

Specification Sheet



# Dell EMC PowerSwitch N3000E Series Swithches

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 VRFlite, allowing it to be partitioned into multiple virtual routers with isolated control and data planes on the same physical switch. The N3000E series is also fully tested and validated to work with Dell EMC EqualLogic™ PSSeries storage arrays.\*

# Leverage familiar tools and practices

All N-Series switches include Dell EMC Networking OS 6, designed for easier deployment, greater interoperability and a lower learning curve for network administrators. OS 6 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 highlyavailable 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. Details at Dell.com/LifetimeWarranty."

\*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.

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# 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.
- Plug-and-Play configuration with Dell EMC EqualLogic iSCSI storage arrays and one-command iSCSI setup alleviates multiple step configuration and potential configuration errors.
- 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.

Product	Description
N3000E series	N3024ET-ON: 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 N3024EF-ON: 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 N3024EP-ON: 12x RJ45 10/100/1000Mb PoE+ (up to 30.8W) auto- sensing ports, 12x RJ4510/100/1000Mb 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 N3048ET-ON: 48x 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, 2G memory and 1Gb of flash N3048EP-ON: 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).  N3132PX-ON: 24x RJ45 10/100/1000Mb PoE 60W auto-sensing ports, 4x SFP+ ports, 1x hot swap expansion module bay, 1x 1100W PSU included (requires C15 plug)
Power cords	C13 to NEMA 5-15, 3M C13 to C14, 2M C15 to NEMA 5-15, 2M (C15 for POE N-Series only)

Product	Description
Modules (optional)	2-port 10 Gigabit BASE-T RJ-45 hot swappable uplink module 2-port 10 Gigabit SFP+ hot swappable uplink module 2-port 40 Gigabit QSFP+ hot swappable module (N3132PX-ON only) Stacking module (N3132PX-ON only)
Power supplies (optional)	200W AC hot swappable with V-Lock, adds redundancy to non- PoE switches (N3024ET-ON, N3024EF-ON and N3048ET-ON only) 715W AC hot swappable, adds redundancy to N3024EP-ON 1100W AC hot swappable, adds redundancy to N3048EP-ON N3024EP-ON for additional PoE+ power (N3024EP-ON, N3048EP-ON, N3132PX-ON only)
Optics (optional)	Transceiver, SFP, 100BASE-FX, 1310nm wavelength, up to 2km reach Transceiver, SFP, 1000BASE-T Transceiver, SFP, 1000BASE-SX, 850nm wavelength, up to 550m reach Transceiver, SFP, 1000BASE-LX, 1310nm wavelength, up to 10km reach Transceiver, SFP, 1000BASE-ZX, 1550nm wavelength, up to 80km reach Transceiver, SFP+, 10GbE, LRM, 1310nm wavelength, up to 220m reach Transceiver, SFP+, 10GbE, SR, 850nm wavelength, up to 300m reach Transceiver, SFP+, 10GbE, LR, 1310nm wavelength, up to 10km reach Transceiver, SFP+, 10GbE, ER, 1550nm wavelength, up to 40km reach
Cables (optional)	Stacking cable 0.25m, 1m and 3m Dell EMC Networking cable, SFP+ to SFP+, 10GbE, copper twinax direct attach cable, 0.5m, 1m, 3m, 5m and 7m

## Technical specifications

#### 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 16.0236 in (43.5 mm x 434.0 mm x 407.0 mm) (Power supply handle adds 1.38 in or 35 mm) Approximate weight: 13.2277lbs/6kg (N3024ET-ON, and N3024EF-ON), 14.5505lbs/6.6kg (N3024EP-ON)

15.7lbs/7.12kg (N3132PX-ON)

Two post rack mount

## **Environmental**

Power supply: 200W (N3024ET-ON, N3024EF-ON, and N3048ET-ON)

13.8891lbs/6.3kg (N3048ET-ON),

15.2119lbs/6.9kg (N3048EP-ON),

715W or 1,100W (N3024EP-ON) 1,100W (N3048EP-ON and N3132PX-ON)

Power supply efficiency: 80% or better in all

operating modes

Max. thermal output (BTU/hr): 151.4 (N3024ET-ON), 204.6 (N3024EF-ON), 4,467.1 (N3024EP-ON), 220.97 (N3048ET-ON), 3,113.33 (N3048EP-ON), 7216.68 (N3132PX-ON)

Power consumption max (watts): 52.8 (N3024ET-ON), 67.1 (N3024EF-ON), 1,287

(N3024EP-ON), 74.8 (N3048ET-ON), 2,145 (N3048EP-ON), 2,115

(N3132PX-ON) Operating temperature: 32° to 113°F (0° to 45°C)

Operating relative humidity: 95% Storage temperature: -40° to 149°F (-40° to 65°C)

Storage relative humidity: 85%

#### Performance

MAC addresses: 32K

Static routes: 1,024 (IPv4)/1,024 (IPv6) Dynamic routes: 8,160 (IPv4)/4,096 (IPv6) Switch fabric capacity:

212Gbps (N3024ÉT-ON, N3024EF-ON, and N3024EP-ON) (full duplex) 260Gbps (N3048ET-ON, N3048EP-ON) 328Gbps (N3132PX-ON)

## Forwarding rate:

158Mpps (N3024ET-ON, N3024EF-ON, N3024EP-ON) 193Mpps (N3048ET-ON, N3048EF-ON 428Mpps (N3132PX-ON) Link aggregation: 128 LAG groups, 144

ports per stack, 8 member ports per LAG

Priority queues per port: 8

Line-rate Layer 2 switching: All (non-blocking) Line-rate Layer 3 routing: All (non-blocking)

Flash memory: 256MB (512MB for N3132PX-ON) Packet buffer memory: 4MB

(5MB for N3132PX-ON) CPU memory: 1GB (2GB for N3132PX-ON)

OSPF routing interfaces: 8,160 RIP routing interfaces: 512 ECMP next hops per route: 4

ECMP groups: 64

VLAN routing interfaces: 128
VLANs supported: 4,094
Protocol-based VLANs: Supported
Multicast forwarding entries: 1,536 (IPv4),

Multicast forwarding entries: 1,50 512 (IPv6)

ARP entries: 6,144 NDP entries: 400

Access control lists (ACL): Supported MAC and IP-based ACLs: Supported Time-controlled ACLs: Supported Max number of ACLs: 100

Max ACL rules system-wide: 4,096 Max rules per ACL: 1,023

Max ACL rules per interface (IPv4): 3,072 (ingress), 1,024 (egress)

Max ACL rules per interface (IPv6): 1,021

(ingress), 512 (egress) Max VLAN interfaces with

ACLs applied: 24

## **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

Dell Adjustable WRR and St Queue Scheduling

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# Technical specifications

Technical	specifications				
802.1Q VLAN T	agging, Double VLAN	Draft-iet	f-pim-sm-bsr-05	2865	RADIUS
Tagging		Draft-iet	f-idmr-dvmrp-v3-10 DVMRP	2866	RADIUS Accounting
	Spanning Tree (MSTP)		f-magma-igmp-proxy-06.txt	2868	RADIUS Attributes for Tunnel Prot.
	I-based VLANs	IGMP/MLD Proxying		2869	RADIUS Extensions
302.1W Rapid Spanning Tree (RSTP)		Draft-ietf-magma-igmpv3-and-routing-05.txt		3410 3411	Internet Standard Mgmt. Framework SNMP Management Framework
Dell RSTP-Per VLAN (compatible with Cisco's RPVST+)		draft-ietf-idmr-dvmrp-mib-11 draft-ietf-magma-mgmd-mib-05		3412	Message Processing and Dispatchin
	e optional features:	draft-iett-magma-mgmd-mb-05 draft-ietf-pim-bsr-mib-06		3413	SNMP Applications
STP root guard.		IEEE 802.1ag draft 8.1 – Connectivity Fault		3414	User-based security model
BPDU guard, BPDU filtering		Management (CFM)		3415	View-based control model
02.1X Network Access Control, Auto VLAN		IEEE 802.1p GMRP Dynamic L2 Multicast		3416	SNMPv2
02.2 Logical Link Control		Regis	tration	3417	Transport Mappings
02.3 10BASE		Quality	of service	3418 3577	SNMP MIB RMON MIB
	Ethernet (1000BASE-T) Extensions for VLAN Tagging	2474	DiffServ Field	3580	802.1X with RADIUS
	gregation with LACP	2475	DiffServ Architecture	3737	Registry of RMON MIB
	bit Ethernet (10GBASE-X)	2597	Assured Fwd PHB	4086	Randomness Requirements
02.3at PoE+ (N	13024EP-ON,	Dell Por	t Based QoS Services	4113	UDP MIB
N3048EP-ON and N3048P)		(TCP/UDP) Mode		4251	SSHv2 Protocol
02.3AX LAG Load Balancing		Dell Red/WRED		4252	SSHv2 Authentication
	nassis LAG (MLAG)	Dell Flow Based QoS Services		4253	SSHv2 Transport SSHv2 Connection Protocol
,	ased Forwarding Efficient Ethernet (EEE)	Dell UDI	lio Video Bridging Mode (IPv4/IPv6)	4254 4419	SSHv2 Connection Protocol SSHv2 Transport Layer Protocol
	nernet (100BASE-TX) on	2697	srTCM	4521	LDAP Extensions
management po		4115	trTCM	4716	SECSH Public Key File Format
02.3x Flow Co	ontrol		Trusted Mode	6101	SSL
	Ethernet (1000BASE-X)	1155	SMIv1	6398	IP Router Alert
NSI LLDP-MED	` ,	1157	SNMPv1	Dell	Enterprise MIB supporting routing
	ogic iSCSI Auto-configuration	1212	Concise MIB Definitions		features draft-ietfhubmib- etherifmib-
ITU 9,216 by	ytes	1213 1215	MIB-II SNMP Traps		v3-00.txt (Obsoletes
FC compliance	and additional features	1286 Bridge MIB		Regulatory, environment and other	
General Internet protocols		1442	SMIv2	compliance	
General Internet protocols are supported. For a		1451			
etailed list, please contact your Dell MC representative.		1492	TACACS+	Australia/New Zealand: ACMA RCA Class A Canada: ICES Class A; cUL	
		1493	Managed objects for Bridges MIB		
		1573	Evolution of Interfaces		CCC Class A; NAL
General IPv4 protocols		1612 1643	DNS Resolver MIB Extensions Ethernet-like MIB		CE Class A VCCI Class A
Seneral IPv4 protocols are supported. For a etailed list, please contact your Dell MC representative.		1757	RMON MIB		CC Class A; NRTL UL; FDA 21 CFR
		1867	HTML/2.0 Forms with file upload		and 1040.11
		-	extensions	Eurasia Customs Union: EAC	
eneral IPv6 pro		1901	Community-based SNMPv2		y: GS mark
General IPv6 protocols are supported. For a		1907	SNMPv2 MIB	Product meets EMC and safety standards in	
etailed list, please contact your Dell EMC		1908	Coexistence between SNMPv1/v2	many countries inclusive of USA, Canada,	
epresentative.		2011 2012	IP MIB TCP MIB		ean, China. For more country-specific ory information, and approvals, please
ayer 3 functiona	ality	2012	UDP MIB		r Dell EMC representative.
058 RIPv1	2453 RIPv2	2068	HTTP/1.1	220 ,00	
724 RIPv2 MIB	2740 OSPFv3	2096	IP Forwarding Table MIB	RoHS	
Extension		2233	Interfaces Group using SMIv2		meets RoHS compliance standards in
765 OSPF DB	2787 VRRP MIB	2246	TLS v1	,	ountries inclusive of USA, EU, China,
overflow	3101 NSSA	2271	SNMP Framework MIB		ia. For more country-specific RoHS
850 OSPF MIB 082 RIP-2 MD5	3101 NSSA 3137 OSPF Stub	2295 2296	Transport Content Negotiation Remote Variant Selection		nce information, please see your Dell presentative.
Auth	Router Advert	2346	AES Ciphersuites for TLS	EU WEI	•
328 OSPFv2	3623 Graceful	2576	Coexistence between SNMPv1/v2/v3		ery Directive
	Restart	2578	SMIv2	REACH	
338 VRRP	3768 VRRP	2579	Textual Conventions for SMIv2		
370 Opaque	4271 BGP	2580	Conformance Statements for SMIv2	Energy	
ell Policy Based		2613	RMON MIB	Japan: .	JEL
outing	Restart	2618	RADIUS Accounting MIR	Contific	ations (available or coming comi
lulticast		2620 2665	RADIUS Accounting MIB Ethernet-like Interfaces MIB		ations (available or coming soon) e with US Trade Agreements Act
112 IGMPv1	3810 MLDv2	2666	Identification of Ethernet chipsets		ompliance.
236 IGMPv2	3973 PIM-DM	2674	Extended Bridge MIB	` ,	s products have the necessary features
365 Admin	4541 IGMP v1/v2/v3	2737	ENTITY MIB		ort a PCI compliant network topology.
scoped IP	Snooping and	2818	HTTP over TLS		
2710 MLDv1	Querier	2819	RMON MIB (groups 1, 2, 3, 9)		
2932 IPv4 MIB	5061 PIM MIB	2856	Text Conv. For High Capacity		

RMON MIB (groups 1, 2, 3, 9) Text Conv. For High Capacity

Data Types Interfaces MIB

2863

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2933 IGMP MIB 5060 PIM MIB 3376 IGMPv3 Dell Static IP Multicast

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