MS Cloud Managed Access Switches

Overview

The Cisco Meraki MS brings the benefits of the cloud to networks of all sizes: simplified management, reduced complexity, network wide visibility and control, with lower operational cost for campus and branch deployments. Cisco Meraki access switching is available in both Layer 2 and powerful Layer 3 models. Mission-critical features — like deep, Layer 7 application visibility, network topology, virtual stacking, QoS for business critical applications, 802.1X access control, and more — are present in all models.

The **MS350** is the flagship Meraki layer 3 stackable access switch, with high-speed connectivity including multigigabit, high availability, PoE+ and UPoE, optional redundant power supplies and fans. MS350 switches physically stack up to 8 units, with 160Gbps of stack bandwidth.

The **MS220** family provides layer 2 access switching and is ideal for deploying to branch locations. This family also supports an optional, rack-mountable remote PSU.

A FRESH APPROACH

Meraki switches are built from the ground up to be easy to manage without compromising any of the power and flexibility traditionally found in enterprise-class switches.

Cisco Meraki switches are managed through an elegant, intuitive cloud interface, rather than a cryptic command line. To bring up a Meraki switch, just plug it in; there’s no need for complicated configuration files, or even direct physical access to the switch.

Meraki’s centralized management gives administrators deep visibility into the network and how it’s used. See which switches are near capacity across hundreds of sites. Find all configuration changes made by a certain person with instant search.

INDUSTRY-LEADING CLOUD MANAGEMENT

Cloud management has a number of benefits that make it easier to build networks large and small:

- Single pane of glass management of distributed switch deployments, wireless APs, and firewalls across multiple sites through the browser.
- Virtual stacking: manage up to thousands of ports from a single pane of glass.
- Layer 7 visibility with operating system, client, and hostname fingerprinting.
- Powerful Live Tools such as packet capture and cable test to isolate network issues.
- Alerts upon power loss, downtime, or configuration changes.
- Role-based administration and automatic, scheduled firmware upgrades over the web.
- Regular feature updates and enhancements delivered on demand from the Meraki cloud.
- True zero-touch provisioning.
ENTERPRISE-CLASS HARDWARE

Meraki switches feature high-end hardware and an exceptional feature set, including:

- Four built-in small form-factor pluggable SFP+ ports (two SFP ports for MS220-8/P)
- GbE, 10 GbE and 40 GbE uplink ports for high-speed connectivity to aggregation layer switches or other upstream devices
- Multigigabit ports providing up to 10Gbps on a single ethernet cable, supporting the latest WiFi performance capabilities
- Wire-speed switch fabric (up to 432 Gbps) and QoS queues per port for converged voice, video, and data deployments
- High performance 160Gbps stacking bandwidth (MS350)
- Low power consumption, quiet acoustic designs, and shallow rack depth options, enabling flexible deployment in wiring closets as well as offices and classrooms
- Fanless design on select models
- Up to 740 watt PoE budget with PoE+ support for powering APs, phones, cameras, and other PoE enabled devices (124W for MS220-8/P)
- Power over Ethernet and Universal PoE (UPoE), up to 60W
- Lifetime hardware warranty and advanced replacement at no additional cost
- Field-replaceable, hot-swappable power supplies and fans. RPS option for mission-critical applications

FULL ENTERPRISE FEATURE SET

Meraki switches include all of the traditional Ethernet features found on the highest end products, including:

- Quality-of-Service (QoS) to prioritize mission critical traffic such as voice and video
- IEEE 802.1X support for port based network access control
- MAC-based RADIUS auth and MAC whitelisting
- Voice VLAN support for simplified VoIP deployments
- Port Mirroring to monitor network traffic
- DHCP snooping to prevent users from adding unauthorized DHCP servers on the network
- IGMP Snooping to optimize network performance with multicast traffic
- Link Aggregation Control Protocol (LACP) for high-capacity trunking, stacking, and increased availability
- Rapid spanning tree, BPDU guard, root guard, and other safeguards to help prevent misconfigurations and reduce convergence time
- Per port VLAN configuration
- Multiple administrative roles with sophisticated security policy management
- Layer 3 on MS320 and MS350 families extends routing down to the network edge
Simplified Management and Operations

Meraki’s cloud managed architecture makes it simpler than ever to quickly provision and reconfigure switch ports with security, QoS, and other parameters. The Meraki dashboard provides unified policies, event logs, and monitoring, which make it easy to manage and grow large network deployments.

By providing a complete, powerful set of management functions over the web, Meraki’s cloud-based management eliminates the need for proprietary command line configuration interfaces which require expensive and time consuming certifications. Meraki MS switches can be fully deployed and provisioned in minutes, without requiring any local configuration or staging. Additional or replacement switches can be sent to remote offices and installed by non-technical staff, saving thousands of dollars in time and travel expenses.

The Meraki MS family also includes several remote diagnostic features, from network connectivity and cable integrity tests to latency measurement tools. For deep client troubleshooting, administrators can even perform per-port remote pcap packet captures without any additional probes or hardware on site.

LAYER 7 VISIBILITY

Meraki is the only switch to include integrated Layer 7 fingerprinting. Identify hundreds of applications from business apps to BitTorrent and YouTube. User fingerprinting with Google-like search allows administrators to easily identify and control individual users, PCs, iMacs, iPads, Androids, and other devices. This unprecedented visibility allows optimizing of network resources and maintaining optimal network performance.
**NETWORK TOPOLOGY**

Cisco Meraki switches include integrated network topology, which automatically maps the whole network, shows direct and redundant links across wired and wireless infrastructure, and is essential for troubleshooting network issues that would otherwise require manual mapping, overlay monitoring software, or keeping track of MAC address tables.

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### CONVERGED VOICE, VIDEO AND DATA ENVIRONMENTS

The Meraki switch family is designed to unify data, voice, and video onto a single IP backbone. All Meraki switches support rich quality-of-service (QoS) functionality for prioritizing data, voice, and video traffic. The switches support eight class-of-service (CoS) queues on every port, enabling them to maintain end-to-end traffic prioritization.

PoE models provide power VoIP telephones, IP security cameras, wireless access points (APs), and other IP devices. The Meraki MS switches also support standards-based 25.5 watt (30 watt max per port) IEEE 802.3at for powering networked devices like multiple radio IEEE 802.11n APs, video phones and VDI terminals that may require more power than available with IEEE 802.3af. In addition, using CDP and LLDP, PoE power is intelligently budgeted to maximize the number of PoE clients supported. For the most power-hungry applications, support for Cisco UPoE is also available.

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### MERAKI’S UNIFIED SOFTWARE ARCHITECTURE

Meraki switches run the same Meraki operating system used by Meraki’s firewalls and wireless LAN products. The use of a common operating system allows Meraki to deliver a consistent experience across all product lines.

### LAYER 3

Cisco Meraki MS320/350 series switches augment security and performance with built-in layer 3 features. Large network deployments can use warm spare redundancy, or OSPF to manage routing between VLANs through Meraki’s intuitive, web-based dashboard.
Designed for Reliability & Environmental Efficiency

The Meraki switch family was designed for reliable, long-lived operation in wiring closet environments, which may be prone to high temperatures and limited ventilation. By minimizing total component count and only using proven switching silicon, Meraki is able to deliver mean time between failure (MTBF) ratings of over 750,000 hours on products such as the Meraki MS220-8.

Each Meraki switch also operates with a split-plane architecture, where silicon-based switching and data forwarding are separated from software-based control and management. By decoupling the underlying switching logic from control, each unit is able to deliver wire-speed switching even when advanced software features such as Layer 7 host and OS fingerprinting are enabled.

Finally, the highly integrated designs of Meraki switches result in power and cooling savings in large deployment environments of 30-60% when compared with similar managed Gigabit switches.

DISTRIBUTED BRANCHES & REMOTE SITES

Meraki’s cloud-based system makes it easy to manage a single switch, or thousands of distributed switches, from a single interface.

- Troubleshoot problems remotely, e.g., find which port has a bad cable attached.
- Add or replace switches without having to send a technician onsite. Switches automatically download their current configuration as soon as they are connected to the network.
- Receive email alerts or SMS messages whenever there’s a problem at a remote site.

CAMPUS EDGE

MS switches are ideal for small and large scale campus deployments, where reliability, scalability, and managability are top priorities.

- Virtual Stacking lets administrators manage up to thousands of ports in a single interface without having to physically connect stack members.
- 10GbE cable SFP+ ports with link aggregation provide high speed connectivity to aggregation switches such as the MS425.
- Get alerts when any switch fails or goes offline, before users complain.
## Accessories

The Meraki MS family supports pluggable optics for high-speed connectivity. Meraki offers several standards-based Gigabit and 10 Gigabit pluggable modules. The stackable MS350 switches support QSFP stacking cables in various lengths.

Supported Meraki accessory modules for MS Switches (no lock-out of third-party optics):

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Standard</th>
<th>Range</th>
<th>Compatibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>MA-SFP-1GB-TX</td>
<td>Meraki 1GbE Module for Category 5 Copper Wire, RJ-45</td>
<td>1000BASE-T</td>
<td>100m</td>
<td>MS220/320/350/420 Family</td>
</tr>
<tr>
<td>MA-SFP-1GB-SX</td>
<td>Meraki 1 GbE SFP SX Multi-Mode Fiber Module</td>
<td>1000BASE-SX</td>
<td>550m</td>
<td>MS220/320/350/420 Family</td>
</tr>
<tr>
<td>MA-SFP-1GB-LX10</td>
<td>Meraki 1 GbE SFP LX10 Single-Mode Fiber Module</td>
<td>1000BASE-LX10</td>
<td>10km</td>
<td>MS220/320/350/420 Family</td>
</tr>
<tr>
<td>MA-SFP-10GB-SR</td>
<td>Meraki 10 GbE SFP+ SR Multi-Mode Fiber Module</td>
<td>10GBASE-SR</td>
<td>400m</td>
<td>MS320/350/420 Family</td>
</tr>
<tr>
<td>MA-SFP-10GB-LRM</td>
<td>Meraki 10GbE SFP+ LRM Multi-Mode Fiber Module</td>
<td>10GBASE-LRM</td>
<td>220m</td>
<td>MS320/350/420 Family</td>
</tr>
<tr>
<td>MA-SFP-10GB-LR</td>
<td>Meraki 10 GbE SFP+ LR Single-Mode Fiber Module</td>
<td>10GBASE-LR</td>
<td>10km</td>
<td>MS320/350/420 Family</td>
</tr>
<tr>
<td>MA-CBL-TA-1M</td>
<td>Meraki 10 GbE Twinax Cable with SFP+ Connectors</td>
<td>10GSFP+Cu</td>
<td>1m</td>
<td>MS220/320/350/420 Family</td>
</tr>
<tr>
<td>MA-CBL-TA-3M</td>
<td>Meraki 10 GbE Twinax Cable with SFP+ Connectors</td>
<td>10GSFP+Cu</td>
<td>3m</td>
<td>MS220/320/350/420 Family</td>
</tr>
<tr>
<td>MA-CBL-40G-50CM</td>
<td>Meraki 40GbE Stacking Cable, 0.5 Meter*</td>
<td>40GBASE-QSFP</td>
<td>0.5m</td>
<td>MS350 Family</td>
</tr>
<tr>
<td>MA-CBL-40G-1M</td>
<td>Meraki 40GbE Stacking Cable, 1 Meter</td>
<td>40GBASE-QSFP</td>
<td>1m</td>
<td>MS350 Family</td>
</tr>
<tr>
<td>MA-CBL-40G-3M</td>
<td>Meraki 40GbE Stacking Cable, 3 Meter</td>
<td>40GBASE-QSFP</td>
<td>3m</td>
<td>MS350 Family</td>
</tr>
</tbody>
</table>

* One 0.5 meter stacking cable included with every MS350 switch
Power Options
Rear view of MS350-48FP shown, highlighting redundant power supplies.

### MS220 FAMILY

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Available PoE/ PoE+ Power</th>
<th>Default Power Supply</th>
<th>Optional Redundant Power Supply</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS220-8-HW</td>
<td>Cloud-Managed L2 8 Port Gigabit Switch</td>
<td>–</td>
<td>Internal</td>
<td>–</td>
</tr>
<tr>
<td>MS220-8P-HW</td>
<td>Cloud-Managed L2 8 Port Gigabit 124W PoE Switch</td>
<td>124W</td>
<td>Internal</td>
<td>–</td>
</tr>
<tr>
<td>MS220-24-HW</td>
<td>Cloud-Managed L2 24 Port Gigabit Switch</td>
<td>–</td>
<td>Internal</td>
<td>External Redundant Power Option*</td>
</tr>
<tr>
<td>MS220-24P-HW</td>
<td>Cloud-Managed L2 24 Port Gigabit 370W PoE Switch</td>
<td>370 W</td>
<td>Internal</td>
<td>External Redundant Power Option*</td>
</tr>
<tr>
<td>MS220-48-HW</td>
<td>Cloud-Managed L2 48 Port Gigabit Switch</td>
<td>–</td>
<td>Internal</td>
<td>External Redundant Power Option*</td>
</tr>
<tr>
<td>MS220-48LP-HW</td>
<td>Cloud-Managed L2 48 Port Gigabit 370W PoE Switch</td>
<td>370 W</td>
<td>Internal</td>
<td>External Redundant Power Option*</td>
</tr>
<tr>
<td>MS220-48FP-HW</td>
<td>Cloud-Managed L2 48 Port Gigabit 740W PoE Switch</td>
<td>740 W</td>
<td>Internal</td>
<td>External Redundant Power Option*</td>
</tr>
</tbody>
</table>

* Cisco RPS Module (PWR-RPS2300)

### MS320 / MS350 FAMILY

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Available PoE/ PoE+ Power</th>
<th>Default Power Supply</th>
<th>Optional Redundant Power Supply</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS320-24-HW</td>
<td>Cloud-Managed L3 24 Port Gigabit Switch</td>
<td>–</td>
<td>MA-PWR-250WAC</td>
<td>MA-PWR-250WAC</td>
</tr>
<tr>
<td>MS350-24-HW</td>
<td>Cloud-Managed L3 24 Port Gigabit 370W PoE Switch</td>
<td>370W</td>
<td>MA-PWR-640WAC</td>
<td>MA-PWR-640WAC</td>
</tr>
<tr>
<td>MS320-24P-HW</td>
<td>Cloud-Managed L3 24 Port Gigabit 370W PoE Switch</td>
<td>370W</td>
<td>MA-PWR-640WAC</td>
<td>MA-PWR-640WAC</td>
</tr>
<tr>
<td>MS320-48-HW</td>
<td>Cloud-Managed L3 48 Port Gigabit Switch</td>
<td>–</td>
<td>MA-PWR-250WAC</td>
<td>MA-PWR-250WAC</td>
</tr>
<tr>
<td>MS320-48LP-HW</td>
<td>Cloud-Managed L3 48 Port Gigabit 370W PoE Switch</td>
<td>370 W</td>
<td>MA-PWR-640WAC</td>
<td>MA-PWR-640WAC</td>
</tr>
<tr>
<td>MS320-48FP-HW</td>
<td>Cloud-Managed L3 24/48 Port Gigabit 740W PoE Switch</td>
<td>740 W</td>
<td>MA-PWR-1025WAC</td>
<td>MA-PWR-1025WAC</td>
</tr>
<tr>
<td>MS350-24X-HW</td>
<td>Cloud-Managed L3 24 Port Multigigabit 740W UPoE Switch</td>
<td>740 W</td>
<td>MA-PWR-1025WAC</td>
<td>MA-PWR-1025WAC</td>
</tr>
</tbody>
</table>

### MS350 FAMILY ONLY

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MA-FAN-16K</td>
<td>Field replaceable 16K Front-to-back fan</td>
</tr>
</tbody>
</table>
Specifications

Management
Managed via the Web with the Meraki cloud management platform
Integrated with Meraki wireless, security appliance, and device management
Zero-touch remote provisioning (no staging needed)
Detailed historical per-port and per-client usage statistics
DHCP, client, and hostname fingerprinting
SNMPD allows integration with third party network management solutions
Automatic firmware upgrades

Remote Diagnostics
Email and SMS (text) alerts
Cable testing
Live remote packet capture
Aggregated event and configuration change logs with instant search

Scalable Stacking
Virtual stacking supports thousands of switch ports in a single logical stack for unified management, monitoring, and configuration
Physical stacking of up to 8 switches with 160Gbps stack bandwidth (MS350)

Ethernet Switching Capabilities
802.1p Quality of Service prioritization
802.1Q VLAN tagging for up to 4,095 VLANs
802.1D Spanning Tree Protocol (STP) and 802.1w Rapid Spanning Tree
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
Port mirroring
IGMP snooping for multicast filtering
MAC forwarding entries: MS220-8/24: 8,000, MS220-48: 16,000, MS320 family: 32,000, MS350 family: 96,000 - 176,000 (applies to PoE and non-PoE models).

Security
Integrated two-factor authentication
Role-based administration
Corporate wide password policy enforcement
IEEE 802.1X port-based security
MAC-based RADIUS authentication
Sticky MAC
MAC whitelisting
BPDU guard
Root guard
IPv4 ACLs

Performance
Non-blocking fabric
2.5 microsecond latency
Jumbo frame support (9600 byte Ethernet frame)

Layer 3 (MS320/350 series)
Static routing
DHCP Helper
OSPFv2
Warm Spare for L3 gateway redundancy
DHCP server
Automatic DHCP failover in warm spare mode

Power
Power input: 100 - 240 VAC, 47-63 Hz
Power consumption: 5-1655W

Mounting
Rack-mountable with included rack mount hardware (except MS220-8/P)
Desktop-mountable with included feet
Wall-mountable on MS220-8/P
Kensington lock on MS220-8/P

Environment
Operating temperature: 32 °F to 104 °F (0 °C to 40 °C), 45 °C for MS350
Humidity: 5 to 95% non-condensing
Low acoustic noise for office environments; fanless for MS220-8/P and MS220-24

Regulatory
CSA (US)
IC (Canada)
CE (Europe)
C-Tick (Australia/New Zealand)
RoHS

Warranty
Full lifetime hardware warranty with next-day advanced replacement included

<table>
<thead>
<tr>
<th>MS220 FAMILY</th>
<th>MS320 FAMILY</th>
<th>MS350 FAMILY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>MTBF</td>
<td>Model</td>
</tr>
<tr>
<td>MS220-8</td>
<td>756,000</td>
<td>MS320-24</td>
</tr>
<tr>
<td>MS220-8P</td>
<td>421,000</td>
<td>MS320-24P</td>
</tr>
<tr>
<td>MS220-24</td>
<td>541,400</td>
<td>MS320-48</td>
</tr>
<tr>
<td>MS220-24P</td>
<td>329,440</td>
<td>MS320-48LP</td>
</tr>
<tr>
<td>MS220-48</td>
<td>329,440</td>
<td>MS320-48FP</td>
</tr>
<tr>
<td>MS220-48FP</td>
<td>329,440</td>
<td></td>
</tr>
</tbody>
</table>

1 Requires carrier-supported email to SMS gateway
2 OSPF and Warm Spare do not operate concurrently
## MS220 FAMILY

<table>
<thead>
<tr>
<th>Model</th>
<th>Physical Dimensions</th>
<th>Interface</th>
<th>Idle/Full Load Power (W)</th>
<th>Switching Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>220-8</td>
<td>WEIGHT: 2.37 lb. (1.08 kg) SIZE: 9.06&quot; (w) x 8.66&quot; (l) x 1.79&quot; (h) (23 x 22 x 4.54 cm)</td>
<td>• 8x 10/100/1000BASE-T Ethernet RJ45 • 2x SFP for 1GbE uplink • Auto negotiation and crossover detection (auto-MDIX crossover)</td>
<td>5/10</td>
<td>20 Gbps</td>
</tr>
<tr>
<td>220-8P</td>
<td>WEIGHT: 2.97 lb. (1.35 kg) SIZE: 9.06&quot; (w) x 8.66&quot; (l) x 1.79&quot; (h) (23 x 22 x 4.44 cm)</td>
<td>• 8x 10/100/1000BASE-T Ethernet RJ45 • 2x SFP for 1GbE uplink • Auto negotiation and crossover detection (auto-MDIX crossover)</td>
<td>13/159</td>
<td>20 Gbps</td>
</tr>
<tr>
<td>220-24</td>
<td>WEIGHT: 5.97 lb. (2.1 kg) SIZE: 19.08&quot; (w) x 10.12&quot; (l) x 1.75&quot; (h) (48.46 x 25.7 x 4.4 cm)</td>
<td>• 24x 10/100/1000BASE-T Ethernet RJ45 (4 shared with SFP) • 4x SFP for 1GbE uplink • Auto negotiation and crossover detection (auto-MDIX crossover)</td>
<td>9/18</td>
<td>48 Gbps</td>
</tr>
<tr>
<td>220-24P</td>
<td>WEIGHT: 8.6 lb. (3.9 kg) SIZE: 19.08&quot; (w) x 10.12&quot; (l) x 1.75&quot; (h) (48.46 x 25.7 x 4.4 cm)</td>
<td>• 24x 10/100/1000BASE-T Ethernet RJ45 (4 shared with SFP) • 4x SFP for 1GbE uplink • Auto negotiation and crossover detection (auto-MDIX crossover)</td>
<td>30/447</td>
<td>48 Gbps</td>
</tr>
<tr>
<td>220-48</td>
<td>WEIGHT: 8.47 lb. (3.84 kg) SIZE: 19.08&quot; (w) x 14.17&quot; (l) x 1.75&quot; (h) (48.46 x 36 x 4.44 cm)</td>
<td>• 48x 10/100/1000BASE-T Ethernet RJ45 • 4x SFP for 1GbE uplink • Auto negotiation and crossover detection (auto-MDIX crossover)</td>
<td>28/51</td>
<td>104 Gbps</td>
</tr>
<tr>
<td>220-48LP</td>
<td>WEIGHT: 10.88 lb. (4.94 kg) SIZE: 19.08&quot; (w) x 14.17&quot; (l) x 1.75&quot; (h) (48.46 x 36 x 4.44 cm)</td>
<td>• 48x 10/100/1000BASE-T Ethernet RJ45 • 4x SFP for 1GbE uplink • Auto negotiation and crossover detection (auto-MDIX crossover)</td>
<td>45/505</td>
<td>104 Gbps</td>
</tr>
<tr>
<td>220-48FP</td>
<td>WEIGHT: 10.9 lb. (4.95 kg) SIZE: 19.08&quot; (w) x 14.17&quot; (l) x 1.75&quot; (h) (48.46 x 36 x 4.44 cm)</td>
<td>• 48x 10/100/1000BASE-T Ethernet RJ45 • 4x SFP for 1GbE uplink • Auto negotiation and crossover detection (auto-MDIX crossover)</td>
<td>49/903</td>
<td>104 Gbps</td>
</tr>
</tbody>
</table>
## MS320 FAMILY

<table>
<thead>
<tr>
<th>Model</th>
<th>Physical Dimensions</th>
<th>Interface</th>
<th>Idle/Full Load Power (W)</th>
<th>Switching Capacity (Gbps)</th>
</tr>
</thead>
<tbody>
<tr>
<td>320-24</td>
<td>WEIGHT: 8.22 lb. (3.73 kg) SIZE: 19.08” (w) x 18.8” (l) x 1.75” (h) (48.5 x 47.8 x 4.4 cm) with power supply fitted</td>
<td>• 24x 10/100/1000BASE-T Ethernet RJ45 • 4x SFP+ for 10Gbe uplink • Auto negotiation and crossover detection (auto-MDIX crossover)</td>
<td>24/39</td>
<td>128 Gbps</td>
</tr>
<tr>
<td>320-24P</td>
<td>WEIGHT: 8.93 lb. (4.05 kg) SIZE: 19.08” (w) x 18.8” (l) x 1.75” (h) (48.5 x 47.8 x 4.4 cm) with power supply fitted</td>
<td>• 24x 10/100/1000BASE-T Ethernet RJ45 • 4x SFP+ for 10Gbe uplink • Auto negotiation and crossover detection (auto-MDIX crossover)</td>
<td>32/454</td>
<td>128 Gbps</td>
</tr>
<tr>
<td>320-48</td>
<td>WEIGHT: 8.92 lb. (4.04 kg) SIZE: 19.08” (w) x 18.8” (l) x 1.75” (h) (48.5 x 47.8 x 4.4 cm) with power supply fitted</td>
<td>• 48x 10/100/1000BASE-T Ethernet RJ45 • 4x SFP+ for 10Gbe uplink • Auto negotiation and crossover detection (auto-MDIX crossover)</td>
<td>34/55</td>
<td>176 Gbps</td>
</tr>
<tr>
<td>320-48LP</td>
<td>WEIGHT: 9.7 lb. (4.4 kg) SIZE: 19.08” (w) x 18.8” (l) x 1.75” (h) (48.5 x 47.8 x 4.4 cm) with power supply fitted</td>
<td>• 48x 10/100/1000BASE-T Ethernet RJ45 • 4x SFP+ for 10Gbe uplink • Auto negotiation and crossover detection (auto-MDIX crossover)</td>
<td>46/480</td>
<td>176 Gbps</td>
</tr>
<tr>
<td>320-48FP</td>
<td>WEIGHT: 9.7 lb. (4.4 kg) SIZE: 19.08” (w) x 18.8” (l) x 1.75” (h) (48.5 x 47.8 x 4.4 cm) with power supply fitted</td>
<td>• 48x 10/100/1000BASE-T Ethernet RJ45 • 4x SFP+ for 10Gbe uplink • Auto negotiation and crossover detection (auto-MDIX crossover)</td>
<td>52/885</td>
<td>176 Gbps</td>
</tr>
</tbody>
</table>
## MS350 FAMILY

<table>
<thead>
<tr>
<th>Model</th>
<th>Physical Dimensions</th>
<th>Interface</th>
<th>Idle/Full Load Power (W)</th>
<th>Switching Capacity</th>
</tr>
</thead>
</table>
| 350-24 | WEIGHT: 12.37 lb. (5.61 kg)  
SIZE: 19.08” (w) x 18.8” (l) x 1.75” (h)  
(48.5 x 47.8 x 4.4 cm) with power supply fitted | • 24x 10/100/1000BASE-T Ethernet RJ45  
• 4x SFP+ for 10GbE uplink  
• 2x stacking connectors  
• Auto negotiation and crossover detection (auto-MDIX crossover) | 56/66 | 128 Gbps |
| 350-24P | WEIGHT: 13.14 lb. (5.96 kg)  
SIZE: 19.08” (w) x 18.8” (l) x 1.75” (h)  
(48.5 x 47.8 x 4.4 cm) with power supply fitted | • 24x 10/100/1000BASE-T Ethernet RJ45  
• 4x SFP+ for 10GbE uplink  
• 2x stacking connectors  
• Auto negotiation and crossover detection (auto-MDIX crossover) | 57/466 | 128 Gbps |
| 350-48 | WEIGHT: 12.85 lb. (5.83 kg)  
SIZE: 19.08” (w) x 18.8” (l) x 1.75” (h)  
(48.5 x 47.8 x 4.4 cm) with power supply fitted | • 48x 10/100/1000BASE-T Ethernet RJ45  
• 4x SFP+ for 10GbE uplink  
• 2x stacking connectors  
• Auto negotiation and crossover detection (auto-MDIX crossover) | 56/63 | 176 Gbps |
| 350-48LP | WEIGHT: 13.82 lb. (6.27 kg)  
SIZE: 19.08” (w) x 18.8” (l) x 1.75” (h)  
(48.5 x 47.8 x 4.4 cm) with power supply fitted | • 48x 10/100/1000BASE-T Ethernet RJ45  
• 4x SFP+ for 10GbE uplink  
• 2x stacking connectors  
• Auto negotiation and crossover detection (auto-MDIX crossover) | 63/478 | 176 Gbps |
| 350-48FP | WEIGHT: 14.26 lb. (6.47 kg)  
SIZE: 19.08” (w) x 18.8” (l) x 1.75” (h)  
(48.5 x 47.8 x 4.4 cm) with power supply fitted | • 48x 10/100/1000BASE-T Ethernet RJ45  
• 4x SFP+ for 10GbE uplink  
• 2x stacking connectors  
• Auto negotiation and crossover detection (auto-MDIX crossover) | 69/888 | 176 Gbps |
| 350-24X | WEIGHT: 14.48 lb. (6.67 kg)  
SIZE: 19.08” (w) x 20.3” (l) x 1.75” (h)  
(48.5 x 51.6 x 4.4 cm) with power supply fitted | • 24x 10/100/1000BASE-T Ethernet RJ45 including 8x Multigigabit capable ports  
• 4x SFP+ for 10GbE uplink  
• 2x stacking connectors  
• Auto negotiation and crossover detection (auto-MDIX crossover) | 215/1655 | 432 Gbps |