



NETGEAR[®]

Managed Switch

Hardware Installation Guide

Models:
M4100 Series

350 East Plumeria Drive
San Jose, CA 95134
USA

December 2012
202-11217-01
v1.0

NETGEAR Managed Switch

© 2012 NETGEAR, Inc. All rights reserved.

No part of this publication may be reproduced, transmitted, transcribed, stored in a retrieval system, or translated into any language in any form or by any means without the written permission of NETGEAR, Inc.

Technical Support

When you register your product at <http://www.netgear.com/register>, we can provide you with faster expert technical support and timely notices of product and software upgrades.

NETGEAR, Inc.

350 East Plumeria Drive
San Jose, CA 95134 USA

E-mail: support@netgear.com

Website: <http://www.netgear.com>

Phone: 1-888-NETGEAR, for US & Canada only. For other countries, see your Support information card.

Trademarks

NETGEAR, the NETGEAR logo, ProSafe, Smart Wizard, and Auto Uplink are trademarks or registered trademarks of NETGEAR, Inc. Microsoft, Windows, Windows NT, and Vista are registered trademarks of Microsoft Corporation. Other brand and product names are registered trademarks or trademarks of their respective holders.

Statement of Conditions

To improve internal design, operational function, and/or reliability, NETGEAR reserves the right to make changes to the products described in this document without notice. NETGEAR does not assume any liability that may occur due to the use or application of the product(s) or circuit layout(s) described herein.

Revision History 202-11217-01 202-11217-01

Publication Part Number	Version	Publish Date
202-11217-01	v1.0	December 2012

Contents

Chapter 1 Introduction

Front Panels and LEDs	4
Rear Panels	8
Safety Instructions	9

Chapter 2 Hardware Installation

Package Contents	11
Protecting Against Electrostatic Discharge	11
Unpacking the Hardware	12
Installation	12
Select a Location	12
Install the Switch	13
Check the Installation	16
Connect to Power and Check the LEDs	17
SFP Modules	18
Connecting Equipment to the Switch	19
RJ-45 Ports	19
Connecting a Console to the Switch	19

Chapter 3 Troubleshooting

Troubleshooting Chart	21
Additional Troubleshooting Suggestions	22

Appendix A Technical Specifications

Appendix B Default Configuration Settings

Appendix C Notification of Compliance

Introduction

1

The NETGEAR ProSafe® 4100 series managed switches provide state-of-the-art, high-performance, IEEE-compliant network solutions. They include powerful management features that you can use to eliminate bottlenecks, boost performance, and increase productivity. The M4100 Series switches include the following:

M4100-26G
M4100-50G
M4100-26-PoE
M4100-26G-PoE
M4100-50G-PoE+
M4100-50-PoE
M4100-D10-PoE
M4100-D12G

This guide describes hardware installation and basic troubleshooting for these managed switches.

These switches can be free-standing, wall mounted, or rack-mounted in a wiring closet or an equipment room. For information about features for each product, see the NETGEAR website at <http://www.netgear.com>.

Front Panels and LEDs

The following figures show the front panels of the ProSafe 4100 series managed switches. The front panel contains LEDs, a Reset button, a USB flash port, RJ45 ports, copper (RJ45)/fiber (SFP) combo ports, and USB console selection slide switch, and USB console port.

NETGEAR Managed Switch

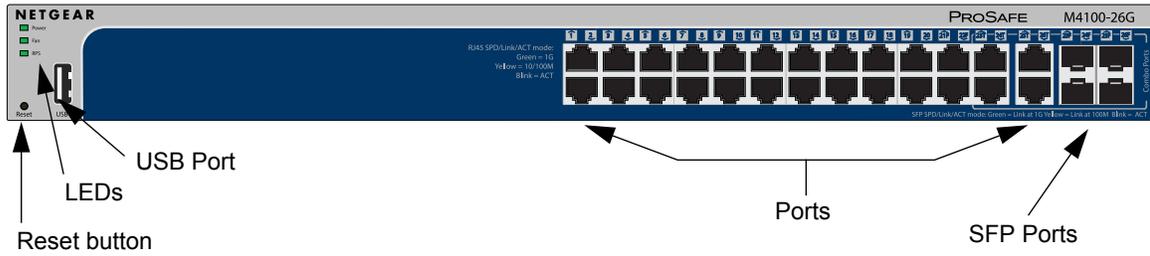


Figure 1. M4100-26G Front Panel

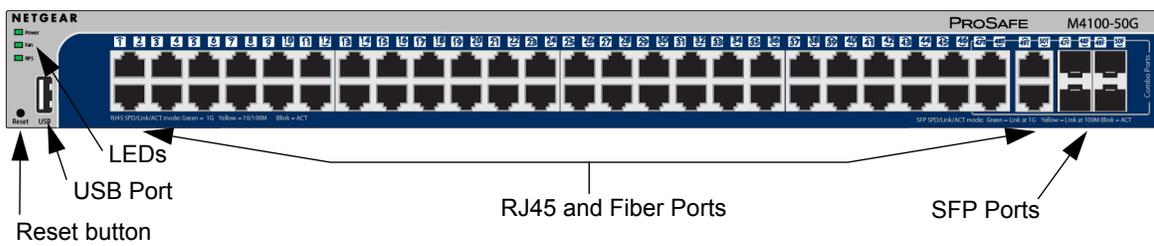


Figure 2. M4100-50G Front Panel

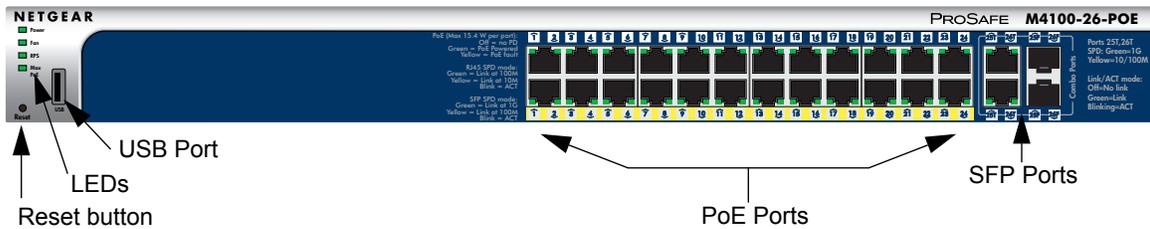


Figure 3. M4100-26-POE Front Panel

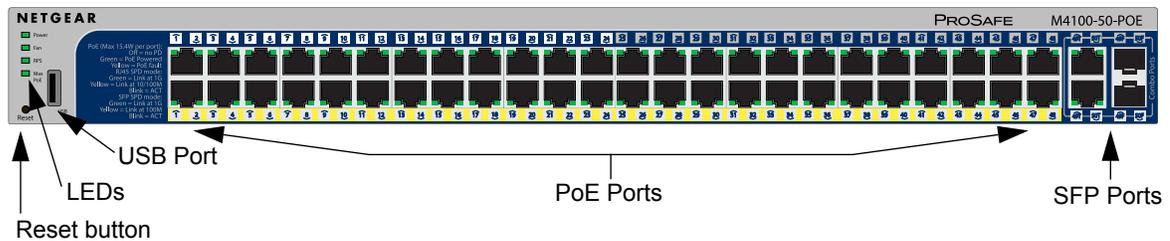


Figure 4. M4100-50-POE Front Panel

NETGEAR Managed Switch

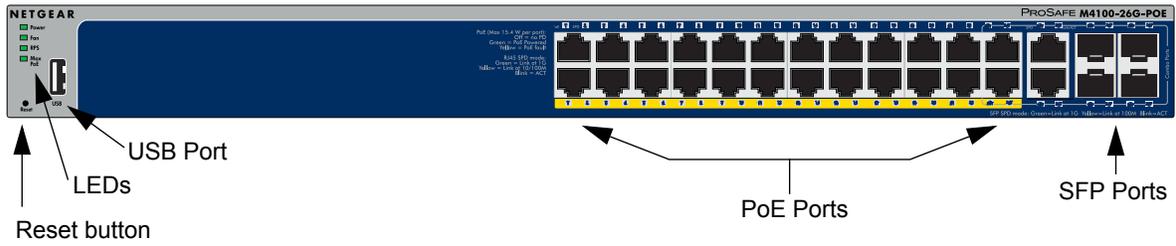


Figure 5. M4100-26G-POE Front Panel

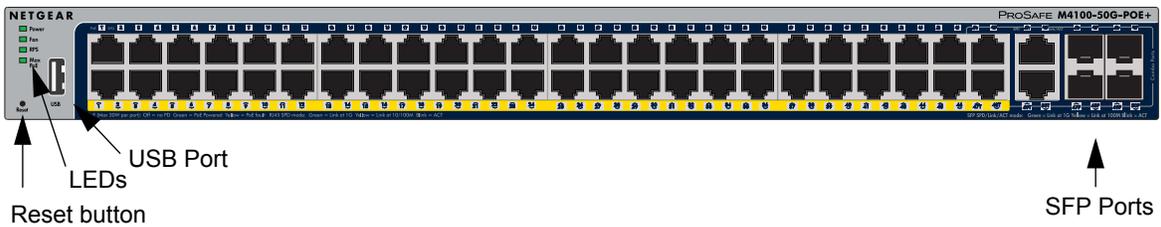


Figure 6. M4100-50G-POE+ Front Panel

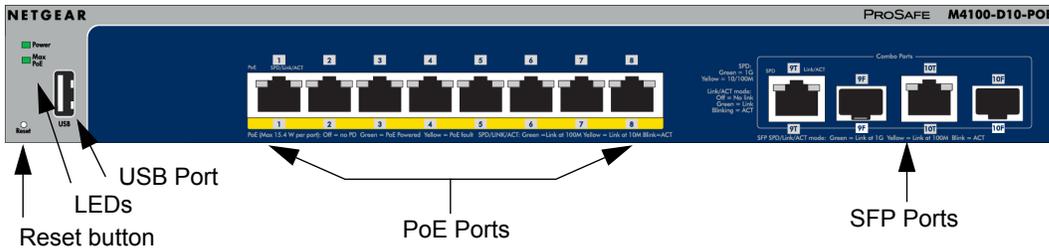


Figure 7. M4100-D10-POE Front Panel

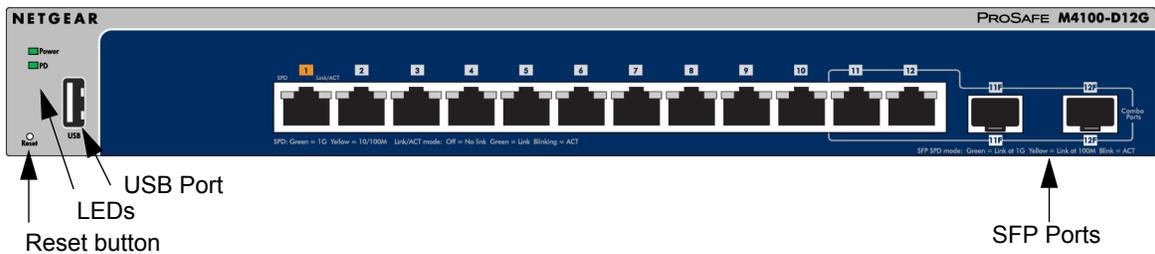


Figure 8. M4100-D12G Front Panel

NETGEAR Managed Switch

Table 1. LED Descriptions

LED	Description
Power	<p>Solid green: Internal power supply operating normally and supplying power to the switch</p> <p>Solid yellow: The system is in boot-up stage</p> <p>Blinking yellow: Power module is present but has failed</p> <p>Off: Power is disconnected.</p>
Fan	<p>Solid green: The fan is operating normally</p> <p>Solid yellow: The fan has failed</p> <p>Off: No fan is detected</p>
RPS	<p>Solid Green: RPS connected (Using internal power supply's power)</p> <p>Solid Yellow: The internal power supply has failed and the RPS is providing power to switch.</p> <p>Blinking Yellow: RPS is present but RPS has failed</p> <p>Off: RPS Disconnected</p> <p>Note: only for M4100-26G, -50G, -26-POE, 26G-POE, 50G-POE+, and 50-POE</p>
PD	<p>Solid Green: PD port 1 is connected to PSE getting 802.3at specified power</p> <p>Blinking Green: PD port 1 is connected to PSE getting 802.3af specified power</p> <p>Off: PD port 1 is not connected to PSE</p> <p>Note: only for M4100-D12G</p>
Max PoE	<p>Solid Yellow: Indicates less than 7W of PoE power is available</p> <p>Blinking Yellow: Indicates the PoE MAX LED was active in the previous two minutes</p> <p>Off: There is at least 7W of PoE power available for another device</p>
SPD/Link/ACT (RJ45 port)	<p>OFF: No link is established on the port</p> <p>Solid Green: A valid 1000Mbps link is established on the port</p> <p>Blinking Green: Packets transmission or reception is occurring on the port at 1000Mbps</p> <p>Solid Yellow: A valid 10/100Mbps link is established on the port</p> <p>Blinking Yellow: Packets transmission or reception is occurring on the port at 10/100Mbps</p> <p>Note: If combo port media change to fiber, the Ethernet LED will change to OFF status</p>
PoE	<p>OFF: No PoE powered device (PD) connected</p> <p>Solid Green:The PoE powered device (PD) is connected and the port is supplying power successfully</p> <p>Solid Yellow: Indicates one of the following failures resulted in stopping power to that port:</p> <ul style="list-style-type: none"> - Short circuit on PoE power circuit - PoE power demand exceeds power available - PoE current exceeds PD's classification - Out of proper voltage (44 ~ 57 VDC for af, 50~57 VDC for at)

Table 1. LED Descriptions (Continued)

LED	Description
Link/ACT (RJ45 port)	OFF: No link is established on the port Solid Green: A valid link is established on the port Blinking Green: Packets transmission or reception is occurring on the port Note: If a combo port media changes to fiber, the copper port LED will change to OFF status.
SPD (RJ45 port)	OFF: No link is established on the port Solid Green: A valid 1000Mbps link is established on the port Solid Yellow: A valid 10/100Mbps link is established on the port.
PoE-PD	OFF: No PSE is connected or connected but has failed Solid Green: The PSE is connected and get 30W power from PSE successfully Solid Yellow: The PSE is connected and get 15.4W power from PSE successfully
SPD/Link/ACT (SFP port)	Off: No SFP/SFP+ module link is established on the port Solid green: A valid 1000Mbps SFP+ module link is established on the port Blinking green: The port is transmitting or receiving packets at 1000Mbps Solid yellow: A valid 100Mbps SFP module link is established on the port Blinking yellow: Packet transmission or reception is occurring on the port at 100Mbps Note: If combo port media change to Copper, the SFP port LED will change to OFF status.

Rear Panels

The rear panels have a DB9 console port, a mini-USB port, and a redundant power supply connector (only for M4100-26G, -50G, -26-POE, -26G-POE, -50G-POE+, and -50-POE), and a standard AC power receptacle for the supplied power cord.

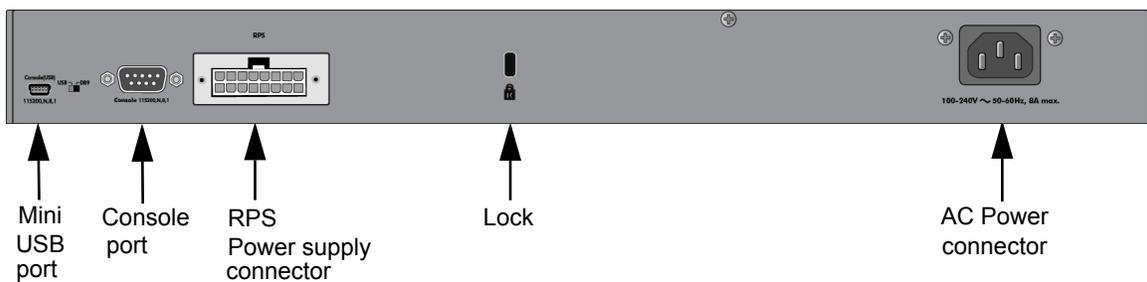


Figure 9. M4100-26G, -50G, -26-PoE, -26G-PoE, -50G-PoE+, and -50-PoE Rear Panels

NETGEAR Managed Switch

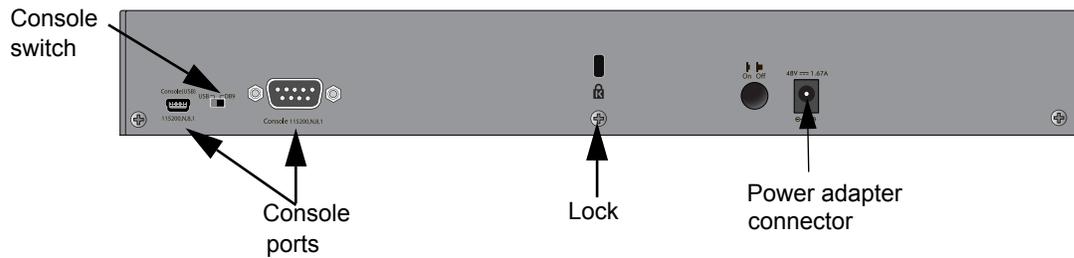


Figure 10. M4100-D10-PoE and M4100-D12G Rear Panels

Safety Instructions

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.

- Observe and follow service markings.
 - Do not service any product except as explained in your system documentation.
 - Opening or removing covers that are marked with the triangular symbol with a lightning bolt may expose you to electrical shock. Only a trained service technician should service components inside these compartments.
- If any of the following conditions occur, unplug the product from the electrical outlet and replace the part or contact your trained service provider:
 - The power cable, extension cable, or plug is damaged.
 - An object has fallen into the product.
 - The product has been exposed to water.
 - The product has been dropped or damaged.
 - The product does not operate correctly when you follow the operating instructions.
- Keep your system away from radiators and heat sources. Also, do not block cooling vents.
- Do not spill food or liquids on your system components, and never operate the product in a wet environment. If the system gets wet, see the appropriate section in your troubleshooting guide or contact your trained service provider.
- Do not push any objects into the openings of your system. Doing so can cause fire or electric shock by shorting out interior components.
- Use the product only with approved equipment.
- Allow the product to cool before removing covers or touching internal components.

NETGEAR Managed Switch

- 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 help avoid damaging your system, be sure that the voltage selection switch (if provided) on the power supply is set to match the power available at your location:
 - 115 volts (V), 60 hertz (Hz) in most of North and South America and some Far Eastern countries such as South Korea and Taiwan
 - 100 V, 50 Hz in eastern Japan and 100 V, 60 Hz in western Japan
 - 230 V, 50 Hz in most of Europe, the Middle East, and the Far East
- Also, be sure that attached devices are electrically rated to operate with the power available in your location.
- Use only approved power cables. If you have not been provided with a power cable for your system or for any AC powered option intended for your system, purchase a power cable that is approved for use in your country. The power cable must be rated for the product and for the voltage and current marked on the product's electrical ratings label. The voltage and current rating of the cable should be greater than the ratings marked on the product.
- To help prevent electric shock, plug the system and peripheral power cables into properly grounded electrical outlets.
- The peripheral power cables are equipped with three-prong plugs to help ensure proper grounding. Do not use adapter plugs or remove the grounding prong from a cable. If you must use an extension cable, use a three-wire cable with properly grounded plugs.
- Observe extension cable and power strip ratings. Make sure that the total ampere rating of all products plugged into the extension cable or power strip does not exceed 80 percent of the ampere ratings limit for the extension cable or power strip.
- To help protect your system from sudden, transient increases and decreases in electrical power, use a surge suppressor, line conditioner, or uninterruptible power supply (UPS).
- Position system cables and power cables carefully; route cables so that they cannot be stepped on or tripped over. Be sure that nothing rests on any cables.
- Do not modify power cables or plugs. Consult a licensed electrician or your power company for site modifications.
- Always follow your local and national wiring rules.

Hardware Installation

2

This chapter explains how to install the hardware for the managed switches.

Package Contents

Each switch is packed and shipped separately. The package contains the following items:

- Managed Stackable Switch with preinstalled software
- Power cord
- Rubber footpads for tabletop installation
- Rubber caps for the SFP sockets
- Rack-mounting kit
- Wall-mounting kit (M4100-D10-POE and M4100-D12G only)
- Magnetic mounting kit (M4100-D10-POE and M4100-D12G only)
- USB console cable with one Mini B connector and one type A connector
- *Resource CD*: The CD either includes these documents or links to access them:
 - *ProSafe Managed Switch Command-Line Interface (CLI) User Manual*
 - *ProSafe M4100 and M7100 Managed Switches Administration Manual*
 - *ProSafe M4100 Managed Switch Installation Guide*
 - This hardware installation guide
- ProSafe NMS200 Network Management System 30-day trial DVD

Protecting 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):

1. 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.
2. Before moving a sensitive component, place it in an antistatic container or package.
3. Handle all sensitive components in a static-safe area. If possible, use antistatic floor pads, workbench pads, and an antistatic grounding strap.

Unpacking the Hardware

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

1. Place the container on a clean flat surface and cut all straps securing the container.
2. Unpack the hardware from the boxes.

Carefully remove the hardware and place it on a secure and clean surface. See “Select a Location” on page 2-12.

3. Remove all packing material.
4. Make sure that all items are present. See “*Package Contents*” on page -11.

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

5. Inspect the products and accessories for damage. Report any damage immediately.

Installation

Install the equipment in the sequence presented in this section:

1. Select a Location. See “*Select a Location*” on page -12.
2. Install the Switch. See “*Install the Switch*” on page -13.
3. Check the installation. See “*Check the Installation*” on page -17.
4. Apply power and check the LEDs. See “*Connect to Power and Check the LEDs*” on page -18.

Select a Location

The switch can be mounted in a standard 19-inch (48.26-centimeter) rack, wall-mounted, or left freestanding (placed on a tabletop).

The site where you install the switch may greatly affect its performance. Before installing the switch or switches, make sure that the chosen installation location meets the following site requirements.

Table 2. Site Requirements for Switch Location

Requirements	
Mounting	<ul style="list-style-type: none"> • Desktop Installations: Provide a flat table or shelf surface. • Rack-mount Installations: Use a 19-inch (48.3-centimeter) EIA standard equipment rack that is grounded and physically secure. You need the rack-mount kit supplied with your switch.
Access	Locate the switch in a position that lets you access the front panel RJ-45 ports, view the front panel LEDs, and access the rear-panel power connector.
Power source	Provide a power source within 6 feet (1.8 meters) of the installation location. Power specifications for the switch are shown in Appendix A . Be sure that the AC outlet is not controlled by a wall switch, which can accidentally turn off power to the outlet and the switch.
Environment	Install the switch in a site free from strong electromagnetic field generators (such as motors), vibration, dust, and direct exposure to sunlight.
Temperature	The ambient switch operating temperature range is 0° to 50°C (32° and 122°F). Keep the switch away from heat sources such as direct sunlight, warm air exhausts, hot-air vents, and heaters.
Operating humidity	Install the switch in a dry area with a maximum relative humidity of 90%, noncondensing.
Ventilation	Do not restrict airflow by covering or obstructing air inlets on the sides of the switch. Keep at least 2 inches (5.08 centimeters) free on all sides for cooling. Be sure that there is adequate airflow in the room or wiring closet where you intend to install the switch.
Cabling	Route the cable to avoid sources of electrical noise such as radio transmitters, broadcast amplifiers, power lines, and fluorescent lighting fixtures.

Install the Switch

You can install the switch on a flat surface or in a standard 19-inch rack.

Installing the Switch on a Flat Surface

The switch ships with four self-adhesive rubber footpads. 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.

Installing the Switch in a Rack.

Note: The M4100-D10-PoE and M4100-D12G are not rack mountable.

NETGEAR Managed Switch

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

1. Attach the supplied mounting brackets to the side of the switch.
2. Use the provided Phillips head screws to fasten the brackets to the sides of the switch.

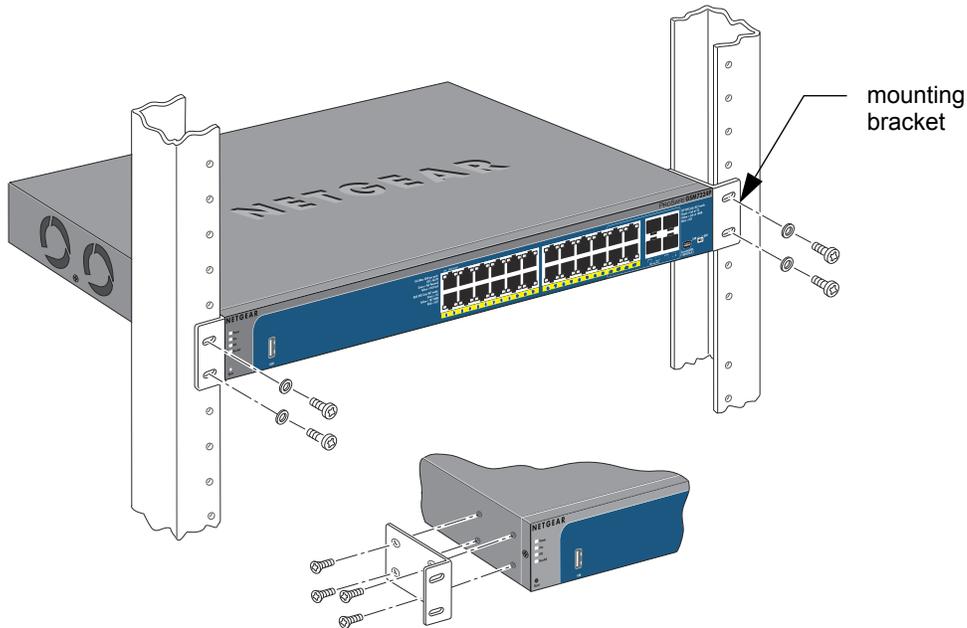


Figure 11. Installing the Switch in a Rack

3. Tighten the screws with a No. 1 Phillips screwdriver to secure each bracket.
4. Align the bracket and rack holes. Use two pan-head screws with nylon washers to fasten each bracket to the rack.
5. Tighten the screws with a No. 2 Phillips screwdriver to secure the switch in the rack.

Installing the Switch on a Wall (M4100-D12G and M4100-D10-PoE Only)

If you install the switch on a wall in the vertical position, be sure to orient the switch as shown in **Figure 12**. The switch should be mounted so that the ports face up or down. Do not mount the switch with the ports to the side. The Exhaust air should come out the side of the switch case.

Note: The switch should have a minimum of 5 inches (130 mm) of clearance on all sides.

1. Attach the supplied mounting brackets to the sides of the switch.
2. Use four Phillips head screws to fasten each bracket to the sides of the switch.
3. Tighten the screws with a No. 1 Phillips screwdriver to secure each bracket.
4. Mark the position of bracket holes on the wall.
5. Drill 4.7mm-diameter and 22.2mm-depth holes at each mark.
6. Hammer caps into holes in the wall.
7. Use two Phillips head screws to fasten each bracket to the wall.
8. Tighten the screws with a No. 2 Phillips screwdriver to secure the switch to the wall.

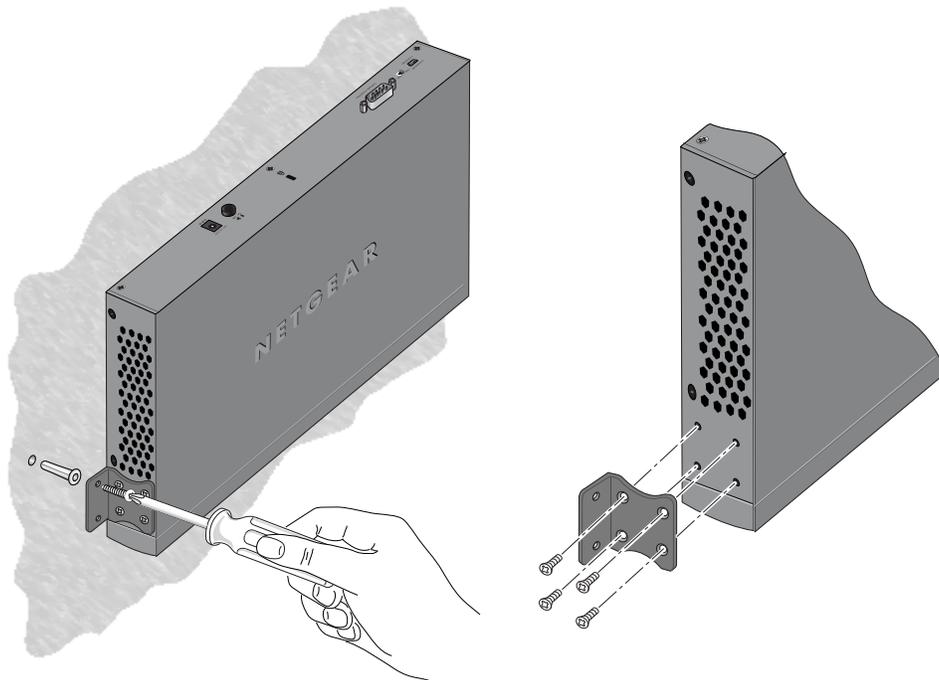


Figure 12. Installing the M4100-D12G and M4100-D10-POE Switches on a Wall Using Brackets

Installing the M4100-D12G or M4100-D10-PoE using magnets

If you use the magnets (included) to install the M4100-D12G or M4100-D10-PoE switch to a vertical metal surface, the maximum height above the floor is 75 cm (29.5 in.). Be sure to orient the switch as shown in [Figure 12](#). Exhaust air should come out the side of the switch case.

1. Attach the magnets to the switch using a No. 1 Phillips screwdriver and 4 screws (provided) as shown in [Figure 13](#).
2. Press each of the 4 rubber feet firmly into the indentations on the bottom of the switch.
3. Position the switch so that it is no more than 75 cm (29.5 in.) above the floor.

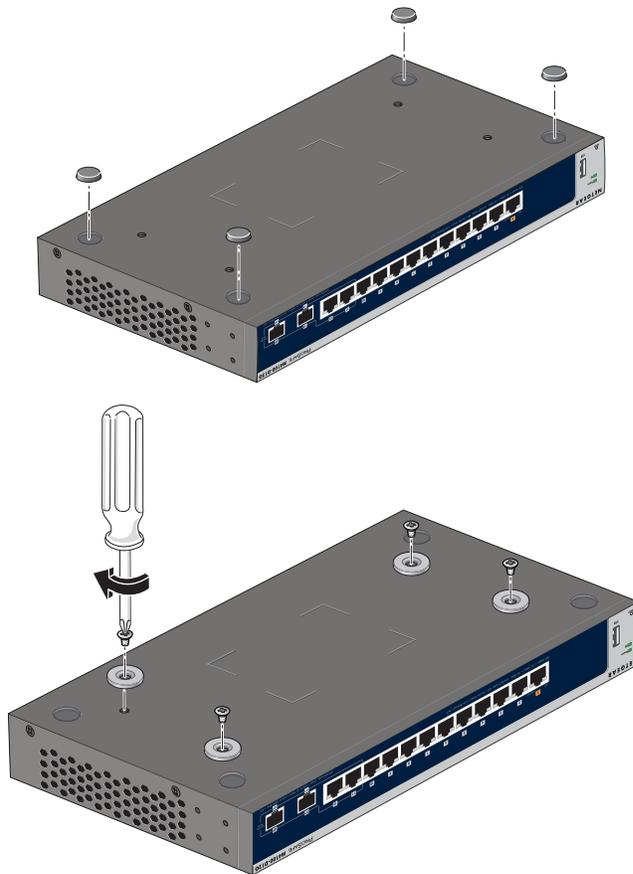


Figure 13. Installing the *M4100-D12G* and *M4100-D10-POE* Switches using Magnets

Check the Installation

Before you apply power, perform the following checks:

1. Inspect the equipment thoroughly.
2. Verify that all cables are installed correctly.
3. Check cable routing to ensure that cables are not damaged and will not create a safety hazard.
4. Be sure that all equipment is mounted properly and securely.

Connect to Power and Check the LEDs

The switch does not have an On/Off switch. The only way to apply or remove power is to connect or disconnect the power cord. Before you connect the power cord, select an AC outlet that is not controlled by a wall switch (which can turn off power to the switch).

After you select an appropriate outlet, follow these steps to apply AC power.

1. Connect one end of the AC power adapter cable (M4100-DG12 or M4100-D10-PoE) or the AC power cord to the rear of the switch, and the other end to a grounded 3-pronged AC outlet.

Note: The M4100-26G, -50G, -26-PoE, -26G-PoE, -50-PoE+ and 50G-PoE can also obtain power from an RPS. Supported RPS models are the RPS5412 and RPS4000.

Note: Normally the M4100-D12G will get power using the supplied power adapter. The M4100-D12G can also get power from a PSE (Power Sourcing Equipment) switch if AC power is not available. Connect port 1 of the M4100-D12G to a PSE switch. The PSE device should support IEEE802.3at and IEEE802.3af so that it can provide full power to the M4100-D12G for system operation. If the PSE device used does not support IEEE802.3at or IEEE802.3af, the M4100-D12G may not operate correctly.

2. Check the Power LED on the front panel of the switch. The LED should light up in the following sequence:
 - The LED turns yellow as the switch runs a Power-On Self-Test (POST).
 - If the switch passes the test, the LED turns green. The switch is working and ready to pass data.
 - If the POST fails, the Power LED blinks yellow.

Note: If the PD LED on the front panel of M4100-D12G blinks green, port 1 is connected to a IEEE802.3af PoE device. Check the PoE device specification to make sure it supports IEEE802.3at.

If the Power LED does not light up, check that the power cable is plugged in correctly and that the power source is good. For help with troubleshooting, see Chapter 3.3, *“Troubleshooting.”*

SFP Modules

SFP modules (sold separately) can be inserted directly into the switch's ports.

Note: Use only optical transceiver modules that are UL approved and that are certified as Laser class 1 products.

- AGM731F - SFP module with LC connector, compatible with the IEEE 802.3z 1000Base-SX standard.
- AGM732F - SFP module with LC connector, compatible with the IEEE 802.3z 1000Base-LX standard.
- AFM735 - SFP module with LC connector, compatible with the IEEE 802.3u 100Base-FX standard.

1. insert the module into the switch port.
2. Press firmly to ensure that the module seats into the connector.

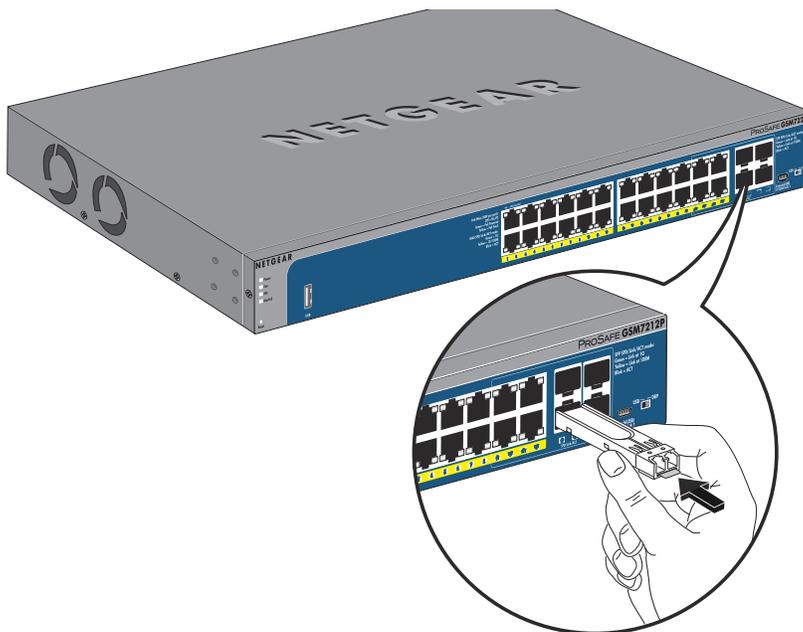


Figure 14. Insert the SFP Module into the Switch

Connecting Equipment to the Switch

You can connect devices, a Gigabit Ethernet module, and/or a console to the switch.

RJ-45 Ports

Note: Each RJ-45 port on the M4100-D10-PoE switch can provide up to 15.4W of power to a connected device. The total power provided by the switch cannot exceed the 65W PoE power budget.

The switch uses Auto Uplink technology, which enables you to attach devices using either straight-through or crossover cables. Use a Category 5 (Cat5) unshielded twisted-pair (UTP) cable 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).

Connecting a Console to the Switch

After you install the switch and apply power, you can connect to it with a terminal or workstation. You can use the Command Line Interface (CLI) to identify the IP address.

To use a console you need the following items:

- VT100/ANSI terminal, or a Windows PC, Apple Macintosh PC, or UNIX workstation.
- USB console cable (shipped with the product) or a Null-modem cable (shipped with the product) with 9-pin connectors on each end.

To connect a console to the switch:

1. Connect the null-modem cable to the console port on the rear of the switch or connect the USB console cable to the USB console port on the rear of the switch.

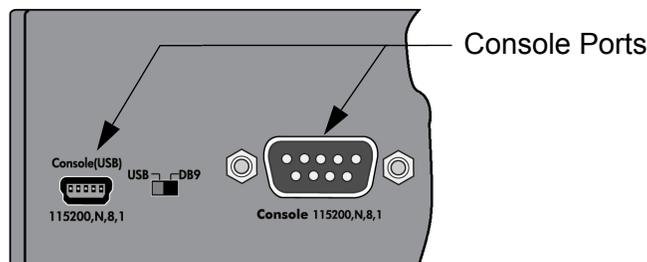


Figure 15. Console Ports

2. Select console port via the console slide switch on the rear panel:
 - a. Select the mini USB (cable included) as console port by pushing the slide switch to the left. Use the Resource CD to install the USB driver on your PC.
 - b. Select the DB9 (cable included) as console port by pushing the slide switch to the right.
3. Connect the other end of the cable to a workstation or terminal.
4. If you attached a workstation, start a terminal-emulation program.
 - Microsoft Windows users can use HyperTerminal if it comes with the Windows operating systems. If not, you need to install another 3rd party terminal emulator such as Tera Term.
 - Macintosh users can use ZTerm.
 - UNIX users can use a terminal emulator such as TIP.
5. 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 will need to configure it. The following documents are provided for this purpose:

- *Quick Installation Guide*: Explains basic setup and configuration (provided as both a print document and in PDF format on the *Resource CD*).
- *ProSafe Managed Switch Command-Line Interface (CLI) User Manual*: Gives detailed examples of how to use the CLI.
- *ProSafe M4100 and M7100 Managed Switches Administration Manual*: Describes configuration tasks.

Troubleshooting Chart

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

Table 3. Troubleshooting Chart

Problem	Cause	Solution
Power LED is off.	No power is received	Check the power cord connections for the switch at the switch and the connected device. Make sure that all cables used are correct and comply with Ethernet specifications.
Link LED is off or intermittent.	Port connection is not working.	<ul style="list-style-type: none">• Check the crimp on the connectors. Make sure the plug is fully inserted and locked into the port at both the switch and the connecting device.• Make sure that all cables used are correct and comply with Ethernet specifications. See Appendix A.• Check for a defective adapter card, cable, or port by testing it in an alternate environment where all products are functioning.
Slow file transfer or there is performance degradation.	Half- or full-duplex setting on the switch and the connected device are not the same.	<ul style="list-style-type: none">• Make sure that the attached device is set to auto negotiate.• Check the system message log.
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. Be sure that all connectors are securely positioned in the required ports. Equipment may have been accidentally disconnected.
ACT LED flashes continuously on all connected ports and the network is disabled.	A network loop (redundant path) has been created.	Break the loop by ensuring that there is only one path from any networked device to any other networked device.

Additional Troubleshooting Suggestions

If the suggestions in See *Table 3 on page -21*.do not resolve your problem, refer to the troubleshooting suggestions in this section.

- **Network Adapter Cards**
Make sure that the network adapter cards installed in the PCs are in working condition and the software driver has been installed.
- **Configuration:**
If problems occur after you change the network configuration, restore the original connections. Then find the problem by making 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:**
You can verify the integrity of the switch by resetting the switch. To reset the switch, use the Tools> Reset command or remove AC power from the switch and then reapply AC power. If the problem continues, contact NETGEAR technical support.

Auto-Negotiation:

The copper 10/100/1000 Mbps ports negotiate the correct duplex mode and speed if the device at the other end of the link supports auto-negotiation. If the device does not support auto-negotiation, the switch only determines the speed correctly and the duplex mode defaults to half-duplex. The fiber gigabit ports negotiate speed, duplex mode, and flow control, provided that the attached device supports auto-negotiation.

Technical Specifications



Table 4. Gigabit Switch Physical Specifications

Gigabit Switches	M4100-26G (GSM7224v2h2)	M4100-50G (GSM7248v2h2)	M4100-26G-PoE (GSM7226LP)	M4100-50G-PoE+ (GSM7248P)	M4100-D12G (GSM5212)
Interface (AutoUplink on all RJ-45 ports)	26 RJ-45 ports for 10/100/1000 Mbps 4 SFP ports for 100/1000 Mbps 1 USB Type A connector RS-232 console port 1 USB mini B console port	50 RJ-45 ports, 10/100/1000 Mbps 4 SFP ports for 100/1000 Mbps 1 USB Type A connector RS-232 console port 1 USB mini B console port	26 RJ-45 ports for 10/100/1000 Mbps 4 SFP ports for 100/1000 Mbps 24 IEEE802.3at PoE ports 1 USB Type A connector RS-232 console port 1 USB mini B console port	50 RJ-45 ports for 10/100/1000 Mbps 4 SFP ports for 100/1000 Mbps 48 IEEE802.3at PoE ports 1 USB Type A connector RS-232 console port 1 USB mini B console port	12 RJ-45 ports for 10/100/1000 Mbps 2 SFP ports for 100/1000 Mbps 1 IEEE802.3af PD port (Port 1) 1 USB Type A connector RS-232 console port 1 USB mini B console port
Bandwidth	52 Gbps	100 Gbps	52 Gbps	100 Gbps	24 Gbps
Weight (Kg)	3.24	3.63	3.79	4.96	1.33
Dimensions (W x D x H) mm	440 x 257 x 43.2	440 x 257 x 43.2	440 x 257 x 43.2	440 x 310 x 43.2	328 x 169 x 43.2
Mean time between failure (MTBF)	702,785.9 hrs	489,311.0 hrs	437,199.85 hrs	239,298.0 hrs	214,142.66 hrs
Heat dissipation (Btu/hr)	107.8824	168.99	931.68	1,896.48	64.18
Acoustic noise (dB) (ANSI-S10.12)	35.6dB@25°C	37.2dB @25°C	36.6dB @25°C	47.7dB @25°C	0
Maximum power consumption (W) (100-240V AC, 50-60Hz)	31.6	49.5	272.90	555.5	18.80

NETGEAR Managed Switch

Table 5. Fast Ethernet Switches Physical Specifications

Fast Ethernet Switches	M4100-26-PoE (FSM7226P)	M4100-50-PoE (FSM7250P)	M4100-D10-PoE (FSM5210P)
Interface (AutoUplink on all RJ-45 ports)	24 RJ-45 ports for 10/100 Mbps 2 RJ-45 ports for 10/100/1000 Mbps 2 SFP ports for 100/1000 Mbps 24 PoE ports 1 USB Type A connector RS-232 console port 1 USB mini B console port	48 RJ-45 ports for 10/100 Mbps 2 RJ-45 ports for 10/100/1000 Mbps 2 SFP ports for 100/1000 Mbps 48 IEEE802.3af PoE ports 1 USB Type A connector RS-232 console port 1 USB mini B console port	8 RJ-45 ports for 10/100 Mbps 2 RJ-45 ports for 10/100/1000 Mbps 2 SFP ports for 100/1000 Mbps 8 IEEE802.3af PoE ports 1 USB Type A connector RS-232 console port 1 USB mini B console port
Bandwidth	6.4 Gbps	9 Gbps	4.8 Gbps
Weight (Kg)	4.13	4.96	1.4
Dimensions (W x D x H) mm	440 x 257 x 43.2	440 x 310 x 43.2	328 x 169 x 43.2
Mean time between failure (MTBF)	242,281.66 hrs	163,019.5 hrs	579,985.8 hrs
Heat dissipation (Btu/hr)	1,557.77	1,661.39 hrs	298.04
Acoustic noise (dB) (ANSI-S10.12)	37.3dB @25°C	38.9dB @25°C	0
Maximum power consumption (W) (100-240V AC, 50-60Hz)	456.29	486.64	87.30

Table 6. Technical Specifications

Feature	Description
IEEE Network Protocol and Standards compatibility	<ul style="list-style-type: none"> • 802.3i 10BASE-T • 802.3u 100BASE-TX • 802.3z 1000BASE-X • 802.3ab 1000BASE-T • 802.3az EEE • 802.3x flow control • 802.3af power over Ethernet • 802.3at power over Ethernet
Switch management	<ul style="list-style-type: none"> • Port mirroring support • SNMP v1, v2c, v3 • RFC1757 RMON 1 groups 1, 2, 3, and 9 , RFC1213 MIB II • RFC1643 Ethernet Interface MIB • RFC1493 bridge MIB • RFC2131 DHCP client (and BootP) • RFC2138 RADIUS client • Broadcast storm control • Telnet sessions for management CPU (5) • Ping support • ARP support • Private enterprise MIB • Configuration file upload, download • Runtime image download • Command Line Interface • Web-based graphic user interface • Simple Network Time Protocol (SNTP) • Syslog • SSLv3/TLSv1.0 Web security • Secured Shell (SSHv1, v2)
Layer 2 services	<ul style="list-style-type: none"> • 802.1Q Static VLAN (Up to 1k) • 802.1p Class of Service (CoS) • 802.1D Spanning Tree Protocol (STP) • 802.1w Rapid Spanning Tree Protocol (RSTP) • 802.1s Multiple Spanning Tree Protocol (MSTP) • 802.3ad Link Aggregation (LACP) • IGMP v1, v2 Snooping Support • MLD Snooping • DHCP L2 Relay • UDP relay • SNTP • SNMP v1/v2/v3 • LLDP • ISDP

NETGEAR Managed Switch

Feature	Description
Layer 3 services	<ul style="list-style-type: none"> • Static routing
QoS	<ul style="list-style-type: none"> • DiffServ QoS
System Service	<ul style="list-style-type: none"> • DHCP, BOOTP Relay • DHCP server
Security	<ul style="list-style-type: none"> • Radius • TACACS+ • 802.1x • MAC filter • Port Security • Protected Port • Private Group • Storm Control • DHCP Snooping • IP Source Guard • Dynamic ARP Inspection • MAC ACL (inbound) • IP ACL (inbound)
Address database size	16K MAC addresses per system
10/100/1000 buffer memory	Max support 1.5 MB buffer memory
Performance	<ul style="list-style-type: none"> • Forwarding modes: Store-and-forward • Network latency: <ul style="list-style-type: none"> < 3.91 us for 64 bytes for 1000 Mbps transmission < 10.194 us for 64 bytes for 100 Mbps transmission
Addressing	48-bit MAC address
Environment	<p>Operating:</p> <ul style="list-style-type: none"> • Temperature: 32° to 122°F (0° to 50°C) • Humidity: 90% maximum relative humidity, noncondensing • Altitude: 10,000 ft (3,000 m) maximum <p>Storage:</p> <ul style="list-style-type: none"> • Temperature: – 4° to 158°F (–20° to 70°C) • Humidity: 95% maximum relative humidity, noncondensing • Altitude: 10,000 ft (3,000 m) maximum
Electromagnetic emissions and immunity	CE mark, FCC Part 15 Class A, VCCI Class A, Class A EN 55022 (CISPR 22) Class A, Class A C-Tick, EN 50082-1, EN 55024
Safety	CE mark, UL listed (UL 1950)/cUL, CB, CCC

Default Configuration Settings



Table 7. M4100 Series Switch Default Settings

Feature	Default Setting
Port speed	Auto-negotiation
Port duplex	Auto-negotiation
Flow control (half duplex)	Enabled
Flow control (full duplex)	Disabled
Broadcast storm control	Enabled
Gigabit port type	Auto detect
Management IP configuration	DHCP
Password protection	Disabled
User name	Admin
Password	(none)
Web access	Enabled
Java mode	Enabled
VLAN	All ports belong to default VLAN (VLAN 1) as untagged ports
IP multicast filtering	Disabled
Spanning Tree Protocol	Enabled (IEEE 802.1w)
Admin edge port	Enabled
Link aggregation	Disabled
Port mirroring	Disabled
Traffic prioritization	Disabled
ACL	Disabled
GVRP	Disabled

Table 7. M4100 Series Switch Default Settings

Feature	Default Setting
GMRP	Disabled
IP routing	Disabled
MAC address aging	300 seconds
SNMP community	public (read-only access), private (read/write access)
DHCP Server	Disabled
VLAN Ingress filtering	Enabled
IP multicast filtering	Disabled
802.1x	Disabled
Port Security	Disabled
Auto Install	Enabled
LLDP	Enabled
LLDP-MED	Enabled
ISDP	Enabled

Notification of Compliance



Certificate of the Manufacturer/Importer

It is hereby certified that the NETGEAR ProSafe Gigabit Managed L2+ PoE+ Switches GSM5212P, GSM7212F, GSM7212P, and GSM7224P have been suppressed in accordance with the conditions set out in the BMPT-AmtsblVfg 243/1991 and Vfg 46/1992. The operation of some equipment (for example, test transmitters) in accordance with the regulations may, however, be subject to certain restrictions. Please refer to the notes in the operating instructions.

Federal Office for Telecommunications Approvals has been notified of the placing of this equipment on the market and has been granted the right to test the series for compliance with the regulations.

Voluntary Control Council for Interference (VCCI) Statement

This is Class A product based on the standard of the Voluntary Control Council for Interference by Information Technology Equipment (VCCI). If this equipment is used in a domestic environment, radio interference may occur, in which case, the user may be required to take corrective actions.”

この装置は、情報処理装置等電波障害自主規制協議会 (VCCI) の基準に基づくクラス A 情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

Federal Communications Commission (FCC) Compliance Notice: Radio Frequency Notice

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Canadian Department of Communications Radio Interference Regulations

This digital apparatus (NETGEAR ProSafe Gigabit Managed L2+ PoE+ Switches GSM5212P, GSM7212F, GSM7212P, and GSM7224P) does not exceed the Class A limits for radio-noise emissions from digital apparatus as set out in the Radio Interference Regulations of the Canadian Department of Communications.

Règlement sur le brouillage radioélectrique du ministère des Communications

Cet appareil numérique (NETGEAR ProSafe Gigabit Managed L2+ PoE+ Switches GSM5212P, GSM7212F, GSM7212P, and GSM7224P) respecte les limites de bruits radioélectriques visant les appareils numériques de classe A prescrites dans le Règlement sur le brouillage radioélectrique du ministère des Communications du Canada.

EN 55 022 Declaration of Conformance

This is to certify that the NETGEAR ProSafe Gigabit Managed L2+ PoE+ Switches GSM5212P, GSM7212F, GSM7212P, and GSM7224P are shielded against the generation of radio interference in accordance with the application of Council Directive 89/336/EEC, Article 4a. Conformity is declared by the application of EN 55024 Class A (CISPR 22).

EN 55 022 and EN 55 024 Statements

This is to certify that the NETGEAR ProSafe Gigabit Managed L2+ PoE+ Switches GSM5212P, GSM7212F, GSM7212P, and GSM7224P are shielded against the generation of radio interference in accordance with the application of Council Directive 89/336/EEC, Article 4a. Conformity is declared by the application of EN 55 022 Class A (CISPR 22) and EN 55 024.



WARNING!

This is a Class A product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take appropriate measures.