MG21/MG21E Installation Guide

About This Guide

This guide provides instruction on how to install and configure your MG series cellular gateway. This guide also provides mounting instructions and limited troubleshooting procedures.

Looking for a set of step-by-step pictures? **Click here for the simplified install guide**.

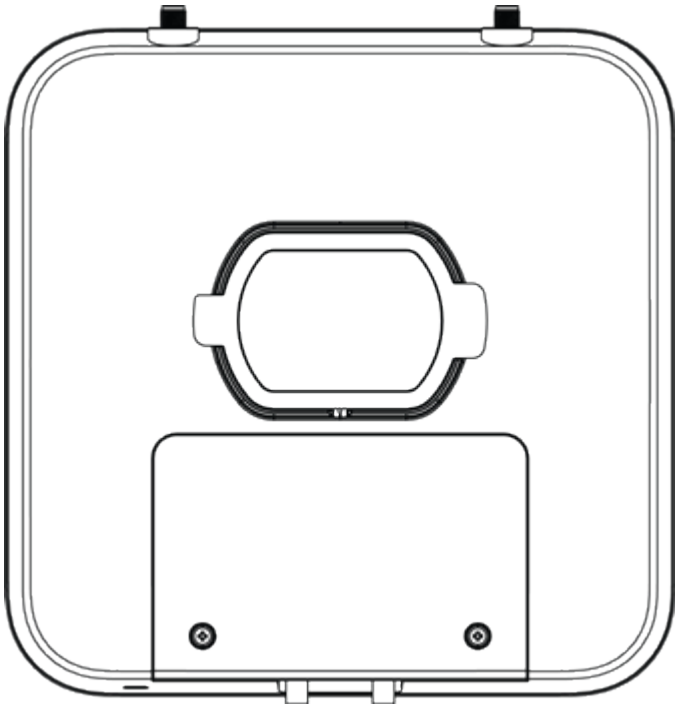
Physical Specifications

Models	MG21	MG21E
Dimensions (w x d x h)	160.45 x 160.45 x 34.45mm	165.7 x 160.45 x 34.45mm
Weight (without accessories)	497g	489g
Power Supply	12V/2.5A 48-57V/0.35A	12V/2.5A 48-57V/0.35A
Power Load	10 Watt Maximum (PoE 802.3AF)	10 Watt Maximum (PoE 802.3AF)
Operating Temperature	-22°F to 122°F (-30°C to 50°C)	-22°F to 122°F (-30°C to 50°C)
Humidity	5% to 95% non-condensing	5% to 95% non-condensing

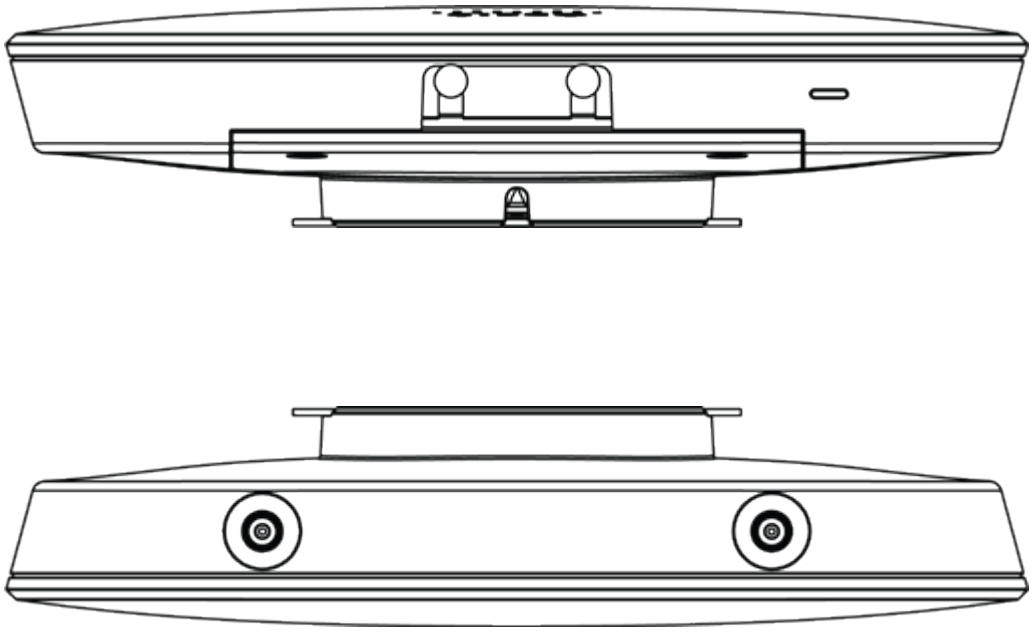
Product View and Physical Features

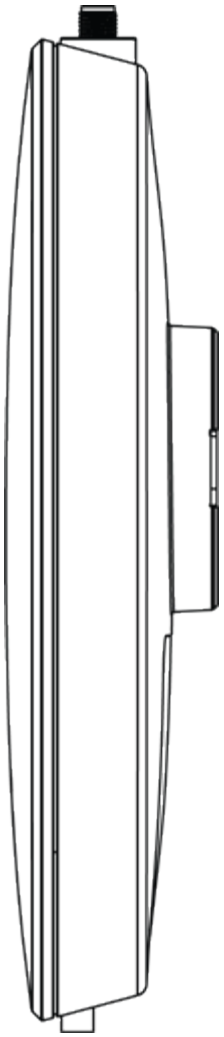
Front Panel

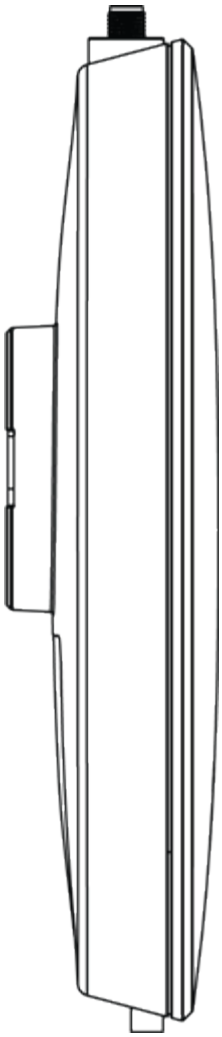
Back Panel



Side Panels







Status Indicator

The MG series of devices use an LED to inform the user of the device's status. LED patterns and their meanings are described below.

LED Status	Meaning
Solid orange	Power is applied but the appliance is not connected to the Meraki Dashboard
Rainbow Colors	The appliance is attempting to connect to Meraki Dashboard
Flashing White	Firmware upgrade in progress
Solid White	Fully operational/connected to LAN

Solid Purple	Fully operational/connected to cellular network

Ethernet Port

The MG21/MG21E features two Ethernet ports. Port 1 can be reconfigured to Safe Mode for troubleshooting and diagnostics. Brand new units will ship with both ports configured as LAN, which is the default, normal operating mode.

The port labeled “PoE” (Port 1) accepts 802.3af power.

The non-PoE port (Port 2) may be used to connect a second device to the MG.

AC Adapter Power Port

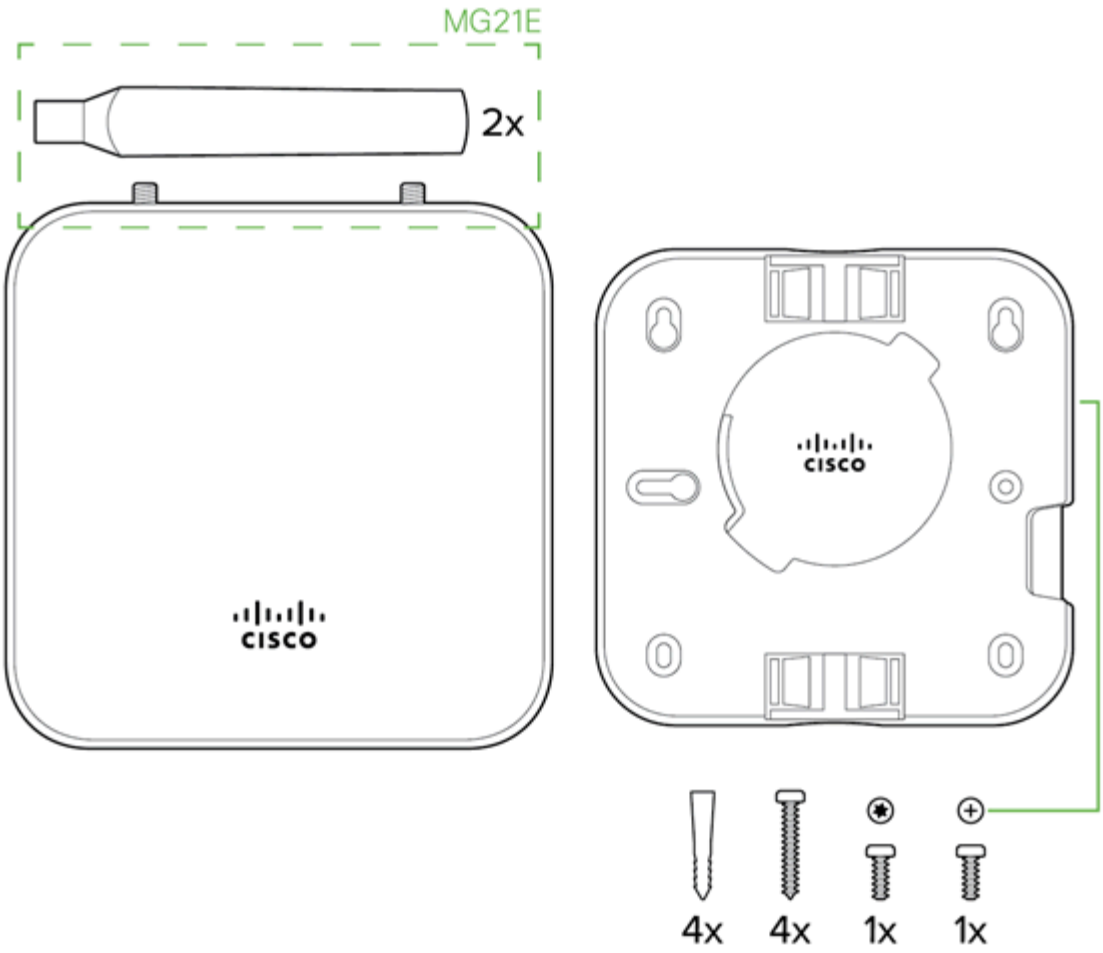
In the event that the MG cannot be powered by POE, the MG has an AC adapter port that can be used to power it up with the 30watt (12V 2.5A) AC adapter (sold separately).

Factory Reset

To reset an MG cellular gateway to the factory defaults, press the button labeled 'Reset' on the back panel of the appliance for at least 10 seconds. This will clear all the local configuration settings done via the local status page. Please be aware that after resetting the unit, the local status page requires reconfiguration, and the device will need to download its latest configuration from the dashboard cloud. Please be patient as this could take up to 5 - 10 minutes.

Package Contents

MG21 (North America)	MG21 (World wide)	MG21E (North America)	MG21E (World wide)
1 x MG21-HW-NA	1 x MG21-HW-WW	1 x MG21E-HW-NA	1 x MG21E-HW-WW
1 x Mounting plate and screw set	1 x Mounting plate and screw set	1 x Mounting plate and screw set	1 x Mounting plate and screw set
		2 x dipole antennas	2 x dipole antennas



Note: Non-Meraki antennas are not supported. The socket is a reversed RP-SMA that is designed to detect the official MG smart dipole antennas and smart patch antenna. Usage of non-Meraki accessories may damage the MG and degrade performance. The Cisco Meraki antennas are designed for the maximum allowable gain without exceeding the EIRP for local regulatory domains on their supported bands.

Safety and Warnings

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 a 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 (over current) 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 the Dashboard Network

The following is a brief overview only of the steps required to add an MG21 to your network. For detailed instructions about creating, configuring and managing Meraki networks, refer to our online documentation portal.

1. Login to http://dashboard.meraki.com and select the intended organization. If this is your first time using the Meraki dashboard, create a new account.
2. Claim the device to your organization inventory. You will need your Meraki order number (found on your invoice) or the serial number of each MG, which looks like **Qxxx-xxxx-xxxx**, and is found on the bottom of the unit. You will also need to claim your Enterprise license key, which you should have received via email.
3. Find or create the network to which you plan to add your MG21.
4. Add your MG21 to the network.

Check and Set Firmware

To ensure your MG21 performs optimally immediately following installation, it is recommended that you facilitate a firmware upgrade prior to using your MG21.

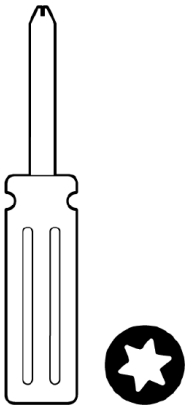
1. Insert an active nano (4FF) SIM card into the tray before powering up the device.
2. Connect your MG21 to power.
3. The MG21 will turn on and the power LED will glow solid orange until it comes online.
4. If the unit requires a firmware upgrade after coming online, the power LED will begin blinking 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.

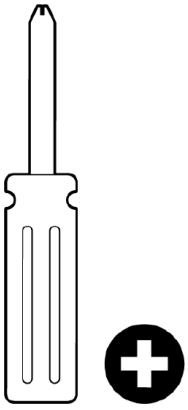
Check and Configure Upstream Firewall Settings

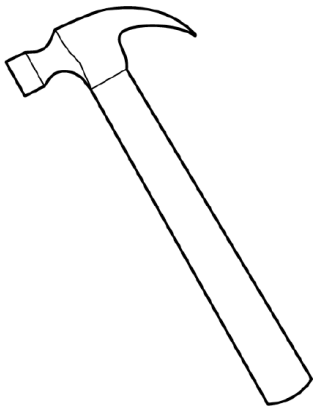
If you are testing safe mode on port 1 and have an upstream firewall in place, the firewall must allow outgoing connections on particular ports to specific IP addresses. The most current list of outbound ports and IP addresses for your organization can be found on the **Help > Firewall Information** page in your dashboard.

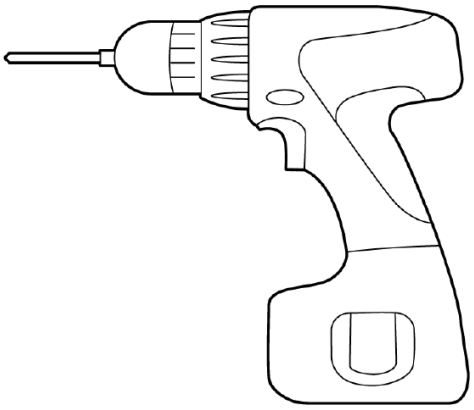
Collect Tools

You will need the following tools to perform an installation:





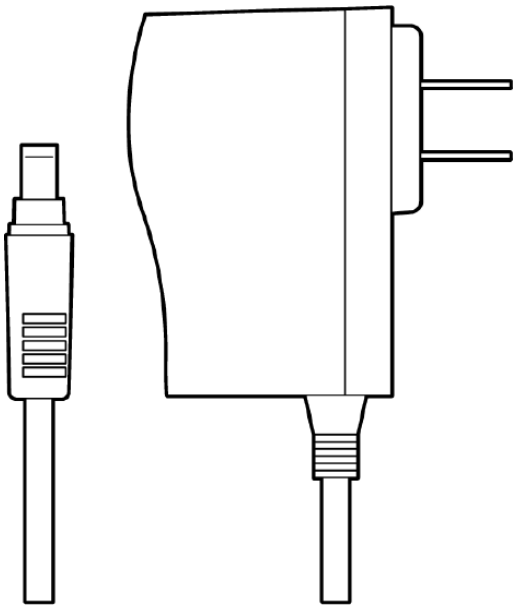


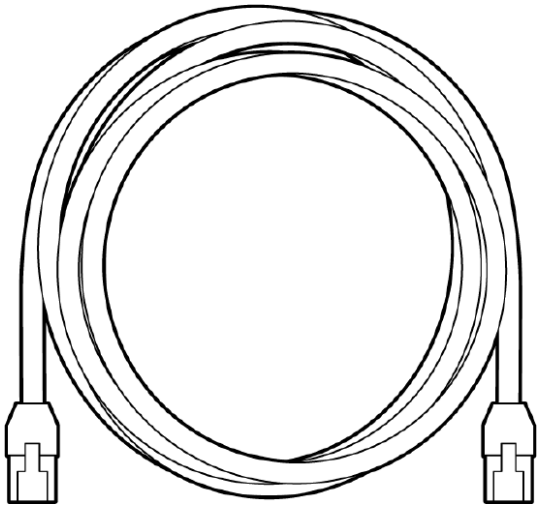


T8 Torx screwdriver, Phillips screwdriver, Hammer, Drill with 1/4" (6.3mm) bits

Collect Additional Hardware for Installation

You will need the following hardware to perform an installation:





802.3af PoE source (either PoE switch or Meraki 802.3af PoE injector), AC adapter, Network cables RJ45 connectors long enough for your particular mounting location

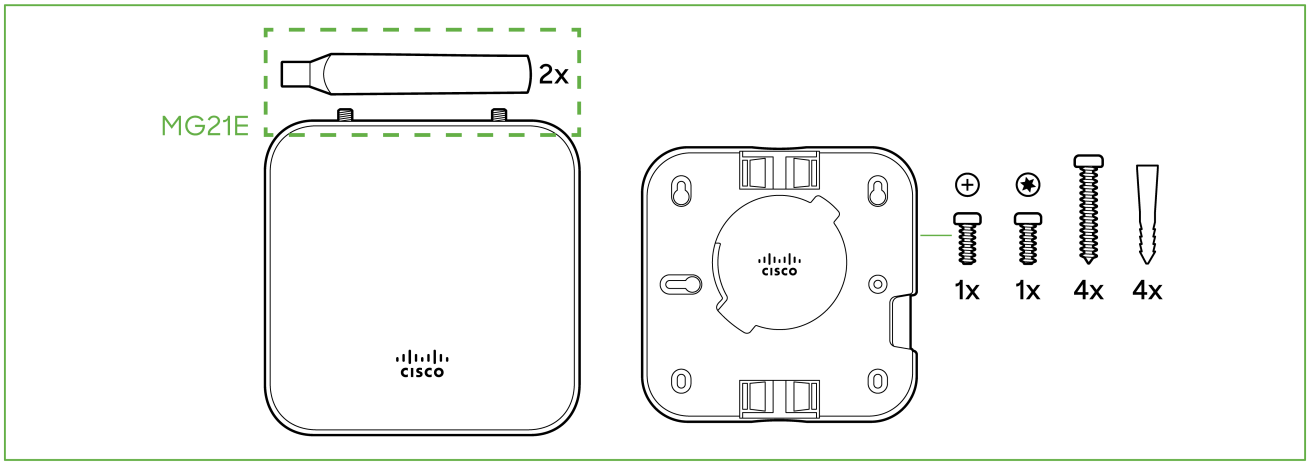
Installation Instructions

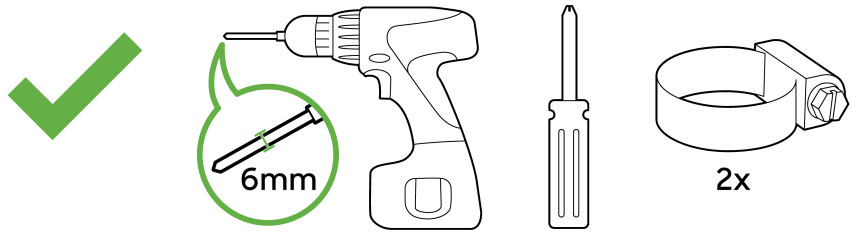
Mounting Hardware

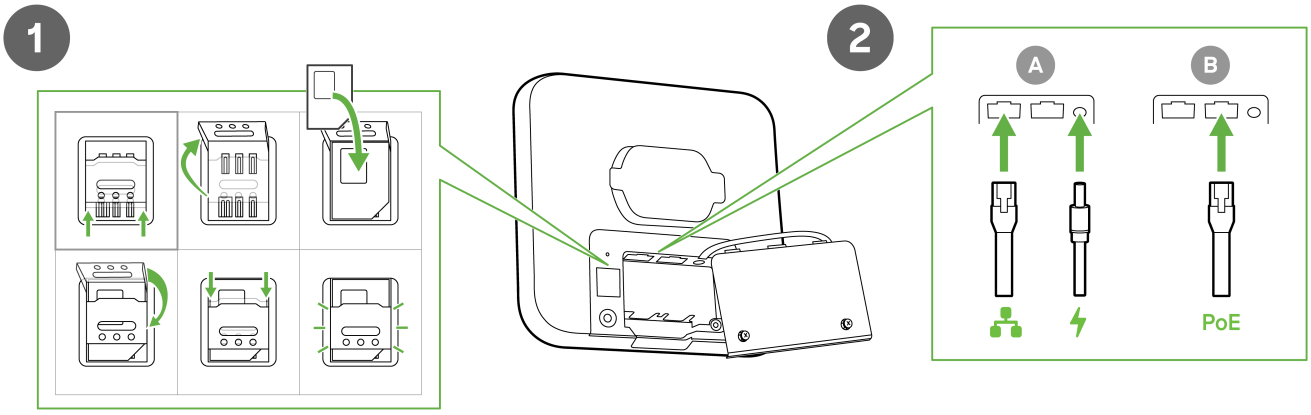
The supplied wall screws and anchors allow you to mount the appliance on a drywall surface, either vertically or horizontally. For mounting on drywall, use a ¼-inch drill bit, then insert the plastic and screw assemblies.

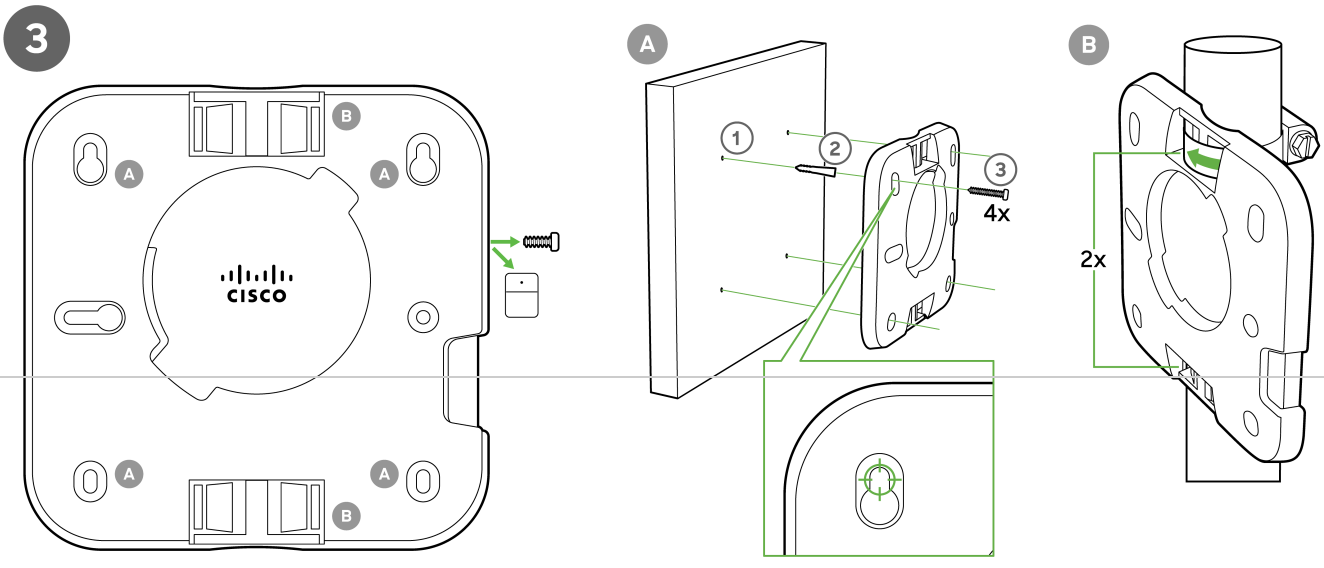
- For mounting on wood or a similar surface, use only the screws.
- Allow the heads of the screws to stick out far enough to be inserted securely into the back of the MG.

In-Box Install Guide


MG21E
2x
1x
1x
4x
4x


6mm
2x


1
2
A
B
PoE


3
A
B
1
2
3
4x
2x

Plan Ahead: When mounting the MG cellular gateway in hard to reach areas, it is recommended that Ethernet cables are run to both ports as a redundant method to access both ports in the case of physical failure of a port or cable.

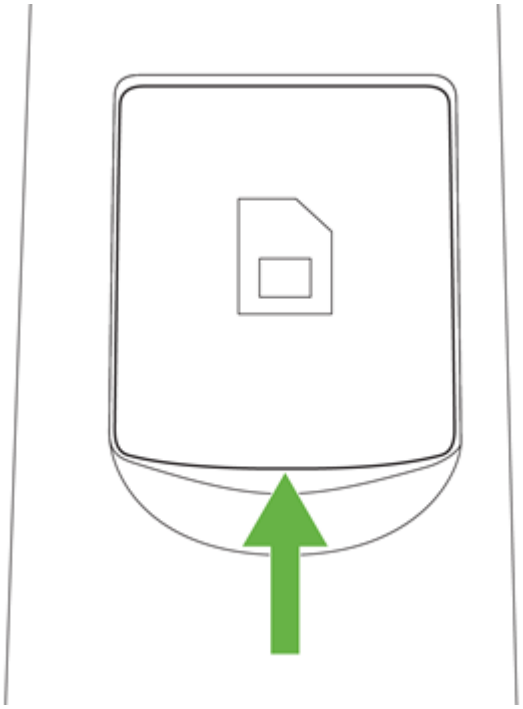
SIM Installation

1. Disconnect power to the MG21.

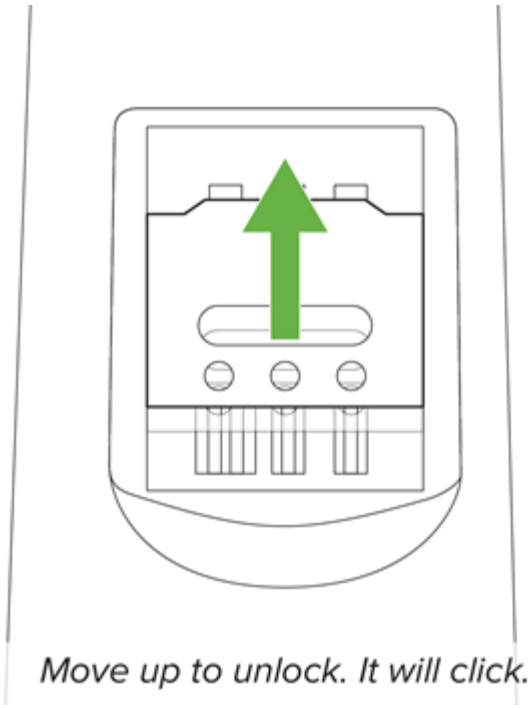
WARNING: The MG21 and MG21E are IP67 rated only when the back panel plate is attached and screwed down with the gasket in place. Hot swapping/installing SIM cards while the MG21 is powered on may cause unexpected behavior or errors and is not recommended. Please power down the device before removing and inserting any SIM cards.

2. Unscrew the MG back panel plate to expose the SIM card gasket and slot. Remove SIM gasket and set aside for reinsertion later.

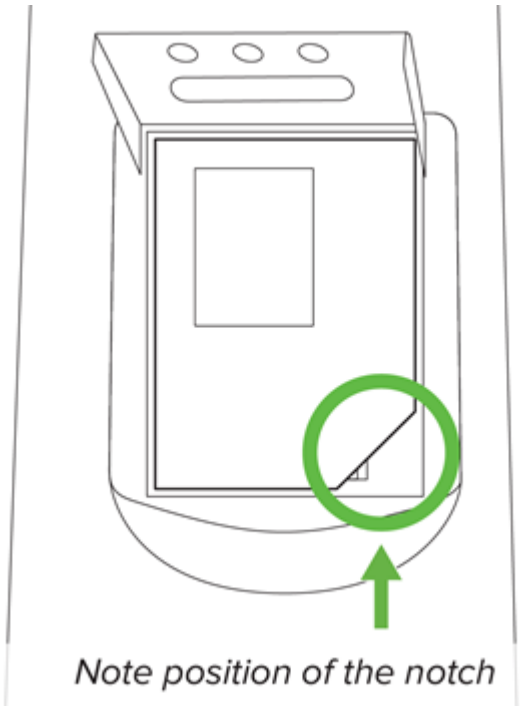
The new MG21 units do not come with the SIM gasket.



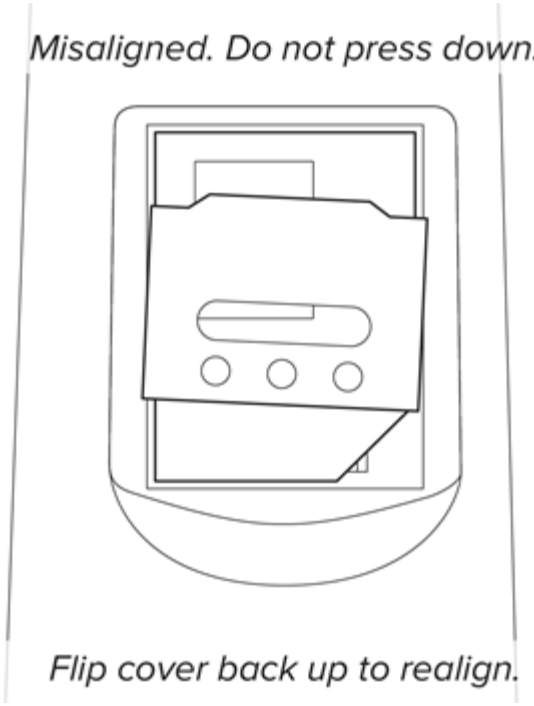
3. Push the tray up and it will click. This unlocks the tray so you can flip up the cage. Insert your activated nano (4FF) SIM card into the SIM card tray.

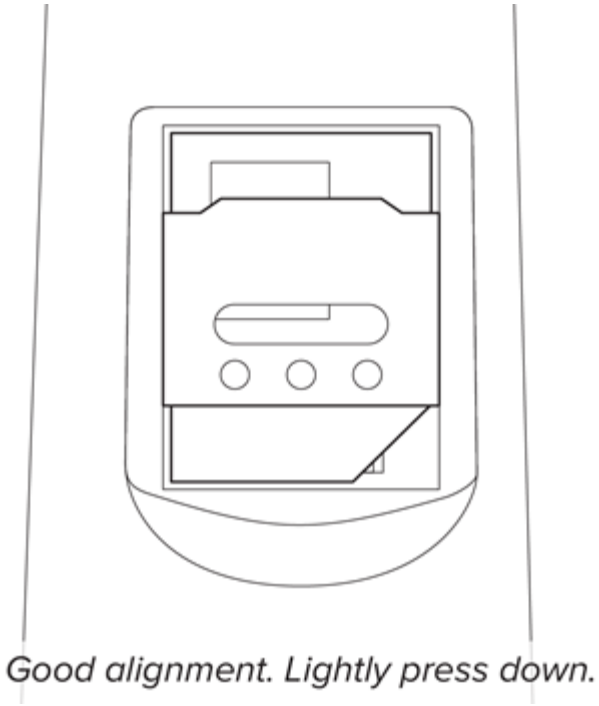


4. Make sure your SIM card is aligned properly with the notch.

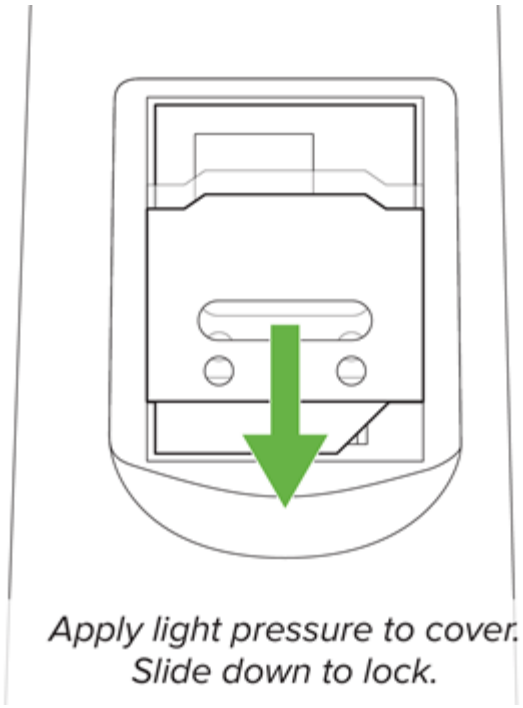


5. Before closing the SIM cage, make sure the the cage is aligned properly. The left picture below shows a cage misalignment. Pressing down with the wrong alignment could damage the cover. The right picture below shows proper cage alignment.

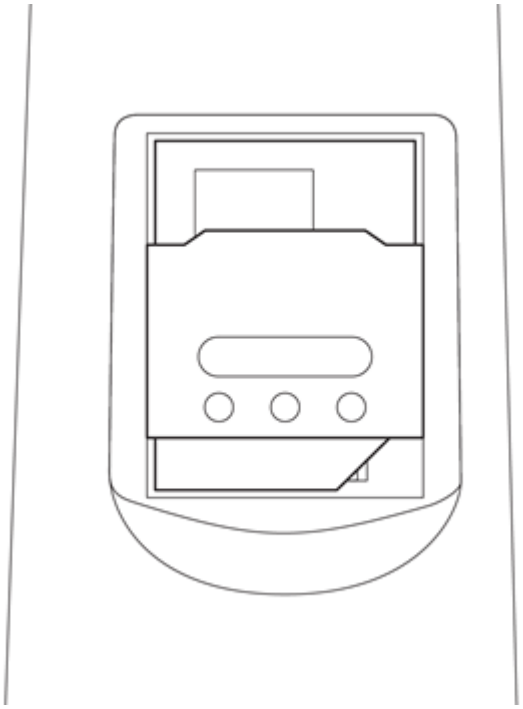




6. Close the SIM cage with proper alignment and lightly press down on the cover. Move the cage down and there should be a click to confirm the cage is locking in the SIM card to the tray.



7. Once the SIM card is locked in, it should stay within the tray.



8. Put the SIM gasket (that was set aside at the beginning) back in the original position. The SIM card installation is now complete.

WARNING: To ensure the IP67 rating during usage and operation of the MG, ensure the gaskets are in properly aligned and the backplate is securely screwed down with the gaskets in place.

Connecting to WAN

All Meraki MG devices must have an IP address. This section describes how to configure the WAN interface 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.

Note: All the settings below are accessible only via the local status page.

Setting up Cellular Connection

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

Follow the steps below to configure basic connectivity and other cellular gateway parameters on the MG21:

1. Using a client machine such as a laptop, connect directly to LAN interface of the MG.
2. Find the client's IP address and default gateway. Using a browser on the client machine, access the appliance's built-in web service by browsing to mg.meraki.com or the default gateway IP (You do not have to be connected to the Internet to reach this address).
3. Click the Configuration tab under the Local Status tab. The default credentials are the Serial Number of the device (all upper-case *with* dashes) as the username and a blank password field.
4. Configure additional bearer values like APN or SIM PIN if required by your carrier under the Configuration tab.

Configuring Ethernet Ports

To configure physical link settings on the Ethernet ports, click on Ethernet tab. You can enable half duplex, full duplex, and auto-negotiation, as well as set 10 or 100 or 1000-Mbps data rates on Ethernet ports.

Basic Troubleshooting

The following steps can be used for troubleshooting basic connectivity issues with your MG:

- MG devices require a valid and active data plan, so make sure the SIM and data plan are active.
- Some carriers require specific APNs, usernames/passwords, or PINs to use their SIM cards. Ensure the values are correct if required.
- Validate signal quality is sufficient by checking the RSRP and RSRQ values on the Connection tab of the Local Status Page.
- Try connecting the MG in Safe Mode and check if it comes online on Dashboard.
- Try a soft reset by pressing the reset button for 1 second to delete a downloaded configuration and reboot the MG.
- Try a factory reset by holding the factory reset button for at least 10 seconds.

- Try switching cables, or testing your cables on another device.

Device power issue

- If device fails to turn on, check the power source to make sure it is adequately supplying power to the MG.
- If there are no LED lights even though there is power at the outlet, check the MG to make sure everything is plugged in properly.
- If device isn't coming after trying both AC adapter and POE, check that the power options also work on other devices in a similar or matching setup.

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

Warranty

MG warranty coverage periods are as follows:

Product	Warranty Period	Warranty Information
MG21/MG21E	Lifetime	Full lifetime hardware warranty with next-day advanced replacement included. Applies to MG21 and MG21E hardware
MG Accessories	1 Year	The following are considered accessories: Includes mounting kits, antenna, and additional power cords

Additional warranty information can be found on the Return Policy and Requesting a RMA page of the Cisco Meraki website.

If your Cisco Meraki device fails and the problem cannot be resolved by troubleshooting, contact Meraki 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 MG21 and MG21E devices have been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

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 **Help > Get Help** page.

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