SFP+ to SFP+, 10GbE, copper twinax direct attach cable, 0.5m, 1m, 3m, 5m and 7m</td>
</tr>
</tbody>
</table>
Physical
2 rear stacking ports (21Gbps) supporting up to 84Gbps (full-duplex) (N3132PX-ON requires optional stacking module)
2 integrated front 10GbE SFP+ dedicated ports (N3132PX-ON includes 4 integrated SFP+ ports)
Out-of-band management port (10/100/1000BASE-T)
USB (Type A) port for configuration via USB flash drive
Auto-negotiation for speed and flow control
Auto-MDI/MDIX, port mirroring
Flow-based port mirroring
Broadcast storm control
Energy-Efficient Ethernet per port settings
Redundant variable speed fans
Air flow: I/O to power supply
RJ45 console/management port with RS232 signaling (RJ-45 to female DB-9 connector cable included)
Dual firmware images on-board
Switching engine model: Store and forward

Chassis
Size (1RU, H x W x D): 1.7126 in x 17.0866 in x 6.0236 in (43.5 mm x 434.0 mm x 407.0 mm)
(Power supply handle adds 1.38 in or 35 mm)
Approximate weight:
13.227lbs/6kg (N3024ET-ON and N3132PX-ON)
14.5505lbs/6.6kg (N3024EP-ON)
15.7lbs/7.12kg (N3132PX-ON)
ReadyRails rack mounting system, no tools required

Environmental
Power supply:
200W (N3024, N3024F and N3048), 175W or 1100W (N3024P), 1100W (N3048P, N3132PX-ON)
Power supply efficiency: 80% or better in all operating modes
Max. thermal output (BTU/hr):
151.4 (N3024), 204.6 (N3024F), 4,467.1 (N3024P), 220.37 (N3048), 3,133.33 (N3048P), 7216.68 (N3132PX-ON)
Max VLAN interfaces with
2,145 (N3024EP-ON, N3132PX-ON)

IEEE compliance
802.1AB LLDP
Dell Voice VLAN
Dell ISDP (inter-operates with devices running CDP)
802.1D Bridging, Spanning Tree
802.1p Ethernet Priority (User Provisioning and Mapping)
Dell Adjustable WRR and Strict Queue Scheduling
802.1Q VLAN Tagging, Double VLAN Tagging, GVRF
802.1S Multiple Spanning Tree (MSTP)
802.1v Protocol-based VLANs
802.1W Rapid Spanning Tree (RSTP)
Dell RSTP-Per VLAN (compatible with Cisco’s RPVST+)
Dell Spanning tree optional features: STP root guard, BPDU guard, BPDU filtering
802.1X Network Access Control, Auto VLAN
802.2 Logical Link Control
802.3 10BASE-T
802.1Q VLAN Tagging
802.1P VLAN Traffic Prioritization
802.1Qc Multiple VLAN Tagging
802.3ad Link Aggregation with LACP
802.3i 10 Gigabit Ethernet (10GBASE-X)
802.3azz Energy Efficient Ethernet (EEE)

RFC compliance and additional features
General Internet protocols
General Internet protocols are supported. For a detailed list, please contact your Dell Technologies representative.
General IPv4 protocols
General IPv4 protocols are supported. For a detailed list, please contact your Dell Technologies representative.
General IPv6 protocols
General IPv6 protocols are supported. For a detailed list, please contact your Dell Technologies representative.
Layer 3 functionality
1058 RIPv1 2463 RIPv2
1724 RIPv2 MIB Extension 2740 OSPFv3
1765 OSPF DB overflow 2787 VRRP MIB
1850 OSPF MIB 3101 NSSA
2082 RIP-2 MD5 Auth 3137 OSPF Stub Router Advert
2328 OSPFv2 3623 Graceful Restart
2338 VRRP 3768 VRRP
2570 Opague LSA Option 4271 BGP
Dell Policy Based Routing 5187 OSPFv3 Graceful Restart

Multicast
1112 IGMPv3 3810 MLDv2
2236 IGMPv2 3973 PIM-DM
2365 Admin scoped IP 4541 IGMP v1/v2/v3
2932 IPv4 MIB 4601 PIM-SM
2933 IGMP MIB 5060 PIM MB
3370 IGMPv3 Dell Static IP Multicast
Draft-ietf-pim-sm-bar-05
Draft-ietf-idmr-dvmrp-v3-10 DVMRP
Draft-ietf-magma-igmp-proxy-06.txt IGMP/MLD Proxying
Draft-ietf-magma-igmpv3-and-routing-05.txt
Draft-ietf-idmr-dvmrp-mib-11
Draft-ietf-magma-mib-mdm-05
Draft-ietf-pim-sr-05.txt
IEEE 802.1ag draft 8.1 – Connectivity Fault Management (CFM)
IEEE 802.1p QoS dynamic L2 Multicast Registration

Quality of service
2474 DiffServ Field 2697 trTCM
2475 DiffServ Architecture 4115 trTCM
2597 Assured Fwd PHB Dell L4 Trusted Mode
Dell Port Based GoS Services (TCP/UDP)
Dell Red/VRED
Dell Flow Based GoS Services
Dell Audio Video Bridging Mode (IPv4/IPv6)
Dell UDDL

Power consumption max (watts):
7216.68 (N3132PX-ON)
715W or 1100W (N3024P), 200W (N3024, N3024F and N3048)
Max. thermal output (BTU/hr):
151.4 (N3024), 204.6 (N3024F), 4,467.1 (N3024P), 220.37 (N3048), 3,133.33 (N3048P), 7216.68 (N3132PX-ON)
Max VLAN interfaces with
2,145 (N3024EP-ON, N3132PX-ON)

Network address table:
IPv4 Address Table
IPv6 Address Table

Table of maximum values:
<table>
<thead>
<tr>
<th>Maximum Value</th>
<th>Description</th>
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<tbody>
<tr>
<td>428Mpps (288 Gbps)</td>
<td>N3132PX-ON</td>
</tr>
<tr>
<td>128 LAG groups, 144 dynamic ports per stack, 8 member ports per LAG</td>
<td>N3132PX-ON</td>
</tr>
<tr>
<td>158Mpps (106 Gbps)</td>
<td>N3024ET-ON, N3024EF-ON, N3024EP-ON</td>
</tr>
<tr>
<td>193Mpps (130 Gbps)</td>
<td>N3048ET-ON, N3048EP-ON</td>
</tr>
<tr>
<td>328Gbps (N3132PX-ON)</td>
<td>N3024ET-ON, N3024EF-ON, N3024EP-ON</td>
</tr>
<tr>
<td>802.1Q VLAN Tagging, Double VLAN Tagging, GVRF</td>
<td>N3132PX-ON</td>
</tr>
<tr>
<td>4,467.1 (N3024P), 220.37 (N3048), 3,133.33 (N3048P), 7216.68 (N3132PX-ON)</td>
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</tr>
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<td>7216.68 (N3132PX-ON)</td>
<td>N3132PX-ON</td>
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</table>

Other services:
Dell Adjustable WRR and Strict Queue Scheduling
802.1Q VLAN Tagging, Double VLAN Tagging, GVRF
802.1S Multiple Spanning Tree (MSTP)
802.1v Protocol-based VLANs
802.1W Rapid Spanning Tree (RSTP)
Dell RSTP-Per VLAN (compatible with Cisco’s RPVST+)
Dell Spanning tree optional features: STP root guard, BPDU guard, BPDU filtering
802.1X Network Access Control, Auto VLAN
802.2 Logical Link Control
802.3 10BASE-T
802.1Q VLAN Tagging
802.1P VLAN Traffic Prioritization
802.3ad Link Aggregation with LACP
802.3i 10 Gigabit Ethernet (10GBASE-X)
802.3azz Energy Efficient Ethernet (EEE)

Storage relative humidity: 85%
Storage temperature: –40° to 65°C
Operating temperature: 32° to 113°F (0° to 45°C)

Approximate weight:
15.7lbs/7.12kg (N3132PX-ON)
15.2119lbs/6.9kg (N3048EP-ON), 14.5505lbs/6.6kg (N3024EPON), 13.2277lbs/6kg (N3024ET-ON and N3024EFON), 13.8891lbs/6.3kg (N3024ET-ON)
Network management and security

- SMIV1
- SNMPv1
- Concise MIB Definitions
- MIB-II
- SNMP Traps
- Bridge MIB
- SMIV2
- Manager-to-Manager MIB
- TACACS+
- Managed objects for Bridges MIB
- Evolution of Interfaces
- DNS Resolver MIB Extensions
- Ethernet-like MIB
- RMON MIB
- HTML/2.0 Forms with file upload extensions
- Community-based SNMIPv1
- SNMIPv2 MIB
- Coexistence between SNMIPv1/2
- IP MIB
- TCP MIB
- UDP MIB
- HTTP/1.1
- IP Forwarding Table MIB
- Interfaces Group using SMIV2
- TLS V1
- SNMIPv3
- Transport Content Negotiation
- Remote Variant Selection
- AES Ciphersuites for TLS
- Coexistence between SNMIPv1/2/3
- SMIV2
- SMIV3
- Textual Conventions for SMIV2
- Conformance Statements for SMIV2
- RMON MIB
- RADIUS Authentication MIB
- RADIUS Accounting MIB
- Ethernet-like Interfaces MIB
- Identification of Ethernet chipsets
- Extended Bridge MIB
- ENTITY MIB
- HTTP over TLS
- RMON MIB (groups 1, 2, 3, 9)
- Text Conv. For High Capacity Data Types
- Interfaces MIB
- RADIUS Accounting
- RADIUS Attributes for Tunnel Prot.
- RADIUS Extensions
- Internet Standard Mgmt. Framework
- SNMP Management Framework
- Message Processing and Dispatching
- SNMP Applications
- User-based security model
- View-based control model
- SNMPv2
- Transport Mappings
- SNMP MIB
- RMON MIB
- 802.1X MIB
- 802.1X Monitor
- Dynamic ARP Inspection
- IP Address Filtering
- Tiered Authentication
- RSPAN
- Change of Authorization
- Python Scripting
- Support Assist
- HiveManager NG

Regulatory, environment and other compliance

- Safety and emissions
  - Australia/New Zealand: ACMA RCA Class A
  - Canada: ICES Class A; cUL
  - China: CCC Class A; NAL
  - Europe: CE Class A
  - Japan: VCCI Class A
  - USA: FCC Class A; NRTL UL; FDA 21 CFR 1040.10 and 1040.11
  - Eurasia Customs Union: EAC
  - Germany: GS mark

- Product meets EMC and safety standards in many countries inclusive of USA, Canada, EU, Japan, China. For more country-specific regulatory information, and approvals, please see your Dell Technologies representative.

RoHS

- Products meet RoHS compliance standards in many countries inclusive of USA, EU, China, and India. For more country-specific RoHS compliance information, please see your Dell Technologies representative.

Energy

- Japan: JEL Certification (available or coming soon)

Certifications (available or coming soon)

- Available with US Trade Agreements Act (TAA) compliance.

N-Series products have the necessary features to support a PCI compliant network topology.

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Consulting
Dell Technologies Consulting Services provides industry professionals with a wide range of tools and the experience you need to design and execute plans to transform your business.

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Accelerate technology adoption with ProDeploy Enterprise Suite. Trust our experts to lead deployments through planning, configuration and complex integrations.

Management
Regain control of operations with flexible IT management options. Our Residency Services help you adopt and optimize new technologies and our Managed Services allow you to outsource portions of your environment to us.

Support
Increase productivity and reduce downtime with ProSupport Enterprise Suite. Expert support backed by proactive and predictive artificial intelligence tools.

Education
Dell Technologies Education Services help you develop the IT skills required to lead and execute transformational strategies. Get certified today.

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