

NETGEAR®

Hardware Installation Guide

ProSAFE Managed Switch Series M4200

Hardware Installation Guide

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Support

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Compliance and Conformity

For regulatory compliance information including the EU Declaration of Conformity, visit <https://www.netgear.com/about/regulatory/>.

See the regulatory compliance document before connecting the power supply.

Do not use this device outdoors. The PoE source is intended for intra building connection only.

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1

Introduction

The NETGEAR® ProSAFE® Managed Switch Series M4200 is an Ethernet access layer switch that provides combined 1G, 2.5G, 5G, and 10G ports for 802.11ac Wave 2 access points and NBASE-T endpoints.

This hardware installation guide complements the installation guide that came with your switch.

This chapter serves as an introduction to the ProSAFE Managed Switch Series M4200 and includes the following sections:

- [Hardware Overview](#)
- [Hardware Features](#)
- [Safety Instructions and Warnings](#)

Note: For more information about the topics that are covered in this manual, visit the support website at support.netgear.com.

Note: For technical specifications, see the data sheet at netgear.com/business/products/switches/managed. For switch documentation, visit downloadcenter.netgear.com.

Note: In this manual, the ProSAFE Managed Switch Series M4200 is referred to as the *switch*.

Hardware Overview

The ProSAFE Managed Switch Series M4200 consists of a single model, the M4200-10MG-POE+ switch.

This model provides six 100M/1G/2.5GBASE-T RJ-45 PoE ports, two 100M/1G/2.5G/5GBASE-T RJ-45 PoE ports, and two 10GBASE-X fiber SFP+ uplink ports in a full-width chassis that can be freestanding, attached to a wall, round pole, or even a table leg, or installed in a 1U rack.

A typical use of this switch is as a 10G aggregation switch for 802.11ac Wave 2 access points and NBASE-T endpoints at the WiFi edge of a campus network or a network of a midsize organization. The switch is IEEE compliant and offers low latency for high-speed networking.

Hardware Features

The switch includes the following key hardware features:

- The switch provides following traffic ports:
 - Six 100M/1G/2.5GBASE-T RJ-45 PoE ports
 - Two 100M/1G/2.5G/5GBASE-T RJ-45 PoE ports
 - Two dedicated 10GBASE-X fiber SFP+ uplink ports
- 90G switching fabric (all ports line-rate).
- One out-of-band 1G Ethernet port.
- One RJ-45 RS232 console port.
- One mini-USB console port.
- One regular USB port for connection to a storage device.
- Full-width chassis for desktop operation, wall operation, rack-mounting in a wiring closet or equipment room, or attachable almost anywhere with a mount.
- Full compatibility with IEEE standards:
 - IEEE 802.3u (100BASE-TX)
 - IEEE 802.3ab (1000BASE-T)
 - IEEE 802.3an (10GBASE-T)
 - IEEE 802.3z (1000BASE-X)
 - IEEE 802.3 Clause 49 (10GBASE-LR and 10GBASE-SR)
 - IEEE802.3ae (10GBASE Ethernet)
 - IEEE802.3az (Energy Efficient Ethernet)
 - IEEE 802.3x (Full-duplex flow control)
 - IEEE 802.1af (PoE)

- IEEE 802.1at (PoE+)
- IEEE 802.3bz (NBASE-T)
- AutoSensing and autonegotiating capabilities for all ports.
- Auto Uplink technology is supported on all ports.
- Automatic address learning function to build the packet-forwarding information table. The table contains up to 16K Media Access Control (MAC) addresses.
- Store-and-forward transmission to remove bad packets from the network.
- Full-duplex IEEE 802.3x pause frame flow control.
- Active flow control to minimize packet loss and frame drops.
- Half-duplex backpressure control.
- Per-port status LEDs and system status LEDs.
- NETGEAR green power-saving features:
 - Energy efficiency mode that fully conforms to the IEEE802.3az standard
 - For 1GBASE-T ports, per-port automatic change to a lower power mode when the port link is down
- Support for Power over Ethernet (PoE+).

Safety Instructions and Warnings

Use the following safety guidelines to ensure your own personal safety and to help protect your system from potential damage.

To reduce the risk of bodily injury, electrical shock, fire, and damage to the equipment, observe the following precautions:

- This product is designed for indoor use only in a temperature-controlled (0–50 C) and humidity-controlled (10–90% relative humidity) environment.

Any device that is located outdoors and connected to this product must be properly grounded and surge protected.

To the extent permissible by applicable law, failure to follow these guidelines could result in damage to your NETGEAR product which may not be covered by NETGEAR's warranty.

- Observe and follow service markings:
 - Do not service any product except as explained in your system documentation.
 - Opening or removing covers that are marked with the triangular symbol with a lightning bolt can expose you to electrical shock. We recommend that only a trained technician services components inside these compartments.
- If any of the following conditions occur, unplug the product from the electrical outlet and replace the part or contact your trained service provider:
 - The power cable, extension cable, or plug is damaged.

- An object fell into the product.
- The product was exposed to water.
- The product was dropped or damaged.
- The product does not operate correctly when you follow the operating instructions.
- Keep your system away from radiators and heat sources. Also, do not block cooling vents.
- Do not spill food or liquids on your system components, and never operate the product in a wet environment. If the system gets wet, see the appropriate section in your troubleshooting guide, or contact your trained service provider.
- Do not push any objects into the openings of your system. Doing so can cause fire or electric shock by shorting out interior components.
- Use the product only with approved equipment.
- Allow the product to cool before removing covers or touching internal components.
- Operate the product only from the type of external power source indicated on the electrical ratings label. If you are not sure of the type of power source required, consult your service provider or local power company.
- To avoid damaging your system, be sure that the voltage selection switch (if provided) on the power supply is set to match the power at your location:
 - 115V, 60 Hz in most of North and South America and some Far Eastern countries such as South Korea and Taiwan
 - 100V, 50 Hz in eastern Japan and 100V, 60 Hz in western Japan
 - 230V, 50 Hz in most of Europe, the Middle East, and the Far East
- Be sure that attached devices are electrically rated to operate with the power available in your location.
- Use only approved power cables. If you were not provided with a power cable for your system or for any AC-powered option intended for your system, purchase a power cable approved for your country. The power cable must be rated for the product and for the voltage and current marked on the product electrical ratings label. The voltage and current rating of the cable must be greater than the ratings marked on the product.
- To help prevent electric shock, plug the system and peripheral power cables into properly grounded electrical outlets.
- The peripheral power cables are equipped with three-prong plugs to help ensure proper grounding. Do not use adapter plugs or remove the grounding prong from a cable. If you must use an extension cable, use a three-wire cable with properly grounded plugs.
- Observe extension cable and power strip ratings. Make sure that the total ampere rating of all products plugged into the extension cable or power strip does not exceed 80 percent of the ampere ratings limit for the extension cable or power strip.
- To help protect your system from sudden, transient increases and decreases in electrical power, use a surge suppressor, line conditioner, or uninterruptible power supply (UPS).
- Position system cables and power cables carefully. Route cables so that they cannot be stepped on or tripped over. Be sure that nothing rests on any cables.

- Do not modify power cables or plugs. Consult a licensed electrician or your power company for site modifications.
- Always follow your local and national wiring rules.

2

Hardware Overview

This chapter describes the switch hardware features.

The chapter includes the following sections:

- [Hardware Description](#)
- [Switch Hardware Interface](#)

Hardware Description

This section describes the switch hardware features.

Front Panel

The switch provides six 100M/1G/2.5GBASE-T RJ-45 PoE ports, two 100M/1G/2.5G/5GBASE-T RJ-45 PoE ports, and two 10GBASE-X fiber SFP+ uplink ports.

The following figure illustrates the front panel.

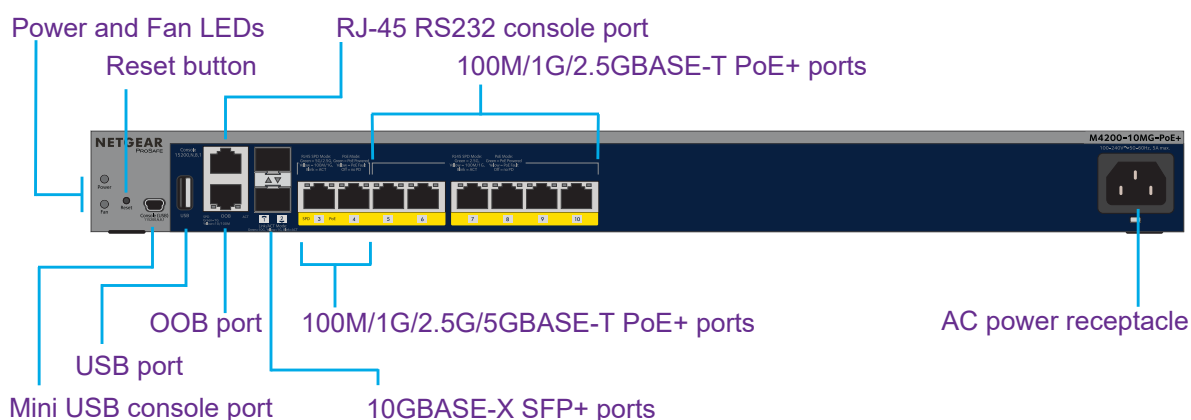


Figure 1. Front panel

From left to right, the front panel provides the following components:

- Power and Fan system LEDs (see [LEDs on page 12](#))
- Recessed **Reset** button
- One mini USB console port
- One USB 2.0 port
- One RJ-45 RS232 (115200, N, 8, 1) console port
- One out-of-band (OOB) 1G Ethernet port with a left LED that indicates the speed and a right LED that indicates the activity (see [LEDs on page 12](#))
- Two dedicated 10GBASE-X SFP+ ports (1 and 2), each with a combined speed/activity LED (see [LEDs on page 12](#))
- Two independent 100M/1G/2.5G/5GBASE-T RJ-45 PoE ports (3 and 4), each with a left LED that indicates the PoE status and a right LED that functions as the combined speed/activity LED (see [LEDs on page 12](#))
- Six independent 100M/1G/2.5GBASE-T RJ-45 PoE ports (5 through 10), each with a left LED that indicates the PoE status and a right LED that functions as the combined speed/activity LED (see [LEDs on page 12](#))

- One AC power receptacle

Back Panel and Bottom Panel

The switch integrates a fixed, internal power supply unit (PSU) and a fixed, side-to-side fan.

The back panel does not contain any components other than two mounting holes that allow for horizontal or vertical attachment to a wall, rectangular pole or table leg, or round pole or table leg. The bottom panel also contains mounting holes to allow for attachment. For more information, see [Step 4: Install the Switch on page 21](#).

The following figure illustrates the back panel with the mounting holes.



Figure 2. Back panel

The following figure illustrates the bottom panel with the mounting holes.



Figure 3. Bottom panel

LEDs

The following table describes the LEDs on the front panel.

Table 1. LEDs

LED	Designation
Power	• Solid green. The power module is present, is supplying power to the switch, and is functioning normally. • Solid yellow. The switch is booting. • Blinking yellow. The system boot-up failed or another failure occurred. • Off. Power is not supplied to the switch.
Fan	• Solid green. The fans are functioning normally. • Blinking yellow. One or more fans failed. • Off. Power is not supplied to the switch. The fans are off.

Table 1. LEDs (continued)

LED	Designation
OOB Ethernet port	Left side speed LED: • Solid green. A valid 1000 Mbps link is established on the port. • Solid yellow. A valid 10/100 Mbps link is established on the port. • Off. No link is established on the port. Right side activity/link LED: • Solid green. A valid link is established on the port. • Blinking green. The port is transmitting or receiving packets. • Off. No link is established on the port.
10GBASE-X SFP+ ports (one LED per port)	• Off. No SFP+ module link is established on the fiber port. • Solid green. The fiber port established a valid 10 Gbps link. • Blinking green. The fiber port is transmitting or receiving packets at 10 Gbps. • Solid yellow. The fiber port established a valid 1 Gbps link. • Blinking yellow. The fiber port is transmitting or receiving packets at 1 Gbps.
100M/1G/2.5/5GBASE-T RJ-45 PoE ports (two LEDs per port)	Left side speed/activity/link LED: • Solid green. A valid 2.5/5 Gbps link is established on the port. • Blinking green. The port is transmitting or receiving packets at 2.5/5 Gbps. • Solid yellow. A valid 100/1000 Mbps link is established on the port. • Blinking yellow. The port is transmitting or receiving packets at 100/1000 Mbps. • Off. No link is established on the port. Right side PoE status LED: • Solid green. A PoE-powered device (PD) is connected and the port is supplying power successfully. • Solid yellow. Indicates one of the following failures, which prevents the port from supplying power: - A short circuit occurred on the PoE power circuit. - The PoE power demand exceeds the available power. - The PoE current exceeds the PD's classification. - An out-of-proper voltage band condition occurred.¹ • Off. A PoE-powered device (PD) is not connected to the port.

Table 1. LEDs (continued)

LED	Designation
100M/1G/2.5GBASE-T RJ-45 PoE ports (two LEDs per port)	Left side speed/activity/link LED: • Solid green. A valid 2.5 Gbps link is established on the port. • Blinking green. The port is transmitting or receiving packets at 2.5 Gbps. • Solid yellow. A valid 100/1000 Mbps link is established on the port. • Blinking yellow. The port is transmitting or receiving packets at 100/1000 Mbps. • Off. No link is established on the port. Right side PoE status LED: • Solid green. A PoE-powered device (PD) is connected and the port is supplying power successfully. • Solid yellow. Indicates one of the following failures, which prevents the port from supplying power: - A short circuit occurred on the PoE power circuit. - The PoE power demand exceeds the available power. - The PoE current exceeds the PD's classification. - An out-of-proper voltage band condition occurred.¹ • Off. A PoE-powered device (PD) is not connected to the port.

1. The correct voltage band for IEEE 802.1af (PoE) is 44–57 VDC. The correct voltage band for IEEE 802.1at (PoE+) is 50–57 VDC.

Switch Hardware Interface

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This section describes the hardware interfaces of the M4200 series switch.

RJ-45 Ports for 100M/1G/2.5/5GBASE-T Connectivity

All RJ-45 copper ports support autosensing. When you insert a cable into an RJ-45 port, the switch automatically ascertains the maximum speed (100 Mbps, 1 Gbps, 2.5 Gbps, or 5 Gbps) and duplex mode (half-duplex or full-duplex) of the attached device. All ports support a Category 5e (Cat 5e) unshielded twisted-pair (UTP) cable terminated with an 8-pin RJ-45 connector.

Note: For 2.5GBASE-T and 5GBASE-T ports, Ethernet specifications limit a cable length between the switch and the attached device to 328 feet (100 meters).

To simplify the procedure for attaching devices, all RJ-45 ports support Auto Uplink technology. This technology allows attaching devices to the RJ-45 ports with either straight-through or crossover cables.

When you insert a cable into the switch's RJ-45 port, the switch automatically performs the following actions:

- Senses whether the cable is a straight-through or crossover cable.
- Determines whether the link to the attached device requires a normal connection (such as when you are connecting the port to a computer) or an uplink connection (such as when you are connecting the port to a router, switch, or hub).
- Automatically configures the RJ-45 port to enable communications with the attached device. The Auto Uplink technology compensates for setting uplink connections while eliminating concern about whether to use crossover or straight-through cables when you attach devices.

All copper ports also support Power over Ethernet (PoE+). The switch can provide a total power budget of 240W.

10GBASE-X SFP+ Ports

To enable high-speed fiber and long-distance connections on the switch, SFP+ fiber ports accommodate standard 10G and 1G SFP+ transceiver modules, which are sold separately.

The switch supports the following NETGEAR ProSAFE SFP and SFP+ transceiver modules and cables:

- Short reach transceiver modules:
 - AGM731F SFP transceiver 1000BASE-SX, SFP multimode LC GBIC
 - AXM761 SFP+ transceiver 10GBASE-SR, SFP+ multimode LC GBIC
- Long reach transceiver modules:
 - AGM732F SFP transceiver 1000BASE-LX, SFP single mode LC GBIC
 - AXM762 SFP+ transceiver 10GBASE-LR, SFP+ single mode LC GBIC
 - AXM764 SFP+ transceiver 10GBASE-LR Lite, SFP+ single mode LC GBIC
- Cables:
 - AXC761 SFP+ 1m direct attach cable
 - AXC763 SFP+ 3m direct attach cable

For more information about NETGEAR ProSAFE SFP and SFP+ transceiver modules and cables, visit netgear.com/business/products/switches/modules-accessories.

USB Port

The switch provides one USB 2.0 port to upgrade firmware from a disk, back up the configuration to a storage device, and allow for the collection of a memory dump for debugging purposes.

A device that you attach to the USB port must comply with the following requirements:

- The USB device must support USB 2.0.
- The USB device must support the FAT32 or VFAT file type. The NTFS file type is not supported.

Because of hardware limitations, the write and read speed to and from a USB device is about 1 Mbps.

OOB 1G Ethernet Port

The switch provides one out-of-band 1G10BASE-T RJ-45 Ethernet port that lets you access the switch over its web management interface, Telnet, or SSH.

Mini USB Console Port

The switch provides one mini USB console port for console access only. The product package includes one USB console cable with one mini B connector and one type A connector. You can use this cable to connect the mini USB console port on the switch to a USB port on a VT100-compatible terminal or a Windows computer that runs VT100 terminal emulation software.

Note: For you to be able to use the mini USB port and access the switch from a Windows-based computer that runs VT100 terminal emulation software, you must install the USB driver on the computer. To download the VT100 terminal emulation software and Windows USB driver, visit www.netgear.com/support, enter your model number in the search box, and click the Downloads button on the product page.

RJ-45 RS232 Console Port

The switch provides one RJ-45 RS232 console port for console access only. This serial port is configured for 115200 baud, eight data bits, one stop bit, and no parity. The product package includes one console cable with one DB9 connector and one RJ-45 connector. You can use this cable to connect the RJ-45 RS232 console port on the switch to a DB9 port on a VT100-compatible terminal or a Windows computer that runs VT100 terminal emulation software.

Reset Button

The switch provides a **Reset** button on the front panel so that you can reboot the switch. Save the configuration before you press the **Reset** button.

To reboot the switch using the Reset button:

1. Insert a device such as a straightened paper clip into the opening.
2. Press the recessed **Reset** button for about three seconds.

The switch reboots.

3

Installation

This chapter describes the installation procedures for the switch. Switch installation involves the steps described in the following sections:

Step 1: Prepare the Site

Step 2: Protect Against Electrostatic Discharge

Step 3: Unpack the Switch

Step 4: Install the Switch

Step 5: Check the Installation

Optional Step 6: Install SFP Transceiver Modules

Step 7: Apply AC Power and Check the LEDs

Optional Step 8: Connect a Console to the Switch

Step 1: Prepare the Site

Before you install the switch, ensure that the operating environment meets the site requirements that are listed in the following table.

Table 2. Site requirements

Characteristics	Requirements
Mounting	• Desktop installations. Provide a flat table or shelf surface. • Wall installations. Use a mount that is supplied with the switch to attach the switch to a wall. • Attached to a table leg or pole with a secure locking tab. Use a mount with rubber belts or hose clamps, all of which are supplied with the switch, to attach the switch almost anywhere, such as a table leg or round pole. • Rack-mount installations. Use a 19-inch (48.3-centimeter) EIA standard equipment rack that is grounded and physically secure. You also need the rack-mount kit that is supplied with the switch.
Access	Locate the switch in a position that allows you to access the front panel RJ-45 ports, view the front panel LEDs, and access the power connector on the back panel.
Power source	Use the AC power cord that is supplied with the switch. Ensure that the AC outlet is not controlled by a wall switch, which can accidentally turn off power to the outlet and the switch.
Cabling	Route cables to avoid sources of electrical noise such as radio transmitters, broadcast amplifiers, power lines, and fluorescent lighting fixtures.
Environmental	• Temperature. Install the switch in a dry area with an ambient temperature between 0°C and 50°C (32°F and 122°F). Keep the switch away from heat sources such as direct sunlight, warm-air exhausts, hot-air vents, and heaters. • Operating humidity. The maximum relative humidity of the installation location must not exceed 90%, noncondensing. • Ventilation. Do not restrict airflow by covering or obstructing air inlets on the sides of the switch. Keep at least 2 inches (5.08 centimeters) free on all sides for cooling. The room or wiring closet in which you install the switch must provide adequate airflow. • Operating conditions. Keep the switch at least 6 feet (1.83 meters) away from the nearest source of electromagnetic noise, such as a photocopy machine.

Step 2: Protect Against Electrostatic Discharge



WARNING:

Static electricity can harm delicate components inside your system. To prevent static damage, discharge static electricity from your body before you touch any of the electronic components, such as the microprocessor. You can do so by periodically touching an unpainted metal surface on the switch.

You can also take the following steps to prevent damage from electrostatic discharge (ESD):

- When unpacking a static-sensitive component from its shipping carton, leave it in the antistatic package until you are ready to install it. Just before unwrapping the antistatic package, discharge static electricity from your body.
- Before moving a sensitive component, place it in an antistatic container or package.
- Handle all sensitive components in a static-safe area. If possible, use antistatic floor pads, workbench pads, and an antistatic grounding strap.

Step 3: Unpack the Switch

The following figure shows the package contents.

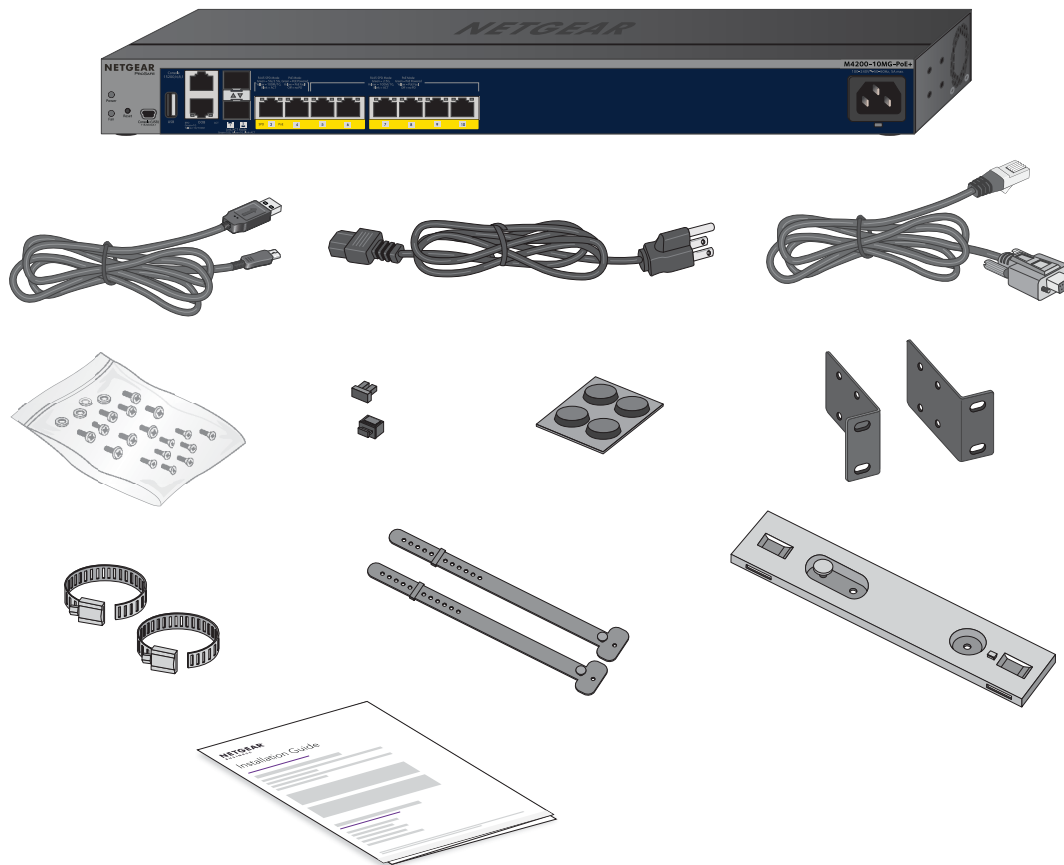


Figure 4. Switch package contents

Check the contents of the boxes to make sure that all items are present before installing the switch.

To check the package contents:

1. Place the container on a clean flat surface, and cut all straps securing the container.
2. Unpack the hardware from the boxes by carefully removing the hardware and placing it on a secure and clean surface.
3. Remove all packing material.
4. Verify that the package contains the following items:
 - Switch
 - Power cord

- Console cable with one DB9 connector and one RJ-45 connector
 - USB console cable with one mini B connector and one type A connector
 - Rubber caps for the SFP / SFP+ sockets
 - Rack-mounting kit
 - Mount for attachment to a wall, round pole, or table leg
 - Rubber belts
 - Hose clamps
 - Rubber footpads for tabletop installation
 - Installation guide
5. If any item is missing or damaged, contact your local NETGEAR reseller for replacement.

Step 4: Install the Switch

You can install the switch on a flat surface, attach it to a wall, attach it to a rectangular or round pole or table leg, or mount it in a standard 19-inch (48.26-centimeter) network equipment rack.

Install the Switch on a Flat Surface

The switch ships with four self-adhesive rubber footpads.

To install the switch on a flat surface:

Stick one rubber footpad on each of the four concave spaces on the bottom of the switch.

The rubber footpads cushion the switch against shock and vibrations. They also provide ventilation space between stacked switches.

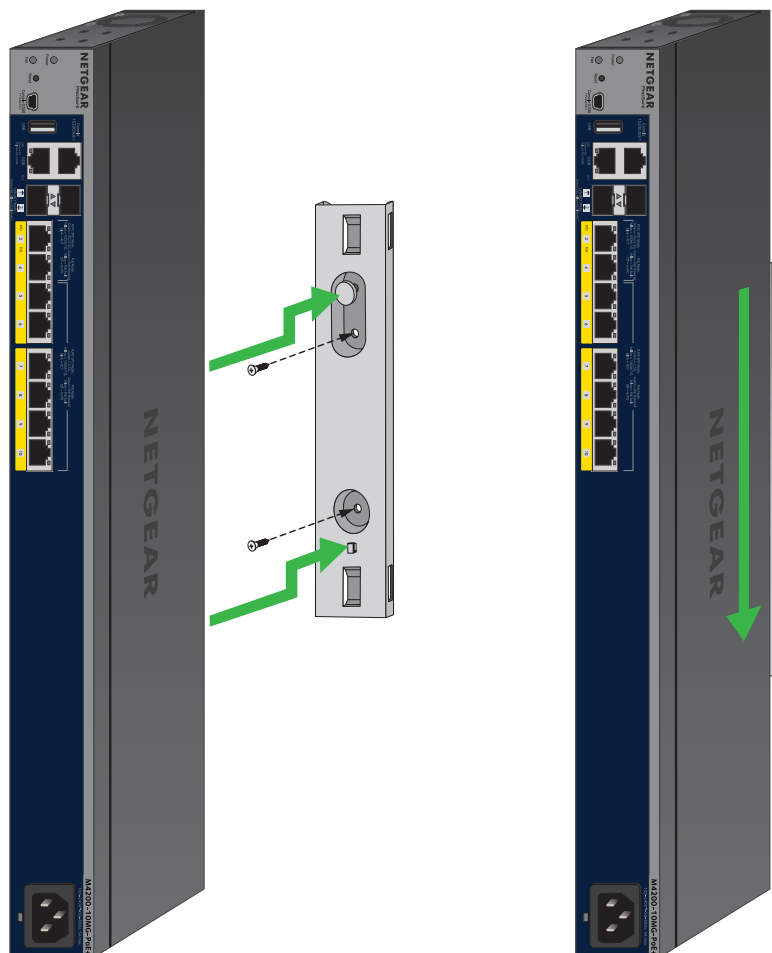
Attach the Switch to a Wall

The switch ships with a mount to which you can click-attach the back or bottom of the switch.

To install the switch to a wall:

1. Attach the supplied mount to the wall, either vertically or horizontally, by doing the following:
 - a. Place the mount on the wall where you want to mount the switch.
 - b. Mark the wall where the two mounting holes are.
 - c. Attach the mount to the wall using the M4 x L25 mm screws provided in the product package.
 - d. Tighten the screws with a No. 2 Phillips screwdriver to secure the mount.
2. Click-attach the switch to the mount by doing the following:

- a. Line up the back or bottom of the switch with the mount.
- b. Insert the mount's locking tab and hook into the notches on the back or bottom of the switch.
- c. Slide the switch into the mount.

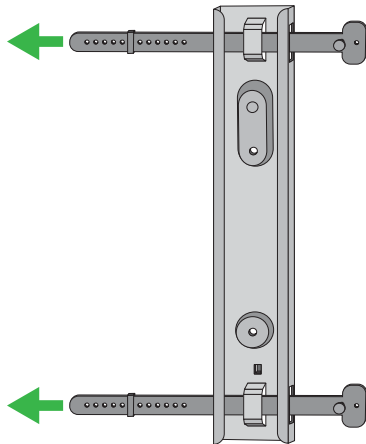


Attach the Switch to a Rectangular Pole or Table Leg

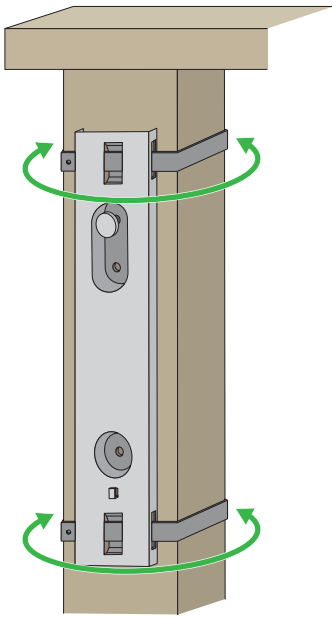
The switch ships with rubber belts and a mount. You can attach the belts to a rectangular pole or table leg, attach the mount to the belts, and click-attach the back or bottom of the switch to the mount.

To install the switch to a rectangular pole or table leg:

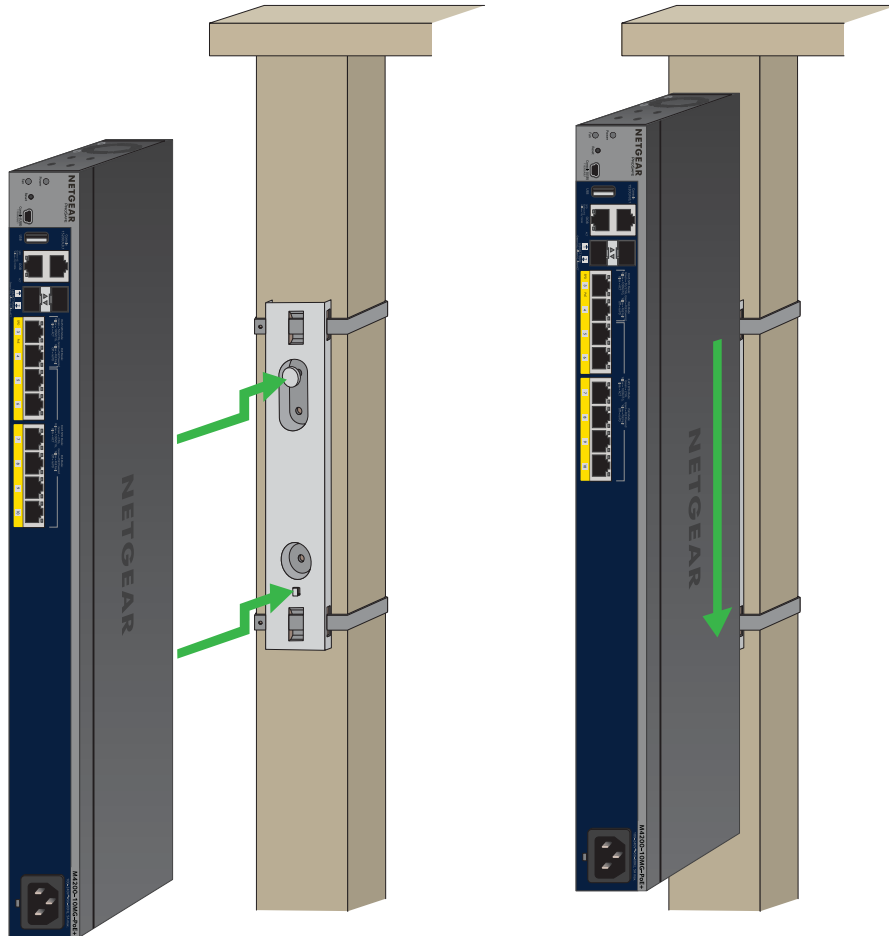
1. Attach the supplied rubber belts to the supplied mount by pulling the belts through the openings in the mount.



2. Strap the belts with the attached mount to the rectangular pole or table leg.



3. Click-attach the switch to the mount by doing the following:
 - a. Line up the back or bottom of the switch with the mount.
 - b. Insert the mount's locking tab and hook into the notches on the back or bottom of the switch.
 - c. Slide the switch into the mount.

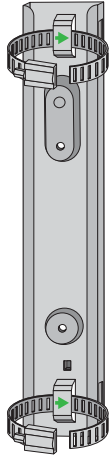


Attach the Switch to a Round Pole or Table Leg

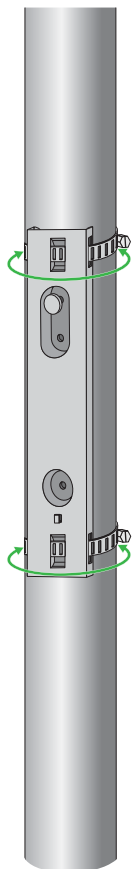
The switch ships with hose clamps and a mount. You can attach the clamps to a round pole or table leg, attach the mount to the clamps, and click-attach the back or bottom of the switch to the mount.

To install the switch to a round pole or table leg:

Attach the supplied hose clamps to the supplied mount by pulling the clamps through the openings in the mount.

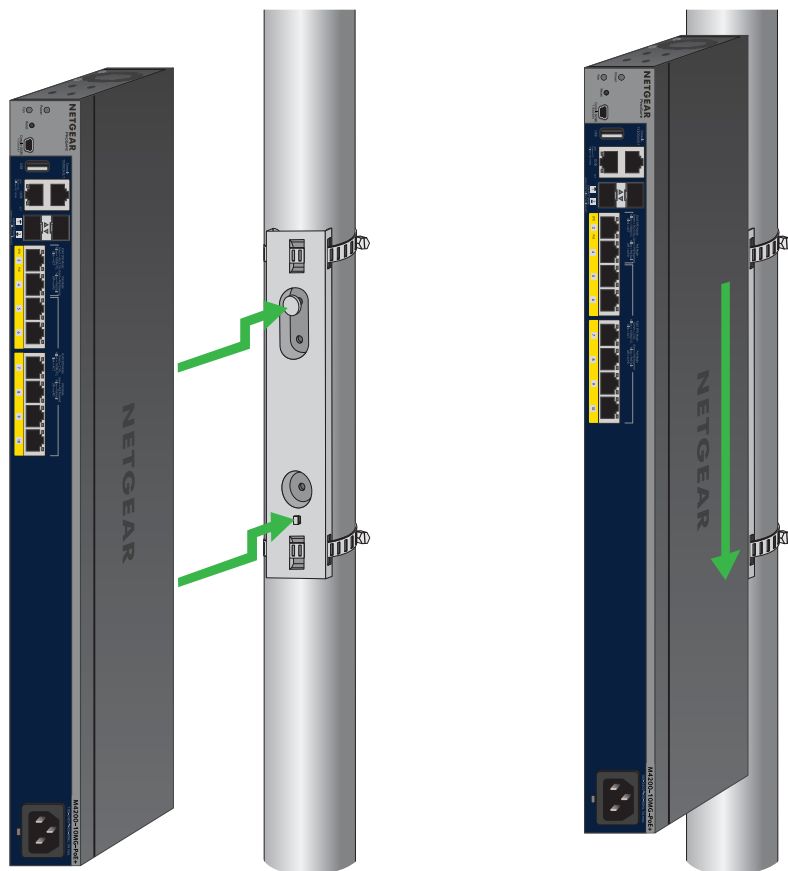


4. Tighten the clamps with the attached mount to the round pole or table leg.



5. Click-attach the switch to the mount by doing the following:

- a. Line up the back or bottom of the switch with the mount.
- b. Insert the mount's locking tab and hook into the notches on the back or bottom of the switch.
- c. Slide the switch into the mount.

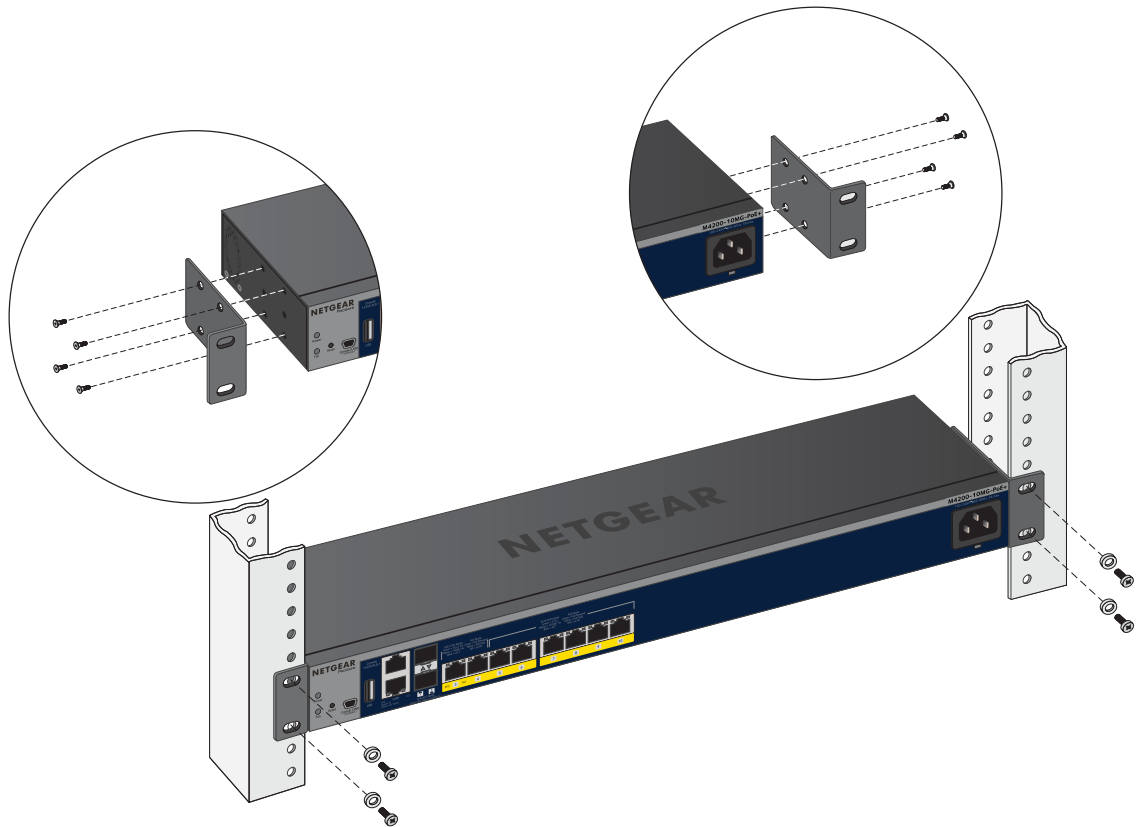


Install the Switch in a Rack

To install the switch in a rack, you need the 19-inch rack-mount kit supplied with the switch.

To install the switch in a rack:

1. Attach the supplied mounting brackets to the side of the switch.
2. Insert the screws provided in the product package through each bracket and into the bracket mounting holes in the switch.
3. Tighten the screws with a No. 2 Phillips screwdriver to secure each bracket.
4. Align the mounting holes in the brackets with the holes in the rack, and insert two pan-head screws with nylon washers through each bracket and into the rack.
5. Tighten the screws with a No. 2 Phillips screwdriver to secure mounting brackets to the rack.



Step 5: Check the Installation

Before you apply power to the switch, perform the steps that are described in this section.

To check the installation:

1. Inspect the equipment thoroughly.
2. Verify that all cables are installed correctly.
3. Check cable routing to make sure that cables are not damaged or creating a safety hazard.
4. Ensure that all equipment is mounted properly and securely.

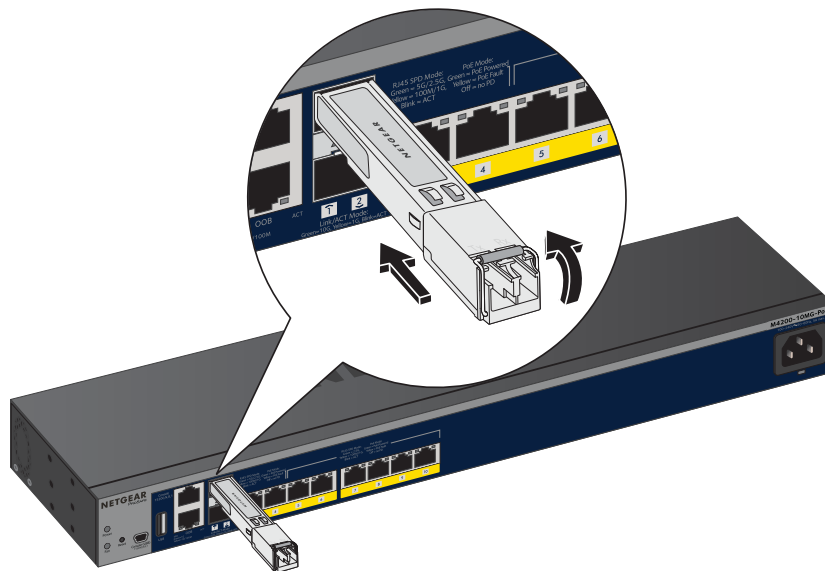
Optional Step 6: Install SFP Transceiver Modules

The following optional procedure describes how to install an optional SFP transceiver module into one of the SFP ports of the switch. For information about supported modules, see [10GBASE-X SFP+ Ports on page 15](#).

Note: Contact your NETGEAR sales office to purchase these modules. If you do not want to install an SFP module, skip this procedure.

To install an SFP transceiver module:

1. Insert the transceiver into the SFP port.
2. Press firmly on the flange of the module to seat it securely into the connector.



Step 7: Apply AC Power and Check the LEDs

The switch does not provide an on/off switch. The power cord connection controls the power. Before connecting the power cord, select an AC outlet that is not controlled by a wall switch, which can turn off power to the switch.

To apply AC power:

1. Connect the end of the power cord to the AC power receptacle on the front of the switch.
2. Plug the AC power cord into a power source such as a wall socket or power strip.

When you apply power, the Power LED on the switch front panel lights.

If the Power LED does not light, make sure that the power cord is plugged in correctly and that the power source is good.

Optional Step 8: Connect a Console to the Switch

This procedure is optional. You can manage the switch through its web management interface or through a console that is attached to the switch.

To be able to use a console, you need the following items:

- A computer with a Windows, MAC, or Linux operating system, a UNIX workstation, or a VT100/ANSI terminal.
- Depending on the connector type at your computer or terminal, use one of the following cables, both of which are included in the product package:
 - Mini USB cable for use with the mini USB console port
 - Ethernet cable for use with the RJ-45 RS232 console port

To connect a console to the switch:

1. Connect either the mini USB cable or the RJ-45 RS232 cable to the appropriate port on the switch.

The mini USB console port and RJ-45 RS232 console port are located on the front panel.

2. Connect the other end of the cable to your computer, workstation, or terminal.
3. If you attach a computer or workstation, start a terminal emulation program:

- On a computer with a Windows operating system, you can use HyperTerminal or install another terminal emulator such as Tera Term.
 - On a computer with a MAC operating system, you can use ZTerm.
 - On a UNIX workstation, you can use a terminal emulator such as TIP.
4. If you attach a computer or workstation, configure the terminal emulation program to use the following settings:
- **Baud rate.** 115,200 bps
 - **Data bits.** 8
 - **Parity.** None
 - **Stop bit.** 1
 - **Flow control.** None

After you connect a console to the switch, you must configure the switch. For information about configuring the switch, visit downloadcenter.netgear.com to download the manual.

For information about configuring the switch through its web management interface, visit downloadcenter.netgear.com to see and download the software administration guide and the user manual.

4

Troubleshooting

This chapter provides information about troubleshooting the switch.

The chapter includes the following sections:

- [Troubleshooting Chart](#)
- [Additional Troubleshooting Suggestions](#)

Troubleshooting Chart

The following table lists symptoms, causes, and solutions for possible problems.

Table 3. Troubleshooting chart

Symptom	Cause	Solution
Power LED is off.	No power is received.	- Check the power cable connections at the switch and the power source. - Ensure that all cables are used correctly and comply with the Ethernet specifications.
Combined speed/activity LED or an individual speed LED and an individual activity LED are off when the port is connected to a device.	Port connection is not working.	- Check the crimp on the connectors and make sure that the plug is properly inserted and locked into the port at both the switch and the connecting device. - Ensure that all cables are used correctly and comply with the Ethernet specifications. - Check for a defective port, cable, or module by testing them in an alternate environment where all products are functioning.
File transfer is slow or performance is degraded.	One possible cause is that a broadcast storm occurred and that a network loop (redundant path) was created.	Break the loop by ensuring that only one path exists from any networked device to any other networked device. After you connect to the switch web management interface, you can configure the Spanning Tree Protocol (STP) to prevent network loops.
A segment or device is not recognized as part of the network.	One or more devices are not properly connected, or cabling does not meet Ethernet guidelines.	- Verify that the cabling is correct. - Ensure that all connectors are securely positioned in the required ports. It is possible that equipment was accidentally disconnected.
Combined speed/activity LED or an individual speed LED and an individual activity LED are blinking continuously on all connected ports and the network is disabled.	A network loop (redundant path) was created.	Break the loop by ensuring that only one path exists from any networked device to any other networked device. After you connect to the switch web management interface, you can configure the Spanning Tree Protocol (STP) to prevent network loops.

Additional Troubleshooting Suggestions

If the suggestions in the troubleshooting chart do not resolve the problem, see the following troubleshooting suggestions:

- **Network adapter cards.** Ensure that the network adapters that are installed in the computers are in working condition and the software driver was installed.
- **Configuration.** If problems occur after you alter the network configuration, restore the original connections and determine the problem by implementing the new changes, one step at a time. Ensure that cable distances, repeater limits, and other physical aspects of the installation do not exceed the Ethernet limitations.
- **Switch integrity.** If necessary, verify the integrity of the switch by resetting it. To reset the switch, disconnect the AC power from the switch and then reconnect the AC power. If the problem continues, contact NETGEAR technical support. For more information, visit the support website at support.netgear.com.
- **Autonegotiation.** The RJ-45 ports negotiate the correct duplex mode, speed, and flow control if the device at the other end of the link supports autonegotiation. If the device does not support autonegotiation, the switch determines only the speed correctly, and the duplex mode defaults to half-duplex.

The Gigabit Ethernet ports negotiate speed, duplex mode, and flow control if the attached device supports autonegotiation.