

# cnMatrix EX3024F Switch

## Intelligent Ethernet Fiber Aggregation Switching

### EX3024F Switch Quick Look

- Zero-touch deployments
- Policy-based automation
- Auto-device profiling and segmentation
- Non-blocking, line-rate architecture with fully featured L2/L3 switching

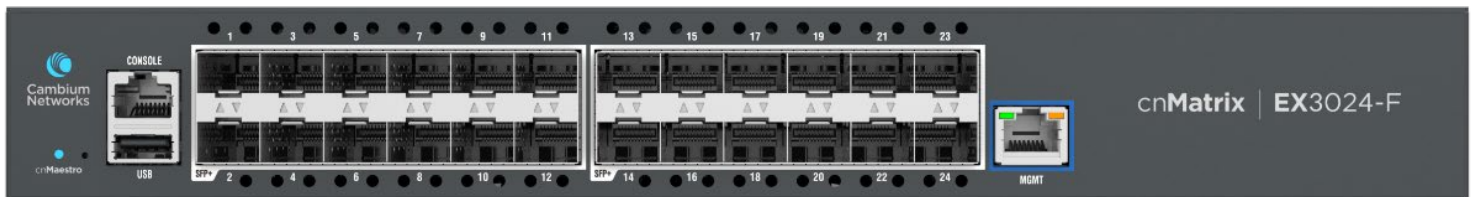


Cambium Networks' next-generation cnMatrix™ switching platform offers a cloud-managed, high-performance, feature-rich enterprise-grade ethernet switching solution.

### FEATURES

- Easy and simple, free cloud (or on premise) management with cnMaestro™
- Zero-touch deployment of switches makes installation easy
- Policy-based automation (PBA) eliminates manual and time-consuming configuration during adds, moves, and changes of network devices
- Enhanced security with automated device profiling and segmentation
- Unified wired–wireless access solution

The cnMatrix series of fully managed switches delivers full Layer 2 and Layer 3 capabilities with enhanced security. The EX3024F is a fiber aggregation switch that has all 10 Gbps SFP+ fiber ports. Also, this switch has dual internal power supplies for additional robustness and redundancy. These switches come with a five-year limited lifetime warranty.



## cnMatrix EX3024F Switch

### Specifications

Throughput	480 Gbps	Flash Storage	256 MB
Forwarding Rate in Mpps (64 Byte Packets)	120	DRAM	2 GB
Packet Buffer	3 MB	VLANs (simultaneous)	4K
10/100/1000 Ports	n/a	QinQ	Yes
2.5 G Ports	n/a	LACP/Trunking	8 LAGs/8 ports per LAG
Energy-Efficient Ethernet	✓	QoS Priority Queues	8
Fiber Ports	24 SFP+	PVRST	64
PoE+ Enabled Ports 802.3af/at/bt	N/A	Ingress/Egress ACL	512
Serial Console	✓	L3 Interfaces	64
USB Port	✓	Static ARP Entries	512
Out-of-Band Management Port	✓	ARP Entries	1000
Rack Mount Kit	✓	Static Routes	64
Internal Fans	2	Dynamic Routing	512
Reset Button	✓	IGMP/PIM-SM Multicast Groups	512
MAC Address Table Size	32K	Policy-Based Automation (PBA)	✓

## cnMatrix EX3024F Switch

### Specifications – All Models

<b>Quality of Service</b>	ACL mapping/marking of ToS/DSCP (COS) ACL mapping marking of 802.1p ACL mapping to priority queue DiffServ support Honoring DSCP and 802.1p (CoS) Traffic shaping/metering Priority queue management using Weighted Round Robin (WRR), Strict Priority (SP) and a combination of WRR and SP	<b>Layer 2 Feature Set</b>	MLAG* 802.1d, RSTP, 802.1s - MSTP, PVRST ERPSv1—Ethernet ring protection switching VLAN, port, protocol, 802.1q QinQ BPDU guard, root guard, loop guard BPDU filtering IGMP snooping v1/v2/v3*, fast leave IGMP proxy LLDP/LLDP MED Static MAC Flow control per port Port mirroring/SPAN: Port based, ACL based, VLAN based Port isolation/private VLAN edge Link aggregation groups (static/LACP) Jumbo frame (9K) DoS protection Ping/TraceRoute/ICMPv6
<b>Traffic Management</b>	ACL-based inbound rate-limiting policies Broadcast, multicast, and unknown unicast rate limiting (storm control) Inbound rate limiting per port Outbound rate limiting per port/queue		
<b>Security</b>	802.1x authentication MAC authentication/MAB Guest VLAN/failover VLAN authorization Local & RADIUS authentication/authorization (dynamic VLAN assignment) RADIUS/Tacacs/Tacacs+ Secure shell Secure copy (SCP) Local username/password Port security DHCP snooping Dynamic ARP inspection		
<b>Security (ACL)</b> <small>Permit/deny actions for inbound IP and layer 2 traffic classification based on:</small>	Source/destination IP address TCP/UDP source/destination port IP protocol type Type of Service (ToS) or differentiated services (DSCP) field Source/destination MAC address EtherType IEEE 802.1p user priority VLAN ID RFC 1858—Security considerations for IP fragment filtering	<b>Layer 3 Feature Set</b>	Inter-VLAN routing Static ARPs Static routes DHCP relay w/multiple helpers per VLAN Dynamic routing – RIPv1/v2 Dynamic routing – OSPFv2 Route redistribution
<b>Management</b>	cnMaestro Industry standard Command Line Interface (CLI) DHCP client Embedded web management (HTTP/HTTPS) DHCP server USB file management and storage	Out-of-band Ethernet management SSH/SSH v2 SNMP v1/v2/v3 Simple Network Time Protocol (SNTP) Local/remote system logging (syslog client) Policy-based automation (PBA)	TFTP/SFTP Telnet client/server IPv6 management Password management

\* Feature to be included in a future release.

## cnMatrix EX3024F Switch

### Hardware Specifications

Power Supply	Dual internal 120W	PoE+ Power Budget	N/A
Max Switch Power (with Traffic)	75W	PoE+ Voltage	N/A
MTBF (Hours)	928,678	PoE Max Power per Port	N/A
Weight	3 kg	Rack Mountable	Yes 1U
Dimensions (HxWxL)	4.4x33.0x23.05 cm	Temperature Ranges	0°C to 50°C (32°F to 122°F)
CPU Speed	1.4 GHz	Storage Temperature	-40°C to 70°C (-40°F to 158°F)
LEDs per Port	Link/Activity		
Acoustic Noise dBA per Switch (Ambient Temperature)	36.2 dBA: < 29°C 45.6 dBA: 29°C-34°C 52 dBA: > 34°C		

### Switching – IEEE Standards

<b>Core Switching Features</b>	IEEE 802.1ab—Link Layer Discovery Protocol (LLDP) IEEE 802.1D—Spanning tree compatibility IEEE 802.1p—Ethernet priority with user provisioning and mapping IEEE 802.1s—Multiple spanning tree compatibility IEEE 802.1Q—Virtual LANs with port-based VLANs IEEE 802.1X—Port-based authentication 802.3az—Energy-efficient Ethernet	<b>Advanced Layer 2 Features</b>	Authentication, authorization, and accounting* (AAA) IEEE 802.1ad (QinQ) Broadcast/multicast/unknown unicast storm recovery DHCP snooping IGMP snooping querier ERPS – G.8032 Jumbo Ethernet frame support Port MAC locking Port mirroring Protected ports Static MAC filtering
<b>VLAN Support</b>	IEEE 802.1W—Rapid spanning tree compatibility IEEE 802.3—10BASE-T IEEE 802.3u—100BASE-T IEEE 802.3ab—1000BASE-T IEEE 802.3ac—VLAN tagging IEEE 802.3ad—Link aggregation IEEE 802.3x —Flow control Bridged local area networks - Amendment 07: Multiple Registration Protocol	<b>Layer 3 Features</b>	Inter-VLAN Routing Static ARP Static routes RFC 2131 – DHCP relay RFC 2328 – OSPF version 2 RFC 2453 – RIP version 2 PIM-SM – Multicast routing
<b>IEEE 802.1Q-2003</b>	RFC 4541—Considerations for Internet Group Management Protocol (IGMP)  Snooping switches ANSI/TIA-1057—LLDP-Media Endpoint Discovery (MED)		

\*Feature to be included in a future release.

## cnMatrix EX3024F Switch

### System Facilities

Event and error logging facility	RFC 896—Congestion control in IP/TCP networks	RFC 2132—DHCP options and BOOTP vendor extensions
Run-time and configuration download capability	RFC 951—BOOTP	RFC 2819—Remote Network Monitoring Management Information Base
PING utility	RFC 1034—Domain names - concepts and facilities	RFC 2865—RADIUS client
FTP Transfers via IPv4/IPv6	RFC 1035—Domain names - implementation and specification	RFC 2869—RADIUS Extensions
RFC 768—UDP	RFC 1321—Message digest algorithm	RFC 3579—RADIUS support for EAP
RFC 783—TFTP	RFC 1534—Interoperability between BOOTP and DHCP	RFC 3580—IEEE 802.1X RADIUS usage guidelines
RFC 791—IP	RFC 2021—Remote network monitoring management information base version 2	RFC 3164—BSD syslog protocol
RFC 792—ICMP	RFC 2030—Simple Network Time Protocol (SNTP)	RFC 3580—802.1X RADIUS Usage Guidelines
RFC 793—TCP		
RFC 826—ARP		
RFC 894—Transmission of IP datagrams over Ethernet networks		

### Management

SNMP v1, v2, and v3	RFC 4716—SECSH public key file format	RFC 2818—HTTP over TLS
SSH 1.5 and 2.0	RFC 4419—Diffie-Hellman group exchange for SSH transport layer protocol	RFC 3268—AES cipher suites for transport layer security
RFC 4252—SSH authentication protocol	SSL 3.0 and TLS 1.0	Telnet
RFC 4253—SSH transport layer protocol	RFC 2246—TLS protocol, version 1.0	Web GUI
RFC 4254—SSH connection protocol		
RFC 4251—SSH protocol architecture		

### SNMP MIBs

<b>Enterprise MIBs for Full Configuration Support of Switching Features</b>	RFC 1213—MIB II	RFC 2674—VLAN MIB	RFC 3273—RMON groups 1, 2, and 3
	RFC 1493—Bridge MIB	RFC 2737—Entity MIB version 2*	RFC 3291—Textual conventions for internet network addresses
	RFC 1612—DNS resolver MIB extensions	RFC 1213—MIB II	RFC 3434—RMON Groups 1, 2, and 3
	RFC 1643—Definitions of managed objects for Ethernet-like interface types	RFC 2819—RMON groups 1, 2, 3, and 9	RFC 4022—TCP-MIB
	RFC 2233—Interfaces group MIB using SMI v2	RFC 2863—IF-MIB	RFC 4113—UDP-MIB
	RFC 2613—SMON MIB	RFC 2925—Definitions of managed objects for remote ping, traceroute, and lookup operations	
	RFC 2618—RADIUS authentication client MIB		

### Quality of Service MIBs

MIBs for full configuration support of DiffServ, ACL, and Cos functionality  
 RFC 3289—Management information base for DiffServ architecture (read-only)

### Quality of Service

<b>Classify Traffic Based on Same Criteria as ACLs and Optionally</b>	Mark the IP DSCP or precedence header fields	RFC 2474—Definition of the differentiated services field (DS field) in the IPv4 and IPv6 headers
	Police the flow to a specific rate with two- color aware support	RFC 2475—An architecture for differentiated services
		RFC 2597—Assured forwarding per-hop behavior

## cnMatrix EX3024F Switch

cnMatrix Ordering Information		
Switch	MXEX3024xFxA00	cnMatrix EX3024F, Intelligent Ethernet Fiber Aggregation Switch, 24 - 10 Gbps SFP+ ports, dual internal AC power supplies - no power cord
Switch	MXEX3024xFxA01	cnMatrix EX3024F, Intelligent Ethernet Fiber Aggregation Switch, 24 10 Gbps SFP+ ports, dual internal AC power supplies - no power cord, USA only
Power Cord	N000900L040A	AC line cord, US Type B, 1.2m C13 Connector
Transceiver	SFP-10G-SR	10G SFP+ MMF SR Transceiver, 850 nm. -40°C to 85°C (-40°F to 185°F)
Transceiver	SFP-1G-SX	1G SFP MMF SX Transceiver, 850 nm. -40°C to 85°C (-40°F to 185°F)
Transceiver	SFP-10G-LR	10G SFP+ SMF LR Transceiver, 1310 nm. -40°C to 85°C (-40°F to 185°F)
Transceiver	SFP-1G-LX	1G SFP SMF LX Transceiver, 1310 nm. -40°C to 85°C (-40°F to 185°F)
Transceiver	SFP-1G-Copper	1000Base-T (RJ45) SFP Transceiver. -40°C to 85°C (-40°F to 185°F)
Transceiver	SFP-10G-Copper	10G Base-T (RJ45) SFP Transceiver. 0°C to 70°C (-40°F to 185°F)
Cambium Care Advanced	CCADV-UPG-EX3024F-1	Cambium Care Advanced Add-on to cnMaestro X, 1-year support for one EX3024F. 24x7 TAC support, SW updates, and NBDS advance replacement for HW
Cambium Care Advanced	CCADV-UPG-EX3024F-3	Cambium Care Advanced Add-on to cnMaestro X, 3-year support for one EX3024F. 24x7 TAC support, SW updates, and NBDS advance replacement for HW
Cambium Care Advanced	CCADV-UPG-EX3024F-5	Cambium Care Advanced Add-on to cnMaestro X, 5-year support for one EX3024F. 24x7 TAC support, SW updates, and NBDS advance replacement for HW
Cambium Care Advanced	CCADV-SUP-EX3024F-1	Cambium Care Advanced, 1-year support for one EX3024F. 24x7 TAC support, SW updates, and NBDS advance replacement for HW
Cambium Care Advanced	CCADV-SUP-EX3024F-3	Cambium Care Advanced, 3-year support for one EX3024F. 24x7 TAC support, SW updates, and NBDS advance replacement for HW
Cambium Care Advanced	CCADV-SUP-EX3024F-5	Cambium Care Advanced, 5-year support for one EX3024F. 24x7 TAC support, SW updates, and NBDS advance replacement for HW
Cambium Care Pro	CCPRO-SUP-EX3024F-1	Cambium Care Pro, 1-year support for one EX3024F. 24x7 TAC support, SW updates
Cambium Care Pro	CCPRO-SUP-EX3024F-3	Cambium Care Pro, 3-year support for one EX3024F. 24x7 TAC support, SW updates
Cambium Care Pro	CCPRO-SUP-EX3024F-5	Cambium Care Pro, 5-year support for one EX3024F. 24x7 TAC support, SW updates
Cambium Care Pro	MSX-SUB-EX3024F-1	cnMaestro X for one EX3024F. Creates one Device Tier20 slot. Includes Cambium Care Pro support. 1-year subscription
Cambium Care Pro	MSX-SUB-EX3024F-3	cnMaestro X for one EX3024F. Creates one Device Tier20 slot. Includes Cambium Care Pro support. 3-year subscription
Cambium Care Pro	MSX-SUB-EX3024F-5	cnMaestro X for one EX3024F. Creates one Device Tier20 slot. Includes Cambium Care Pro support. 5-year subscription
Cambium Care Pro	MSX-SUB-EX3024F-7	cnMaestro X for one EX3024F. Creates one Device Tier20 slot. Includes Cambium Care Pro support. 7-year subscription
Cambium Care Pro	MSX-SUB-EX3024F-10	cnMaestro X for one EX3024F. Creates one Device Tier20 slot. Includes Cambium Care Pro support. 10-year subscription

### ABOUT CAMBIUM NETWORKS

Cambium Networks enables service providers, enterprises, industrial organizations, and governments to deliver exceptional digital experiences and device connectivity with compelling economics. Our ONE Network platform simplifies management of Cambium Networks' wired and wireless broadband and network edge technologies. Our customers can focus more resources on managing their business rather than the network. We make connectivity that just works.

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