**NETGEAR®**

# Hardware Installation Guide

## 8-Port and 16-Port Gigabit Ethernet (PoE+) Smart Managed Plus Click Switch

Models
 GSS108E
 GSS116E
 GSS108EPP

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

Applicable to 6 GHz devices only: Only use the device indoors. The operation of 6 GHz devices is prohibited on oil platforms, cars, trains, boats, and aircraft, except that operation of this device is permitted in large aircraft while flying above 10,000 feet. Operation of transmitters in the 5.925-7.125 GHz band is prohibited for control of or communications with unmanned aircraft systems.

This switch is designed for indoor use only. If you want to connect 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.

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

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## Revision History

| Publication Part Number | Publish Date | Comments |
|---|---|---|
| 202-11712-05 | August 2021 | We added a statement about indoor use to <u>Step 5: Connect devices to the switch</u> on page 35. |
| 202-11712-04 | January 2019 | • Reorganized the entire guide and published it in a new format.<br>• Updated the product names.<br>• Removed information about the resource CD.<br>• Revised the information in all existing chapters and sections.<br>• Added in Chapter 1: <u>Overview</u> on page 7.<br>• Added in Chapter 2: <u>Factory Defaults button</u> on page 19.<br>• Added in Chapter 3: <u>Network switching</u> on page 21.<br>• Added in Chapter 4: <u>Step 1: Prepare the site</u> on page 28, <u>Step 2: Protect against electrostatic discharge</u> on page 29, <u>Step 5: Connect devices to the switch</u> on page 35, <u>Step 6: Check the installation</u> on page 35, and <u>Step 9: Manage the switch</u> on page 37.<br>• Added in chapter 5: <u>PoE troubleshooting suggestions (model GSS108EPP)</u> on page 41. |
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## Chapter 5 Troubleshooting

# 1

# Introduction

The NETGEAR Smart Managed Plus Click Switches use the 1-2-3-4 Click Mounting system, which lets you easily mount the switch vertically or horizontally on a wall, pole, or table leg. The internal power supply allows for a simple power cord from the switch to an outlet. The switches are fanless for silent operation and you can turn off the LEDs to minimize distractions.

This hardware installation guide is for the following switch models:

- **GSS108E**. 8-Port Gigabit Ethernet Smart Managed Plus Click Switch.
- **GSS116E**. 16-Port Gigabit Ethernet Smart Managed Plus Click Switch.
- **GSS108EPP**. 8-Port Gigabit Ethernet Smart Managed Plus Click Switch with 4-Port PoE+.

This hardware installation guide complements the installation guide that came with your 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 technical specifications, see the data sheet at netgear.com/business/products/switches/web-managed/. For switch documentation, visit netgear.com/support/download/.

# Overview

The switch provides eight or sixteen 10/100/1000BASE-T RJ-45 copper ports that support nonstop 10/100/1000M Layer 2 networks. On model GSS108EPP, RJ-45 ports 1-4 support PoE+ with a total PoE power budget of 47W for the switch.

For information about application samples, see <u>Applications</u> on page 20.

The switch provides administrative management options that let you configure, monitor, and control the network. Using the local browser–based management interface, in this guide referred to as the local browser interface, you can configure the switch and the network, including the ports, VLANs for traffic control, link aggregation (on models GSS116E and GSS108EPP) for increased bandwidth, and Quality of Service (QoS) for prioritizing traffic.

For initial discovery of the switch on the network, use one of the following methods, all of which are described in detail in the user manual:

- NETGEAR Insight mobile app
- NETGEAR Switch Discovery Tool
- NETGEAR ProSAFE Plus Utility

You can also get the IP address of the switch from the DHCP server in the network or use an IP scanner utility.

After discovery, you can configure the switch using the local browser interface for advanced setup and configuration of features, or the NETGEAR ProSAFE Plus Utility for configuration of most features. For more information, see the user manual, which you can download from <u>netgear.com/support/download/</u>.

The switch is IEEE compliant and offers low latency. All ports can automatically negotiate to the highest speed, which makes the switch very suitable for a mixed environment with Fast Ethernet and Gigabit Ethernet.

Use Category 5e (Cat 5e) or higher-rated Ethernet cables terminated with RJ-45 connectors to make Gigabit connections.

# Features

The switch supports the following key hardware features:

- 8 or 16 Gigabit Ethernet ports.
- PoE+ support on model GSS108EPP:

  - 4 Gigabit Ethernet ports that support PoE+ (802.3at).
  - Total PoE power budget of 47W for the switch.

- Switching fabric (duplex mode, all ports line-rate) as follows:

  - 16 Gbps for models GSS108E and GSS108EPP.
  - 32 Gbps for model GSS116E.

- 1-2-3-4 Click Mounting system, which lets you easily mount the switch vertically or horizontally on a wall, pole, or table leg.
- Full compatibility with IEEE standards:

  - IEEE 802.3 Ethernet
  - IEEE 802.3i 10BASE-T
  - IEEE 802.3u 100BASE-T
  - IEEE 802.3ab 1000BASE-T
  - IEEE 802.3x Full-duplex flow control
  - IEEE 802.1Q VLAN tagging
  - IEEE 802.1p Class of Service (QoS)
  - IEEE 802.3az Energy Efficient Ethernet (EEE)
  - IEEE 802.1af (PoE, model GSS108EPP only)
  - IEEE 802.1at (PoE+, model GSS108EPP only)

- 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 Media Access Control (MAC) addresses as follows:

  - Up to 8K for models GSS108E and GSS116E.
  - Up to 4K for model GSS108EPP.

- Store-and-forward transmission.
- Flow control to minimize packet loss and frame drops.
- Half-duplex backpressure control.
- Per-port status LEDs and system status LEDs.
- Per-port PoE status LEDs and system PoE Max LED for model GSS108EPP only.
- NETGEAR green power-saving features:
  - Energy efficiency mode that fully conforms to the IEEE802.3az standard.
  - Per-port automatic change to a lower power mode when the port link is down.

Among the key software features, the switch provides traffic management and multicast efficiency:

- Traffic management:
  - Dynamic MAC address management.
  - IEEE 802.1Q–based or port-based VLAN.
  - QoS based on weighted round robin (WRR).
  - Port-based and IEEE 802.1p–based Quality of Service (QoS).
  - QoS based on Type of Service (ToS).
  - DSCP support.
  - Rate limiting.

- Multicast efficiency:
  - IGMP snooping, v1, v2 and v3 (source filtering is not supported).
  - Blocking of unknown multicast traffic.
  - Static multicast router port.

Certain features such as USB charging ports, link aggregation, and PoE+ ports are available on specific switch models, as follows:

- **USB charging ports**. See USB charging ports (model GSS108E) on page 19.
- **Link aggregation** . See Static LAG connections (models GSS116E and GSS108EPP) on page 21.
- **PoE+ ports**. See PoE applications (model GSS108EPP) on page 22.

# 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. Note the following:

  - For more information about the environment in which this product must operate, see the environmental specifications in the appendix or the data sheet.

  - If you want to connect the product 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 indoor product and the outdoor device. Failure to do so can damage the product.

  - Before connecting the product to outdoor cables or devices, see https://kb.netgear.com/000057103 for additional 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.

- If any of the following conditions occur, unplug the product from the power outlet, and then 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 the 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 product. 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 system, 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 <u>power adapter</u>:

  - If you were not provided with a power adapter, contact your local NETGEAR reseller.

  - 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 <u>power cable</u>:

  - 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 and includes the following sections:

- Model GSS108E hardware
- Model GSS116E hardware
- Model GSS108EPP hardware
- Switch hardware interfaces

# Model GSS108E hardware

Model GSS108E provides eight Gigabit Ethernet ports and two USB charging ports.

## Front panel model GSS108E

The following figure shows the front panel of model GSS108E.



Figure 1. Front panel model GSS108E

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

- Two USB charging ports (see USB charging ports (model GSS108E) on page 19).
- Eight independent 10/100/1000BASE-T RJ-45 ports, each with a left LED and a right LED that, combined, indicate link, speed, and activity (see Status LEDs model GSS108E on page 14).
- A rectangular Power LED (see Status LEDs model GSS108E on page 14).
- An AC power receptacle, placed at a 45-degree angle. (The switch integrates a fixed, internal power supply unit.)

## Status LEDs model GSS108E

The following table describes the RJ-45 port LEDs for ports 1–8 and the Power LED on the front panel of model GSS108E. The Power LED is located to the right of port 8.

Table 1. Front panel LEDs for model GSS108E

| LEDs | | Description |
|---|---|---|
| **Left port LEDs** | **Right port LEDs** | |
| Solid green | Off | A valid 1000 Mbps Ethernet port link is established. |
| Blinking green | Off | The port is transmitting or receiving packets at 1000 Mbps. |
| Off | Solid green | A valid 10 Mbps or 100 Mbps Ethernet port link is established. |
| Off | Blinking green | The port is transmitting or receiving packets at 10 Mbps or 100 Mbps. |

Table 1. Front panel LEDs for model GSS108E (Continued)

| LEDs | | Description |
|------|------|------|
| Off | Off | No Ethernet link port is established. |
| **Power LED** | Solid green | The switch is powered on. |
| | Off | Power is not supplied to the switch. |

## Back panel model GSS108E

The back panel does not contain any components other than a recessed **Factory Default** button (see Factory Defaults button on page 19).

The following figure shows the back panel.



Figure 2. Back panel model GSS108E

# Model GSS116E hardware

Model GSS116E provides 16 Gigabit Ethernet ports.

## Front panel model GSS116E

The following figure shows the front panel of model GSS116E.



Figure 3. Front panel model GSS116E

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

- Sixteen independent 10/100/1000BASE-T RJ-45 ports, each with a left LED and a right LED that, combined, indicate link, speed, and activity (see Status LEDs model GSS116E on page 16).

- A rectangular Power LED (see Status LEDs model GSS116E on page 16).

- An AC power receptacle, placed at a 45-degree angle. (The switch integrates a fixed, internal power supply unit.)

## Status LEDs model GSS116E

The following table describes the RJ-45 port LEDs for ports 1–16 and the Power LED on the front panel of model GSS116E. The Power LED is located to the right of port 16.

Table 2. Front panel LEDs for model GSS116E

| LEDs | | Description |
|---|---|---|
| **Left port LEDs** | **Right port LEDs** | |
| Solid green | Off | A valid 1000 Mbps Ethernet port link is established. |
| Blinking green | Off | The port is transmitting or receiving packets at 1000 Mbps. |
| Off | Solid green | A valid 10 Mbps or 100 Mbps Ethernet port link is established. |
| Off | Blinking green | The port is transmitting or receiving packets at 10 Mbps or 100 Mbps. |
| Off | Off | No Ethernet link port is established. |
| **Power LED** | Solid green | The switch is powered on. |
| | Off | Power is not supplied to the switch. |

## Back panel model GSS116E

The back panel does not contain any components other than a recessed **Factory Default** button (see Factory Defaults button on page 19).

The following figure shows the back panel.



Figure 4. Back panel model GSS116E

# Model GSS108EPP hardware

Model GSS108EPP provides eight Gigabit Ethernet ports, of which the four leftmost ports are PoE+ ports.

# Front panel model GSS108EPP

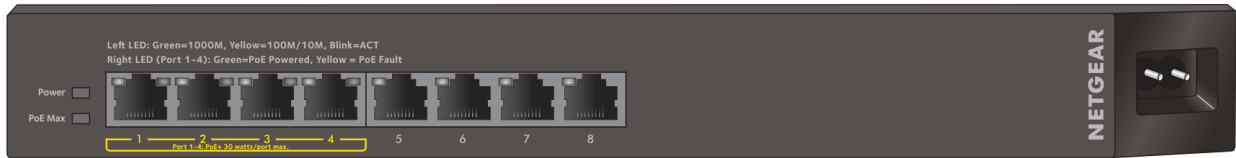The following figure shows the front panel of model GSS108EPP



Figure 5. Front panel model GSS108EPP

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

- A Power LED and PoE Max LED (see Status LEDs model GSS108EPP on page 17).

- Eight independent 10/100/1000BASE-T RJ-45 ports, of which ports 1–4 are PoE+ port. All ports provide a left LED that functions as the combined link, speed, and activity LED. The PoE+ ports provide a right LED that indicates the PoE status (see Status LEDs model GSS108EPP on page 17).

- An AC power receptacle, placed at a 45-degree angle. (The switch integrates a fixed, internal power supply unit.)

# Status LEDs model GSS108EPP

The following table describes the status LEDs on the front panel of model GSS108EPP from left to right.

Table 3. Front panel status LEDs model GSS108EPP

| LED | Description |
|---|---|
| **Power LED** | **Solid green**. The switch is powered on.<br>**Off**. Power is not supplied to the switch. |
| **PoE Max LED** | **Off**. Sufficient (more than 7W of) PoE power is available.<br>**Solid amber**. Less than 7W of PoE power is available.<br>**Blinking amber**. At least once during the previous two minutes, less than 7W of PoE power was available. |

Table 3. Front panel status LEDs model GSS108EPP (Continued)

| LED | Description |
|---|---|
| **RJ-45 left port LEDs for ports 1–8**<br>These LEDs indicate the link status, speed, and activity of the port. | **Solid green**. A valid 1000 Mbps Ethernet port link is established.<br>**Blinking green**. The port is transmitting or receiving packets at 1000 Mbps.<br>**Solid yellow**. A valid 10 Mbps or 100 Mbps Ethernet port link is established.<br>**Blinking yellow**. The port is transmitting or receiving packets at 10 Mbps or 100 Mbps.<br>**Off**. No Ethernet port link is established. |
| **RJ-45 right port LEDs for ports 1–4 only**<br>These LEDs indicate the PoE status the port. | **Off**. The port is not delivering PoE.<br>**Solid green**. The port is delivering PoE.<br>**Solid yellow**. A PoE fault occurred. For more information, see PoE troubleshooting suggestions (model GSS108EPP) on page 41. |

# Back panel model GSS108EPP

The back panel does not contain any components other than a recessed **Factory Default** button (see Factory Defaults button on page 19).

The following figure shows the back panel.



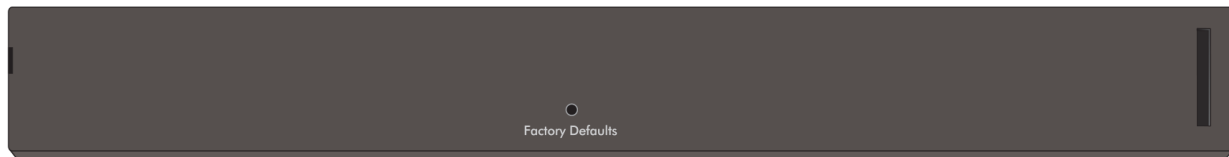Factory Defaults

Figure 6. Back panel model GSS108EPP

# Switch hardware interfaces

The following sections describe the hardware interfaces on the switch.

## RJ-45 ports for 10/100/1000M BASE-T Ethernet connectivity

All RJ-45 copper ports support autosensing. When you insert a cable into an RJ-45 port, the switch automatically ascertains the maximum speed (10 Mbps, 100 Mbps, or 1 Gbps) and duplex mode (half-duplex or full-duplex) of the attached device. All ports support a Cat 5e cable (or higher-rated Ethernet cable) terminated with an 8-pin RJ-45 connector.

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.

On model GSS108EPP, the four leftmost RJ-45 copper ports support PoE+.

## USB charging ports (model GSS108E)

Model GSS108E provides two quick-access USB charging ports for tablets or smartphones. You can use the USB charging ports to charge compatible devices.

When charging devices, keep the following in mind:

- The USB charging ports can be used only to charge phones, tablets, and other USB-chargeable devices.

- Do not connect USB storage devices or flash drives to the USB charging ports. The USB charging ports are not designed for this purpose.

- Connecting a device to a USB charging port does not create a network connection to the switch or to the network that includes the switch.

Each USB charging port can provide 10W maximum. The two ports together can provide 15W maximum.

## Factory Defaults button

The switch provides a **Factory Defaults** button on the back panel so that you can return the switch to its factory settings.

**To return the switch to its factory default settings:**

1. Insert a device such as a straightened paper clip into the opening.

2. Press the recessed **Factory Defaults** button for about three seconds.
   The switch reboots and returns to its factory settings.

# 3
# Applications

The switch is designed to provide flexibility in configuring network connections. The switch can be used as your only network traffic–distribution device for PoE devices (model GSS108EPP) and non-PoE devices (all models) or with 10 Mbps, 100 Mbps, and 1 Gbps Ethernet hubs, routers, access points, and other switches.

This chapter includes the following sections:

- Network switching
- Static LAG connections (models GSS116E and GSS108EPP)
- PoE applications (model GSS108EPP)
- Use the USB charging ports (model GSS108E)

# Network switching

You can use the switch as a network switch to build a network that provides up to 1 Gbps access to desktop computers, access points, surveillance cameras, a NAS, servers such as a file server, an IPTV, and so on. Connect the switch to a network router that, in turn, is connected to an Internet.

With 1 Gbps connections, the switch always functions in full-duplex mode. Any switch port that is connected to a computer or file server can provide up to 2 Gbps bidirectional throughput. Models GSS116E and GSS108EPP support link aggregation for increased throughput and redundancy (see Static LAG connections (models GSS116E and GSS108EPP) on page 21).

You must connect one LAN port on the switch to a LAN port on a network router that is connected to the Internet.
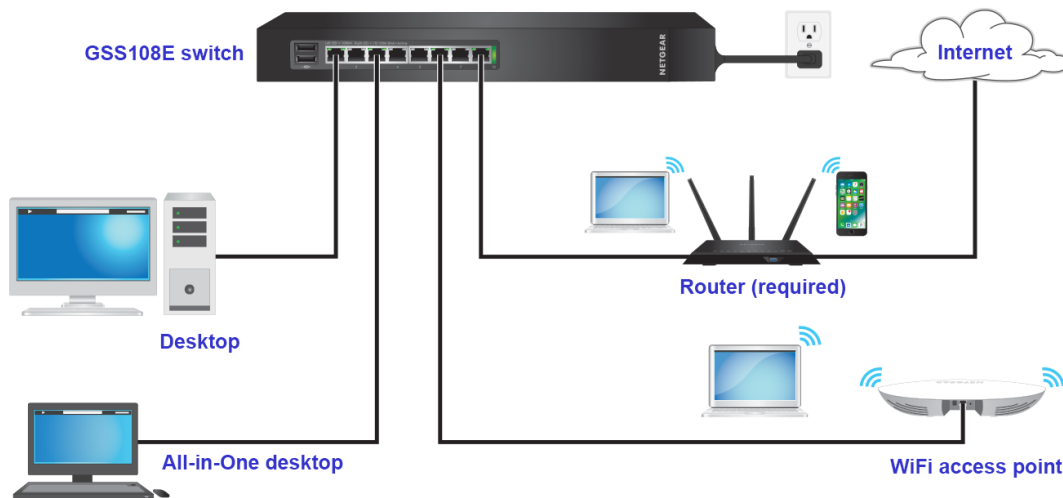


Figure 7. Sample connections for network switching in a home or small office

# Static LAG connections (models GSS116E and GSS108EPP)

Model GSS116E and model GSS108EPP support link aggregation and link aggregation groups (LAGs) with other devices (for example, other switches or ReadyNAS storage platforms) that also are capable of link aggregation and LAGs. LAGs allow you to combine multiple Ethernet links into a single logical link. Network devices treat the aggregation as if it were a single link, which increases the throughput by load sharing and allows for fault tolerance.

Model GSS116E supports two IEEE 802.3ad static LAGs with a maximum of eight members in each LAG. Model GSS108EPP supports two IEEE 802.3ad static LAGs with a maximum of four members in each LAG.

In the following figure, ports 1 and 2 on model GSS116E are connected in a link aggregation configuration to a ReadyNAS storage system.
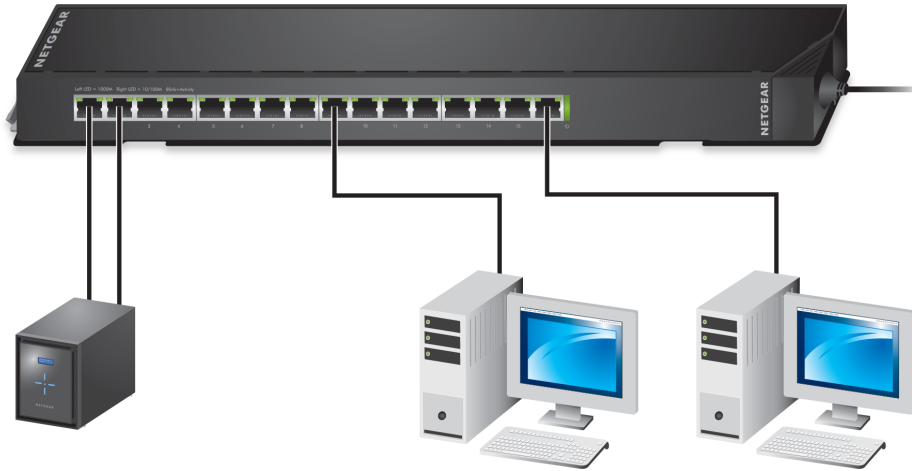


Figure 8. Sample switch link aggregation between model GSS116E and a ReadyNAS storage system

For more information about link aggregation and LAGs, see the user manual, which you can download from netgear.com/support/download/.

# PoE applications (model GSS108EPP)

This section describes the PoE feature and applications of model GSS108EPP and includes the following subsections:

• PoE overview (model GSS108EPP)
• Connect PoE equipment in a home (model GSS108EPP)
• Connect PoE equipment in a business environment (model GSS108EPP)

## PoE overview (model GSS108EPP)

Model GSS108EPP supports four Power over Ethernet plus (PoE+) ports. The switch can supply up to 30W PoE+ (IEEE 802.3at) to each port numbered 1 through 4 up to its total maximum PoE power budget of 47W across all active PoE+ ports. The switch is also compatible with PoE (IEEE 802.3af).

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 4 is relegated to the lowest PoE priority.

If the power requirements for attached devices 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 is listed as an 802.3at PoE+-or 802.3af 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 four PoE+ ports to be active simultaneously when the devices correctly report their PoE class to the switch.

For more information about PoE, see the installation guide and user manual, both of which you can download from netgear.com/support/download/.

## Connect PoE equipment in a home (model GSS108EPP)

The following figure shows an example of how you can connect PoE and non-PoE equipment to model GSS108EPP in a home.

The total PoE power budget of model GSS108EPP is 47W. Make sure that the total PoE power required by all the connected PoE devices combined does not exceed this budget.
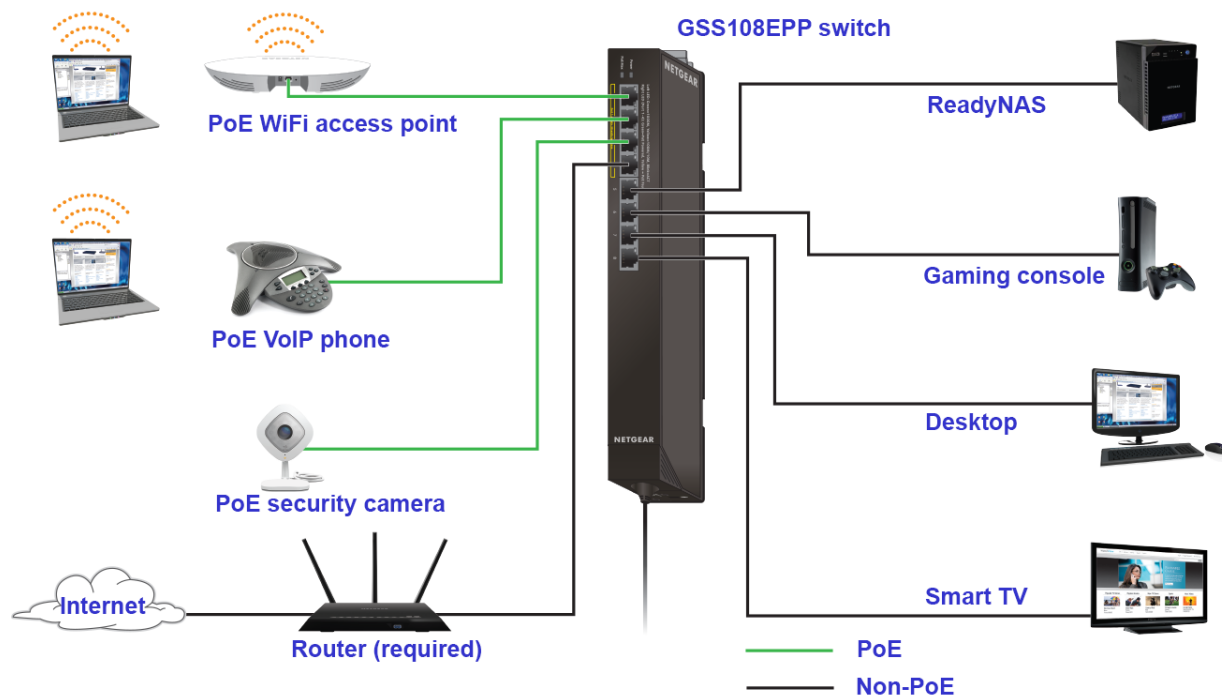


Figure 9. Sample PoE and non-PoE connections with model GSS108EPP in a home

# Connect PoE equipment in a business environment (model GSS108EPP)

The following figure shows an example of how you can connect a PoE WiFi access point and PoE VoIP phones to the PoE+ ports on model GSS108EPP along with non-PoE equipment in a business environment.

The total PoE power budget of model GSS108EPP is 47W. Make sure that the total PoE power required by all the connected PoE devices combined does not exceed this budget.
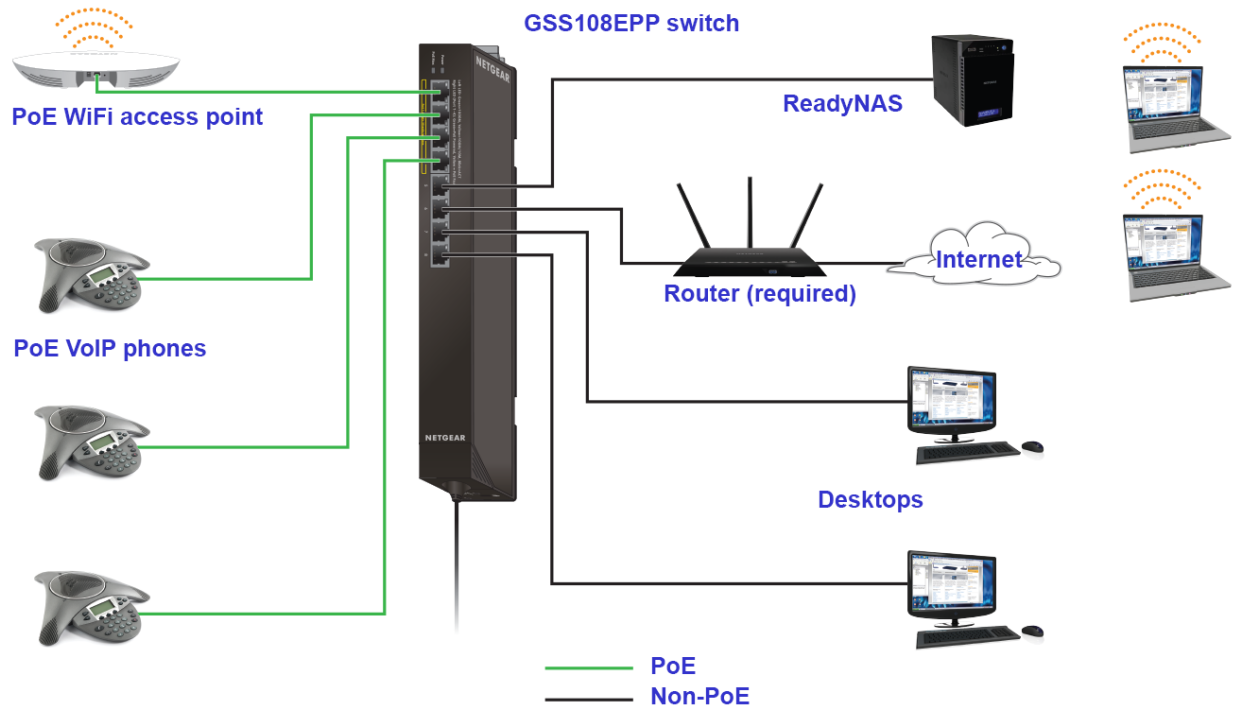


Figure 10. Sample business environment with model GSS108EPP, a PoE WiFi access point, and PoE VoIP phones

The following figure shows an example of how you can connect PoE security cameras to the PoE+ ports on model GSS108EPP along with non-PoE equipment in a business environment.
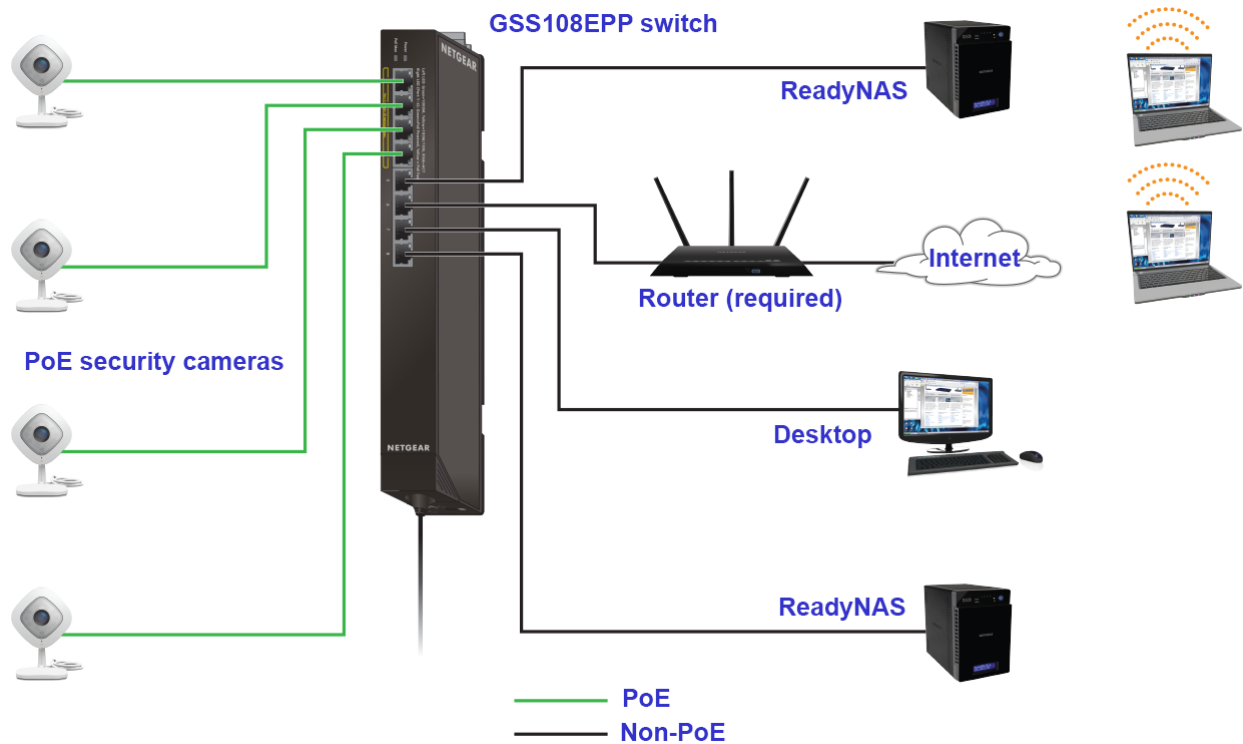
Figure 11. Sample business environment with model GSS108EPP and PoE security cameras

# Use the USB charging ports (model GSS108E)

Model GSS108E provides two USB charging ports. Use these USB ports for charging only. For more information, see USB charging ports (model GSS108E) on page 19.

**To charge portable electronics:**

1. Make sure that the switch is plugged in and is receiving power.

   The Power LED lights solid green.

2. Use a USB cable to connect your phone, tablet, or other USB-chargeable device to a USB charging port on the switch.

   The device's battery automatically begins charging.

   In the following figure, the two USB charging ports are located at the right of the switch, which is installed upside down under the desk.
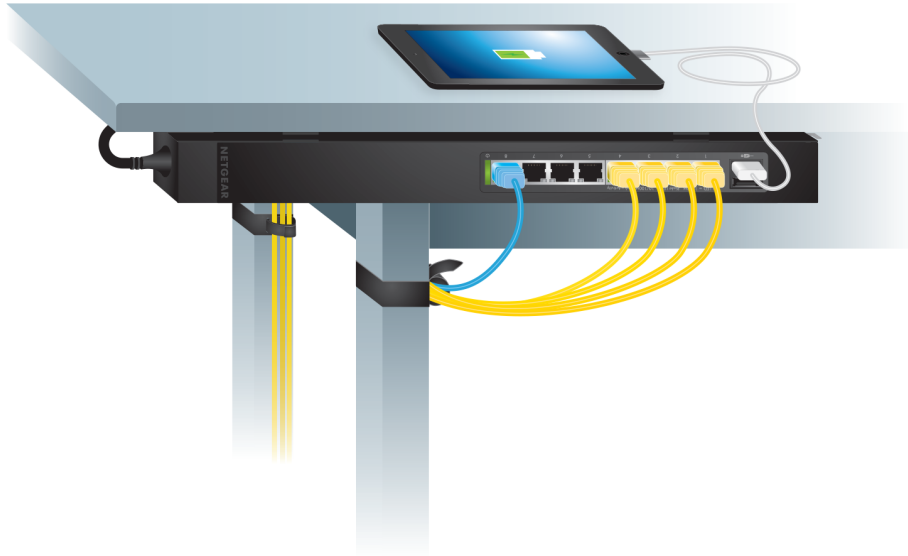
# 4

# Installation

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

- Step 1: Prepare the site
- Step 2: Protect against electrostatic discharge
- Step 3: Unpack the switch
- Step 4: Install the switch
- Step 5: Connect devices to the switch
- Step 6: Check the installation
- Step 7: Apply power and check the LEDs
- Step 8: Use the straps for cable retention
- Step 9: Manage 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 4. Site requirements

| Characteristics | Requirements |
| --- | --- |
| Mounting | **Desktop installations**. Provide a flat table or shelf surface.<br>**Wall installations**. Use the backplate and screws that are supplied with the switch to attach the switch to a wall.<br>**Pole or table leg installations**. Use the backplate and straps that are supplied with the switch to attach the switch to a pole or table leg. |
| Access | Locate the switch in a position that allows you to access the front panel ports, view the front panel LEDs, and access the power connector on the front panel. |
| Power source | Use the AC power cord that is supplied with the switch.<br>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.<br>The power supply cord must not be attached to the building surface, and cannot run through walls, ceilings, floors, or similar openings in the building structure. |
| Cabling | Route cables to avoid sources of electrical noise such as radio transmitters, broadcast amplifiers, power lines, and fluorescent lighting fixtures. |
| Environmental | **Temperature**. Install the switch in a dry area with an ambient temperature between 32°F and 104°F (0°C and 40°C). Keep the switch away from heat sources such as direct sunlight, warm-air exhausts, hot-air vents, and heaters.<br>**Operating humidity**. The maximum relative humidity of the installation location must not exceed 90 percent, noncondensing.<br>**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.<br>**Operating conditions**. Keep the switch at least 6 feet (1.83 meters) away from the nearest source of electromagnetic noise, such as a photocopy machine. |

# Step 2: Protect against electrostatic discharge

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

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

- When unpacking a static-sensitive component from its shipping carton, leave it in the antistatic package until you are ready to install it. Just before unwrapping the antistatic package, discharge static electricity from your body.

- Before moving a sensitive component, place it in an antistatic container or package.

- Handle all sensitive components in a static-safe area. If possible, use antistatic floor pads, workbench pads, and an antistatic grounding strap.

# Step 3: Unpack the switch
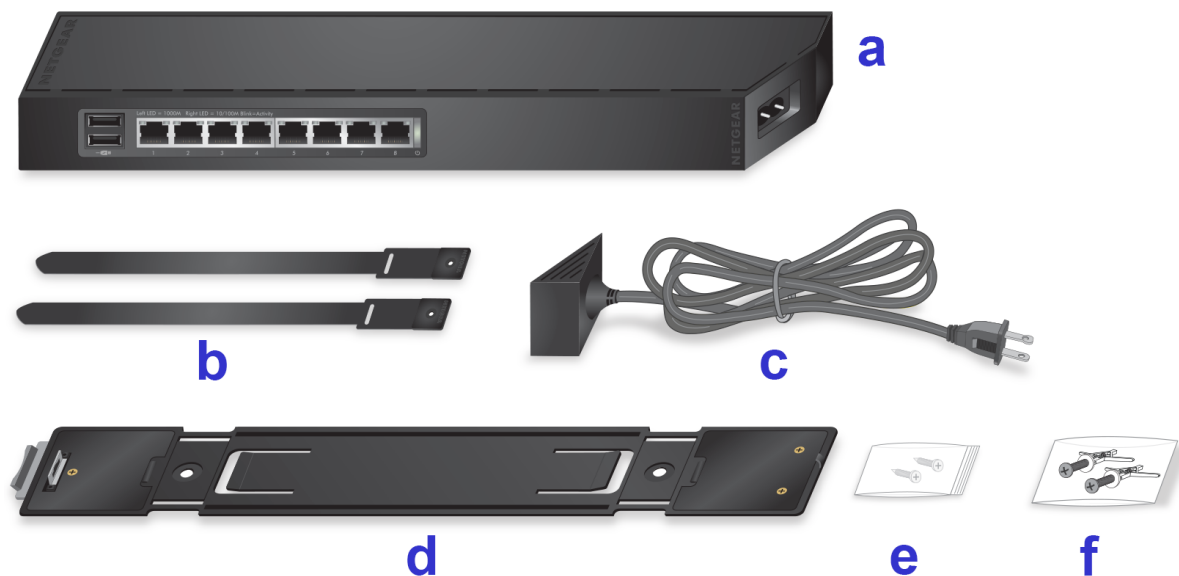
The following figure shows the package contents.



Figure 12. Switch package contents

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

**To check the package contents:**

1. Place the container on a clean flat surface, and cut all straps securing the container.

2. Unpack the hardware from the boxes by carefully removing the hardware and placing it on a secure and clean surface.

3. Remove all packing material.

4. Verify that the package contains the following items:

   a. Switch of the correct model.
      The previous figure shows model GSS108E.

   b. Straps (2) either for mounting to a table leg or pole or for cable retention.
      In the package, the straps are connected. You must separate them before use.

   c. Power cord (varies by region).

   d. Bracket.

   e. Wall mount screw kit, which you can also you use to mount the switch under a table.

   f. Drywall mount screw kit.

   The package also contains the installation guide, which is not shown in the previous figure.

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

# Step 4: Install the switch

Use the 1-2-3-4 Click Mounting System to place the switch. You can place the click switch directly on a wall, strapped to a pole, under a table, or in a server closet. The innovative mounting system allows you to put it virtually anywhere.

## Mount the switch to a wall stud or to a solid surface

You can mount the switch to a wall stud or to a solid surface, which does not need to be a wall but also could be the bottom of a table. The switch comes with a bracket to which you can click-attach the back or bottom of the switch. For the following procedure, use the wall mount screw kit (*not* the drywall mount screw kit).

**To mount the switch to a wall stud or to a solid surface:**

1. Peel the plastic cover off the adhesive squares on the rear of the bracket.

2. Place the bracket on the wall or surface where you want to mount the switch.

3. Mark the wall or the surface where the two mounting holes are and the drill holes.

4. Attach the bracket to the wall or surface using the screws provided in the wall mount screw kit.



5. Tighten the screws to secure the bracket.

6. Line up the back of the switch (see the left figure) or the bottom of the switch (see the right figure) with the bracket.
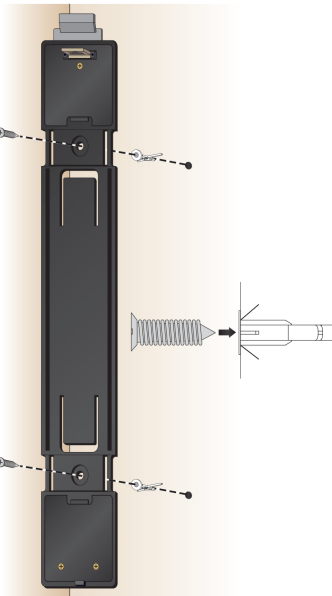


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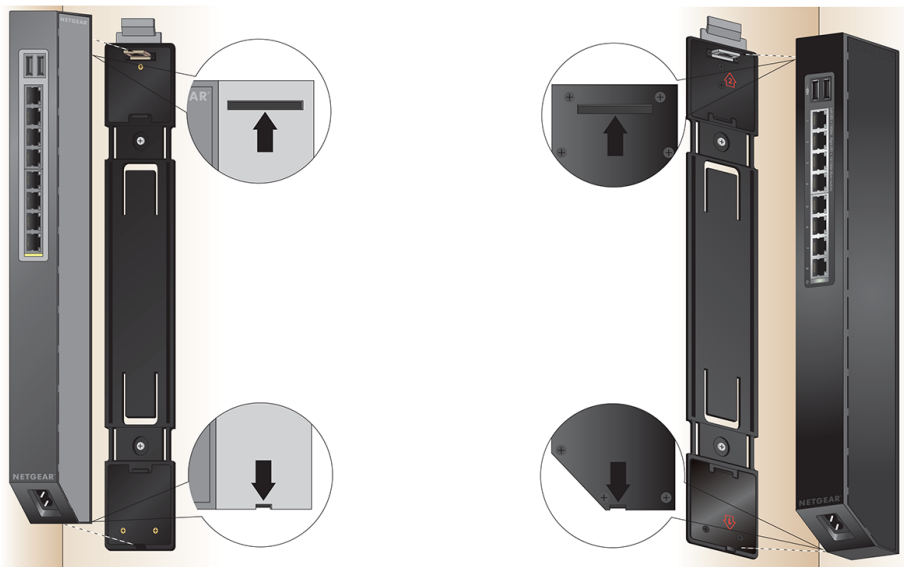
7. Insert the bracket's lower locking tab and hook into the lower notch on the back or bottom of the switch.

8. Insert the bracket's upper locking tab and hook into the upper notch on the back or bottom of the switch.

9. Click-attach the switch to the bracket.

## Mount the switch to a drywall

You can mount the switch to a drywall. The switch comes with a bracket to which you can click-attach the back or bottom of the switch. For the following procedure, use the drywall mount screw kit.

**To mount the switch to a drywall:**

1. Peel the plastic cover off the adhesive squares on the rear of the bracket.

2. Place the bracket on the wall where you want to mount the switch.

3. Mark the wall where the two mounting holes are and drill the holes.

4. Fold in the wings of the plastic anchors provided in the drywall mount screw kit and insert the anchors into the holes.

5. Attach the bracket to the wall or surface using the screws provided in the drywall mount screw kit.



6. Tighten the screws to secure the bracket.

7. Line up the back of the switch (see the left figure) or the bottom of the switch (see the right figure) with the bracket.
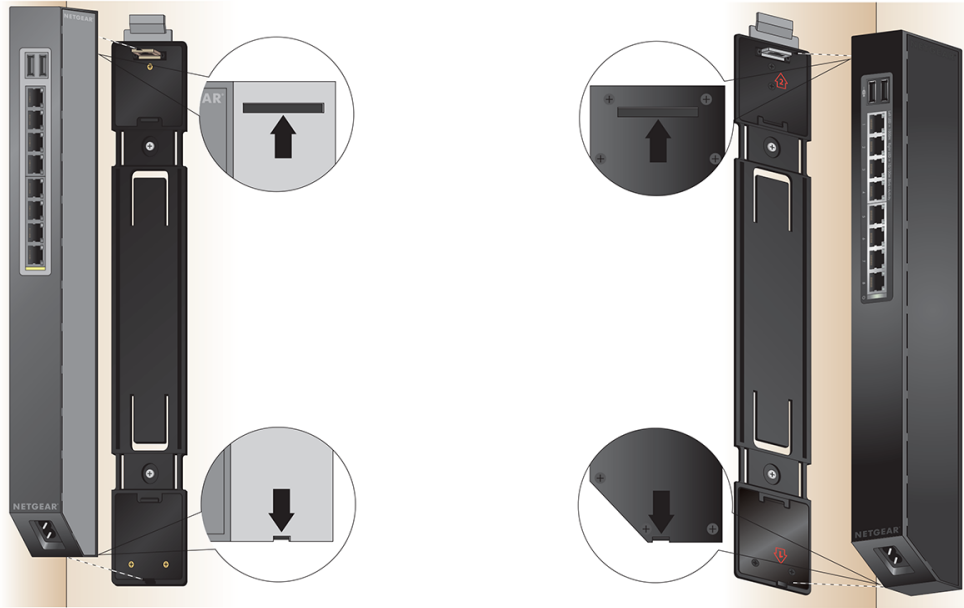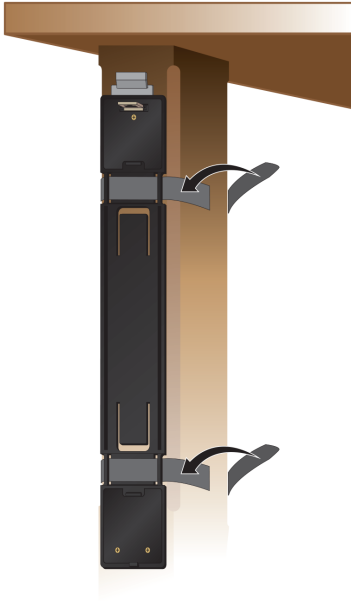


8. Insert the bracket's lower locking tab and hook into the lower notch on the back or bottom of the switch.

9. Insert the bracket's upper locking tab and hook into the upper notch on the back or bottom of the switch.

10. Click-attach the switch to the bracket.

## Attach the switch to a pole or table leg

The switch comes with straps and a bracket. You can attach the straps to a pole or table leg, attach the bracket to the straps, and click-attach the back or bottom of the switch to the bracket.

**To attach the switch to a pole or table leg:**

1. Peel the plastic cover off the adhesive squares on the rear of the bracket.

2. Attach the straps to the bracket by pulling the straps through the openings in the bracket.

3. Attach the straps with the bracket to the pole or table leg.

4. Line up the back of the switch (see the left figure) or the bottom of the switch (see the right figure) with the bracket.
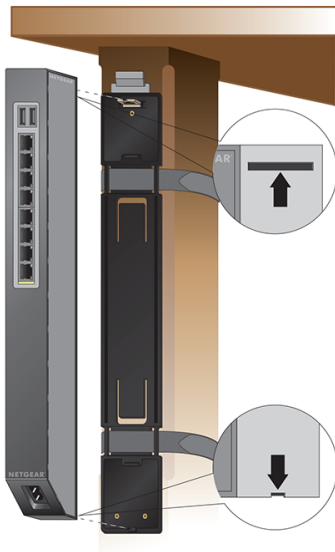


5. Insert the bracket's lower locking tab and hook into the lower notch on the back or bottom of the switch.

6. Insert the bracket's upper locking tab and hook into the upper notch on the back or bottom of the switch.

7. Click-attach the switch to the bracket.

# Step 5: Connect devices to the switch

This switch is designed for indoor use only. If you want to connect 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.

WARNING: 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 5e (Cat 5e) or Cat 6 cable that is terminated with an RJ-45 connector.

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

1. Connect a PoE or non-PoE device to an RJ-45 network port on the switch.

   Model GSS108EPP supports PoE+ on ports 1–4. (Models GSS108E and GSS116E do not support PoE.)

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

2. Verify that all cables are installed correctly.

# Step 6: Check the installation

Before you apply power to the switch, perform the following steps.

**To check the installation:**

1. Inspect the equipment thoroughly.

2. Verify that all cables are installed correctly.

3. Check cable routing to make sure that cables are not damaged or creating a safety hazard.

4. Make sure that all equipment is mounted properly and securely.

# Step 7: Apply power and check the LEDs

The switch does not provide an on/off power switch. The AC power cable connection controls the power.

Before you connect the AC power cable to the AC connector on the switch, select an AC outlet for the AC power cable. Make sure that the AC outlet is not controlled by a wall switch, which can turn off power to the switch.

**To apply power:**

1. Connect the plug of the AC power cable to the AC power receptacle on the front of the switch.

2. Plug the AC power cable into a power source such as a wall socket or power strip.

3. Check to see that the LEDs on the switch light correctly.

   When you apply power, the Power LED on the switch front panel lights and the port LEDs for attached devices light.

   If the Power LED does not light, check to see that the AC power cable is plugged in correctly and that the power source is good.

   For more information about the LEDs, see the following sections:

   - Status LEDs model GSS108E on page 14

   - Status LEDs model GSS116E on page 16

   - Status LEDs model GSS108EPP on page 17

# Step 8: Use the straps for cable retention

If you do not use the straps to mount the switch on a table leg or pole, you can use them for cable management by strapping the cables to the bracket or to the wall.

Figure 13. Cables strapped to the bracket



Figure 14. Cables strapped to the wall

# Step 9: Manage the switch

The switch contains built-in web browser–accessible software (referred to as the local browser interface) for viewing, changing, and monitoring the way it functions. This management software is not required for the switch to work. You can use the ports

without using the management software. However, the management software enables the setup of VLAN and trunking features and also improves the efficiency of the switch, which results in the improvement of its overall performance as well as the performance of the network.

After you power on the switch for the first time, you can configure the switch using the local browser interface for advanced setup and configuration of features, or the ProSAFE Plus Utility (which requires a Windows-based computer) for configuration of most features. For more information about managing the switch, including information about tools to discover the switch IP address in your network, see the user manual, which you can download from netgear.com/support/download/.

**Note:** By default, the DHCP client of the switch is enabled. If the switch cannot get an IP address from a DHCP server, the switch default IP address is 192.168.0.239 and the default subnet mask is 255.255.255.0.

# 5

# Troubleshooting

This chapter provides information about troubleshooting the switch.

The chapter includes the following sections:

- Troubleshooting chart
- PoE troubleshooting suggestions (model GSS108EPP)
- Additional troubleshooting suggestions

# Troubleshooting chart

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

Table 5. Troubleshooting chart

| Symptom | Possible Cause | Possible Solution |
|---|---|---|
| The Power LED is off. | Power is not supplied to the switch. | • Check the power cable connections at the switch and the power source.<br>• Make sure that all cables are used correctly and comply with the Ethernet specifications. |
| **Models GSS108E and GSS116E**. The left and right port LEDs for a port are off although the port is connected to a powered-on device.<br>**Model GSS108EPP**. The left port LED for a port is off although the port is connected to a powered-on 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.<br>• Make sure that all cables are used correctly and comply with the Ethernet specifications.<br>• 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 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 switch local browser interface, you can configure the Spanning Tree Protocol (STP) to prevent network loops. |
| A segment or device is not recognized as part of the network. | One or more devices are not properly connected, or the cabling does not meet Ethernet guidelines. | • Verify that the cabling is correct.<br>• Make sure that all connectors are securely positioned in the required ports. It is possible that equipment was accidentally disconnected. |
| **Models GSS108E and GSS116E**. The left and right port LEDs for all connected ports are blinking continuously and the network is disabled.<br>**Model GSS108EPP**. The left port LEDs for all connected ports are blinking continuously 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 switch local browser interface, you can configure the Spanning Tree Protocol (STP) to prevent network loops. |

# PoE troubleshooting suggestions (model GSS108EPP)

Here are some tips for correcting PoE problems that might occur on model GSS108EPP:

- Make sure that the PoE Max LED is off. If the PoE Max 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 green. 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 6. 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 or 30W 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 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, disconnect the AC power cord from the switch and then reconnect the AC power cord. 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.
The Gigabit Ethernet ports negotiate speed, duplex mode, and flow control if the attached device supports autonegotiation.