# Catalyst 9300X-M Datasheet

Overview

The Catalyst 9300X-M addresses the most demanding enterprise applications by combining the simplicity of the Meraki dashboard with powerful switching hardware. To satisfy high-bandwidth applications and the deployment of high-speed wifi access points, the Catalyst 9300X-M provides multigigabit ports, 1TB stacking, and modular 10/25 or 40/100G uplinks. The Catalyst 9300X-M delivers resiliency with fast stack convergence and StackPower. The Catalyst 9300X-M provides Adaptive Policy using an over-the-wire tag which segments traffic into security groups to deliver scalable security. The Catalyst 9300X-M is integrated under the Meraki dashboard to provide a simply powerful solution to the most demanding wired access applications.

Adaptive Policy provides simple & scalable security policies to segment traffic using Security Groups. Security Groups are created in the dashboard using natural language such as "IOT device" & "Guest." The security policy intent (e.g., Permit or Deny) is then simply provisioned between Security Groups which results in the segmentation of each group's traffic. By making security policy management intuitive and scalable relative to legacy IP-address based Access Control Lists, Adaptive Policy empowers operators to confidently secure their network traffic independent of future network changes.

By pooling & distributing power across C9300X-Ms using a series of StackPower cables, StackPower provides simple and resilient power distribution across the stack.

C9300X-24Y-M
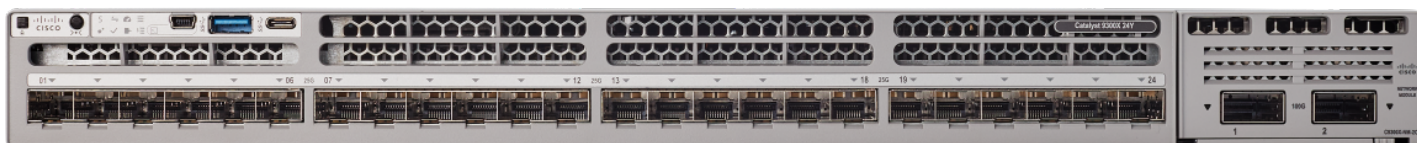
C9300X-48TX-M
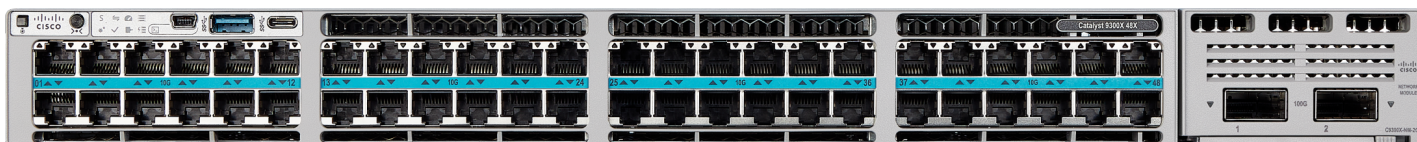
A Catalyst 9300X switch can also be migrated to a Meraki-managed persona, where it would function as its Catalyst Meraki 9300X equivalent. For details on the migration process, please refer to our Getting started: Cisco Catalyst 9300 with Meraki Dashboard guide.

Models

Number of Ports	Model	Description
12 Ports	C9300X-12Y-M	12-port SFP28 Fiber switch

Number of Ports	Model	Description
24 Ports	C9300X-24Y-M	24-port SFP28 Fiber switch
	C9300X-24HX-M	24-port mGig UPoE+ switch (24 x 10G mGig)
48 Ports	C9300X-48TX-M	48-port mGig switch (48 x 10G mGig)
	C9300X-48HX-M	48-port mGig UPoE+ switch (48 x 10G mGig)
	C9300X-48HXN-M	48-port mGig UPoE+ switch (8 x 10G mGig + 40 x 5G mGig)

Features

Category	Features
Highlights	• Layer-3 • 40G/100G or 10G/25G modular uplink options on all models • mGig support • 1T/480G Dual Dedicated Hardware Stacking Ports • 90W UPoE+ Support (802.3bt) • StackPower in a ring topology supporting upto 4 switches
Management	• Managed via Cisco Meraki Dashboard • Zero-touch remote provisioning (no staging needed) • Basic configuration capability via local management page • Detailed historical per-port and per-client usage statistics • Operating System, device, and hostname fingerprinting • Automatic firmware upgrades with scheduling control • SNMP and SYSLOG support for integration with other network management solutions
Remote Diagnostics	• Email, SMS and Mobile push notification alerts1 • Ping, traceroute, cable testing, and link failure detection with alerting • Remote packet capture • Dynamic and interactive network discovery and topology • Combined event and configuration change logs with instant search
Stacking	• Physically stack up to 8 switches with 1Tbps of stacking bandwidth on all models (backward compatible with 480G) • Virtual stacking supports thousands of switch ports in a single logical stack for unified management, monitoring, and configuration • Faster convergence • StackPower in a ring topology supporting upto 4 switches

Category	Features
Ethernet Switching Capabilities	• 802.1p Quality of Service, 8 queues (w/ 6 configurable for DSCP-to-CoS mapping) • 802.1Q VLAN and trunking support for up to 4,094 VLANs (1000 active VLANs with STP enabled) • Single Instance of 802.1s Multiple Spanning Tree Protocol (interoperable with RSTP, STP, PVST, RPVST) • STP Enhancements: BPDU guard, Root guard, Loop guard, UDLD • Broadcast storm control • 802.1ab Link Layer Discovery Protocol (LLDP) and Cisco Discovery Protocol (CDP) • 802.3ad Link aggregation with up to 8 ports per aggregate, multi-chassis aggregates supported on stacked switches • Port mirroring • IGMP snooping for multicast filtering • MAC Forwarding Entries: 32K
Layer 3	• Static routing, OSPFv2 • Multicast routing (ASM: PIM-SM) • Warm Spare (VRRP) * • DHCP Server, DHCP Relay
Security	• Integrated multi-factor authentication for Dashboard management • Role-based access control (RBAC) with granular device and configuration control • Corporate wide password policy enforcement • IEEE 802.1X RADIUS and MAB, hybrid authentication and RADIUS server testing • Single-Host/Multi-Domain/Multi-Host/Multi Authentication • Port security: Sticky MAC, MAC allow list* • DHCP snooping, detection and blocking, Dynamic ARP Inspection • IPv4 and IPv6 ACLs • Secure Connect * • Adaptive Policy

---

ⓘ * Available in a future software release

Catalyst 9300/L/X-M Licensing

The Catalyst 9300-M license applies to all c9300 hardware platforms (c9300 / c9300L / c9300X) excluding the MS390. Catalyst 9300-M license structure includes two feature tiers: Enterprise and Advanced. As with all Meraki managed switches, every Catalyst 9300-M license is available in 1, 3, 5, 7, and 10 year terms.

Catalyst 9300X-M License Structure	12/24-Port	48-port
Advanced Features	LIC-C9300-24A	LIC-C9300-48A
Enterprise Features	LIC-C9300-24E	LIC-C9300-48E

The features available with advanced licensing are:

- [Adaptive policy](#)
- [Netflow v10 (IPFIX) and Encrypted Traffic Analytics](#)

ⓘ In the Co-term licensing model (most existing Organizations), an Organization must either have all Catalyst 9300/L/X-M Enterprise or all Catalyst 9300/L/X-M Advanced licenses - they cannot be mixed. In the Per-device licensing model, a mix of Enterprise and Advanced can be added to a single Organization, but certain features may require all devices in a Network to have Advanced licenses, e.g. Adaptive Policy.

> ⊘ **Additional Information:** [MS390](#)s existing in the same co-term Organization will require the *same* license edition (either Enterprise or Advanced) as the Catalyst 9300/L/X-M. License types cannot be mixed and will result in an incompatible license error.
>
> In a co-term license Organization - MS130, MS150, MS390, C9300 require the **same license tier** (either Enterprise of Advanced) across the entire Organization.
>
> For example, if an organization has existing MS390/C9300/MS150/MS130 with enterprise licenses, they cannot add C9300's with advanced licenses in that organization - they must be added with enterprise licenses.
>
> If the organization has existing MS390/C9300/MS150/MS130 with advanced licenses, they cannot add C9300's with enterprise licenses in that organization - they must be added with advanced licenses.

For more information on licensing, refer to [Meraki Licensing Models article](#).

[Subscription licensing](#) is also available for the Catalyst 9300-M switches

---

Technical Breakdown

Interfaces Specifications

Model/Persona	Interfaces	Uplinks (SFP+, SFP28, QSFP+, QSFP28)	1T/480G Hardware Stack Ports	Dedicated Management Interface	PoE/ UPoE Capabilities
C9300X-12Y-M	12 x 1/10/ 25G SFP28 Fiber	Modular	2	1	n/a
C9300X-24Y-M	24 x 1/10/25G SFP28 Fiber	Modular	2	1	n/a
C9300X-24HX-M	24 x mGig UPoE+ RJ45 24 x 10G mGig	Modular	2	1	UPoE+
C9300X-48TX-M	48 x 10G mGig RJ45	Modular	2	1	n/a
C9300X-48HX-M	48 x mGig UPoE+ RJ45 48 x 10G mGig	Modular	2	1	UPoE+
C9300X-48HXN-M	48 x mGig UPoE+ RJ45 8 x 10G mGig + 40 x 5G mGig	Modular	2	1	UPoE+

ⓘ All models are available with modular uplinks that have been listed under the Accessories list. For supported SFP modules please refer the SFP Datasheet.

ⓘ **Cabling Best Practices for Multi-Gigabit operations:** While Category-5e cables can support multigigabit data rates upto 2.5/5 Gbps, external factors such as noise, alien crosstalk coupled with longer cable/cable bundle lengths can impede reliable link operation. Noise can originate from cable bundling, RFI, cable movement, lightning, power surges and other transient event. It is recommended to use Category-6a cabling for reliable multigigabit operations as it mitigates alien crosstalk by design.

Physical Specifications

Model	Dimensions (h x w x d) W/ Default Power Supply	Weight w/ Default Power Supply	Mount Type	Hot Swap Fans	Operating Temperature	Humidity
C9300X-12Y-M	1.73" x 17.5" x 19.2" (4.4 x 44.5 x 48.77cm)	15.0 lb (6.80 kg)	1U Rack Mount	Yes, 3x	-5°C to 45°C	5 to 90%
C9300X-24Y-M	1.73" x 17.5" x 20.7" (4.4 x 44.5 x 52.6cm)	16.2 lb (7.35 kg)	1U Rack Mount	Yes, 3x	-5°C to 45°C	5 to 90%
C9300X-24HX-M	1.73" x 17.5" x 20.63" (4.4 x 44.5 x 52.4cm)	13.8 lb (6.25 kg)	1U Rack Mount	Yes, 3x	-5°C to 45°C	5 to 90%
C9300X-48TX-M	1.73" x 17.5" x 22.03" (4.4 x 44.5 x 55.9cm)	14.6 lb (6.62 kg)	1U Rack Mount	Yes, 3x	-5°C to 45°C	5 to 90%
C9300X-48HX-M	1.73" x 17.5" x 22.03" (4.4 x 44.5 x 55.9cm)	14.6 lb (6.62 kg)	1U Rack Mount	Yes, 3x	-5°C to 45°C	5 to 90%
C9300X-48HXN-M	1.73" x 17.5" x 20.63" (4.4 x 44.5 x 52.4cm)	14.2 lb (6.44 kg)	1U Rack Mount	Yes, 3x	-5°C to 45°C	5 to 90%

Performance

Model	Switching Capacity	Stacking Bandwidth	Forwarding rate
C9300X-12Y-M	1000 Gbps	1 Tbps / 480 Gbps	744.04 Mpps
C9300X-24Y-M	2000 Gbps	1 Tbps / 480 Gbps	1488 Mpps
C9300X-24HX-M	880 Gbps	1 Tbps / 480 Gbps	327.38 Mpps
C9300X-48TX-M	2000 Gbps	1 Tbps / 480 Gbps	1488 Mpps
C9300X-48HX-M	2000 Gbps	1 Tbps / 480 Gbps	1488 Mpps
C9300X-48HXN-M	2000 Gbps	1 Tbps / 480 Gbps	1488 Mpps

Power Supply and Specifications

Model	Default Power Supply	Hot Swap Power Supply	Available PoE W/ Primary PS	Available PoE W/ Secondary PS*	Power Load (idle/max)
C9300X-12Y-M	PWR-C1-715WAC-P-M	Yes, Dual	n/a	n/a	97.1 / 157.3 W
C9300X-24Y-M	PWR-C1-715WAC-P-M	Yes, Dual	n/a	n/a	139.6 / 243.7 W
C9300X-24HX-M	PWR-C1-1100WAC-P-M	Yes, Dual	735W	1835W	127.2 / 912.6 W
C9300X-48TX-M	PWR-C1-715WAC-P-M	Yes, Dual	n/a	n/a	184.3 / 269.8 W
C9300X-48HX-M**	PWR-C1-1100WAC-P-M	Yes, Dual	590W	1690W	178.9 / 672 W
C9300X-48HXN-M	PWR-C1-1100WAC-P-M	Yes, Dual	690W	1790W	127.2 / 912.6 W

ⓘ * The PoE values are provided considering the secondary PS to be the default power supply of the respective model.

** The **C9300X-48HX-M** switch is hardware limited to 36 ports of 90W UPOE+ max without stack-power. With stack-power the switch is limited to 32 ports of 90W UPOE+.

Note: For Japan, the recommendation is to deploy the switch with 200V+ outlets. The 1100WAC power supplies will not operate on 100V. Please reference Table 13. AC Power Cords for the appropriate 250VAC power cable.

PSU configuration and PoE budgets

Model	Primary PSU	PoE	With Secondary PSU	w/ 1900W Secondary PSU
C9300X-24HX-M	PWR-C1-1100WAC-P-M	735W	1835W	2160W
C9300X-48HX-M	PWR-C1-1100WAC-P-M	590W	1690W	2490W
C9300X-48HXN-M	PWR-C1-1100WAC-P-M	690W	1790W	2590W

Package contents

In addition to the MS switch, each shipment includes the following.

- 1 x default power supply unit for the switch model (please refer to the power supply and specifications section)
- Rack mount brackets (rack screws not included)
- 3 x Pre-installed fans.

Optional Accessories

Accessory	Description	Supported Models
PWR-C1-350WAC-P-M	350W AC Power Supply	C9300, C9300L, C9300X
PWR-C1-715WAC-P-M	715W AC Power Supply	C9300, C9300L, C9300X
PWR-C1-1100WAC-P-M	1100W AC Power Supply	C9300, C9300L, C9300X
PWR-C1-1900WAC-P-M	1900W AC Power Supply (230V)**	C9300, C9300X
C9300X-NM-2C-M*	2 x 40G/100G QSFP28 Uplink Module	C9300X
C9300X-NM-8Y-M**	8 x 1/10G/25G SFP28 Uplink Module	C9300X
STACK-T1-50CM-M	Catalyst Meraki 1T Stacking Cable, 0.5 Meter	C9300, C9300X
STACK-T1-1M-M	Catalyst Meraki 1T Stacking Cable, 1 Meter	C9300, C9300X
STACK-T1-3M-M	Catalyst Meraki 1T Stacking Cable, 3 Meter	C9300, C9300X
CAB-SPWR-30CM-M	Catalyst 9300/X-M 30CM StackPower Cable	C9300, C9300X
CAB-SPWR-150CM-M	Catalyst 9300/X-M 150CM StackPower Cable	C9300, C9300X
FAN-T2-M	System Fan	C9300, C9300X
4PT-KIT-T2-M	Catalyst 9300-M Rack Mount Kit	C9300, C9300X

Please refer to power supply models for details.

ⓘ *NOTE: The **C9300X-NM-2C-M** modules will operate at **40Gbps** with software support in **CS17** firmware. For **100G** operation, **IOS-XE 17.15+** is required.

NOTE: Using the **C9300X-NM-8Y** on the **C9300X-48HXN-M** is hardware limited to only supporting ports 1-6 on the uplink module. Ports 7&8 are permanently disabled. For more details see IOS-XE documentation.

***NOTE:** The **PWR-C1-1900WAC-P-M** provides 1900 W output power when the nominal input voltage is 230 V. If the nominal input voltage is 115 V, then the output power is limited to 1500 W. The power supply does not work with standard 125VAC power cords(common with 1100W and lower power supplies), you require a C21 power cable like the North American(**C9K-PWR-CAB-AC-US**). Also a good option is the universal C20-C21 jumper cable(**C9K-PWR-CAB-AC-BL**), suitable for Rack PDUs . See Table 2 for all suitable worldwide power cord options. Please note there are no -M versions of these cables, they must be ordered with the Cisco SKU.

SFP Modules

The following SFP/Fiber transceivers are supported. For detailed SFP specifications, refer to the Meraki SFP datasheet.

For information about Cisco Optics compatibility, please click here

Transceiver Model	Standard	Supported C9300-M platform
1 Gbps		
MA-SFP-1GB-SX	1000BASE-SX over OM1/2/3/4 up to distances of 1KM	C9300, C9300L, C9300X
MA-SFP-1GB-LX10	1000BASE-LX10 over OS1/0S2 up to distances of 10KM	
10 Gbps		
MA-SFP-10GB-SR	10GBASE-SR over OM1/2/3/4 up to distances of 400 M	C9300, C9300L, C9300X
MA-SFP-10GB-LR	10GBASE-LR over OS1/2 up to distances of 10 KM	
MA-SFP-10GB-ER	10GBASE-ER over OS1/2 up to distances of 40 KM	
MA-SFP-10GB-ZR	10GBASE-ZR over OS1/2 up to distances of 80 KM	
MA-SFP-10GB-LRM	10GBASE-LRM over OM1/2/3, OS1/2 up to distances of 300 M Not supported on C9300X	C9300, C9300L only
40 Gbps MA-QSFP-40G-CSR4	QSFP-MPO12 over OM2/3/4 up to distances of 400 M	C9300
40 Gbps MA-QSFP-40G-SR-BD	QSFP Duplex LC over OM2/3/4 up to distances of 150 M	C9300, C9300X
100 Gbps		C9300, C9300L, C9300X

MA-QSFP-100G-LR4   100GBASE-LR4 over OS1/2 up to distances of 10 KM

MA-QSFP-100G-SR4   100GBASE-SR4 over OM3/4/5 up to distances of 100 M

ⓘ NOTE: Catalyst 9300X switches do not support LRM modules.

Regulations and Compliance

Electromagnetic Compatibility **Certifications**	FCC Part 15 (CFR 47) Class A, ICES-003 Class A, CISPR22 Class A, CNS13438, EN 300 386 V1.6.1, EN 55022 Class A, EN 61000-3-2, EN61000-3-3, KN 32, TCVN 7189 Class A, EN 55032 , CISPR 32 Class A, V-2/2015.04, V-3/2015.04, VCCI-CISPR 32 Class A, CISPR24, EN 300 386 V1.6.1, EN 55024, KN35, TCVN 7317
Safety	CAN/CSA-C22.2 No. 60950-1, UL 60950-1, EN 60950-1, IEC 60950-1, AS/NZS 60950.1
Environmental	Reduction of Hazardous Substances (RoHS)
Warranty	Full lifetime hardware warranty with next-day advanced replacement included

MTBF Rating

Model	MTBF at 25°C
C9300X-12Y-M	265,650
C9300X-24Y-M	249,350
C9300X-24HX-M	220,250
C9300X-48TX-M	206,480
C9300X-48HX-M	185,420
C9300X-48HXN-M	188,200

Installation Guide

For instructions on how to install and configure the C9300X series switch please refer the C9300/L/X Series Installation Guide