

NETGEAR®

Hardware Installation Guide

AV Line of Fully Managed Switches M4250 Series

March 2021
202-12213-01

NETGEAR, Inc.
350 E. Plumeria Drive
San Jose, CA 95134, USA

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Revision History

Publication Part Number	Publish Date	Comments
202-12213-01	March 2021	We added three 24-port PoE+ and PoE++ models: M4250-26G4F-PoE+ (SKU GSM4230P) M4250-26G4XF-PoE+ (SKU GSM4230PX) M4250-26G4F-PoE++ (SKU GSM4230UP) We added three 40-port PoE+ and PoE++ models: M4250-40G8F-PoE+ (SKU GSM4248P) M4250-40G8XF-PoE+ (SKU GSM4248PX) M4250-40G8XF-PoE++ (SKU GSM4248UX) We changed the fan information for the existing models (see Fans for the 8-port PoE+ and PoE++ models on page 39 and Fans for the LED tiles model and the aggregation model on page 45).
202-12092-01	September 2020	First publication.

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Introduction

The NETGEAR AV Line of Fully Managed Switches M4250 Series consists of high-performance, IEEE-compliant, professional audio-video switches for audio over IP and small as well large-scale video over IP, including LED tile-based video walls.

Depending on the model, the switch supports 1 Gbps, 2.5 Gbps, and 10 Gbps multispeed ports for Ethernet connections, including PoE+ and PoE++ connections, and SFP+ ports for 1 Gbps and 10 Gbps fiber connections.

In this guide, the AV Line of Fully Managed Switches M4250 Series is referred to as the switch.

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

This chapter serves as an introduction to the switch and includes the following sections:

- [Overview](#)
- [Features](#)
- [Safety instructions and warnings](#)

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

Note: For switch documentation, including the user manual, the command-line interface manual, and the data sheet, visit netgear.com/support/download.

Overview

This installation guide is for the following NETGEAR AV Line of Fully Managed Switches M4250 Series models:

- 8-port PoE+ and PoE++ models:
 - **M4250-10G2F-PoE+**: Eight PoE+ (802.3at) 1GBASE-T RJ-45 ports, two 1GBASE-T RJ-45 ports, and two 1G SFP fiber uplink ports. The total PoE budget for the switch is 125W.
 - **M4250-10G2XF-PoE+**: Eight PoE+ (802.3at) 1GBASE-T RJ-45 ports, two 1GBASE-T RJ-45 ports, and two 10G SFP+ fiber uplink ports. The total PoE budget for the switch is 240W.
 - **M4250-10G2XF-PoE++**: Eight PoE++ (802.3bt) 1GBASE-T RJ-45 ports, two 1GBASE-T RJ-45 ports, and two 10G SFP+ fiber uplink ports. The total PoE budget for the switch is 720W.
- 24-port PoE+ and PoE++ models:
 - **M4250-26G4F-PoE+**: 24 PoE+ (802.3at) 1GBASE-T RJ-45 ports, two 1GBASE-T RJ-45 ports, and four 1G SFP fiber uplink ports. The total PoE budget for the switch is 300W.
 - **M4250-26G4XF-PoE+**: 24 PoE+ (802.3at) 1GBASE-T RJ-45 ports, two 1GBASE-T RJ-45 ports, and four 10G SFP+ fiber uplink ports. The total PoE budget for the switch is 480W.
 - **M4250-26G4F-PoE++**: 24 PoE++ (802.3bt) 1GBASE-T RJ-45 ports, two 1GBASE-T RJ-45 ports, and four 10G SFP+ fiber uplink ports. The total PoE budget for the switch is 1440W with both internal power supply units connected.
- 40-port PoE+ and PoE++ models:
 - **M4250-40G8F-PoE+**: 40 PoE+ (802.3at) 1GBASE-T RJ-45 ports and eight 1G SFP fiber uplink ports. The total PoE budget for the switch is 480W.
 - **M4250-40G8XF-PoE+**: 40 PoE+ (802.3at) 1GBASE-T RJ-45 ports and eight 10G SFP+ fiber uplink ports. The total PoE budget for the switch is 960W.
 - **M4250-40G8XF-PoE++**: 40 PoE++ (802.3bt) 1GBASE-T RJ-45 ports and eight 10G SFP+ fiber uplink ports. The total PoE budget for the switch is 2880W with all three internal power supply units connected.

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- Special models:
 - **M4250-12M2XF**: LED tiles model with 2.5 Gbps ports. Twelve 2.5GBASE-T RJ-45 ports and two 10G SFP+ fiber uplink ports.
 - **M4250-16XF**: Aggregation model with multiple 10G SFP+ fiber ports. Sixteen 1G/10G SFP+ fiber ports.

The switch lets you create high-speed connections to a server or network backbone. For example, you can do the following:

- Connect switches to each other with high-speed links
- Link to high-speed servers
- Provide 10M/100M/1G/2.5G copper and 1G/10G fiber connectivity

You would typically rack-mount the switch in a wiring closet or equipment room as a standalone switch. The switch is IEEE compliant and offers low latency for high-speed networking. All ports can automatically negotiate to the highest speed, which makes the switch also suitable for AV environments with a mix of 1 Gbps and 2.5 Gbps Ethernet devices and 1G and 10G fiber connections. With the exception of the ports on model M4250-12M2X, the copper ports that support 10 Mbps and 100 Mbps ports can operate in half-duplex or full-duplex mode. For 1 Gbps and 2.5 Gbps connections, the copper ports always operate in full-duplex mode.

Features

The switch supports the following key hardware features:

- PoE+ and PoE++ models with switch ports in various configurations depending on the model:
 - 8, 24, or 40 PoE+ or PoE++ ports, depending on the model
 - Up to four 1GBASE-T RJ-45 ports (also supporting 10M and 100M speeds), depending on the model
 - Up to eight 1G SFP or 10G SFP+ fiber uplink ports, depending of the model
 - PoE budget from 125W to 2880W, depending on the model
- LED tiles model with twelve 2.5GBASE-T RJ-45 ports (also supporting 1G and 100M speeds) and two 10G SFP+ fiber ports
- Aggregation model with sixteen 1G/10G SFP+ fiber ports
- Support for switching fabric up to 320 Gbps, depending on the model, with all ports at line-rate.

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- One out-of-band (OOB) 1G Ethernet RJ-45 port.
- One RS-232 RJ-45 console port.
- One USB Type-C console port.
- One USB 2.0 port for connection to a storage device.
- Full-width, 1U or 2U chassis
- Full compatibility with IEEE standards:
 - IEEE 802.3 (Ethernet)
 - IEEE 802.3i (10BASE-T)
 - IEEE 802.3u (100BASE-TX)
 - IEEE 802.3ab (1000BASE-T)
 - IEEE 802.3bz (2.5GBASE-T)
 - IEEE 802.3z (1000BASE-SX/LX)
 - IEEE 802.3ae (10GBASE-SR, 10GBASE-LR)
 - IEEE 802.3x Full-duplex flow control
 - IEEE 802.3ad Link aggregation (LAG with LACP)
 - IEEE 802.3az Energy Efficient Ethernet (EEE)
 - IEEE 802.3af (PoE)
 - IEEE 802.3at (PoE+)
 - IEEE 802.3bt (PoE++)
 - IEEE 802.1AS-2011 Timing and Synchronization for Time-Sensitive Applications (generalized Precision Time Protocol [gPTP])
 - IEEE 802.1Qav-2009 Forwarding and Queuing Enhancements for Time-Sensitive Streams (FQTSS)
 - IEEE 802.1Qat-2010 Stream Reservation Protocol (SRP)
 - IEEE 802.1BA-2011 Audio Video Bridging (AVB) Systems
- 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.
- 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, including energy efficiency mode that fully conforms to the IEEE802.3az standard.

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 and humidity-controlled environment. For more information, see the environmental specifications in the appendix or the data sheet.
Note the following:
 - If you want to connect the switch to a device located outdoors, the outdoor device must be properly grounded and surge protected, and you must install an Ethernet surge protector inline between the switch and the outdoor device. Failure to do so can damage the switch.
 - Before connecting this switch to outdoor cables or devices, see <https://kb.netgear.com/000057103> for safety and warranty information.
 - Failure to follow these guidelines can result in damage to your NETGEAR product, which might not be covered by NETGEAR's warranty, to the extent permissible by applicable law.
- Observe and follow service markings:
 - Do not service any product except as explained in your product documentation. Some devices should never be opened.
 - If applicable to your product, 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.

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- If any of the following conditions occur, unplug the product from the power outlet and replace the part or contact your trained service provider:
 - Depending on your product, the power adapter, power adapter cable, 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 product away from radiators and heat sources. Also, do not block cooling vents.
- Do not spill food or liquids on your product components, and never operate the product in a wet environment. If the product 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 products. Doing so can cause fire or electric shock by shorting out interior components.
- Use the product only with approved equipment.
- If applicable to your product, 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 product, if your product uses a power supply with a voltage selector, be sure that the selector 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.
- Depending on your product, use only a supplied power adapter or approved power cable:
If your product uses a power adapter:
 - If you were not provided with a power adapter, contact your local NETGEAR reseller.

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- The power adapter must be rated for the product and for the voltage and current marked on the product electrical ratings label.

If your product uses a power cable:

- 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 power outlets.
 - If applicable to your product, 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, power adapter cables, or 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 adapters, power adapter cables, 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 descriptions of the 8-port PoE+ and PoE++ models](#)
- [Hardware descriptions of the 24-port PoE+ and PoE++ models](#)
- [Hardware descriptions of the 40-port PoE+ and PoE++ models](#)
- [Hardware descriptions of the LED tiles model with 2.5 Gbps ports](#)
- [Hardware descriptions of the aggregation model with multiple 10G SFP+ fiber ports](#)
- [Switch hardware interfaces](#)
- [Fans](#)

Hardware descriptions of the 8-port PoE+ and PoE++ models

This section describes the switch hardware features for the following 8-port PoE+ and PoE++ models:

- **Model M4250-10G2F-PoE+ (SKU GSM4212P)**
 - Eight PoE+ (802.3at) 1GBASE-T RJ-45 ports with a total PoE budget of 125W to be shared among all ports
 - Two 1GBASE-T RJ-45 ports
 - Two 1G SFP fiber uplink ports
- **Model M4250-10G2XF-PoE+ (SKU GSM4212PX)**
 - Eight PoE+ (802.3at) 1GBASE-T RJ-45 ports with a total PoE budget of 240W to be shared among all ports
 - Two 1GBASE-T RJ-45 ports
 - Two 10G SFP+ fiber uplink ports
- **Model M4250-10G2XF-PoE++ (SKU GSM4212UX)**
 - Eight PoE++ (802.3bt) 1GBASE-T RJ-45 ports with a total PoE budget of 720W to be shared among all ports
 - Two 1GBASE-T RJ-45 ports
 - Two 10G SFP+ fiber uplink ports

Front panel of the 8-port PoE+ and PoE++ models

The following figures illustrate the front panels of the 8-port PoE+ and PoE++ models, the M4250-10G2F-PoE+, M4250-10G2XF-PoE+, and M4250-10G2XF-PoE++.



Figure 1. Front panel model M4250-10G2F-PoE+

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Figure 2. Front panel model M4250-10G2XF-PoE+



Figure 3. Front panel model M4250-10G2XF-PoE++

From left to right, the front panel of models M4250-10G2F-PoE+, M4250-10G2XF-PoE+, and M4250-10G2XF-PoE++ provides the following common components, which are clearly named or numbered on the front panel:

- **USB:** One USB 2.0 port (see [USB 2.0 port](#) on page 37).
- **LED EXT:** One LED extension port. This feature is currently not in use.
- **LEDs 1 through 12:** Ports LEDs that are replicated from the back panel (see [LEDs of the 8-port PoE+ and PoE++ models](#) on page 16).
- **POWER, FAN, and POE:** System LEDs. (see [LEDs of the 8-port PoE+ and PoE++ models](#) on page 16).

Back panel of the 8-port PoE+ and PoE++ models

The 8-port PoE+ and PoE++ models provide eight PoE+ or PoE++ 1GBASE-T ports, two non-PoE 1GBASE-T ports, and two 1G or 10G SFP+ fiber uplink ports.

The following figures illustrate the back panels.



Figure 4. Back panel model M4250-10G2F-PoE+



Figure 5. Back panel model M4250-10G2XF-PoE+

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Figure 6. Back panel model M4250-10G2XF-PoE++

From left to right, the back panel of models M4250-10G2F-PoE+, M4250-10G2XF-PoE+, and M4250-10G2XF-PoE++ provides the following common components, which are clearly named or numbered on the back panel:

- **POWER, FAN, and POE:** System LEDs (see [LEDs of the 8-port PoE+ and PoE++ models](#) on page 16).
- **RESET:** Recessed dual-function **Reset** button (see [Dual-function Reset button](#) on page 36).
- **OOB:** One out-of-band (OOB) Ethernet port (see [Out-of-band 1G Ethernet port](#) on page 37) with a left LED that indicates the speed and a right LED that indicates the activity (see [LEDs of the 8-port PoE+ and PoE++ models](#) on page 16).
- **CONSOLE:** One RJ-45 RS-232 console port (see [RJ-45 RS-232 console port](#) on page 37).
- **USB C:** One USB Type-C console port (see [USB Type-C console port](#) on page 38).
- **Ports 1 through 8:** Eight PoE+ or PoE++ 10/100/1000 Mbps autosensing 1GBASE-T RJ-45 ports, each with a left LED and a right LED (see [LEDs of the 8-port PoE+ and PoE++ models](#) on page 16).

The type of PoE power and PoE budget depend on the model:

- **Model M4250-10G2F-PoE+:** Eight PoE+ (802.3at) ports with a total PoE budget of 125W for the switch.
- **Model M4250-10G2XF-PoE+:** Eight PoE+ (802.3at) ports with a total PoE budget of 240W for the switch.
- **Model M4250-10G2XF-PoE++:** Eight PoE++ (802.3bt) ports with a total PoE budget of 720W for the switch.
- **Ports 9 and 10:** Two 10/100/1000 Mbps autosensing 1GBASE-T RJ-45 ports, each with a combined speed and activity LED (see [LEDs of the 8-port PoE+ and PoE++ models](#) on page 16).
- **Ports 11 and 12:** Two dedicated 1GBASE-X SFP or 10GBASE-X SFP+ fiber uplink ports (see [Transceiver modules and cables for SFP and SFP+ fiber ports](#) on page 35), each with a combined speed and activity LED (see [LEDs of the 8-port PoE+ and PoE++ models](#) on page 16).

The type of fiber ports depends on the model:

- **Model M4250-10G2F-PoE+**: Two 1GBASE-X SFP ports.
 - **Model M4250-10G2XF-PoE+**: Two 10GBASE-X SFP+ ports.
 - **Model M4250-10G2XF-PoE++**: Two 10GBASE-X SFP+ ports.
- **AC power receptacle and On/Off power switch**: The AC receptacle accepts input power of 100-240V ~ 50-60 Hz. The amperage depends on the model:
 - **Model M4250-10G2F-PoE+**: 3.5-2.25A.
 - **Model M4250-10G2XF-PoE+**: 5A.
 - **Model M4250-10G2XF-PoE++**: 10A.

LEDs of the 8-port PoE+ and PoE++ models

This section describes the LED designations of the 8-port PoE+ and PoE++ models.

The system LEDs and ports LEDs on the back panel are replicated on the front panel. (The exception are the port LEDs for the OOB port, which are not replicated on the front panel.)

The LEDs are clearly named or numbered on the front panel and the back panel.

Table 1. LEDs of the 8-port PoE+ and PoE++ models

LED	Description
System LEDs	
Power LED	<p>Solid green: The switch is powered on and operating normally.</p> <p>Solid yellow: The switch is starting.</p> <p>Off: Power is not supplied to the switch.</p>
Fan LED	<p>Solid green: The fans are functioning normally.</p> <p>Solid yellow: One or more fans are malfunctioning.</p>
POE LED	<p>Off: Sufficient (more than 7W of) PoE power is available.</p> <p>Solid yellow: Less than 7W of PoE power is available.</p> <p>Blinking yellow: At least once during the previous two minutes, less than 7W of PoE power was available.</p>

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Table 1. LEDs of the 8-port PoE+ and PoE++ models (Continued)

LED	Description
Port LEDs	
<p>LEDs 1 through 8</p> <p>1GBASE-T RJ-45 port LEDs (two LEDs per port)</p>	<p>Left LED, speed, activity, and link status:</p> <p>Off: No link is established on the port.</p> <p>Solid green: The port established a 1 Gbps link.</p> <p>Blinking green: The port is transmitting or receiving packets at 1 Gbps.</p> <p>Solid yellow: The port established a 10 or 100 Mbps link.</p> <p>Blinking yellow: The port is transmitting or receiving packets at 10 or 100 Mbps.</p> <hr/> <p>Right LED, PoE status:</p> <p>Off: No PoE-powered device (PD) is connected to the port.</p> <p>Solid blue: A PD is connected and the port is supplying power successfully.</p> <p>Solid yellow: Indicates one of the following failures, which prevents the port from supplying power:</p> <ul style="list-style-type: none"> • 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.
<p>LEDs 9 and 10</p> <p>1GBASE-T RJ-45 port LED (one LED per port)</p>	<p>Off: No link is established on the port.</p> <p>Solid green: The port established a 1 Gbps link.</p> <p>Blinking green: The port is transmitting or receiving packets at 1 Gbps.</p> <p>Solid yellow: The port established a 10 or 100 Mbps link.</p> <p>Blinking yellow: The port is transmitting or receiving packets at 10 or 100 Mbps.</p>
<p>LEDs 11 and 12 for model M4250-10G2F-PoE+</p> <p>1GBASE-X SFP+ port LED (one LED per port)</p>	<p>Off: No SFP module link is established on the fiber port.</p> <p>Solid green: The fiber port established a 1 Gbps link.</p> <p>Blinking green: The fiber port is transmitting or receiving packets at 1 Gbps.</p> <p>Solid yellow: The fiber port established a 100 Mbps link.</p> <p>Blinking yellow: The fiber port is transmitting or receiving packets at 100 Mbps.</p>
<p>LEDs 11 and 12 for models M4250-10G2XF-PoE+ and M4250-10G2XF-PoE++</p> <p>10GBASE-X SFP+ port LED (one LED per port)</p>	<p>Off: No SFP+ module link is established on the fiber port.</p> <p>Solid green: The fiber port established a 10 Gbps link.</p> <p>Blinking green: The fiber port is transmitting or receiving packets at 10 Gbps.</p> <p>Solid yellow: The fiber port established a 1 Gbps link.</p> <p>Blinking yellow: The fiber port is transmitting or receiving packets at 1 Gbps.</p>
<p>OOB Ethernet port LEDs (two LEDs per port, on the back panel only)</p>	<p>Left LED, speed status:</p> <p>Solid green: The port established a 1 Gbps link.</p> <p>Solid yellow: The port established a 10 or 100 Mbps link.</p> <p>Off: No link is established on the port.</p> <hr/> <p>Right LED, activity and link status:</p> <p>Solid green: The port established a link.</p> <p>Blinking green: The port is transmitting or receiving packets.</p> <p>Off: No link is established on the port.</p>

Hardware descriptions of the 24-port PoE+ and PoE++ models

This section describes the switch hardware features for the following 8-port PoE+ and PoE++ models:

- **Model M4250-26G4F-PoE+ (SKU GSM4230P)**
 - 24 PoE+ (802.3at) 1GBASE-T RJ-45 ports with a total PoE budget of 300W to be shared among all ports
 - Two 1GBASE-T RJ-45 ports
 - Four 1G SFP fiber uplink ports
- **Model M4250-26G4XF-PoE+ (SKU GSM4230PX)**
 - 24 PoE+ (802.3at) 1GBASE-T RJ-45 ports with a total PoE budget of 480W to be shared among all ports
 - Two 1GBASE-T RJ-45 ports
 - Four 10G SFP+ fiber uplink ports
- **Model M4250-26G4F-PoE++ (SKU GSM4230UP)**
 - 24 PoE++ (802.3bt) 1GBASE-T RJ-45 ports with a total PoE budget of 1440W (with both internal power supply units connected) to be shared among all ports
 - Two 1GBASE-T RJ-45 ports
 - Four 10G SFP+ fiber uplink ports

Front panel of the 24-port PoE+ and PoE++ models

The following figures illustrate the front panels of the 24-port PoE+ and PoE++ models, the M4250-26G4F-PoE+, M4250-26G4XF-PoE+, and M4250-26G4F-PoE++.



Figure 7. Front panel model M4250-26G4F-PoE+

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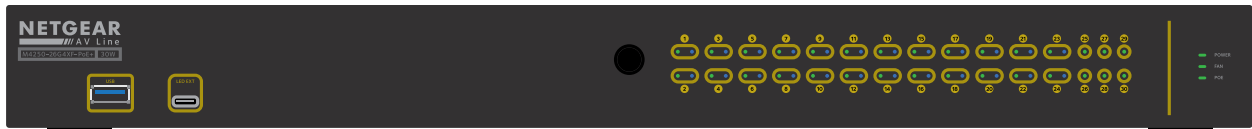


Figure 8. Front panel model M4250-26G4XF-PoE+

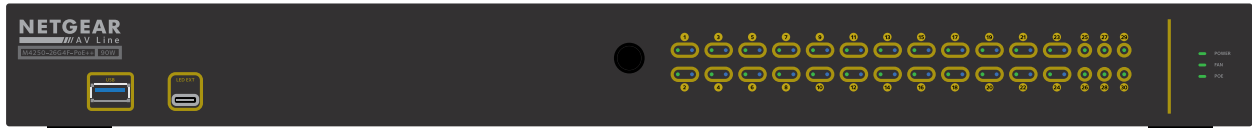


Figure 9. Front panel model M4250-26G4F-PoE++

From left to right, the front panel of models M4250-26G4F-PoE+, M4250-26G4XF-PoE+, and M4250-26G4F-PoE++ provides the following common components, which are clearly named or numbered on the front panel:

- **USB:** One USB 2.0 port (see [USB 2.0 port](#) on page 37).
- **LED EXT:** One LED extension port. This feature is currently not in use.
- **LEDs 1 through 30:** Ports LEDs that are replicated from the back panel (see [LEDs of the 24-port PoE+ and PoE++ models](#) on page 21).
- **POWER, FAN, and POE:** System LEDs. (see [LEDs of the 24-port PoE+ and PoE++ models](#) on page 21).

Back panel of the 24-port PoE+ and PoE++ models

The 24-port PoE+ and PoE++ models provide 24 PoE+ or PoE++ 1GBASE-T ports, two non-PoE 1GBASE-T ports, and four 1G or 10G SFP+ fiber uplink ports.

The following figures illustrate the back panels.

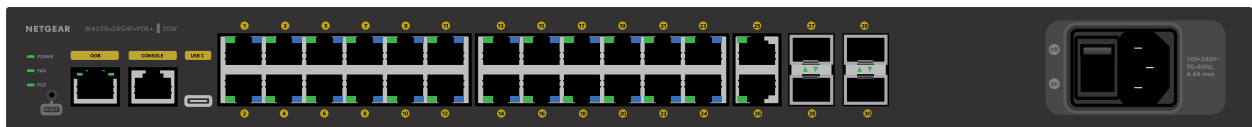


Figure 10. Back panel model M4250-26G4F-PoE+

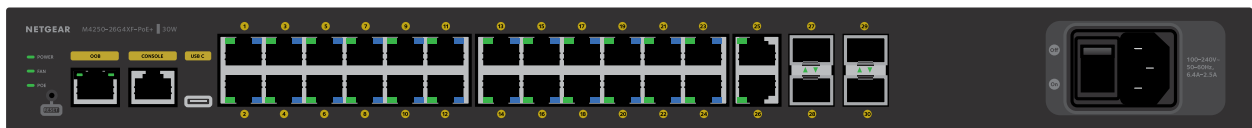


Figure 11. Back panel model M4250-26G4XF-PoE+

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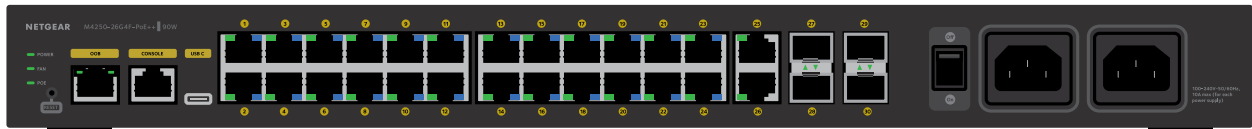


Figure 12. Back panel model M4250-26G4F-PoE++

From left to right, the back panel of models M4250-26G4F-PoE+, M4250-26G4XF-PoE+, and M4250-26G4F-PoE++ provides the following common components, which are clearly named or numbered on the back panel:

- **POWER, FAN, and POE:** System LEDs (see [LEDs of the 24-port PoE+ and PoE++ models](#) on page 21).
- **RESET:** Recessed dual-function **Reset** button (see [Dual-function Reset button](#) on page 36).
- **OOB:** One out-of-band (OOB) Ethernet port (see [Out-of-band 1G Ethernet port](#) on page 37) with a left LED that indicates the speed and a right LED that indicates the activity (see [LEDs of the 24-port PoE+ and PoE++ models](#) on page 21).
- **CONSOLE:** One RJ-45 RS-232 console port (see [RJ-45 RS-232 console port](#) on page 37).
- **USB C:** One USB Type-C console port (see [USB Type-C console port](#) on page 38).
- **Ports 1 through 24:** Eight PoE+ or PoE++ 10/100/1000 Mbps autosensing 1GBASE-T RJ-45 ports, each with a left LED and a right LED (see [LEDs of the 24-port PoE+ and PoE++ models](#) on page 21).

The type of PoE power and PoE budget depend on the model:

- **Model M4250-26G4F-PoE+:** 24 PoE+ (802.3at) ports with a total PoE budget of 300W for the switch.
- **Model M4250-26G4XF-PoE+:** 24 PoE+ (802.3at) ports with a total PoE budget of 480W for the switch.
- **Model M4250-26G4F-PoE++:** 24 PoE++ (802.3bt) ports with a total PoE budget of 1440W (with both internal power supply units connected) for the switch.
- **Ports 25 and 26:** Two 10/100/1000 Mbps autosensing 1GBASE-T RJ-45 ports, each with a combined speed and activity LED (see [LEDs of the 24-port PoE+ and PoE++ models](#) on page 21).
- **Ports 27, 28, 29, and 30:** Four dedicated 1GBASE-X SFP or 10GBASE-X SFP+ fiber uplink ports (see [Transceiver modules and cables for SFP and SFP+ fiber ports](#) on page 35), each with a combined speed and activity LED (see [LEDs of the 24-port PoE+ and PoE++ models](#) on page 21).

The type of fiber ports depends on the model:

- **Model M4250-26G4F-PoE+**: Two 1GBASE-X SFP ports.
 - **Model M4250-26G4XF-PoE+**: Two 10GBASE-X SFP+ ports.
 - **Model M4250-26G4F-PoE++**: Two 10GBASE-X SFP+ ports.
- **AC power receptacle(s) and On/Off power switch.** The AC receptacle or receptacles accept input power of 100–240V ~ 50–60 Hz. The number of receptacles and amperage depend on the model:
 - **Model M4250-26G4F-PoE+**: 4.4A.
 - **Model M4250-26G4XF-PoE+**: 6.4–2.5A.
 - **Model M4250-26G4F-PoE++**: This model includes two power supplies. 10A for each power supply.

LEDs of the 24-port PoE+ and PoE++ models

This section describes the LED designations of the 24-port PoE+ and PoE++ models.

The system LEDs and ports LEDs on the back panel are replicated on the front panel. (The exception are the port LEDs for the OOB port, which are not replicated on the front panel.)

The LEDs are clearly named or numbered on the front panel and the back panel.

Table 2. LEDs of the 24-port PoE+ and PoE++ models

LED	Description
System LEDs	
Power LED	<p>Solid green: The switch is powered on and operating normally.</p> <p>Solid yellow: The switch is starting.</p> <p>Off: Power is not supplied to the switch.</p>
Fan LED	<p>Solid green: The fans are functioning normally.</p> <p>Solid yellow: One or more fans are malfunctioning.</p>
POE LED	<p>Off: Sufficient (more than 7W of) PoE power is available.</p> <p>Solid yellow: Less than 7W of PoE power is available.</p> <p>Blinking yellow: At least once during the previous two minutes, less than 7W of PoE power was available.</p>

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Table 2. LEDs of the 24-port PoE+ and PoE++ models (Continued)

LED	Description
Port LEDs	
LEDs 1 through 24 1GBASE-T RJ-45 port LEDs (two LEDs per port)	<p>Left LED, speed, activity, and link status: Off: No link is established on the port. Solid green: The port established a 1 Gbps link. Blinking green: The port is transmitting or receiving packets at 1 Gbps. Solid yellow: The port established a 10 or 100 Mbps link. Blinking yellow: The port is transmitting or receiving packets at 10 or 100 Mbps.</p> <hr/> <p>Right LED, PoE status: Off: No PoE-powered device (PD) is connected to the port. Solid blue: A 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:</p> <ul style="list-style-type: none"> • 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.
LEDs 25 and 26 1GBASE-T RJ-45 port LED (one LED per port)	<p>Off: No link is established on the port. Solid green: The port established a 1 Gbps link. Blinking green: The port is transmitting or receiving packets at 1 Gbps. Solid yellow: The port established a 10 or 100 Mbps link. Blinking yellow: The port is transmitting or receiving packets at 10 or 100 Mbps.</p>
LEDs 27 through 30 for model M4250-26G4F-PoE+ 1GBASE-X SFP+ port LED (one LED per port)	<p>Off: No SFP module link is established on the fiber port. Solid green: The fiber port established a 1 Gbps link. Blinking green: The fiber port is transmitting or receiving packets at 1 Gbps. Solid yellow: The fiber port established a 100 Mbps link. Blinking yellow: The fiber port is transmitting or receiving packets at 100 Mbps.</p>
LEDs 27 through 30 for models M4250-26G4XF-PoE+ and M4250-26G4F-PoE++ 10GBASE-X SFP+ port LED (one LED per port)	<p>Off: No SFP+ module link is established on the fiber port. Solid green: The fiber port established a 10 Gbps link. Blinking green: The fiber port is transmitting or receiving packets at 10 Gbps. Solid yellow: The fiber port established a 1 Gbps link. Blinking yellow: The fiber port is transmitting or receiving packets at 1 Gbps.</p>
OOB Ethernet port LEDs (two LEDs per port, on the back panel only)	<p>Left LED, speed status: Solid green: The port established a 1 Gbps link. Solid yellow: The port established a 10 or 100 Mbps link. Off: No link is established on the port.</p> <hr/> <p>Right LED, activity and link status: Solid green: The port established a link. Blinking green: The port is transmitting or receiving packets. Off: No link is established on the port.</p>

Hardware descriptions of the 40-port PoE+ and PoE++ models

This section describes the switch hardware features for the following 8-port PoE+ and PoE++ models:

- **Model M4250-40G8F-PoE+ (SKU GSM4248P)**
 - 40 PoE+ (802.3at) 1GBASE-T RJ-45 ports with a total PoE budget of 480W to be shared among all ports
 - Eight 1G SFP fiber uplink ports
- **Model M4250-40G8XF-PoE+ (SKU GSM4248PX)**
 - 40 PoE+ (802.3at) 1GBASE-T RJ-45 ports with a total PoE budget of 960W to be shared among all ports
 - Eight 10G SFP+ fiber uplink ports
- **Model M4250-40G8XF-PoE++ (SKU GSM4248UX)**
 - 40 PoE++ (802.3bt) 1GBASE-T RJ-45 ports with a total PoE budget of 2880W (with all three internal power supply units connected) to be shared among all ports
 - Eight 10G SFP+ fiber uplink ports

Front panel of the 40-port PoE+ and PoE++ models

The following figures illustrate the front panels of the 40-port PoE+ and PoE++ models, the M4250-40G8F-PoE+, M4250-40G8XF-PoE+, and M4250-40G8XF-PoE++.

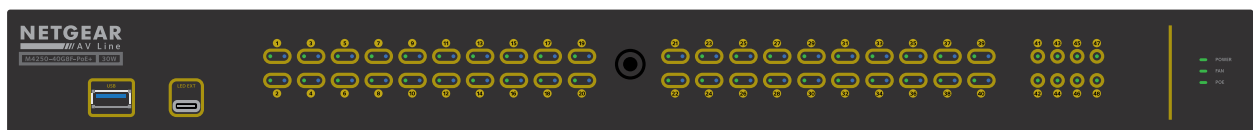


Figure 13. Front panel model M4250-40G8F-PoE+

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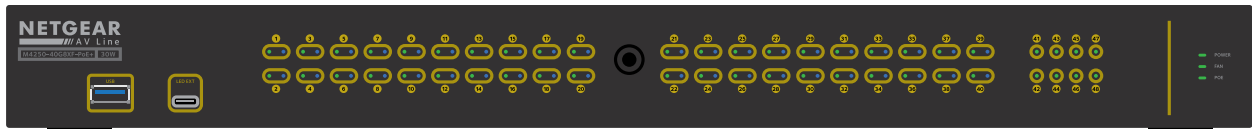


Figure 14. Front panel model M4250-40G8XF-PoE+

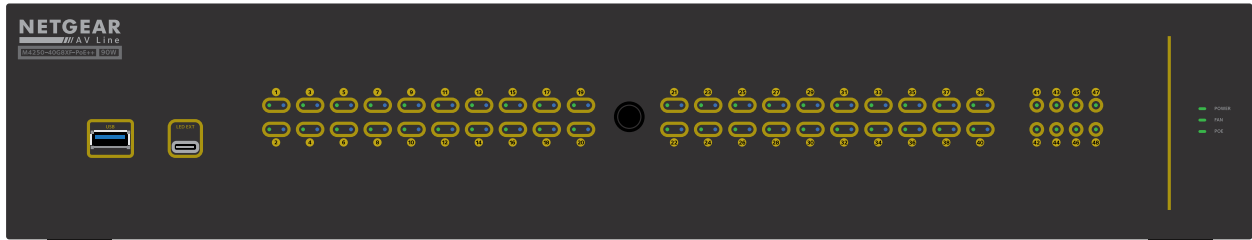


Figure 15. Front panel model M4250-40G8XF-PoE++

From left to right, the front panel of models M4250-40G8F-PoE+, M4250-40G8XF-PoE+, and M4250-40G8XF-PoE++ provides the following common components, which are clearly named or numbered on the front panel:

- **USB:** One USB 2.0 port (see [USB 2.0 port](#) on page 37).
- **LED EXT:** One LED extension port. This feature is currently not in use.
- **LEDs 1 through 48:** Ports LEDs that are replicated from the back panel (see [LEDs of the 40-port PoE+ and PoE++ models](#) on page 26).
- **POWER, FAN, and POE:** System LEDs. (see [LEDs of the 40-port PoE+ and PoE++ models](#) on page 26).

Back panel of the 40-port PoE+ and PoE++ models

The 40-port PoE+ and PoE++ models provide 40 PoE+ or PoE++ 1GBASE-T ports and eight 1G or 10G SFP+ fiber uplink ports.

The following figures illustrate the back panels.

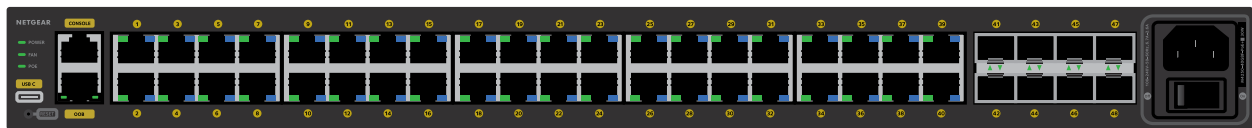


Figure 16. Back panel model M4250-40G8F-PoE+

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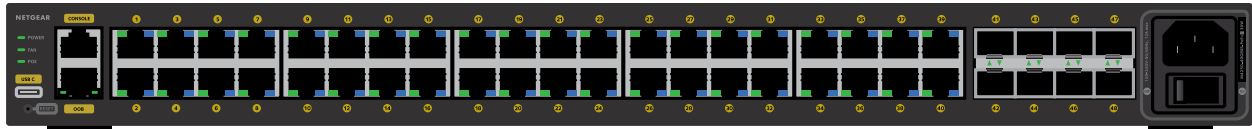


Figure 17. Back panel model M4250-40G8XF-PoE+

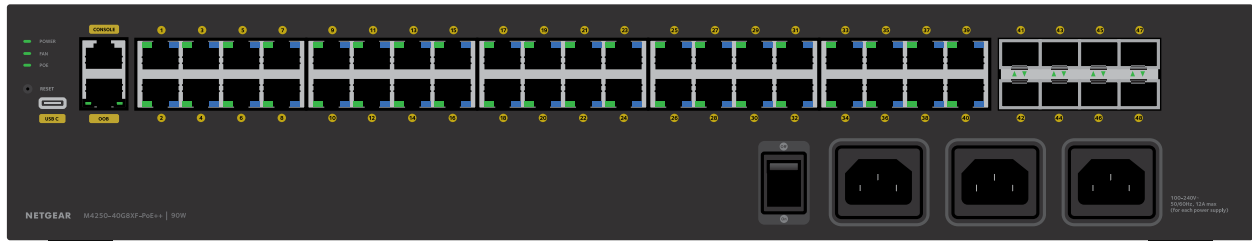


Figure 18. Back panel model M4250-40G8XF-PoE++

From left to right, the back panel of models M4250-40G8F-PoE+, M4250-40G8XF-PoE+, and M4250-40G8XF-PoE++ provides the following common components, which are clearly named or numbered on the back panel:

- **POWER, FAN, and POE:** System LEDs (see [LEDs of the 40-port PoE+ and PoE++ models](#) on page 26).
- **USB C:** One USB Type-C console port (see [USB Type-C console port](#) on page 38).
- **RESET:** Recessed dual-function **Reset** button (see [Dual-function Reset button](#) on page 36).
- **CONSOLE:** One RJ-45 RS-232 console port (see [RJ-45 RS-232 console port](#) on page 37).
- **OOB:** One out-of-band (OOB) Ethernet port (see [Out-of-band 1G Ethernet port](#) on page 37) with a left LED that indicates the speed and a right LED that indicates the activity (see [LEDs of the 40-port PoE+ and PoE++ models](#) on page 26).
- **Ports 1 through 40:** Eight PoE+ or PoE++ 10/100/1000 Mbps autosensing 1GBASE-T RJ-45 ports, each with a left LED and a right LED (see [LEDs of the 40-port PoE+ and PoE++ models](#) on page 26).

The type of PoE power and PoE budget depend on the model:

- **Model M4250-40G8F-PoE+:** 40 PoE+ (802.3at) ports with a total PoE budget of 480W for the switch.
- **Model M4250-40G8XF-PoE+:** 40 PoE+ (802.3at) ports with a total PoE budget of 960W for the switch.
- **Model M4250-40G8XF-PoE++:** 40 PoE++ (802.3bt) ports with a total PoE budget of 2880W (with all three internal power supply units connected) for the switch.

- **Ports 41 through 48:** Eight dedicated 1GBASE-X SFP or 10GBASE-X SFP+ fiber uplink ports (see [Transceiver modules and cables for SFP and SFP+ fiber ports](#) on page 35), each with a combined speed and activity LED (see [LEDs of the 40-port PoE+ and PoE++ models](#) on page 26).

The type of fiber ports depends on the model:

- **Model M4250-40G8F-PoE+:** Eight 1GBASE-X SFP ports.
 - **Model M4250-40G8XF-PoE+:** Eight 10GBASE-X SFP+ ports.
 - **Model M4250-40G8XF-PoE++:** Eight 10GBASE-X SFP+ ports.
- **On/Off power switch and AC power receptacle(s):** The AC receptacle or receptacles accept input power of 100-240V ~ 50-60 Hz. The number of receptacles and the amperage depend on the model:
 - **Model M4250-40G8F-PoE+:** 6.7-2.6A.
 - **Model M4250-40G8XF-PoE+:** 12A.
 - **Model M4250-40G8XF-PoE++:** This model includes three power supplies. 12A for each power supply.

LEDs of the 40-port PoE+ and PoE++ models

This section describes the LED designations of the 40-port PoE+ and PoE++ models.

The system LEDs and ports LEDs on the back panel are replicated on the front panel. (The exception are the port LEDs for the OOB port, which are not replicated on the front panel.)

The LEDs are clearly named or numbered on the front panel and the back panel.

Table 3. LEDs of the 40-port PoE+ and PoE++ models

LED	Description
System LEDs	
Power LED	<p>Solid green: The switch is powered on and operating normally.</p> <p>Solid yellow: The switch is starting.</p> <p>Off: Power is not supplied to the switch.</p>
Fan LED	<p>Solid green: The fans are functioning normally.</p> <p>Solid yellow: One or more fans are malfunctioning.</p>
POE LED	<p>Off: Sufficient (more than 7W of) PoE power is available.</p> <p>Solid yellow: Less than 7W of PoE power is available.</p> <p>Blinking yellow: At least once during the previous two minutes, less than 7W of PoE power was available.</p>

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Table 3. LEDs of the 40-port PoE+ and PoE++ models (Continued)

LED	Description
Port LEDs	
LEDs 1 through 40 1GBASE-T RJ-45 port LEDs (two LEDs per ports)	<p>Left LED, speed, activity, and link status: Off: No link is established on the port. Solid green: The port established a 1 Gbps link. Blinking green: The port is transmitting or receiving packets at 1 Gbps. Solid yellow: The port established a 10 or 100 Mbps link. Blinking yellow: The port is transmitting or receiving packets at 10 or 100 Mbps.</p> <hr/> <p>Right LED, PoE status: Off: No PoE-powered device (PD) is connected to the port. Solid blue: A 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:</p> <ul style="list-style-type: none"> • 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.
LEDs 41 through 48 for model Model M4250-40G8F-PoE+	<p>Off: No SFP module link is established on the fiber port. Solid green: The fiber port established a 1 Gbps link. Blinking green: The fiber port is transmitting or receiving packets at 1 Gbps. Solid yellow: The fiber port established a 100 Mbps link. Blinking yellow: The fiber port is transmitting or receiving packets at 100 Mbps.</p>
1GBASE-X SFP+ port LED (one LED per port)	
LEDs 41 through 48 for models Model M4250-40G8XF-PoE+ and Model M4250-40G8XF-PoE++	<p>Off: No SFP+ module link is established on the fiber port. Solid green: The fiber port established a 10 Gbps link. Blinking green: The fiber port is transmitting or receiving packets at 10 Gbps. Solid yellow: The fiber port established a 1 Gbps link. Blinking yellow: The fiber port is transmitting or receiving packets at 1 Gbps.</p>
10GBASE-X SFP+ port LED (one LED per port)	
OOB Ethernet port LEDs (two LEDs per port, on the back panel only)	<p>Left LED, speed status: Solid green: The port established a 1 Gbps link. Solid yellow: The port established a 10 or 100 Mbps link. Off: No link is established on the port.</p> <hr/> <p>Right LED, activity and link status: Solid green: The port established a link. Blinking green: The port is transmitting or receiving packets. Off: No link is established on the port.</p>

Hardware descriptions of the LED tiles model with 2.5 Gbps ports

This section describes the switch hardware features for model M4250-12M2XF (SKU MSM4214X).

Front panel of the LED tiles model

The following figure illustrates the front panel of the LED tiles model with 2.5 Gbps ports, model M4250-12M2XF.



Figure 19. Front panel model M4250-12M2XF

From left to right, the front panel of model M4250-12M2XF provides the following components, which are clearly named or numbered on the front panel:

- **USB:** One USB 2.0 port (see [USB 2.0 port](#) on page 37).
- **LED EXT:** One LED extension port. This feature is currently not in use.
- **LEDs 1 through 14:** Ports LEDs that are replicated from the back panel (see [LEDs of the LED tiles model](#) on page 29).
- **POWER and FAN:** System LEDs. (see [LEDs of the LED tiles model](#) on page 29).

Back panel of the LED tiles model

The LED tiles model with 2.5 Gbps ports, model M4250-12M2XF, provides twelve 2.5GBASE-T RJ-45 ports and two 10G SFP+ fiber uplink ports.



Figure 20. Back panel model M4250-12M2XF

From left to right, the back panel of model M4250-12M2XF provides the following components, which are clearly named or numbered on the back panel:

- **POWER and FAN:** System LEDs (see [LEDs of the LED tiles model](#) on page 29).
- **RESET:** Recessed dual-function **Reset** button (see [Dual-function Reset button](#) on page 36).
- **OOB:** One out-of-band (OOB) Ethernet port (see [Out-of-band 1G Ethernet port](#) on page 37) with a left LED that indicates the speed and a right LED that indicates the activity (see [LEDs of the LED tiles model](#) on page 29).
- **CONSOLE:** One RJ-45 RS-232 console port (see [RJ-45 RS-232 console port](#) on page 37).
- **USB C:** One USB Type-C console port (see [USB Type-C console port](#) on page 38).
- **Ports 1 through 12:** Twelve 100/1000/2500 Mbps autosensing 2.5GBASE-T RJ-45 ports, each with a left LED and a right LED (see [LEDs of the LED tiles model](#) on page 29). These ports can function in full duplex mode only.
- **Ports 13 and 14:** Two dedicated 10GBASE-X SFP+ fiber uplink ports (see [Transceiver modules and cables for SFP and SFP+ fiber ports](#) on page 35), each with a combined speed and activity LED (see [LEDs of the LED tiles model](#) on page 29).
- **AC power receptacle and On/Off power switch:** The AC receptacle accepts input power of 100-240V ~ 50-60,1.2-0.6A.

LEDs of the LED tiles model

This section describes the LED designations of the LED tiles model with 2.5 Gbps ports, model M4250-12M2XF.

The system LEDs and ports LEDs on the back panel are replicated on the front panel. (The exception are the port LEDs for the OOB port, which are not replicated on the front panel.)

The LEDs are clearly named or numbered on the front panel and the back panel.

Table 4. LEDs of model M4250-12M2XF

LED	Description
System LEDs	
Power LED	<p>Solid green: The switch is powered on and operating normally.</p> <p>Solid yellow: The switch is starting.</p> <p>Off: Power is not supplied to the switch.</p>

Table 4. LEDs of model M4250-12M2XF (Continued)

LED	Description
Fan LED	<p>Solid green: The fans are functioning normally.</p> <p>Solid yellow: One or more fans are malfunctioning.</p>
Port LEDs	
LEDs 1 through 12	<p>Off: No link is established on the port.</p> <p>Solid green: The port established a 2.5 Gbps link.</p>
2.5GBASE-T RJ-45 port LED (one LED per port)	<p>Blinking green: The port is transmitting or receiving packets at 2.5 Gbps.</p> <p>Solid yellow: The port established a 100 or 1000 Mbps link.</p> <p>Blinking yellow: The port is transmitting or receiving packets at 100 or 1000 Mbps.</p>
LEDs 13 and 14	<p>Off: No SFP+ module link is established on the fiber port.</p> <p>Solid green: The fiber port established a 10 Gbps link.</p>
10GBASE-X SFP+ port LED (one LED per port)	<p>Blinking green: The fiber port is transmitting or receiving packets at 10 Gbps.</p> <p>Solid yellow: The fiber port established a 1 Gbps link.</p> <p>Blinking yellow: The fiber port is transmitting or receiving packets at 1 Gbps.</p>
OOB Ethernet port LEDs (two LEDs per port, on the back panel only)	<p>Left LED, speed status:</p> <p>Solid green: The port established a 1 Gbps link.</p> <p>Solid yellow: The port established a 10 or 100 Mbps link.</p> <p>Off: No link is established on the port.</p> <hr/> <p>Right LED, activity and link status:</p> <p>Solid green: The port established a link.</p> <p>Blinking green: The port is transmitting or receiving packets.</p> <p>Off: No link is established on the port.</p>

Hardware descriptions of the aggregation model with multiple 10G SFP+ fiber ports

This section describes the switch hardware features for model M4250-16XF (SKU XSM4216F).

Front panel of the aggregation model

The following figure illustrates the front panel of the LED tiles model with 10G SFP+ fiber uplink ports, model M4250-16XF.

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Figure 21. Front panel model M4250-16XF

From left to right, the front panel of model M4250-16XF provides the following components, which are clearly named or numbered on the front panel:

- **USB:** One USB 2.0 port (see [USB 2.0 port](#) on page 37).
- **LED EXT:** One LED extension port. This feature is currently not in use.
- **LEDs 1 through 16:** Ports LEDs that are replicated from the back panel (see [LEDs of the aggregation model](#) on page 32).
- **POWER and FAN:** System LEDs. (see [LEDs of the aggregation model](#) on page 32).

Back panel of the aggregation model

The aggregation model with multiple 10G SFP+ fiber ports, model M4250-16XF, provides sixteen 10G SFP+ fiber uplink ports.

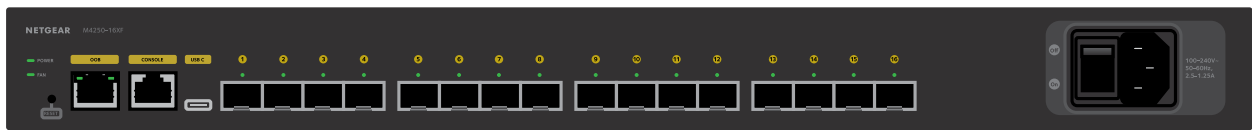


Figure 22. Back panel model M4250-16XF

From left to right, the back panel of model M4250-16XF provides the following components, which are clearly named or numbered on the back panel:

- **POWER and FAN:** System LEDs (see [LEDs of the aggregation model](#) on page 32).
- **RESET:** Recessed dual-function **Reset** button (see [Dual-function Reset button](#) on page 36).
- **OOB:** One out-of-band (OOB) Ethernet port (see [Out-of-band 1G Ethernet port](#) on page 37) with a left LED that indicates the speed and a right LED that indicates the activity (see [LEDs of the aggregation model](#) on page 32).
- **CONSOLE:** One RJ-45 RS-232 console port (see [RJ-45 RS-232 console port](#) on page 37).
- **USB C:** One USB Type-C console port (see [USB Type-C console port](#) on page 38).
- **Ports 1 through 16:** Sixteen dedicated 10GBASE-X SFP+ fiber uplink ports (see [Transceiver modules and cables for SFP and SFP+ fiber ports](#) on page 35), each with

a combined speed and activity LED (see [LEDs of the aggregation model](#) on page 32).

- **AC power receptacle and On/Off power switch:** The AC receptacle accepts input power of 100-240V ~ 50-60, 2.5-1.25A.

LEDs of the aggregation model

This section describes the LED designations of the aggregation model with multiple 10G SFP+ fiber ports, model M4250-16XF.

The system LEDs and ports LEDs on the back panel are replicated on the front panel. (The exception are the port LEDs for the OOB port, which are not replicated on the front panel.)

The LEDs are clearly named or numbered on the front panel and the back panel.

Table 5. LEDs of model M4250-16XF

LED	Description
System LEDs	
Power LED	<p>Solid green: The switch is powered on and operating normally.</p> <p>Solid yellow: The switch is starting.</p> <p>Off: Power is not supplied to the switch.</p>
Fan LED	<p>Solid green: The fans are functioning normally.</p> <p>Solid yellow: One or more fans are malfunctioning.</p>
Port LEDs	
LEDs 1 through 16	<p>Off: No SFP+ module link is established on the fiber port.</p> <p>Solid green: The fiber port established a 10 Gbps link.</p>
10GBASE-X SFP+ port LED (one LED per port)	<p>Blinking green: The fiber port is transmitting or receiving packets at 10 Gbps.</p> <p>Solid yellow: The fiber port established a 1 Gbps link.</p> <p>Blinking yellow: The fiber port is transmitting or receiving packets at 1 Gbps.</p>
OOB Ethernet port LEDs (two LEDs per port, on the back panel only)	<p>Left LED, speed status:</p> <p>Solid green: The port established a 1 Gbps link.</p> <p>Solid yellow: The port established a 10 or 100 Mbps link.</p> <p>Off: No link is established on the port.</p> <hr/> <p>Right LED, activity and link status:</p> <p>Solid green: The port established a link.</p> <p>Blinking green: The port is transmitting or receiving packets.</p> <p>Off: No link is established on the port.</p>

Switch hardware interfaces

This section describes the hardware interfaces that are common to the M4250 series switch models.

1GBASE-T RJ-45 and 2.5GBASE-T RJ-45 copper ports

All 1GBASE-T RJ-45 and 2.5GBASE-T RJ-45 copper ports support autosensing. When you insert a cable into an RJ-45 port, the switch automatically detects the maximum speed (10 Mbps, 100 Mbps, 1 Gbps, or 2.5 Gbps) of the attached device. For devices that support 10 Mbps or 100 Mbps, the switch automatically detects the duplex mode (half-duplex or full-duplex). All ports support a Category 5 (Cat 5) unshielded twisted-pair (UTP) cable or higher-rated Ethernet cable terminated with an 8-pin RJ-45 connector. For more information about Ethernet cables, see [Cables and speed](#) on page 36.

Note: Use a Category 5e (Cat 5e) or higher-rated cable for a copper port at 1 Gbps.

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.

PoE port capacities and budgets

The Power over Ethernet (PoE) models support PoE+ or PoE++ ports with the port capacities and budgets that are described in the following table.

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Table 6. PoE port capacities and budgets

Model	PoE ports	Port Capacity	Switch PoE Budget
M4250-10G2F-PoE+	8 PoE+ (802.3at)	30W	125W
M4250-10G2XF-PoE+	8 PoE+ (802.3at)	30W	240W
M4250-10G2XF-PoE++	8 PoE++ (802.3bt)	90W	720W
M4250-26G4F-PoE+	24 PoE+ (802.3at)	30W	300W
M4250-26G4XF-PoE+	24 PoE+ (802.3at)	30W	480W
M4250-26G4F-PoE++	24 PoE++ (802.3bt)	90W	1440W (2 power supplies)
M4250-40G8F-PoE+	40 PoE+ (802.3at)	30W	480W
M4250-40G8XF-PoE+	40 PoE+ (802.3at)	30W	960W
M4250-40G8XF-PoE++	40 PoE++ (802.3bt)	90W	2880W (3 power supplies)

Supplied power is prioritized according to the port order, up to the total power budget of the device. Port 1 receives the highest PoE priority, while port 8 is relegated to the lowest PoE priority.

If the power requirements for attached powered devices (PDs) exceed the total power budget of the switch, the PoE power to the device on the highest-numbered active PoE port is disabled to make sure that the devices connected to the higher-priority, lower-numbered PoE ports are supported first.

Although a device might be listed as an 802.3bt PoE++-powered or 802.3at PoE+-powered device, it might not require the maximum power limit that is specified by its IEEE standard. Many devices require less power, allowing all 8 PoE ports to be active simultaneously when the devices correctly report their PoE class to the switch.

Table 7. PoE classes and PoE power allocations

Device Class	Compatible PoE Standard	Class Description	Maximum Power Reserved for the PD	Power Delivered to the PD
0	PoE, PoE+, and PoE++	Default power (full)	15.4W	0.44W-15.8W
1	PoE, PoE+, and PoE++	Very low power	4.0W	0.44W-3.84W
2	PoE, PoE+, and PoE++	Low power	7.0W	3.84W-7.2W
3	PoE, PoE+, and PoE++	Mid power	15.4W	6.49W-15.9W
4	PoE+ and PoE++	High power	30.0W	12.95W-30.8W

Table 7. PoE classes and PoE power allocations (Continued)

Device Class	Compatible PoE Standard	Class Description	Maximum Power Reserved for the PD	Power Delivered to the PD
5	PoE++	Ultra high power	45.0W	25.5W-47.0W
6	PoE++	Ultra high power	60.0W	51.0W-64.4W
7	PoE++	Ultra high power	75.0W	62.0W-81.1W
8	PoE++	Ultra high power	90.0W	71.0W-96.5W

The previous table shows the standard power ranges, calculated with the maximum cable length of 328 feet (100 meters). If a device receives insufficient PoE power from the switch, consider using a shorter cable.

For more information about PoE, see the installation guide and user manuals, which you can download by visiting netgear.com/support/download.

Transceiver modules and cables for SFP and SFP+ fiber ports

To enable high-speed fiber and Gigabit Ethernet, short- and long-distance connections on the switch, SFP and SFP+ fiber ports can accommodate standard 1G SFP and 10G SFP+ transceiver modules and direct attach cables (DACs), all of which are sold separately.

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

- Short-reach fiber transceiver modules:
 - **AGM731F**: SFP transceiver 1000BASE-SX, SFP multimode LC GBIC
 - **AXM761**: SFP+ transceiver 10GBASE-SR, SFP+ multimode LC GBIC
- Long-reach fiber transceiver modules:
 - **AGM732F**: SFP transceiver 1000BASE-LX, SFP single mode LC GBIC
 - **AXM762**: SFP+ transceiver 10GBASE-LR, SFP+ single mode LC GBIC
 - **AXM763**: SFP+ transceiver 10GBASE-LRM, SFP+ multimode LC GBIC
 - **AXM764**: SFP+ transceiver 10GBASE-LR Lite, SFP+ single mode LC GBIC

- Gigabit transceiver modules:
 - **AGM734**: SFP transceiver 1000BASE-T, SFP copper RJ-45 GBIC
 - **AXM765**: SFP+ transceiver 10GBASE-T, SFP+ copper RJ-45 GBIC
- Direct attach cables:
 - **AXC761**: SFP+ 1 m (about 3.3 ft) direct attach cable
 - **AXC763**: SFP+ 3 m (about 10 ft) direct attach cable
 - **AXC765**: SFP+ 5 m (about 16.4 ft) direct attach cable
 - **AXC767**: SFP+ 7 m (about 23 ft) direct attach cable
 - **AXC7610**: SFP+ 10 m (about 33 ft) direct attach cable
 - **AXC7615**: SFP+ 15 m (about 49.2 ft) direct attach cable
 - **AXC7620**: SFP+ 20 m (about 65.6 ft) direct attach cable

For more information about NETGEAR SFP and SFP+ transceiver modules and cables, visit netgear.com/business/wired/switches/accessories. If purchased, transceiver modules and cables are shipped separately from the switch.

Cables and speed

The following table describes the network cables that you can use for the switch connections and the speeds that these cables can support, up to 100 meters (328 feet).

Table 8. Cables and speeds

Speed	Cable Type
100 Mbps	Category 5 (Cat 5) or higher rated Note: In most business networks, Cat 5e cables superseded Cat 5 cables.
1 Gbps or 2.5 Gbps	Category 5e (Cat 5e) or higher rated

Dual-function Reset button

The switch provides a recessed, dual-function **Reset** button on the back panel. Depending on how long you press the button (for details, see the following procedure), this button lets you perform the following tasks:

- **Restart (power-cycle) the switch:** The switch restarts. All saved settings are retained. We recommend that you save the settings before you press the **Reset** button to restart the switch.

- **Reset the switch to factory default settings:** All settings are erased and the switch restarts with factory default settings.

To restart or reset the switch using the Reset button:

1. Insert a device such as a straightened paper clip into the opening.
2. Do one of the following:
 - **Restart the switch:** Press the **Reset** button for 2 seconds. (Do not press the button for 5 seconds!)
 - **Reset the switch to factory default settings:** Press the **Reset** button for at least 5 seconds.

During the restart or reset process, the Power LED lights yellow.

USB 2.0 port

The switch provides one USB 2.0 port that lets you 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 speed to and read speed from a USB device is about 1 Mbps.

Out-of-band 1G Ethernet port

The back panel of the switch provides one out-of-band (OOB) 1000BASE-T RJ-45 Ethernet port that lets you access the switch over its main local browser UI or over a Telnet or SSH session.

RJ-45 RS-232 console port

The back panel of the switch provides one RJ-45 RS-232 console port for console access only. This serial port is configured for 115200 baud, eight data bits, one stop bit, and no parity.

The switch package includes one console cable with one DB9 connector and one RJ-45 connector. You can use this cable to connect the RJ-45 RS-232 console port on the

switch to a DB9 port on a VT100-compatible terminal or a Windows-based computer that runs VT100 terminal emulation software.

USB Type-C console port

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

Note: For you to be able to use the USB Type-C 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 netgear.com/support.

Fans

The switch includes internal fans that support intelligent operation, which enables the switch to automatically start the operation of the fans, gradually increase the speed of the fans, and either halt PoE or block traffic if the temperature exceeds a critical level.

The fans support the following modes:

- **Off**: The fans are off and produce no noise. This mode is not supported on all models. For models that support this mode, you can only manually set the fans in Off mode (see below).
- **Quiet**: The fans function with variable speeds, depending on the temperature, traffic load, and use of the PoE budget. The fan speed can temporarily reach 100 percent. Quiet mode is the default mode. At 25 or 30 percent speed, the fans produce minimal noise. Fan noise increases at 50 percent speed and even more so at 75 percent speed. At 100 percent speed, the fans produce considerable noise.
- **Cool**: The fans consistently function at 100 percent speed, provide maximum cooling, and produce considerable noise.
In Quiet mode, the switch might automatically change back and forth between Cool mode and Quiet mode until a temperature, PoE budget, or traffic load condition returns within thresholds.

You can manually control the fans through either the audio-video (AV) local browser user interface (UI) or the command-line interface (CLI). For more information about

manually controlling the fans, see the following manuals, which you can download by visiting netgear.com/support/download:

- Audio-video user manual
- CLI reference manual

If the fans are functioning in Off mode (which you only can set manually and only on certain models) or in Quiet mode, the switch automatically manages the fans and turns on the fans or gradually increases the speed of the fans under the following conditions:

- **PoE+ and PoE++ models:** *Either* the temperature detected by the temperature sensor or sensors exceeds its threshold *or* a PoE budget is exceeded.
- **LED tiles model (M4250-12M2XF):** *Either* the temperature detected by the temperature sensor exceeds its threshold *or* the switch processes a full traffic load.
- **Aggregation model (M4250-16XF):** *Either* the temperature detected by the temperature sensor exceeds its threshold *or* the switch processes a full traffic load.

Fans for the 8-port PoE+ and PoE++ models

The following table describes the thresholds and operational properties of the fans for the 8-port PoE+ and PoE++ models. (The temperatures in Fahrenheit are rounded down.)

Table 9. Fan operation properties for the 8-port PoE+ and PoE++ models

Fan Mode	M4250-10G2F-PoE+	M4250-10G2XF-PoE+	M4250-10G2XF-PoE++
Off mode			
Temp. sensor	≤ 93F (34C)	≤ 93F (34C)	≤ 100F (38C)
PoE budget	≤ 80W	≤ 90W	≤ 45W
Load	Full traffic load	Full traffic load	Full traffic load
Fan use	Off	Off	Off
Quiet mode with fan use below 25% (20% for model M4250-10G2XF-PoE++)			
Temp. sensor	< 93F (34C)	< 93F (34C)	< 100F (38C)
PoE budget	≤ 125W	≤ 240W	≤ 200W
Load	Full traffic load	Full traffic load	Full traffic load
Fan use	< 25%	< 25%	< 20%

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Table 9. Fan operation properties for the 8-port PoE+ and PoE++ models (Continued)

Fan Mode	M4250-10G2F-PoE+	M4250-10G2XF-PoE+	M4250-10G2XF-PoE++
Quiet mode with fan use from 25 - 100% (20 - 100% for model M4250-10G2XF-PoE++)			
Temp. sensor	≥ 93F (34C)	≥ 93F (34C)	≥ 100F (38C)
PoE budget	≤ 125W	≤ 240W	200W - 720W
Load	Full traffic load	Full traffic load	Full traffic load
Fan use	≥ 25 - 100%	≥ 25 - 100%	≥ 20 - 100%
Cool mode with maximum cooling			
Fan use	100%	100%	100%

Example of intelligent fan operation:

If the fans of model M4250-10G2F-PoE+ operate in Off mode and *either* the temperature detected by the temperature sensor exceeds 93F (34C) *or* the PoE budget exceeds 80W, the switch automatically places the fans in Quiet mode.

Note: In Quiet mode, the fans can temporarily operate at 100 percent speed.

The following table describes the fan operation messages that the switch records in its logs if a temperature threshold is exceeded and the action that occurs if a critical temperature level is exceeded. (The temperatures in Fahrenheit are rounded down.)

Table 10. Fan operation messages recorded in the log and action if a critical temperature level is exceeded

Message and Action	M4250-10G2F-PoE+	M4250-10G2XF-PoE+	M4250-10G2XF-PoE++
Warning	≥ 113F (45C)	≥ 114F (46C)	≥ 141F (61C)
Critical	≥ 118F (48C)	≥ 120F (49C)	≥ 145F (63C)
Shutdown	≥ 127F (53C)	≥ 127F (53C)	≥ 156F (69C)
Temporary shutdown action	PoE is disabled.	PoE is disabled.	PoE is disabled.
	The fans are placed in Cool mode.	The fans are placed in Cool mode.	The fans are placed in Cool mode.

Note: A shutdown action does *not* shut down the switch but limits the operation of the switch. PoE is disabled and the fans are placed in Cool mode. To return the switch to normal operation, you must restart the switch.

Fans for the 24-port PoE+ and PoE++ models

The following table describes the thresholds and operational properties of the fans for the 24-port PoE+ and PoE++ models. (The temperatures in Fahrenheit are rounded down.)

Table 11. Fan operation properties for the 24-port PoE+ and PoE++ models

Fan Mode	M4250-26G4F-PoE+	M4250-26G4XF-PoE+	M4250-26G4F-PoE++
Off mode			
Temp. sensor 1 or Temp. sensor 2	≤ 109F (43C) ≤ 116F (47C)	≤ 105F (41C) ≤ 114F (46C)	Off mode is not supported
PoE budget	≤ 45W	≤ 45W	
Load	Maximum 8 Ethernet ports active. SFP ports not active.	Maximum 8 Ethernet ports active. SFP+ ports not active.	
Fan use	Off	Off	
Quiet mode with fan use below 30%			
Temp. sensor 1 or Temp. sensor 2	< 111F (44C) < 118F (48C)	< 107F (42C) < 116F (47C)	< 102F (39C) < 105F (41C)
PoE budget	≤ 300W	≤ 480W	≤ 420W
Load	Full traffic load	Full traffic load	Full traffic load
Fan use	< 30%	< 30%	< 30%
Quiet mode with fan use from 30-100%			
Temp. sensor 1 or Temp. sensor 2	111F (44C) - 123F (51C) 118F (48C) - 125F (52C)	107F (42C) - 118F (48C) 116F (47C) - 123F (51C)	102F (39C) - 123F (51C) 105F (41C) - 127F (53C)
PoE budget	≤ 300W	≤ 480W	420W - 1440W with both power supplies active.
Load	Full traffic load	Full traffic load	Full traffic load
Fan use	≥ 30 - 100%	≥ 30 - 100%	≥ 30 - 100%
Cool mode with maximum cooling			
Fan use	100%	100%	100%

Example of intelligent fan operation:

If the fans of model M4250-26G4F-PoE+ operate in Off mode and *either* the temperature detected by the temperature sensor 2 exceeds 116F (47C) *or* the PoE budget exceeds 45W, the switch automatically places the fans in Quiet mode.

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Note: In Quiet mode, the fans can temporarily operate at 100 percent speed.

The following table describes the fan operation messages that the switch records in its logs if a temperature threshold is exceeded and the action that occurs if a critical temperature level is exceeded. (The temperatures in Fahrenheit are rounded down.)

Table 12. Fan operation messages recorded in the log and action if a critical temperature level is exceeded

Message and Action	M4250-26G4F-PoE+	M4250-26G4XF-PoE+	M4250-26G4F-PoE++
Warning			
Temp. sensor 1 or Temp. sensor 2	≥ 125F (52C) ≥ 131F (55C)	≥ 125F (52C) ≥ 136F (58C)	≥ 131F (55C) ≥ 140F (60C)
Critical			
Temp. sensor 1 or Temp. sensor 2	≥ 129F (54C) ≥ 136F (58C)	≥ 134F (57C) ≥ 147F (64C)	≥ 140F (60C) ≥ 150F (66C)
Shutdown			
Temp. sensor 1 or Temp. sensor 2	≥ 132F (56C) ≥ 143F (62C)	≥ 143F (62C) ≥ 158F (70C)	≥ 149F (65C) ≥ 163F (73C)
Temporary shutdown action	PoE is disabled. The fans are placed in Cool mode.	PoE is disabled. The fans are placed in Cool mode.	PoE is disabled. The fans are placed in Cool mode.

Note: A shutdown action does *not* shut down the switch but limits the operation of the switch. PoE is disabled and the fans are placed in Cool mode. To return the switch to normal operation, you must restart the switch.

Fans for the 40-port PoE+ and PoE++ models

The following table describes the thresholds and operational properties of the fans for the 40-port PoE+ and PoE++ models. (The temperatures in Fahrenheit are rounded down.)

Table 13. Fan operation properties for the 40-port PoE+ and PoE++ models

Fan Mode	M4250-40G8F-PoE+	M4250-40G8XF-PoE+	M4250-40G8XF-PoE++
Off mode			
Temp. sensor 1 or Temp. sensor 2	≤ 98F (37C) ≤ 122F (50C)	Off mode is not supported	Off mode is not supported
PoE budget	≤ 30W		
Load	Maximum 8 Ethernet ports active. SFP ports not active.		
Fan use	Off		
Quiet mode with fan use below 30%			
Temp. sensor 1 or Temp. sensor 2	< 102F (39C) < 123F (51C)	< 95F (35C) < 118F (48C)	< 102F (39C) < 122F (50C)
PoE budget	≤ 340W	≤ 560W	≤ 320W
Load	Full traffic load	Full traffic load	Full traffic load
Fan use	< 30%	< 30%	< 30%
Quiet mode with fan use from 30 - 100%			
Temp. sensor 1 or Temp. sensor 2	102F (39C) - 118F (48C) 123F (51C) - 134F (57C)	95F (35C) - 114F (46C) 118F (48C) - 134F (57C)	102F (39C) - 118F (48C) 122F (50C) - 132F (56C)
PoE budget	340W - 480W	560W - 960W	320W - 2880W with three power supplies active.
Load	Full traffic load	Full traffic load	Full traffic load
Fan use	≥ 30 - 100%	≥ 30 - 100%	≥ 30 - 100%
Cool mode with maximum cooling			
Fan use	100%	100%	100%

Example of intelligent fan operation:

If the fans of model M4250-40G8F-PoE+ operate in Off mode and *either* the temperature detected by the temperature sensor 2 exceeds 122F (50C) *or* the PoE budget exceeds 30W, the switch automatically places the fans in Quiet mode.

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Note: In Quiet mode, the fans can temporarily operate at 100 percent speed.

The following table describes the fan operation messages that the switch records in its logs if a temperature threshold is exceeded and the action that occurs if a critical temperature level is exceeded. (The temperatures in Fahrenheit are rounded down.)

Table 14. Fan operation messages recorded in the log and action if a critical temperature level is exceeded

Message and Action	M4250-40G8F-PoE+	M4250-40G8XF-PoE+	M4250-40G8XF-PoE++
Warning			
Temp. sensor 1 or Temp. sensor 2	≥ 125F (52C) ≥ 140F (60C)	≥ 120F (49C) ≥ 138F (59C)	≥ 122F (50C) ≥ 134F (57C)
Critical			
Temp. sensor 1 or Temp. sensor 2	≥ 132F (56C) ≥ 147F (64C)	≥ 125F (52C) ≥ 141F (61C)	≥ 125F (52C) ≥ 136F (58C)
Shutdown			
Temp. sensor 1 or Temp. sensor 2	≥ 140F (60C) ≥ 154F (68C)	≥ 131F (55C) ≥ 145F (63C)	≥ 129F (54C) ≥ 140F (60C)
Temporary shutdown action	PoE is disabled.	PoE is disabled.	PoE is disabled.
	The fans are placed in Cool mode.	The fans are placed in Cool mode.	The fans are placed in Cool mode.

Note: A shutdown action does *not* shut down the switch but limits the operation of the switch. PoE is disabled and the fans are placed in Cool mode. To return the switch to normal operation, you must restart the switch.

Fans for the LED tiles model and the aggregation model

The following table describes the thresholds and operational properties of the fans for the LED tiles model and the aggregation model. (The temperatures in Fahrenheit are rounded down.)

Table 15. Fan operation properties for the LED tiles model and the aggregation model

Fan Mode	M4250-12M2XF	M4250-16XF
Off mode		
Temp. sensor	≤ 131F (55C)	≤ 147F (64C)
Load	Maximum eight Ethernet ports are operational (only four ports in the range from 1 to 8 but all ports in the range from 9 to 12). No SFP+ ports are operational.	Maximum eight SFP+ ports are operational.
Fan use	Off	Off
Quiet mode with fan use below 25%		
Temp. sensor	< 131F (55C)	< 147F (64C)
Load	Full traffic load	Full traffic load
Fan use	< 25%	< 25%
Quiet mode with fan use from 25 - 100%		
Temp. sensor	≥ 131F (55C)	≥ 147F (64C)
Load	Full traffic load	Full traffic load
Fan use	≥ 25 - 100%	≥ 25 - 100%
Cool mode with maximum cooling		
Fan use	100%	100%

Note: In Quiet mode, the fans can temporarily operate at 100 percent speed.

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The following table describes the fan operation messages that the switch records in its logs if a temperature threshold is exceeded and the action that occurs if a critical temperature level is exceeded. (The temperatures in Fahrenheit are rounded down.)

Table 16. Fan operation messages recorded in the log and action if a critical temperature level is exceeded

Message and Action	M4250-12M2XF	M4250-16XF
Warning	≥ 152F (67C)	≥ 167F (75C)
Critical	≥ 158F (70C)	≥ 170F (77C)
Shutdown	≥ 163F (73C)	≥ 176F (80C)
Temporary shutdown action	All traffic is blocked. The fans are placed in Cool mode.	All traffic is blocked. The fans are placed in Cool mode.

Note: A shutdown action does *not* shut down the switch but blocks the operation of the switch: All traffic is blocked and the fans are placed in Cool mode. To return the switch to normal operation, you must restart the switch.

3

Installation

This chapter describes the installation procedures for the switch.

Switch installation involves the steps that are described in the following sections:

- [Step 1: Prepare the site](#)
- [Step 2: Protect against electrostatic discharge](#)
- [Step 3: Unpack the switch](#)
- [Step 4: Mount or place the switch](#)
- [Optional Step 5: Install SFP or SFP+ transceiver modules](#)
- [Step 6: Connect devices to the switch](#)
- [Step 7: Check the installation](#)
- [Step 8: Apply AC power and check the LEDs](#)
- [Optional Step 9: Connect a console to the switch](#)

Step 1: Prepare the site

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

Table 17. Site requirements

Characteristics	Requirements
Mounting	<p>Desktop installations: Provide a flat table or shelf surface.</p> <p>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.</p>
Access	Install the switch in a position that allows you to access the back panel ports and access the power connector on the back panel. (System and port LEDs are both on the front panel and back panel.)
Power source	Use the AC power cable or cables that are supplied with the switch. Make sure 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	<p>Temperature: Install the switch in a dry area with an ambient temperature that is as follows:</p> <ul style="list-style-type: none"> • PoE models: Between 32°F and 104°F (0°C and 40°C). • Non-PoE models: Between 32°F and 113°F (0°C and 45°C). <p>Keep the switch away from heat sources such as direct sunlight, warm-air exhausts, hot-air vents, and heaters.</p> <p>Operating humidity: The maximum relative humidity of the installation location must not exceed 90%, noncondensing.</p> <p>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.</p> <p>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.</p>

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 for the switch. The figure shows the contents for model M4250-10G2XF-PoE++, but the contents for all models are the very similar, other than the switch model. Any differences in contents are listed in the following table.

AV Line of Fully Managed Switches M4250 Series

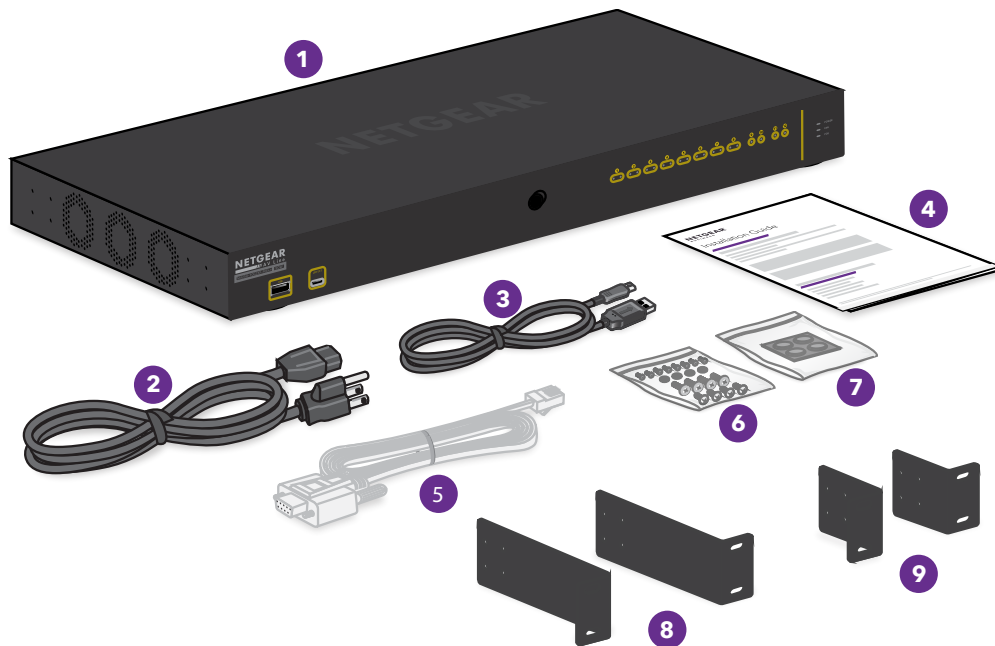


Figure 23. Package contents

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:

Number	Item
1	Switch of the model that you ordered. Note: Rubber protection caps are installed in the SFP sockets. If you install an SFP transceiver module, you must remove the cap from the SFP socket.
2	AC power cable or cables (varies by region). Note: Model M4250-26G4F-PoE++ comes with two power cables. Note: Model M4250-40G8XF-PoE++ comes with three power cables.
3	USB console cable.
4	Installation guide.
5	RJ-45 RS-232 console cable.

(Continued)

Number	Item
6	<p>A bag with the following screws and washers for rack-mounting:</p> <ul style="list-style-type: none">• Four large screws to attach the brackets to the rack (two screws for each side).• Four medium-sized screws to attach the brackets to the rack (two screws for each side).• Four washers.• Eight small screws to attach the brackets to the switch (four small screws for each side). <p>Note: Depending on the type of rack, use either the large screws or the medium-sized screws to attach the brackets to the rack.</p> <p>Note: All models are one rack unit of height (1U) with the exception of model M4250-40G8XF-PoE++, which is two rack units of height (2U).</p>
7	Rubber feet for desktop or table installation.
8	<p>Two large brackets for mounting to a rack.</p> <p>Note: Because the form factor of model M4250-40G8XF-PoE++ is 2U, the large brackets are double-height.</p>
9	<p>Two small brackets for mounting to a rack.</p> <p>Note: Because the form factor of model M4250-40G8XF-PoE++ is 2U, the small brackets are double-height.</p>

5. If any item is missing or damaged, contact your local NETGEAR reseller for replacement.

Step 4: Mount or place the switch

You can mount the switch in a standard 19-inch (48.26-centimeter) network equipment rack or place the switch on a flat surface.

Mount the switch in a rack

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

- **Brackets.** Depending on how you install the switch in the rack, either use the small brackets to mount the switch with its front panel facing you (see the following figure) or use the large brackets to mount the switch slightly recessed with its back panel facing you.

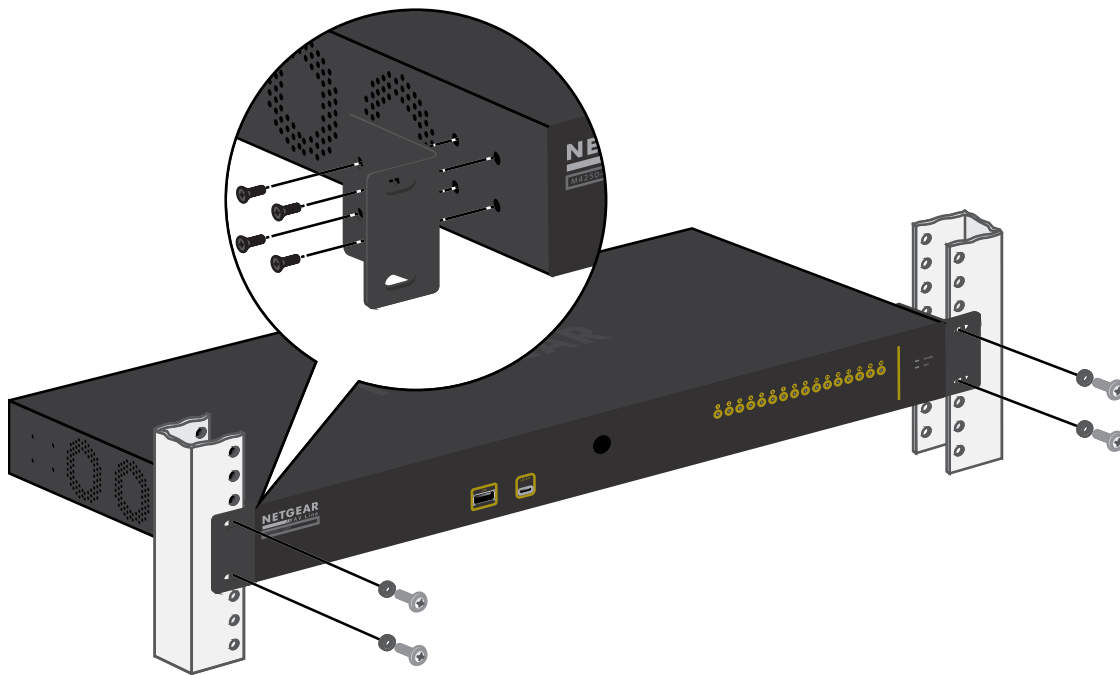
AV Line of Fully Managed Switches M4250 Series

- **Screws.** Depending on the rack, use either the large screws or the medium-sized screws to attach the brackets to the rack.

The form factor of all models is one rack unit of height (1U). The only exception is model M4250-40G8XF-PoE+, for which the form factor is 2U.

To install the switch in a rack with its front panel facing you:

1. Attach the supplied small 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 the mounting brackets to the rack.



Place 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.

Optional Step 5: Install SFP or SFP+ transceiver modules

This procedure is optional. The following table shows the models and the ports that can support SFP or SFP+ modules.

Table 18. SFP or SFP+ ports

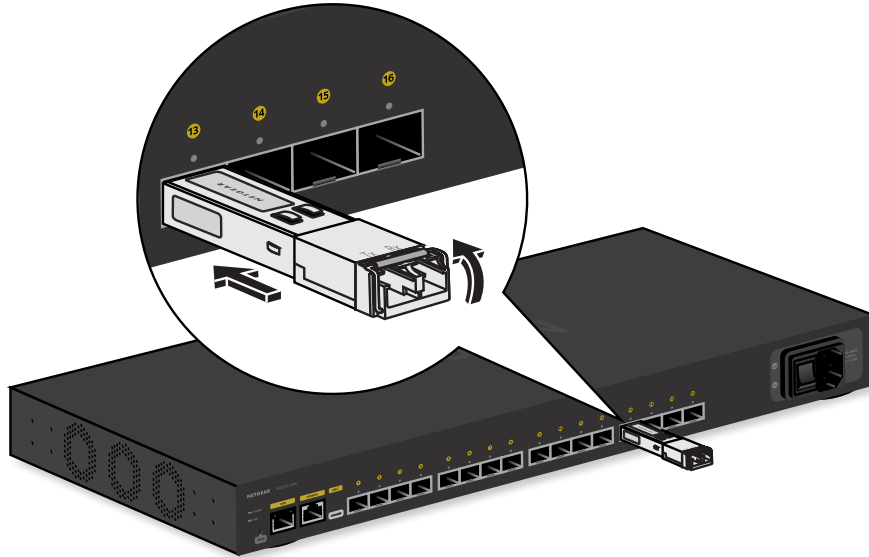
Type of Model	Model Number	Type of Port	Port Numbers
8-port PoE+ and PoE++ models	M4250-10G2F-PoE	SFP	11 and 12
	M4250-10G2XF-PoE+	SFP+	11 and 12
	M4250-10G2XF-PoE++	SFP+	11 and 12
24-port PoE+ and PoE++ models	M4250-26G4F-PoE+	SFP	25 through 30
	M4250-26G4XF-PoE+	SFP+	25 through 30
	M4250-26G4F-PoE++	SFP+	25 through 30
40-port PoE+ and PoE++ models	M4250-40G8F-PoE+	SFP	41 through 48
	M4250-40G8XF-PoE+	SFP+	41 through 48
	M4250-40G8XF-PoE++	SFP+	41 through 48
Special models	M4250-12M2XF	SFP+	13 and 14
	M4250-16XF	SFP+	1 through 16

For information about the SFP and SFP+ modules, see [Transceiver modules and cables for SFP and SFP+ fiber ports](#) on page 35.

The following procedure describes how to install an optional SFP or SFP+ transceiver module into one of the SFP or SFP+ ports of the switch.

To install an SFP or SFP+ module:

1. Insert the SFP module in an SFP port or the SFP+ module in an SFP+ port.
2. Press firmly on the flange of the module to seat it securely into the connector.



Step 6: Connect devices to the switch

WARNING: This switch is designed for indoor use only. If you want to connect it to a device located outdoors, the outdoor device must be properly grounded and surge protected, and you must install an Ethernet surge protector inline between the switch and the outdoor device. Failure to do so can damage the switch.

Note: Before connecting this switch to outdoor cables or devices, see <https://kb.netgear.com/000057103> for safety and warranty information.

The following procedure describes how to connect devices to the switch's RJ-45 ports. The switch supports Auto Uplink technology, which allows you to attach devices using either straight-through or crossover cables. Use a Category 5 (Cat 5), Cat 5e, or Cat 6 cable that is terminated with an RJ-45 connector.

Note: Ethernet specifications limit the cable length between the switch and the attached device to 328 feet (100 meters).

To connect devices to the switch's RJ-45 Ethernet ports:

1. Connect one RJ-45 Ethernet port with an Ethernet cable to your network.
The network connection can be to a hub, another switch, router, or Internet gateway.

Note: Instead of using an RJ-45 Ethernet port, you can connect an SFP or SFP+ port with an SFP or SFP+ transceiver module and cable to your network. For more information, see [Optional Step 5: Install SFP or SFP+ transceiver modules](#) on page 53.

2. Connect devices to the RJ-45 Ethernet ports on the switch.
3. Verify that all cables are installed correctly.

Step 7: 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 again that all cables are installed correctly.
3. Check cable routing to make sure that cables are not damaged or creating a safety hazard.
4. Make sure that all equipment is mounted properly and securely.

Step 8: Apply AC power and check the LEDs

The switch provides an **On/Off power switch** that controls the power.

Before connecting the power cable or cables, select an AC outlet that is not controlled by a wall switch, which can turn off power to the switch.

In the following procedure, the steps that apply to a single power cable apply to each power cable for the models that use two or three power cables.

To apply AC power:

1. Connect the end of the power cable to the AC power receptacle on the back of the switch.
2. Plug the AC power cable into a power source such as a wall socket or power strip.
3. Turn the **On/Off power switch** in the **On** position.
4. Check to see that the LEDs light correctly.

When you apply power, the Power LED lights and the ports LEDs for attached devices light. For more information, see one of the following sections:

- [LEDs of the 8-port PoE+ and PoE++ models on page 16](#)
- [LEDs of the 24-port PoE+ and PoE++ models on page 21](#)
- [LEDs of the 40-port PoE+ and PoE++ models on page 26](#)
- [LEDs of the LED tiles model on page 29](#)
- [LEDs of the aggregation model on page 32](#)

If the Power LED does not light, check to see that the **On/Off power switch** in the **On** position, the power cable is plugged in correctly, and the power source is good.

Optional Step 9: Connect a console to the switch

This procedure is optional. You can configure and manage the switch through the main local browser interface or the audio-video user interface. If you want to use the command-line interface (CLI), you can use a Telnet or secure shell (SSH) connection, or you can connect a console 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:
 - USB Type C cable for use with the USB Type-C console port
 - Ethernet cable for use with the RJ-45 RS-232 console port

To connect a console to the switch:

1. Connect either the USB Type C cable or the RJ-45 RS-232 cable to the appropriate port on the switch.
The USB Type-C port and RJ-45 RS232 console port are located on the back panel.
2. Connect the other end of the cable to your computer, workstation, or terminal.
 - On a Windows-based computer, you can use HyperTerminal or install another terminal emulator such as Tera Term.
 - On Mac operating system, you can use ZTerm.
 - On a UNIX workstation, you can use a terminal emulator such as Minicom.
3. If you attach a computer or workstation, start a terminal emulation program.
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 can configure the switch. For information about configuring the switch using the command-line interface (CLI), see the CLI manual, which you can download by visiting netgear.com/support/download.

For information about configuring the switch through the main local browser user interface (main UI) or the audio-video (AV) local browser user interface (UI), see the users manuals, which you can also download by visiting netgear.com/support/download.

4

Troubleshooting

This chapter provides information about troubleshooting the switch.

The chapter includes the following sections:

- [Troubleshooting chart](#)
- [PoE troubleshooting suggestions](#)
- [Additional troubleshooting suggestions](#)

Troubleshooting chart

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

Table 19. Troubleshooting chart

Symptom	Cause	Solution
A Power LED is off.	The switch is not receiving power.	Check the power cable connections at the switch and the power source. Make sure that all cables are used correctly and comply with the Ethernet specifications.
The speed, activity, and link status LED is off when the port is connected to a device.	The 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. Make sure 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.
A file transfer is slow or the 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 making sure that only one path exists from any networked device to any other networked device. After you connect to the main local browser UI, 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. Make sure that all connectors are securely positioned in the required ports. It is possible that equipment was accidentally disconnected.
The speed, activity, and link status LED is blinking continuously for each connected port and the network is disabled.	A network loop (redundant path) was created.	Break the loop by making sure that only one path exists from any networked device to any other networked device. After you connect to the main local browser UI, you can configure the Spanning Tree Protocol (STP) to prevent network loops.

PoE troubleshooting suggestions

Here are some tips for correcting PoE problems that might occur:

- Make sure that the system POE LED is off. If the system POE LED is solid yellow, disconnect one or more PoE devices to prevent PoE oversubscription. Start by disconnecting the device from the highest-numbered port.
- Make sure that the Ethernet cables are plugged in correctly. For each powered device (PD) that is connected to the switch, the right port LED on the switch lights solid blue. If the right port LED lights solid yellow, a PoE fault occurred and PoE halted because of one of the conditions that are listed in the following table.

Table 20. PoE fault conditions and possible solutions

PoE Fault Condition	Possible Solution
A PoE-related short circuit occurred on the port.	The problem is most likely with the attached PD. Check the condition of the PD or restart the PD by disconnecting and reconnecting the PD.
The PoE power demand of the PD exceeded the maximum level that the switch permits. The maximum level is 15.4W for a PoE connection, 30W for a PoE+ connection, and 90W for a PoE++ connection.	
The PoE current on the port exceeded the classification limit of the PD.	
The PoE voltage of the port is outside the range that the switch permits.	Restart the switch to see if the condition resolves itself.

Additional troubleshooting suggestions

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

- **Network adapter cards:** Make sure 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. Make sure 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, turn the **power On/Off switch** to the **Off** position, disconnect the AC cable, reconnect the AC cable, and then turn the **power On/Off switch** to the **On** position. If the problem continues, contact NETGEAR Technical Support. For more information, visit the support website at netgear.com/support.
- **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.