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## MS390 Datasheet

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### Overview

The Meraki MS390 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 802.11ax/wifi-6 access points, the MS390 provides multigigabit ports, 480G stacking, and modular 10/40G uplinks. The MS390 delivers resiliency with fast stack convergence and StackPower. The MS390 provides Adaptive Policy using an over-the-wire tag which segments traffic into security groups to deliver scalable security. The MS390 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 MS390s using a series of StackPower cables, StackPower provides simple and resilient power distribution across the stack.



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### Models

Number of Ports	Model	Description
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<b>24 Ports</b>	MS390-24-HW	24-port GbE switch
	MS390-24P-HW	24-port GbE PoE+ switch
	MS390-24U-HW	24-port GbE UPoE/802.3bt switch
	MS390-24UX-HW	24-port mGbE UPoE/802.3bt switch
<b>48 Ports</b>	MS390-48-HW	48-port GbE switch
	MS390-48P-HW	48-port GbE PoE+ switch
	MS390-48U-HW	48-port GbE UPoE/802.3bt switch
	MS390-48UX-HW	36-port 2.5GbE + 12-port mGbE UPoE/802.3bt switch
	MS390-48UX2-HW	48-port 5GbE UPoE/802.3bt switch

## Features

Category	Features
<b>Highlights</b>	<ul style="list-style-type: none"> <li>• Layer-3</li> <li>• 40G or 10G modular uplink options on all models (25G on C9300-M)</li> <li>• mGig support</li> <li>• Dual Dedicated 120G Hardware Stacking Ports</li> <li>• UPOE (60W per port) &amp; IEEE 802.3bt type3</li> <li>• StackPower in a ring topology supporting up to 4 switches</li> <li>• Netflow version 10 (IPFIX) and Encrypted Traffic Analytics</li> <li>• Micro-Segmentation via Adaptive Policy (Security Group Tags)</li> </ul>
<b>Management</b>	<ul style="list-style-type: none"> <li>• Managed via Cisco Meraki Dashboard</li> <li>• Zero-touch remote provisioning (no staging needed)</li> </ul>

	<ul style="list-style-type: none"> <li>• Basic configuration capability via local management page</li> <li>• Detailed historical per-port and per-client usage statistics</li> <li>• Operating System, device, and hostname fingerprinting</li> <li>• Automatic firmware upgrades with scheduling control</li> <li>• SNMP and SYSLOG support for integration with other network management solutions</li> </ul>
<b>Remote Diagnostics</b>	<ul style="list-style-type: none"> <li>• Email, SMS and Mobile push notification alerts</li> <li>• Ping, traceroute, cable testing, and link failure detection with alerting</li> <li>• Remote packet capture</li> <li>• Dynamic and interactive network discovery and topology</li> <li>• Combined event and configuration change logs with instant search</li> <li>• Netflow v10 Exporting</li> </ul>
<b>Stacking</b>	<ul style="list-style-type: none"> <li>• Physically stack up to 8 switches with 480 Gbps of stacking bandwidth on all models</li> <li>• Virtual stacking supports thousands of switch ports in a single logical stack for unified management, monitoring, and configuration</li> <li>• Faster convergence</li> <li>• StackPower in a ring topology supporting upto 4 switches</li> </ul>
<b>Ethernet Switching Capabilities</b>	<ul style="list-style-type: none"> <li>• 802.1p Quality of Service, 8 queues (w/ 6 configurable for DSCP-to-CoS mapping)</li> <li>• 802.1Q VLAN and trunking support for up to 4,094 VLANs (1000 active VLANs with STP enabled)</li> <li>• Single Instance of 802.1s Multiple Spanning Tree Protocol (interoperable with RSTP, STP, PVST, RPVST)</li> </ul>

	<ul style="list-style-type: none"> <li>• STP Enhancements: BPDU guard, Root guard, Loop guard, UDLD</li> <li>• Broadcast storm control</li> <li>• 802.1ab Link Layer Discovery Protocol (LLDP) and Cisco Discovery Protocol (CDP)</li> <li>• 802.3ad Link aggregation with up to 8 ports per aggregate, Multichassis aggregates supported on stacked switches</li> <li>• Port mirroring</li> <li>• IGMP snooping for multicast filtering</li> <li>• MAC Forwarding Entries: 32K</li> </ul>
<b>Layer 3</b>	<ul style="list-style-type: none"> <li>• Static routing, OSPFv2</li> <li>• Multicast routing (PIM-ASM)</li> <li>• Warm Spare (VRRP) *</li> <li>• DHCP Server, DHCP Relay</li> </ul>
<b>Security</b>	<ul style="list-style-type: none"> <li>• Integrated multi-factor authentication for Dashboard management</li> <li>• Role-based access control (RBAC) with granular device and configuration control</li> <li>• Corporate wide password policy enforcement</li> <li>• IEEE 802.1X RADIUS and MAB, hybrid authentication and RADIUS server testing</li> <li>• Single-Host/Multi-Domain/Multi-Host/Multi Authentication</li> <li>• Port security: Sticky MAC, MAC allow lists *</li> <li>• DHCP snooping, detection and blocking, Dynamic ARP Inspection</li> <li>• IPv4 and IPv6 ACLs</li> <li>• Adaptive Policy</li> </ul>

\* Available in a future software release

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## MS390 Licensing

MS390 license structure includes two feature tiers: Enterprise and Advanced. The MS390 also introduces a new and simpler license to hardware mapping, specifically 24-port or 48-port licenses. As with all MS, every MS390 license is available in 1, 3, 5, 7, and 10 year terms.

Meraki Support is unable to upgrade licensing from Enterprise to Advanced for the MS390 model. This upgrade must be purchased as a new license.

MS390 License Structure	24-Port Model	48-port Model
Advanced Features	LIC-MS390-24A	LIC-MS390-48A
Enterprise Features	LIC-MS390-24E	LIC-MS390-48E

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 MS390 Enterprise or all MS390 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.

**Note:** Catalyst 9300-M series existing in the same co-term Organization will require the *same* license edition (either Enterprise or Advanced) as the MS390. License types cannot be mixed and will result in an incompatible license error.

MS130, MS150, MS390, C9300 require the **same license tier** (either Enterprise or Advanced) across the entire Organization.

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

[Subscription licensing](#) is also available for the MS390 switches.

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## Context and Comparisons

	24 Port Models			48 Port Models		
Description	MS350-24X	MS355-24X2	MS390-24UX	MS350-48FP	MS355-48X2	MS390-48UX2

<b>1GbE RJ45</b>	16	-	-	48	24	-
<b>mGbE RJ45</b>	8	24	24	-	24	48
<b>10GbE SFP+</b>	4	4	Modular	4	4	Modular
<b>40GbE QSFP+</b>	n/a	2	Modular	-	2	Modular
<b>Hardware Stack Port</b>	2x 40G	2x 100G	2x 120G	2x 40G	2x 100G	2x 120G
<b>Management Interface</b>	1	1	1	1	1	1
<b>Hot Swap PS</b>	Yes, Dual	Yes, Dual	Yes, Dual	Yes, Dual	Yes, Dual	Yes, Dual
<b>Hot Swap Fans</b>	Yes, 2x	Yes, 3x	Yes, 3x	Yes, 2x	Yes, 3x	Yes, 3x
<b>Layer 3 Routing</b>	Yes	Yes	Yes	Yes	Yes	Yes
<b>UPoE/802.3bt Capable</b>	Yes, 740W	Yes, 740W	Yes, 560W	No, 740W(only PoE/PoE+)	Yes, 740W	Yes, 645W
<b>Max Switching Capacity</b>	176 Gbps	640 Gbps	640 Gbps	176 Gbps	688 Gbps	640 Gbp
<b>Max Stacking Bandwidth</b>	160 Gbps	400 Gbps	480 Gbps	160 Gbps	400 Gbps	480 Gbps

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## Technical Breakdown

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## Interfaces Specifications

Model	Interfaces	Uplink 10/	120G Hardware Stack Port	Dedicated	PoE/ UPoE
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		<b>40GbE (SFP+, QSFP+)</b>		<b>Management Interface</b>	<b>Capabilities</b>
<b>MS390-24-HW</b>	24 x 1GbE RJ45	Modular	2	1	n/a
<b>MS390-24P-HW</b>	24 x 1GbE RJ45	Modular	2	1	PoE
<b>MS390-24U-HW</b>	24 x 1GbE RJ45	Modular	2	1	UPoE/ 802.3bt
<b>MS390-24UX-HW</b>	24 x 100M/1G/2.5G/ 5G/10G RJ45	Modular	2	1	UPoE/ 802.3bt
<b>MS390-48-HW</b>	48 x 1GbE RJ45	Modular	2	1	n/a
<b>MS390-48P-HW</b>	48 x 1GbE RJ45	Modular	2	1	PoE
<b>MS390-48U-HW</b>	48 x 1GbE RJ45	Modular	2	1	UPoE/ 802.3bt
<b>MS390-48UX-HW</b>	36 x 100M/1G/2.5G + 12 x 100M/1G/2.5G/ 5G/10G	Modular	2	1	UPoE/ 802.3bt
<b>MS390-48UX2-HW</b>	48 x 100M/1G/2.5G/ 5G	Modular	2	1	UPoE/ 802.3bt

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.

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## Physical Specifications

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Model	Dimensions (h x w x d) W/ Default Power Supply	Weight	Mount Type	Hot Swap Fans	Operating Temperature	Humidity
<b>MS390-24-HW</b>	1.73" x 17.5" x 17.7" (4.4 x 44.5 x 44.9cm)	16.03 lb (7.27 kg)	1U Rack Mount	Yes, 3x	-5°C to 45°C	5 to 90%
<b>MS390-24P-HW</b>	1.73" x 17.5" x 17.7" (4.4 x 44.5 x 44.9cm)	16.33 lb (7.4 kg)	1U Rack Mount	Yes, 3x	-5°C to 45°C	5 to 90%
<b>MS390-24U-HW</b>	1.73" x 17.5" x 19.2" (4.4 x 44.5 x 44.8cm)	16.63 lb (7.54 kg)	1U Rack Mount	Yes, 3x	-5°C to 45°C	5 to 90%
<b>MS390-24UX-HW</b>	1.73" x 17.5" x 20.2" (4.4 x 44.5 x 51.3cm)	18.18 lb (8.25 kg)	1U Rack Mount	Yes, 3x	-5°C to 45°C	5 to 90%
<b>MS390-48-HW</b>	1.73" x 17.5" x 17.7" (4.4 x 44.5 x 44.9cm)	16.43 lb (7.45 kg)	1U Rack Mount	Yes, 3x	-5°C to 45°C	5 to 90%
<b>MS390-48P-HW</b>	1.73" x 17.5" x 17.7"	16.73 lb (7.59 kg)	1U Rack Mount	Yes, 3x	-5°C to 45°C	5 to 90%



	(4.4 x 44.5 x 44.9cm)					
<b>MS390-48U-HW</b>	1.73" x 17.5" x 19.2" (4.4 x 44.5 x 48.8cm)	17.03 lb (7.72 kg)	1U Rack Mount	Yes, 3x	-5°C to 45°C	5 to 90%
<b>MS390-48UX-HW</b>	1.73" x 17.5" x 22.2" (4.4 x 44.5 x 56.4cm)	20.50 lb (9.34 kg)	1U Rack Mount	Yes, 3x	-5°C to 45°C	5 to 90%
<b>MS390-48UX2-HW</b>	1.73" x 17.5" x 22.2" (4.4 x 44.5 x 56.4cm)	20.05 lb (9.09 kg)	1U Rack Mount	Yes, 3x	-5°C to 45°C	5 to 90%

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## Performance

Model	Switching Capacity	Stacking Bandwidth	Forwarding rate
<b>MS390-24-HW</b>	208 Gbps	480 Gbps	154.76 Mpps
<b>MS390-24P-HW</b>	208 Gbps	480 Gbps	154.76 Mpps
<b>MS390-24U-HW</b>	208 Gbps	480 Gbps	154.76 Mpps
<b>MS390-24UX-HW</b>	640 Gbps	480 Gbps	476.19 Mpps
<b>MS390-48-HW</b>	256 Gbps	480 Gbps	190.48 Mpps
<b>MS390-48P-HW</b>	256 Gbps	480 Gbps	190.48 Mpps

<b>MS390-48U-HW</b>	256 Gbps	480 Gbps	190.48 Mpps
<b>MS390-48UX-HW</b>	580 Gbps	480 Gbps	431.54 Mpps
<b>MS390-48UX2-HW</b>	640 Gbps	480 Gbps	476.19 Mpps

## Power Options and Specifications

<b>Model</b>	<b>Default Power Supply</b>	<b>Hot Swap Power Supply</b>	<b>Available PoE W/ Primary PS</b>	<b>Max Available PoE W/ Secondary PS***</b>	<b>Power Load (idle/ max)</b>
<b>MS390-24-HW</b>	MA-PWR-350WAC**	Yes, Dual	n/a	n/a	79.2 / 99 W
<b>MS390-24P-HW</b>	MA-PWR-715WAC**	Yes, Dual	445W	720W	84.1 / 554.4 W
<b>MS390-24U-HW</b>	MA-PWR-1100WAC	Yes, Dual	830W	1440W	85.4 / 990.3 W
<b>MS390-24UX-HW</b>	MA-PWR-1100WAC	Yes, Dual	560W	1440W	162.7 / 809.9 W
<b>MS390-48-HW</b>	MA-PWR-350WAC**	Yes, Dual	n/a	n/a	83.9 / 109.9 W
<b>MS390-48P-HW</b>	MA-PWR-715WAC**	Yes, Dual	437W	1152W	92.6 / 555 W
<b>MS390-48U-HW</b>	MA-PWR-1100WAC	Yes, Dual	822W	1800W	145 / 844.9 W
<b>MS390-48UX-HW</b>	MA-PWR-1100WAC	Yes, Dual	490W	1590W	218.5 / 785.5 W

<b>MS390-48UX2-HW</b>	MA- PWR-1100WAC	Yes, Dual	645W	1745W	157.9 / 843.8 W
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\*\* Upgrade options to 715W and 1100W PSU are available.

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

Note: For Japan, the recommendation is to deploy the switch with 200V+ outlets. The 1100WAC power supply 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 350W Secondary PSU	With 715W Secondary PSU	With 1100W Secondary PSU
<b>MS390-24P</b>	MA- PWR-715WAC	445W	720W <sup>2</sup>	720W <sup>2</sup>	720W <sup>2</sup>
	<b>MA- PWR-1100WAC</b> <sup>1</sup>	720W <sup>2</sup>	720W <sup>2</sup>	720W <sup>2</sup>	720W <sup>2</sup>
<b>MS390-24U</b>	MA- PWR-1100WAC	830W	1180W <sup>2</sup>	1440W <sup>2</sup>	1440W <sup>2</sup>
<b>MS390-24UX</b>	MA- PWR-1100WAC	560W	910W	1275W	1440W <sup>2</sup>
<b>MS390-48P</b>	MA- PWR-715WAC	437W	787W	1152W	1440W <sup>2</sup>
	<b>MA- PWR-1100WAC</b> <sup>1</sup>	822W	1172W	1440W <sup>2</sup>	1440W <sup>2</sup>
<b>MS390-48U</b>	MA- PWR-1100WAC	822W	1172W	1537W	1800W <sup>3</sup>
<b>MS390-48UX</b>	MA- PWR-1100WAC	490W	840W	1205W	1590W
<b>MS390-48UX2</b>	MA- PWR-1100WAC	645W	995W	1360W	1745W

<sup>1</sup> Using upgraded power supply option.

<sup>2</sup> Limited by port density and per-port PoE capacity.

<sup>3</sup> Limited by design.

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## What's included

Model	Package Contents
<b>MS390-24-HW</b>	1 x Power Supply (MA-PWR-350WAC), Rack mount brackets and screw kit, 3 x Pre-Installed Fans, Cable guide
<b>MS390-24P-HW</b>	1 x Power Supply (MA-PWR-715WAC), Rack mount brackets and screw kit, 3 x Pre-Installed Fans, Cable guide
<b>MS390-24U-HW</b>	1 x Power Supply (MA-PWR-1100WAC), Rack mount brackets and screw kit, 3 x Pre-Installed Fans, Cable guide
<b>MS390-24UX-HW</b>	1 x Power Supply (MA-PWR-1100WAC), Rack mount brackets and screw kit, 3 x Pre-Installed Fans, Cable guide
<b>MS390-48-HW</b>	1 x Power Supply (MA-PWR-350WAC), Rack mount brackets and screw kit, 3 x Pre-Installed Fans, Cable guide
<b>MS390-48P-HW</b>	1 x Power Supply (MA-PWR-715WAC), Rack mount brackets and screw kit, 3 x Pre-Installed Fans, Cable guide
<b>MS390-48U-HW</b>	1 x Power Supply (MA-PWR-1100WAC), Rack mount brackets and screw kit, 3 x Pre-Installed Fans, Cable guide
<b>MS390-48UX-HW</b>	1 x Power Supply (MA-PWR-1100WAC), Rack mount brackets and screw kit, 3 x Pre-Installed Fans, Cable guide
<b>MS390-48UX2-HW</b>	1 x Power Supply (MA-PWR-1100WAC), Rack mount brackets and screw kit, 3 x Pre-Installed Fans, Cable guide

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## Optional Accessories

Accessory	Description	Supported Models
<b>MA-PWR-350WAC</b>	350W AC Power Supply	MS390-24-HW, MS390-48-HW
<b>MA-PWR-715WAC</b>	715W AC Power Supply	All Models

<b>MA-PWR-1100WAC</b>	1100W AC Power Supply	All Models
<b>MA-MOD-2X40G</b>	2 x 40G Uplink Module	All Models
<b>MA-MOD-4X10G *</b>	4 x 10G Uplink Module	All Models
<b>MA-MOD-8X10G</b>	8 x 10G Uplink Module	All Models
<b>MA-CBL-120G-50CM</b>	Meraki 120G Stacking Cable, 0.5 Meter	All Models
<b>MA-CBL-120G-1M</b>	Meraki 120G Stacking Cable, 1 Meter	All Models
<b>MA-CBL-120G-3M</b>	Meraki 120G Stacking Cable, 3 Meter	All Models
<b>MA-CBL-SPWR-30CM</b>	Meraki MS390 30CM StackPower Cable	All Models
<b>MA-CBL-SPWR-150CM</b>	Meraki MS390 150CM StackPower Cable	All Models
<b>MA-FAN-16K2</b>	System Fan	All Models
<b>MA-RCKMNT</b>	Meraki MS390 Rack Mount Kit	All Models

\* **MA-MOD-4X10G** reached end-of-sale on November 1, 2021. Please refer to its [end-of-sale announcement](#) for further details.

## Regulations and Compliance

<b>Electromagnetic Compatibility Certifications</b>	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
<b>Safety</b>	CAN/CSA-C22.2 No. 60950-1, UL 60950-1, EN 60950-1, IEC 60950-1, AS/NZS 60950.1
<b>Environmental</b>	Reduction of Hazardous Substances (RoHS)
<b>Warranty</b>	Full lifetime hardware warranty with next-day advanced replacement included

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## MTBF Rating

Model	MTBF at 25°C
MS390-24-HW	314,790
MS390-24P-HW	299,000
MS390-24U-HW	238,410
MS390-24UX-HW	214,760
MS390-48-HW	305,870
MS390-48P-HW	277,770
MS390-48U-HW	227,410
MS390-48UX-HW	202,160
MS390-48UX2-HW	198,647

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## Installation Guide

For instructions on how to install and configure the MS390 series switch please refer the [MS390 Series Installation Guide](#)