NETGEAR®

ProSafe® GS752TP, GS728TP, and GS728TPP Gigabit Smart Switches

Hardware Installation Guide

Technical Support

Thank you for choosing NETGEAR. To register your product, get the latest product updates, get support online, or for more information about the topics covered in this manual, visit the support website at

http://support.netgear.com.

Phone (US & Canada only): 1-888-NETGEAR

Phone (Other Countries): Check the list of phone numbers at

http://support.netgear.com/app/answers/detail/a_id/984.

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

Publication Part Number	Version	Publish Date	Comments
202-11136-01	v1.0	December 2012	First publication

Contents

Appendix A   Troubleshooting

Appendix B   Technical Specifications

Appendix C   Notification of Compliance

Index

Introduction 1

Congratulations on the purchase of your NETGEAR® ProSafe™ GS752TP, GS728TP, and GS728TPP Gigabit Smart Switch. Your GS752TP, GS728TP, and GS728TPP Gigabit Smart Switch is a state-of-the-art, high-performance, IEEE-compliant network solution designed for users who require many ports and want the power of gigabit connectivity to eliminate bottlenecks, boost performance, and increase productivity. The front panel of the switch has 24 or 48 twisted-paired ports that support nonstop 10/100/1000 networks. The front panel also has 4 SFP ports that support 1000M optical modules. To simplify installation, the switch is shipped ready for use out of the box.

The *GS752TP, GS728TP, and GS728TPP Gigabit Smart Switches Hardware Installation Guide* describes how to install and power on the GS752TP, GS728TP, and GS728TPP Gigabit Smart Switch. The information in this manual is intended for readers with intermediate computer and Internet skills.

This chapter serves as an introduction to the GS752TP, GS728TP, and GS728TPP Gigabit Smart Switch and provides the following information:

- *Overview*
- *Features*
- *Package Contents*

Overview

The NETGEAR GS752TP, GS728TP, and GS728TPP Gigabit Smart Switch provides 48 or 24 twisted-pair ports that support nonstop 10/100/1000M networks. The switch also has four built-in enhanced small form factor pluggable (SFP) GBIC slots that support 100M/1000M modules.

Using these gigabit slots, you can create high-speed connections to a server or network backbone. For example, you can:

- Connect switches to each other with high-speed links
- Link to high-speed servers
- Provide 10/100/1000M copper and 100M/1000M fiber connectivity

These switches also provide the benefit of administrative management with a complete package of features for the observation, configuration, and control of the network. With a web-based graphical user interface (GUI), the switch's many capabilities can be viewed and used in a simple and intuitive manner. The switch's management features include configuration for port and switch information, VLAN for traffic control, port trunking for increased bandwidth, and Class of Service (CoS) for traffic prioritization. These features provide better understanding and control of the network. Initial discovery of the switch on the network requires the Smart Control Center program, a utility that runs on a computer.

These switches can be freestanding, or rack mounted in a wiring closet or equipment room. It is IEEE compliant and offers low latency for high-speed networking. All ports can automatically negotiate to the highest speed. This capability makes the switch ideal for environments that have a mix of Ethernet, Fast Ethernet, or Gigabit Ethernet devices. In addition, all RJ-45 ports operate in half-duplex or full-duplex mode. The maximum segment length is 328 feet (100 meters) over Category 5 unshielded twisted-pair (UTP) cable.

Features

The following list identifies the key features of these switches:

- 48 or 24 10/100/1000 Mbps AutoSensing Gigabit Ethernet switching ports.
- GS752TP and GS728TP. The first 8 ports are PoE+ providing 30 W of DC power, and the remaining copper ports are PoE (Power over Environment) providing 15.4W of DC power.
- GS728TPP. All 24 copper ports are PoE+ providing 30 W of DC power. This model includes an external power supply to support the increased power requirements.
- Four dedicated 100M/1000M SFP fiber ports.
- Full NETGEAR Smart Switch functionality.
- Full compatibility with IEEE standards:
  - IEEE 802.3i (10BASE-T)
  - IEEE 802.3u (100BASE-TX)
  - IEEE 802.3ab (1000BASE-T)

- IEEE 802.3z (1000BASE-x)
- IEEE802.3af (DTE Power via MDI)
- IEEE802.3at (DTE Power via MDI Enhancements)
- IEEE802.3az (Energy Efficient Ethernet)
- IEEE 802.3x (Full-duplex flow control)
- AutoSensing and auto-negotiating capabilities for all ports.
- Auto Uplink™ on all ports to make the right connection.
- Automatic address learning function to build the packet-forwarding information table. The table contains up to 8K Media Access Control (MAC) addresses.
- Store-and-forward transmission to remove bad packets from the network.
- Full-duplex IEEE 802.3x pause frame flow control.
- Active flow control to minimize packet loss and frame drops.
- Half-duplex backpressure control.
- LEDs. Power LED, FAN Status LED, LED Mode LED, Max PoE LED, and LEDs for each port.
- Internal open frame power supply.
- Standard NETGEAR 7xx series chassis.
- NETGEAR Green product series power-saving features:
  - Automatic power consumption adjustment based on the RJ-45 cable length.
  - Per port automatic power down when the port link is down.
- IEEE802.3az, EEE (Energy Efficient Ethernet) compliance.

Package Contents

Figure 1 shows the package contents of the GS752TP, GS728TP, and GS728TPP Gigabit Smart Switch.
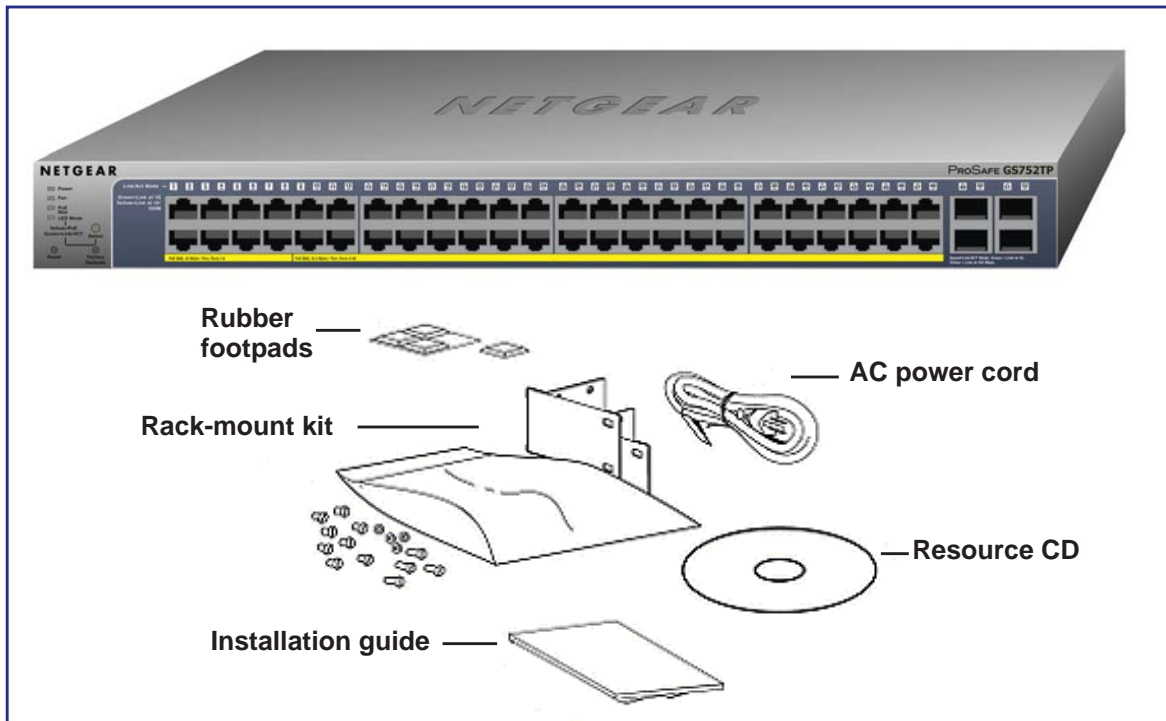
Figure 1. Package contents

Verify that the package contains the following:

- GS752TP, GS728TP, or GS728TPP Gigabit Smart Switch
- Rubber footpads for tabletop installation
- Rack-mounting kit
- Power cord
- Installation guide
- Smart Switch resource CD with NETGEAR Smart Control Center and user's manual

If any item is missing or damaged, contact the place of purchase immediately.

Physical Description

2

This chapter describes the GS752TP, GS728TP, and GS728TPP Gigabit Smart Switch hardware features. Topics include:

- *GS752TP Front Panel and Back Panel Configuration*
- *GS728TP Front Panel and Back Panel Configuration*
- *GS728TPP Front Panel and Back Panel Configuration*
- *LED Designations*
- *Device Hardware Interfaces*

GS752TP Front Panel and Back Panel Configuration

The GS752TP Gigabit Smart Switch has 48 10/100/1000 Mbps copper ports and four dedicated 100/1000 Mbps SFP fiber ports.

Each port is capable of sensing the line speed and negotiating the duplex mode with the link partner automatically.

Figure 2 illustrates the front panel of the GS752TP Gigabit Smart Switch.

Figure 2. Front panel

The front panel contains the following:

• 48 RJ-45 connectors for 10/100/1000 Mbps AutoSensing Gigabit Ethernet switching ports.

• Ports 1–8 are PoE+ (30W) capable; ports 9–48 are PoE (15.4W) capable.

• Four dedicated 100M/1000 Mbps SFP Gigabit Ethernet switching ports.

• Reset button to restart the device.

• Recessed Factory Defaults button to restore the device back to the factory defaults.

• Select button to change the working mode of the port LEDs with either PoE mode or Ethernet mode.

• Port Status and Port Speed LEDs.

• Power, Fan Status, Max PoE, and LED Mode LEDs.

Figure 3 illustrates the NETGEAR GS752TP Gigabit Smart Switch back panel.

Power connector

Figure 3. Back panel

The back panel contains a power connector.

GS728TP Front Panel and Back Panel Configuration

The GS728TP Gigabit Smart Switch has 24 10/100/1000 Mbps copper ports and four dedicated 100/1000 Mbps SFP fiber ports.

Each port is capable of sensing the line speed and negotiating the duplex mode with the link partner automatically.

Figure 4 illustrates the front panel of the GS728TP Gigabit Smart Switch.
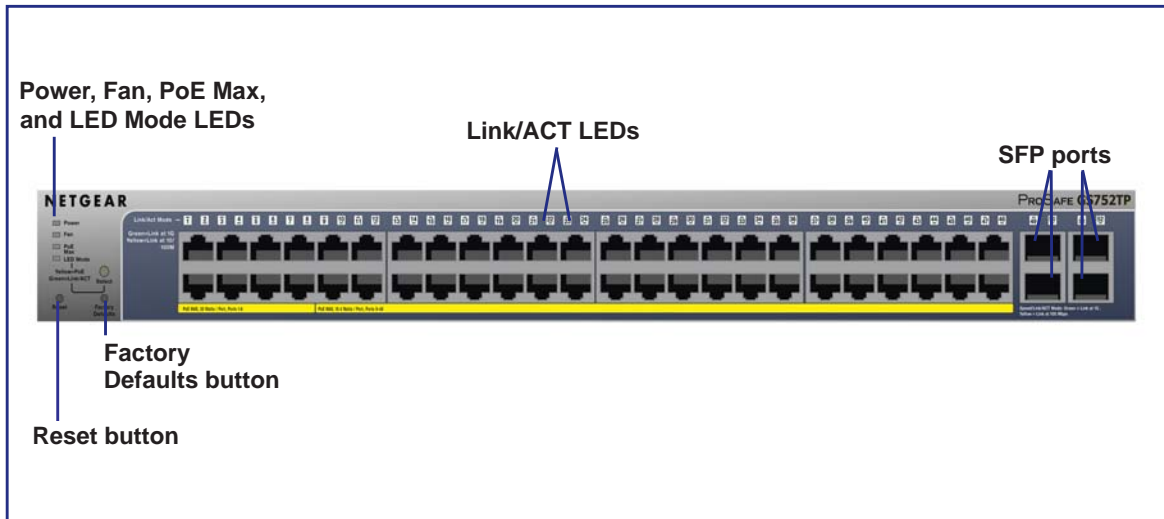

Figure 4. Front panel

The front panel contains the following:

- 24 RJ-45 connectors for 10/100/1000 Mbps AutoSensing Gigabit Ethernet switching ports.
- Ports 1–8 are PoE+ (30W) capable; ports 9–24 are PoE (15.4W) capable.
- Four dedicated 100M/1000 Mbps SFP Gigabit Ethernet switching ports.
- Reset button to restart the device.

- Recessed Factory Defaults button to restore the device back to the factory defaults.
- Select button to change the working mode of the port LEDs with either PoE mode or Ethernet mode.
- Port Status and Port Speed LEDs.
- Power, Fan Status, Max PoE, and LED Mode LEDs.

Figure 5 illustrates the NETGEAR GS728TPP Gigabit Smart Switch back panel.

Power connector

Figure 5. Back panel

The back panel contains a power connector.

GS728TPP Front Panel and Back Panel Configuration

The GS728TPP Gigabit Smart Switch has 24 10/100/1000 Mbps copper ports and four dedicated 100/1000 Mbps SFP fiber ports.

Each port is capable of sensing the line speed and negotiating the duplex mode with the link partner automatically.

Figure 6 illustrates the front panel of the GS728TPP Gigabit Smart Switch.
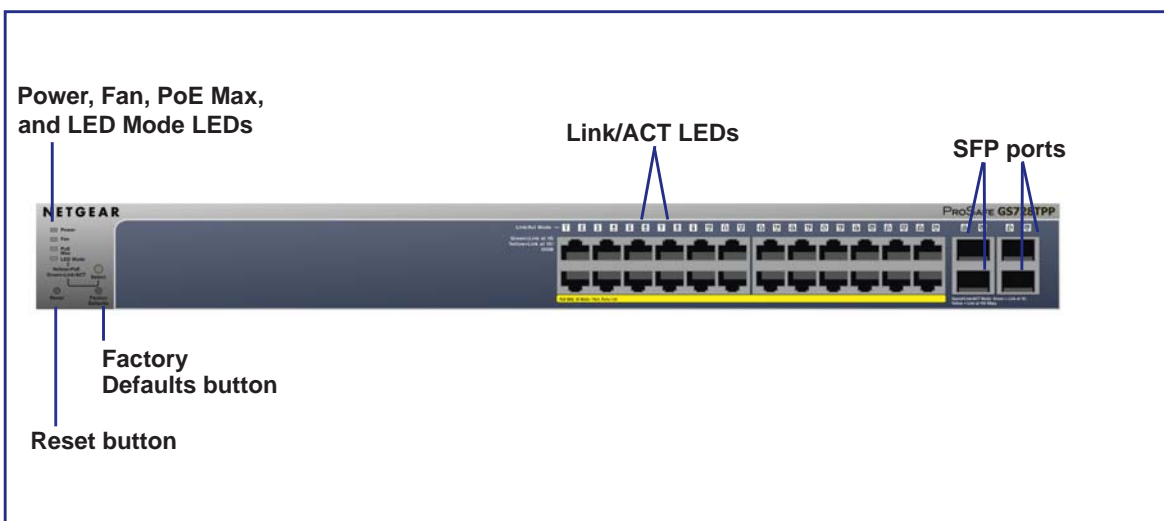
Power, Fan, PoE Max, and LED Mode LEDs

Link/ACT LEDs

SFP ports

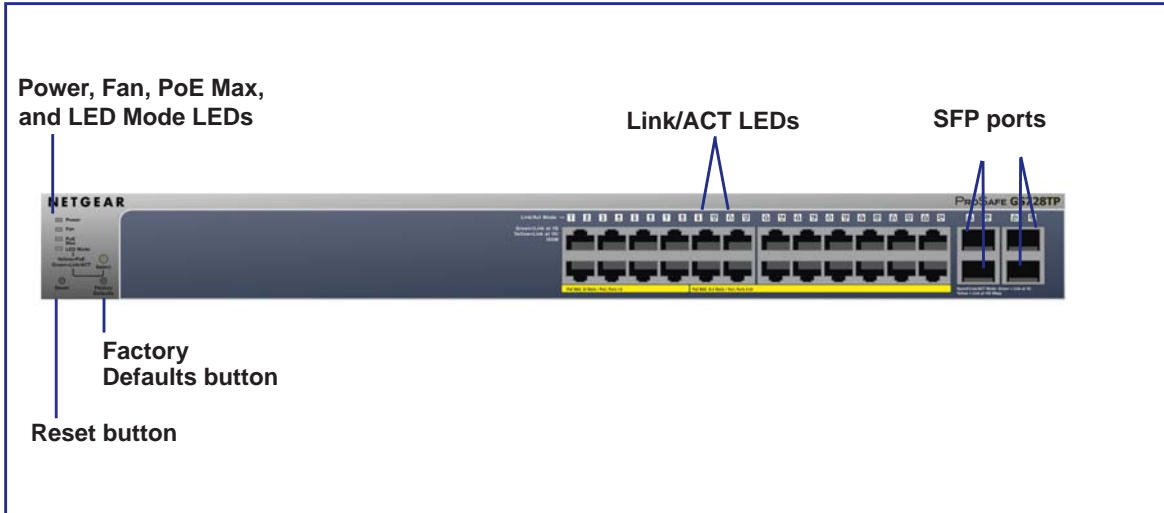**Factory Defaults button**

Reset button

Figure 6. Front panel

The front panel contains the following:

- 24 RJ-45 connectors for 10/100/1000 Mbps AutoSensing Gigabit Ethernet switching ports.
- Ports 1–24 are PoE+ (30W) capable.
- Four dedicated 100M/1000 Mbps SFP Gigabit Ethernet switching ports.
- Reset button to restart the device.
- Recessed Factory Defaults button to restore the device back to the factory defaults.
- Select button to change the working mode of the port LEDs with either PoE mode or Ethernet mode.
- Port Status and Port Speed LEDs.
- Power, Fan Status, Max PoE, and LED Mode LEDs.

Figure 7 illustrates the NETGEAR GS728TPP Gigabit Smart Switch back panel.

RPS connector   **Power connector**

Figure 7. Back panel

The back panel contains:

- A power connector
- An RPS connector (redundant power supply)

LED Designations

Port LEDs

The following table describes the RJ-45 and dedicated SFP port LED designations.

LED	Designation

Link/ACT LED mode for copper ports 1–48 or 1–24	Link/ACT Mode LED:
	• **Off**. No link is established.
	• **Solid green**. A valid 1000 Mbps link is established.
	• **Blinking green**.The port is transmitting or receiving packets at 1000 Mbps.
	• **Solid yellow**. A valid 10/100 Mbps link is established.
	• **Blinking yellow**. The port is transmitting or receiving packets at 10/100 Mbps.
	PoE Mode LED:
	• **Off**. No PoE powered device (PD) is connected.
	• **Solid green**. The PoE powered device (PD) is connected and the port is supplying power successfully.
	• **Solid yellow**. Indicates one of the following failures resulted in stopping power to that port:
	  - Short circuit on PoE power circuit.
	  - PoE power demand exceeds power available.
	  - PoE current exceeds PD's classification
	  - Out of proper voltage band (44–57 VDC for AF, 50 VDC~57 VDC for AT).

Link/ACT LED for SFP ports 49–52 or 25–28	• **Off**. No SFP module link is established. • **Solid green**. A valid 1000 Mbps link is established. • **Blinking green**. The port is transmitting or receiving packets at 1000 Mbps. • **Solid yellow**. A valid 100 Mbps link is established on the port. • **Blinking yellow**. The port is transmitting or receiving packets at 100 Mbps.

System LEDs

The following table describes the system LED designations.

LED	Designation
Power	• **Solid green**. The device is powered on; runtime code is operating. • **Blinking green**. The internal power supply has failed and the system is drawing power from a remote power supply or PoE power from an external power supply. GS728TPP only. • **Solid yellow**. The device is booting up. • **Off**. Power is not supplied to the device.
Fan	• **Solid yellow**. The fan has experienced a fail. • **Off**. The fan is operating normally.
Max PoE LED	• **Solid yellow**. Less than 7W of PoE power is available. • **Blinking yellow**. The PoE Max LED was lit within the previous 2 minutes. • **Off**. At least 7W of PoE power is available.
LED Status LED	• **Solid green**. The Port LED is in Ethernet mode. • **Solid yellow**. The Port LED is in PoE mode.

Device Hardware Interfaces

RJ-45 Ports

RJ-45 ports are AutoSensing ports. When you insert a cable into an RJ-45 port, the switch automatically ascertains the maximum speed (10, 100, or 1000 Mbps) and duplex mode (half-duplex or full-duplex) of the attached device. All ports support only an unshielded twisted-pair (UTP) cable terminated with an 8-pin RJ-45 plug.

To simplify the procedure for attaching devices, all RJ-45 ports support Auto Uplink. 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 does the following:

- 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).
- Configures the RJ-45 port to enable communications with the attached device, without requiring user intervention. In this way, the Auto Uplink technology compensates for setting uplink connections, while eliminating concern about whether to use crossover or straight-through cables when you are attaching devices.

SFP Ports

To enable you to have fiber connections on your network, there are four SFP ports (49 through 52 or 25 through 28) that accommodate standard 100M/1000M transceiver modules, which are sold separately.

Reset Button

The Smart Switch has a Reset button on the front panel to allow you to manually reboot the switch. This action is equivalent to powering the unit off and back on. The last saved configuration is loaded into the switch as it resets. To operate the Reset button, insert a device such as a paper clip into the opening to press the recessed button. The front-panel LEDs turn off and light again as the switch performs its power-on self-test (POST).

Factory Defaults Button

The Smart Switch has a Factory Defaults button on the front panel so that you can remove the current configuration and return the device to its factory settings. When you press the Factory Defaults button, all settings including the password, VLAN settings, and port configurations are removed. To operate the Factory Defaults button, insert a device such as a paper clip into the opening to press the recessed button for over 2 seconds.

Select Button

LED Mode Select button on the front panel enables you to change the LED mode of the ports between Ethernet and PoE status. You need to press the button for more than 1 second to change the LED mode.

Applications 3

Your GS752TP, GS728TP, and GS728TPP Gigabit Smart Switch is designed to provide flexibility in configuring your network connections. It can be used as your only network traffic-distribution device or with 10 Mbps, 100 Mbps, and 1000 Mbps hubs and switches.

Desktop Switching

The GS752TP, GS728TP, and GS728TPP Gigabit Smart Switch can be used as a desktop switch to build a small network that enables users to have 1000 Mbps access to a file server. With full-duplex mode enabled, the switch port connected to the server or computer can provide 2000 Mbps throughput.
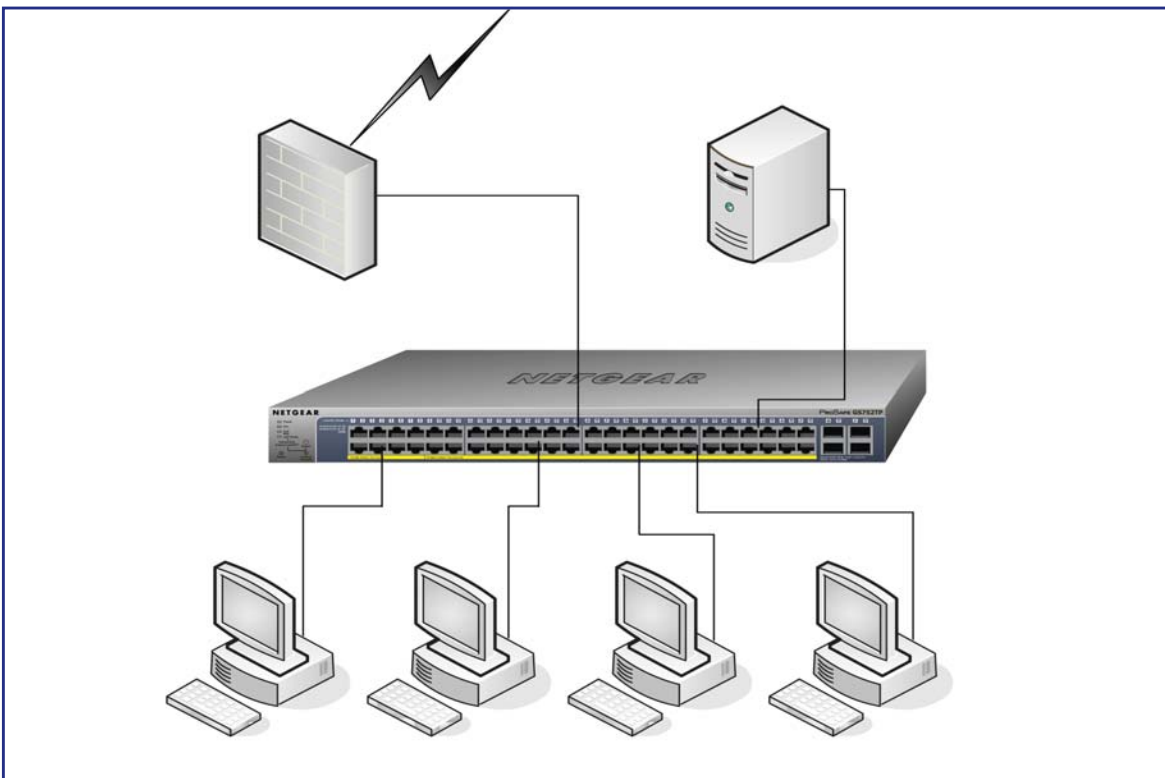
Figure 8. Desktop switching

Backbone Switching

You can use the GS752TP, GS728TP, and GS728TPP Gigabit Smart Switch as a backbone switch in a small network that gives users high-speed access to servers and other network devices.
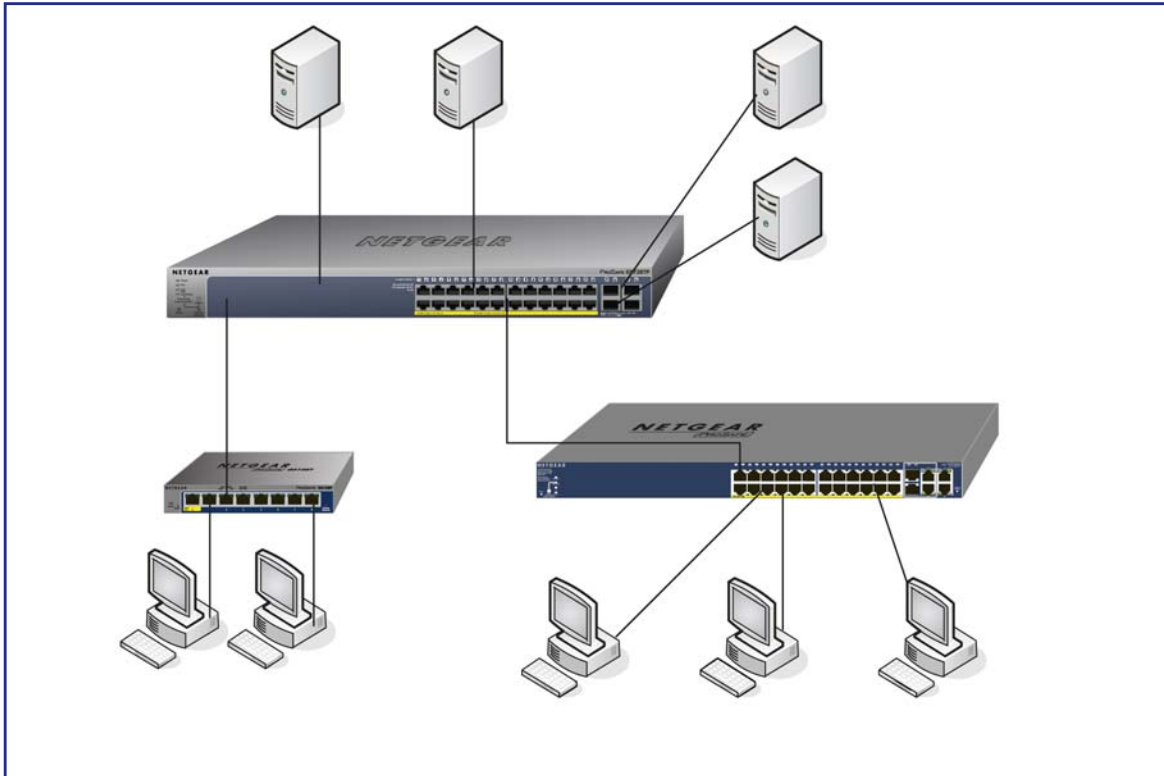
Figure 9. Backbone switching

Installation

4

This chapter describes the installation procedures for your GS752TP, GS728TP, and GS728TPP Gigabit Smart Switch. Switch installation involves the following steps:

Step 1: Prepare the Site

Step 2: Install the Switch

Step 3: Check the Installation

Step 4: Connect Devices to the Switch

Step 5: Install an SFP Transceiver Module

Step 6: Apply AC Power

Step 7: Apply RPS DC Power

Step 8: Manage the Switch Using a Web Browser or the Computer Utility

Step 1: Prepare the Site

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

Characteristics	Requirements
Mounting	• **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. The rack-mount kit supplied with the switch is also required.
Access	Locate the switch in a position that allows you to access the front panel RJ-45 ports, view the front panel LEDs, and access the power connector.
Power source	Provide a power connection cord. Power specifications for the switch are shown in *Appendix A, Troubleshooting*. Ensure that the AC outlet is not controlled by a wall switch, which can accidentally turn off power to the outlet and the switch.
Environmental	• **Temperature**. Install the switch in a dry area, with ambient temperature between 0ºC and 40ºC (32ºF and 104ºF). Keep the switch away from heat sources such as direct sunlight, warm air exhausts, hot-air vents, and heaters. • **Operating humidity**. The installation location should have a maximum relative humidity of 90%, non-condensing. • **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 the switch is installed. • **Operating conditions**. Keep the switch at least 6 feet. (1.83 meters) away from nearest source of electromagnetic noise, such as a photocopy machine.

Step 2: Install the Switch

The GS752TP, GS728TP, and GS728TPP Gigabit Smart Switch can be used on a flat surface or mounted in a standard network equipment rack.

Install 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.

Install the Switch in a Rack

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

1. Attach the supplied mounting brackets to the side of the switch.
2. Insert the screws provided in the rack-mount kit through each bracket and into the bracket mounting holes in the switch.

3. Tighten the screws with a No. 1 Phillips screwdriver to secure each bracket.

4. Align the mounting holes in the brackets with the holes in the rack, and insert two pan-head screws with nylon washers through each bracket and into the rack.

5. Tighten the screws with a No. 2 Phillips screwdriver to secure mounting brackets to the rack.
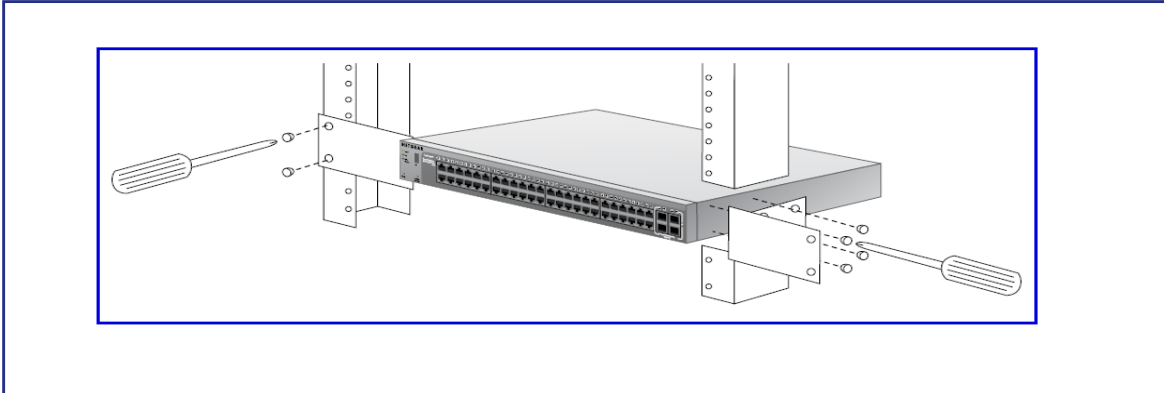

Figure 10. Rack mount

Step 3: Check the Installation

Before applying power to the switch, perform the following steps:

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

Step 4: Connect Devices to the Switch

The following procedure describes how to connect computers to the switch's RJ-45 ports. The switch contains Auto Uplink technology, which allows the attaching of devices using either straight-through or crossover cables.
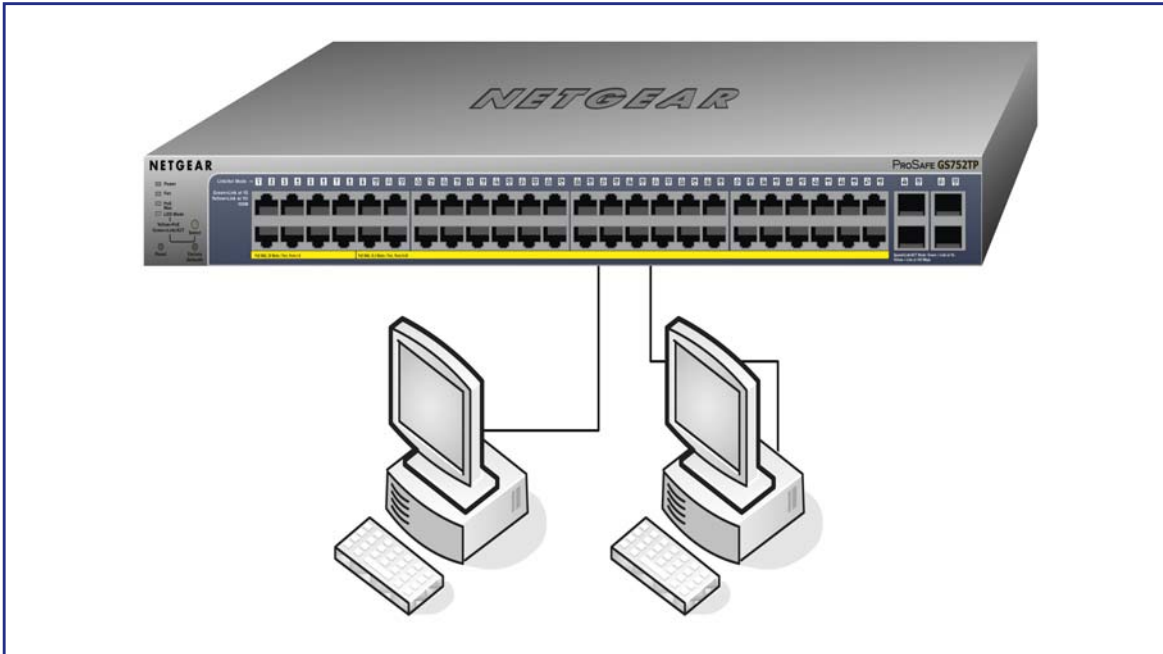
Figure 11. Connecting devices to the switch

Connect each computer to an RJ-45 network port on the switch front panel (*Figure 11*). Use a Category 5 (Cat 5) Unshielded twisted-pair (UTP) cable terminated with an RJ-45 connector to make these connections.

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

Step 5: Install an SFP Transceiver Module

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

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

To install an SFP transceiver, insert the transceiver into the SFP port. Press firmly on the flange of the module to seat it securely into the connector. You can install up to three more Gigabit Ethernet modules using this procedure.
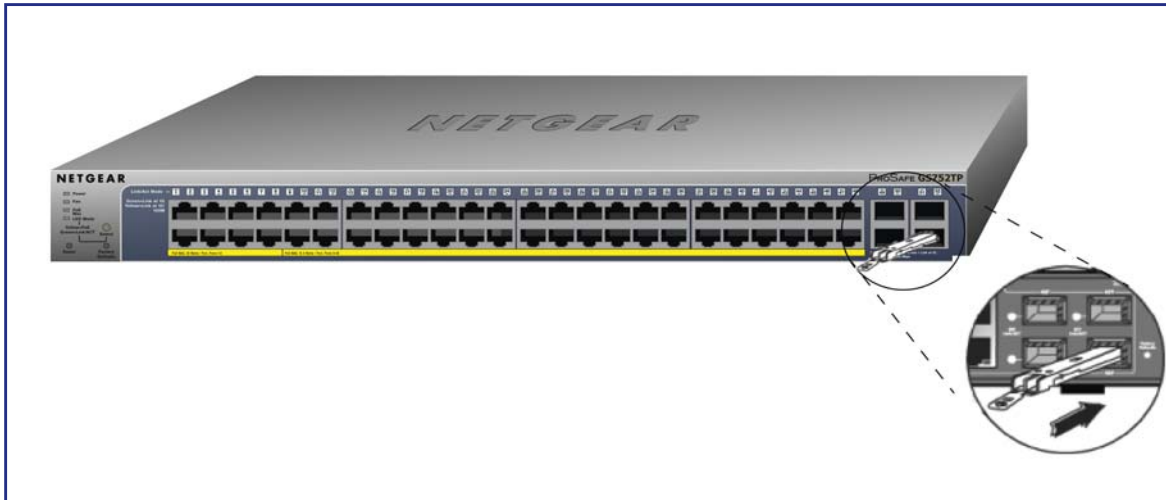

Figure 12. Installing and SFP transceiver module

Step 6: Apply AC Power

The GS752TP, GS728TP, and GS728TPP Gigabit Smart Switch does not have an On/Off switch. Power is controlled by the power cord connection.

Before connecting the power cord, select an AC outlet that is not controlled by a wall switch, which can turn off power to the switch. After selecting an appropriate outlet, use the following procedure to apply AC power:

1. Connect the end of the power connection cable to the power receptacle on the back of the switch.

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

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

If the Power LED does not light, check that the power cable is plugged in correctly and that the power source is good. If this does not resolve the problem, refer to *Appendix A, Troubleshooting*.

Step 7: Apply RPS DC Power

This step is applicable to the GS728TPP only. Plug in the external RPS power supply to the RPS connector on the back panel.

Step 8: Manage the Switch Using a Web Browser or the Computer Utility

The GS752TP, GS728TP, and GS728TPP Gigabit Smart Switch contains software for viewing, changing, and monitoring the way it works. This management software is not required for the switch to work. You can use the switch 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 powering up the switch for the first time, the Smart Switch can be configured using a web browser or a program called Smart Control Center. For more information about managing the switch, see the software administration manual on the Smart Switch resource CD.

Note: The switch is configured with a default IP address of 192.168.0.239 and a subnet mask of 255.255.255.0.

Troubleshooting A

This chapter provides information about troubleshooting the NETGEAR Smart Switch. Topics include the following:

- *Troubleshooting Chart*
- *Additional Troubleshooting Suggestions*

Troubleshooting Chart

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

Symptom	Cause	Solution
Power LED is off.	No power is received.	Check the power cord connections and the connected device. Ensure that all cables used are correct and comply with Ethernet specifications.
Link LED is off or intermittent.	Port connection is not working.	Check the crimp on the connectors and make sure that the plug is properly inserted and locked into the port at both the switch and the connecting device. Ensure that all cables used are correct and comply with Ethernet specifications. Check for a defective computer adapter card, cable, or port by testing them in an alternate environment where all products are functioning.
File transfer is slow or performance degradation is a problem.	Half-duplex or full-duplex setting on the switch and the connected device are not the same.	Make sure that the attached device is set to auto-negotiate.
A segment or device is not recognized as part of the network.	One or more devices are not properly connected, or cabling does not meet Ethernet guidelines.	Verify that the cabling is correct. Ensure that all connectors are securely positioned in the required ports. Equipment might have been accidentally disconnected.
ACT LED is blinking 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. After you connect to the switch management interface, you can configure the Spanning Tree Protocol (STP) to prevent network loops.

Additional Troubleshooting Suggestions

If the suggestions in troubleshooting chart do not resolve the problem, refer to the troubleshooting suggestions in this section.

Network Adapter Cards

Ensure that the network adapter cards installed in the computers are in working condition and the software driver has been installed.

Configuration

If problems occur after you alter the network configuration, restore the original connections and determine the problem by implementing the new changes, one step at a time. Ensure

that cable distances, repeater limits, and other physical aspects of the installation do not exceed the Ethernet limitations.

Switch Integrity

If necessary, verify the integrity of the switch by resetting the switch. To reset the switch, remove the AC power from the switch and then reapply AC power. If the problem continues, contact NETGEAR technical 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.

Technical Specifications

B

Network Protocol and Standards Compatibility

IEEE 802.3 10BASE-T

IEEE 802.3u 100BASE-TX

IEEE 802.3ab 1000BASE-T

IEEE 802.3z 1000BASE-X

IEEE802.3af (DTE Power via MDI)

IEEE802.3at (DTE Power via MDI Enhancements)

IEEE 802.3x full-duplex flow control

IEEE802.3az (Energy Efficient Ethernet)

Management

Windows 2003, Windows 2008, Windows XP, Windows 7, Microsoft Explorer 7.0 or later, Firefox 4 or later

IEEE 802.1Q VLAN

IEEE 802.3ad link aggregation

IEEE 802.1D Spanning Tree Protocol

IEEE 802.1w Rapid Spanning Tree Protocol

IEEE 802.3 s MSTP

IEEE 802.1X port security

IEEE 802.1AB LLDP, LLDP-MED

SNMP v1, v2c, and v3

TFTP, HTTP, and HTTPS

Port mirroring (RX, TX, and Both)

IGMP snooping v1/v2/v3

IEEE 802.1 p Class of Service (CoS)

SNTP (Simple Network Time Protocol) three servers. Disabled by default.

Jumbo frame support (9K)

IPv6 management and Quality of Service (QoS)

Static routing

MLD snooping

DHCP snooping

ACLs (MAC, IPv4, IPv6, and TCP/UDP based)

Interface

GS752TP:

- 48 RJ-45 connectors for 10BASE-T, 100BASE-TX, and 1000BASE-T (Auto Uplink on all ports)
- Four SFP slots (ports 49–52) to support 100M/1000M optical module

GS728TP and GS728TPP:

- 24 RJ-45 connectors for 10BASE-T, 100BASE-TX, and 1000BASE-T (Auto Uplink on all ports)
- Four SFP slots (ports 25–28) to support 100M/1000M optical module

LEDs

Per port: Link/Act Mode

Per device: Power, Fan, PoE Max, LED Mode

Performance Specifications

Forwarding modes: Store-and-forward

Bandwidth (per unit): 56 Gbps for GS728TP/GS728TPP, 104 Gbps for GS752TP

Address database size: 8K Media Access Control (MAC) addresses per system

PoE power budget:

- GS752TP: Maximum 384W (AC)
- GS728TP: Maximum 192W (AC)

- GS728TPP:
  - Maximum 384W (AC)
  - Maximum 720W for DC mode or AC+DC mode when using external power supply RPS4000.

Mean Time Between Failure (MTBF):

- GS752TP:
  - 220447.0 hours (~25.2 years) at 25°C
  - 64873.4 hours (~7.4 years) at 55°C
- GS728TP:
  - 345901.2 hours (~40.0 years) at 25°C
  - 118616.6 hours (~13.7 years) at 55°C
- GS728TPP:
  - 247163.4 hours (~28.6 years) at 25°C
  - 80510.4 hours (~9.3 years) at 55°C

Power Supply

- GS752TP:
  - AC Voltage: 100–240 V
  - Frequency: 50–60 Hz
  - Amperage (max.): 8A
- GS728TP:
  - AC Voltage: 100–240 V
  - Frequency: 47–63 Hz
  - Amperage (max.): 4A
- GS728TPP:
  - AC Voltage: 100–240 V
  - Frequency: 50–60 Hz
  - Amperage (max.): 8A

Physical Specifications

Dimensions (H x W x D):

- GS752TP: 440 x 316 x 43 mm (17.3 x 12.4 x 1.7 in.)
- GS728TP/GS728TPP: 440 x 257 x 44 mm (17.32 x 10.12 x 1.73 in.)

Weight:

- GS752TP: 5.10 kg
- GS728TPP: 4.36 kg
- GS728TP: 3.73 kg

Environmental Specifications

Operating temperature: 0–50°C (32–104°F)

Operating humidity: 10% to 95% maximum relative humidity, noncondensing

Storage temperature: –20 to 70°C (–4 to 158°F)

Storage humidity: 5% to 95% maximum relative humidity, noncondensing

Electromagnetic Emissions

CE Class A, including EN 55022 (CISPR 22), EN 55024, and EN 50082-1

FCC Part 15 Class A

VCCI Class A

C-Tick

Safety

UL/cUL

CE EN 60950-1

CB

CCC

Notification of Compliance

C

NETGEAR Wired Products

Regulatory Compliance Information

This section includes user requirements for operating this product in accordance with National laws for usage of radio spectrum and operation of radio devices. Failure of the end-user to comply with the applicable requirements may result in unlawful operation and adverse action against the end-user by the applicable National regulatory authority.

This product's firmware limits operation to only the channels allowed in a particular Region or Country. Therefore, all options described in this user's guide may not be available in your version of the product.

FCC Requirements for Operation in the United States

FCC Information to User

This product does not contain any user serviceable components and is to be used with approved antennas only. Any product changes or modifications will invalidate all applicable regulatory certifications and approvals

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC Guidelines for Human Exposure

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance of 20 cm between the radiator and your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

FCC Declaration Of Conformity

We, NETGEAR, Inc., 350 East Plumeria Drive, San Jose, CA 95134, declare under our sole responsibility that the switch complies with Part 15 of FCC Rules.

Operation is subject to the following two conditions:

* This device may not cause harmful interference, and

- This device must accept any interference received, including interference that may cause undesired operation.

FCC Radio Frequency Interference Warnings & Instructions

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment 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 methods:

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

Modifications made to the product, unless expressly approved by NETGEAR, Inc., could void the user's right to operate the equipment.

Canadian Department of Communications Radio Interference Regulations

This digital apparatus, GS752TP, GS728TP, and GS728TPP Gigabit Smart Switch, does not exceed the Class B limits for radio-noise emissions from digital apparatus as set out in the Radio Interference Regulations of the Canadian Department of Communications.

European Union

The GS752TP, GS728TP, and GS728TPP Gigabit Smart Switch complies with essential requirements of EU EMC Directive 2004/108/EC and Low Voltage Directive 2006/95/EC as supported by applying the following test methods and standards:

- EN55022: 2006 / A1: 2007
- EN55024: 1998 / A1: 2001 / A2: 2003
- EN60950-1: 2005 2nd Edition
- EN 61000-3-2:2006
- EN 61000-3-3:1995 w/A1: 2001+A2: 2005

GPL License Agreement

GPL may be included in this product; to view the GPL license agreement go to ftp://downloads.netgear.com/files/GPLnotice.pdf.

For GNU General Public License (GPL) related information, please visit http://support.netgear.com/app/answers/detail/a_id/2649 .

Index

Numerics

8-pin RJ-45 plug **16**

A

apply AC power **25**
Auto Uplink **16**
auto-negotiating **7**
AutoSensing **16**

B

backpressure **7**

C

Category 5 unshielded twisted-pair **6**
checking the installation **23**
Class of Service **6**
compliance **35**
connect devices to the switch **24**
crossover cables **16**

D

device hardware interfaces **16**
duplex mode **16**

F

factory defaults **10**, **12**, **13**
Factory Defaults button **10**, **12**, **13**, **17**
flat surface **22**
full-duplex **6**

G

gigabit ports **6**

I

IEEE 802.3x **7**
IEEE Standards **6**

IEEE-compliant **6**
install the switch **22**
installation guide **8**

L

LED Designations **14**
low latency **6**

M

MAC **7**
Media Access Control **7**

O

operating conditions **22**
operating environment **22**
operating humidity **22**
overview **6**

P

package contents **8**
pause frame flow control **7**
port LEDs **14**
preparing the site **22**

R

rack-mounting kit **8**
Reset button **10**, **11**, **13**, **17**
RJ-45 ports **6**, **16**
rubber footpads **8**, **22**

S

Smart Switch resource CD **8**
straight-through cables **16**
system LEDs **15**

T

technical support **2**