User Guide

Layer 2+ Management Switch

1. 24-Port 100BaseTX + 2 Gigabit combo Layer 2 Management Switch
2. 24-Port 100BaseTX + 2 Gigabit combo Layer 2+ Management Switch
3. 48-Port 100BaseTX + 4 1000BaseT with 2 shared Gigabit SFP Layer 2+ Management Switch
4. 24-Port 1000BaseT with 2 shared Gigabit SFP Layer 2+ Management Switch
5. 48-Port 1000BaseT with 4 shared Gigabit SFP Layer 2+ Management Switch
6. 8-Port 100BaseTX + 2 Gigabit combo Layer 2 Management Switch with 8 PSE port embedded 100W PoE power budget
7. 24-Port 100BaseTX + 2 Gigabit combo Layer 2 Management Switch with 12 PSE port embedded 100W PoE power budget
8. 8-Port 10/100BaseTX + 2 Gigabit Combo Layer 2 Management Switch
9. 24-Port 100BaseTX + 2 Gigabit Combo Layer 2+ Management Switch with 12 PSE port embedded 180W PoE power budget.
10. 24-Port 100BaseTX + 2 Gigabit combo Layer 2 Management Switch (Desktop)
11. 8-Port 100BaseTX + 2 Gigabit Combo L2+ Management Switch

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FCC Statement
This product has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against such interference when operating in a commercial environment. This equipment generates uses and can radiate radio frequency energy, and if not installed and used according to the instructions, may cause harmful interference to radio communications.

Operation of this equipment in a residential area is likely to cause interference, in which case the user, at his or her own expense will be required to take whatever measures to correct the interference.

CE Mark 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 adequate measures.

Table of Contents

1. Introduction

Thank you for choosing Layer 2/2+ series Management Switch. These switches are cost-effective switching solution idea for small business and the network edge. It provides the Quality of Service (QoS) features, like 802.1p, DSCP and Rate Control etc, to ensure the traffic is prioritized properly to deliver real-time applications like voice and video and also have a good control in network bandwidth usage. The 802.1Q feature enables you separate the network traffic easily and quickly. The Network Security features, like ACL, Port Security, Storm Control, 802.1X and Management IP List etc, enables you to prevent unauthorized access to company network and block intentional or inadvertent network traffic. The Spanning Tree Protocol (STP) provides you a loop-free network. The IGMP snooping enables you to have efficient network usage in IP multicast environment. The one-to-one or many-to-one Port Mirroring feature of the switch enables you to monitor the traffic on the network. With these features, you can build or expand your network quickly and easily.

1.1. Package Contents

These L2/L2+ Management Switches package contains the following:
> One L2/L2+ Management Switch
> One RS-232 cable
> One power cord/adapter
> One set of brackets.
> One CD for user manual and utilities.

If any of the listed items is missing or damaged, please contact the place of purchase.

1.2. How to Use this Guide

This user guide is structured as follows:

Chapter 2, Installation explains the functions of the switch and how to physically install it.

Chapter 3, Configuration explains how to set up and modify the configuration of the switch.

Chapter 4, Specifications contains information about the cables, and the technical specifications of the switch.
Appendices include the Warranty Statement. Read them as necessary.

2. Installation

This chapter describes the function of the management switch components and shows how to install it on the desktop or shelf. Basic knowledge of networking is assumed. Read this chapter completely before continuing.

2.1 Product Description Overview

These products are all L2/ L2+ management switches which supports 802.1Q VLAN, QoS, 802.1d / 1w/ 1s Spanning Tree Protocol, 802.1x, Port Security, Port Mirroring, IGMP Snooping, SNTP, Storm Control, Rate Control, SNMP etc. features.

2.2 Switch Front and Rear Panel

2.2.1. 24-Port 100BaseTX + 2 Gigabit combo Layer 2 Management Switch

The front panel of 24-Port 100BaseTX + 2 Gigabit combo ports Layer 2 Management Switch has 24 10/100 Mbps copper ports at the left, 2 10/100/1000 Mbps copper ports and 2 Gigabit SFP slots at the right. The product name indicates at the top on the left. Figure 2.2.1a shows a front panel of this switch.

The rear panel has a power connector, and figure 2.2.1b shows a rear panel of the switch. Table 2.2.1c shows the port function of the switch.

Figure 2.2.1a Front Panel

Figure 2.2.1b Rear Panel

Table 2.2.1c Port Function

Port	Function
1~24	This where you connect the Cat.3, 5, 5e or better ethernet cable for 10/100 Mbps ethernet connection.
G1, G2	This where you connect the Cat. 5e or better ethernet cable for 10/100/1000 Mbps ethernet connection
miniGBIC	This is where you connect the SFP module for fiber connection.
Console	This is where you connect the RS-232 cable for CLI management.
Power	This is where you connect the AC power cord.

2.2.2. 24-Port 100BaseTX + 2 Gigabit combo Layer 2+ Management Switch

The front panel of 24-Port 100BaseTX + 2 Gigabit combo ports Layer 2+ Management Switch has 24 10/100 Mbps copper ports at the left, 2 10/100/1000 Mbps copper ports and 2 Gigabit SFP slots at the right. The product name is at the top on the left. Figure 2.2.2a shows a front panel of this switch.

The rear panel has a power connector, and figure 2.2.2b shows a rear panel of the switch. Table 2.2.2c shows the port function of the switch.

Figure 2.2.2a Front Panel

Figure 2.2.2b Rear Panel

Table 2.2.2c Port Function

Port	Function
1~24	This where you connect the Cat.3, 5, 5e or better ethernet cable for 10/100 Mbps ethernet connection.
G1, G2	This where you connect the Cat. 5e or better ethernet cable for 10/100/1000 Mbps ethernet connection
miniGBIC	This is where you connect the SFP module for fiber connection.
Console	This is where you connect the RS-232 cable for CLI management.
Power	This is where you connect the AC power cord.

2.2.3. 48-Port 100BaseTX + 4 1000BaseT with 2 shared Gigabit SFP Layer 2+ Management Switch

The front panel of 48-Port 100BaseTX + 4 1000BaseT with 2 shared Gigabit SFP Slots Layer 2+ Management Switch has 48 10/100 Mbps copper ports at the left, 4 10/100/1000 Mbps copper ports with 2 shared Gigabit SFP slots at the right. The product name indicates at the top on the right. Figure 2.2.3a shows a front panel of the switch. The rear panel has a power connector, and Figure 2.2.3b shows a rear panel of the switch. Table 2.2.3c shows the port function of the switch.
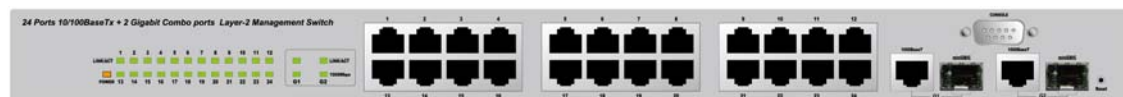
Figure 2.2.3a Front Panel

Figure 2.2.3b Rear Panel

Power

Table 2.2.3c Port Function

Port	Function
1~48	This where you connect the Cat.3, 5, 5e or better ethernet cable for 10/100 Mbps ethernet connection.
G1~G4	This where you connect the Cat. 5e or better ethernet cable for 10/100/1000 Mbps ethernet connection
miniGBIC	This is where you connect the SFP module for fiber connection.
Console	This is where you connect the RS-232 cable for CLI management.
Power	This is where you connect the AC power cord.

2.2.4. 24-Port 1000BaseT with 2 shared Gigabit SFP Layer 2+ Management Switch

The front panel of 24-Port 1000BaseT with 2 shared Gigabit SFP L2+ Management Switch has 24 10/100/1000 Mbps copper ports at the left with 2 shared Gigabit SFP slots at the right. The product name is at the top on the left. Figure 2.2.4a shows a front panel of this switch. The rear panel has a power connector, and Figure 2.2.4b shows a rear panel of the switch. Table 2.2.4c shows the port function of the switch.
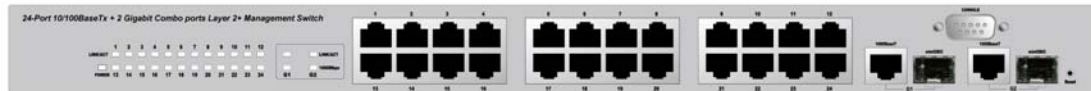
Figure 2.2.4a Front Panel

Figure 2.2.4b Rear Panel

Power

Table 2.2.4c Port Function

Port	Function
1~24	This where you connect the Cat. 5e or better ethernet cable for 10/100/1000 Mbps ethernet connection
miniGBIC	This is where you connect the SFP module for fiber connection.
Console	This is where you connect the RS-232 cable for CLI management.
Power	This is where you connect the AC power cord.

2.2.5. 48-Port 1000BaseT with 4 shared Gigabit SFP Layer 2+ Management Switch

The front panel of 48-Port 1000BaseT with 4 shared Gigabit SFP Layer 2+ Management Switch has 48 10/100/1000 Mbps copper ports at the left with 4 shared Gigabit SFP slots at the right. The product name indicates at the top on the right. Figure 2.2.5a shows a front panel of the switch. The rear panel has a power and console connector, and Figure 2.2.5b shows a rear panel of the switch. Table 2.2.5c shows the port function of the switch.

Figure 2.2.5a Front Panel

Figure 2.2.5b Rear Panel

Power

Table 2.2.5c Port Function

Port	Function
1~48	This where you connect the Cat. 5e or better ethernet cable for 10/100/1000 Mbps ethernet connection
miniGBIC	This is where you connect the SFP module for fiber connection.
Console	This is where you connect the RS-232 cable for CLI management.
Power	This is where you connect the AC power cord.

2.2.6. 8-Port 100BaseTX + 2 Gigabit combo Layer 2 Management Switch with 8 PSE port embedded 100W PoE power budget

The front panel of this switch has 8 10/100 Mbps copper ports at the left with 2 shared Gigabit SFP slots at the right. The product name indicates at the top on the right. Figure 2.2.6a shows a front panel of the switch. The rear panel has a power and console connector, and Figure 2.2.6b shows a rear panel of the switch. Table 2.2.6c shows the port function of the switch.
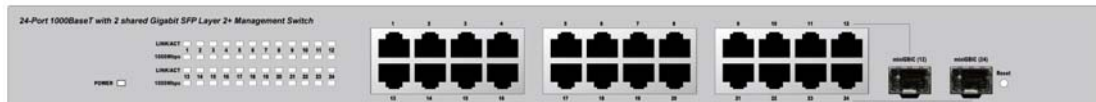
Figure 2.2.6a Front Panel

Figure 2.2.6b Rear Panel

Power

Table 2.2.6c Port Function

Port	Function
1~8	This where you connect the Cat.3, 5, 5e or better ethernet cable for 10/100 Mbps ethernet connection
G1, G2	This where you connect the Cat. 5e or better ethernet cable for 10/100/1000 Mbps ethernet connection
miniGBIC	This is where you connect the SFP module for fiber connection.
Console	This is where you connect the RS-232 cable for CLI management.
Power	This is where you connect the DC power adapter.

2.2.7.   24-Port 100BaseTX + 2 Gigabit combo Layer 2 Management Switch with 12 port embedded 100W PoE power budget

The front panel of this switch has 24 10/100 Mbps copper ports at the left with 2 shared Gigabit SFP slots at the right. And the left 12 10/100 Port embedded with PoE PSE function. Figure 2.2.7a shows a front panel of the switch. The rear panel has a power and console connector, and Figure 2.2.7b shows a rear panel of the switch. Table 2.2.7c shows the port function of the switch.

Figure 2.2.7a Front Panel
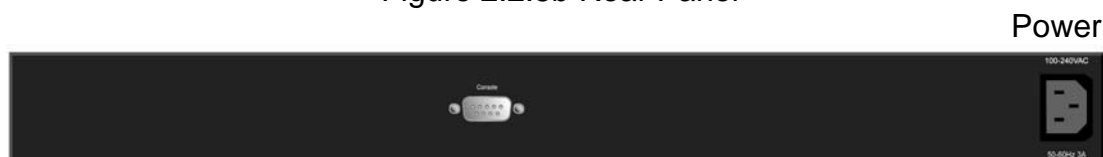

Figure 2.2.7b Rear Panel

Power

Table 2.2.7c Port Function

Port	Function
1~24	This where you connect the Cat.3, 5, 5e or better ethernet cable for 10/100 Mbps ethernet connection
G1, G2	This where you connect the Cat. 5e or better ethernet cable for 10/100/1000 Mbps ethernet connection
miniGBIC	This is where you connect the SFP module for fiber connection.
Console	This is where you connect the RS-232 cable for CLI management.
Power	This is where you connect the DC power adapter.

2.2.8. 8-Port 10/100BaseTX + 2 Gigabit Combo Layer 2 Management Switch

The front panel of 8-Port 10/100BaseTX + 2 Gigabit Combo Layer 2 Management Switch has 8 10/100 Mbps copper ports at the left with 2 shared Gigabit SFP slots at the right. The product name indicates at the top on the right. Figure 2.2.8a shows a front panel of the switch. The rear panel has a power and console connector, and Figure 2.2.8b shows a rear panel of the switch. Table 2.2.8c shows the port function of the switch.

Figure 2.2.8a Front Panel

Figure 2.2.8b Rear Panel

Power

Table 2.2.8c Port Function

Port	Function
1~8	This where you connect the Cat.3, 5, 5e or better

Port	Function
	ethernet cable for 10/100 Mbps ethernet connection
G1, G2	This where you connect the Cat. 5e or better ethernet cable for 10/100/1000 Mbps ethernet connection
miniGBIC	This is where you connect the SFP module for fiber connection.
Console	This is where you connect the RS-232 cable for CLI management.
Power	This is where you connect the DC power adapter.

2.2.9. 24-Port 100BaseTX + 2 Gigabit combo Layer 2+ Management Switch with 12 PSE port embedded 180W PoE power budget

The front panel of this switch has 24 10/100 Mbps copper ports at the left with 2 shared Gigabit SFP slots at the right. And the left 12 10/100 Port embedded with PoE PSE function. Figure 2.2.9a shows a front panel of the switch. The rear panel has a power and console connector, and Figure 2.2.9b shows a rear panel of the switch. Table 2.2.9c shows the port function of the switch.
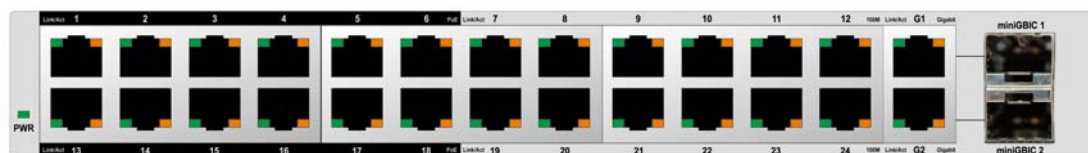
Figure 2.2.9a Front Panel
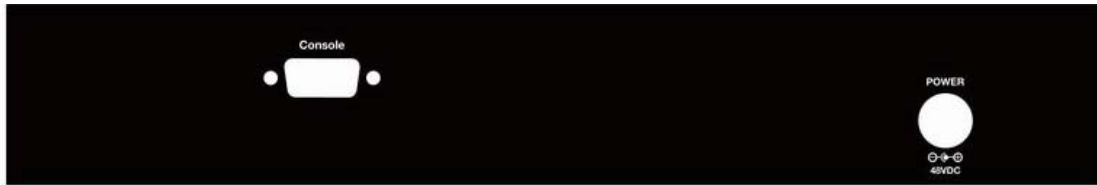

Figure 2.2.9b Rear Panel

Power

Table 2.2.9c Port Function

Port	Function
1~24	This where you connect the Cat.3, 5, 5e or better ethernet cable for 10/100 Mbps ethernet connection
G1, G2	This where you connect the Cat. 5e or better ethernet cable for 10/100/1000 Mbps ethernet connection
miniGBIC	This is where you connect the SFP module for fiber connection.
Console	This is where you connect the RS-232 cable for CLI management.
Power	This is where you connect the AC power cord.

2.2.10. 24-Port 100BaseTX + 2 Gigabit combo Layer 2 Management Switch (Desktop)

The front panel of 24-Port 100BaseTX + 2 Gigabit combo ports Layer 2

Management Switch has 24 10/100 Mbps copper ports at the left,
2 10/100/1000 Mbps copper ports and 2 Gigabit SFP slots at the right. The
product name indicates at the top on the left. Figure 2.2.10a shows a front
panel of this switch.
The rear panel has a power connector, and figure 2.2.10b shows a rear panel
of the switch. Table 2.2.10c shows the port function of the switch.

Figure 2.2.10a Front Panel

Figure 2.2.10b Rear Panel

Power

Table 2.2.10c Port Function

Port	Function
1~24	This where you connect the Cat.3, 5, 5e or better ethernet cable for 10/100 Mbps ethernet connection
G1, G2	This where you connect the Cat. 5e or better ethernet cable for 10/100/1000 Mbps ethernet connection
miniGBIC	This is where you connect the SFP module for fiber connection.
Console	This is where you connect the RS-232 cable for CLI management.
Power	This is where you connect the DC power adapter.

2.2.11. 8-Port 100Base-TX + 2 Gigabit Combo L2+ Manaugement Switch

The front panel of 8-Port 100BaseTX + 2 Gigabit Combo L2+ Management
Switch has 8 10/100 Mbps copper ports at the left, 2 10/100/1000 Mbps copper
ports and 2 Gigabit SFP slots at the right. The product name indicates at the
top on the middle. Figure 2.2.11a shows a front panel of this switch.
The rear panel has a power connector, and figure 2.2.11b shows a rear panel
of the switch. Table 2.2.11c shows the port function of the switch.
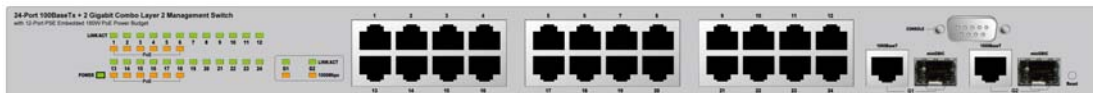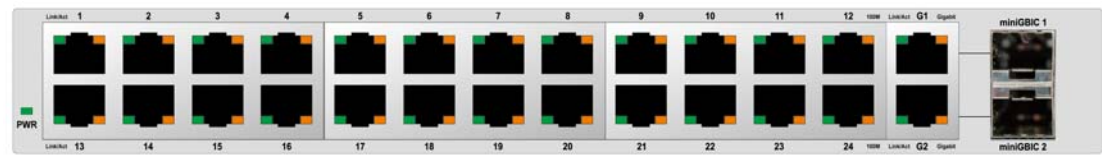
Figure 2.2.11a Front Panel
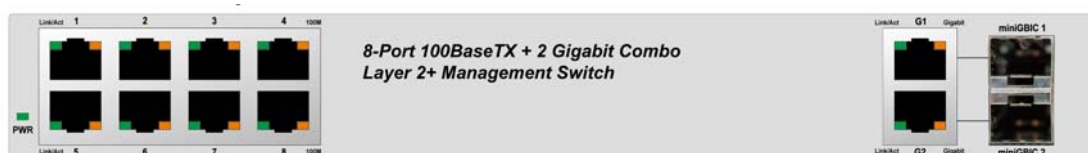
Figure 2.2.11b Rear Panel

Table 2.2.11c Port Function

Port	Function
1~8	This where you connect the Cat.3, 5, 5e or better ethernet cable for 10/100 Mbps ethernet connection
G1, G2	This where you connect the Cat. 5e or better ethernet cable for 10/100/1000 Mbps ethernet connection
miniGBIC	This is where you connect the SFP module for fiber connection.
Console	This is where you connect the RS-232 cable for CLI management.
Power	This is where you connect the DC power adapter.

2.3 LED Function

This section explains the definition of the Switch's LEDs on the front panel.

1. 24-Port 100BaseTX + 2 Gigabit combo Layer 2 Management Switch
2. 24-Port 100BaseTX + 2 Gigabit combo Layer 2+ Management Switch
3. 48-Port 100BaseTX + 4 1000BaseT with 2 shared Gigabit SFP Layer 2+ Management Switch:
POWER (Green) LED lights up, it shows the system is powered up.
LINK/ACT (Green) LED lights up, it indicates a successful connection of that port is established. Otherwise, it indicates the link is off or no-link detected of that port. When the LED blinks, it indicates the port is activating and transmitting data;
1000Mbps (Amber) LED lights up only when the corresponding port works at 1000Mbps.

4. 24-Port 1000BaseT with 2 shared Gigabit SFP Layer 2+ Management Switch
5. 48-Port 1000BaseT with 4 shared Gigabit SFP Layer 2+ Management Switch:
PWR (Green) LED lights up, it shows the system is powered up.
Port# LED lights up as Green, it indicates a successful connection of that port is established at 10/100 Mbps. If lights up as Amber, it indicates a 1000 Mbps connection. Otherwise, it indicates the link is off or no-link detected of that port. When the LED blinks, it indicates the port is activating and transmitting data.

6. **<u>8-Port 100BaseTX + 2 Gigabit combo Layer 2 Management Switch with 8 PSE port embedded 100W PoE power budget:</u>**

PWR (Green) LED lights up, it shows the system is powered up.

Link/Act (Green) LED lights up, it indicates a successful connection of that port is established. Otherwise, it indicates the link is off or no-link detected of that port. When the LED blinks, it indicates the port is activating and transmitting data;

PoE (Amber) LED lights up only when the corresponding port supply power.

7. **<u>24-Port 100BaseTX + 2 Gigabit combo Layer 2 Management Switch with 12 port embedded 100W PoE power budget:</u>**

PWR (Green) LED lights up, it shows the system is powered up.

Link/Act (Green) LED lights up, it indicates a successful connection of that port is established. Otherwise, it indicates the link is off or no-link detected of that port. When the LED blinks, it indicates the port is activating and transmitting data;

PoE (Amber) LED lights up only when the corresponding port supply power.

100M (Amber) LED lights up, it indicates the non-PoE ports have a 100Mbps connection. Otherwise, it indicates the link is 10Mbps or off or no-link.

8. **<u>8-Port 10/100BaseTX + 2 Gigabit Combo Layer 2 Management Switch:</u>**

PWR (Green) LED lights up, it shows the system is powered up.

Link/Act (Green) LED lights up, it indicates a successful connection of that port is established. Otherwise, it indicates the link is off or no-link detected of that port. When the LED blinks, it indicates the port is activating and transmitting data;

1000M (Amber) LED lights up only when the corresponding port works at 1000Mbps.

9. **<u>24-Port 100BaseTX + 2 Gigabit combo Layer 2 Management Switch with 12 port embedded 180W PoE power budget:</u>**

PWR (Green) LED lights up, it shows the system is powered up.

Link/Act (Green) LED lights up, it indicates a successful connection of that port is established. Otherwise, it indicates the link is off or no-link detected of that port. When the LED blinks, it indicates the port is activating and transmitting data;

PoE (Amber) LED lights up only when the corresponding port supply power.

10. **<u>24-Port 100BaseTX + 2 Gigabit combo Layer 2 Management Switch (Desktop):</u>**

PWR (Green) LED lights up, it shows the system is powered up.

Link/Act (Green) LED lights up, it indicates a successful connection of that port is established. Otherwise, it indicates the link is off or no-link detected of that port. When the LED blinks, it indicates the port is activating and transmitting data;

1000M (Amber) LED lights up only when the corresponding port works at 1000Mbps.

11. <u>8-Port 100BaseTX + 2 Gigabit Combo L2+ Management Switch</u>

PWR (Green): When the power supplied to the system

Link/Act (Green): LED lights up, it indicates a successful connection of that

port is established. Otherwise, it indicates the link is off or no-link detected of that port. When the LED blinks, it indicates the port is activating and transmitting data;

(Amber): LED lights up only when the corresponding port works at 100Mbps,

1000M (Green): LED lights up, it indicates a successful connection of that port is established. Otherwise, it indicates the link is off or no-link detected of that port. When the LED blinks, it indicates the port is activating and transmitting data;

(Amber): LED lights up only when the corresponding port works at 1000Mbps,

2.4 Reset Button

There is a Reset button on the front panel, which has two functionalities:

a) To restore switch configuration to factory defaults

Press the **Reset** button for more than 10 seconds, switch configuration will be restored to factory defaults and then reboots.

b) To reboot switch

Press the **Reset** button for less than 10 seconds, switch will reboot. Please note, you will lose unsaved change when doing this.

2.5 Installing the Switch

This section describes how to install and make connection to your Managed Switch. The following diagrams shows the a typical network configuration, Figure 2.5.1 shows the network configuration for L2/L2+ Management Switch; Figure 2.5.2 shows the network configuration for L2/L2+ Management Switch with PoE function.

Figure 2.5.1 Network Configuration for L2/L2+ Management Switch
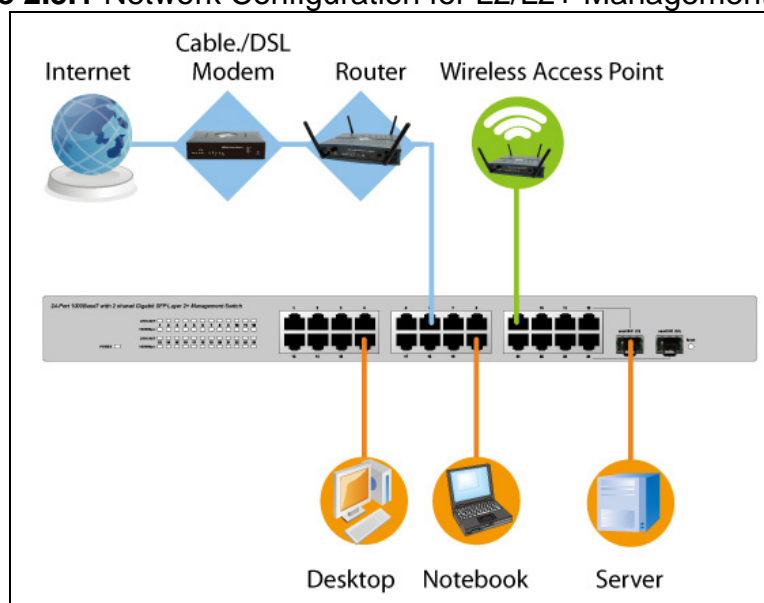
Figure 2.5.2 Network Configuration for L2 Management Switch with PoE
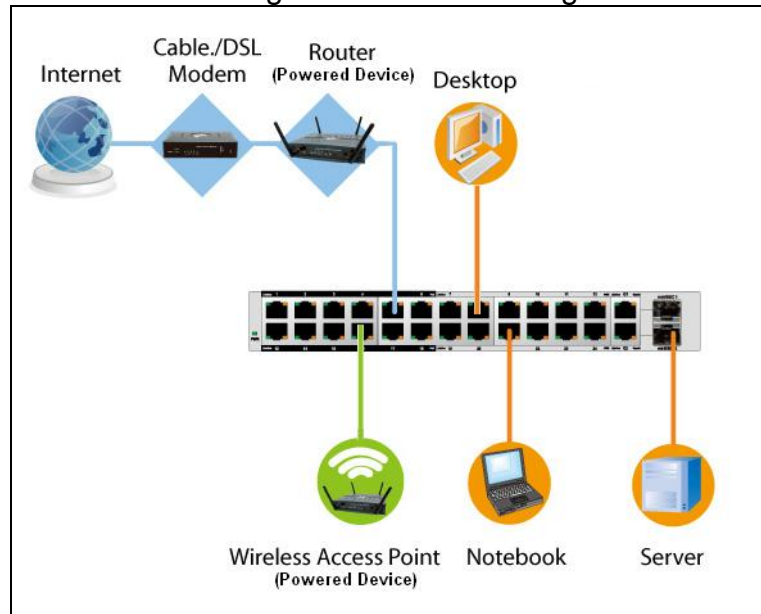
Read and perform the following procedures to install the switch,
Pre-Installation Considerations
Gigabit Considerations:
If you will use the switch for Gigabit applications, keep in mind that the
maximum UTP cabling length of Category 5e cable is 328 feet (100 meters).

Positioning the switch:
When choosing a location for the switch, observe the following guidelines:
Keep enough ventilation space between the switch and the surrounding
objects.
Keep cabling away from sources of electrical noise, power lines, and
fluorescent lighting fixtures.
Do not stack free-standing switch more than four units high.

Desktop or Shelf Mounting

To install the switch on a desktop or shelf, simply complete the following steps:

Step 1 Place the switch on a desktop or shelf near an AC power source.
Step 2 Keep enough ventilation space between the switch and the surrounding
objects.
Note: When choosing a location, keep in mind the environmental restrictions
discussed in Chapter 4, Specifications.
Step 3 Connect the switch to network devices.
A. Connect one end of a standard network cable to the RJ-45 ports on the front
of the switch.
B. Connect the other end of the cable to the network devices such as printer
servers, workstations or routers.
Note: It is recommended to use the UTP Category 5e network cabling with
RJ-45 tips for the network connection. For more information, please see the
Cable Specifications in Chapter 4, Specifications.

Step 4 Supply power to the switch.
A. Connect one end of the power cable to the switch.
B. Connect the power cube end of the power cable to a standard wall outlet.

2.6 Rack- Mount Placement

Before mounting the Switch, please read the following instructions carefully,

A) Elevated Operating Ambient - If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature (Tma) specified by the manufacturer.
B) Reduced Air Flow - Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.
C) Mechanical Loading - Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.
D) Circuit Overloading - Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.
E) Reliable Earthing - Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g. use of power strips)."

To mount the Switch in any standard-sized, 19-inch wide, 1U high rack, please follow these instructions:
Place the Switch on a hard flat surface with the front panel facing you.
Attach a rack–mount bracket to one side of the Switch with the supplied screws. Then attach the other bracket to the other side. (Figure 2.6.1)

Figure 2.6.1
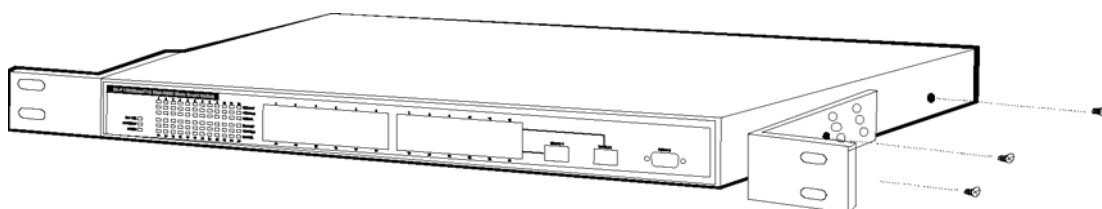
Make sure the brackets are properly attached to the Switch.
Use the appropriate screws (not included) to securely attach the brackets to your rack. (Figure 2.6.2)

Figure 2.6.2
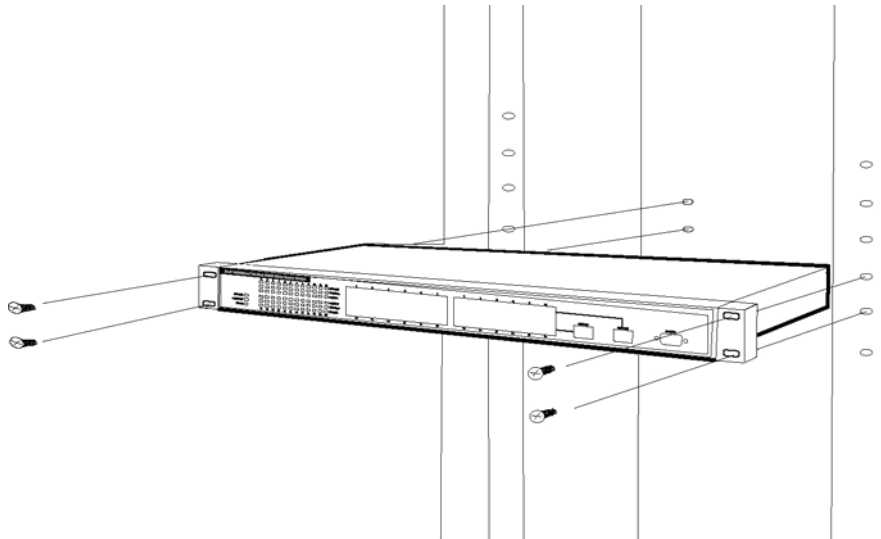
3. Configuration

The configuration programs are supplied with these Layer 2 Management Switches. Unlike the unmanaged switch (dumb switch), the switch performs "management" functions that make the switch operate more effectively. This Chapter will describe the use of the switch Management Configuration program.

3.1. Preparing for configuration

Layer 2 Management Switch offers a console CLI interface for switch configuration and management. Users can use this interface to perform the activities such as configuring DHCP, ARP, assigning IP address and upgrading firmware etc.

There are four methods to manage your switch:

Local Console Management
You can manage the switch locally by connecting the switch to a PC or workstation with terminal emulation software using the serial port.

Remote Console Management
You can manage the switch by having a remote host establish a Telnet connection to the switch via an Ethernet or modem link.

SNMP Management
You can manage the switch across a LAN using an SNMP Network Management Station with a graphical user interface. Note that to use this management method, your network must use the IP protocol and your switch must be configured on the Network with a proper IP address. You may use any of the following method to manage the switch.

Web-Browser
You can manage the switch through a web connection by connecting to the switch's IP address using your web browser.

This User Guide provides instructions on how to configure the switch using the console interface. Read the following sections to start up!

Connecting a PC or Terminal to the RS-232 Port
When you are ready to configure the Management Function of the switch, make sure you have connected the supplied RS-232 serial cable to the RS-232 port at the front panel of your switch and your PC.

Terminal Emulation Setup Program
Run a terminal emulation program with the following setting.
Emulation: VT-100 compatible
Baud per second: 38400
Data bits: 8
Parity: None
Stop bits: 1

Flow Control: None

Logging on to the switch
Enter the factory default user name "**admin**" with no password when logging on to the switch. The password is set to be empty. If you can enter "?" on the command line screen, it will displays all items so that you can configure by your requirements.

3.2. Web-based configuration
The Switch provides a Web-based interface for configuring and managing the Switch. This interface allows you to access the switch using the Web browser of your choice. This chapter describes how to use the switch's Web browser interface to con-figure and manage the switch.

Logging on the switch
To log on to the Switch:
1. In your web browser, specify the IP address of the switch. Default IP address is **192.168.1.254**.
2. Enter the factory default "admin "to login on the Switch with no password. Refer to the figure 3-1.

Figure 3-1
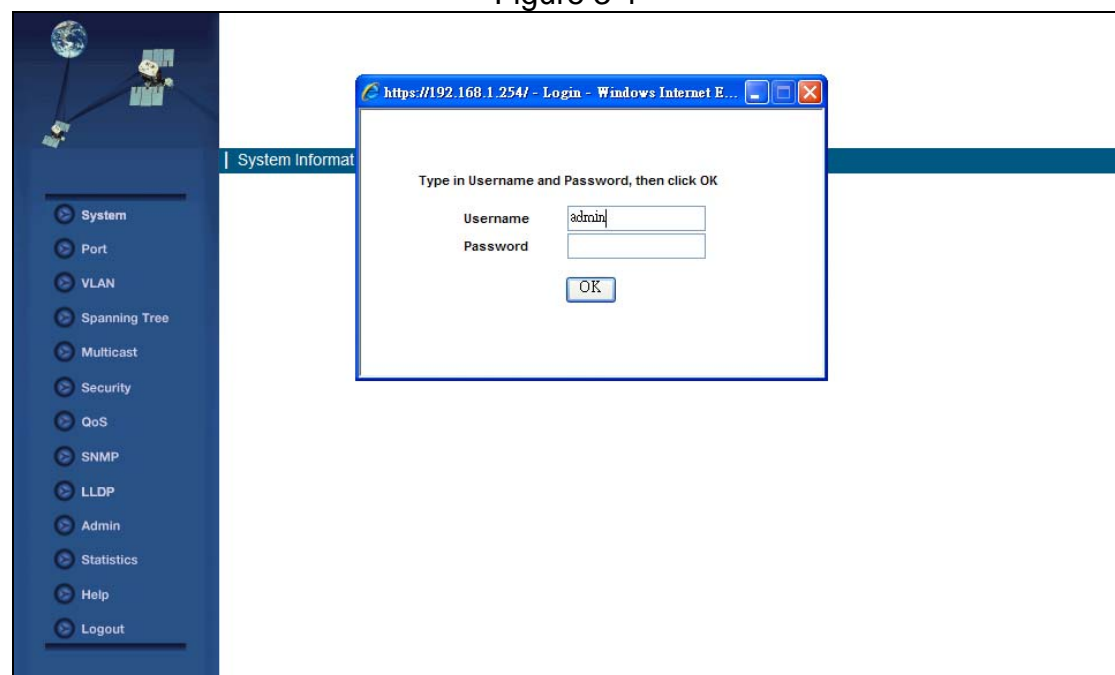
3.3. Command Line Interface (by Console or Telnet)

Mode-based Command Hierarchy
The Command Line Interface (CLI) groups all the commands in appropriate modes by the nature of the commands. Examples of the CLI command modes are described below. Each of the command modes supports specific switch's commands.

The CLI Command Modes table captures the command modes, the prompts visible in that mode and the exit method from that mode.

Table 1 CLI Command Modes

Command Mode	Access Method	Prompt	Exit or Access Previous Mode
User Mode	This is the first level of access. Perform basic tasks and list system information.	COMMAND>	Enter Logout command
Privileged Mode	From the User Mode, enter the enable command.	Switch#	To exit to the User Mode, enter exit or Logout.
Global Config Mode	From the Privileged Mode, enter the configuration command.	Switch (Config)#	To exit to the Privileged Mode, enter the exit command.
Interface Config Mode	From the Global Config mode, enter the interface <port#> command.	Switch (Interface <port#>)#	To exit to the Global Config mode, enter exit.

The CLI is divided into various modes. The commands in one mode are not available until the operator switches to that particular mode. The commands available to the operator at any point in time depend upon the mode. Entering a question mark (?) at the CLI prompt, and displayss a list of the available commands and descriptions of the commands.
The CLI provides the following modes:

User Mode
When the operator logs into the CLI, the User Mode is the initial mode. The User Mode contains a limited set of commands. The command prompt shown at this level is:
    Command Prompt: COMMAND>

Privileged Mode
To have access to the full suite of commands, the operator must enter the Privileged Mode. The Privileged Mode requires password authentication. From Privileged Mode, the operator can issue any Exec command to enter the Global Configuration mode. The command prompt shown at this level is:
  Command Prompt: Switch#

Global Config Mode
This mode permits the operator to make modifications to the running configuration. General setup commands are grouped in this mode. From the Global Configuration mode, the operator can enter the Interface Configuration mode. The command prompt at this level is:
    Command Prompt: Switch(Config)#
From the Global Config mode, the operator may enter the following configuration modes:
Interface Config Mode

Many features are enabled for a particular interface. The Interface commands enable or modify the operation of an interface. In this mode, a physical port is set up for a specific logical connection operation. The command prompt at this level is:

Command Prompt: Switch(Interface *<port#>*)#

3.3.1.   User Mode commands

help
This command displays help information
Format   help
Mode   User Mode

?
This command displays help information
Format   help
Mode   User Mode

logout
This command is used to exit from the telnet
Format   logout
Mode   User Mode

ping
This command sends echo messages.
Format   ping *<A.B.C.D>*
Mode   User Mode

show
1) show port
This command displays port status.
Format   show port {*<port#>* | all}
Mode   User Mode
2) show network
This command displays switch IP configuration
Format   show network
Mode   User Mode
3) show system
This command displays system information.
Format   show system
Mode   User Mode
4) show port statistics
This command displays port statistics.
Format   show port statistics {*<port#>* | all}
Mode   User Mode

enable
Enter into the Privileged Mode
Format   enable
Mode   User Mode

Save

This command is used to save configurations

Note:This feature only supports on the following switches,

3. 48-Port 100BaseTX + 4 1000BaseT with 2 shared Gigabit SFP Layer 2+ Management Switch

3.3.2.　Privileged Mode commands

cable-diag

This command is used to proceed cable diagnostic

Format　cable-diag port *<port ID>*

Mode　Privileged Mode

e.g.　Switch#cable-diag port 1

clear

1) clear arl

This command is used to clear ARL table entries

1.1) clear arl dynamic

This command is used to Clear dynamic arl table entries

Format　clear arl dynamic

Mode　Privileged Mode

1.2) clear arl static

This command is used to clear static arl table entries

Format　clear arl static mac <mac-addr>

Mode　Privileged Mode

2) clear config

This command is used to restore switch factory default configuration

Format　clear config

Mode　Privileged Mode

3) clear counters

This command is used to clear RMON statistics for entire switch

Format　clear counters

Mode　Privileged Mode

4) clear igmpsnooping

This command is used to restore igmpsnooping configuration to factory default

Format　clear igmpsnooping

Mode　Privileged Mode

5) clear static-mcast

This command is used to clear static multicast groups

Format　clear static-mcast

Mode　Privileged Mode

6) clear pass

This command is used to restore administrator's password to factory default

Format　clear pass

Mode　Privileged Mode

7) clear lacp

This command is used to restore LAG and LACP configuration to factory default

Format　clear lacp

Mode　Privileged Mode

8) clear logs
This command is used to clear memory/flash logs
Format   clear logs
Mode   Privileged Mode
9) clear vlan
This command is used to delete all VLAN groups
Format   clear vlan
Mode   Privileged Mode

configuration
Enter into Global Configuration mode
Format   configuration
Mode   Privileged Mode

copy
This command is used to upload file from switch to host, or download file to switch from host
1) copy nvram_config
This command is used to backup switch configuration
Format   copy nvram_config tftp *<A.B.C.D>* file *<filename>*
Mode   Privileged Mode
e.g.   Switch#copy nvram_config tftp 192.168.1.100 file switch_configuration
2) copy system_image
This command is used to backup switch runtime image
Format   copy system_image tftp *<A.B.C.D> <filename>*
Mode   Privileged Mode
e.g.   Switch#copy system_image tftp 192.168.1.100 image_file
3) copy tftp
This command is used to download configuration or runtime image from host to switch.
Format   copy tftp *<A.B.C.D>* file *<filename>* {nvram_config | system_image}
Mode   Privileged Mode
e.g.   Switch#copy tftp 192.168.1.100 file switch_configuration nvram_config
          Switch#copy tftp 192.168.1.100 file runtime_code system_image

exit
This command is used to exit current shell
Format   exit
Mode   Privileged Mode

help
This command displayss help information
Format   help
Mode   Privileged Mode

logout
This command is used to exit current shell
Format   logout
Mode   Privileged Mode

ping

This command is used to proceed ping destination host
Format   ping *<A.B.C.D>*
Mode   Privileged Mode

reload
This command is used to reboot system
Format   reload
Mode   Privileged Mode

save
This command is used to save configuration
Format   save
Mode   Privileged Mode

show
This command is used to show configured data
1) show qos
This command displays class of service information
1.1) show qos cos
This command displays the cos mapping
Format   show qos cos
Mode   Privileged Mode
1.2) show qos queue-settings
This command displays the queue-settings mapping
Format   show qos queue-settings
Mode   Privileged Mode
1. 3) show qos advanced
This command displays qos advanced mode information
1.3.1) show qos advanced mode
This command displays mode of qos
Format   show qos advanced mode
Mode   Privileged Mode
1.3.2) show qos advanced dscp
This command displays qos dscp mapping
Format   show qos advanced dscp
Mode   Privileged Mode
1.3.3) show qos advanced ip-precedence
This command displays qos ip precedence mapping
Format   show qos advanced ip-precedence
Mode   Privileged Mode
1.4) show qos port-based
This command is used to displays class of service information
1.4.1) show qos port-based port
This command displays class of service information
Format   show qos port-based port *<port-ID>*
Mode   Privileged Mode
1.4.2) show qos port-based all
This command displays all switch interfaces' cos settings
Format   show qos port-based all
Mode   Privileged Mode
2) show dot1x

This command displays dot1x information
2.1) show dot1x config
This command displays dot1x and port configuration
Format show dot1x config
Mode Privileged Mode
2.2) show dot1x radius
This command displays radius configuration
Format show dot1x radius
Mode Privileged Mode
2.3) show dot1x statistics
This command displays dot1x statistics
Format show dot1x statistics
Mode Privileged Mode
3) show igmpsnooping
This command displays IGMP snooping information
3.1) show igmpsnooping dynamic_router_port
This command displays dynamic router ports information
Format show *igmp*snooping dynamic_router_port
Mode Privileged Mode
3.2) show igmpsnooping groups
This command is used to displays *igmp* groups information
Format show igmpsnooping groups
Mode Privileged Mode
3.3) show igmpsnooping info
This command displays IGMP Snooping configuration information
Format show igmpsnooping info
Mode Privileged Mode
5) show lag
This command is used to displays link aggregation groups information
5.1) show lag lag-index
This command is used to specify an switch lag
Format show lag lag-index *<lag-id>*
Mode Privileged Mode
5.2) show lag all
This command is used to displays all switch lags
Format show lag all *<lag-id>*
Mode Privileged Mode
6) show lldp
This command is use to displays lldp statistics
6.1) show lldp statistic
This command is used to displays lldp statistic
Format show lldp statistic
Mode Privileged Mode
6.2) show lldp local
This command is used to displays local information
Format show lldp local
Mode Privileged Mode
6.3) show lldp msap
This command is used to displays msap information
Format show lldp msap
Mode Privileged Mode

6.4) show lldp msap-entry
This command is used to displays msap details information
Format   show lldp msap-entry <*1..26*>
Mode   Privileged Mode
7) show logging
This command is used to displays trap records
7.1) show logging memory-log
This command displays memory log
Format   show logging memory-log
Mode   Privileged Mode
7.2) show logging flash-log
This command displays flash logs
Format   show logging flash-log
Mode   Privileged Mode
8) show monitor
This command is used to displays port mirroring settings
Format   show monitor
Mode   Privileged Mode
9) show network
This command is used to configuration for inband connectivity
Format   show network
Mode   Privileged Mode
10) show port
This command is used to displays port mode and settings, displays port status
10.1) show port   port-index
This command is used to specify an switch interface
Format   show port port-index <*port-ID*>
Mode   Privileged Mode
10.2) show port all
This command is used to displays all switch interface
Format   show port all
Mode   Privileged Mode
11) show port-security
This command is used to displays port security settings
11.1) show port-security port
This command is used to specify an switch interface
Format   show port-security port <*port-ID*>
Mode   Privileged Mode
11.2) show port-security all
This command is used to displays all interfaces' status
Format   show port-security all
Mode   Privileged Mode
12) show rate-limit
This command is used to displays ingress and egress rate limit information
12.1) show rate-limit port
This command is used to specify an switch interface
Format   show rate-limit port <*port-ID*>
Mode   Privileged Mode
e.g.   Switch#Show rate-limit port 1
       Switch#Show rate-limit port g1
12.2) show rate-limit all

This command is used to displays all interfaces' status
Format   show rate-limit all
Mode   Privileged Mode
13) show running-config
This command is used to displays switch running config
Format   show running-config
Mode   Privileged Mode
14) show snmp
This command is used to displays all snmp config
14.1) show snmp groups
This command displays all snmp groups
Format   show snmp groups
Mode   Privileged Mode
14.2) show snmp users
This command displays all snmp users
Format   show snmp users
Mode   Privileged Mode
3) show snmp communities
This command displays all snmp communities
Format   show snmp communities
Mode   Privileged Mode
4) show snmp info
This command displays all snmp information.
Format show snmp info
Mode   Privileged Mode
15) show sntp
This command is used to displays switch sntp information
Format   show sntp
Mode   Privileged Mode
16) show spanning-tree
This command displayss Spanning Tree information
16.1) show spanning-tree interface
This command displays RSTP ports information
16.1.1) show spanning-tree interface port
This command specify an switch interface
Format   show spanning-tree interface port*<port-ID>*
Mode   Privileged Mode
16.1.2) show spanning-tree interface all
This command displays all switch interface
Format   show spanning-tree interface all
Mode   Privileged Mode
16.2) show spanning-tree mst
This command displays MST information
16.2.1) show spanning-tree mst detailed
This command displays a MST instance information
Format   show spanning-tree mst detailed *<0..4094>*
Mode   Privileged Mode
16.2.2) show spanning-tree mst instance
This command displays ports information on a MST instance
Format   show spanning-tree mst instance *<0..4094>*
Mode   Privileged Mode

16.2.3) show spanning-tree mst summary
This command displays all MST instance information
Format show spanning-tree mst summary
Mode Privileged Mode
16.2.4) show spanning-tree status
This command is used to displays spanning-tree status
Format show Spanning-tree status
Mode Privileged Mode
17) show storm-control
This command is used to displays storm-control information
Format show storm-control
Mode Privileged Mode
18) show sysinfo
This command is used to displays system information including system up time
Format show sysinfo
Mode Privileged Mode
19) show switch
This command is used to displays switch information
19.1) show switch admin-time
This command displays the age time of web and console
Format show switch admin-time
Mode Privileged Mode
19.2) show switch age-time
This command displays the age time of L2 table
Format show switch age-time
Mode Privileged Mode
19.3) show switch mac-table
This command is used to displays address resolution protocol cache
19.3.1)show switch mac-table all
This command displays all element of the mac table
Format **show switch mac-table all**
Mode **Privileged Mode**
19.3.2)show switch mac-table vlan
    This command displays all mac in a specify vlan.
Format **show switch mac-table vlan <vlan-id>**
Mode **Privileged Mode**
19.3.3)show switch mac-table port
This command displays all mac in a specify port
Format **show switch mac-table port <port-id>**
Mode Privileged Mode
19.4) show switch mcast-table
This command displays multicast address table
Format show switch mcast-table
Mode Privileged Mode
19.5) show switch mac
This command displays vlan and port info by the specific mac address
Format show switch mac
Mode Privileged Mode

20) show trapflags
This command is used to displays the value of trap flags that apply to the

switch

Format   show trapflags

Mode   Privileged Mode

21) show vlan

This command is used to displays vlan configuration

21.1)show vlan member

This command displays vlan configuration

Format   show vlan member *<1..4094>*

Mode   Privileged Mode

21.2)show vlan number

This command displays how many vlans has been created

Format   show vlan number

Mode   Privileged Mode

22) show rmon

This command displays rmon information.

22.1) show rmon event

22.1.1) show rmon event Index

This command displays rmon event table.

Format   show rmon event index *<1..65535>*

Mode   Privileged Mode

22.1.2) show rmon event

Format Show rmon event<CR>

Mode   Privileged Mode

22.2) show rmon event log

This command displays rmon event log.

Format   Show rmon event log event _index <1..65535>

Mode   Privileged Mode

22.3) show rmon alarm

22.31) show rmon alarm index

This command displays rmon Alarm table.

Format   show rmon alarm index <1..65535>

Mode   Privileged Mode

22.3.2) show rmon alarm

Format   show rmon alarm<CR>

Mode   Privileged Mode

22.4) show rmon history

22.4.1)show rmon history index

This command displays enabled rmon history.

Format   show rmon history index <1..65535>

Mode   Privileged Mode

22.4.2)show rmon history <CR>

Format   show rmon history <CR>

Mode   Privileged Mode

22.5) show rmon statistics

This command displayss port summary statistics.

Format   Show rmon statistics <port-index>

Mode   Privileged Mode

23)show poe

This command is used to displays poe mode and settings,displays poe port status

23.1) show poe port-index

This command is used to specify an switch poe interface
Format   show poe port-index <port-ID>
Mode   Privileged Mode
23.2)show poe all
This command is used to displays all switch poe interface
Format   show poe all
Mode   Privileged Mode
23.3)show poe system-status
      This command is used to displays PoE system status
      Format   show poe system-status
      Mode   Privileged Mode
24)show tacplus
      This command is used to displays TACACS+ information, includes
authentication type and server parameters.
Format   show tacplus
Mode   Privileged Mode
25)show arp
This command is used to displays table of static ARP.
Format   show arp
Mode   Privileged Mode
26)show acl
This command is used to displays information about ACL entries.
Format   show acl
Mode   Privileged Mode
27)show dhcpsnooping
Note:These commands only supports on the following switches,
4. 24-Port 1000BaseT with 2 shared Gigabit SFP Layer 2+ Management Switch
5. 48-Port 1000BaseT with 4 shared Gigabit SFP Layer 2+ Management Switch
This command is used to display dhcp snooping information.
27.1)show dhcpsnooping config
  This command is used to displays dhcp snooping global configuration
Format   show dhcpsnooping config
Mode   Privileged Mode
27.2)show dhcpsnooping port
  This command is used to displays dhcp snooping trust port.
Format   show dhcpsnooping port
Mode   Privileged Mode
27.3)show dhcpsnooping vlan
  This command is used to displays dhcp snooping vlan
Format   show dhcpsnooping vlan
Mode   Privileged Mode
27.4)show dhcpsnooping database
  This command is used to displays dhcp snooping database entries.
  27.4.1)show dhcpsnooping database all
  This command is used to show all dhcpsnooping entries
Format   show show dhcpsnooping database all
Mode   Privileged Mode
27.4.2)show dhcpsnooping database static
  This command is used to show all dhcpsnooping static entries
Format   show show dhcpsnooping database static
Mode   Privileged Mode

27.4.3)show dhcpsnooping database dynamic
  This command is used to show all dhcpsnooping dynamic entries
Format   show show dhcpsnooping database dynamic
Mode   Privileged Mode
28)show ipsrcgd
Note:This command only supports on the following switches,
4. 24-Port 1000BaseT with 2 shared Gigabit SFP Layer 2+ Management Switch
5. 48-Port 1000BaseT with 4 shared Gigabit SFP Layer 2+ Management Switch
       This command is used to displays the cofig,ports and database of the IP
source Guard.
28.1)show ipsrcgd config
  This command is used to displays the configuration of IP Source Guard.
    Format   show ipsrcgd config
Mode   Privileged Mode
28.2)show ipsrcgd ports
  This command is used to displays ports which enabled IP Source Guard
     Format   show ipsrcgd ports
Mode   Privileged Mode
28.3)show ipsrcgd database
  This command is used to displays the database of IP Source Guard.
Format   show ipsrcgd database
Mode   Privileged Mode
29)show https
       This command is used to displays https information.
    Format   show https
Mode   Privileged Mode
30)show loop_detect
This command is used to displays selfloop detect information
     Format   show loop_detect
     Mode   Privileged Mode

telnet
This command is used to telnet the other host.
Format   telnet *<A.B.C.D>*
Mode   Privileged Mode

3.3.3.   Global Config mode commands

exit
This command is used to exit current shell
Format   exit
Mode   Global Config

vlan
This command is used to configure vlan

1) vlan add
This command is used to create a new vlan or some vlans
1.1) vlan add number
This command enter a vlan ID

Format   vlan add number *<vlan-ID>*
Mode   Global Config
1.2) vlan add range
This command enter a range of vlan ID
Format   vlan add range from < *vlan-ID* > to *<vlan-ID>*
Mode   Global Config
2) vlan delete
This command remove a existed vlan
Format   vlan delete *<vlan-ID>*
Mode   Global Config
3) vlan ingress
Note: This command *only supports on the following switches,*
3   48-Port 100BaseTX + 4 1000BaseT with 2 shared Gigabit SFP Layer 2+ Management Switch
This command performs ingress vlan source port membership check
3.1) vlan ingress forward
The command is used to forward frame but don't learn SA into ARL table
Format   vlan ingress forward
Mode   Global Config
3.2) vlan ingress drop
This command is used to drop frames violation vid
Format   vlan ingress drop
Mode   Global Config
3.3) vlan ingress bypass
This command is used to forward frame and learn SA into ARL table
Format   vlan ingress bypass
Mode   Global Config
4) vlan port
This command is used to configure 802.1Q port parameters for vlans
4.1) vlan port all
This command is used to configure all ports
1.1) vlan port all port-configure
This command is used to configure ports in a specific vlan
Format   vlan port all port configure *<vlan-ID>*
Mode   Global Config
1.2) vlan port all protected
This command is used to configure protected ports
Format   vlan port all protected {enable|disable}
Mode   Global Config
1.3) vlan port all pvid
This command is used to configure port pvid
Format   vlan port all pvid *<vlan-ID>*
Mode   Global Config
4.2) vlan port ports
This command is used to configure multiple ports
4.2.1) vlan port ports port-configure
This command is used to configure ports in a specific vlan
Format   vlan port ports port-configure *<vlan-ID>*
Mode   Global Config
4.2.2) vlan port ports protected
This command is used to configure protected ports

Format　vlan port ports protected {enable|disable}
Mode　Global Config
4.2.3) vlan port ports pvid
This command is used to configure port vid
Format　vlan port ports pvid < *vlan-ID*>
Mode　Global Config
5) vlan lag
This command is used to configure lag to a special vlan
5.1) vlan lag vlan < vlan-id> exclude
This command is used to remove lag from a vlan
Format　vlan lag vlan < *vlan-ID*> exclude lags *<lag-ID>*
Mode　Global Config
5.2) vlan lag vlan <vlan-ID> untagged
This command is used to set to untagged lag.
Format　vlan lag vlan *<vlan-ID>* untagged lags *<lag-ID>*
Mode　Global Config
5.3) vlan lag vlan <vlan-ID> tagged
This command is used to set to tagged lag.
Format　vlan lag vlan *<vlan-ID>* tagged lags *<lag-ID>*
Mode　Global Config

bridge
This command is used to configure switch aging time
Format　bridge aging-time <0-1048575>
Mode　Global Config

lacp-syspri
This command is used to configure lacp system priority
Format　lacp-syspri system-priority <0-65535>
Mode　Global Config

link-aggregation
This command is used to configure link aggregation
1) link-aggregation addport
This command is used to configure LAG groups
Format　Link-Aggregation addport lag *<LAG-ID>*
Mode　Global Config
2) link aggregation delport
This command remove ports from LAG
2.1) Link Aggregation delport all
This command remove all ports from a LAG
Format　link-aggregation-delport all lag *<LAG-ID>*
Mode　Global Config
2.2) link aggregation delport lag
This command remove specify LAG group
Format　link aggregation delport lag *<LAG-ID>*
Mode　Global Config

lldp
1) lldp enable
This command is used to enable lldp functions

Format   lldp enable
Mode   Global Config
2) lldp disable
This command is used to disable lldp functions
Format   lldp disable
Mode   Global Config
3) lldp adv-interval
This command is used to specify advertised interval in seconds
Format   lldp adv-interval <5-32768>
Mode   Global Config
4) lldp fast-startcnt
This command is used to specify fast-start count
Format   lldp fast-startcnt *<1-10>*
Mode   Global Config
5) lldp hold
This command is used to specify hold value
Format   lldp hold *<2-10>*
Mode   Global Config
6) lldp notify-interval
This command is used to specify notification interval in seconds
Format   lldp notify-interval <5-3600>
Mode   Global Config
7) lldp reinit-delay
This command is used to specify re-initialization delay in seconds
Format   lldp reinit-delay <1-10>
Mode   Global Config
8) lldp tx-delay
Transmit Delay in seconds
Format lldp tx-delay <1-8192>
Mode   Global Config
9) lldp mgmt-addrtxport
A range of ports can be set.
Format   lldp mgmt-addrtxport ports <port list>
Mode   Global Config
e.g. switch(config)# lldp mgmt-addrtxport ports 1
    switch(config)# lldp mgmt-addrtxport ports 1-4

log
This command is used to configure log server
1) log log-server
This command is used to configure log server
1.1) log log-server name <WORD>add
This command is used to specify log server name, enter a name, up to 12
characters, add a log server IP address
Format   log log-server name *<WORD>* add ipaddr word
Mode   Global Config
1.2) log log-server name <word> delete
This command is used to delete a log server
Format   log log-server name *<WORD>* delete
Mode   Global Config
2) log logging-target

This command is used to configure log notification level

2.1) log logging-target memory

This command is used to specify memory log notify-level

Format log logging-target memory {enable|disable}

Mode Global Config

2.2) log logging-target flash

This command is used to specify flash log notify-level

Format log logging-target flash {enable|disable}

Mode Privileged Mode

2.3) log logging-target console

This command is used to specify console log notify-level

Format log logging-target console {enable|disable}

Mode Global Config

2.4) log logging-target server

This command is used to specify console log notify-level

Format log logging-target server name <*WORD*> {enable|disable}

Mode Global Config

radius-server

This command is used to configure radius server

Format radius-server ip <*IP addr*>

Mode Global Config

static-address

This command is used to specify static address

1) static-address add

This command is used to add static mac address

Format static-address add <*mac addr*> vid <*vlan-ID*> port <*port-ID*>

Mode Global Config

2) static-address delete

This command is used to delete static mac address

Format static-address delete <mac *addr*> vid <vlan-*ID*>

Mode Global Config

mgmt-accesslist

1) mgmt-accesslist ipaddr

This command specifies a management access IP for the DUT, up to 8 IP
address can be set.

Format mgmt-accesslist ipaddr <*IP addr*>

Mode Global Config

2) mgmt-accesslist enable

This command enables management access list. Only the IP address
specified in the management list is allowed to access DUT.

Format mgmt-accesslist enable

Mode Global Config

3) mgmt-accesslist disable

This command disables management access list.

Format mgmt-accesslist disable

Mode Global Config

monitor

1) monitor enable
This command enables port mirroring.
Format   monitor enable
Mode   Global Config
2) monitor disable
This command disables port mirroring.
Format   monitor disable
Mode   Global Config
3) monitor des
Configure destination port.
3.1) monitor des <port-ID> probetype bidirection
This command configures port monitor probetype as bi-direction traffic.
Format   monitor des *<port-ID>* probetype bidirection src *<port list>*
Mode   Global Config
e.g.   Switch(config)# monitor des 1 probetype bidirection src 2-8
3.2) monitor des <port-ID> probetype ingress
This command configures port monitor probetype as ingress traffic.
Format   monitor des *<port-ID>* probetype ingress src *<port list>*
Mode   Global Config
e.g.   Switch(config)# monitor des 1 probetype ingress src 2-8
3.3) monitor des <port-ID> probetype egress
This command configures port monitor probetype as egress traffic.
Format   monitor des *<port-ID>* probetype egress src *<port list>*
Mode   Global Config
e.g.   Switch(config)# monitor des 1 probetype egress src 2-8

dot1x
1) dot1x enable
This command enables global 802.1x function.
Format   dot1x enable
Mode   Global Config
2) dot1x disable
This command disables global 802.1x function.
Format   dot1x disable
Mode   Global Config
3) dot1x port-control
Configure port auto-authentication mode.
3.1) dot1x port-control enable
This command set auto-authorized on a list of ports.
Format   dot1x port-control enable port *<port list>*
Mode   Global Config
3.2) dot1x port-control disable
This command set force authorized on a list of ports.
Format   dot1x port-control disable port *<port list>*
Mode   Global Config
e.g.   Switch(config)# dot1x port-control disable port 1-4

network
1) network mgmt-vlan
This command changes management vlan.
Format   network mgmt-vlan *<vlan-ID>*

Mode   Global Config

2) network parms

This command configures static IP address of the switch.

Format   network parms *<IP addr> <subnet mask> <gateway>*

Mode   Global Config

3) network protocol

This command configure switch dhcp client.

Format   network protocol {dhcp|none}

Mode   Global Config

4) network dhcp-relay

Configure switch dhcp relay functions.

4.1) network dhcp-relay mode

This command configures dhcp relay mode.

Format   network dhcp-relay mode {enable|disable}

Mode   Global Config

4.2) network dhcp-relay server

This command configures dhcp-relay server ip-address.

Format   network dhcp-relay server *<A.B.C.D>*

Mode   Global Config

4.3) network dhcp-relay vlan

Configure dhcp-relay option-82 vlan information.

3.1) network dhcp-relay vlan <vlan-ID> add

This command enters a vlan which will be enable DHCP-relay option82.

Format   network dhcp-relay vlan *<vlan-ID>* add

Mode   Global Config

3.2) network dhcp-relay vlan <vlan-ID> remove

This command enters a vlan which will be disable dhcp-relay option82.

Format   network dhcp-relay vlan *<vlan-ID>* remove

Mode   Global Config

5) network sysinfo

Configure switch system information.

5.1) Network sysinfo sysname

This command configures system name.

Format   network sysinfo sysname *<WORD>*

Mode   Global Config

5.2) network sysinfo syslocate

This command configures system location.

Format   network sysinfo syslocate *<WORD>*

Mode   Global Config

5.3) network sysinfo syscontact

This command configures system contact information.

Format   network sysinfo syscontact *<WORD>*

Mode   Global Config

6) network admin-timeout

This command configures web/console admin time out interval.

'0' means disable.

Format   network admin-timeout *<0-65535>*

Mode   Global Config

port-all

1) port-all admin-mode

This command configures ports admin mode.
Format   port-all admin-mode {enable | disable}
Mode   Global Config
2) port-all auto-negotiate
This command configures ports auto-negotiation mode.
Format   port-all auto-negotiate {enable|disable}
Mode   Global Config
3) port-all flow-control
This command configures ports flow control.
Format   port-all flow-control {enable|disable}
Mode   Global Config
4) port-all portsec-lockmode
Configure port security.
4.1) port-all portsec-lockmode none
This command disable port security.
Format   port-all portsec-lockmode none
Mode   Global Config
4.2) port-all portsec-lockmode static
Note: This commands only support on **24-Port 100BaseTX + 2 Gigabit combo Layer**
2 Management Switch & **48-Port 100BaseTX + 4 1000BaseT with 2 shared Gigabit SFP**
Layer 2+ Management Switch models
This command enable static lock mode.
Format   port-all portsec-lockmode static
Mode   Global Config
4.3) port-all portsec-lockmode dynamic
This command enable limited dynamic lock mode.
Format   port-all portsec-lockmode dynamic max-entries <0-24>
Mode   Global Config
5) port-all rate-limit
Configure rate limit value on all ports.
5.1) port-all rate-limit egress
This command specifies egress rate limit.
Format   port-all Rate-Limit egress *<value>*
Mode   Global Config
5.2) port-all rate-limit ingress
This command specifies ingress rate limit.
Format   port-all rate-limit ingress *<value>*
Mode   Global Config
6) port-all rmon-counter
This command configures rmon counter capability on ports.
Format   port-all rmon-counter {enable|disable}
Mode   Global Config
7) port-all speed
This command configures ports speed.
Format   port-all speed {10hd|10fd|100hd|100fd}
Mode   Global Config
8) port-all storm-control
Configure all ports' storm control settings.
8.1) port-all storm-control disable
This command disables storm control.
Format   port-all Storm-Control disable

Mode   Global Config

8.2) port-all storm-control broadcast

This command configures storm control for broadcast only.

Format   port-all storm-control broadcast *<value>*

Mode   Global Config

8.3) port-all storm-control broadcast-multicast

This command configures storm control for broadcast and multicast.

Format   port-all Storm-Control broadcast-multicast *<value>*

Mode   Global Config

8.4) port-all storm-control broadcast-unknown

This command configures storm control for broadcast and unknown unicast.

Format   port-all storm-control broadcast-unknown *<value>*

Mode   Global Config

8.5) port-all storm-control all-cast

This command configures storm control for broadcast, multicast and unknown unicast.

Format   port-all Storm-Control all-cast *<value>*

Mode   Global Config

qos

1) qos qos-advanced

Configure qos advanced mode.

1.1) qos qos-advanced DSCP

This command enables DSCP mode.

Format   qos qos-advanced DSCP

Mode   Global Config

1.2) qos qos-advanced ip_precedence

This command enables IP Precedence mode.

Format   qos qos-advanced ip_precedence

Mode   Global Config

1.3) qos qos-advanced none

This command disables qos advanced mode.

Format   qos qos-advanced none

Mode   Global Config

2) qos cos

This command configures 802.1p priority queue mapping.

Format   Qos cos priority <0-7> queue <1-4>

Mode   Global Config

3) qos dscp

This command specifies dscp value to queue mapping.

Format   qos dscp <0-63> queue <1-4>

Mode   Global Config

4) qos port-based

This command configures port-based priority mapping.

Format   qos port-based port *<WORD>*status {enable | disable}

Mode   Global Config

5) qos scheduling

Configure qos scheduling mode.

5.1) qos scheduling strict

This command sets to strict priority.

Format   qos scheduling strict

Mode   Global Config

5.2) qos scheduling wrr

This command sets to Weight Round-Robin.

Format   qos scheduling wrr

Mode   Global Config

6) qos ip-precedence

This command configures IP precedence queue mapping.

Format   qos ip-precedence <0-7> queue <1-4>

Mode   Global Config

7) qos wrr

This command configures queue weight for weight round robin.

Format   qos wrr weight <1-15> queue <1-4>

Mode   Global Config

8) qos dscp-remark

Note: This command only supports on the following switches,

2. 24-Port 100BaseTX + 2 Gigabit combo Layer 2+ Management Switch

4. 24-Port 1000BaseT with 2 shared Gigabit SFP Layer 2+ Management Switch

5. 48-Port 1000BaseT with 4 shared Gigabit SFP Layer 2+ Management Switch

This command is used to change DSCP value if the outgoing packet is an IP packet. Select an ACL Entry Name as the criterion and then enter New DSCP Value as the action. Once the criterion is hit, the DSCP value will be changed.

Format qos dscp-remark acl_entry_name <name> new_dscp_value <0-63>

Mode   Global Config

set

1) set IGMP

Configure IGMP snooping.

1.1) set igmp enable

This command enables igmp snooping.

Format   set igmp enable

Mode   Global Config

1.2) set igmp disable

This command disables IGMP snooping.

Format   set igmp disable

Mode   Global Config

1.3) set igmp last-memberquery

This command specifies last member query interval.

Format   set igmp last-memberquery <1-200>

Mode   Global Config

1.4) set igmp last-membercount

This command specifies last member count.

Format   set igmp last-membercount <1-20>

Mode   Global Config

1.5) set igmp query-interval

This command specifies igmp query interval<secs>.

Format   set igmp query-interval <10-600>

Mode   Global Config

1.6) set igmp query-resinterval

This command specifies igmp query response interval<secs>.

Format   set igmp query-resinterval <0-200>

Mode   Global Config

1.7) set igmp robustness
This command specifies robustness variable.
Format   set igmp robustness <1-20>
Mode   Global Config
1.8) set igmp router-port
This command specifies igmp router port.
Format   set igmp router-port ports *<port list>*
Mode   Global Config
e.g. Switch(config)# set igmp router-port ports 1-10
2) set igmp-querier
This command configures igmp querier.
Format   set igmp-querier {enable | disable}
Mode   Global Config
3) set igmp-proxy
This command configures igmp proxy.
Format   set igmp-proxy {enable | disable}
Mode   Global Config
4) set static-mcast
Configure static multicast.
4.1) set static-mcast name <WORD> add
This command create a multicast group.
Format   set static-mcast name *<WORD>* add vid *<vlan-ID>* mac
*<mac-addr>*member port *<port list>*
Mode   Global Config
4.2) set static-mcast name <WORD>delete
This command delete a static multicast group.
Format   set static-mcast name *<WORD>*delete
Mode   Global Config

snmp
1) snmp notify
This command configures snmp notification.
Format   snmp notify {enable|disable}
Mode   Global Config
2) snmp group
2.1) snmp group add
This command create a snmp group.
Format   snmp group add *<WORD>*version <1-2>
Mode   Global Config
2.2) snmp group delete
This command delete a snmp group.
Format   snmp group delete *<WORD>*
Mode   Global Config
3) snmp user
3.1) snmp user add
This command creates a snmp user.
Format   snmp user add *<user name>* group *<group name>* version *<1-3>*
Mode   Global Config
3.2) snmp user delete
This command deletes a snmp user.
Format   snmp user delete *<WORD>*

Mode Global Config

4) snmp community

4.1) snmp community add

This command creates a community.

Format snmp community add *<community name>* group *<group name>* mgmt-ip *<ip-addr>*

Mode Global Config

4.2) snmp community delete

This command deletes a community.

Format snmp community delete *<community name>*.

Mode Global Config

5) snmp trapstation

5.1) snmp trapstation add

Create a snmp trap station.

5.1.1) snmp trapstation add <ip-addr> community <community name> type bootup

Send trap when system reboot

Format snmp trapstation add *<ip-addr>* community *<community name>* type bootup trap-version {1|2}

Mode Global Config

5.1.2) snmp trapstation add <ip-addr> community <community name> type linkchange

Send trap when port link change.

Format snmp trapstation add *<ip-addr>* community *<community name>* type linkchange trap-version {1|2}

Mode Global Config

5.1.3) snmp trapstation add <ip-addr> community <community name> type both

Send trap when system reboot or port link change.

Format snmp trapstation add *<ip-addr>* community *<community name>* type both trap-version {1-2}

Mode Global Config

5.1.4) snmp trapstation add <ip-addr> community <community name> type none

Send no trap.

Format snmp trapstation add *<ip-addr>* community *<community name>* type none trap-version {1-2}

Mode Global Config

5.2) snmp trapstation delete

This command delete a trap station.

Format snmp trapstation delete *<WORD>*

Mode Global Config

sntp

1) sntp daylight

This command enables or disables the daylight saving configuration.

Format sntp daylight {enable|disable}

Mode Global Config

2) sntp localtime

Configure the local time.

2.1) sntp localtime enable

This command enables local time.
Format   sntp localtime enable
Mode   Global Config
2.2) sntp localtime localtime_date
This command sets local time.
Format   sntp localtime localtime_date *<year> <month> <date> <hour> <minute> <second>*
Mode   Global Config
3) sntp server
3.1) sntp server enable
This command enables sntp server.
Format   sntp server enable
Mode   Global Config
3.2) sntp server ipaddr
This command sets sntp server IP address.
Format   sntp server ipaddr *<IP-addr>*
Mode   Global Config
3.3) sntp server polling
This command sets sntp server polling time interval.
Format   sntp serve polling *<0-9>*
Mode   Global Config
4) sntp timezone
This command sets sntp timezone.
Format   sntp timezone <1-75>
Mode   Global Config

spanning-tree
1) spanning-tree forceversion
This command configures Spanning Tree protocol version.
1.1) spanning-tree forceversion 8021s
This command selects spanning tree type as 8021.s(multiple Spanning Tree).
Format   spanning-tree forceversion 8021s
Mode   Global Config
1.2) spanning-tree forceversion 8021w
This command selects spanning tree type as 802.1w(rapid Spanning Tree).
Format   spanning-tree forceversion 8021w
Mode   Global Config
1.3) spanning-tree forceversion none
This command selects none spanning tree type.
Format   spanning-tree forceversion none
Mode   Global Config
2) spanning-tree configuration
This command configures MSTP region name and revision.
2.1) spanning-tree configuration name
This command configures MSTP region name (Max.32 chars).
Format   spanning-tree configuration name *<WORD>*
Mode   Global Config
2.2) spanning-tree configuration revision
This command configures revision level.
Format   spanning-trees configuration revision <0-65535>
Mode   Global Config

3) spanning-tree forward-time

This configures the bridge forward delay parameter.

Format   spanning-tree forward-time <4-30>

Mode   Global Config

4) spanning-tree max-age

This command configures the bridge max age parameter.

Format spanning-tree max-age <6-40>

Mode   Global Config

5) spanning-tree max-hops

This command configure the number of hops in a region.

Format   spanning-tree max-hops <1-40>

Mode   Global Config

6) spanning-tree port

6.1) spanning-tree port all

This command specifies RSTP capability for all ports.

Format   spanning-tree port all {enable |disable}

Mode   Global Config

6.2) spanning-tree port cost

This command configures RSTP port path cost.

Format   spanning-tree port cost <0-200000000>

Mode   Global Config

6.3) spanning-tree port priority

This command configures RSTP port priority.

Format   spanning-tree port priority <0-24>

Mode   Global Config

6.4) spanning-tree port edge

This command configures STP edge .

Format   spanning-tree port edge {enable|disable} ports <port-list>

Mode   Global Config

6.5) spanning-tree port force-p2plink

This command configures force point to point link mode on ports.

Format   spanning-tree port force-p2plink {auto|enable|disable} ports <port-list>

Mode   Global Config

6.6) spanning-tree port migration-check

This command Re-checks the appropriate BPDU format to send on ports.

Format   spanning-tree port migration-check {enable|disable} ports <port-list>

Mode   Global Config

6.7) spanning-tree port root-guard

  This command is used to configure stp root guard.

  Format   spanning-tree port migration-check {enable|disable} ports <port-list>

Mode   Global Config

7) spanning-tree priority

This command configures RSTP bridge priority value.

Format   spanning-tree priority <0-61440>

Mode   Global Config

8) spanning-tree mst

Configure a multiple spanning tree instance.

8.1) spanning-tree mst instance

This command creates or removes a MST instance

8.1.1) spanning-tree mst instance add
This command creates a MST instance.
Format   spanning-tree mst instance add vlan *<vlan list>* mstpid *<MST ID>*
Mode   Global Config
e.g.   Switch(Config)# Spanning-Tree mst instance add vlan 2-5 mstpid 2
        Switch(Config)# Spanning-Tree mst instance add vlan 6 mstpid 3
8.1.2) spanning-tree mst instance delete
This command removes the last MST instance.
Format   spanning-tree mst instance delete
Mode   Global Config
8.2) spanning-tree mst vlan
This command adds or deletes vlan frome a MSTP instance.
8.2.1) spanning-tree mst vlan <MST ID> <vlan list> add
This command creates a MST instance.
Format   spanning-tree mst vlan *<MST ID> <vlan list>* add
Mode   Global Config
e.g.   Switch(Config)# Spanning-Tree mst vlan 3 3-5 add
8.2.2) Spanning-Tree mst vlan <MST ID> <vlan list> delete
This command deletes a vlan from a MST instance.
Format   Spanning-Tree mst vlan *<MST ID>* < vlan *list>* delete
Mode   Global Config
8.3) spanning-tree mst bridgepri
This command configures bridge priority for a MST instance.
Format   spanning-tree mst bridgepri *<MST ID> <priority>*
Mode   Global Config
8.4) spanning-tree mst cost
This command configures port path cost in a MST instance.
Format   spanning-tree mst cost *<MST ID> <path cost>* ports *<port list>*
Mode   Global Config
8.5) spanning-tree mst priority
This command configures port priority in a MST instance
Format   spanning-tree mst priority *<MST ID> <priority>* ports *<port list>*
Mode   Global Config

User
This command changes user password.
Format   user password
Mode   Global Config

Interface
This command enters into configure interface mode.
Format   Interface *<port-ID>*
Mode   Global Config

rmon
This command is used to configure RMON.
1) rmon event
This command creates rmon event entry.
Format   rmon event index < *1..65535* > desc *<WORD>* event *<1..4>*
community *<WORD>*owner*<WORD>*
Mode   Global Config

e.g.   Switch(Config)# rmon event index 1 desc 123 event 4 community 123 owner test

2) rmon alarm

This command creates rmon alarm entry.

Format   rmon alarm index < 1..65535 >interval<0..3600>interface<port number>counter<1..17>sample{absolute|delta}start{rasing|falling|all}rthreshold<0..65535>fthreshold<*0..65535*> reindex <*0..65535*> feindex<*0..65535*> owner< *WORD*>

Mode   Global Config

e.g. Switch(Config)# RMON alarm index 1 interval 10 interface   counter 1 sample delta start all rthreshold 100   fthreshold 10 reindex 1 feindex 0 owner test

3) rmon del

3.1) rmon del event

This command deletes rmon event entry.

Format   rmon del event index< 1..65535 >

Mode   Global Config

3.2) rmon del alarm

This command deletes rmon alarm entry.

Format   rmon del alarm index< 1..65535 >

Mode   Global Config

access list

Note: This commands only support on L2+ Management Switches.

1) access-list name <WORD> add

This command creates a new access-list.

Format   access-list name <*WORD*> add priority <1-65535>

Mode   Global Config

2) access-list name <WORD> action

2.1) access-list name <WORD> action deny

This command denies an ACL entry.

Format   access-list name <*WORD*> action deny

Mode   Global Config

2.2) access-list name <WORD> action permit

This command permits an ACL entry and queue 1-4 will assign priority queue when rule activated.

Format   access-list name <*WORD*> action permit {<cr>|queue <1-4>}

Mode   Global Config

3) access-list name <WORD> clear

This command clears ACL entry contents.

3.1) access-list name <WORD> clears SRC IP

This command clears the source IP/subnet mask filter.

Format   access-list name <*WORD*> clear SRC IP

Mode   Global Config

3.2）access-list name <WORD> clears DST IP

This command clears the destination IP/subnet mask filter.

Format   access-list name <*WORD*> clear DST IP

Mode   Global Config

3.3) access-list name <WORD> clear L4port

3.3.1) access-list name <WORD> clear L4port SRC port

This command clears TCP/UDP source port filter.

Format   access-list name <*WORD*> clear l4port SRC port
Mode   Global Config
3.3.2) access-list name <WORD> clear l4port DST port
This command clears TCP/UDP destination port filter.
Format   access-list name <*WORD*> clear l4port DST port
Mode   Global Config
3.4) access-list name <WORD> clear packet-type
This command clears packet type filter.
Format   access-list name <*WORD*> clear packet-type
Mode   Global Config
3.5) access-list name <WORD> clear mac SA
This command clears a source mac address.
Format   Access-list name <*WORD*> clear mac SA
Mode   Global Config
3.6) access-list name <WORD> clear MAC DA
This command clears a destination mac address.
Format   Access-list name <*WORD*> clear mac DA.
Mode   Global Config
3.7) access-list name <WORD> clear VID
This command clears the 802.1Q VLAN tag of packet.
Format   Access-list name <*WORD*> clear VID
Mode   Global Config
3.8) access-list name <WORD> clear ether-type
This command clears ether type filter.
Format   access-list name <*WORD*> clear ether-type
Mode   Global Config
4) access-list name <WORD> deletes.
This command removes the ACL entry.
Format   access-list name <*WORD*> deletes
Mode   Global Config
5) access-list name <WORD> {enable|disable}
This command enables/disables the ACL entry.
Format   access-list name <*WORD*> {enable|disable}
Mode   Global Config
6) access-list name <WORD> set
6.1) access-list name <WORD> set priority
This command specifies ACL entry priority.
Format   access-list name <*WORD*> set priority <0-65535>
Mode   Global Config
6.2)   access-list name <WORD> set IP-mode
6.2.1) access-list name <WORD> set IP-mode SRC IP.
This command specifies a source IP address.
Format   access-list name <*WORD*> set IP-mode SRC IP <IP-addr>
<*mask-addr*>
Mode   Global Config
6.2.2) access-list name <WORD> set IP-mode DST IP
This command specifies a destination IP address.
Format   access-list name <*WORD*> set IP-mode DSP IP <*IP-addr*>
<*mask-addr*>
Mode   Global Config
6.3) access-list name <WORD> set L4port

This command specifies the TCP/UDP port range.

6.3.1) access-list name <WORD> set l4port SRC-port

This command specifies the source TCP/UDP port range.

Format Access-list name <*WORD*> set L4 port SRE-port from <1-65535> to <1-65535>

Mode Global Config

6.3.2) access-list name <WORD> set l4port DST-port

This command specifies the destination TCP/UDP port range.

Format access-list name <*WORD*> set l4port DST-port from <1-65535> to <1-65535>

Mode Global Config

6.4) access-list name <WORD> set IP-mode packet-type

This command specifies the packet type.

Format access-list name <*WORD*> set IP-mode packet-type {ICMP|IGMP|IP|TCP|UDP|GRE}

Mode Global Config

6.5) access-list name <WORD> set mac-mode

Specify ACL entry priority.

6.5.1) access-list name <WORD> set mac-mode mac SA

This command specifies a source mac address.

Format access-list name <*WORD*> set mac-mode mac SA <mac-addr> <mask-addr>

Mode Global Config

6.5.2) access-list name <WORD> set mac-mode mac DA

This command specifies a destination mac address.

Format access-list name <*WORD*> set mac-mode mac DA <*mac-addr*> <*mask-addr*>

Mode Global Config

6.6) access-list name <WORD> set mac-mode ether-type

This command specifies the ether type of the packet.

Format access-list name <*WORD*> set mac-mode ether-type {ipv4|ARP|xns}

Mode Global Config

7) access-list name <name> set portlist

Note: This command only supports on the following switches,

2. 24-Port 100BaseTX + 2 Gigabit combo Layer 2+ Management Switch

3. 48-Port 100BaseTX + 4 1000BaseT with 2 shared Gigabit SFP Layer 2+ Management Switch

4. 24-Port 1000BaseT with 2 shared Gigabit SFP Layer 2+ Management Switch

5. 48-Port 1000BaseT with 4 shared Gigabit SFP Layer 2+ Management Switch

This command is used to specify an acl entry to be work on a list of ports.

Format access-list name <name> set portlist <LINE | port_id>

Mode Global Config

arp

Note: This commands only support on **24-Port 1000BaseT with 2 shared Gigabit SFP Layer 2+ Management Switch** / **48-Port 1000BaseT with 4 shared Gigabit SFP Layer 2+ Management Switch** models.

1) arp dynamic

1.1) arp dynamic enables and disables.

This command enables and disables dynamic arp functions.

Format   arp dynamic {enable|disable}
Mode   Global Config
1.2) arp dynamic aging-time
This command set arp dynamic aging-time between 0s and 999s."0"means
disable.
Format   arp dynamic aging-time <0~999>
Mode   Global Config
1.3) arp dynamic ports
This command set dynamic arp ports to trust and un-trust.
Format   arp dynamic ports {trust|untrust} <port-list>
Mode   Global Config
e.g.   Swtich<Config># arp dynamic ports trust 1-4
        Swtich<Config># arp dynamic ports untrust 4
1.4) arp dynamic vlan
This command set add/remove dynamic arp on specified vlan.
Format   arp dynamic vlan {add|remove} from < vlan -id> to < vlan -id>
Mode   Global Config
e.g.   Swtich<Config># arp dynamic vlan add from 1 to 1
Swtich<Config># arp dynamic vlan remove from 1 to 1
2) arp static command
This command set arp static address table for mac address with IP Address.
Format   arp static {add|delete} vid <1~4094> ip <A.B.C.D> mac
<mac-address>
Mode   Global Config

dos
Note: This command only supports on the following switches,
3. 48-Port 100BaseTX + 4 1000BaseT with 2 shared Gigabit SFP Layer 2+ Management Switch
4. 24-Port 1000BaseT with 2 shared Gigabit SFP Layer 2+ Management Switch
5. 48-Port 1000BaseT with 4 shared Gigabit SFP Layer 2+ Management Switch
1) dos land
This command enables and disables land-type attacks prevention.
Format   dos land {enable|disable}
Mode   Global Config
2) dos blat
This command enables and disables blat-type attack prevention.
Format   dos blat {enable|disable}
Mode   Global Config
3) dos syn-fin
This command enables and disables SYN-fin-type attack prevention.
Format   dos syn-fin {enable|disable}
Mode   Global Config
4) dos ports
4.1) dos ports smurf
This command enables and disables Smurf-TYPR attack prevention.
Format   dos ports smurf {enable|disable}
Mode   Global Config
4.2)dos ports ping-flooding
This command enables and disables ping-flooding-type attack prevention.
Format   dos ports ping-flooding {enable|disable}

Mode   Global Config
4.3)dos ports synack-flooding
This command enables and disables SYNACK -flooding -type attack
prevention. Set rate is 64 kbps or 128kbps for port lists (1, 3-5, 7-9.11)
Format   dos ports synack -flooding {enable|disable} rate {64|128} <port-list>
Mode   Global Config
e.g.   Switch<Config>#dos ports synack -flooding enablerate 64 1-4
        Switch<Config>#dos ports synack -flooding enablerate 64 5

tacplus
1) tacplus authen_type
This command is used to set authentication type. There are three types for
selecting: local, tacplus, localandtacplus.
Format   tacplus authen_type {local | tacplus | localandtacplus}
Mode   Global Config
2) tacplus add
This command is used to add a new TACACS+ server and set server IP
address, priority, key string, authentication port and timeout for reply.
Format   tacplus add server <IP_addr> priority <0-65535> key <key string>
port <auth port id> timeout <1-30>
Mode Global Config
3) tacplus del
This command is used to delete a TACACS+ server.
Format   tacplus del server <IP_addr>
Mode   Global Config

green-eth
Note: This command only supports on the following switches,
4. 24-Port 1000BaseT with 2 shared Gigabit SFP Layer 2+ Management Switch
5. 48-Port 1000BaseT with 4 shared Gigabit SFP Layer 2+ Management Switch.
This command is used to enable/disable green Ethernet function. Enable
green Ethernet mode will reduce system power consumption when the link is
not present.
Format   green-eth { enable | disable }
Mode   Global Config

Dhcpsnooping
Note:This feature only supports on the following switches,
4. 24-Port 1000BaseT with 2 shared Gigabit SFP Layer 2+ Management Switch
5. 48-Port 1000BaseT with 4 shared Gigabit SFP Layer 2+ Management Switch

1)dhcpsnooping enable
This command is used to enable dhcp snooping functions.
Format dhcpsnooping enable
Mode Global Config
2)dhcpsnooping disable
This command is used to disable dhcp snooping functions.
Format dhcpsnooping enable
Mode Global Config
3)dhcpsnooping option82

This command is used to set option82 packets.
Format dhcpsnooping option82 {enable|disable}
Mode Global Config
4)dhcpsnooping verifymac enable
This command is used to set verify mac address
Format dhcpsnooping verifymac{enable|disable}
Mode Global Config
5)dhcpsnooping ports
This command is used to set ports to trust or untrust.
5.1)dhcpsnooping ports trust
This command is used to set ports to trust
Format dhcpsnooping ports trust <port-list>
Mode Global Config
5.2)dhcpsnooping ports untrust
This command is used to set ports to untrust
Format dhcpsnooping ports untrust <port-list>
Mode Global Config
6)dhcpsnooping vlan
This command is used to configure dhcp vlan.
6.1)dhcpsnooping vlan add
    This command is used to enable dhcp snooping in a specified vlan.
  Format dhcpsnooping vlan add from <vlan-id> to <vlan-id>
Mode Global Config
  6.2)dhcpsnooping vlan
    This command is used to disable dhcp snooping in a specified vlan.
  Format dhcpsnooping vlan remove from <vlan-id> to <vlan-id>
Mode Global Config
7)dhcpsnooping static
  This command is used to configure dhcp static entry.
7.1)dhcpsnooping static add
   This command is used to add a static dhcp entry.
    Format dhcpsnooping static add ip <A.B.C.D> mac <mac-address> port
<port-id> vid <vlan-id>
Mode Global Config
7.2)dhcpsnooping static delete
   This command is used to delete a static dhcp entry.
    Format dhcpsnooping static delete ip <A.B.C.D> mac <mac-address> port
<port-id> vid <vlan-id>
Mode Global Config
8)dhcpsnooping dyamic
   This command is used to configure dhcp dynamic entry.
8.1)dhcpsnooping dynamic add
   This command is used to add a dynamic dhcp entry.
    Format dhcpsnooping dynamic add ip <A.B.C.D> mac <mac-address>
port <port-id> vid <vlan-id> lease-time <1..9999999>
Mode Global Config
8.2)dhcpsnooping dynamic delete
   This command is used to delete a dynamic dhcp entry.
    Format dhcpsnooping dynamic delete ip <A.B.C.D> mac <mac-address>
port <port-id> vid <vlan-id> lease-time <1...9999999>
Mode Global Config

Loop_detect
1)Loop_detect enable
This command is used to enable port self-loop detection.
Format loop_detect enable
Mode Global Config
2)loop_detect disable
This command is used to disable port self-loop detection.
Format loop_detect disable
Mode Global Config
3)loop_detect recovertime
   This command is used to set the recover time.
Format loop_detect recovertime <0…65535>
Mode Global Config
4)loop detect trytorecover
This command is used to try to recover all the selfloop port immediately
Format loop_detect trytorecover
Mode Global Config
GVRP
1) gvrp enable
This command is used to enable gvrp function globally.
Format gvrp enable
Mode Global Config
2) gvrp disable
This command is used to disable gvrp function globally.
Format gvrp disable
Mode Global Config
3) gvrp port_enable
   This command is used to enable gvrp function on a specified port .
   Format gvrp port_enable <port-id>
Mode Global Config
4) gvrp port_disable
   This command is used to disable gvrp function on a specified port .
   Format gvrp port_disable <port-id>
Mode Global Config
5) gvrp port_status <port-list>
   This command is used to displays the gvrp port information.
   Format gvrp port_status <port-list>
Mode Global Config
https
This command is used to set https enable or disable.
Format https { enable | disable }
Mode Global Config

BOOTP
1)bootp enable
This command is used to enable bootp function.
Format bootp enable
Mode Global Config
2)bootp disable
This command is used to disable bootp function.

Format   bootp disable
Mode Global Config
3)bootp renew
    This command is used to renew bootp.
    Format   bootp renew
Mode Global Config

SSH
1)ssh enable
This command is used to enable ssh function.
Format   ssh enable
Mode Global Config
2)ssh disable
This command is used to disable ssh function.
Format   ssh disable
Mode Global Config
3)ssh changekey
    This command is used to change key function.
    Format   ssh changekey
Mode Global Config

Ipsrcgd
Note:This feature only supports on the following switches,
4. 24-Port 1000BaseT with 2 shared Gigabit SFP Layer 2+ Management Switch
5. 48-Port 1000BaseT with 4 shared Gigabit SFP Layer 2+ Management Switch
1)ipsrcgd enable
This command is used to enable ip source guard function.
Format   ipsrcgd enable
Mode Global Config
2)ipsrcgd disable
This command is used to disable ip source guard function.
Format   ipsrcgd disable
Mode Global Config
3)ipsrcgd ports
    This command is used to configure ports to enable or disable ip source
guard.
    Format   ipsrcgd ports {enable|disable}
    Mode Global Config
4)ipsrcgd retry
    This command is used to configure the retry mechanism of ip source guard
database.
   4.1)ipsrcgd retry now
    This command is used to retry inactive entries now.
    Format   ipsrcgd retry now
    Mode Global Config
4.2)ipsrcgd retry interval
    This command is used to retry inactive entries after a interval.
    Format   ipsrcgd retry interval <0-1440>
    Mode Global Config

3.3.1. Interface Config mode commands

exit
Exit current shell
Format　　exit
Mode　　　Interface Config

dot1x
Set 802.1x port control.
Set auto-authorized　or force authorized on ports
Format　　802.1x port-control {enable|disable}
Mode　　　Interface Config

lacp
1) admin command
Configure admin key of port
Format　　lacp admin <0 ..65535>
Mode　　　Interface Config
e.g.　switch(interface g1)#lacp admin 36768
2) priority command
Configure lacp port priority
Format　　lacp priority <0..65535>
Mode　　　Interface Config

addport
add one port to a LAG group
Format　　addport <*LAG-ID*>
Mode　　　Interface Config

delport
Remove a port from a LAG group
Format　　delport <*LAG-ID*>
Mode　　　Interface Config

lldp
An lldp agent can transmit information about the capabilities and current status of the system associated with its MSAP identifier. The lldp agent can also receive information about the capabilities and current status of the system associated with a remote MSAP identifier. However, lldp agents are not provided any means of soliciting information from other lldp agents via this protocol.
1) lldp state set
Only transfer the lldp status
Format　　lldp state {tx | rx | tx_rx | disable}
Mode　　　Interface Config
2) configure notifications
Enable/disable notification form the agent
Format　　lldp notification {enable|disable}
Mode　　　Interface Config
3) Configures which TLVs are enabled for transmission.
3.1) basic set

Format lldp tlvs-tx {enable | disable} option basic {port-desc | sys-name | sys-desc | sys-capa　}
Mode　　　Interface Config
3.2) 8021 set
Status of local-802.1 settings
Format　　　lldp tlvs-tx {enable | disable} option 8021 {pvid | vlanname | protocol-id}
Mode　　Interface Config
eg.switch(interdface 1)lldp tlvs enable option 8021 pvid 1
3.3) 8023 set
Format　　　lldp tlvs-tx {enable | disable} option 8023 {mac-phy | power| link-aggregation| frame-size}
Mode　　Interface Config

admin-mode
Configure administrative mode on a port
Format　　Switch(Interface 1)# admin-mode {enable | disable}
Mode　　Interface Config

auto-negotiate
Configure auto-negotiate mode on a port
Format　　auto-negotiate {enable | disable}
Mode　　　Interface Config

speed
Set port speed to 10Mbps half duplex/ 10Mbps full/ 100Mbps half/ 100Mbps full/ 1000Mbps 100FX mode/1000base-x full .
Format　　speed {10hd | 10fd | 100hd | 100fd | 1000fd | 100fx | 1000base-x}
Mode　　　Interface Config

flow-control
This command enable/disable flow-control on ports.
Format　　flow-control {enable | disable}
Mode　　　Interface Config

port-security
port-security
　Note:This feature only supports on the following switches,
4. 24-Port 1000BaseT with 2 shared Gigabit SFP Layer 2+ Management Switch
5. 48-Port 1000BaseT with 4 shared Gigabit SFP Layer 2+ Management Switch
This command add or delete a static mac into mac security table.
Format　　port-security {add|delete} *<sourcemac >*
Mode　　　Interface Config
port-security lock-mode
Note:This feature only supports on the following switches,
4. 24-Port 1000BaseT with 2 shared Gigabit SFP Layer 2+ Management Switch
5. 48-Port 1000BaseT with 4 shared Gigabit SFP Layer 2+ Management Switch
This command disable port security or specify static lock mode.
Format　　port-security lock-mode {none | static}
Mode　　　Interface Config
port-security lock-mode dynamic

Note:This feature only supports on the following switches,
This command enable limited dynamic lock mode,and specify maximin
learning entries for limited dynamic lock mode.the max-entries value :0~24
Format   port-security lock-mode dynamic max-entries 24
Mode   Interface Config
4)port-security none
  Note:This feature only supports on the following switches,
3. 48-Port 100BaseTX + 4 1000BaseT with 2 shared Gigabit SFP Layer 2+Management
Switch

qos
Note:This feature only supports on the following switches,
4. 24-Port 1000BaseT with 2 shared Gigabit SFP Layer 2+ Management Switch
5. 48-Port 1000BaseT with 4 shared Gigabit SFP Layer 2+ Management Switch
This command specifies port-based qos priority mapping.
Format   qos port-based priority <0..7>
Mode   Interface Config

Qos port-based status
Note:This command only support on the following switch
3. 48-Port 100BaseTX + 4 1000BaseT with 2 shared Gigabit SFP Layer 2+ Management
   Switch
This command is used to set port-based status.
Format   qos port-based status {enable|disable}
Mode   Interface Config

rate-limit
rate-limit egress
  1.1)rate-limit egress enable
This command limits egress rate, which the unit is Kbps.
Format   rate-limit egress enable token bsize <Burst Size Value>
Mode   Interface Config
     1.2)rate-limit egress disable
This command disable egress rate limit.
2) rate-limit ingress
This command limits ingress rate, which the unit is Kbps.
Format   rate-limit ingress *<rate>*
Mode   Interface Config

storm-control
1) Enable/disable storm control.
Format   storm-control {enable | disable}
Mode   Interface Config
2) storm-control broadcast
This command storm control for broadcast only, and limited
value :0,64,256,1024,10240,65536.102400,1024000,which the unit is Kbps
and 0 means no limit.
Format   storm-control broadcast *<rate>*
Mode   Interface Config
3) storm-control broadcast-multicast
This command storm control limited

value :0,64,256,1024,10240,65536.102400,1024000,which the unit is Kbps and 0 means no limit.
Format　storm-control broadcast-multicast *<rate>*
Mode　　Interface Config
4) storm-control broadcast-unknown
This command storm control limited
value :0,64,256,1024,10240,65536.102400,1024000,which the unit is Kbps and 0 means no limit.
Format　storm-control broadcast-unknown *<rate>*
Mode　　Interface Config
e.g.　Switch(Interface 1)# storm-control broadcast-unknown 64
5) storm-control all-cast
This command storm control limited
value :0,64,256,1024,10240,65536.102400,1024000,which the unit is Kbps and 0 means no limit.
Format　storm-control all-cast *<rate>*
Mode　　Interface Config

rmon-counter
This command specifies rmon counter capability on a port
Format　rmon-counter {enable | disable}
Mode　　Interface Config

set igmp-router-port
This command specifies a igmp router port .
Format　set igmp-router-port {enable | disable}
Mode　　Interface Config

spanning tree
1) spanning-tree cost
This command configure RSTP port path cost, path cost value:0~200000000.
Format　spanning-tree cost *<pathcost>*
Mode　Interface Config
2) spanning-tree edge
This command configure edge property
Format　spanning-tree edge {enable|disable}
Mode　　Interface Config
e.g.　Switch(Interface 1)# spanning-tree edge enable
3) spanning-tree force-p2plink
This command configure force point to point link mode.
Format　spanning-tree force-p2plink {auto|enable|disable}
Mode　　Interface Config
4) spanning-tree migration-check
This command re-checks the appropriate BPDU format to send on this port
Format　spanning-tree migration-check {enable|disable}
Mode　　Interface Config
5) spanning-tree mst
This command configures multiple spanning tree instance.
5.1) spanning-tree mst cost
This command configure the path cost on a MST instance :1~200000000.
Format　spanning-tree mst cost　<MST ID> *<pathcost>*

Mode   Interface Config

5.2) spanning-tree mst priority

This command configure the port priority on a MST instance:0~4094.

Format   spanning-tree mst priority <0 ~4094> <0~240>

Mode   Interface Config

6) spanning-tree participation

This command configures RSTP capability on a port.

Format   spanning-tree participation {enable|disable}

Mode   Interface Config

7) spanning-tree priority

this command configure RSTP port priority:0~240

format   spanning-tree priority <0..240>

mode   Interface Config

vlan

1) vlan participation

This command join or leave ~~a port to~~ a vlan.

1.1) vlan participation exclude

This command is used to leave a vlan.

Format   vlan participation exclude < *vlan id*>

Mode   Interface Config

1.2) vlan participation

This command join a vlan with untagged/tagged mode.

Format   vlan participation {untagged |tagged}< vlan id>

Mode   Interface Config

2) vlan protected

This command configures port protected property.

Format   vlan protected {enable|disable}

Mode   Interface Config

3) vlan dropnq

This command configure port drop none 802.1Q frame .

Format   vlan dropnq {enable|disable}

Mode   Interface Config

4) vlan pvid

This command configure port PVID.

Format   vlan pvid <*pvid*>

Mode   Interface Config

e.g.   Switch(Interface 1)# vlan pvid 1

Interface commands

This command is used to change to another interface

Format   Interface <*port number*>

Mode   Interface Config

e.g.   Switch(Interface 1)# interface g1

poe

1) func

This command configure poe function on a port

Format   poe func {enable | disable}

Mode   Interface Config

2) power-pri

This command configures the power priority on switch ports to decide which ports have priority to supply power which power devices are connected. Legal value are low, normal, middle or high priority. If the same power priority on the ports, the lower port index the higher power priority.

Low   Set to low priority
Normal   Set to normal priority
Middle   Set to middle priority
High   Set to high priority

Format   poe power-pri level {low | normal | middle | high}
Mode   Interface Config

3)detection

This command configures detection type on a port. set to 0,1,2,3,4 or 5

0   No Detection
1   Legacy Capacitive Detection only
2   IEEE 802.3af 4-Point Detection only (Default)
3   IEEE 802.3af 4-Point followed by Legacy
4   IEEE 802.3af 2-Point only
5   IEEE 802.3af 2-Point followed by Legacy

Format   poe detection type {0 | 1 | 2 | 3 | 4 | 5}
Mode   Interface Config

4)high-power

This command configures power Energy Mode on a port

on   Start High Power (Support 30W power device)
off   End High Power Mode (Support 15.4W power device)

Format   poe high-power status {on | off}
Mode   interface Config

4. Specifications

4.1 Cable specifications

Straight-Through and Crossed-Over Cable Specifications Table

Ethernet Type	Cable Requirements	Maximum Length
10BASE-T	Category 3 or better, UTP or STP	328 ft (100M)
100BASE-TX	Category 5 or better, UTP or STP	328 ft (100M)
1000BASE-T	Category 5e or better, UTP or STP	328 ft (100M)

Caution: Please do not use telephone cables .Telephone cables do not support Ethernet or Gigabit .

Twisted-pair cabling comes in various grades, or categories. Category 5 is required for Fast Ethernet, and is also the most reliable and most commonly used category. You can buy UTP Category 5 (Unshielded Twisted Pair) Ethernet cabling in precrimped lengths, or you can crimp your own. Crimping your own can result in faulty connections if the
RJ-45 tips are not attached properly. Precrimped Category 5 cabling is available at most computer retail stores.

The most reliable and commonly used type of Category 5 cabling used is UTP, or "unshielded twisted pair." STP, or "shielded twisted pair" wiring is only necessary for network environments exposed to excessive amounts of electromagnetic interference, or EMI. These environments include areas with high sources of electrical power, air conditioning, generators, and radio signals. STP is also used for wiring outdoors.

There are two types of the wiring: Straight-Through Cables and Crossover Cables. Category 5 UTP/STP cable has eight wires inside the sheath. The wires form four pairs. Straight-Through Cables has same pinouts at both ends while Crossover Cables has a different pin arrangement at each end.

In a straight-through cable, wires 1,2,3,4,5,6,7 and 8 at one end of the cable are still wires 1~8 at the other end. In a crossover cable, the wires of 1,2,3,6 are reversed so that wire 1 become 3 at the other end of the cable, 2 becomes 6, and so forth.

To determine which wire is wire 1, hold the RJ-45 cable tip with the spring clip facing towards the ground and the end pointing away from you. The copper wires exposed upwards to your view. The first wire on the far left is wire 1. You can also refer to the illustrations and charts of the internal wiring on the following page.

There are two types of cables: Straight Through Cables and Crossover Cables. Category 5 UTP/STP cable has eight wires inside the sheath. The wires form four pairs. Straight Through Cables has same pinouts at both ends while Crossover Cables has a different pin arrangement at each end.

Figure 4-1 shows the diagram of Straight Through Cables. Figure 4-2 shows the diagram of Crossover Cables.

Figure4-1: Diagram of Straight Through Cables

Figure4-2: Diagram of Crossover Cables Diagram
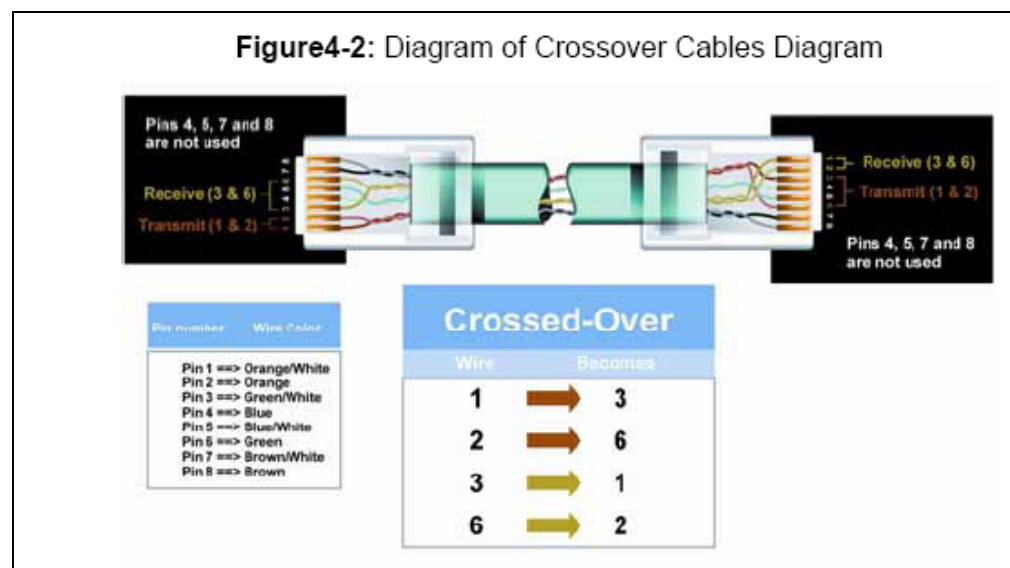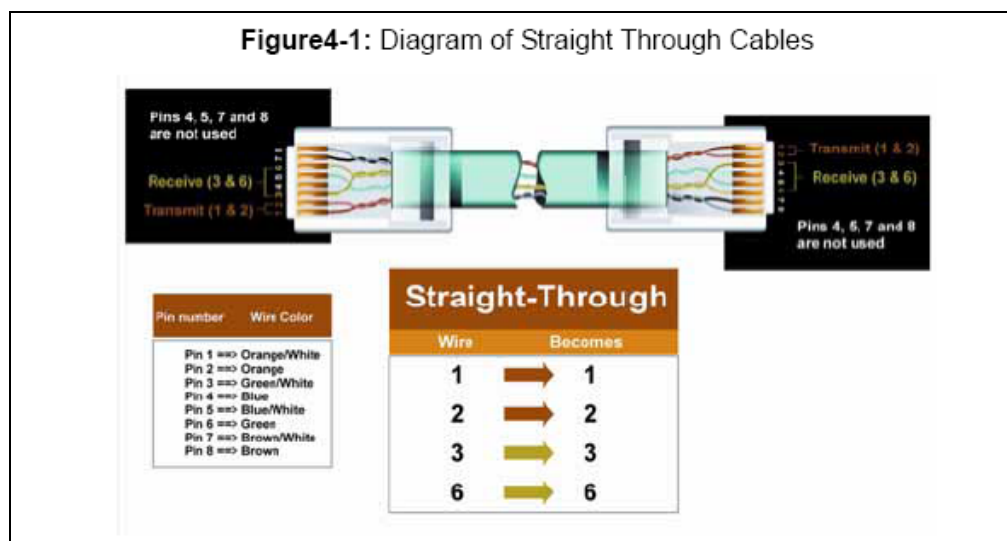
4.2 Technical Specification

4.2.1 Software Specification

1. 24-Port 100BaseTX + 2 Gigabit combo Layer 2 Management Switch
- Four groups (history, statistics, alarms, and events) of embedded remote monitoring (RMON) agents for network monitoring and traffic analysis
- Provides SNMP protocol(v1/v2c/v3) to monitor and control the switch by using SNMP management applications such as HP Open View
- IGMP snooping support to limit flooding of IP multicast traffic and filtering for controlling the set of multicast groups to which hosts on a switch port can belong

- Supports 802.1d/1w/1s Spanning Tree Protocol for loop free installation.
- Supports 802.1Q VLAN for assigning users to VLAN associated with appropriate network resources, traffic patterns, and bandwidth. Up to 256 VLAN entries can be configured
- Supports Management VLAN for administration to protect switch to be attacked by client.
- Built-in DHCP client to get IP address from DHCP server automatically
- Supports SNTP to synchronize the precision time with Internet Time server.
- Supports many-to-one Port Mirroring.
- Supports IEEE 802.3ad Link Aggregation, up to 3 aggregation groups, 4 ports for each group
- Supports for IEEE 802.1p/DSCP CoS scheduling for classification and preferred high-priority voice traffic on a port-port basis
- Per port ingress and egress rate limiting. minimum rate is 64 Kbps, granularity is 64 Kbps
- Supports Static Mode and Dynamic Learning Mode for Port Security function. Support up to 24 MAC addresses for each port.
- Supports Protected port feature.
- Supports 802.1X port-based authentication, and build-in RADIUS client to co-operate with the RADIUS servers.
- Supports broadcast, known-multicast, and unknown unicast storm control
- Supports web-based interface for management
- Supports CLI interface for local console or remote Telnet management
- Supports TFTP, HTTP and X-modem protocol for firmware/configuration upgrade or backup.
- Supports SSL/SSH secure access.
- Supports DHCP Relay
- Supports IGMP Proxy
- Supports IGMP Querier
- Supports LLDP
- Supports GVRP
- Supports IGMP Immediate Leave
- Supports RSTP Root Guard
- Supports DHCP/TFTP configuartion download
- Supports Port Self-Loop Detection

2. 24-Port 100BaseTX + 2 Gigabit combo Layer 2+ Management Switch
- Four groups (history, statistics, alarms, and events) of embedded remote monitoring (RMON) agents for network monitoring and traffic analysis
- Provides SNMP protocol(v1/v2c/v3) to monitor and control the switch by using SNMP management applications such as HP Open View
- Supports IGMP snooping to limit flooding of IP multicast traffic and filtering

for controlling the set of multicast groups to which hosts on a switch port can belong

- Supports 802.1d/1w/1s Spanning Tree Protocol for loop free installation.
- Supports 802.1Q VLAN for assigning users to VLAN associated with appropriate network resources, traffic patterns, and bandwidth. Up to 256 VLAN entries can be configured
- Supports Management VLAN for administration to protect switch to be attacked by client.
- Supports IEEE 802.3ad Link Aggregation, up to 6 LAG groups, and 8 ports for each LAG group
- Built-in DHCP client to get IP address from DHCP server automatically
- Supports SNTP to synchronize the precision time with Internet Time server.
- Supports many-to-one, one-to-one Port Mirroring function.
- Supports for IEEE 802.1p/DSCP CoS scheduling for classification and preferred high-priority traffic.
- Supports per port Ingress and Egress Rate Limiting.
- Supports Dynamic Learning mode for Port Security function, up to 24 MAC addresses can be learned for each port
- Supports 802.1X port-based authentication, and build-in RADIUS client to co-operate with the RADIUS servers.
- Supports broadcast, multicast, and unknown unicast storm control
- Supports Protected Port feature.
- Supports SSL/SSH secure access.
- Supports Access Control List feature, up to 256 rules can be configured.
- Supports web-based interface for management
- Supports CLI interface for local console or remote Telnet management
- Supports TFTP, HTTP and X-modem protocol for firmware/configuration upgrade or backup.
- Supports TACACS+ login authentication.
- Supports DSCP remarking
- Supports DHCP Relay
- Supports IGMP Proxy
- Supports IGMP Querier
- Supports LLDP
- Supports GVRP
- Supports IGMP Immediate Leave
- Supports RSTP Root Guard
- Supports DHCP/TFTP configuartion download
- Supports Port Self-Loop Detection

3. 48-Port 100BaseTX + 4 1000BaseT with 2 shared Gigabit SFP Layer 2+ Management Switch

- Four groups (history, statistics, alarms, and events) of embedded remote monitoring (RMON) agents for network monitoring and traffic analysis
- Provides SNMP protocol(v1/v2c/v3) to monitor and control the switch by

using SNMP management applications such as HP Open View
- Supports IGMP snooping to limit flooding of IP multicast traffic and filtering for controlling the set of multicast groups to which hosts on a switch port can belong
- Supports 802.1d/1w/1s Spanning Tree Protocol for loop free installation.
- Supports 802.1Q VLAN for assigning users to VLAN associated with appropriate network resources, traffic patterns, and bandwidth. Up to 256 VLAN entries can be configured
- Supports Management VLAN for administration to protect switch to be attacked by client.
- Supports IEEE 802.3ad Link Aggregation, up to 6 LAG groups, and 8 ports for each LAG group
- Built-in DHCP client to get IP address from DHCP server automatically
- Supports SNTP to synchronize the precision time with Internet Time server.
- Supports many-to-one, one-to-one Port Mirroring function.
- Supports for IEEE 802.1p/DSCP CoS scheduling for classification and preferred high-priority traffic.
- Supports per port Ingress and Egress Rate Limiting.
- Supports Dynamic Learning mode for Port Security function, up to 24 MAC addresses can be learned for each port
- Supports 802.1X port-based authentication, and build-in RADIUS client to co-operate with the RADIUS servers.
- Supports broadcast, multicast, and unknown unicast storm control
- Supports Protected Port feature.
- Supports SSL/SSH secure access.
- Supports Access Control List feature, up to 128 rules can be configured.
- Supports web-based interface for management
- Supports CLI interface for local console or remote Telnet management
- Supports TFTP, HTTP and X-modem protocol for firmware/configuration upgrade or backup.
- Supports TACACS+ login authentication.
- Supports DHCP Relay
- Supports IGMP Proxy
- Supports IGMP Querier
- Supports LLDP
- Supports GVRP
- Supports IGMP Immediate Leave
- Supports RSTP Root Guard
- Supports DHCP/TFTP configuartion download
- Supports Port Self-Loop Detection
- Supports Auto Dos

4. 24-Port 1000BaseT with 2 shared Gigabit SFP Layer 2+ Management Switch
5. 48-Port 1000BaseT with 4 shared Gigabit SFP Layer 2+ Management

Switch

- Four groups (history, statistics, alarms, and events) of embedded remote monitoring (RMON) agents for network monitoring and traffic analysis
- Provides SNMP protocol(v1/v2c/v3) to monitor and control the switch by using SNMP management applications such as HP Open View
- Supports IGMP snooping to limit flooding of IP multicast traffic and filtering for controlling the set of multicast groups to which hosts on a switch port can belong
- Supports 802.1d/1w/1s Spanning Tree Protocol for loop free installation.
- Supports 802.1Q VLAN for assigning users to VLAN associated with appropriate network resources, traffic patterns, and bandwidth. Up to 256 VLAN entries can be configured
- Supports Management VLAN for administration to protect switch to be attacked by client.
- Supports IEEE 802.3ad Link Aggregation, up to 14 LAG groups, and 8 ports for each LAG group
- Built-in DHCP client to get IP address from DHCP server automatically
- Supports SNTP to synchronize the precision time with Internet Time server.
- Supports many-to-one, one-to-one Port Mirroring function.
- Supports for IEEE 802.1p/DSCP CoS scheduling for classification and preferred high-priority traffic.
- Supports per port Ingress and Egress Rate Limiting.
- Supports Dynamic Learning mode for Port Security function, up to 24 MAC addresses can be learned for each port
- Supports 802.1X port-based authentication, and build-in RADIUS client to co-operate with the RADIUS servers.
- Supports broadcast, multicast, and unknown unicast storm control
- Supports Protected Port feature.
- Supports SSL/SSH secure access.
- Supports Access Control List feature, up to 256 rules can be configured.
- Supports web-based interface for management
- Supports CLI interface for local console or remote Telnet management
- Supports TFTP, HTTP and X-modem protocol for firmware/configuration upgrade or backup.
- Supports TACACS+ login authentication.
- Supports DSCP remarking
- Supports DHCP Relay
- Supports IGMP Proxy
- Supports IGMP Querier
- Supports LLDP
- Supports GVRP
- Supports IGMP Immediate Leave
- Supports RSTP Root Guard
- Supports DHCP/TFTP configuartion download
- Supports Port Self-Loop Detection
- Supports DHCP Snooping

- Supports Dynamic ARP Inspection
- Supports IP Source Guard
- Supports Green Ethernet
- Supports Auto Dos

6. 8-Port 100BaseTX + 2 Gigabit combo Layer 2 Management Switch with 8 PSE port embedded 100W PoE power budget

7. 24-Port 100BaseTX + 2 Gigabit combo Layer 2 Management Switch with 12 PSE port embedded 100W PoE power budget

- Four groups (history, statistics, alarms, and events) of embedded remote monitoring (RMON) agents for network monitoring and traffic analysis
- Provides SNMP protocol(v1/v2c/v3) to monitor and control the switch by using SNMP management applications such as HP Open View
- IGMP snooping support to limit flooding of IP multicast traffic and filtering for controlling the set of multicast groups to which hosts on a switch port can belong
- Supports 802.1d/1w/1s Spanning Tree Protocol for loop free installation.
- Supports 802.1Q VLAN for assigning users to VLAN associated with appropriate network resources, traffic patterns, and bandwidth. Up to 256 VLAN entries can be configured
- Supports Management VLAN for administration to protect switch to be attacked by client.
- Built-in DHCP client to get IP address from DHCP server automatically
- Supports SNTP to synchronize the precision time with Internet Time server.
- Supports one-to-one or many-to-one Port Mirroring.
- Supports IEEE 802.3ad Link Aggregation, up to 3 aggregation groups.
- Supports for IEEE 802.1p/DSCP CoS scheduling for classification and preferred high-priority voice traffic on a port-port basis
- Per port Ingress and Egress Rate Limiting. Minimum rate is 64 Kbps, granularity is 64 Kbps
- Supports Static Mode and Dynamic Learning Mode for Port Security function. Support up to 24 MAC addresses for each port.
- Supports Protected port feature.
- Supports SSL/SSH secure access.
- Supports 802.1X port-based authentication, and build-in RADIUS client to co-operate with the RADIUS servers.
- Supports broadcast, known-multicast, and unknown unicast storm control
- Supports web-based interface for management
- Supports CLI interface for local console or remote Telnet management
- Supports TFTP, HTTP and X-modem protocol for firmware/configuration upgrade or backup.

- Supports TACACS+ login authentication.
- Supports DHCP Relay
- Supports IGMP Proxy
- Supports IGMP Querier
- Supports LLDP
- Supports GVRP
- Supports IGMP Immediate Leave
- Supports RSTP Root Guard
- Supports DHCP/TFTP configuartion download
- Supports Port Self-Loop Detection

8. 8-Port 10/100BaseTX + 2 Gigabit Combo Layer 2 Management Switch

- Four groups (history, statistics, alarms, and events) of embedded remote monitoring (RMON) agents for network monitoring and traffic analysis
- Provides SNMP protocol(v1/v2c/v3) to monitor and control the switch by using SNMP management applications such as HP Open View
- IGMP snooping support to limit flooding of IP multicast traffic and filtering for controlling the set of multicast groups to which hosts on a switch port can belong
- Supports 802.1d/1w/1s Spanning Tree Protocol for loop free installation.
- Supports 802.1Q VLAN for assigning users to VLAN associated with appropriate network resources, traffic patterns, and bandwidth. Up to 256 VLAN entries can be configured
- Supports Management VLAN for administration to protect switch to be attacked by client.
- Built-in DHCP client to get IP address from DHCP server automatically
- Supports SNTP to synchronize the precision time with Internet Time server.
- Supports one-to-one or many-to-one Port Mirroring.
- Supports IEEE 802.3ad Link Aggregation, up to 3 aggregation groups.
- Supports for IEEE 802.1p/DSCP CoS scheduling for classification and preferred high-priority voice traffic on a port-port basis
- Per port Ingress and Egress Rate Limiting. Minimum rate is 64 Kbps, granularity is 64 Kbps
- Supports Static Mode and Dynamic Learning Mode for Port Security function. Support up to 24 MAC addresses for each port.
- Supports Protected port feature.
- Supports SSL/SSH secure access.
- Supports 802.1X port-based authentication, and build-in RADIUS client to co-operate with the RADIUS servers.
- Supports broadcast, known-multicast, and unknown unicast storm control

- Supports web-based interface for management
- Supports CLI interface for local console or remote Telnet management
- Supports TFTP, HTTP and X-modem protocol for firmware/configuration upgrade or backup.
- Supports DHCP Relay
- Supports IGMP Proxy
- Supports IGMP Querier
- Supports LLDP
- Supports GVRP
- Supports IGMP Immediate Leave
- Supports RSTP　Root Guard
- Supports DHCP/TFTP configuartion download
- Supports Port Self-Loop Detection

9. 24-Port 100BaseTX + 2 Gigabit combo Layer 2+ Management Switch with 12 PSE port embedded 180W PoE power budget

- Four groups (history, statistics, alarms, and events) of embedded remote monitoring (RMON) agents for network monitoring and traffic analysis
- Provides SNMP protocol(v1/v2c/v3) to monitor and control the switch by using SNMP management applications such as HP Open View
- Supports IGMP snooping to limit flooding of IP multicast traffic and filtering for controlling the set of multicast groups to which hosts on a switch port can belong
- Supports 802.1d/1w/1s Spanning Tree Protocol for loop free installation.
- Supports 802.1Q VLAN for assigning users to VLAN associated with appropriate network resources, traffic patterns, and bandwidth. Up to 256 VLAN entries can be configured
- Supports Management VLAN for administration to protect switch to be attacked by client.
- Supports IEEE 802.3ad Link Aggregation, up to 6 LAG groups, and 8 ports for each LAG group
- Built-in DHCP client to get IP address from DHCP server automatically
- Supports SNTP to synchronize the precision time with Internet Time server.
- Supports many-to-one, one-to-one Port Mirroring function.
- Supports for IEEE 802.1p/DSCP CoS scheduling for classification and preferred high-priority traffic.
- Supports per port Ingress and Egress Rate Limiting.
- Supports Dynamic Learning mode for Port Security function, up to 24 MAC addresses can be learned for each port
- Supports 802.1X port-based authentication, and build-in RADIUS client to co-operate with the RADIUS servers.
- Supports broadcast, multicast, and unknown unicast storm control
- Supports Protected Port feature.
- Supports SSL/SSH secure access.
- Supports Access Control List feature, up to 256 rules can be configured.

- Supports web-based interface for management
- Supports CLI interface for local console or remote Telnet management
- Supports TFTP, HTTP and X-modem protocol for firmware/configuration upgrade or backup.
- Supports TACACS+ login authentication.
- Supports DSCP remarking
- Supports DHCP Relay
- Supports IGMP Proxy
- Supports IGMP Querier
- Supports LLDP
- Supports GVRP
- Supports IGMP Immediate Leave
- Supports RSTP Root Guard
- Supports DHCP/TFTP configuartion download
- Supports Port Self-Loop Detection

10. 24-Port 100BaseTX + 2 Gigabit combo Layer 2 Management Switch (Desktop)

- Four groups (history, statistics, alarms, and events) of embedded remote monitoring (RMON) agents for network monitoring and traffic analysis
- Provides SNMP protocol(v1/v2c/v3) to monitor and control the switch by using SNMP management applications such as HP Open View
- IGMP snooping support to limit flooding of IP multicast traffic and filtering for controlling the set of multicast groups to which hosts on a switch port can belong
- Supports 802.1d/1w/1s Spanning Tree Protocol for loop free installation.
- Supports 802.1Q VLAN for assigning users to VLAN associated with appropriate network resources, traffic patterns, and bandwidth. Up to 256 VLAN entries can be configured
- Supports Management VLAN for administration to protect switch to be attacked by client.
- Built-in DHCP client to get IP address from DHCP server automatically
- Supports SNTP to synchronize the precision time with Internet Time server.
- Supports one-to-one or many-to-one Port Mirroring.
- Supports IEEE 802.3ad Link Aggregation, up to 3 aggregation groups.
- Supports for IEEE 802.1p/DSCP CoS scheduling for classification and preferred high-priority voice traffic on a port-port basis
- Per port Ingress and Egress Rate Limiting. Minimum rate is 64 Kbps, granularity is 64 Kbps
- Supports Static Mode and Dynamic Learning Mode for Port Security function. Support up to 24 MAC addresses for each port.

- Supports Protected port feature.
- Supports SSL/SSH secure access.
- Supports 802.1X port-based authentication, and build-in RADIUS client to co-operate with the RADIUS servers.
- Supports broadcast, known-multicast, and unknown unicast storm control

- Supports web-based interface for management
- Supports CLI interface for local console or remote Telnet management
- Supports TFTP, HTTP and X-modem protocol for firmware/configuration upgrade or backup.
- Supports DHCP Relay
- Supports IGMP Proxy
- Supports IGMP Querier
- Supports LLDP
- Supports GVRP
- Supports IGMP Immediate Leave
- Supports RSTP Root Guard
- Supports DHCP/TFTP configuartion download
- Supports Port Self-Loop Detection

11. 8-Port 100BaseTX + 2 Gigabit Combo L2+ Management Switch

- Four groups (history, statistics, alarms, and events) of embedded remote monitoring (RMON) agents for network monitoring and traffic analysis
- Provides SNMP protocol(v1/v2c/v3) to monitor and control the switch by using SNMP management applications such as HP Open View
- Supports IGMP snooping to limit flooding of IP multicast traffic and filtering for controlling the set of multicast groups to which hosts on a switch port can belong
- Supports 802.1d/1w/1s Spanning Tree Protocol for loop free installation.
- Supports 802.1Q VLAN for assigning users to VLAN associated with appropriate network resources, traffic patterns, and bandwidth. Up to 256 VLAN entries can be configured
- Supports Management VLAN for administration to protect switch to be attacked by client.
- Supports IEEE 802.3ad Link Aggregation, up to 3 LAG groups, and 4 ports for each LAG group
- Built-in DHCP client to get IP address from DHCP server automatically
- Supports SNTP to synchronize the precision time with Internet Time server.
- Supports many-to-one, one-to-one Port Mirroring function.
- Supports for IEEE 802.1p/DSCP CoS scheduling for classification and preferred high-priority traffic.
- Supports per port Ingress and Egress Rate Limiting.
- Supports Dynamic Learning mode for Port Security function, up to 24 MAC addresses can be learned for each port
- Supports 802.1X port-based authentication, and build-in RADIUS client to co-operate with the RADIUS servers.

- Supports broadcast, multicast, and unknown unicast storm control
- Supports Protected Port feature.
- Supports SSL/SSH secure access.
- Supports IP/MAC Access Control List feature, up to 256 rules.
- Supports web-based interface for management
- Supports CLI interface for local console or remote Telnet management
- Supports TFTP, HTTP and X-modem protocol for firmware/configuration upgrade or backup.
- Supports TACACS+ login authentication.
- Supports DSCP remarking
- Supports DHCP Relay
- Supports IGMP Proxy
- Supports IGMP Querier
- Supports LLDP
- Supports GVRP
- Supports IGMP Immediate Leave
- Supports RSTP Root Guard
- Supports DHCP/TFTP configuartion download
- Supports Port Self-Loop Detection

4.2.2 Hardware Specification

1. 24-Port 100BaseTX + 2 Gigabit combo Layer 2 Management Switch
- Supports 24 ports 100Base-TX and 2 1000BaseT with 2 shared Mini-GBIC.
- User configurable 100FX or 1000Base-SX/LX mini-GBIC fiber module on mini-GBIC ports
- IEEE 802.3ab Auto MDI/MDI-X on all 10/100/1000 twisted-pair ports
- Automatic polarity detection and correction on all RJ-45 ports for automatic adjustment of wiring errors
- Throughput: Up to 8.8 Gbps.
- Provides Flow Control mechanism ensures zero packet loss, IEEE802.3x Flow Control for full-duplex operation and Back Pressure for half-duplex operation
- Supports 8K MAC address and Up to 3Mb packet buffer
- Supports Store & Forward architecture and performs forwarding and filtering
- Provides non-blocking switching performance
- Provides a RS-232 port for system configuration.

2. 24-Port 100BaseTX + 2 Gigabit combo Layer 2+ Management Switch

- Supports 24 ports 100Base-TX and 2 1000BaseT with 2 shared Mini-GBIC.
- User configurable 100FX or 1000Base-SX/LX mini-GBIC fiber module on mini-GBIC ports
- IEEE 802.3ab Auto MDI/MDI-X on all 10/100/1000 twisted-pair ports
- Automatic polarity detection and correction on all RJ-45 ports for automatic adjustment of wiring errors
- Throughput: Up to 8.8 Gbps.
- Provides Flow Control mechanism ensures zero packet loss, IEEE802.3x Flow Control for full-duplex operation and Back Pressure for half-duplex operation
- Supports 8K MAC address and Up to 3Mb packet buffer
- Supports Store & Forward architecture and performs forwarding and filtering
- Provides non-blocking switching performance
- Provides a RS-232 port for system configuration.
- Flexible TCAM-based Compact Field Process for packet classification and filtering.

3. 48-Port 100BaseTX + 4 1000BaseT with 2 shared Gigabit SFP Layer 2+ Management Switch

- Standard models equipped with 48 RJ-45 ports for 10/100BASE-TX connections and four RJ-45 ports for 10/100/1000BASE-T with 2 shared Mini-GBIC slots for further extension.
- User configurable 100FX or 1000Base-SX/LX mini-GBIC fiber module on mini-GBIC ports
- Supports half duplex and full duplex modes and auto-negotiation for all FE & GE ports.
- MDI/MDI-X auto-sense on all ports and IEEE 802.3ab Auto MDI/MDI-X on all 100/1000 twisted-pair ports.
- Provides per-port flow control and backpressure.
- Supports 8K MAC addresses.
- Supports 4K entry multicast address table.
- Supports 4-Mbit total packet buffer and control memory.
- Provides Store-and-Forward switching mechanism.
- Provides non-blocking switching performance.
- Provides a RS-232 port for system configuration.
- Flexible TCAM-based Compact Field Process for packet classification and filtering.

4. 24-Port 1000BaseT with 2 shared Gigabit SFP Layer 2+ Management Switch

- Support 24 10/100/1000 Mbps copper ports with 2 shared mini-GBIC slots
- User configurable 100FX or 1000Base-SX/LX mini-GBIC fiber module on mini-GBIC ports
- Supports half duplex and full duplex modes and auto-negotiation for all 10BASE-T/100BASE-TX/1000BASE-T ports
- IEEE 802.3ab Auto MDI/MDI-X on all 100/1000 twisted-pair ports
- Automatic polarity detection and correction on all RJ-45 ports for automatic adjustment of wiring errors
- Throughput up to 48 Gbps.
- Provides IEEE802.3x Flow Control mechanism ensures zero packet loss, which uses Back Pressure for half-duplex operation and Flow Control for full duplex operation.
- Supports 8K MAC address and Up to 4Mb packet buffer
- Supports Store & Forward architecture and performs forwarding and filtering
- Provides non-blocking switching performance
- Supports Jumbo Frame up to 9KB
- Provides a RS-232 port for system configuration.
- Flexible TCAM-based Compact Field Process for packet classification and filtering.

5. 48-Port 1000BaseT with 4 shared Gigabit SFP Layer 2+ Management Switch

- Supports 48 ports 10/100/1000 Mbps copper ports with 4 shared mini-GBIC slots
- User configurable 100FX or 1000Base-SX/LX mini-GBIC fiber module on mini-GBIC ports
- Supports half duplex and full duplex modes and auto-negotiation for all 10BASE-T/100BASE-TX/1000BASE-T ports
- IEEE 802.3ab Auto MDI/MDI-X on all 100/1000 twisted-pair ports
- Automatic polarity detection and correction on all RJ-45 ports for automatic adjustment of wiring errors
- Throughput up to 96 Gbps
- Provides IEEE802.3x Flow Control mechanism ensures zero packet loss, which uses Back Pressure for half-duplex operation and Flow Control for full duplex operation.
- Supports 8K MAC address and up to 4Mb packet buffer
- Supports Store & Forward architecture and performs forwarding and filtering
- Provides non-blocking switching performance
- Supports Jumbo Frame up to 9KB
- Flexible TCAM-based Compact Field Process for packet classification and filtering.

6. 8-Port 100BaseTX + 2 Gigabit combo Layer 2 Management Switch with 8 PSE port embedded 100W PoE power budget

- Supports 8 ports 100Base-TX (with PoE PSE) and 2 1000BaseT with 2 shared Mini-GBIC.

- User configurable 100FX or 1000Base-SX/LX mini-GBIC fiber module on mini-GBIC ports

- IEEE 802.3ab Auto MDI/MDI-X on all 10/100/1000 twisted-pair ports

- Automatic polarity detection and correction on all RJ-45 ports for automatic adjustment of wiring errors

- Throughput: Up to 5.6 Gbps.

- Provides Flow Control mechanism ensures zero packet loss, IEEE802.3x Flow Control for full-duplex operation and Back Pressure for half-duplex operation

- Supports 8K MAC address and Up to 3Mb packet buffer

- Supports Store & Forward architecture and performs forwarding and filtering

- Provides non-blocking switching performance

- Provides a RS-232 port for system configuration.

- Total Power Budget 100 W with 8 W guard band. It means system can provide total 92 W power to power devices.

- Supports 30 W high power devices.

7. 24-Port 100BaseTX + 2 Gigabit combo Layer 2 Management Switch with 12 PSE port embedded 100W PoE power budget

- Supports 24 ports 100Base-TX (with 12 ports PoE PSE) and 2 1000BaseT with 2 shared Mini-GBIC.
- User configurable 100FX or 1000Base-SX/LX mini-GBIC fiber module on mini-GBIC ports
- IEEE 802.3ab Auto MDI/MDI-X on all 10/100/1000 twisted-pair ports
- Automatic polarity detection and correction on all RJ-45 ports for automatic adjustment of wiring errors
- Throughput: Up to 8.8 Gbps.
- Provides Flow Control mechanism ensures zero packet loss, IEEE802.3x Flow Control for full-duplex operation and Back Pressure for half-duplex operation
- Supports 8K MAC address and Up to 3Mb packet buffer
- Supports Store & Forward architecture and performs forwarding and filtering
- Provides non-blocking switching performance
- Provides a RS-232 port for system configuration.
- Total Power Budget 100 W with 8 W guard band. It means system can provide total 92 W power to power devices.
- Supports 30 W high power devices.

8. 8-Port 10/100BaseTX + 2 Gigabit Combo Layer 2 Management Switch

- Supports 8 ports 100Base-TX and 2 1000BaseT with 2 shared Mini-GBIC.
- User configurable 100FX or 1000Base-SX/LX mini-GBIC fiber module on mini-GBIC ports
- IEEE 802.3ab Auto MDI/MDI-X on all 10/100/1000 twisted-pair ports
- Automatic polarity detection and correction on all RJ-45 ports for automatic adjustment of wiring errors
- Throughput: Up to 5.6 Gbps.
- Provides Flow Control mechanism ensures zero packet loss, IEEE802.3x Flow Control for full-duplex operation and Back Pressure for half-duplex operation
- Supports 8K MAC address and Up to 3Mb packet buffer
- Supports Store & Forward architecture and performs forwarding and filtering
- Provides non-blocking switching performance
- Provides a RS-232 port for system configuration.

9. 24-Port 100BaseTX + 2 Gigabit combo Layer 2+ Management Switch with 12 PSE port embedded 180W PoE power budget.

- Supports 24 ports 100Base-TX (with 12 ports PoE PSE) and 2 1000BaseT with 2 shared Mini-GBIC.
- User configurable 100FX or 1000Base-SX/LX mini-GBIC fiber module on mini-GBIC ports
- IEEE 802.3ab Auto MDI/MDI-X on all 10/100/1000 twisted-pair ports
- Automatic polarity detection and correction on all RJ-45 ports for automatic adjustment of wiring errors
- Throughput: Up to 8.8 Gbps.
- Provides Flow Control mechanism ensures zero packet loss, IEEE802.3x Flow Control for full-duplex operation and Back Pressure for half-duplex operation
- Supports 8K MAC address and Up to 3Mb packet buffer
- Supports Store & Forward architecture and performs forwarding and filtering
- Provides non-blocking switching performance
- Provides a RS-232 port for system configuration.
- Flexible TCAM-based Compact Field Process for packet classification and filtering.
- Total Power Budget 180 W with 8 W guard band. It means system can provide total 172 W power to power devices.
- Supports 30 W high power devices.

10. 24-Port 100BaseTX + 2 Gigabit combo Layer 2 Management Switch (Desktop)

- Supports 24 ports 100Base-TX and 2 1000BaseT with 2 shared Mini-GBIC.
- User configurable 100FX or 1000Base-SX/LX mini-GBIC fiber module on mini-GBIC ports
- IEEE 802.3ab Auto MDI/MDI-X on all 10/100/1000 twisted-pair ports
- Automatic polarity detection and correction on all RJ-45 ports for automatic adjustment of wiring errors
- Throughput: Up to 8.8 Gbps.
- Provides Flow Control mechanism ensures zero packet loss, IEEE802.3x Flow Control for full-duplex operation and Back Pressure for half-duplex operation
- Supports 8K MAC address and Up to 3Mb packet buffer
- Supports Store & Forward architecture and performs forwarding and filtering
- Provides non-blocking switching performance
- Provides a RS-232 port for system configuration.

11. 8-Port 100BaseTX + 2 Gigabit Combo L2+ Management Switch

- Support 8 ports 100BaseTX and 2 ports1000BaseT with 2 shared Mini-GBIC.
- 100FX & 1000SX/LX mini-GBIC fiber module on mini-GBIC ports.
- Supports half duplex and full duplex modes and auto-negotiation for all copper ports.
- Auto MDI/MDI-X on all twisted-pair ports.
- Automatic polarity detection and correction on all RJ-45 ports for automatic adjustment of wiring errors.
- Provides Flow Control mechanism ensures zero packet loss, IEEE802.3x Flow Control for full-duplex operation and .Back Pressure for half-duplex operation.
- Support 8K L2 MAC address entries and 256KB packet memory 128Kb control memory.
- Operation through-put supports up to 6.55Mpps wired-speed L2 packet forwarding.
- Jumbo Frame support up to 2048 bytes.
- Provides Store-and-Forward switching mechanism.
- Provides non-blocking switching performance.
- Provides Multicasting, Broadcasting and flooding Control.
- Supports packet-filtering and port security.
- Four egress queues on all switch ports.
- Console port: Male, DTE. Default setting: 38400,8,N,1.
- Flexible TCAM-based Compact Field Process for packet classification and filtering.

4.3 Environments Specification

1. 24-Port 100BaseTX + 2 Gigabit combo Layer 2 Management Switch:

Size (H x W x D)	44.45 x 430 x 180mm
Weight(Net/Gross)	2.4kg / 3.5kg (88.2 oz / 123.5 oz)
Power	100~120/200~240 VAC~1.0 A/0.5 A 50~60Hz
Operating Temp.	0 ℃ ~ 40 ℃(32 ℉ ~ 104 ℉)
Storage Temp.	-40 ℃ ~ 70 ℃(-40 ℉ ~ 158 ℉)
Operating Humidity	20% to 85%,relative humidity, non-condensing
Storage Humidity	20% to 90%,relative humidity, non-condensing

2. 24-Port 100BaseTX + 2 Gigabit combo Layer 2+ Management Switch
3. 48-Port 1000BaseT with 4 shared Gigabit SFP Layer 2+ Management Switch
4. 24-Port 1000BaseT with 2 shared Gigabit SFP Layer 2+ Management Switch:

Size (H x W x D)	44.45 x 430 x 250mm
Weight(Net/Gross)	3.5kg / 5.0kg (105.8 oz / 141 oz)
Power	100~120/200~240 VAC~1.0 A/0.5 A 50~60Hz
Operating Temp.	0 ℃ ~ 40 ℃(32 ℉ ~ 104 ℉)
Storage Temp.	-40 ℃ ~ 70 ℃(-40 ℉ ~ 158 ℉)
Operating Humidity	20% to 85%,relative humidity, non-condensing
Storage Humidity	20% to 90%,relative humidity, non-condensing

5. 48-Port 1000BaseT with 4 shared Gigabit SFP Layer 2+ Management Switch:

Size (H x W x D)	H 44.45 x W 430 x D 350mm
Weight(Net/Gross)	4.7kg /5.8kg (165 oz/ 204 oz)
Power	100~120/200~240 VAC~1.5 A/0.75 A 50~60Hz
Operating Temp.	0 ℃ ~ 40 ℃(32 ℉ ~ 104 ℉)
Storage Temp.	-40 ℃ ~ 70 ℃(-40 ℉ ~ 158 ℉)
Operating Humidity	20% to 85%,relative humidity, non-condensing
Storage Humidity	20% to 90%,relative humidity, non-condensing

6. 8-Port 100BaseTX + 2 Gigabit combo Layer 2 Management Switch with 8 PSE port embedded 100W PoE power budget:

Size (H x W x D)	H44 x W263 x D170 mm
Weight(Net/Gross)	1.3kg /2.0kg (45oz/ 70oz)
Power	48VDC 2.5A, 4pin DC-inlet
Operating Temp.	0 ℃ ~ 40 ℃ (32 ℉ ~ 104 ℉)
Storage Temp.	-40 ℃ ~ 70 ℃ (-40 ℉ ~ 158 ℉)
Operating Humidity	20% to 85%,relative humidity, non-condensing
Storage Humidity	20% to 90%,relative humidity, non-condensing

7. 24-Port 100BaseTX + 2 Gigabit combo Layer 2 Management Switch with 12 PSE port embedded 100W PoE power budget:

Size (H x W x D)	H44 x W263 x D170 mm
Weight(Net/Gross)	1.3kg /2.0kg (45oz/ 70oz)
Power	48VDC 2.5A, 4pin DC-inlet
Operating Temp.	0 ℃ ~ 40 ℃ (32 ℉ ~ 104 ℉)
Storage Temp.	-40 ℃ ~ 70 ℃ (-40 ℉ ~ 158 ℉)
Operating Humidity	20% to 85%,relative humidity, non-condensing
Storage Humidity	20% to 90%,relative humidity, non-condensing

8. 8-Port 10/100BaseTX + 2 Gigabit Combo Layer 2 Management Switch

Size (H x W x D)	H44.45 x W260 x D170 mm
Weight(Net/Gross)	1.3kg /2.0kg (45oz/ 70oz)
Power	12VDC 1.0A
Operating Temp.	0 ℃ ~ 40 ℃ (32 ℉ ~ 104 ℉)
Storage Temp.	-40 ℃ ~ 70 ℃ (-40 ℉ ~ 158 ℉)
Operating Humidity	20% to 85%,relative humidity, non-condensing
Storage Humidity	20% to 90%,relative humidity, non-condensing

9. 24-Port 100BaseTX + 2 Gigabit combo Layer 2 Management Switch with 12 PSE port embedded 180W PoE power budget:

Size (H x W x D)	H 44 x W 430 x D 350mm
Weight(Net/Gross)	4.1kg /5.1kg (145 oz/ 180 oz)
Power	100~120/200~240 VAC~3.0 A/1.5 A 50~60Hz
Operating Temp.	0 ℃ ~ 40 ℃ (32 ℉ ~ 104 ℉)
Storage Temp.	-40 ℃ ~ 70 ℃ (-40 ℉ ~ 158 ℉)

Operating Humidity	20% to 85%,relative humidity, non-condensing
Storage Humidity	20% to 90%,relative humidity, non-condensing

10. 24-Port 10/100BaseTX + 2 Gigabit Combo Layer 2 Management Switch (Desktop)

Size (H x W x D)	H44.45 x W260 x D170 mm
Weight(Net/Gross)	1.3kg /2.0kg (45oz/ 70oz)
Power	12VDC 1.5A
Operating Temp.	0 ℃ ~ 40 ℃(32 ℉ ~ 104 ℉)
Storage Temp.	-40 ℃ ~ 70 ℃(-40 ℉ ~ 158 ℉)
Operating Humidity	20% to 85%,relative humidity, non-condensing
Storage Humidity	20% to 90%,relative humidity, non-condensing

11. 8-Port 10/100BaseTX + 2 Gigabit Combo Layer 2+ Management Switch

Size (H x W x D)	H44.45 x W260 x D170 mm
Weight(Net/Gross)	1.3kg /2.0kg (45oz/ 70oz)
Power	12VDC 1.0A
Operating Temp.	0 ℃ ~ 40 ℃(32 ℉ ~ 104 ℉)
Storage Temp.	-40 ℃ ~ 70 ℃(-40 ℉ ~ 158 ℉)
Operating Humidity	20% to 85%,relative humidity, non-condensing
Storage Humidity	20% to 90%,relative humidity, non-condensing

4.4 Standard Conformance

EMC Certification	FCC Class A, CE

5. Warranty statement

We provide this limited warranty for it originally purchased the product from us or its authorized reseller or distributor. We guarantee that equipment is free from physical defects in workmanship and material under normal use from the date of original retail purchase of the Hardware. If the product proves defective during this warranty period, call our Customer Service in order to obtain a Return Authorization number. Be sure to have a proof of purchase on hand when calling. Return requests cannot be processed without proof of purchase. When returning a product, mark the Return Authorization Number clearly on the package pack and include you original proof of purchase. All customers outside the R.O.C shall be held responsible for shipping and handling charges.

In no event shall our liability exceed the price paid for the product from direct, incidental or consequential damage resulting from the use of the product, its accompanying software, or its documentation. We make no warranty or representation, expressed, implied, or statutory, with respect to its products or the contents or use of this documentation and all accompanying software, and specifically disclaim its quality, performance, merchantability, or fitness for any particular purpose. We reserve the right to revise or update its products, software, or documentation without obligation to notify any individual or entity.