
MX85 Series Hardware Installation Guide



The network performance benchmarks listed in the KB are target numbers based on initial testing and can change on further testing.

About this Guide

This guide provides instruction on how to install and configure your MX85 series device. This guide also provides mounting instructions and limited troubleshooting procedures. For more MX device installation guides, refer to the [MX installation guides section](#) on our documentation website.

Product Overview

The Meraki MX85 is an enterprise security appliance designed for distributed deployments that require remote administration across Medium branch environments. It is ideal for network administrators who demand both ease of deployment and a state-of-the-art feature set. The Meraki Dashboard allows for simple and easy deployment of the MX85 with minimal pre-configuration in almost any location.



Features

The MX85 provides 4 dedicated WAN uplinks, 2 1GbE SFP ports and 2 RJ45 1GbE ports. The LAN ports include 8 RJ45 1GbE ports, and 2 SFP ports. The MX85 is ready for deployment in a variety of enterprise environments. MX85 appliance provides the following features:

- Managed via Cisco Meraki Dashboard
- Automatic Firmware upgrades
- WAN Link Balancing
- Automatic WAN Failover
- Meraki AutoVPN and L2TP/IPSec VPN endpoint
- Active Directory integration
- Content Filtering
- Malware Protection (AMP) w/ optional Threat Grid integration

- SD-WAN over Meraki AutoVPN
- L3/L7 Stateful Firewall
- Geo based firewall rules
- 1:1 and 1:Many NAT
- Configurable VLANs / DHCP support
- Static Routing
- Client VPN endpoint
- IDS/IPS protection
- Custom Traffic Shaping
- Historical Client Usage statistics
- Netflow support
- Syslog integration
- Remote Packet Capture tools

Context and Comparisons

	MX85	MX95	MX105
Dual WAN Uplinks	Yes	Yes	Yes
Backup Cellular Uplink	Via 3rd Party USB Modem	Via 3rd Party USB Modem	Via 3rd Party USB Modem
Stateful Firewall Throughput	1 Gbps	2 Gbps	3 Gbps
Maximum site-to-site VPN Throughput	500 Mbps	800 Mbps	1 Gbps
Advanced Security Throughput	800 Mbps	1 Gbps	1.5 Gbps
PoE+ Capabilities	Yes, 1x RJ45 / 1 Gigabit Ethernet port	Yes, 1x RJ45 / Multigigabit Ethernet port	Yes, 1x RJ45 / Multigigabit Ethernet port
Recommended Use Cases	Small to midsize branch office or retail location with 250 users	Mid to large enterprise locations with 500 users	Mid to large enterprise locations with 750 users

Physical Specifications

	MX85	MX95	MX105
SFP+ WAN Interfaces	2 x GbE SFP	2 x 10GbE SFP+	2 x 10GbE SFP+
	1 x GbE (RJ45)	1 x 2.5GbE RJ45	1 x 2.5GbE RJ45
	1 x GbE with PoE+	1 x 2.5GbE with PoE+	1 x 2.5GbE with PoE+

Cellular WAN Interfaces	Cellular Uplink via 3rd Party USB Modem	Cellular Uplink via 3rd Party USB Modem	Cellular Uplink via 3rd Party USB Modem
LAN Interfaces - RF45	8 x GbE (RJ45)	4 x GbE (RJ45)	4 x GbE (RJ45)
LAN Interfaces - SFP	2 x GbE (SFP)	N/A	N/A
LAN Interfaces - SFP+	N/A	2 x 10 GbE (SFP+)	2 x 10GbE(SFP+)
Mount Type	1U rack	1U rack	1U rack
Dimensions (h x d x w)	1.7" x 9.8" x 19" (43.8 mm x 250 mm x 484.6 mm)	1.73" x 11.2" x 19" (44 mm x 285.2 mm x 484.6 mm)	1.73" x 12.4" x 19" (44 mm x 315 mm x 484.6 mm)
Weight	8.2 lb (3.7kg)	6.99 lb (3.17kg)	10.74lbs (4.87kg) 2 Fans and 2 PSUs inserted
Power Supply	Internal 100-220V / 50Hz to 60Hz AC	Internal 100-220V / 50Hz to 60Hz AC	Modular 100-220V 50/60Hz AC 2 x 150WAC PSU
Power Load (idle/max)	12W / 55W	42W / 109W	53W / 123W
Operating Temperature	32°F to 104°F (0°C to 40°C)	32°F to 104°F 0°C to 40°C	32°F to 104°F 0°C to 40°C
Storage and Transportation Temperature	-4°F - 158°F -20°C - 70°C	-4°F - 158°F -20°C - 70°C	-4°F - 158°F -20°C - 70°C
Humidity	5% to 95%	5% to 95%	5% to 95%

Accessories

The Cisco Meraki MX85 supports pluggable optics for high-speed backbone connections between wiring closets or to aggregation switches. Cisco Meraki offers several standards-based Gigabit and 10 Gigabit pluggable modules. Each appliance has also been tested for compatibility with several third party modules.

Accessory	Description
MA-PWR-CORD-US	1x AC Power Cable, US plug

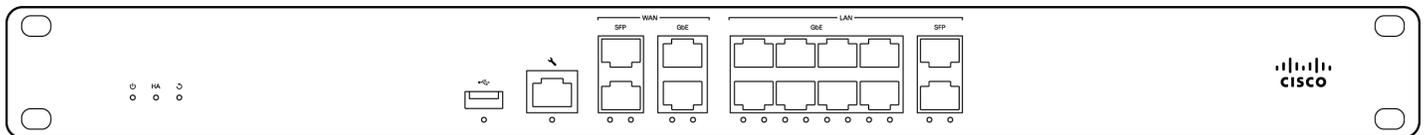
- MA-PWR-CORD-EU** 1x AC Power Cable, EU plug
- MA-PWR-CORD-UK** 1x AC Power Cable, UK plug
- MA-PWR-CORD-AU** 1x AC Power Cable, AU plug
- MA-RCKMNT-KIT-1** Rack mount screws kit



Note: Please refer to meraki.com for additional single-mode and multi-mode fiber transceiver modules

Product View and Physical Features

Front Panel



Status Indicators

The MX85 uses LEDs to inform the user of the device's status. When the device powers on, all the Internet LEDs flash twice. Additional functions are described below, from left to right.

Function	LED Status	Meaning
Power	Solid orange	Power is applied
	Rainbow colors	Unit is attempting to contact the Cloud
	Flashing white	Operation is in progress
	Solid white	Fully operational
USB connectivity	Off	During boot or USB link
	Solid orange	Initial link
	Flashing orange	Internet connectivity not complete
	Green	USB connection detected
HA status	Off	No HA available
	Orange	Initial link
	Flashing orange	High availability not complete
	Green	HA available

Back Panel



Please note that the serial number is located on the product label at the back panel of the MX85.

Insert a paper clip if a reset is required.

Reset button

- **A brief, momentary press:** To delete a downloaded configuration and reboot.
- **Press and hold for more than 10 seconds:** To force the unit into a full factory reset.

Mounting Recommendations

When installing the appliance, make sure that there is sufficient space between the rear of the rack and other obstacles to ensure adequate airflow. Ventilation is from side to side not from front to back. This MX security appliance requires a minimum of 10mm clearance between the venting holes and any obstruction.

Safety and Warnings



Warning: The system must be disconnected from all sources of power and the power cord removed from the power supply module(s) before accessing, installing, or removing system components.



Caution: The Optical Transceiver product should use UL listed, and Rated Laser Class I, 3.3Vdc.

These operations are to be taken with respect to all local laws. Please take the following into consideration for safe operation:

- Power off the unit before you begin. Read the installation instructions before connecting the system to the power source.
- Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents.
- Read the mounting instructions carefully before beginning installation. Failure to use the correct hardware or to follow the correct procedures could result in a hazardous situation to people and damage to the system.
- This product relies on the building's installation for short-circuit (overcurrent) protection. Ensure that the protective device is rated not greater than: 15 A, 125 Vac, or 10A, 240 Vac.
- Please only power the device with the provided power cables to ensure regulatory compliance.

Pre-install Preparation

You should complete the following steps before going on-site to perform an installation.

Configure your Dashboard Network

The following is a brief overview only of the steps required to add an MX to your network. For detailed instructions about creating, configuring and managing Meraki networks, refer to the online documentation (documentation.meraki.com).

1. Login to <http://dashboard.meraki.com>. If this is your first time, create a new account.
2. Find the network to which you plan to add your MX or create a new network.
3. Add your MX to your network. You will need your Meraki order number (found on your invoice) or the serial number of each MX, which looks like Qxxx-xxxx-xxxx, and is found on the bottom of the unit. You will also need your Enterprise license key, which you should have received via email.
4. Go to the map / floor plan view and place each MX on the map by clicking and dragging it to the location where you plan to mount it.

Check and Set Firmware

To ensure your MX performs optimally immediately following installation, it is recommended that you facilitate a firmware upgrade prior to mounting your MX.

1. Attach your MX to power and a wired Internet connection.
2. The MX will turn on and the power LED will glow solid orange.
3. If the unit requires an upgrade, the power LED will begin blinking white until the upgrade is complete, at which point the LED will turn solid white. You should allow at least a few minutes for the firmware upgrade to complete, depending on the speed of your internet connection.

Check and Configure Upstream Firewall Settings

If an upstream firewall is already in place, it must allow outgoing connections on particular ports to particular IP addresses. The most current list of outbound ports and IP addresses for your particular organization can be found [on the firewall configuration page in your dashboard](#).

Connecting to WAN

All Meraki MX devices must have an IP address. This section describes how to configure your local area network before you deploy it. A local management web service, running on the appliance, is accessed through a browser running on a client PC. This web service is used for configuring and monitoring basic ISP/WAN connectivity.

Setting up a Static IP Address



To ensure that the client PC is redirected to the local web service in the following step, you must disable all other network services (ex: wi-fi) on your client machine.

Do the following to configure basic connectivity and other networking parameters:

1. Using a client machine such as a laptop, connect to one of the **LAN** ports of the MX.
 2. Using a browser on the client machine, access the appliance's built-in web service by browsing to <http://setup.meraki.com>. (You do not have to be connected to the Internet to reach this address)
 3. Click **Uplink configuration** under the **Local status** tab. The default credentials use the device serial number as
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the username, with a blank password field.

4. Choose **Static** for the **IP Assignment option**.
5. Enter the IP address, subnet mask, default gateway IP and DNS server information.

Setting up a DHCP IP Address

By default all MX devices are configured to DHCP from upstream WAN / ISP servers. Simply plug the MX's WAN / Internet port to your upstream circuit and wait a few minutes for the unit to negotiate a DHCP address.



When the WAN connection is fully enabled, Internet LED 1 will turn green.

Additional Settings



Please note that all these settings below are accessible only via the local management console.

Setting VLANs

If your WAN uplink is on a trunk port, choose **VLAN tagging > Use VLAN tagging** and enter the appropriate value for **VLAN ID** for your network.

Setting up a Secondary WAN Interface on the MX85

The MX85 comes with four dedicated Internet ports, only two can be used at a time. They can be configured under **Security & SD-WAN > Monitor > Appliance Status** in the Uplink tab.

Setting PPPoE

PPPoE authentication may be required if you are connecting MX device to a DSL circuit. You need to know your authentication option and credentials (supplied by your ISP) in order to complete these steps.

- Choose **Connection Type > PPPoE**.
- Select your **Authentication** option.
- If you select **Use authentication**, enter appropriate values for **Username** and **Password**.

Web Proxy Settings

These settings take effect if the MX device has to fall back to using HTTP to contact the Cloud Controller. By default, web proxy is disabled. To enable web proxy, do the following:

- Choose **Web proxy > Yes**.
- Enter values as appropriate for **Hostname or IP** and **Port**.
- If you require authentication, choose **Authentication > Use authentication**, and enter appropriate values for **Username** and **Password**.



To apply all configuration settings to the appliance, be sure to click **Save Settings** at the bottom of the page.

Configuring Physical Link Settings

To configure physical link settings on the Ethernet ports, click **Local status > Ethernet configuration**. You can enable half duplex, full duplex, and autonegotiation, as well as set 10- or 100-Mbps data rates.

Basic Troubleshooting

The following steps can be used for troubleshooting basic connectivity issues with your MX.

- Reset the MX
- Factory reset the MX by holding the factory reset button for 5 seconds
- Try switching cables, or testing your cable on another device

Reference <https://documentation.meraki.com/MX> for additional information and troubleshooting tips.

If you are still experiencing hardware issues, please contact Cisco Meraki support by logging in to dashboard and using the **Help** option near the top of the page, then opening an email case or calling using the contact information on that page.

Warranty

MX Warranty coverage periods are as follows:

MX (e.g. MX85)	Lifetime	Full lifetime hardware warranty with next-day advanced replacement included.
MX Accessories	1 Year	The following are considered accessories: SFP Modules, all mounting kits and stands, interface modules, additional power cords

Note: The above table is a general guideline for warranty terms and is not final. Warranty terms are subject to printed warranty information on the relevant online Meraki data sheets.

If your Cisco Meraki device fails and the problem cannot be resolved by troubleshooting, contact support to address the issue. Once support determines that the device is in a failed state, they can process an RMA and send out a replacement device free of charge. In most circumstances, the RMA will include a pre-paid shipping label so the faulty equipment can be returned.

 In order to initiate a hardware replacement for non-functioning hardware that is under warranty, you must have access to the original packaging the hardware was shipped in. The original hardware packaging includes device serial number and order information, and may be required for return shipping.

 Meraki MX85 devices have been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC rules. A digital device that is marketed for use in a residential environment notwithstanding use in commercial, business and industrial environments.

Additional warranty information can be found on: <https://meraki.cisco.com/support#process:warranty>

Support and Additional Information

If issues are encountered with device installation or additional help is required, **contact Meraki Support** by logging in to **dashboard.meraki.com** and opening a case by visiting the **Get Help** section.

- The equipment is intended for industrial or other commercial activities.
- The equipment is used in areas without exposure to harmful and dangerous production factors, unless otherwise specified in the operational documentation and/or on the equipment labeling.
- The equipment is not for domestic use. The equipment is intended for operation without the constant presence of maintenance personnel.
- The equipment is subject to installation and maintenance by specialists with the appropriate qualifications, sufficient specialized knowledge, and skills.
- Rules and conditions for the sale of equipment are determined by the terms of contracts concluded by Cisco or authorized Cisco partners with equipment buyers.
- Disposal of a technical device at the end of its service life should be carried out in accordance with the requirements of all state regulations and laws.
- Do not throw in the device with household waste. The technical equipment is subject to storage and disposal in accordance with the organization's disposal procedure.
- The equipment should be stored in its original packaging in a room protected from atmospheric precipitation. The permissible temperature and humidity ranges during storage are specified in the Operation (Installation) Manual.
- Transportation of equipment should be carried out in the original packaging in covered vehicles by any means of transport. The temperature and humidity during transportation must comply with the permissible established ranges of temperature and humidity during storage (in the off state) specified in the Operation Manual (Installation).

For additional information on Meraki hardware and for other installation guides, please refer to **documentation.meraki.com**.