Panasonic®

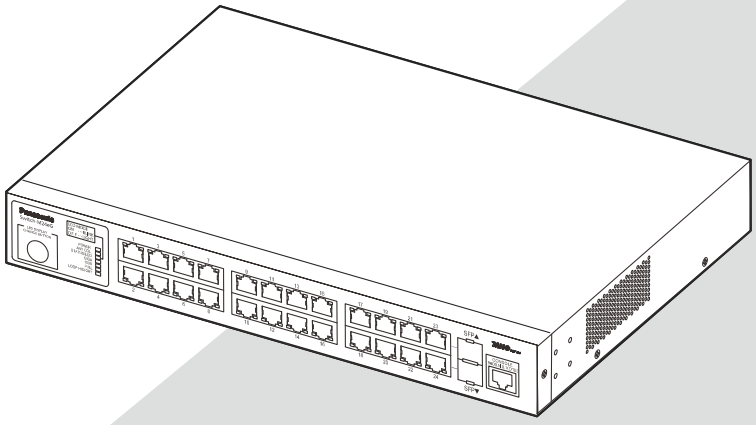
Operation Manual

Menu Screens

Switch-M24eG

Model Number: PN28240A

- Thank you for purchasing our product.
- This manual provides important information about safe and proper operations of this Switching Hub.
- **Please read the "Important Safety Instruction" on pages 2 to 3.**
- Any problems or damage resulting from disassembly of this Switching Hub by customers are not covered by the warranty.



Important Safety Instructions

This chapter contains important safety instructions for preventing bodily injury and/or property damage. You are required to follow them.

■ Severity of bodily injury and/or property damage, which could result from incorrect use of the Switching Hub, are explained below.

⚠ WARNING	This symbol indicates a potential hazard that could result in serious injury or death.
⚠ CAUTION	This symbol indicates safety instructions. Deviation from these instructions could lead to bodily injury and/or property damage.

■ The following symbols are used to classify and describe the type of instructions to be observed.

This symbol is used to alert users to what they must not do.	This symbol is used to alert users to what they must do.

⚠ WARNING

- **Do not use power supply other than AC 100 - 240V.**
  Deviation could lead to fire, electric shock, and/or equipment failure.
- **Do not handle the power cord with wet hand.**
  Deviation could lead to electric shock and/or equipment failure.
- **Do not handle this Switching Hub and connection cables during a thunderstorm.**
  Deviation could lead to electric shock.
- **Do not disassemble and/or modify this Switching Hub.**
  Deviation could lead to fire, electric shock, and/or equipment failure.
- **Do not damage the power cord. Do not bend too tightly, stretch, twist, bundle with other cord, pinch, put under a heavy object, and/or heat it.**
  Damaged power cord could lead to fire, short, and/or electric shock.
- **Do not put foreign objects (such as metal and combustible) into the opening (such as twisted pair port, console port, SFP extension slot), and/or do not drop them into the inside of the Switching Hub.**
  Deviation could lead to fire, electric shock, and/or equipment failure.
- **Do not connect equipments other than 10BASE-T/100BASE-TX/1000BASE-T to twisted pair port.**
  Deviation could lead to fire, electric shock, and/or equipment failure.
- **Do not place this Switching Hub in harsh environment (such as near water, high humid, and/or high dust).**
  Deviation could lead to fire, electric shock, and/or equipment failure.
- **Do not place this Switching Hub under direct sun light and/or high temperature.**
  Deviation could lead to high internal temperature and fire.

⚠WARNING

- **Do not install this Switching Hub at the location with continuous vibration or strong shock, or at the unstable location.**
  Deviation could lead to injury and/or equipment failure.
- **Do not install any module other than the separately sold SFP module to SFP extension slot.**
  Deviation could lead to fire, electric shock, and/or equipment failure.
- **Do not connect any cable other than the separately sold console cable.**
  Deviation could lead to fire, electric shock, and/or equipment failure.
- **Do not put this Switching Hub into fire.**
  Deviation could lead to explosion and/or fire.
- **Do not use the supplied power cord for anything other than this product.**
  Deviation could lead to fire, electric shock, and/or equipment failure.
- **Do not place this Switching Hub under direct sun light and or high temperature.**
  Deviation could lead to fire to high internal temperature and fire.

⚠WARNING

- **Use the bundled power cord (AC 100 – 240V specifications).**
  Deviation could lead to electric shock, malfunction, and/or equipment failure.
- **Unplug the power cord in case of equipment failure.**
  Deviation, such as keeping connected for a long time, could lead to fire.
- **Connect this Switching Hub to ground.**
  Deviation could lead to electric shock, malfunction, and/or equipment failure.
- **Connect the power cord firmly to the power port.**
  Deviation could lead to electric fire, shock, and/or malfunction.
- **Unplug the power cord if the STATUS/ECO LED (Status/ECO mode) blinks in orange (system fault).**
  Deviation, such as keeping connected for a long time, could lead to fire.
- **When this Switching Hub is installed on wall surface, mount it firmly so as not to drop down because of weight of the main body and connection cable.**
  Deviation, could lead to injury and/or equipment failure.

⚠CAUTION

- **Handle the Switching Hub carefully so that fingers or hands may not be damaged by twisted pair port, SFP extension slot, console port, or power cord hook block.**

Basic Instructions for the Use of This Product

- For inspection and/or repair, consult the shop.
- Use commercial power supply from a wall socket, which is close and easily accessible to this Switching Hub.
- Unplug the power cord when installing or moving this Switching Hub.
- Unplug the power cord when cleaning this Switching Hub.
- Use this Switching Hub within the specifications. Deviation could lead to malfunction.
- When installing this Switching Hub using rubber feet (with built-in magnets), confirm that it does not move or fall down due to weight of cables.
- When connecting a cable, hold the Switching Hub firmly.
- Do not put a floppy disk or a magnetic card near the rubber feet (with built-in magnets). Otherwise, recorded content may be lost.
- After installing this Switching Hub on an OA desk, do not move either without dismounting it. Otherwise, the desk surface may be damaged.
- Do not touch the metal terminal of the RJ45 connector, the modular plug of connected twisted pair cable, or the metal terminal of the SFP extension slot. Do not place charged objects in the proximity of them. Static electricity could lead to equipment failure.
- Do not put the modular plug of the connected twisted pair cable on objects that can carry static charge, such as carpet. Do not place it in the proximity. Static electricity could lead to equipment failure.
- Do not put a strong shock, including dropping, to this Switching Hub. Deviation could lead to equipment failure.
- Before connecting a console cable to the console port, discharge static electricity, for example by touching metal appliance (do not discharge by touching this Switching Hub).
- Do not store and/or use this Switching Hub in the environment with the characteristics listed below.

  (Store and/or use this Switching Hub in the environment in accordance with the specification.)

  - High humidity. Possible spilled liquid (water).
  - Dusty. Possible static charge (such as carpet).
  - Under direct sunlight.

- Possible condensation. High/low temperature exceeding the specifications environment.
- Strong vibration and/or strong shock.

● Please use this Switching Hub in place where ambient temperature is from 0 to 50°C.
Failure to meet the above conditions may result in fire, electric shock, breakdown, and/or malfunction.
Please take notice because such cases are out of guarantee.
Additionally, do not cover the bent hole of this Switching Hub.
Deviation could lead to high internal temperature, equipment failure and/or malfunction.

● When stacking Switching Hubs, leave a minimum of 20 mm space between them.

1. Panasonic will not be liable for any damage resulting from the operation not in accordance with this document or the loss of communications, which may or may not be caused by failure and/or malfunction of this product.
2. The contents described in this document may be changed without prior notice.
3. For any question, please contact the shop where you purchased the product.

Table of Contents

1. Product Outline

Switch-M24eG is an all Giga bit Ethernet Switching Hub with management function having 22 ports of 10/100/1000BASE-T and two pairs of 10/100/1000BASE-T port and SFP extension slot, one of which is selectable.

1.1. Features

- Has wire-speed Layer 2 switching function.
- Ports 1 to 22 are 10/100/1000BASE-T ports corresponding to auto negotiation. Also their speed and communication mode can be switched by configuration. Ports 23 and 24 can be used as a 10/100/1000BASE-T port corresponding to auto negotiation or an SFP extension slot exclusively. Also their speed and communication mode can be switched by configuration.
- All twisted pair ports support straight/cross cable auto sensing function. Simply connect devices with straight cables, whether it is a terminal or a network device.
  (This function does not work if the port communication configuration is set at Fixed or Link Aggregation. Ports 1 to 22 are set at MDI-X. (default))
- Has a loop detection function, which notifies when a loop occurs with the corresponding port LED and automatically shuts down the looped port.
- Has a loop detection history function, which notifies when a loop occurs with the corresponding LED and enables a network administrator to identify the looped port after the loop is removed.
- VLAN function allows free grouping of up to 256 VLANs
- Fanless design solves noise problem or fan failure.
- Use of LED indicator switching button saves power consumption of LED lamps.
- The IEEE802.1p compatible QoS function is supported.
- Has an Internet mansion function, which ensures security between each door.
- Power saving mode detects the connection status automatically and saves power consumption to minimum.
- Telnet and SSH functions facilitate remote setting change and confirmation.
- Standard MIB (MIB II, Bridge MIB, etc.) is supported, enabling remote control by using the SNMP manager. (For details, refer to Appendix A and Appendix C.)
- Link aggregation function is supported. Aggregation can be manually configured up to 8 ports.
- Reboot timer function is supported, enabling auto reboot after a scheduled time (24 hours or less).

1.2. Accessories

Please be sure to confirm the content. Please contact our distributor if any of the contents are insufficient.

	Quantity
Installation Guide (this document)	1
CD-ROM (PDF version of Operating Instructions)	1
Mounting bracket (for 19-inch rack)	2
Screws (for 19-inch rack)	4
Screws (for fixing the main unit and the mounting bracket)	8
Screws (for fixing rubber foot)	4
Rubber foot (magnet built-in)	4
Power cord (CEE7/7)(*)	1

(*) The attached power cord is dedicated for AC 100 – 240V use.

1.3. Part Names

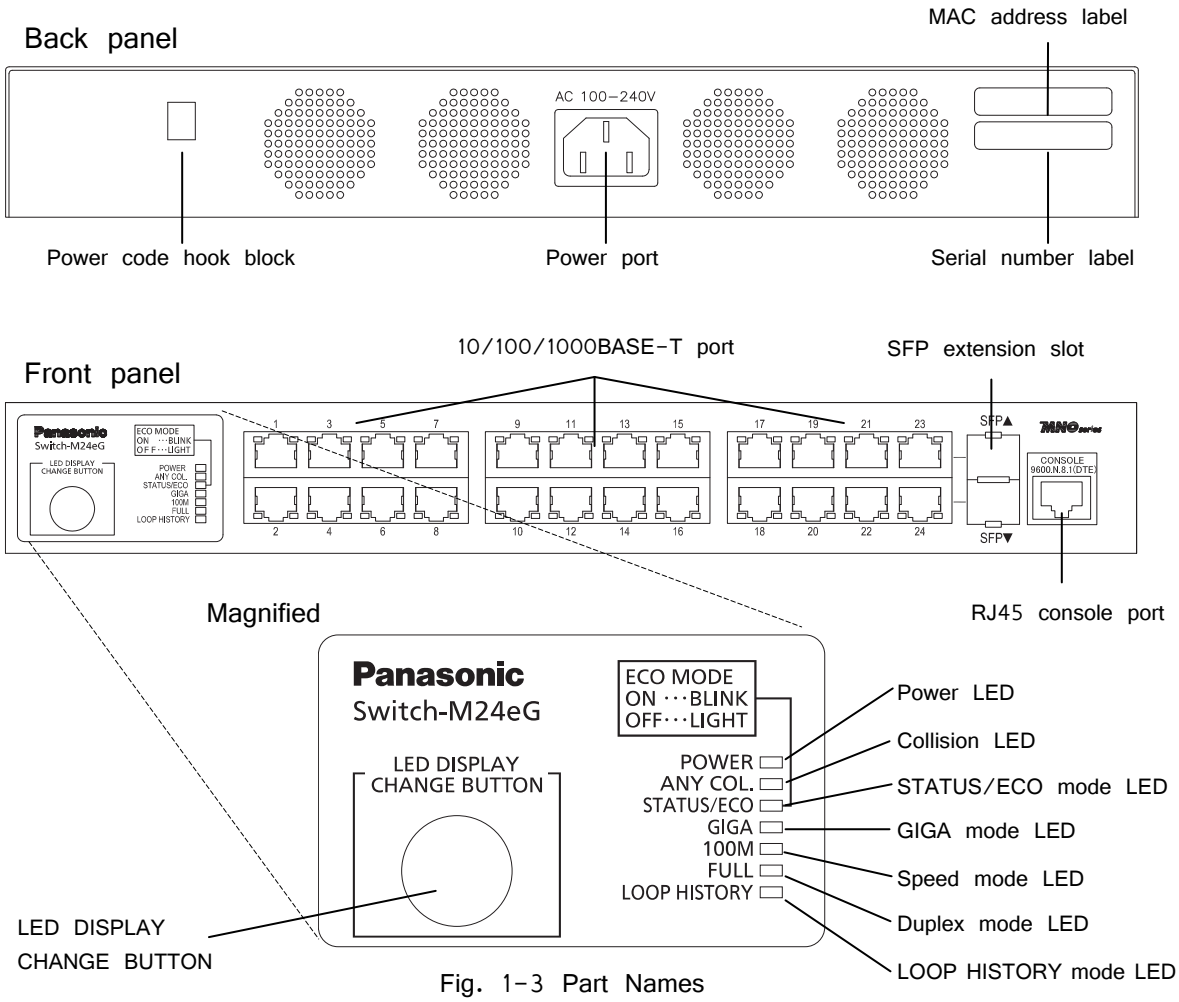


Fig. 1-3 Part Names

1.4. LED Behavior

1.4.1. LED Behavior at Start-up

Upon turning this Switching Hub on, all LEDs tentatively light up. Then, the self-diagnosis of hardware is executed. Upon finishing the diagnosis, power LED and status/ECO mode LED light in solid green. Then, the Switching Hub starts working.

1.4.2. LED Behavior while Operating

This Switching Hub has a set of LEDs for each port. These LEDs indicate the operation status of each port.

● System LED

LED	Behavior	Description
POWER LED (Power)	Green Light	Power is ON.
	Off	Power is OFF.
ANY COL. LED (Collision)	Orange Light	During half-duplex operation, packet collision is occurring in either port.
	Off	No packet collision.
STATUS/ECO LED (Status/Eco mode)	Green Light	Operating in status mode.
	Green Blink	Operating in ECO mode. **(All LEDs turn off, except POWER and STATUS/ECO LEDs during ECO mode.)**
	Off	Power is OFF.
GIGA LED (GIGA mode)	Green Light	Operating in GIGA mode.
100M LED (Speed mode)	Green Light	Operating in Speed mode.
FULL LED (DUPLEX mode)	Green Light	Operating in Duplex mode.
LOOP HISTORY LED (Loop History mode)	Green Light	Operating in Loop history mode.
	Green Blink	Loop is occurring, or occurred within the last 3 days.

● Port LED display mode LED

In the status mode described later, port LED shows linkup and communication status. By pressing the LED display switch button in the front panel, the display mode of port LED can be changed as follows.

Port LED display mode	Description
STATUS/ECO	Shows linkup and communication status.
GIGA	Shows linkup status at 1000 Mbps.
100M	Shows linkup status at 100 Mbps.
FULL	Shows linkup status at full-duplex or half-duplex.
LOOP HISTORY	Shows loop history and port shut-off status.

● Port LED

According to switchover in the port LED display mode, described previously, display of port LED in each port changes as follows.

Port LED	Display mode	Behavior	Description
Left	STATUS/ECO	Green Light	Link is established.
		Green Blink	Transmitting and receiving data.
		Off	No device connected.
	GIGA	Green Light	Link is established at 1000 Mbps.
		Off	Link is established at 100 Mbps or 10 Mbps, or no device is connected.
	100M	Green Light	Link is established at 100 Mbps.
		Off	Link is established at 1000 Mbps or 10 Mbps, or no device is connected.
	FULL	Green Light	Link is established at full-duplex.
		Off	Link is established at half-duplex or no device is connected.
	LOOP HISTORY	Green Light	Within 3 days after loop removed.
		Off	No loop detection history.
Right	—	Orange Light	Shutting down by loop detection.
		Off	Not shutting down by loop detection.

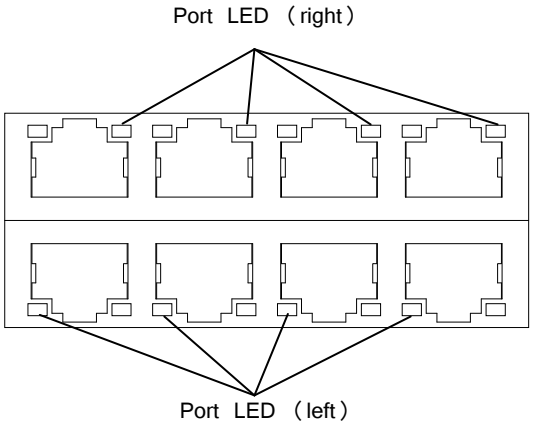


Fig. 1-4 Port LED

1.4.3. Loop detection function

Turns on the port LED with an orange light when a loop occurs in the corresponding port. At this time, the relevant port automatically shuts down (default setting: 60 sec.) to prevent loop from occurring. If the loop is still not removed, the port will shut down again. Remove the loop while the port is shut off.

The loop detection/shut-off function can be switched on/off by keeping pressing the LED display switch button for more than 10 seconds or by setting in the configuration menu. For details on the configuration menu, refer to 4.7.5. If switching properly takes place, LOOP HISTORY LED turns on to complete switchover.

The loop history can be reset by powering off the Switching Hub and then on.

1.5. LED Display Change Button

1.5.1. Setting LED Base Mode

You can select display of LEDs in this Switching Hub from two types: Status mode and Eco mode.

The mode selected at system start-up is called the base mode. The base mode can be switched by keeping pressing the LED display switch button for more than 3 seconds. After pressing the LED display switch button for more than 3 seconds, STATUS/ECO, GIGA, 100M, and FULL LEDs will turn on at once, and then the mode will switch over.

- Status mode (Factory default setting)

According to the port LED display mode, port LED shows the status of each port. In status mode, STATUS/ECO LED lights in green.

- ECO mode

Regardless of whether a device is connected or not, **all LEDs other than POWER and STATUS/ECO LEDs turn off** to save power. In ECO mode, STATUS/ECO LED flashes in green.

The base mode can be set from the configuration menu of this Switching Hub. For details, refer to 4.6.7.c.

1.5.2. LED Display Switchover

By pressing the LED display switch button on the front panel, display of port LED can be changed in the following order.

Port LED display mode	Description
STATUS/ECO	Shows link establishment and communication status.
GIGA	Shows linkup status at 1000 Mbps.
100M	Shows linkup status at 100 Mbps.
FULL	Shows linkup status at full-duplex or half-duplex.
LOOP HISTORY	Shows loop detection and port shut-off status.

If the port LED display mode is switched to other than STATUS/ECO and then no operation is executed for more than 1 minute, the mode automatically shifts to the base mode.

2. Installation

Switch-M24eG can be installed to a stainless steel product, a 19-inch rack, or on the wall.

2.1. Mounting to Steel Product

Take out the supplied 4 rubber feet (with built-in magnets), and place the Switching Hub upside down. Fix the 4 rubber feet firmly to the Switching Hub using 4 screws (for magnetic mount).

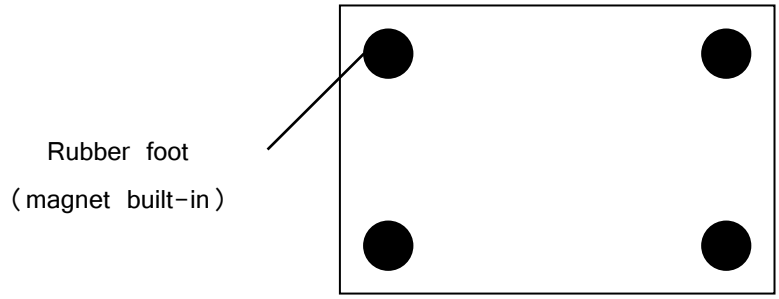


Fig. 2-1 Bottom Face

Note: Don't install the Switching Hub in such places as the unstable location, where there is strong vibration or shock, or where a person may walk under this Switching Hub. Deviation could lead to injury and/or equipment failure.

2.2. Mounting to 19-inch Rack

Take out the supplied 2 mounting brackets (for 19-inch rack) and 8 screws (for fixing the main unit and the mounting bracket), and fix the brackets to the main unit by tightening screws into 4 holes located at the sides. Then, mount this Switching Hub firmly to the rack using the supplied 4 screws (for 19-inch rack) or screws furnished at the rack.

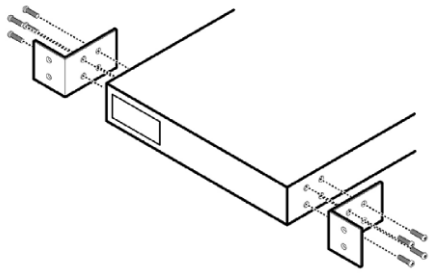


Fig. 2-2 Mounting to 19-inch Rack

3. Connection

3.1. Connection Using a Twisted Pair Port

- Connection Cable

Use a CAT5E or higher twisted pair cable with 8P8C RJ45 modular plug.

- Network Configuration

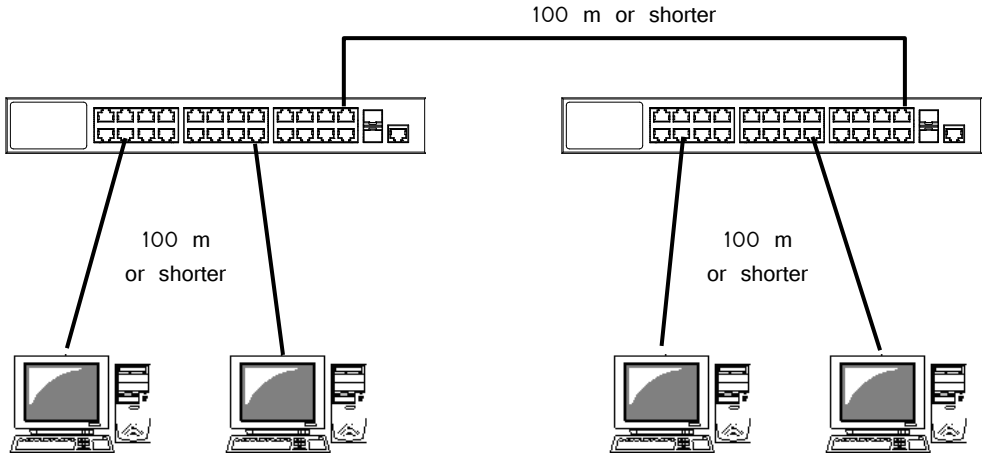


Fig. 3-1 Example of Connection

The length of the cable connecting this Switching Hub and a device must be 100 m or shorter. When a terminal or a LAN device with auto negotiation function is connected to this Switching Hub, the port is automatically configured at the highest performance mode. When a terminal or a LAN device without auto negotiation function is connected to this Switching Hub, this Switching Hub automatically determines and sets the communication speed; however, the full-duplex/half-duplex configuration is set at half-duplex because the full-duplex/half-duplex capability cannot be determined. When connecting a terminal or a LAN device without auto negotiation function, a fixed-mode port configuration needs to be set.

Note: If a fixed-ode port configuration is set, Auto-MDI/MDI-X function does not work. Therefore, use a cross cable to connect them.

3.2. Connection Using an SFP Extension Slot

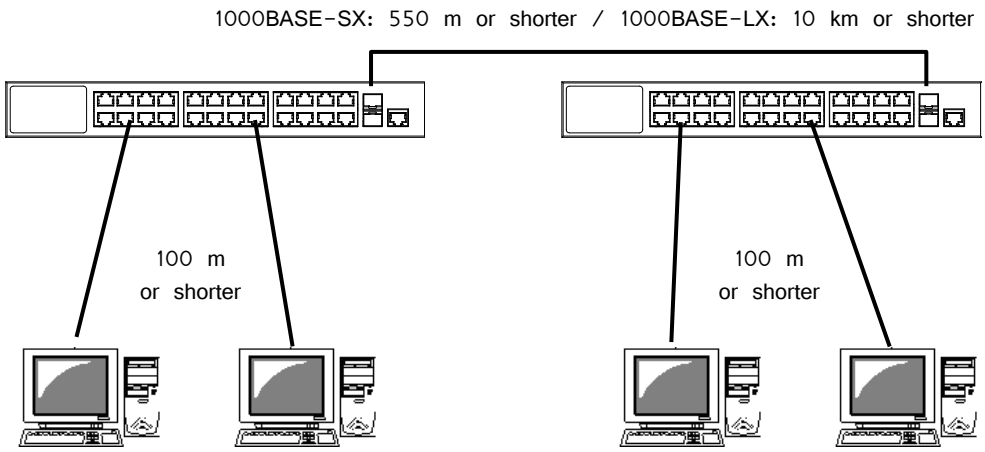


Fig. 3-2 Example of Optical Fiber Cable Connection

Plugging an SFP module (optional) into an SFP extension slot enables an optical fiber connection. Connect this Switching Hub's TX port to the RX port of the connected device and this Switching Hub's RX port to the TX port of the connected device.

If a twisted pair cable and an SFP module are simultaneously connected to combo ports that are used exclusively, SFP link has a priority.

3.3. Connection to Power

Connect the supplied power code to the power port of this Switching Hub and connect the other end into an electric outlet. This Switching Hub operates at 100-240 V (50/60 Hz). This Switching Hub does not have a power ON/OFF switch. Plugging the power cord turns on this Switching Hub's power and the operation starts. To power off, unplug the power code from the electric outlet.

4. Configuration

Upon power on, this Switching Hub starts working as a switching hub. To use the SNMP management functionality or other unique functions, you need to configure the Switching Hub using a console port, Telnet, or SSH.

In this chapter, the configuration of this Switching Hub is explained.

Note: You need to configure an IP address to access this Switching Hub via Telnet or SSH. Therefore, configure an IP address first via the console port, before accessing via Telnet or SSH.

4.1. Connecting via Console Port

Console connection requires a DEC VT100-compatible asynchronous terminal, or a terminal capable of running a VT100-compatible terminal emulator, such as HyperTerminal on Windows XP or older. Connect a terminal of this kind to the console port of this Switching Hub. Configure the communication mode for the asynchronous terminal as follows:

- Transmission mode: RS-232C (ITU-TS V.24 compatible)
- Emulation mode: VT100
- Transmission speed: 9600 bps
- Data length: 8 bit
- Stop bit: 1 bit
- Parity control: None
- Flow control: None

If you are using a Windows machine before Windows XP, refer to "Appendix B. Procedures for Console Port Connection using Windows HyperTerminal."

4.2. Login

If you access the Switching Hub via the console port, a screen shown in Fig. 4-2-1 appears. If this screen does not appear, press Enter key to refresh the display or confirm that there is no error in configuration of communication mode and others.

```
================================================================================
PN28240/PN28240A Local Management System Version x.x.x.xx
MAC Address:  xx:xx:xx:xx:xx:xx

================================================================================

Login Menu

Login:
```

Fig. 4-2-1 Login Screen (Console)

If accessing the Switching Hub via Telnet, a similar login screen appears, displaying "Remote Management System Version" at the upper part of the screen, as shown in Fig. 4-2-2.

```
================================================================================
PN28240/PN28240A Remote Management System Version x.x.x.xx
MAC Address:  xx:x:xx:xx:xx:xx

================================================================================

Login Menu

Login:
```

Fig. 4-2-2 Login Screen (Telnet)

On the screens in Fig. 4-2-1 and Fig. 4-2-2, enter the login name and password. First, enter the login name. The Switching Hub's default login name is set to "manager." Enter "manager" and press the Enter key. Then, you need to enter a password, as shown in Fig. 4-2-3. The Switching Hub's default password is the same as the login name ("manager"). Enter the password correctly and press the Enter key.

```
================================================================================
PN28240/PN28240A Local Management System Version x.x.x.xx
MAC Address:  xx:xx:xx:xx:xx:xx


================================================================================


Login Menu


Login:  manager
Password:  *******
```

Fig. 4-2-3 Entering Password

Both the login name and password can be changed. For the detailed change procedure, refer to 4.6.7.

Note: A password is displayed with asterisks (*) as a user enters it.

Note: Up to four users can access the Switching Hub concurrently via Telnet, and two users via SSH.

Note: Follow the operating procedures for SSH client to login via SSH.

4.3. Basic Operations on the Screen

The console screen of the Switching Hub is organized as follows:

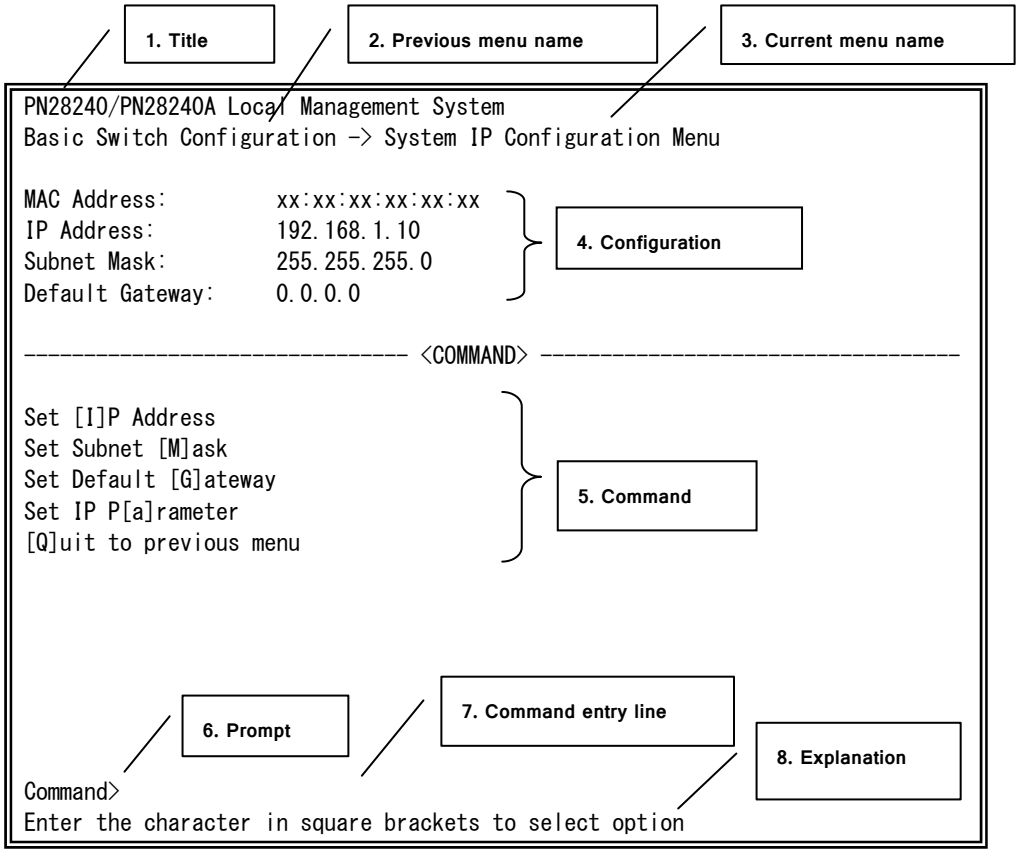


Fig. 4-3-1 Screen Structure

Screen Description

1.	Title	The title of this screen. Shows "Local Management System" while being accessed via console. Shows "Remote Management System" while being accessed via Telnet.
2.	Previous menu name	Shows the name of the previous menu. Pressing "Q," described later, opens the menu screen shown in this field.
3.	Current menu name	Shows the name of the current screen.
4.	Configuration	Shows the current configuration, set on this screen.
5.	Command	Shows the commands available on this screen. Available commands differ on each screen. Select a command from the list.
6.	Prompt	Changes as you enter a command, indicating what you need to enter next. Follow the instruction in this field.
7.	Command entry line	Enter a command or settings.
8.	Explanation	Shows the explanation of this screen or errors.

All operations on this screen are done by entering letters. Using a cursor or other operations are not available. A letter as a valid command is enclosed in square brackets in the command section of each screen. If you enter an invalid command or setting, an error message is shown in the explanation field.

4.4. Main Menu

After login, Main Menu appears, as shown in Fig. 4-4-1.

This Switching Hub has a main menu and multiple sub-menus. These menus have a tree structure, with the main menu as its root. To move to a sub-menu, enter a command letter. To return to the previous menu, enter the "Q" command. The second line from the top shows the current menu name.

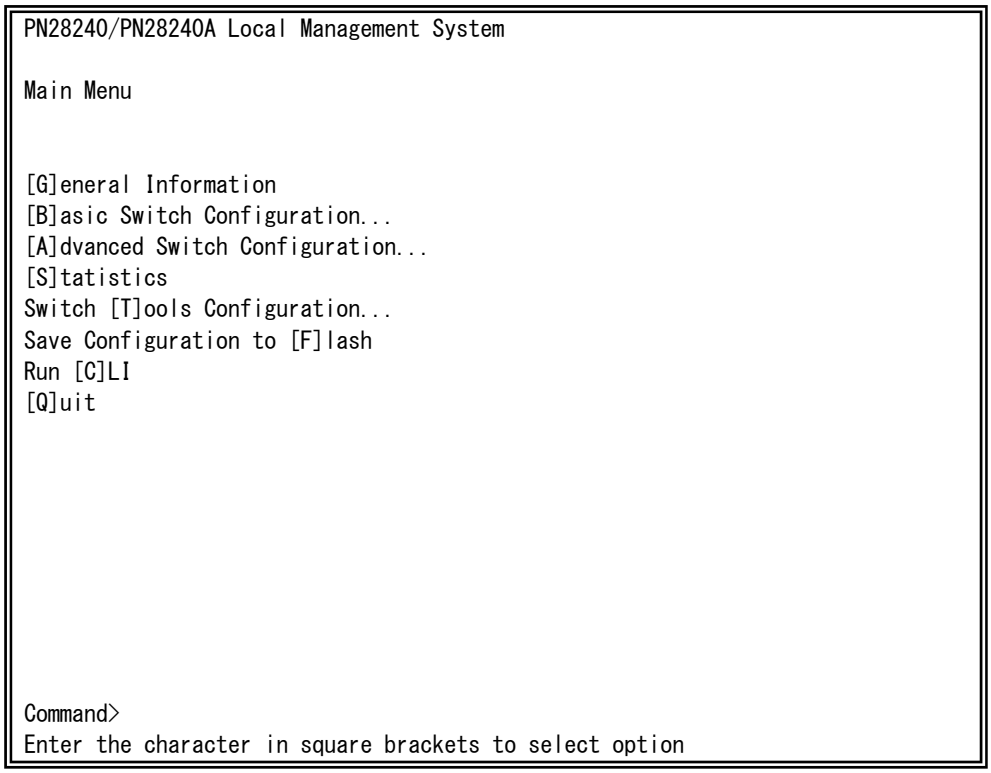


Fig. 4-4-1 Main Menu

Screen Description

General Information	Shows this Switching Hub's hardware, firmware information and address settings.
Basic Switch Configuration...	Configures this Switching Hub's basic functions (such as IP address, SNMP and port settings).
Advanced Switch Configuration...	Configures this Switching Hub's advanced functions (such as VLAN, link aggregation, and QoS).
Statistics	Shows this Switching Hub's statistical information.
Switch Tools Configuration	Configures this Switching Hub's additional tools (such as firmware update, saving/reading settings, Ping, and system log).
Save Configuration to Flash	Writes this Switching Hub's settings into its internal memory.
Run CLI	Switches to a command line interface.
Quit	Quits the main menu and returns to the login screen.

4.5. General Information Menu

On the Main Menu, pressing "G" opens the General Information Menu, as shown in Fig. 4-5-1. This screen shows this Switching Hub's basic information. You cannot edit shown information on this screen.

```
PN28240/PN28240A Local Management System
Main Menu -> General Information

System up for:                000day(s), 00hr(s), 00min(s), 00sec(s)
Boot Code Version:            xx.xx.xx
Runtime Code Version:         x.x.x.xx
Hardware Information
  Version:                    Version1
  DRAM Size:                  32MB
  Flash Size:                 8MB

Administration Information
  Switch Name:
  Switch Location:
  Switch Contact:

System Address Information
  MAC Address:                xx:xx:xx:xx:xx:xx
  IP Address:                 0.0.0.0
  Subnet Mask:                0.0.0.0
  Default Gateway:            0.0.0.0


Press any key to continue...
```

Fig. 4-5-1 General Information Menu

Screen Description

System up for	Shows accumulated time since the Switching Hub boot-up.	
Boot Code Version	Shows the version of Boot Code.	
Runtime Code Version	Shows the version of Runtime Code. (Upgrading firmware version described in 4.9.1 is applicable to Runtime Code.)	
Hardware Information	Shows the hardware information.	
	Version	Shows the hardware version information.
	DRAM / Flash Size	Shows capacities of mounted DRAM and Flash memory.
Administration Information	Items shown here are configured in accordance with "4.6.1 System Administration Configuration."	
	Switch Name	Shows the name of the Switching Hub. No information is set on shipment.
	Switch Location	Shows the installation location of the Switching Hub. No information is set on shipment.
	Switch Contact	Shows contact information of the Switching Hub. No information is set on shipment.
System Address Information	Items shown here are configured in accordance with "4.6.2 System IP Configuration."	
	MAC Address	Shows the MAC address of this Switching Hub. This value is uniquely assigned to each device and cannot be changed.
	IP Address	Shows the Switching Hub's current IP address. 0.0.0.0 is displayed because no address is set on shipment. For configuration details, refer to 4.6.2.
	Subnet Mask	Shows the Switching Hub's current subnet mask. 0.0.0.0 is displayed because no address is set on shipment. For configuration details, refer to 4.6.2.
	Default Gateway	Shows the IP address of the router for the default gateway. 0.0.0.0 is displayed because no address is set on shipment. For configuration details, refer to 4.6.2.

4.6. Basic Switch Configuration

On the Main Menu, pressing "B" opens the Basic Switch Configuration Menu, as shown in Fig. 4-6-1. On this screen, you can configure settings of IP address, SMNP, port, MNO series power saving mode, spanning tree and access control.

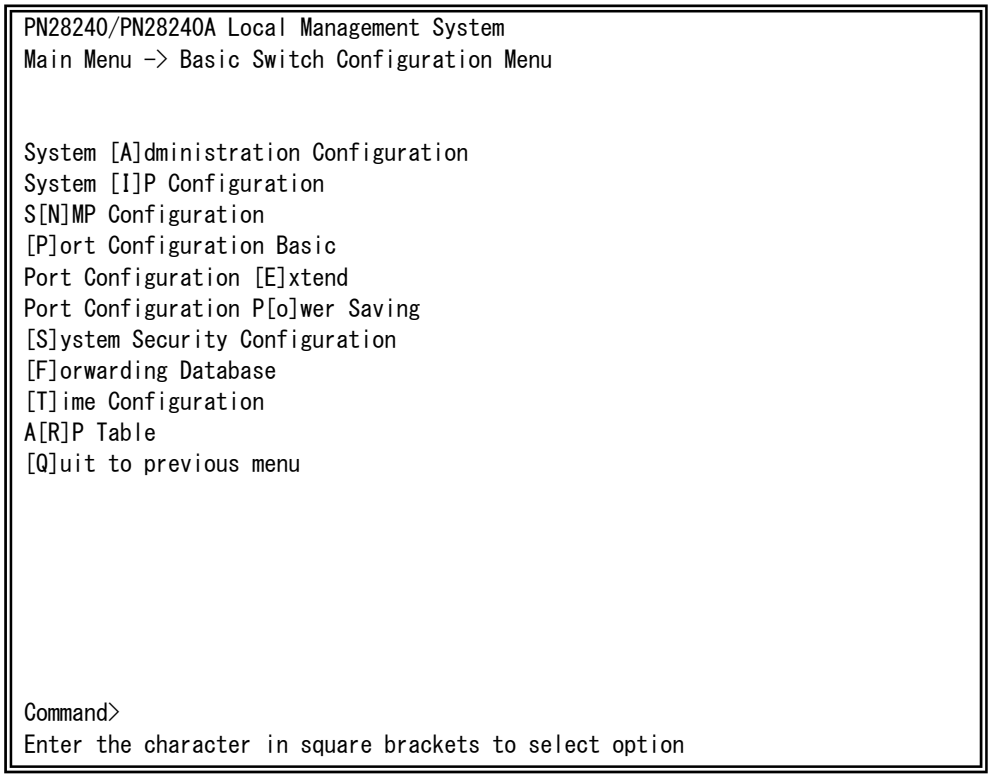


Fig. 4-6-1 Basic Switch Configuration

Screen Description

System Administration Configuration	Configures the administrative information, such as Switching Hub name, location and contact information.
System IP Configuration	Configures the IP-address-related network information.
SNMP Configuration	Configures SNMP-related settings.
Port Configuration Basic	Configures PoE for each port.
Port Configuration Extend	Configures extended port settings, such as port name.
Port Configuration Power Saving	Configures power saving mode for MNO series.
System Security Configuration	Configures the security settings, such as access control for this Switching Hub.
Forwarding Database	Shows the MAC address table.
Time Configuration	Configures the time settings, such as the SNTP-based time synchronization function and manual mode settings.
ARP Table	Shows the ARP table.
Quit to previous menu	Returns to the main menu.

4.6.1. System Administration Configuration

On the Basic Switch Configuration Menu, pressing "A" opens the System Administration Configuration Menu, as shown in Fig. 4-6-2. On this screen, you can set administrative information, such as device name.

```
PN28240/PN28240A Local Management System
Basic Switch Configuration -> System Admin. Configuration Menu

Description:  Switch-M24eG
Object ID:    1.3.6.1.4.1.396.5.4.2.7
Name:
Location:
Contact:

-------------------------------- <COMMAND> ----------------------------------
Set System [N]ame
Set System [L]ocation
Set System [C]ontact Information
[Q]uit to previous menu









Command>
Enter the character in square brackets to select option
```

Fig. 4-6-2 System Administration Configuration

Screen Description

Description:	Shows the system information. This item is not editable.
Object ID:	Shows the corresponding ID in the MIB. This item is not editable.
Name:	Shows the system name. No information is set on shipment.
Location:	Shows the installation location. No information is set on shipment.
Contact:	Shows the contact information. No information is set on shipment.

Available commands are listed below.

N	Set/edit the system name.	
		Press "N." The command prompt changes to "Enter system name>." Enter a Switching Hub name in 50 one-byte characters or less.
L	Set/edit the installation location information.	
		Press "L." The command prompt changes to "Enter system location>." Enter a Switching Hub location in 50 one-byte characters or less.
C	Set/edit the contact information.	
		Press "C." The command prompt changes to "Enter system contact>." Enter contact information in 50 one-byte characters or less.
Q	Return to the previous menu.	

4.6.2. System IP Configuration

On the Basic Switch Configuration Menu, pressing "I" opens the System IP Configuration Menu, as shown in Fig. 4-6-3. On this screen, you can set IP-address-related settings for this Switching Hub.

```
PN28240/PN28240A Local Management System
Basic Switch Configuration -> System IP Configuration Menu

MAC Address:          xx:xx:xx:xx:xx:xx
IP Address:           0.0.0.0
Subnet Mask:          0.0.0.0
Default Gateway:      0.0.0.0

-------------------------------- <COMMAND> ----------------------------------

Set [I]P Address
Set Subnet [M]ask
Set Default [G]ateway
Set IP P[a]rameter
[Q]uit to previous menu









Command>
Enter the character in square brackets to select option
```

Fig. 4-6-3 System IP Configuration

Screen Description

MAC Address	Shows the MAC address of the Switching Hub. This value is a unique identifier assigned to the device. It cannot be changed.
IP Address	Shows the current IP address. 0.0.0.0 is displayed because no address is set on shipment.
Subnet Mask	Shows the current subnet mask. 0.0.0.0 is displayed because no address is set on shipment.
Default Gateway	Shows the IP address of the router, set as a current default gateway. 0.0.0.0 is displayed because no address is set on shipment.

Available commands are listed below.

I	Set/edit the IP address.	
		Press "I." The command prompt changes to "Enter IP address>." Enter an IP address for the Switching Hub.
M	Set/edit the subnet mask.	
		Press "M." The command prompt changes to "Enter subnet mask>." Enter a subnet mask for the Switching Hub.
G	Set/edit the IP address of the router for the default gateway.	
		Press "G." The command prompt changes to "Enter new gateway IP address>." Enter the IP address of the router, set as the default gateway.
A	Set the IP address, subnet mask and default gateway in succession.	
		Press "A." The command prompt changes to "Enter IP address>." Enter the IP address of the Switching Hub. Then, the command prompt changes to "Enter subnet mask>." Enter the subnet mask. Then, the command prompt changes to "Enter new gateway IP address>." Enter the IP address of a router, used as a default gateway.
Q	Return to the previous menu.	

Note: This item must be set in order to use the SNMP management functionality and to enable a remote connection by Telnet or SSH. Any IP addresses on the local network must be unique and no duplication is allowed. If you are unsure, consult the network administrator.

4.6.3. SNMP Configuration

On the Basic Switch Configuration Menu, pressing "N" opens the SNMP Configuration Menu, as shown in Fig. 4-6-4. On this screen, you can configure the SNMP agent settings.

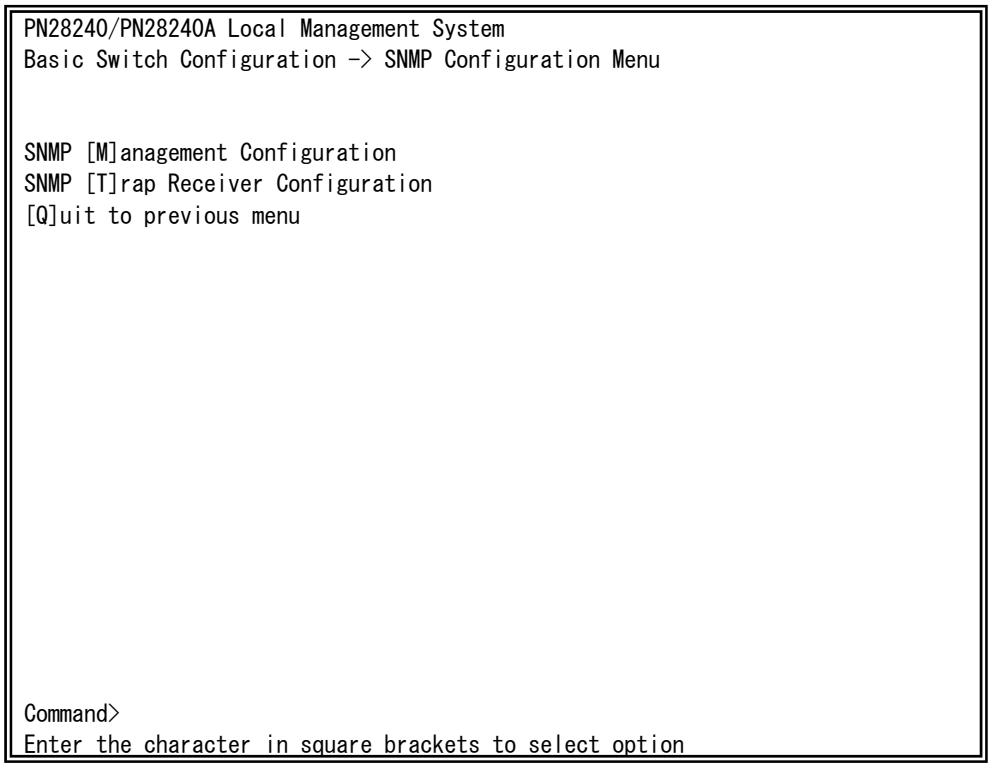


Fig. 4-6-4 SNMP Configuration

Screen Description

SNMP Management Configuration	Configures the SNMP manager settings.
SNMP Trap Receiver Configuration	Configures the SNMP trap receiver settings.
Quit to previous menu	Returns to the previous menu.

Available commands are listed below.

M	Configure the SNMP manager settings.	
		Press "M." The SNMP Management Configuration Menu opens.
T	Configure the trap receiver settings.	
		Press "T." The SNMP Trap Receiver Configuration Menu opens.
Q	Quit the SNMP Configuration Menu and return to the previous menu.	

4.6.3.a. SNMP Management Configuration

On the SNMP Configuration Menu, pressing "M" opens the SNMP Management Configuration Menu, as shown in Fig. 4-6-5. On this screen, you can configure the SNMP manager settings.

```
PN28240/PN28240A Local Management System
SNMP Configuration -> SNMP Management Configuration Menu

SNMP Manager List:
 No.   Status    Privilege     IP Address         Community
----  --------  -----------  ---------------  ----------------------------
  1   Enabled   Read-Only    0.0.0.0          public
  2   Enabled   Read-Write   0.0.0.0          private
  3   Disabled  Read-Only    0.0.0.0
  4   Disabled  Read-Only    0.0.0.0
  5   Disabled  Read-Only    0.0.0.0
  6   Disabled  Read-Only    0.0.0.0
  7   Disabled  Read-Only    0.0.0.0
  8   Disabled  Read-Only    0.0.0.0
  9   Disabled  Read-Only    0.0.0.0
 10   Disabled  Read-Only    0.0.0.0

-------------------------------- <COMMAND> ----------------------------------

Set Manager [S]tatus      Set Manager [I]P
Set Manager P[r]ivilege   Set Manager [C]ommunity     [Q]uit to previous menu

Command>
Enter the character in square brackets to select option
```

Fig. 4-6-5 SNMP Management Configuration

Screen Description

SNMP Manager List:	Shows the current SNMP manager settings.		
	No.	Shows the entry number on the SNMP Manager List.	
	Status	Shows the SNMP manager status.	
		Enabled	The SNMP manager is enabled.
		Disabled	The SNMP manager is disabled.
	Privilege	Shows the access privilege of the SNMP manager.	
		Read-Write	Both the read and write operations are allowed.
		Read-Only	Only the read operation is allowed.
	IP Address	Shows the IP address of the SNMP manager.	
	Community	Shows the current community name.	

Available commands are listed below.

S	Set the SNMP manager status.
	Press "S." The command prompt changes to "Enter manager entry number>." Enter an SNMP manager entry number you wish to configure. Then, the command prompt changes to "Enable or Disable SNMP manger (E/D)>." Press "E" to enable the SNMP manager. Press "D" to disable it.
I	Set an IP address for an SNMP manager.
	Press "I." The command prompt changes to "Enter manager entry number>." Enter an SNMP Management entry number you wish to configure. Then, the command prompt changes to "Enter IP address for manager>." Enter an IP address.
R	Set an access privilege for an SNMP manager.
	Press "R." The command prompt changes to "Enter manager entry number>." Enter an SNMP manager entry number you wish to configure. Then, the command prompt changes to "Enter the selection>." Press "1" for read-only permission. Press "2" for read-and-write.
C	Set a community name for an SNMP manager.
	Press "C." The command prompt changes to "Enter manager entry number>." Enter an SNMP manager entry number you wish to configure. Then, the command prompt changes to "Enter community name for manager>." Enter a community name.
Q	Return to the previous menu.

4.6.3.b. SNMP Trap Receiver Configuration

On the SNMP Configuration Menu, pressing "T" opens the SNMP Trap Receiver Configuration Menu, as shown in Fig. 4-6-6. On this screen, you can configure the SNMP trap receiver settings.

```
PN28240/PN28240A Local Management System
SNMP Configuration -> SNMP Trap Receiver Configuration Menu

Trap Receiver List:
 No.   Status    Type    IP Address         Community
----  --------   -----   ---------------    ----------------------------
  1   Disabled   v1      0.0.0.0
  2   Disabled   v1      0.0.0.0
  3   Disabled   v1      0.0.0.0
  4   Disabled   v1      0.0.0.0
  5   Disabled   v1      0.0.0.0
  6   Disabled   v1      0.0.0.0
  7   Disabled   v1      0.0.0.0
  8   Disabled   v1      0.0.0.0
  9   Disabled   v1      0.0.0.0
 10   Disabled   v1      0.0.0.0

-------------------------------- <COMMAND> ----------------------------------

Set Receiver [S]tatus     Set Receiver [I]P          In[d]ividual Trap Config
Set Trap [T]ype           Set Receiver [C]ommunity   [Q]uit to previous menu

Command>
Enter the character in square brackets to select option
```

Fig. 4-6-6 SNMP Trap Receiver Configuration

Screen Description

Trap Receiver List:	Shows the IP address and the community name for the current trap receiver.		
	No.	Shows the entry number for the trap receiver.	
	Status	Shows the trap sending setting.	
		Enabled	Sends traps.
		Disabled	Does not send traps.
	Type	Shows the trap type.	
		V1	Sends SNMPv1 traps.
		V2	Sends SNMPv2 traps.
	IP Address	Shows the IP address of a trap receiver.	
	Community	Shows the current community name of a trap receiver.	

Available commands are listed below.

S	Enable/disable the trap receiver.	
		Press "S." The command prompt changes to "Enter manager entry number>." Enter an entry number for the trap receiver you wish to configure. Then, the command prompt changes to "Enable or Disable Trap Receiver (E/D)>." Press "E" to enable the SNMP manager. Press "D" to disable it.
I	Set an IP address for the trap receiver.	
		Press "I." The command prompt changes to "Enter manager entry number>." Enter an entry number for the trap receiver you wish to configure. Then, the command prompt changes to "Enter IP address for trap receiver>." Enter an IP address.
D	Configure the trap sending settings when the link status changes.	
		Press "D" to open the Enable/Disable Individual Trap Menu. For configuration details, refer to 4.6.3.C.
T	Set a trap type.	
		Press "T." The command prompt changes to "Enter manager entry number>." Enter an entry number for the trap receiver you wish to configure. Then, the command prompt changes to "Enter the selection>." Press "1" to select SNMPv1 traps. Press "2" to select SNMPv2 traps.
C	Set a community name for the trap receiver.	
		Press "C." The command prompt changes to "Enter manager entry number>." Enter an entry number for a trap receiver you wish to configure. Then, the command prompt changes to "Enter community name for trap receiver>." Enter a community name.
Q	Return to the previous menu.	

4.6.3.c. Enable/Disable Individual Trap

On the SNMP Trap Receiver Configuration Menu, pressing "d" opens the Enable/Disable Individual Trap Menu, as shown in Fig. 4-6-7. On this screen, you can configure the trap sending settings.

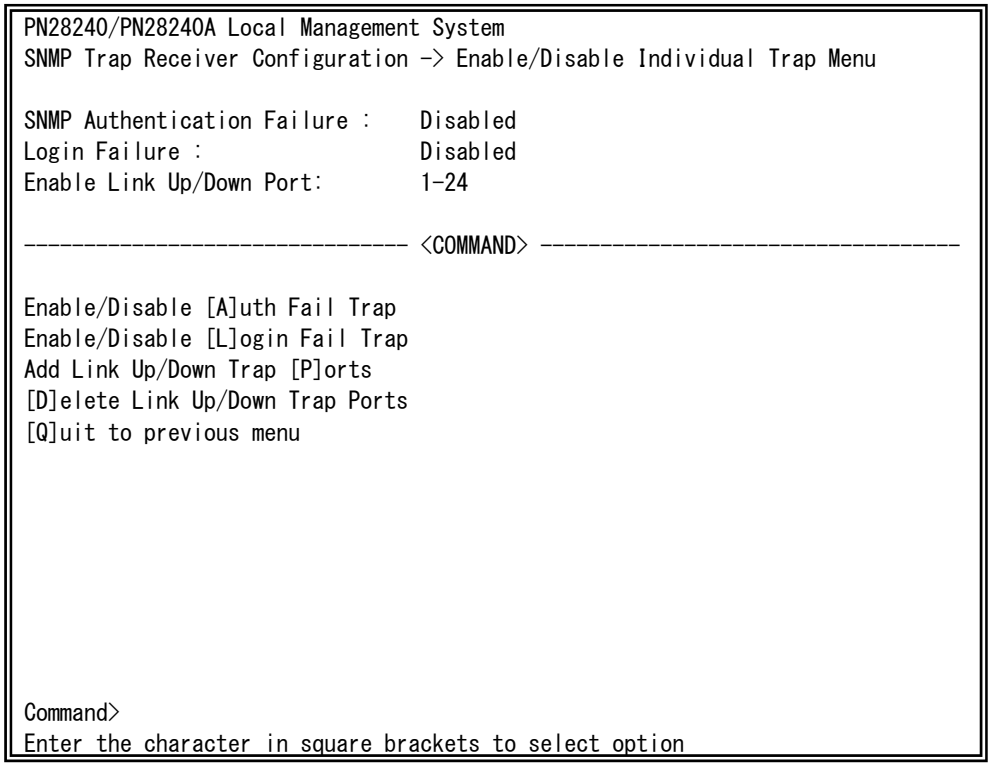


Fig. 4-6-7 Enable/Disable Individual Trap

Screen Description

SNMP Authentication Failure:	Shows the trap sending settings for an SNMP authentication failure.	
	Enabled:	The trap sending is enabled.
	Disabled:	The trap sending is disabled. (Factory default setting)
Login Failure:	Shows the trap sending settings for a login failure.	
	Enabled:	The trap sending is enabled.
	Disabled:	The trap sending is disabled. (Factory default setting)
Enabled Link Up/Down Port:	Shows the port number to which a trap is sent, when its link status changes. All ports are assigned at factory shipment.	

Available commands are listed below.

A	Enable/disable the trap sending at an SNMP authentication failure.	
		Press "A." The command prompt changes to "Enable or Disable SNMP Authentication trap (E/D)>." Press "E" to enable the trap sending. Press "D" to disable it.
L	Enable/disable the trap sending at a login failure.	
		Press "L." The command prompt changes to "Enable or Disable Login failure trap (E/D)>." Press "E" to enable the trap sending. Press "D" to disable it.
P	Add a port to which the trap is sent when its link status changes.	
		Press "P." The command prompt changes to "Enter port number>." Enter a port number. The trap is sent for this port.
D	Delete a port to which the trap is sent when its link status changes.	
		Press "D." The command prompt changes to "Enter port number>." Enter a port number. The trap is not sent for this port.
Q	Return to the previous menu.	

Note: There is no individual configuration item for loop detection trap. They are sent based on the SNMP Trap Receiver Configuration.

4.6.4. Port Configuration Basic

On the Basic Switch Configuration Menu, pressing "p" opens the Port Configuration Menu, as shown in Fig. 4-6-8. On this screen, you can configure port status display settings and port settings.

```
PN28240/PN28240A Local Management System
Basic Switch Configuration -> Port Configuration Basic Menu

Port  Trunk      Type      Admin     Link       Mode       Flow Ctrl  Auto-MDI
----  -----  ----------  --------   ----   ------------  ---------  --------
  1    ---      1000T     Enabled    Up     Auto(1000F)   Disabled   Disabled
  2    ---      1000T     Enabled    Down   Auto          Disabled   Disabled
  3    ---      1000T     Enabled    Down   Auto          Disabled   Disabled
  4    ---      1000T     Enabled    Down   Auto          Disabled   Disabled
  5    ---      1000T     Enabled    Down   Auto          Disabled   Disabled
  6    ---      1000T     Enabled    Down   Auto          Disabled   Disabled
  7    ---      1000T     Enabled    Down   Auto          Disabled   Disabled
  8    ---      1000T     Enabled    Down   Auto          Disabled   Disabled
  9    ---      1000T     Enabled    Down   Auto          Disabled   Disabled
 10    ---      1000T     Enabled    Down   Auto          Disabled   Disabled
 11    ---      1000T     Enabled    Down   Auto          Disabled   Disabled
 12    ---      1000T     Enabled    Down   Auto          Disabled   Disabled
-------------------------------- <COMMAND> ----------------------------------

[N]ext Page               Set [M]ode                [Q]uit
[P]revious Page           Set [F]low Control
Set [A]dmin Status        [S]et Auto-MDI
Command>
Enter the character in square brackets to select option
```

Fig. 4-6-8 Port Configuration

Screen Description

Port	Shows the port number.	
Trunk	Shows the group number for a trunked port.	
Type	Shows the port type.	
	100TX	The port type is 10/100BASE-TX.
	1000T	The port type is 10/100/1000BASE-T.
	1000X	The port type is SFP port.
Admin	Shows the current port status. The factory default setting is "Enabled" for all ports.	
	Enabled	The port is available for use.
	Disabled	The port is not available for use.
Link	Shows the current link status.	
	Up	Link is established successfully.
	Down	Link is not established.
Mode	Shows the communication speed and full-duplex/half-duplex settings. The factory default setting is "Auto" for all ports.	
	Auto	Auto negotiation mode
	100-FDx (100F)	100 Mbps full-duplex
	100-HDx (100H)	100 Mbps half-duplex
	10-FDx(10F)	10 Mbps full-duplex
	10-HDx(10H)	10 Mbps half-duplex
Flow Ctrl	Shows the flow control settings. The factory default setting is "Disabled" for all ports.	
	Enabled	The flow control is enabled.
	Disabled	The flow control is disabled.
Auto-MDI	Shows the Auto MDI function settings. The factory default setting is "Disabled" for ports 1 to 22. (The settings for ports 23 and 24 are fixed at "Enabled.")	
	Enabled	The Auto MDI/MDI-X function is enabled.
	Disabled	The Auto MDI/MDI-X function is disabled.

Available commands are listed below.

N	Show the next page.		
	Press "N." The screen shows the next port.		
P	Show the previous page.		
	Press "P." The screen shows the previous port.		
A	Enable/disable a port.		
	Press "A." The command prompt changes to "Select port number to be changed>." Enter a port number you wish to change. Press "0" to change the settings of all ports at a time. Then, the command prompt changes to "Enable or Disable port # (E/D)>." Press "E" to enable the port. Press "D" to disable it. When you complete the setting change, the display on the screen is automatically updated.		
M	Configure the speed and full-duplex/half-duplex settings for each port.		
	Press "M." The command prompt changes to "Enter port number>." Enter a port number you wish to change. Press "0" to change the settings of all ports at a time. Then, the command prompt changes to "Enter mode for port # (A/N)>." Press "A" to enable the auto negotiation mode. Press "N" to disable it. If "N" is selected, the command prompt changes to "Enter speed for port #(10/100)>." Select a desired communication speed. Upon setting, the command prompt changes to "Enter duplex for port #(F/H)>." Select "F" for full-duplex. Select "H" for half-duplex. When you complete the setting change, the display on the screen is automatically updated.		
	Mode:	A:	Enable the auto negotiation mode.
		N:	Disable the auto negotiation mode (fixing the speed at Giga is not supported).
	Speed:	10:	Set at 10 Mbps.
		100:	Set at 100 Mbps.
	Duplex:	F:	Set at full-duplex.
		H:	Set at half-duplex.
F	Enable/disable the flow control.		
	Press "F." The command prompt changes to "Select port number to be changed>." Enter a port number you wish to change. Press "0" to change the settings of all ports at a time. Then, the command prompt changes to "Enable or Disable flow control for port # (E/D)>." Press "E" to enable the function. Press "D" to disable it. When you complete the setting change, the display on the screen is automatically updated.		

S	Enable/disable the AUTO-MDI function.	
		Press "S." The command prompt changes to "Enter port number>." Enter a port number (from 1 to 24) you wish to change. Press "0" to change the settings of all ports at a time. Then, the command prompt changes to "Enable or Disable Auto-MDI for port # (E/D)>." Press "E" to enable the function. Press "D" to disable it. As the change is applied, the display on the screen is updated automatically.
Q	Return to the previous menu.	

Note: The screen shows the port status; however, the status is not automatically updated. To display the latest status, press any key.

4.6.5. Port Configuration Extend

On the Basic Switch Configuration Menu, pressing "e" opens the Port Configuration Menu, as shown in Fig. 4-6-9. On this screen, you can configure port status display settings and port settings.

```
PN28240/PN28240A Local Management System
Basic Switch Configuration -> Port Configuration Extend Menu

Port  Trunk      Type      Link     Port Name       Jumbo
----  -----  -----------  ----  ---------------   --------
  1    ---      1000T     Up    Port_1            Disabled
  2    ---      1000T     Down  Port_2            Disabled
  3    ---      1000T     Down  Port_3            Disabled
  4    ---      1000T     Down  Port_4            Disabled
  5    ---      1000T     Down  Port_5            Disabled
  6    ---      1000T     Down  Port_6            Disabled
  7    ---      1000T     Down  Port_7            Disabled
  8    ---      1000T     Down  Port_8            Disabled
  9    ---      1000T     Down  Port_9            Disabled
 10    ---      1000T     Down  Port_10           Disabled
 11    ---      1000T     Down  Port_11           Disabled
 12    ---      1000T     Down  Port_12           Disabled
-------------------------------- <COMMAND> ----------------------------------

[N]ext Page                              Set Port N[a]me
[P]revious Page                          Set [J]umbo Status
[Q]uit to previous menu
Command>
Enter the character in square brackets to select option
```

Fig. 4-6-9 Port Configuration

Screen Description

Port	Shows the port number.	
Trunk	Shows the group number for a trunked port.	
Type	Shows the port type.	
	100TX	The port type is 10/100BASE-TX.
	1000T	The port type is 10/100/1000BASE-T.
	1000X	The port type is SFP extension port.
Link	Shows the current link status.	
	Up	Link is established successfully.
	Down	Link is not established.
Port Name	Shows the port name.	
Jumbo	Shows the jumbo frame settings. The factory default setting is "Disabled" for all ports.	
	Enabled	Jumbo frame is enabled.
	Disabled	Jumbo frame is disabled.

Available commands are listed below.

N	Show the next page.
	Press "N." The screen shows the next port.
P	Show the previous page.
	Press "P." The screen shows the previous port.
A	A name can be assigned to each port.
	Press "A." The command prompt changes to "Select port number to be changed>." Enter a port number you wish to change. Press "0" to change the settings of all ports at a time. Then, the command prompt changes to "Enter port name string>." Enter a name you wish to assign. When you complete the setting change, the display on the screen is automatically updated.
J	Enable/disable the jumbo frame forwarding function.
	Press "J." The command prompt changes to "Select port number to be changed>." Enter a port number you wish to change. Press "0" to change the settings of all ports at a time. Then, the command prompt changes to "Enable or Disable jumbo status for port # (E/D)>." Press "E" to enable the function. Press "D" to disable it. As the change is applied, the display on the screen is updated automatically.
Q	Return to the previous menu.

Note: The screen shows the port status; however, the status is not automatically updated. To display the latest status, press any key.

4.6.6. Port Configuration Power Saving

The MNO series power saving mode is our unique function for automatically detecting the port connection status and minimizing power consumption if not connected. This Switching Hub supports two modes: the Half mode for giving priority to connectivity with another device, and the Full mode for minimizing power consumption.

On the Basic Switch Configuration Menu, pressing "o" opens the Port Configuration Power Saving Menu, as shown in Fig. 4-6-10. On this screen, you can configure port status display and power saving mode.

```
PN28240/PN28240A Local Management System
Basic Switch Configuration -> Port Configuration Power Saving Menu

Port  Link  Trunk     Type         Mode        Power-saving
----  ----  -----  -----------  ------------  --------------
  1   Up     ---      1000T      Auto(1000F)     Half
  2   Down   ---      1000T      Auto            Half
  3   Down   ---      1000T      Auto            Half
  4   Down   ---      1000T      Auto            Half
  5   Down   ---      1000T      Auto            Half
  6   Down   ---      1000T      Auto            Half
  7   Down   ---      1000T      Auto            Half
  8   Down   ---      1000T      Auto            Half
  9   Down   ---      1000T      Auto            Half
 10   Down   ---      1000T      Auto            Half
 11   Down   ---      1000T      Auto            Half
 12   Down   ---      1000T      Auto            Half
-------------------------------- <COMMAND> ------------------------------------
[N]ext Page
[P]revious Page
Set Power [S]aving mode
[Q]uit to previous menu
Command>
Enter the character in square brackets to select option
```

Fig. 4-6-10 Port Configuration Power Saving

Screen Description

Port	Shows the port number.	
Link	Shows the current link status.	
	Up	Link is established successfully.
	Down	Link is not established.
Trunk	Shows the group number for a trunked port.	
Type	Shows the port type.	
	100TX	The port type is 10/100BASE-TX.
	1000T	The port type is 10/100/1000BASE-T.
	1000X	The port type is SFP extension port.
Mode	Shows the communication speed and full-duplex/half-duplex settings. The factory default setting is "Auto" for all ports.	
	Auto	Auto negotiation mode
	100-FDx(100F)	100 Mbps full-duplex
	100-HDx(100H)	100 Mbps half-duplex
	10-FDx(10F)	10 Mbps full-duplex
	10-HDx(10H)	10 Mbps half-duplex
Power-saving	Shows status of the MNO series power saving mode. The factory default setting is "Half" for all ports.	
	Half	Power saving mode is enabled (Half).
	Full	Power saving mode is enabled (Full).
	Disabled	Power saving mode is disabled.

Available commands are listed below.

N	Show the next page.
	Press "N." The screen shows the next port.
P	Show the previous page.
	Press "P." The screen shows the previous port.
S	Set the MNO series power saving mode.
	Press "S." The command prompt changes to "Select port number to be changed>." Enter a port number you wish to change. Press "0" to change the settings of all ports at a time. Then, the command prompt changes to "Enter Power Saving mode for port (F/H/D)>." Press "E" to enable the mode. Press "D" to disable it. Press "H" to enable the power saving mode of giving priority to connectivity with another device. As the change is applied, the display on the screen is updated automatically.
Q	Return to the previous menu.

4.6.7. System Security Configuration

On the Basic Switch Configuration Menu, pressing "S" opens the System Security Configuration screen, as shown in Fig. 4-6-11. On this screen, you can configure the access control settings to this Switching Hub for configuration and management.

```
PN28240/PN28240A Local Management System
Basic Switch Configuration -> System Security Configuration

Console UI Idle Timeout:      No timeout
Telnet UI Idle Timeout:       5 Min.

Telnet Server:                Enabled
SNMP Agent:                   Enabled
IP Setup Interface:           Enabled
Local User Name:              manager
Login Method 1:               Local
Login Method 2:               None

------------------------------ <COMMAND> ----------------------------------
Set [C]onsole UI Time Out              Change Local User [N]ame
Set [T]elnet UI Time Out               Change Local [P]assword
Enable/Disable Te[l]net Server         [R]ADIUS Configuration
Enable/Disable [S]NMP Agent            Telnet [A]ccess Limitation
L[o]gin Method                         [I]P Setup Interface
SS[H] Server Configuration             LED [B]ase Mode Configuration
[Q]uit to previous menu

Command>
Enter the character in square brackets to select option
```

Fig. 4-6-11 System Security Configuration

Screen Description

Console UI Idle Time Out:	Shows the idle timeout settings (in minutes) for terminating a console-connected session if no input is made. The factory default setting is 5 minutes.	
Telnet UI Idle Time Out:	Shows the idle timeout settings (in minutes) for terminating a Telnet-connected session if no input is made. The factory default setting is 5 minutes.	
Telnet Server:	Shows the Telnet access settings. The factory default setting is "Enabled."	
	Enabled	Access is enabled.
	Disabled	Access is disabled.
SNMP Agent:	Shows the SNMP access settings. The factory default setting is "Disabled."	
	Enabled	Access is enabled.
	Disabled	Access is disabled.
IP Setup Interface:	Shows the access settings for the IP address configuration software, bundled with the Panasonic network cameras. The factory default setting is "Enabled." * For instructions, refer to Appendix C.	
	Enabled:	Access is enabled.
	Disabled:	Access is disabled.
Local User Name:	Shows the current login user name. The factory default setting is "manager."	
Login Method	Shows the method of verifying the user name and password at login. The factory default setting is "Local" for 1 and "None" for 2.	
	Local	The user name and password set in this Switching Hub is used for login.
	RADIUS	Authentication by RADIUS server is used for login.
	None	Not used. (Only for Login Method 2.)

Available commands are listed below.

C	Configure the idle timeout settings for automatically terminating a console-connected session if no input is made.	
		Press "C." The command prompt changes to "Enter console idle timeout>." Enter a value from 0 to 60 (minutes). Entering "0" disables the automatic termination.
T	Configure the idle timeout settings for automatically terminating a Telnet-connected session if no input is made.	
		Press "T." The command prompt changes to "Enter telnet idle timeout>." Enter a value from 1 to 60 (minutes).
N	Edit the login user name.	
		Press "N." The command prompt changes to "Enter current password>." Enter the current password. After entering the correct password, the command prompt changes to "Enter new name>." Enter a new user name in 12 one-byte characters.
P	Edit the login password.	
		Press "P." The command prompt changes to "Enter old password>." Enter the current password. After entering the correct password, the command prompt changes to "Enter new password>." Enter a new password in 12 one-byte characters. After entering the password, the command prompt changes to "Retype new password>" for confirmation. Enter the new password again.
L	Configure the Telnet access settings.	
		Press "L." The command prompt changes to "Enable or Disable telnet server(E/D)>." Press "E" to enable the access. Press "D" to disable the access.
S	Configure the SNMP access settings.	
		Press "S." The command prompt changes to "Enable or Disable SNMP Agent(E/D)>." Press "E" to enable the access. Press "D" to disable the access.
R	Configure the RADIUS server access settings for login authentication.	
		Press "R." The RADIUS Configuration Menu opens. For configuration details, refer to the next section **(4.6.7.b).**
A	Set Telnet accessible terminals.	
		Press "A." The Telnet Access Limitation Menu opens. For configuration details, refer to the next section **(4.6.7.a).**
I	Configures the access settings for the IP address configuration software, bundled with the Panasonic network cameras.	
		Press "I." The command prompt changes to "Enable or Disable IP setup interface (E/D)>." Press "E" to enable the access. Press "D" to disable the access.
O	Set the verification method of the login user name and password.	
		Press "O." The command prompt changes to "Enter manager entry number>." Press "1" to change the first login method. Press "2" to change the second login method. Then, the command prompt changes to the "Select the login method." Press "L" to use the user name and password set in the Switching Hub. Press "R" to use authentication by RADIUS. Press "N" for no setting.
H	Configure the SSH server settings.	
		Press "H." The SSH Server Configuration Menu opens. For configuration details, refer to the next section **(4.6.7.c).**
B	Configure the LED base mode settings.	
		Press "B." The LED Basic Mode Configuration Menu opens. For configuration details, refer to the next section **(4.6.7.d).**
Q	Return to the previous menu.	

4.6.7.a. Telnet Access Limitation Configuration

On the System Security Configuration Menu, pressing "A" opens the Telnet Access Limitation screen, as shown in Fig. 4-6-12. In this screen, you can configure limitation of equipment accessing to this Switching Hub via Telnet.

```
PN28240/PN28240A  Local Management System
System Security Configuration -> Telnet Access Limitation Menu

Telnet Access Limitation :   Disabled

No.      IP Address          Subnet Mask
---   ---------------     ---------------
 1     <empty>              <empty>
 2     <empty>              <empty>
 3     <empty>              <empty>
 4     <empty>              <empty>
 5     <empty>              <empty>
-------------------------------- <COMMAND> ----------------------------------

[E]nable/Disable Telnet Access Limitation
[A]dd IP Address and Subnet Mask
[D]elete IP Address and Subnet Mask
[M]odify IP Address and Subnet Mask
[Q]uit to previous menu



Command>
Enter the character in square brackets to select option
```

Fig. 4-6-12 Telnet Access Limitation Configuration

Available commands are listed below.

<table>
<tr><td>E</td><td colspan="2">Enable/Disable the access limitation from Telnet.</td></tr>
<tr><td></td><td>E</td><td>Set the access limitation from Telnet to Enable.</td></tr>
<tr><td></td><td>D</td><td>Set the access limitation from Telnet to Disable.</td></tr>
<tr><td>A</td><td colspan="2">Set an IP address to be permitted. Five ranges can be set up.</td></tr>
<tr><td></td><td colspan="2">Press "A." The command prompt changes to "Enter IP address entry number>." Enter an IP address entry number between 1 and 5. The command prompt changes to "Enter IP address>." Enter an IP address to be permitted. If IP address is correct, the command prompt changes to "Enter subnet mask>." Enter a range of IP address you wish to permit accessing with mask.

(Setting example)
No. IP Address Subnet Mask Access permitted IP address
----- ---------- ----------
----
1 192.168.1.10 255.255.255.255 192.168.1.10
(Only one unit can be accessed)
2 192.168.1.20 255.255.255.254 192.168.1.20, 192.168.1.21
(Two units can be accessed)
3 192.168.2.1 255.255.255.128 192.168.2.1 - 192.168.2.127
(127 units can be accessed)
4 192.168.3.1 255.255.255.0 192.168.3.1 - 192.168.3.254
(254 units can be accessed)</td></tr>
<tr><td>D</td><td colspan="2">Delete a range of IP address that has been set up.</td></tr>
<tr><td></td><td colspan="2">Press "D." The command prompt changes to "Enter IP address entry number>." Enter an IP address entry number you wish to delete.</td></tr>
<tr><td>M</td><td colspan="2">Change a range of IP address that has been set up.</td></tr>
<tr><td></td><td colspan="2">Press "M." The command prompt changes to "Enter IP address entry number>." Enter an IP address entry number between 1 and 5. The command prompt changes to "Enter IP address>." Enter an IP address that has been set up. The command prompt changes to "Enter subnet mask>." Enter a range of IP address you wish to permit accessing with mask.</td></tr>
<tr><td>Q</td><td colspan="2">Return to the previous menu.</td></tr>
</table>

4.6.7.b. RADIUS Configuration

On the System Security Configuration Menu, pressing "R" opens the RADIUS Configuration screen, as shown in Fig. 4-6-13. On this screen, you can configure access setting to RADIUS server that is used in login authentication.

```
PN28240/PN28240A Local Management System
System Security Configuration -> RADIUS Configuration Menu

NAS ID:  Nas1

Index Server IP address    Shared Secret     Response Time Max Retransmission
----- ----------------- -------------------- ------------- ------------------
  1   0.0.0.0                                  10 Seconds        3
  2   0.0.0.0                                  10 Seconds        3
  3   0.0.0.0                                  10 Seconds        3
  4   0.0.0.0                                  10 Seconds        3
  5   0.0.0.0                                  10 Seconds        3
-------------------------------- <COMMAND> ------------------------------------
Set [N]AS ID
Set Server [I]P
Set Shared Se[c]ret
Set [R]esponse Time
Set [M]ax Retransmission
[Q]uit to previous menu



Command>
Enter the character in square brackets to select option
```

Fig. 4-6-13 RADIUS Configuration

Screen Description

NAS ID:	Shows the authentication ID (NAS Identifier).
Server IP Address:	Shows the IP address of RADIUS server. 0.0.0.0 is displayed because no address is set on shipment.
Shared Secret:	Shows the common key (Shared Secret) that is used in authentication. The same key must be set between the server side and the client side. In general, the system manager sets this common key. No common key is set at shipment.
Response Time:	Shows the maximum response time for authentication request to RADIUS server. The factory default setting is 10 seconds.
Max Retransmission:	Shows the number of retransmission times for authentication request to RADIUS server. The factory default setting is 3 times.

Available commands are listed below.

N	Set a NAS ID (NAS Identifier).
	Press "I." The command prompt changes to "Enter NAS ID>." Enter NAS ID within 16 one-byte characters.
I	Set an IP address of RADIUS server.
	Press "A." The command prompt changes to "Enter IP Address for RADIUS server>." Enter an IP address.
C	Set a common key of RADIUS server.
	Press "C." The command prompt changes to "Enter secret string for server>." Enter a common key within 20 one-byte characters.
R	Set a response time until the RADIUS server responds to authentication request.
	Press "R." The command prompt changes to "Enter response time>." Enter the response time with a value of 1 to 120 (seconds).
M	Set the maximum number of retransmission times for authentication request.
	Press "M." The command prompt changes to "Enter maximum retransmission>." Enter an integer number of 1 to 254.
Q	Return to the previous menu.

4.6.7.c. SSH Server Configuration

On the System Security Configuration, pressing "H" opens the SSH Server Configuration screen, as shown in Fig. 4-6-14. On this screen, you can configure the SSH server setting. This Switching Hub supports SSHv2 only. Use and connect a client supporting SSHV2.

```
PN28240/PN28240A Local Management System
Basic Switch Configuration -> SSH Server Configuration

SSH UI Idle Timeout:          5 Min.
SSH Auth. Idle Timeout:       120 Sec.
SSH Auth. Retries Time:       5
SSH Server:                   Disabled
SSH Server key:               Key does not exist.









-------------------------------- <COMMAND> ----------------------------------
[G]enerate SSH Server key              Enable/Disable SS[H] Server
Set SSH UI Time [O]ut                  Set SSH [A]uthentication Time Out
Set SSH Authentication [R]etries Time  [Q]uit to previous menu
Command>
Enter the character in square brackets to select option
```

Fig. 4-6-14 SSH Server Configuration

Screen Description

SSH UI Idle Timeout	Shows the idle timeout settings (in minutes) for terminating an SSH remote-connected session if no input is made. The factory default setting is 5 minutes.	
SSH Auth. Idle Timeout	Shows the response time to SSH authentication. The factory default setting is 120 seconds.	
SSH Auth. Retries Time	Shows the number of retries for SSH authentication. The factory default setting is 5 times.	
SSH Server	Shows the SSH access settings. The factory default setting is "Disabled."	
	Enabled(SSH)	Access is enabled.
	Disabled	Access is disabled.
SSH Server key	Shows the status of SSH server key.	
	Key exists.	The server key exists.
	Key does not exist.	The server key does not exist.

Available commands are listed below.

G	Generate an SSH server key.
	Press "G" to generate an SSH server key.
H	Configure the SSH access setting.
	Press "H." The command prompt changes to "Enable or Disable SSH server (E/D)>." Press "E" to enable the access. Press "D" to disable the access.
O	Configure the idle timeout settings for automatically terminating an SSH-connected session if no input is made.
	Press "O." The command prompt changes to "Enter SSH UI idle timeout>." Enter a value from 1 to 60 (minutes).
A	Set the response time to SSH authentication.
	Press "A." The command prompt changes to "Enter SSH authentication idle timeout>." Enter a value from 1 to 120 (seconds).
R	Set the number of retries for SSH authentication.
	Press "R." The command prompt changes to "Enter SSH authentication retries time>." Enter a value from 0 to 5 (times).
Q	Return to the previous menu.

4.6.7.d. LED Base Mode Configuration

On the System Security Configuration, pressing "B" opens the LED Base Mode Configuration screen, as shown in Fig. 4-6-15. On this screen, you can configure the LED base mode setting.

```
PN28240/PN28240A Local Management System
System Security Configuration -> LED Base Mode Configuration

System LED base-mode:  Status









Note:  Save Configuration to Flash will be executed when LED Base Mode changed.

-------------------------------- <COMMAND> ----------------------------------

Set LED [B]ase Mode
[Q]uit to previous menu

Command>
Enter the character in square brackets to select option
```

Fig. 4-6-15 LED Base Mode Configuration

Screen Description

System LED base-mode	Shows the current LED base mode. This is set to the status mode (Status) on shipment.	
	Status	Operating in status mode.
	Eco	Operating in ECO mode.

Available commands are listed below.

B	Change the LED base mode.
	Press "B." The command prompt changes to "Select LED Base Mode (S/E)>." Press "S" to change the LED base mode to the status mode. Press "E" to change it to the ECO mode.
Q	Return to the previous menu.

Note: If the LED base mode is changed, the configuration information is saved and all settings are stored in a built-in memory.

4.6.8. Forwarding Database

On the Basic Switch Configuration Menu, pressing "F" opens the Forwarding Database Information Menu, as shown in Fig. 4-6-16. In this screen, a list of MAC address required for transferring packets that have been learned and recorded.

Also, you can add or delete MAC address statically.

```
PN28240/PN28240A Local Management System
Basic Switch Configuration -> Forwarding Database Menu

[S]tatic Address Table
M[A]C Learning
Display MAC Address by [M]AC
[Q]uit to previous menu









Command>
Enter the character in square brackets to select option
```

Fig.4-6-16 Forwarding Database

Screen Description

Static Address Table	Adds or deletes the MAC address of forwarding database.
MAC Learning	Sets to Auto/Off for the MAC address learning function of each port. If this is set to OFF, only MAC address registered in the Static Address Table is allowed for communications.
Display MAC Address by Port	Shows all MAC addresses that have been registered.
Quit to previous menu	Returns to the previous menu.

4.6.8.a. Adding or Deleting MAC Address

On the Forwarding Database Information Menu, pressing "S" opens the Static Address Table Menu, as shown in Fig. 4-6-17. In this screen, you can add or delete a MAC address statically.

```
PN28240/PN28240A Local Management System
Forwarding Database Menu -> Static Address Table Menu

   MAC Address       Port    VLAN ID
-----------------   ------   -------
Database is empty!









-------------------------------- <COMMAND> ----------------------------------
[N]ext Page                             [D]elete Entry
[P]revious Page                         [Q]uit to previous menu
[A]dd New Entry

Command>
Enter the character in square brackets to select option
```

Fig. 4-6-17 Adding or Deleting MAC Address

Screen Description

MAC Address	Shows the MAC address in MAC address table.
Port	Shows the port to which the MAC address belongs.
VLAN ID	Shows the VLAN ID to which the MAC address belongs.

Available commands are listed below.

N	Show the next page.
	Press "N." The screen shows the next page.
P	Show the previous page.
	Press "P." The screen shows the previous page.
A	Register an additional MAC address.
	Press "A." The command prompt changes to "Enter MAC Address(xx:xx:xx:xx:xx:xx)." Enter a MAC address to be added.
D	Delete a MAC address that has been registered.
	Press "D." The command prompt changes to "Enter MAC Address(xx:xx:xx:xx:xx:xx)." Enter a MAC address to be deleted.
Q	Return to the previous menu.

4.6.8.b. Setting MAC Address Auto-learning

On the Forwarding Database Information Menu, pressing "A" opens the MAC Learning Menu, as shown in Fig. 4-6-18. On this screen, you can configure the MAC address auto-learning setting for each port and limit the number of MAC address auto-learning.

```
PN28240/PN28240A Local Management System
Forwarding Database Menu -> MAC Learning Menu

Port   MAC Learning     MAC Learning Limit
------  ------------    ------------------
   1    Auto            Disabled
   2    Auto            Disabled
   3    Auto            Disabled
   4    Auto            Disabled
   5    Auto            Disabled
   6    Auto            Disabled
   7    Auto            Disabled
   8    Auto            Disabled
   9    Auto            Disabled
  10    Auto            Disabled
  11    Auto            Disabled
  12    Auto            Disabled
-------------------------------- <COMMAND> ----------------------------------
[N]ext Page              [S]et MAC Learning Mode
[P]revious Page          Set MAC Learning [L]imit
[Q]uit to previous menu

Command>
Enter the character in square brackets to select option
```

Fig. 4-6-18 MAC Address Learning

Screen Description

Port	Shows the port number.	
MAC Learning	Shows the status of MAC address auto-learning.	
	Auto	MAC address auto-learning is enabled. (Factory default setting)
	Disabled	MAC address auto-learning is disabled.
MAC Learning Limit	Shows the limit number of MAC address auto-learning for each port.	
	Disabled	The number of MAC address auto-learning is not limited. (Factory default setting)
	1-256	Indicates the limit number of MAC address auto-learning.

Note: If MAC address auto-learning is disabled, communication cannot be established unless MAC address is registered statistically.

Note: Assuming that the number of learned MAC addresses reaches the limit, and if a frame with new source MAC address that has not been learned is received, this frame is discarded. To set the limit value, MAC address auto-learning must be enabled. Static MAC address is not included in the limit value.

Available commands are listed below.

N	Show the next page.
	Press "N." The screen shows the next port.
P	Show the previous page.
	Press "P." The screen shows the previous port.
S	Switches the status of auto-learning.
	Press "S." The command prompt changes to "Select Port Number to be changed>." Enter a port number you wish to change the setting. Then, the command prompt changes to "Change MAC Learning Mode for port # (specified port number)>." Press "A" to enable auto-learning. Press "D" to disable the mode.
L	Set the limit number of MAC address auto-learning.
	Press "L." The command prompt changes to "Select Port Number to be changed>." Enter a port number you wish to change setting. Then, the command prompt changes to "Enable or Disable MAC Learning Limit status for port # (specified port number) (E/D)>." Press "E" to set a limit value for the number of auto-learning. Then, the command prompt changes to "Enter MAC Limit number>." Enter a value of 1 to 256. Press "D" not to set a limit for the number of auto-learning.
Q	Return to the previous menu.

4.6.8.c. Displaying All MAC Addresses

On the Forwarding Database Information Menu, pressing "M" opens the Display MAC Address by MAC screen, as shown in Fig. 4-6-19. In this screen, you can display all MAC address tables in this Switching Hub.

```
PN28240/PN28240A Local Management System
Forwarding Database Menu -> Display MAC Address by MAC

Age-Out Time:     300 Sec.

   MAC Address       Port
-----------------    ----









--------------------------------- <COMMAND> -----------------------------------
[N]ext Page                              Set [A]ge-Out Time
[P]revious Page                          [Q]uit to previous menu


Command>
Enter the character in square brackets to select option
```

Fig. 4-6-19 Displaying All MAC Addresses

Screen Description

Age-Out Time:	Shows a time to store MAC address table. It is equal to the time after receiving the last packet. The factory default setting is 300 seconds (5 minutes).
MAC Address	Shows the MAC address in MAC address table.
Port	Shows the port to which the MAC address has belonged.

Available commands are listed below.

N	Show the next page.
	Press "N." The screen shows the next port.
P	Show the previous page.
	Press "P." The screen shows the previous port.
A	Set a time to store MAC address.
	Press "A." The command prompt changes to "Enter Age-Out time>." Enter Age-Out time with a value of 10 to 1000000 (seconds).
Q	Return to the previous menu.

4.6.9. Time Configuration

In this Switching Hub, it is possible to set the exact time by synchronizing the internal clock to an external SNTP server's clock with a support of SNTP (Simple Network Time Protocol). On the Basic Switch Configuration Menu, pressing "T" opens the Time Configuration Menu, as shown in Fig. 4-6-20. In this screen, you can configure the time setting and time synchronization setting by SNTP.

```
PN28240/PN28240A Local Management System
Basic Switch Configuration -> Time Configuration Menu

Time ( HH:MM:SS )   : 00:00:09
Date ( YYYY/MM/DD ) : 2001/01/01     Monday

SNTP Server IP        : 0.0.0.0
SNTP Polling Interval : 1440 Min
Time Zone : (GMT+09:00) Osaka,Sapporo,Tokyo
Daylight Saving       : N/A

-------------------------------- <COMMAND> ----------------------------------

Set [C]lock Time
Set SNTP Server I[P]
Set SNTP [I]nterval
Set Time [Z]one
S[e]t Daylight Saving
[Q]uit to previous menu



Command>
Enter the character in square brackets to select option
```

Fig. 4-6-20 Configuring of Time Synchronization Function: before configuration

```
PN28240/PN28240A Local Management System
Basic Switch Configuration -> Time Configuration Menu

Time ( HH:MM:SS )   : 10:20:33
Date ( YYYY/MM/DD ) : 2009/04/01     Wednesday

SNTP Server IP        : 192.168.0.2
SNTP Polling Interval : 1440 Min
Time Zone : (GMT+09:00) Osaka,Sapporo,Tokyo
Daylight Saving       : N/A

-------------------------------- <COMMAND> ---------------------------------

Set [C]lock Time
Set SNTP Server I[P]
Set SNTP [I]nterval
Set Time [Z]one
S[e]t Daylight Saving
[Q]uit to previous menu



Command>
Enter the character in square brackets to select option
```

Fig. 4-6-21 Configuring of Time Synchronization Function: after configuration

Screen Description

Time (HH:MM:SS):	Shows the time of internal clock.
Date (YYYY/MM/DD):	Shows the date of internal clock.
SNTP Server IP	Shows the IP address of SNTP server for time synchronization.
SNTP Polling Interval	Shows an interval of time synchronization with SNTP server.
Time Zone:	Shows the time zone.
Daylight Saving:	Shows the application status of Daylight Saving (Summer time).

Available commands are listed below.

C	Set the time of internal clock of this Switching Hub.	
		Press "C." The command prompt changes to "Enter Date(Year) >" and enter a year. Then, the command prompt changes to "Enter Date(Month) >" and enter a month. Then, the command prompt changes to "Enter Date(Day) >" and enter a day. Then, the command prompt changes to "Enter Time(Hour) >" and enter an hour. Then, the command prompt changes to "Enter Time(Minute) >" and enter a minute. Then, the command prompt changes to "Enter Time(Sec) >" and enter a second.
P	Set an IP address of SNTP server.	
		Press "P." The command prompt changes to "Enter new IP address>." Enter an IP address of SNTP server.
I	Set an interval of time synchronization with SNTP server.	
		Press "I." The command prompt changes to "Enter Interval Time>." Enter an interval of time synchronization with SNTP server with a value of 1 to 1440 (minutes). The factory default setting is 1440 minutes (1 day).
E	Set the application status of Daylight Saving (Summer time).	
		Press "E." The command prompt changes to "Enable or Disable Daylight Saving (E/D)>." Enter "E" to use daylight saving time. Press "D" not to use it. When the time zone is set to where daylight saving time is not applied, this setting is not available. When this Switching Hub is used domestically, this setting is not required.
Z	Set the time zone.	
		Press "Z." A list of time zones is displayed. Specify a time zone you wish to set. When this Switching Hub is used domestically, change of time zone is not required as the factory default setting is "(GMT+09:00) Osaka, Sapporo, Tokyo."
Q	Return to the previous menu.	

Note: If SNTP server is located outside of firewall, connection with SNTP server may be blocked depending on settings by a system administrator.
For details, ask your system administrator.
If you wish to disable time synchronization function, set SNTP server IP to 0.0.0.0.

4.6.10. ARP Table

On the Basic Switch Configuration Menu, pressing "R" opens the ARP Table screen, as shown in Fig. 4-6-22. In this screen, you can refer and configure ARP table.

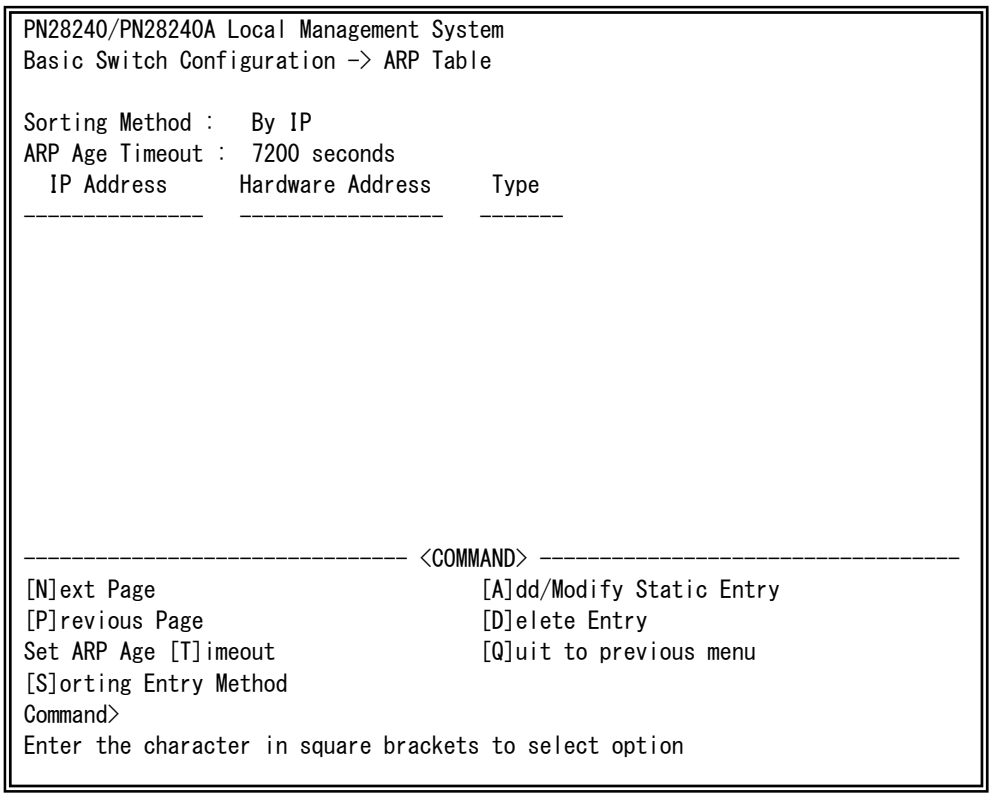


Fig. 4-6-22 ARP Table

Screen Description

Sorting Method	Shows the order of displaying.	
	By IP	Shows the table in the order of IP address.
	By Static	Shows manually-set addresses.
	By Dynamic	Shows auto-learned addresses.
ARP Age Timeout	Shows the age-out time of ARP table.	
IP Address	Shows the IP address on ARP table.	
Hardware Address	Shows the hardware address on ARP table.	
Type	Shows the type on ARP table.	
	Static	The address is manually set.
	Dynamic	The address is auto-learned.

Available commands are listed below.

N	Show the next page.	
		Press "N." The screen shows the next page.
P	Show the previous page.	
		Press "P." The screen shows the previous page.
T	Set the age-out time of ARP table.	
		Press "T." The command prompt changes to "Enter ARP age timeout value >." Enter the age-out time of ARP table with a value of 30 to 86400 (seconds).
S	Select the order of displaying ARP table.	
		Press "S." The command prompt changes to "Select method for sorting entry to display (I/T)>." Press "I" to display in the order of IP address. Press "T" to display in the order of type. If "T" is selected, the command prompt changes to "Select type for sorting entry to display (S/D)>." Press "S" to display manually-set addresses. Press "D" to display auto-leaned addresses.
A	Add/modify an entry of ARP table.	
		Press "A." The command prompt changes to "Enter IP address>." Enter an IP address. Then, the command prompt changes to "Enter Hardware address>." Enter a MAC address as "**:**:**:**:**:**".
D	Delete an entry of ARP table.	
		Press "D." The command prompt changes to "Enter IP address>." Enter an IP address.
Q	Return to the previous menu.	

4.7. Advanced Switch Configuration

On the Main Menu, pressing "A" opens the Advanced Switch Configuration Menu, as shown in Fig. 4-7-1. On this screen, you can configure settings of VLAN, link aggregation, port monitoring, access control, storm control, QoS, loop detection/shut-off, and port grouping functions.

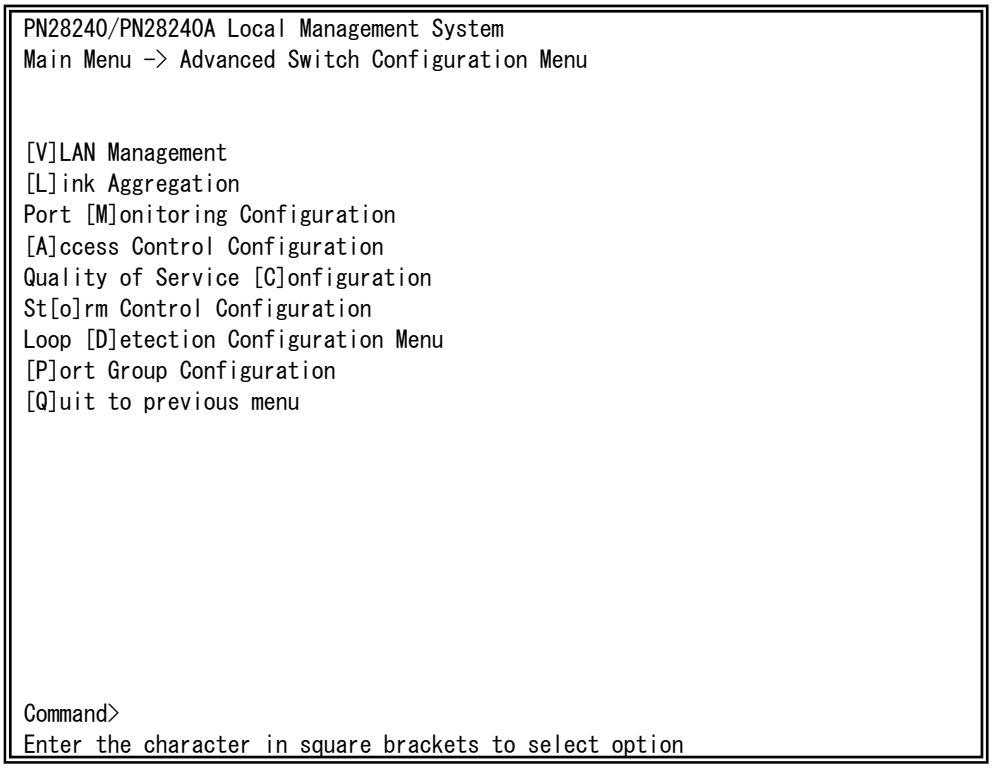


Fig. 4-7-1 Advanced Switch Configuration

Screen Description

VLAN Management	Configures VLAN function setting.
Link Aggregation	Configures Link Aggregation setting.
Port Monitoring Configuration	Configures Port Monitoring (mirroring) setting.
Access Control Configuration	Configures Access Control setting.
Quality of Service Configuration	Configures QoS setting.
Storm Control Configuration	Configures Storm Control function setting.
Loop Detection Configuration	Configures Loop Detection/Shut-off setting.
Port Group Configuration	Configures Port Grouping setting.
Quit to previous menu	Quits the Advanced Switch Configuration Menu and returns to the Main menu.

4.7.1. VLAN Management

4.7.1.a. Features

- Corresponding to IEEE802.1Q compatible Tag VLAN, a frame can be sent with a VLAN tag (hereinafter referred to as just "tag").

- Having two different parameters of VLAN ID and PVID, forwarding destination of an untagged frame is determined by a combination of these parameters.

- VLAN ID

  VLAN ID is a VLAN identifier placed on each frame in processing tagged frames. As for an untagged frame, ports are divided into groups by this ID, and the forwarding destination of the frame is determined by referring to this ID. Multiple VLANs can be assigned to each port.

- PVID (Port VLAN ID)

  Only one PVID can be set to each port. When an untagged frame is received, this ID determines to which VLAN the frame should be forwarded. As for a tagged frame, this ID is not referred and VLAN ID in the tag is used instead.

4.7.1.b. VLAN Management Menu

On the Advanced Switch Configuration Menu, pressing "V" opens the VLAN Management Menu, as shown in Fig. 4-7-2. On this screen, you can configure VLAN-related settings.

```
PN28240/PN28240A Local Management System
Advanced Switch Configuration -> VLAN Management Menu

Total VLANs : 1
Internet Mansion : Disabled                Uplink      :
VLAN ID  VLAN Name                         VLAN Type    Mgmt
-------  --------------------------------  ----------   ----
    1                                       Permanent    UP









--------------------------------- <COMMAND> -----------------------------------
[N]ext Page               C[o]nfig VLAN Member       Set [M]anagement Status
[P]revious Page           [S]et Port Config          [D]elete VLAN
[C]reate VLAN             Set [I]nternet Mansion     [Q]uit to previous menu


Command>
Enter the character in square brackets to select option
```

Fig. 4-7-2 VLAN Management Menu

Screen Description

Internet Mansion	Shows the status of Internet Mansion mode.	
	Enabled	Internet Mansion mode is enabled.
	Disabled	Internet Mansion mode is disabled. (Factory default setting)
Uplink	Indicates the uplink port when Internet Mansion mode is enabled.	
VLAN ID	Shows the VLAN ID of VLAN.	
VLAN Name	Shows the VLAN name being configured.	
VLAN Type	Shows the type of VLAN.	
	Permanent	Indicates that the VLAN is the one of initial setting. This VLAN cannot be deleted.
	Static	Indicates that the VLAN is the newly configured one.
Mgmt	Shows whether the VLAN is a management VLAN or not.	
	UP	A management VLAN that is allowed to communicate with CPU.
	DOWN	Not a management VLAN.

Available commands are listed below.

N	Show the next page.
	Press "N." The screen shows the next page.
P	Show the previous page.
	Press "P." The screen shows the previous page.
C	Go to the screen for creating VLAN.
	Press "C." The VLAN Create Menu opens. For details, refer to the next section **(4.7.1.c).**
D	Delete a VLAN.
	Press "D." The command prompt changes to "Enter VLAN ID>." Enter VLAN ID you wish to delete with a value of 2 to 4094.
M	Set the management VLAN.
	Press "M." The command prompt changes to "Enter index number>." Enter a VLAN ID you wish to configure as a management VLAN with a value of 1 to 4094.
I	Set the Internet Mansion mode.

		Press "I." The command prompt changes to "Enable or Disable Internet Mansion Function? (E/D)>." Press "E" to enable the function. Press "D" to disable it. If "E" is selected, the command prompt changes to "Uplink port?>." Enter a port number you wish to configure as an uplink port. This function enables to configure all settings needed for the Internet mansion environment. Ports other than that designated as an uplink port are set as downlink ports. Communications between downlink ports are shut off. Therefore, it becomes possible to ensure security between each resident. **(There are some constrained conditions for use. Please make configuration after confirming the notes.)**
O	Go to the screen for changing VLAN.	
		Press "O." The command prompt changes to "Enter VLAN ID>." Enter a VLAN ID you wish to configure with a value of 1 to 4094. Then, the VLAN Modification Menu opens. For details, refer to the next section (4.7.1.d).
S	Set and confirm PVID by port.	
		Press "S." The VLAN Port Configuration Menu opens. For details, refer to the next section (4.7.1.e).
Q	Return to the previous menu.	

Note: VLAN 1 is set on shipment, and all ports belong to this VLAN.
Also, the management VLAN is enabled.

Note: When creating a new VLAN, PVID (after-mentioned) is not changed in conjunction with this new creation. After registering VLAN on this screen, make sure to confirm the configuration operation and content on the configuration screen in Fig. 4-7-4 and Fig. 4-7-5.
On deletion, you cannot delete a VLAN whose ID is remained as a PVID. Delete the VLAN after changing the PVID to another ID.

Note: When Internet Mansion mode is enabled, there are constrained conditions as the followings. Please use the Switching Hub after confirming these constrained conditions.
(1) Combined usage with Link Aggregation is not possible.
(2) Static registration to MAC Address table is not possible.
(3) Combined usage with MAC Learning is not possible.
(4) Only the uplink port belongs to management VLAN.

4.7.1.c. VLAN Creation Menu

On the VLAN Management Menu, pressing "C" opens the VLAN Creation Menu , as shown in Fig. 4-7-3. On this screen, you can create VLAN.

```
PN28240/PN28240A Local Management System
VLAN Management -> VLAN Creation Menu

VLAN ID        :
VLAN Name      :

Port Members   :

-------------------------------- <COMMAND> ----------------------------------
Set [V]LAN ID
Set VLAN [N]ame
Select [P]ort Member
[A]pply
[Q]uit to previous menu









Command>
Enter the character in square brackets to select option
```

Fig. 4-7-3 VLAN Creation Menu

Screen Description

VLAN ID	Shows the VLAN ID.
VLAN Name	Shows the VLAN name.
Port Member	Shows the port number of the VLAN member.

Available commands are listed below.

S	Set a VLAN ID (VLAN Identifier).	
		Press "S." The command prompt changes to "Enter VLAN ID>." Enter a VLAN ID.
N	Set a name of VLAN.	
		Press "N." The command prompt changes to "Enter VLAN name>." Enter a VLAN name within 30 one-byte characters.
P	Set a member of VLAN.	
		Press "P." The command prompt changes to "Enter egress port number>." Enter a port number you wish to set. When entering multiple port numbers, delimit with comma with no space, or hyphenate the continuous numbers.
A	Create VLAN.	
		Press "A" to apply the setting.
Q	Return to the previous menu.	

Note: After setting a VLAN, make sure to press "A" to apply the setting. If you press "Q" without pressing "A," the setting will be discarded and VLAN will not be created.

4.7.1.d. VLAN Modification Menu

On the VLAN Management Menu, pressing "o" and specifying target VLAN ID open the VLAN Modification Menu, as shown in Fig. 4-7-4. On this screen, you can modify VLAN-related setting information.

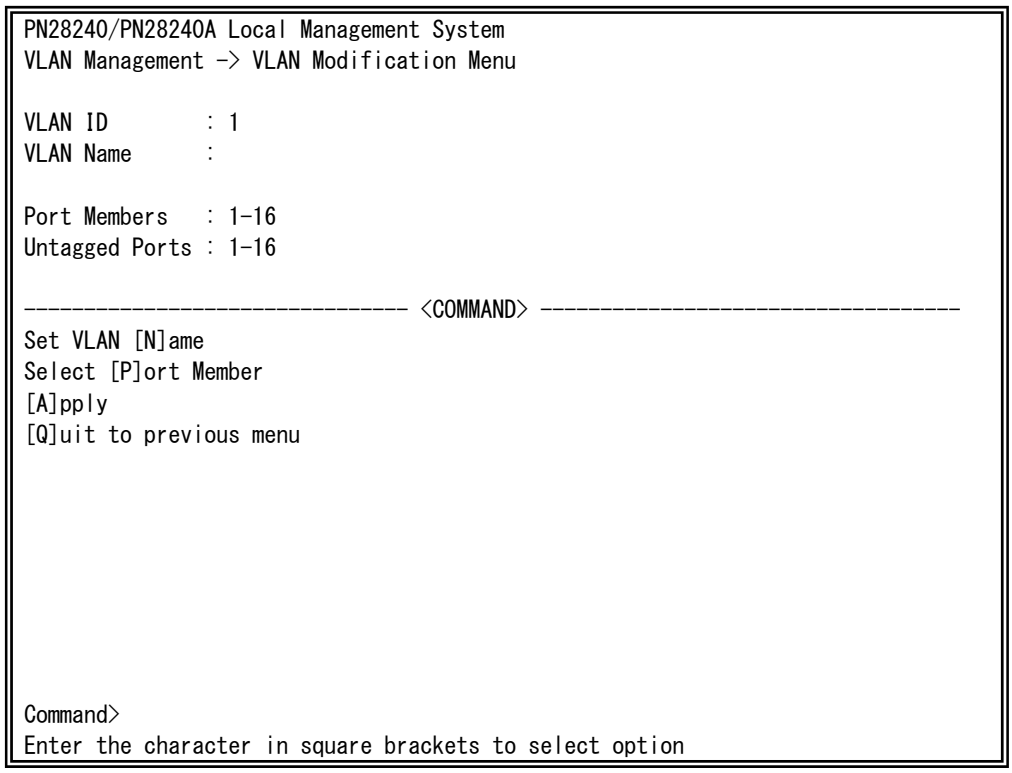


Fig. 4-7-4 VLAN Modification Menu

Screen Description

VLAN ID	Shows the VLAN ID.
VLAN Name	Shows the VLAN name.
Port Member	Shows the port number of the VLAN member.
Untagged Port:	Shows the port without adding VLAN tags.

Available commands are listed below.

N	Set a name of VLAN.	
		Press "N." The command prompt changes to "Enter VLAN name>." Enter a VLAN name within 30 one-byte characters.
P	Set a member of VLAN.	
		Press "P." The command prompt changes to "Enter egress port number>." Enter a port number you wish to set. When entering multiple port numbers, delimit with comma with no space, or hyphenate the continuous numbers.
A	Apply modification of VLAN configuration.	
		Press "A" to apply the setting.
Q	Return to the previous menu.	

4.7.1.e. VLAN Port Configuration Menu

On the VLAN Management Menu, pressing "S" opens the VLAN Port Configuration Menu, as shown in Fig. 4-7-5. In this screen, you can configure VLAN-related settings by port.

```
PN28240/PN28240A Local Management System
VLAN Management -> VLAN Port Configuration Menu

Port  PVID  Acceptable Frame Type
----  ----  --------------------
  1     1        Admit All
  2     1        Admit All
  3     1        Admit All
  4     1        Admit All
  5     1        Admit All
  6     1        Admit All
  7     1        Admit All
  8     1        Admit All

-------------------------------- <COMMAND> ----------------------------------

[N]ext page               Set [F]rame Type
[P]revious Page           Set Port [V]ID
[Q]uit



Command>
Enter the character in square brackets to select option
```

Fig. 4-7-5 VLAN Port Configuration Menu

Screen Description

Port	Shows the port number.	
PVID	Shows the PVID (Port VLAN ID) being set to the port. PVID indicates VLAN ID to which an untagged packet should be forwarded when it is received. The factory default setting is 1. When a tagged packet is received, destination port will be determined according to the tag, regardless of PVID.	
Acceptable Type	Shows the type of received frame.	
	Admit All	Receives all frames.
	Tagged Only	Receives only VLAN-tagged frames.

Available commands are listed below.

N	Show the next page.	
		Press "N." The screen shows the next page.
P	Show the previous page.	
		Press "P." The screen shows the previous page.
V	Configure PVID settings.	
		Press "V." The command prompt changes to "Enter port number>." Enter a port number you wish to configure. Then, the command prompt changes to "Enter PVID for port #>." Enter a PVID with a value of 1 to 4094.
F	Set the type of received frame.	
		Press "F." The command prompt changes to "Enter port number>." Enter a port number you wish to configure. Then, the command prompt changes to "Select port acceptable frame type (A/T)>." Enter "A" to receive all frames. Enter "T" to receive only tagged frames.
Q	Return to the previous menu.	

Note: In this Switching Hub, multiple VLANs can be assigned to one port. If a new VLAN is created, a port will belong to both existing VLAN and new VLAN. To divide the domains, make sure to delete the port from the existing VLAN.

4.7.2. Link Aggregation

4.7.2.a. About Link aggregation

Link aggregation is a function that is possible to increase redundancy of network paths and bandwidth between Switching Hubs by grouping multiple ports to a trunk for connection.
In this Switching Hub, up to 8 ports can be assigned to 1 group, and 8 groups can be created.
When using both Link Aggregation and Access Control functions, assign a practical physical port number to a port list of access control, not a logical port created in Link Aggregation. For details, refer to 4.7.4.

Note: If port communication modes are mixed, Link Aggregation cannot be configured. In addition, Link Aggregation and Internet Mansion mode cannot be used simultaneously.

Note: Depending on number of ports in a group or the traffic condition, traffic may not be assigned uniformly to all the ports.

4.7.2.b. Link Aggregation Menu

On the Advanced Switch Configuration Menu, pressing "L" opens the Trunk Configuration Menu, as shown in Fig. 4-7-6. On this screen, you can configure Link Aggregation settings.

```
PN28240/PN28240A Local Management System
Advanced Switch Configuration -> Link Aggregation Menu

Group   Status    Port Members
-----  --------  --------------------------------

 1     Disabled
 2     Disabled
 3     Disabled
 4     Disabled
 5     Disabled
 6     Disabled
 7     Disabled
 8     Disabled

-------------------------------- <COMMAND> ----------------------------------
[A]dd Trunk Member
[R]emove Trunk Member
[Q]uit to previous menu




Command>
Enter the character in square brackets to select option
```

Fig. 4-7-6 Link Aggregation Menu

Screen Description

Group	Shows the group number of trunking.	
Status	Shows the status of each group.	
	Enabled	Link Aggregation is enabled.
	Disabled	Link Aggregation is disabled.
Port Members	Shows the list of target ports in the group.	

Available commands are listed below.

A	Add a port to a group member.	
	Press "A." The command prompt changes to "Enter trunk group number>." Enter a target group number with a value of 1 to 8. Then, the command prompt changes to "Enter port members for group x>." Enter a port number to be added. When entering multiple port numbers, delimit with comma with no space, or hyphenate the continuous numbers.	
R	Delete a group.	
	Press "R." The command prompt changes to "Enter trunk group number>." Enter a target group number with a value of 1 to 8.	
Q	Return to the previous menu.	

4.7.3. Port Monitoring Configuration Menu

On the Advanced Switch Configuration Menu, pressing "M" opens the Port Monitoring Configuration Menu, as shown in Fig. 4-7-7. To analyze communications, such as by protocol analyzer, in this Switching Hub, you can monitor packets between other ports that are normally filtered and cannot be monitored. On this screen, you can configure port monitoring settings.

```
PN28240/PN28240A Local Management System
Advanced Switch Configuration -> Port Monitoring Configuration Menu

Monitoring Port                      Be Monitored Port(s)
---------------    ------------------------------------------------------------
       1            2


Direction             Status
---------           -------------
  Both                Disabled


-------------------------------- <COMMAND> ----------------------------------
[S]et Monitoring Port
Set Ports to be [M]onitored
Set Traffic [D]irection
[C]hange Mirror Status
[Q]uit to previous menu



Command>
Enter the character in square brackets to select option
```

Fig. 4-7-7 Port Monitoring Configuration

Screen Description

Monitoring Port	Shows the destination port number of data to be monitored.	
Be Monitored Port(s)	Shows the target port number to be monitored.	
Direction	Shows the communication direction of target packet to be monitored.	
	Tx	Monitors a transmit packet.
	Rx	Monitors a receive packet.
	Both	Monitors both transmit and receive packets. (Factory default setting)
Status	Shows the status of port monitoring.	
	Enabled	Port monitoring is enabled.
	Disabled	Port monitoring is disabled. (Factory default setting)

Available commands are listed below.

S	Set a destination port of data to be monitored (port to which analyzer, etc. is connected).	
		Press "S." The command prompt changes to "Enter port number>." Enter a target port number.
M	Set a port to be monitored.	
		Press "M." The command prompt changes to "Enter port number>." Enter a target port number. When entering multiple port numbers, delimit with comma with no space, or hyphenate the continuous numbers.
D	Set a communication direction of target packet to be monitored.	
		Press "D." The command prompt changes to "Select port monitoring direction (R/T/B)>." Enter "R" to monitor a receive packet. Enter "T" to monitor a transmit packet. Enter "B" to monitor both receive and transmit packets.
C	Set the status of port monitoring.	
		Press "C." The command prompt changes to "Enter the select(E/D)>." Enter "E" to start monitoring. Enter "D" to stop monitoring.
Q	Return to the previous menu.	

Note: VLAN tag of received VLAN ID is attached to a mirror packet in Tx-direction.

Note: Management packets including Ping and ARP sent from this Switching Hub cannot be captured.

4.7.4. Access Control Configuration Menu

On the Advanced Switch Configuration Menu, pressing "A" opens the Access Control Configuration Menu, as shown in Fig. 4-7-8. On this screen, you can set Access Control.

```
PN28240/PN28240A Local Management System
Advanced Switch Configuration -> Access Control Configuration Menu

[C]lassifier
[I]n-Profile Action
[O]ut-Profile Action
Port [L]ist
[P]olicy
[Q]uit to previous menu









Command>
Enter the character in square brackets to select option
```

Fig. 4-7-8 Access Control Configuration

Screen Description

Classifier	Sets the classifier. (Maximum configurable number: 256)
In-Profile action	Sets the action against input packet. (Maximum configurable number: 81)
Out-Profile action	Sets the action against input packet exceeding a committed rate. (Maximum configurable number: 128)
Port list	Sets the list of applicable ports. (Maximum configurable number: 128)
Policy	Sets the policy. (Maximum configurable number: 128)
Quit to previous menu	Returns to the previous menu.

4.7.4.a. Classifier Configuration Menu

On the Access Control Configuration Menu, pressing "C" opens the Classifier Configuration Menu, as shown in Fig. 4-7-9. On this screen, you can set classifier.

```
PN28240/PN28240A Local Management System
Access Control Configuration -> Classifier Configuration Menu
Multifield Classifier:                Total Entries : 0
Index  Src IP Addr/Mask   Dst IP Addr/Mask  DSCP Pro. Src L4 Port Dst L4 Port
-----  ------------------ ------------------ ---- ---- ---------- ----------









--------------------------------- <COMMAND> -----------------------------------
[N]ext Page                                  M[o]dify Classifier
[P]revious Page                              [M]ore Classifier Info.
[C]reate Classifier                          [S]how Detailed Entry Info.
[D]elete Classifier                          [Q]uit to previous menu
Command>
Enter the character in square brackets to select option
```

Fig. 4-7-9 Classifier Configuration Menu

Screen Description

Total Entries	Shows the number of classifiers (number of indexes) created.
Index	Shows the classifier index number.
Src IP Addr/Mask	Shows the source IP address.
Dst IP Addr/Mask	Shows the destination IP address.
DSCP	Shows the priority information DSCP value.
Pro.	Shows the protocol.
Src L4 Port	Shows the source port number of TCP/UDP.
Dst L4 Port	Shows the destination port number of TCP/UDP.

Available commands are listed below.

N	Show the next page.
	Press "N." The screen shows the next page.
P	Show the previous page.
	Press "P." The screen shows the previous page.
C	Create a classifier.
	Press "C." The Create Classifier Configuration Menu opens. For the Create Classifier Configuration Menu, refer to the next section (4.7.5.b).
D	Delete a classifier.
	Press "D." The command prompt changes to "Please enter classifier index>." Enter an index of the classifier to be deleted with a value of 1 to 65535.
O	Modify classifier configuration.
	Press "O." The Modify Classifier Menu opens. Set (modify) the configuration in the same as the Create Classifier Configuration Menu.
M	Show additional information on a classifier.
	Press "M" to display information on source MAC address, destination MAC address, 802.1p, VLAN ID, TCP SYN Flag, and ICMP type.
S	Show detailed information on a classifier.
	Press "S" to display information on source MAC address, destination MAC address, VLAN ID, source IP address, destination IP address, 802.1p priority, DSCP, protocol type, TCP/UDP source port number, TCP/UDP destination port number, TCP SYN Flag, and ICMP type.
Q	Return to the previous menu.

4.7.4.b. Create Classifier Configuration Menu

On the Classifier Configuration Menu, pressing "C" opens the Create Classifier Configuration Menu, as shown in Fig. 4-7-10. On this screen, you can create a classifier.

```
PN28240/PN28240A Local Management System
Classifier Configuration -> Create Classifier Configuration Menu
Classifier Index        :
Source MAC Address      :                  Source MAC Mask Length     :
Destination MAC Address :                  Destination MAC Mask Length:
VLAN ID                 :                  802.1p Priority            :
DSCP                    :                  Protocol                   :
Source IP Address       :                  Source IP Mask Length      :
Destination IP Address  :                  Destination IP Mask Length :
Source Layer 4 Port     :                  TCP SYN Flag               :
Destination Layer 4 Port:                   ICMP Type                 :


-------------------------------- <COMMAND> -----------------------------------
[C]lassifier Index                         S[o]urce IP Address
[S]ource MAC Address                       D[e]stination IP Address
[D]estination MAC Address                  So[u]rce Layer 4 Port
[V]LAN ID                                  Des[t]ination Layer 4 Port
802.1p Pr[i]ority                          IC[M]P Type
DSC[P]                                     TCP S[Y]N Flag
P[r]otocol                                 [A]pply
                                           [Q]uit to previous menu
Command>
Enter the character in square brackets to select option
```

Fig. 4-7-10 Create Classifier Configuration Menu

Screen Description

Classifier Index	Shows the classifier index.
Source MAC Address	Shows the source MAC address.
Destination MAC Address	Shows the destination MAC address.
Source MAC Mask Length	Shows the length (bits) of source MAC address.
Destination MAC Mask Length	Shows the length (bits) of destination MAC address.
VLAN ID	Shows the VLAN ID.
DSCP	Shows the DSCP value.
Protocol	Shows the protocol type.
Source IP Address	Shows the source IP address.
Source IP Mask length	Shows the length (bits) of source address mask.
Destination IP Address	Shows the destination IP address.
Destination IP Mask length	Shows the length (bits) of destination address mask.
Source L4 Port	Shows the source port number of TCP/UDP.
Destination L4 Port	Shows the destination port number of TCP/UDP.
802.1p Priority	Shows the priority of IEEE802.1p.
TCP SYN Flag	Shows whether a TCP SYN flag is set for filtering.
ICMP Type	Shows the ICMP type.

Available commands are listed below.

C	Set a classifier index.	
		Press "C." The command prompt changes to "Enter Classifier Index>." Enter a classifier index with a value of 1 to 65535.
S	Set the source MAC address to be filtered.	
		Press "S." The command prompt changes to "Enter source MAC address>." Enter the source MAC address as xx:xx:xx:xx:xx:xx. Then, the command prompt changes to "Enter source MAC address mask length>." Enter the length (bits) of address mask.
D	Set a destination MAC address to be filtered.	
		Press "D." The command prompt changes to "Enter designation MAC address>." Enter the destination MAC address as xx:xx:xx:xx:xx:xx. Then, the command prompt changes to "Enter destination MAC address mask length>." Enter the length (bits) of address mask.
V	Set a VLAN ID to be filtered.	
		Press "V." The command prompt changes to "Enter VLAN ID>." Enter a VLAN ID with a value of 1 to 4094.
P	Set a DSCP value to be filtered.	
		Press "P." The command prompt changes to "Enter DSCP value (0-63)>." Enter a DSCP value of 0 to 63.
R	Set a protocol to be filtered.	
		Press "R." The command prompt changes to "Select protocol>." Press "1" for TCP, "2" for UDP, "3" for ICMP, "4" for IGMP, "5" for RSVP, and "6" for other protocols.
O	Set the source IP address to be filtered.	
		Press "O." The command prompt changes to "Enter source IP address>." Enter a source IP address. Then, the command prompt changes to "Enter source IP address mask length>." Enter a length (bits) of address mask.
E	Set a destination IP address to be filtered.	
		Press "E." The command prompt changes to "Enter destination IP address>." Enter a destination IP address. Then, the command prompt changes to "Enter destination IP address mask length>." Enter a length (bits) of address mask.
U	Set a TCP/UDP source port number to be filtered.	
		Press "U." The command prompt changes to "Choose single port or defined port range (S/D)>." Press "S" to assign one port. Then, the command prompt changes to "Enter source layer 4 port>." Enter the source port number. Press "D" to assign ports by a range. Then, the command prompt changes to "Enter starting source port>" and "Enter final source port>." Enter the starting and final source port numbers.
T	Set a TCP/UDP destination port number to be filtered.	
		Press "T." The command prompt changes to "Choose single port or defined port range (S/D)>." Press "S" to assign one port. Then, the command prompt changes to "Enter destination layer 4 port>." Enter the destination port number. Press "D" to assign ports by a range. Then, the command prompt changes to "Enter starting destination port>" and "Enter final destination port>." Enter the starting and final destination port numbers.
I	Set the IEEE802.1p priority to be filtered.	
		Press "I." The command prompt changes to "Enter 802.1p priority>." Enter the 802.1p priority with a value of 0 to 7.
M	Set an ICMP type to be filtered. (* Protocol needs to be set to ICMP.)	
		Press "M." The command prompt changes to "Enter ICMP type>." Enter an ICMP type with a value of 0 to 18.
Y	Set a TCP SYN flag to be filtered. (* Protocol needs to be set to TCP.)	

		Press "Y." The command prompt changes to "Set TCP SYN flag (Y/N)>." Press "Y" for filter with a TCP SYN flag. Press "Y" for no filtering or to remove filter. If filtered, True is displayed. If not filtered, False is displayed.
A	Apply the setting. If not applied here, the setting will be discarded.	
Q	Return to the previous menu.	

4.7.4.c. Classifier Configuration Menu

On the Classifier Configuration Menu, pressing "M" opens the More Classifier Information screen, as shown in Fig. 4-7-11 and Fig. 4-7-12. On this screen, you can refer to classifier information.

```
PN28240/PN28240A Local Management System
Access Control Configuration -> Classifier Configuration Menu
Multifield Classifier:                Total Entries : 1
Index Source MAC Addr./ Mask   Destination MAC Addr./ Mask
----- ----------------------- ------------------------------------------------
    1 00:00:00:00:00:01/48     00:00:00:00:00:02/48









Press any key to continue...
```

Fig. 4-7-11 Classifier Configuration Menu 1

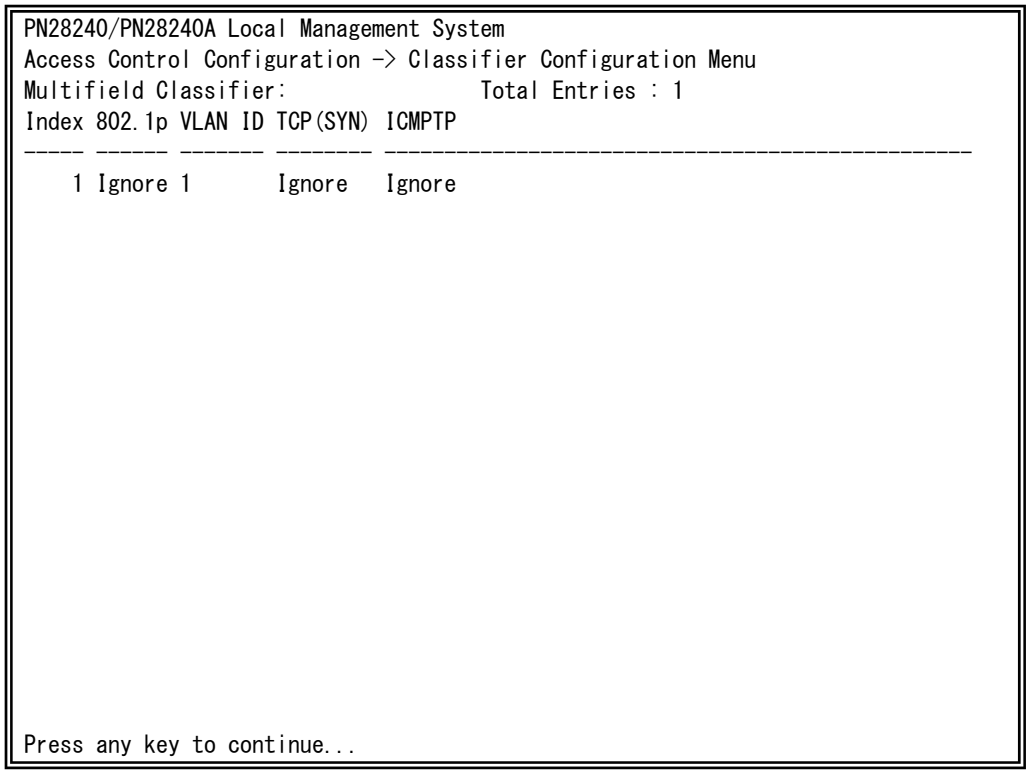


Fig. 4-7-12 Classifier Configuration Menu 2

Screen Description

Total Entries	Shows the number of classifiers (number of indexes) created.
Classifier Index	Shows the classifier index.
Source MAC Address	Shows the source MAC address.
Destination MAC Address	Shows the destination MAC address.
802.1p Priority	Shows the priority of IEEE802.1p.
VLAN ID	Shows the VLAN ID.
TCP SYN Flag	Shows whether a TCP SYN flag is set for filtering.
ICMP Type	Shows the ICMP type.

4.7.4.d. Show Detailed Entries Information Menu

On the Classifier Configuration Menu, pressing "S" opens the Show Detailed Entries Information Menu, as shown in Fig. 4-7-13. On this screen, you can refer to detailed classifier information. Classifier needs to be created before reference.

```
PN28240/PN28240A Local Management System
Classifier Configuration -> Show Detailed Entry Information Menu
Detailed Classifier Information :
--------------------------------
Classifier Index                  :  1
Source MAC Address                :  00:00:00:00:00:01
Source MAC Address Mask Length    :  48
Destination MAC Address           :  00:00:00:00:00:02
Destination MAC Address Mask Length:  48
802.1p Priority                   :  Ignore
VLAN ID                           :  1
Source IP Address                 :  Ignore
Source IP Address Mask Length     :  Ignore
Destination IP Address            :  Ignore
Destination IP Address Mask Length :  Ignore
DSCP                              :  Ignore
Protocol                          :  Ignore
Source Layer 4 Port               :  Ignore
Destination Layer 4 Port          :  Ignore
TCP SYN Flag                      :  Ignore
ICMP Type                         :  Ignore


Press any key to continue...
```

Fig. 4-7-13 Show Detailed Entries Information Menu

Screen Description

Classifier Index	Shows the classifier index.
Source MAC Address	Shows the source MAC address.
Source Mask length	Shows the length (bits) of source address mask.
Destination MAC Address	Shows the destination MAC address.
Destination Mask length	Shows the length (bits) of destination address mask.
VLAN ID	Shows the VLAN ID.
DSCP	Shows the DSCP value.
Protocol	Shows the protocol type.
Source IP Address	Shows the source IP address.
Source IP Mask length	Shows the length (bits) of source address mask.
Destination IP Address	Shows the destination IP address.
Destination IP Mask length	Shows the length (bits) of destination address mask.
Source L4 Port	Shows the source port number of TCP/UDP.
Destination L4 Port	Shows the destination port number of TCP/UDP.
802.1p Priority	Shows the priority of IEEE802.1p.
TCP SYN Flag	Shows whether a TCP SYN flag is set for filtering.
ICMP Type	Shows the ICMP type.

4.7.4.e. In-Profile Action Configuration Menu

On the Access Control Configuration Menu, pressing "I" opens the In-Profile Action Configuration Menu, as shown in Fig. 4-7-14. On this screen, you can configure in-profile setting.

```
PN28240/PN28240A Local Management System
Access Control Configuration -> In-Profile Action Configuration Menu
In-Profile Action:          Total Entries : 0
Index  Deny/Permit  Policed-DSCP   Policed-Precedence  Policed-CoS
-----  -----------  -------------  ------------------  -----------









--------------------------------- <COMMAND> -----------------------------------
[N]ext Page                                  [D]elete In-Profile Action
[P]revious Page                              [M]odify In-Profile Action
[C]reate In-Profile Action                   [Q]uit to previous menu
Command>
Enter the character in square brackets to select option
```

Fig. 4-7-14 In-Profile Action Configuration Menu

Screen Description

Total Entries	Shows the number of in-profiles (number of indexes) created.	
Index	Shows the in-profile index number.	
Deny/Permit	Shows whether a packet is denied or permitted.	
Action	Shows the execution mode in in-profile.	
	Policed-DSCP	Marks the DSCP value.
	Policed-Precedence	Marks the precedence value.
	Policed-CoS	Marks the CoS value.

Available commands are listed below.

N	Show the next page.		
		Press "N." The screen shows the next page.	
P	Show the previous page.		
		Press "P." The screen shows the previous page.	
C	Create in-profile.		
	Press "C." The Create In-Profile Action Menu opens. Refer to the next section (4.7.4.f).		
		Policed-DSCP	Mark the DSCP value.
		Policed-Precedence	Mark the precedence value.
		Policed-CoS	Mark the CoS value.
D	Delete in-profile.		
		Press "D." The command prompt changes to "Enter in-profile action index>." Enter an index number of the in-profile to be deleted.	
M	Modify in-profile.		
		Enter "M." The command prompt changes to "Enter in-profile action index>." Enter an index number of the in-profile to be modified, and modify it using the same operation as that for creating in-profile.	
Q	Return to the previous menu.		

4.7.4.f. Create In-profile Action Menu

On the In-Profile Action Configuration screen, pressing "C" opens the Create In-Profile Action Menu, as shown in Fig. 4-7-15. On this screen, you can create in-profile action.

```
PN2824O/PN2824OA Local Management System
In-Profile Action Configuration -> Create In-Profile Action Menu
Index              : 1
Deny/Permit        : Permit
Policed-DSCP       : Ignore
Policed-Precedence: Ignore
Policed-CoS        : Ignore









-------------------------------- <COMMAND> ----------------------------------
In-Profile Action [I]ndex                  Set Policed-[C]oS
Set [D]eny/Permit                          [A]pply
Set Policed-D[S]CP                         [Q]uit to previous menu
Set Policed-[P]recedence


Command>
Enter the character in square brackets to select option
```

Fig. 4-7-15 Create In-Profile Action Menu

Screen Description

Index	Shows the in-profile index number.	
Deny/Permit	Shows whether a packet is denied or permitted.	
Action	Policed-DSCP	Marks the DSCP value.
	Policed-Precedence	Marks the precedence value.
	Policed-CoS	Marks the CoS value.

Available commands are listed below.

I	Set an in-profile index number.	
		Press "I." The command prompt changes to "Enter in-profile action index>." Enter an index number with a value of 1 to 65535.
D	Deny/permit packets.	
		Press "D." The command prompt changes to "Select Deny/Permit (1-2)>." Press "1" to deny packets. Press "2" to permit them.
S	Set a DSCP value to be marked.	
		Press "S." The command prompt changes to "Enter DSCP value>." Enter a DSCP value of 0 to 63.
P	Set a precedence value to be marked.	
		Press "P." The command prompt changes to "Enter ToS precedence value>." Enter a precedence value of 0 to 7.
C	Set a CoS value to be marked.	
		Press "C." The command prompt changes to "Enter CoS value>." Enter a CoS value of 0 to 7.
A	Apply the setting. If not applied here, the setting will be discarded.	
Q	Return to the previous menu.	

4.7.4.g. Out-Profile Action Configuration Menu

On the Access Control Configuration Menu, pressing "O" opens the Out-Profile Action Configuration Menu, as shown in Fig. 4-7-16. On this screen, you can configure out-profile setting.

```
PN28240/PN28240A Local Management System
Access Control Configuration -> Out-Profile Action Configuration Menu
Out-Profile Action:          Total Entries : 0
Index    Committed Rate    Burst Size(KB)   Deny/Permit   Policed-DSCP
-----    ----------------  --------------   -----------   ------------









--------------------------------- <COMMAND> -----------------------------------
[N]ext Page                                [D]elete Out-Profile Action
[P]revious Page                            [M]odify Out-Profile Action
[C]reate Out-Profile Action                [Q]uit to previous menu
Command>
Enter the character in square brackets to select option
```

Fig. 4-7-16 Out-Profile Action Configuration Menu

Screen Description

Total Entries	Shows the number of out-profiles (number of indexes) created.
Index	Shows the out-profile index number.
Committed Rate	Shows the packet buffer rate.
Burst Size(KB)	Shows the traffic burst size that can be transmitted exceeding the committed rate. For burst size, 4K, 8K, 16K, 32K, and 64K are used.
Deny/Permit	Shows whether a packet is denied or permitted.
Policed-DSCP	Shows a DSCP value to be marked.

Available commands are listed below.

N	Show the next page.	
		Press "N." The screen shows the next page.
P	Show the previous page.	
		Press "P." The screen shows the previous page.
C	Create out-profile.	
		Press "C." The Create Out-Profile Action Menu opens. Refer to the next section (4.7.4.h).
D	Delete out-profile.	
		Press "D." The command prompt changes to "Enter out-profile action Index>." Enter an Index number of the out-profile to be deleted.
M	Modify out-profile.	
		Enter "M." The command prompt changes to "Enter out-profile action Index>." Enter an index number of the out-profile to be modified, and modify it using the same operation as that for creating out-profile.
Q	Return to the previous menu.	

4.7.4.h. Create Out-profile Action Menu

On the Out-Profile Action Configuration screen, pressing "C" opens the Create Out-Profile Action Menu, as shown in Fig. 4-7-17. On this screen, you can create out-profile action.

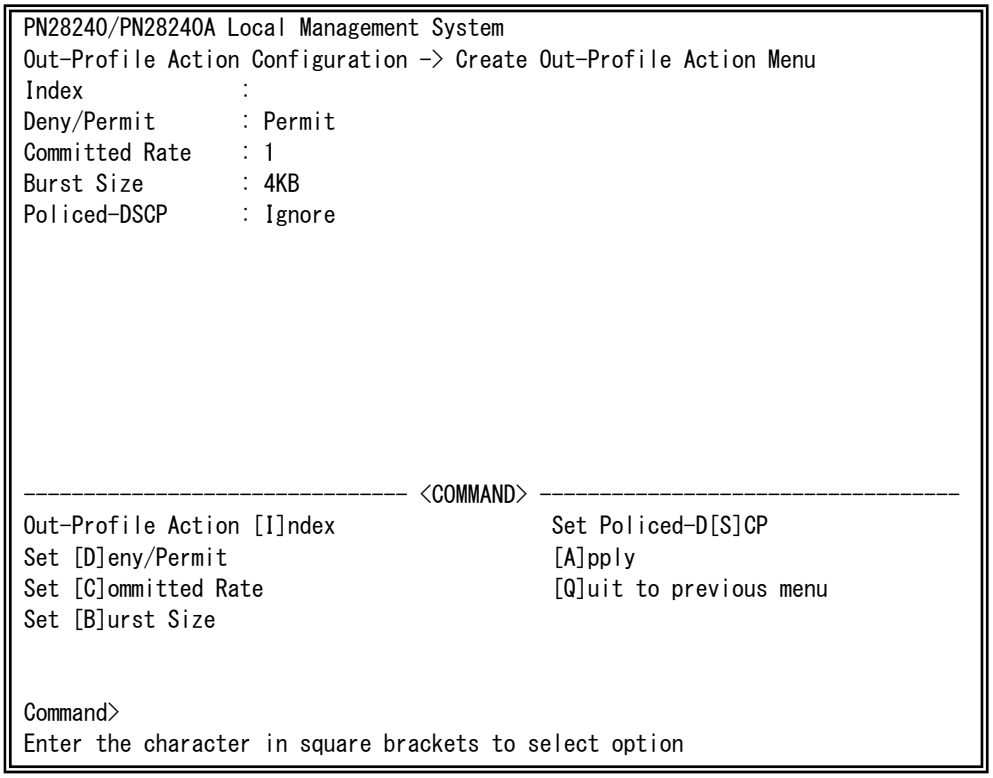


Fig. 4-7-17 Create Out-profile Action Menu

Screen Description

Index	Shows the out-profile index number.	
Deny/Permit	Shows whether a packet is denied or permitted.	
Committed Rate	Shows the packet buffer rate.	
Burst Size(KB)	Shows the traffic burst size that can be transmitted exceeding the committed rate. For burst size, 4K, 8K, 16K, 32K, and 64K are used.	
Action	Shows the execution mode in out-profile.	
	Policed-DSCP	Marks the DSCP value.

Available commands are listed below.

I	Set an out-profile index number.	
		Press "I." The command prompt changes to "Enter Out-Profile action index>." Enter an index number with a value of 1 to 65535.
D	Deny/permit packets.	
		Press "D." The command prompt changes to "Select Deny/Permit (1-2)>." Press "1" to deny packets. Press "2" to permit them.
C	Set the committed rate.	
		Press "C." The command prompt changes to "Enter committed rate>." Enter the committed rate with a value of 1 to 1000.
B	Set the burst size.	
		Press "B." The command prompt changes to "Select burst size (1-5)>." Press "1" for 4K in the traffic burst size exceeding the committed rate, "2" for 8K, "3" for 16K, "4" for 32K, and "5" for 64K.
S	Set a DSCP value to be marked.	
		Press "S." The command prompt changes to "Enter DSCP value>." Enter a DSCP value of 0 to 63.
A	Apply the setting. If not applied here, the setting will be discarded.	
Q	Return to the previous menu.	

4.7.4.i. Port List Configuration Menu

On the Access Control Configuration Menu, pressing "L" opens the Port List Configuration Menu, as shown in Fig. 4-7-18. On this screen, you can set a port list to apply Access Control.

When using both Access Control and Link Aggregation functions, assign a practical physical port number, not a logical port created in Link Aggregation.

```
PN28240/PN28240A Local Management System
Access Control Configuration -> Port List Configuration Menu
Port List:        Total Entries : 0
Index      Port List
-----     -----------------------------------------------------------------

















-------------------------------- <COMMAND> -----------------------------------
[N]ext Page                             [D]elete Port List
[P]revious Page                         [M]odify Port List
[C]reate Port List                      [Q]uit to previous menu
Command>
Enter the character in square brackets to select option
```

Fig. 4-7-18 Port List Configuration Menu

Screen Description

Total Entries	Shows the number of port lists (number of indexes) created.
Index	Shows the port list index number.
Port List	Shows the port number in the port list.

Available commands are listed below.

N	Show the next page.	
		Press "N." The screen shows the next page.
P	Show the previous page.	
		Press "P." The screen shows the previous page.
C	Create a port list.	
		Press "C." The command prompt changes to "Enter port list index>." Enter an index number to be created. Then, the command prompt changes to "Enter port number>." Enter a port number to be included in the list.
D	Delete a port list.	
		Press "D." The command prompt changes to "Enter port list index>." Enter an index number of the port list to be deleted.
M	Modify a port list.	
		Enter "M." The command prompt changes to "Enter port list index>." Enter an index number of the port list to be modified, and modify it using the same operation as that for creating a port list.
Q	Return to the previous menu.	

4.7.4.j. Policy Configuration Menu

On the Access Control Configuration Menu, pressing "P" opens the Policy Configuration Menu, as shown in Fig. 4-7-19. On this screen, you can configure the policy settings.

```
PN28240/PN28240A Local Management System
Access Control Configuration -> Policy Configuration Menu
Policy :                                    Total Entries : 0
Index Classifier Seq.  In-Profile Out-Profile PortList Status
----- ---------- ----- ---------- ---------- -------- --------









-------------------------------- <COMMAND> ----------------------------------
[N]ext Page                          [S]how Policy Entry
[P]revious Page                      [U]pdate Policy
[C]reate Policy                      Display Sequence [B]y Port
[D]elete Policy                      [Q]uit to previous menu
[E]nable or Disable Policy
Command>
Enter the character in square brackets to select option
```

Fig. 4-7-19 Policy Configuration Menu

Screen Description

Total Entries	Shows the number of policies (number of indexes) created.
Index	Shows the policy index number.
Classifier	Shows the classifier index number.
Seq.	Shows the sequence number indicating the application order of policies. Policies are applied in ascending order of this sequence number.
In-Profile	Shows the in-profile index number.
Out-Profile	Shows the out-profile index number.
Port List	Shows the port list index number.
Status	Shows the application status of policy.

Available commands are listed below.

N	Show the next page.	
	Press "N." The screen shows the next page.	
P	Show the previous page.	
	Press "P." The screen shows the previous page.	
C	Create a policy.	
	Press "C." The Create Policy Configuration Menu opens. For the Create Policy Configuration Menu, refer to the next section (4.7.4.k).	
D	Delete a policy.	
	Press "D." The command prompt changes to "Enter a policy index>." Enter a policy index number to be deleted. Then the command prompt changes to "Are you sure to delete policy index xx (Y/N)>." Press "Y" to delete the policy. Press "N" to cancel the deletion.	
E	Enable/disable the policy status.	
	Press "E." The command prompt changes to "Select policy index>." Enter a policy index number to be enabled/disabled. Then, the command prompt changes to "Enable or Disable Policy Entry>." Press "E" to enable the policy. Press "D" to disable it.	
	Enabled	Enable a policy.
	Disabled	Disable a policy.
S	Show the policy information.	
	Press "S " to display detailed information on each policy.	
U	Modify a policy.	
	Press "U." The command prompt changes to "Enter policy index>." Enter an index number to be modified. Then, carry out the same operation as that for creating a policy. Remember that modification is rejected if the policy is enabled. If enabled, disable the policy and then modify it.	
B	Show a sequence number of policy applied to each port.	
	Press "B." The command prompt changes to "Enter port number>." Enter a port number to display. Then, the command prompt changes to "Select policy index order or policy sequence order (I/S)>." Press "I" to confirm a policy sequence corresponding to the policy index. Press "S" to confirm a policy index sequence corresponding to the policy sequence.	
Q	Return to the previous menu.	

4.7.4.k. Create Policy Configuration Menu

On the Policy Configuration Menu, pressing "C" opens the Create Policy Configuration Menu, as shown in Fig. 4-7-20. On this screen, you can create a policy.

```
PN28240/PN28240A Local Management System
Policy Configuration -> Create Policy Configuration Menu
Policy Index             :
Classifier Index         :
Policy Sequence          :
In-Profile Action Index  :
Out-Profile Action Index :
Port List Index          :









-------------------------------- <COMMAND> ----------------------------------
Set [P]olicy Index                    Select Port [L]ist Index
Select [C]lassifier Index             [A]pply Policy
Set Policy [S]equence                 [Q]uit to previous menu
Select [I]n-Profile Action Index
Select [O]ut-Profile Action Index
Command>
Enter the character in square brackets to select option
```

Fig. 4-7-20 Create Policy Configuration Menu

Screen Description

Policy Index	Shows the policy index number.
Classifier Index	Shows the classifier index number created in the Classifier Configuration Menu.
Policy Sequence	Shows the sequence number.
In-Profile Index	Shows the in-profile index number created in the In-Profile Action Configuration Menu.
Out-Profile Index	Shows the out-profile index number created in the Out-Profile Action Configuration Menu.
Port List Index	Shows the port list index number created in the Port List Configuration Menu.

Available commands are listed below.

P	Set a policy index number.	
		Press "P." The command prompt changes to "Enter policy index>." Enter a policy index number.
C	Set an index number of applicable classifier.	
		Press "C." The command prompt changes to "Enter classifier index>." Enter an index number of applicable classifier.
S	Set a sequence number.	
		Press "S." The command prompt changes to "Enter policy sequence>." Enter a sequence number.
I	Set an index number of applicable in-profile.	
		Press "I." The command prompt changes to "Enter in-profile index>." Enter an index number of applicable in-profile.
O	Set an index number of applicable out-profile.	
		Press "O." The command prompt changes to "Enter out-profile index>." Enter an index number of applicable out-profile. (Out-profile can be omitted.)
L	Set an index number of applicable port list.	
		Press "L." The command prompt changes to "Enter port list index>." Enter an index number of applicable port list.
A	Apply the setting. If you press "Q" without applying the setting, it will be discarded.	
Q	Return to the previous menu.	

4.7.5 Quality of Service Configuration

On the Advanced Switch Configuration Menu, pressing "S" opens the Quality of Service Configuration Menu, as shown in Fig. 4-7-21. You can configure the QoS (Quality of Service) setting of the Switching Hub.

```
PN28240/PN28240A Local Management System
Advanced Switch Configuration Menu -> Quality of Service Configuration Menu

[T]raffic Class Configuration
[E]gress Rate Limiting
[Q]uit to previous menu









Command>
Enter the character in square brackets to select option
```

Fig. 4-7-21 QoS Configuration

Available commands are listed below.

T	Go to the configuration screen for traffic class.	
		Press "T." The Traffic Class Configuration Menu opens. For configuration details, refer to 4.7.5.a.
E	Go to the configuration screen for bandwidth.	
		Press "E." The Egress Rate Limiting Configuration Menu opens. For configuration details, refer to 4.7.5.b.
Q	Return to the previous menu.	

4.7.5.a. Traffic Class Configuration Menu

On the Quality of Service Configuration Menu, pressing "T" opens the Traffic Class Configuration screen, as shown in Fig. 4-7-22. On this screen, you can configure the traffic class setting.

```
PN28240/PN28240A Local Management System
Quality of Service Configuration -> Traffic Class Configuration Menu

QoS Status:  Disabled

Priority    Traffic Class
--------    -------------
   0              0
   1              0
   2              1
   3              1
   4              2
   5              2
   6              3                        0:  Lowest
   7              3                        7:  Highest

-------------------------------- <COMMAND> ----------------------------------
[S]et QoS Status
Set Priority-Traffic Class [M]apping
[Q]uit to previous menu


Command>
Enter the character in square brackets to select option
```

Fig. 4-7-22 Traffic Class Configuration Menu

Screen Description

QoS Status	Shows the status of QoS function using IEEE802.1p.	
	Enabled	QoS is enabled.
	Disabled	QoS is disabled. (Factory default setting)
Priority	Shows the priority value in a VLAN tag.	
Traffic Class	Shows the QoS priority level.	

Available commands are listed below.

S	Set the status of QoS function.	
		Press "S." The command prompt changes to "Enable or Disable QoS (E/D)>." Press "E" to enable the function. Press "D" to disable it.
M	Assign a priority level (traffic class) to a priority value of IEEE802.1p.	
		Press "M." The command prompt changes to "Enter Priority (E/D)>." Enter a priority value (0 to 7) to be assigned. Then, the command prompt changes to "Enter traffic class for priority #>." Enter a priority level (traffic class) to be controlled by this Switching Hub with a value of 0 to 3.
Q	Return to the previous menu.	

4.7.5.b. Egress Rate Limiting Configuration Menu

On the Quality of Service Configuration Menu, pressing "C" opens the Egress Rate Limiting Configuration Menu, as shown in Fig. 4-7-23. On this screen, you can set bandwidth control.

```
PN28240/PN28240A Local Management System
Quality of Service Configuration -> Egress Rate Limiting Configuration Menu
Port   Bandwidth    Status
----  -----------  --------
  1       1000     Disabled
  2       1000     Disabled
  3       1000     Disabled
  4       1000     Disabled
  5       1000     Disabled
  6       1000     Disabled
  7       1000     Disabled
  8       1000     Disabled
  9       1000     Disabled
 10       1000     Disabled
 11       1000     Disabled
 12       1000     Disabled
Note:  Bandwidth - 1Mbps/unit
-------------------------------- <COMMAND> ---------------------------------
[N]ext Page            Set [S]tatus
[P]revious Page        [Q]uit to previous menu
Set [B]andwidth

Command>
Enter the character in square brackets to select option
```

Fig. 4-7-23 Egress Rate Limiting Configuration Menu

Screen Description

Port	Shows the port number.	
Bandwidth	Shows the bandwidth. The factory default setting is 1000. (Unit is Mbps.)	
Status	Enables/disables the bandwidth control.	
	Enabled	Bandwidth control is enabled.
	Disabled	Bandwidth control is disabled.

Available commands are listed below.

N	Show the next page.	
		Press "N." The screen shows the next page.
P	Show the previous page.	
		Press "P." The screen shows the previous page.
B	Set a bandwidth.	
		Press "B." The command prompt changes to "Enter port number e.g.: 1, 3, 5-24>." Enter a port number to designate. Then, the command prompt changes to "Enter bandwidth>." Enter a value between 1 and 1000.
S	Set the bandwidth control.	
		Press "S." The command prompt changes to "Enter port number e.g.: 1, 3, 5-24>." Enter a port number to designate. Then, the command prompt changes to "Enable or Disable Status (E/D)>." Press "E" to enable the bandwidth control. Press "D" to disable it.
Q	Return to the previous menu.	

4.7.6. Storm Control Configuration Menu

On the Advanced Switch Configuration Menu, pressing "o" opens the Storm Control Configuration Menu, as shown in Fig. 4-7-24. You can set the storm control for unknown unicast, broadcast, and multicast traffic.

```
PN28240/PN28240A Local Management System
Advanced Switch Configuration -> Storm Control Configuration Menu

Port Storm Control Setting:
 No.       DLF       Broadcast    Multicast    Threshold(pps)
----   ---------   ---------   ---------   --------------
  1    Disabled    Disabled    Disabled     0
  2    Disabled    Disabled    Disabled     0
  3    Disabled    Disabled    Disabled     0
  4    Disabled    Disabled    Disabled     0
  5    Disabled    Disabled    Disabled     0
  6    Disabled    Disabled    Disabled     0
  7    Disabled    Disabled    Disabled     0
  8    Disabled    Disabled    Disabled     0
  9    Disabled    Disabled    Disabled     0
 10    Disabled    Disabled    Disabled     0
 11    Disabled    Disabled    Disabled     0
 12    Disabled    Disabled    Disabled     0
-------------------------------- <COMMAND> ----------------------------------
[N]ext Page            Set [B]roadcast Status   [Q]uit to previous menu
[P]revious Page        Set [M]ulticast Status
Set [D]LF Status       Set [T]hreshold Value
Command>
Enter the character in square brackets to select option
```

Fig. 4-7-24 Storm Control Configuration Menu

Screen Description

DLF	Shows the storm control setting for unknown unicast traffic.	
	Enabled	Storm control for unknown unicast is enabled.
	Disabled	Storm control for unknown unicast is disabled. (Factory default setting)
Broadcast	Shows the storm control setting for broadcast traffic.	
	Enabled	Storm control for broadcast is enabled.
	Disabled	Storm control for broadcast is disabled. (Factory default setting)
Multicast	Shows the storm control setting for multicast traffic.	
	Enabled	Storm control for multicast is enabled.
	Disabled	Storm control for multicast is disabled. (Factory default setting)
Threshold	Shows the threshold number of packets (Packet Per Second).	

Available commands are listed below.

D	Enable/disable the storm control for unknown unicast traffic.	
		Press "D." The command prompt changes to "Enter port number>." Enter a port number to designate. Then, the command prompt changes to "Enable or Disable DLF storm control status>." Press "E" to enable the unknown unicast control. Press "D" to disable it.
B	Enable/disable the storm control for broadcast traffic.	
		Press "B." The command prompt changes to "Enter port number>." Enter a port number to designate. Then, the command prompt changes to "Enable or Disable broadcast storm control status (E/D)>." Press "E" to enable the broadcast control. Press "D" to disable it.
M	Enable/disable the storm control for multicast traffic.	
		Press "M." The command prompt changes to "Enter port number>." Enter a port number to designate. Then, the command prompt changes to "Enable or Disable multicast storm control status (E/D)>." Press "E" to enable the multicast control. Press "D" to disable it.
T	Set the threshold number of packets (Packet Per Second).	
		Press "T." The command prompt changes to "Enter port number>." Enter a port number to designate. Then, the command prompt changes to "Enter threshold value>." Enter the threshold number of packets (packet per second) between 0 and 262143.
Q	Return to the previous menu.	

4.7.7 Loop Detection Configuration Menu

On the Advanced Switch Configuration Menu, pressing "D" opens the Loop Detection Configuration Menu, as shown in Fig. 4-7-25. On this screen, you can set the loop detection and shut-off function.

For network configuration, also refer to "Appendix D. Example of Network Configuration using Loop Detection/Shut-off Function and Its Precautions" in this operation manual.

```
PN28240/PN28240A Local Management System
Advanced Switch Configuration -> Loop Detection Configuration Menu
Global Loop Detection Status:  Enabled
Port  Trunk  Link     State     Loop Detect    Recovery    Recovery Time
----  -----  ----  ----------   ------------  ----------- --------------
  1    ---   Down  Forwarding    Enabled        Enabled         60
  2    ---   Down  Forwarding    Enabled        Enabled         60
  3    ---   Down  Forwarding    Enabled        Enabled         60
  4    ---   Down  Forwarding    Enabled        Enabled         60
  5    ---   Down  Forwarding    Enabled        Enabled         60
  6    ---   Down  Forwarding    Enabled        Enabled         60
  7    ---   Down  Forwarding    Enabled        Enabled         60
  8    ---   Down  Forwarding    Enabled        Enabled         60
  9    ---   Down  Forwarding    Enabled        Enabled         60
 10    ---   Down  Forwarding    Enabled        Enabled         60
 11    ---   Down  Forwarding    Enabled        Enabled         60
 12    ---   Down  Forwarding    Enabled        Enabled         60
--------------------------------- <COMMAND> -----------------------------------
[N]ext Page                            Set Port [L]oop Detect Status
[P]revious Page                        Set Port Recovery [S]tatus
[E]nable/Disable Loop Detection        Set Port Recovery [T]imer
Loop History [I]nformation             [Q]uit to previous menu
Command>
Enter the character in square brackets to select option
```

Fig. 4-7-25 Loop Detection Configuration Menu

Screen Description

Global Loop Detection Status	Shows the status of loop detection/shut-off function.	
	Enabled	The loop detection/shut-off function is enabled. (Factory default setting)
	Disabled	The loop detection/shut-off function is disabled.
Port	Shows the port number.	
Trunk	Shows the link aggregation group ID.	
Link	Shows the state of linkup.	
	Up	Link is up.
	Down	Link is down.
State	Shows the behavior of loop detection/shut-off function.	
	Forwarding	Packet is normally forwarded.
	Loop Detect	Loop is detected and the port is shut off.
Loop Detect	Shows the status of loop detection/shut-off function of each port.	
	Enabled	The loop detection/shut-off function is enabled. (Factory default setting: Port 1 to 22)
	Disabled	The loop detection/shut-off function is disabled. (Factory default setting: Port 23 to 24)
Recovery	Shows the recovery mode for auto-recovery of the shutoff port.	
	Enabled	Automatically recovers from port shutoff after the recovery time elapses. (Factory default setting)
	Disabled	Does not recover from port shutoff until manually set.
Recovery Time	Shows the number of seconds for recovery time, which is standby time until the shutoff port is automatically recovered. (Factory default setting: 60)	

Available commands are listed below.

E	Set the status of loop detection/shut-off function.	
		Press "E." The command prompt changes to "Enable or Disable Loop Detection (E/D)>." Press "E" to enable the loop detection/shut-off function. Press "D" to disable it.
I	Press "I." The Loop History Information screen opens.	
L	Set the status of loop detection/shut-off function of each port.	
		Press "L." The command prompt changes to "Select port number to be changed>." Enter a target port number. Then, the command prompt changes to "Enable or Disable Loop Detection (E/D)>." Enter "E" to enable the loop detection/shut-off function of each port. Press "D" to disable it. When entering multiple port numbers, delimit with comma with no space, or hyphenate the continuous numbers. Enter "0" to apply all ports.
S	Set the status of recovery mode for auto-recovery of the shutoff port.	
		Press "S." The command prompt changes to "Select port number to be changed>." Enter a target port number. Then, the command prompt changes to "Enable or Disable Recovery for port x (E/D)>." Press "E" to enable auto-recovery of the port. Press "D" to disable it. When entering multiple port numbers, delimit with comma with no space, or hyphenate the continuous numbers. Enter "0" to apply all ports.
T	Set the recovery time in seconds, which is the standby time until the shutoff port is automatically recovered.	
		Press "T." The command prompt changes to "Select port number to be changed>." Enter a target port number. Then, the command prompt changes to "Enter Recovery Timer>." Enter the recovery time in seconds from 60 to 86400.
Q	Return to the previous menu.	

Note: If the status of loop detection/shut-off function (Global Loop Detection Status) is changed, the configuration information is saved and all settings are stored in a built-in memory.

4.7.7.a. Loop History Information

On the Loop Detection Configuration Menu, pressing "I" opens the Loop History Information screen, as shown in Fig. 4-7-26. On this screen, the date and time of detecting loop and the event information are listed.

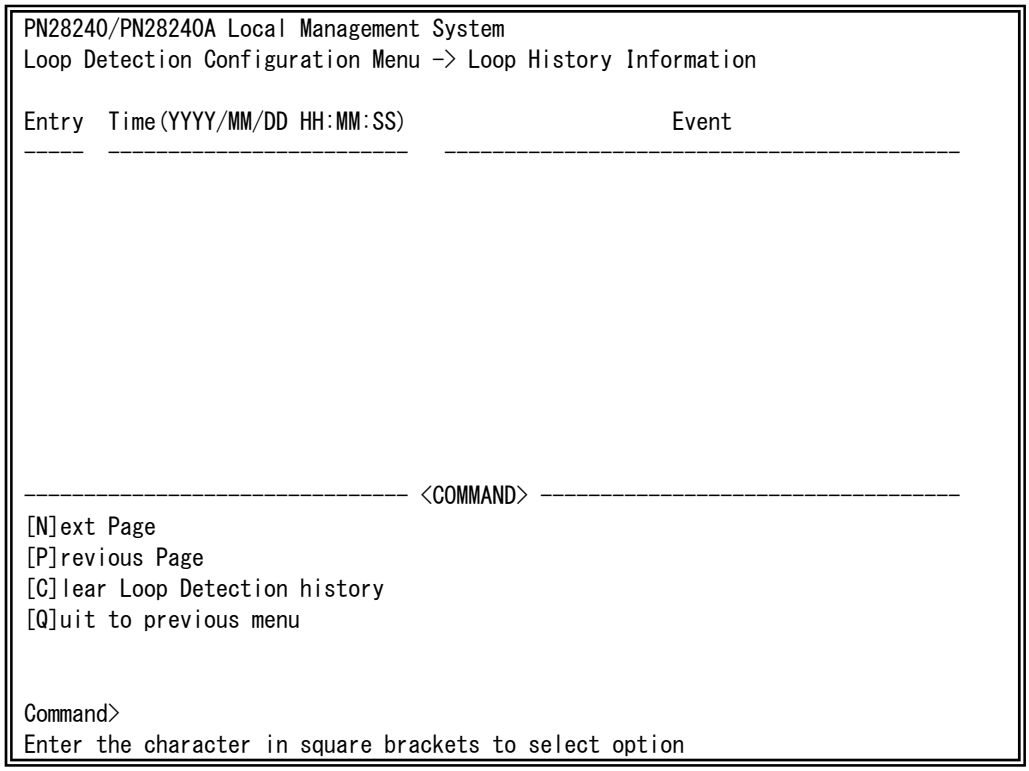


Fig. 4-7-26 Loop History Information

Screen Description

Entry	Shows the event number.	
Time	Shows the time when the event occurred. If the time is not set, the accumulated running time since boot is shown.	
Event	Shows the description of the event occurred to the Switching Hub.	
	The loop detected on portX.	Indicates that a loop was detected in a Switching Hub under port X, and the connection has been shut down.
	The loop detected between portX and portY.	Indicates that a loop was detected between port X and port Y, and the connection has been shut down.
	PortX auto recovery.	Indicates that the port X is automatically recovered from being shut down.

Available commands are listed below.

N	Show the next page.	
	Press "N." The screen shows the next page.	
P	Show the previous page.	
	Press "P." The screen shows the previous page.	
C	Delete the history information in the loop history function.	
Q	Return to the previous menu.	

4.7.8. Port Group Configuration Menu

On the Advanced Switch Configuration Menu, pressing "P" opens the Port Group Configuration Menu, as shown in Fig. 4-7-28. On this screen, you can configure port grouping. If a port grouping is configured, ports designated as members of the port group can communicate only among member ports in the same group. Multiple port groups can be assigned to each port. An example of configuration using port grouping is given in Fig. 4-7-27.

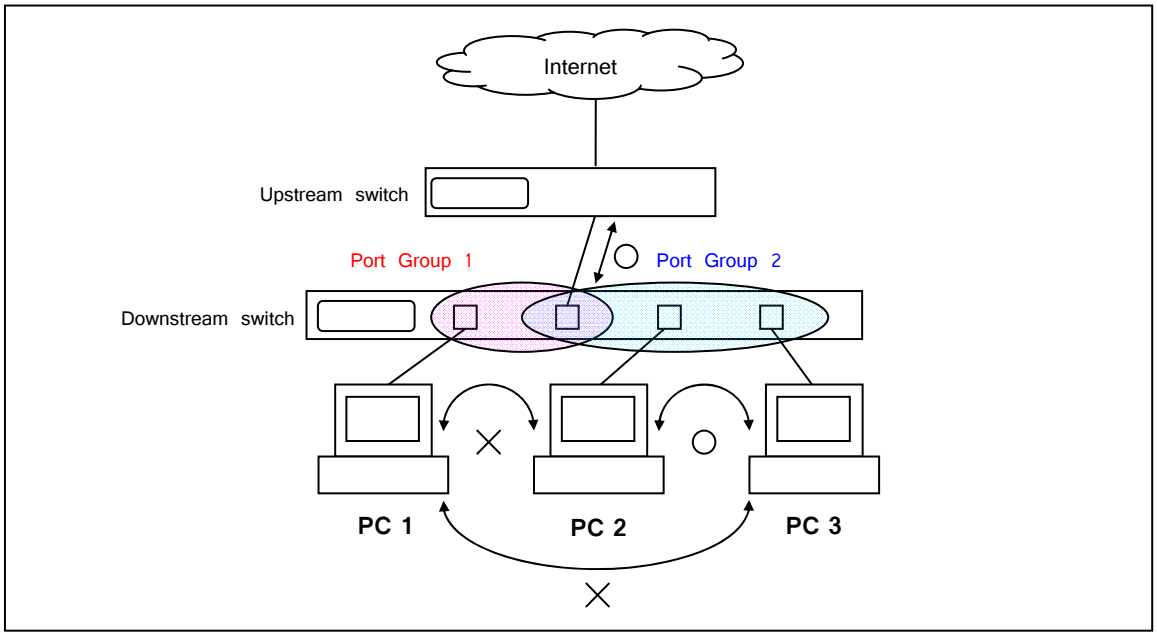


Fig. 4-7-27 Example of Configuration Using Port Grouping
(This configuration allows communications between PC1 and Internet, and among PC2, PC3, and Internet.)

Note: The loop detection/shut-off function detects a loop of a frame and shuts down the connection, even if the loop occurs between different port groups.
If some member ports of a link aggregation group are configured across two or more port groups, a frame may not be transferred normally.

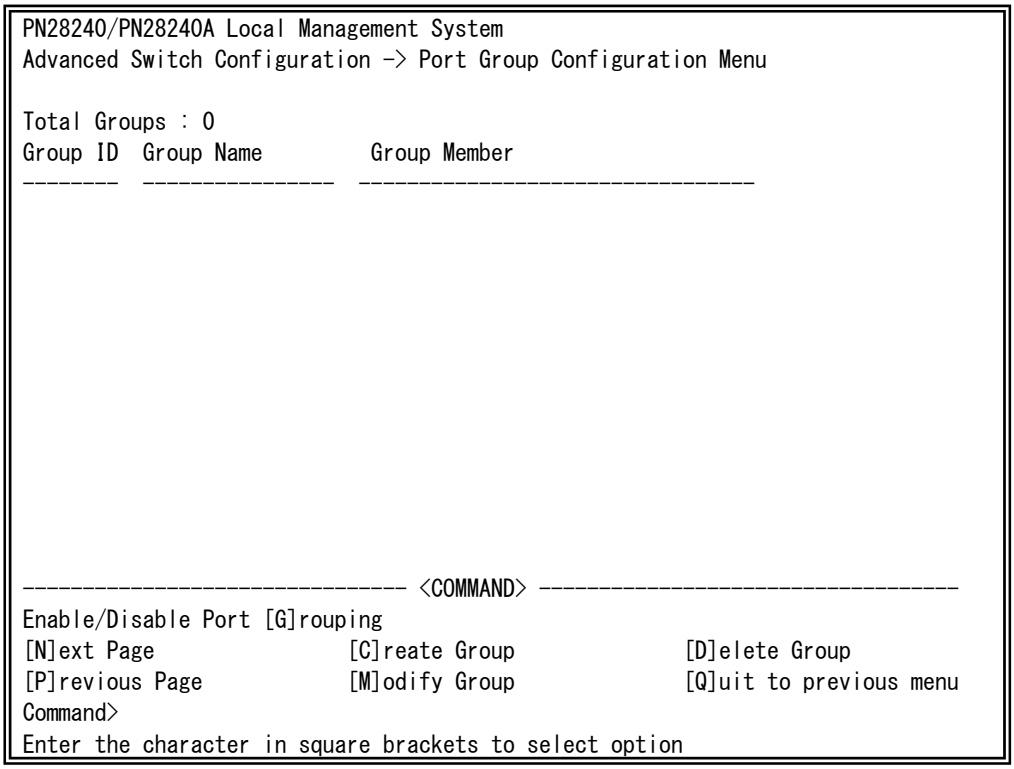


Fig. 4-7-28 Port Group Configuration Menu

Screen Description

Group ID	Shows the port group ID.
Group Name	Shows the port group name being configured.
Group Member	Shows member ports belonging to the port group.

Available commands are listed below.

N	Show the next page.
	Press "N." The screen shows the next page.
P	Show the previous page.
	Press "P." The screen shows the previous page.
C	Go to the screen for creating a port group.
	Press "C." The Port Group Create Menu opens. For details, refer to the next section **(4.7.6.a).**
D	Delete a port group.
	Press "D." The command prompt changes to "Enter Port Group ID>." Enter a port group ID you wish to delete with a value of 1 to 256.
M	Go to the screen for changing a port grouping setting.
	Press "M." The command prompt changes to "Enter Port Group ID>." Enter a port group ID you wish to configure with a value of 1 to 256. Then, the Port Group Modification Menu opens. For details, refer to the next section **(4.7.6.b).**
Q	Return to the previous menu.

4.7.8.a. Port Group Creation Menu

On the Port Group Management Menu, pressing "C" opens the Port Group Creation Menu, as shown in Fig. 4-7-29. On this screen, you can create a port group.

```
PN28240/PN28240A Local Management System
Port Group Configuration -> Port Group Creation Menu

Group ID        :
Group Name      :

Port Members    :

-------------------------------- <COMMAND> ----------------------------------
Set [G]roup ID
Set Group [N]ame
Select [P]ort Member
[A]pply
[Q]uit to previous menu









Command>
Enter the character in square brackets to select option
```

Fig. 4-7-29 Port Group Creation Menu

Screen Description

Group ID	Shows the port group ID.
Group Name	Shows the port group name being configured.
Port Members	Shows member ports belonging to the port group.

Available commands are listed below.

G	Set a port group ID.	
		Press "G." The command prompt changes to "Enter Port Group ID>." Enter a port group ID.
N	Set a port group name.	
		Press "N." The command prompt changes to "Enter Port Group name>." Enter a port group name in 16 one-byte characters or less.
P	Set a port group member.	
		Press "P." The command prompt changes to "Enter egress port number>." Enter a port number you wish to set. When entering multiple port numbers, delimit with comma with no space, or hyphenate the continuous numbers.
A	Create a port group.	
		Press "A" to apply the setting.
Q	Return to the previous menu.	

Note: After setting a port group, make sure to press "A" to apply the setting. If you press "Q" without pressing "A", the setting will be discarded and the port group will not be created.

4.7.8.b. Port Group Modification Menu

On the Port Group Management Menu, pressing "o" and then specifying a port group ID open the Port Group Modification Menu, as shown in Fig. 4-7-30. On this screen, you can modify the port group setting.

```
PN28240/PN28240A Local Management System
Port Group Configuration -> Port Group Modification Menu

Group ID        : 1
Group Name      :

Port Members    : 1-24

--------------------------------- <COMMAND> -----------------------------------
Set Port Group [N]ame
Select [P]ort Group Member
[A]pply
[Q]uit to previous menu









Command>
Enter the character in square brackets to select option
```

Fig. 4-7-30 Port Group Modification Menu

Screen Description

Group ID	Shows the port group ID.
Group Name	Shows the port group name being configured.
Port Members	Shows member ports belonging to the port group.

Available commands are listed below.

N	Set a port group name.	
		Press "N." The command prompt changes to "Enter Port Group name>." Enter a port group name in 16 one-byte characters or less.
P	Set a port group member.	
		Press "P." The command prompt changes to "Enter egress port number>." Enter a port number you wish to set. When entering multiple port numbers, delimit with comma with no space, or hyphenate the continuous numbers.
A	Apply modified setting of the port group.	
		Press "A" to apply the setting.
Q	Return to the previous menu.	

4.8. Statistics

On the Main Menu, pressing "S" opens the Statistics Menu, as shown in Fig. 4-8-1. On this screen, you can confirm the statistics information of packets and thereby grasp the network status.

```
PN28240/PN28240A Local Management System
Main Menu -> Statistics Menu
Port:   1   Refresh:  300 Sec.      Elapsed Time Since System Up:  000:00:00:00
<Counter Name>          <Total>                 <Avg./s>
Total RX Bytes          0                       0
Total RX Pkts           0                       0
Good Broadcast          0                       0
Good Multicast          0                       0
CRC/Align Errors        0                       0
Undersize Pkts          0                       0
Oversize Pkts           0                       0
Fragments               0                       0
Jabbers                 0                       0
Collisions              0                       0
64-Byte Pkts            0                       0
65-127 Pkts             0                       0
128-255 Pkts            0                       0
256-511 Pkts            0                       0
512-1023 Pkts           0                       0
1024to1518 Octets       0                       0
-------------------------------- <COMMAND> ----------------------------------
[N]ext  [P]revious  [S]elect Port  Re[f]resh Mode  Since [R]eset  [Q]uit
Command>
Enter the character in square brackets to select option
```

Fig. 4-8-1 Statistics: Values accumulated since booting

Screen Description

Port	Shows the port number.
Refresh	Shows the refresh interval of the screen. (Factory default setting: 300 seconds)
Elapsed Time Since System Up	Shows the time elapsed since booting of this Switching Hub.
Counter Name	Shows each counter name.
Total	Shows each counter value.
Avg./s	Shows the average per second of each counter.

Available commands are listed below.

N	Show the values of the next port.	
		Press "N." The screen shows the counter values of the next port. Disabled in Port 24.
P	Show the values of the previous port.	
		Press "P." The screen shows the counter values of the previous port. Disabled in Port 1.
S	Switch a target port.	
		Press "S." The command prompt changes to "Select Port number>." Enter the port number you wish to display.
F	Set the screen refresh mode.	
		Press "F." The command prompt changes to "1 for start to refresh, 2 for set refresh rate." Press "1" to stop auto-refresh. Press "2" to change the refresh interval. If you press "2," the command prompt changes to "Input refresh time>." Enter an integer between 5 and 600 (seconds).
R	Reset counter values.	
		Press "R" to reset counter values. The display is changed at the counter reset.
Q	Return to the previous menu.	

On this screen, you can display two types of values: Values accumulated since booting the Switching Hub (Fig. 4-8-1) and values accumulated since the counter reset (Fig. 4-8-2). An accumulated value since booting is retained even if the counter is reset.

```
PN28240/PN28240A Local Management System
Main Menu -> Statistics Menu
Port:  1   Refresh:  300 Sec.      Elapsed Time Since System Reset: 000:00:00:00
<Counter Name>          <Total>                  <Avg./s>
Total RX Bytes          0                        0
Total RX Pkts           0                        0
Good Broadcast          0                        0
Good Multicast          0                        0
CRC/Align Errors        0                        0
Undersize Pkts          0                        0
Oversize Pkts           0                        0
Fragments               0                        0
Jabbers                 0                        0
Collisions              0                        0
64-Byte Pkts            0                        0
65-127 Pkts             0                        0
128-255 Pkts            0                        0
256-511 Pkts            0                        0
512-1023 Pkts           0                        0
1024-1518 Pkts          0                        0
------------------------------ <COMMAND> ----------------------------------
[N]ext  [P]revious  [S]elect Port  Re[f]resh  [R]eset  Since [U]p  [Q]uit
Command>
Enter the character in square brackets to select option
```

Fig. 4-8-2 Statistics: Values accumulated since resetting counters

Screen Description

Port	Shows the port number.
Refresh	Shows the refresh interval of the screen. (Factory default setting: 300 seconds)
Elapsed Time Since Reset	Shows the time elapsed since resetting counters.
Counter Name	Shows each counter name.
Total	Shows each counter value.
Avg./s	Shows the average per second of each counter.

Available commands are listed below.

N	Show the values of the next port.	
		Press "N." The screen shows the counter values of the next port. Disabled in Port 24.
P	Show the values of the previous port.	
		Press "P." The screen shows the counter values of the previous port. Disabled in Port 1.
S	Switch a target port.	
		Press "S." The command prompt changes to "Select Port number>." Enter the port number you wish to display.
F	Set the counter refresh mode.	
		Press "F." The command prompt changes to "1 for start to refresh, 2 for set refresh rate." Press "1" to stop auto-refresh. Press "2" to change the refresh interval. If you press "2," the command prompt changes to "Input refresh time>." Enter an integer between 5 and 600 (seconds).
R	Switch to display counter values since resetting counters.	
		Press "R" to reset the counter values. Elapsed Time Since System Reset becomes 0.
U	Set the screen refresh mode.	
		Press "U" to display counters since booting.
Q	Return to the previous menu.	

The counters are described below.

Total RX Bytes	Shows the number of bytes of all packets received.
Total RX Pkts	Shows the number of all packets received.
Good Broadcast	Shows the number of broadcast packets received.
Good Multicast	Shows the number of multicast packets received.
CRC/Align Errors	Shows the number of error packets that have a normal packet length (64 to 1518 bytes); however, have an error found by an error detection code (FCS). If the packet length is an integral multiple of one byte, the error is a CRC (FCS) error. If not, it is an alignment error.
Undersize Pkts	Shows the number of error packets that have a packet length less than 64 bytes; however, have no other errors.
Oversize Pkts	<When the Jumbo status is disabled> Shows the number of packets having a packet length greater than 1518 bytes. <When the Jumbo status is enabled> Shows the number of packets having a packet length greater than 9216 bytes.
Fragments	Shows the number of error packets that have a packet length less than 64 bytes and have a CRC or alignment error.
Jabbers	Shows the number of error packets that have a packet length greater than 1518 bytes and have a CRC or alignment error.
Collisions	Shows the number of packet collisions.
64-Byte Pkts	Shows the total number of packets having a packet length of 64 bytes.
65-127 Pkts	Shows the total number of packets having a packet length of 65 to 127 bytes.
128-255 Pkts	Shows the total number of packets having a packet length of 128 to 255 bytes.
256-511 Pkts	Shows the total number of packets having a packet length of 256 to 511 bytes.
512-1023 Pkts	Shows the total number of packets having a packet length of 512 to 1023 bytes.
Over 1024 Pkts	Shows the total number of packets having a packet length of 1024 bytes or greater. * This field is displayed when the Jumbo status is disabled.
1024-1518 Pkts	Shows the total number of packets having a packet length of 1024 to 1518 bytes. * This field is displayed when the Jumbo status is enabled.

4.9. Switch Tools Configuration

On the Main Menu, pressing "T" opens the Switch Tools Configuration screen, as shown in Fig. 4-9-1. On this screen, you can configure and use additional functions of the Switching Hub, including firmware upgrade, upload/download of configuration, system reboot, and log viewing.

```
PN28240/PN28240A Local Management System
Main Menu -> Switch Tools Configuration

[T]FTP Software Upgrade
[C]onfiguration File Upload/Download
System [R]eboot
E[x]ception Handler
[P]ing Execution
System [L]og
[W]atch Dog Timer
[Q]uit to previous menu









Command>
Enter the character in square brackets to select option
```

Fig. 4-9-1 Switch Tools Configuration

Screen Description

TFTP Software Upgrade	Configures and executes the firmware version upgrade of this Switching Hub.
Configuration File Upload/Download	Configures and executes the upload/download of the configuration of this Switching Hub.
System Reboot	Configures and executes the reboot of this Switching Hub.
Exception Handler	Configures the operation when exception occurs in this Switching Hub.
Ping Execution	Executes ping from this Switching Hub.
System Log	Shows the system log of this Switching Hub.
Watch Dog Timer	Configures the Watch Dog function.
Quit to previous menu	Quits the Switch Tools Configuration Menu and returns to the Main menu.

4.9.1. TFTP Software Upgrade

On the Switch Tools Configuration Menu, pressing "T" opens the TFTP Software Upgrade screen, as shown in Fig. 4-9-2. On this screen, you can upgrade the firmware version.

```
PN28240/PN28240A Local Management System
Switch Tools Configuration -> TFTP Software Upgrade

Image Version:          x.x.x.xx
TFTP Server IP:         0.0.0.0
Image File Name:
Reboot Timer:           0 seconds

-------------------------------- <COMMAND> ----------------------------------
Set TFTP [S]erver IP Address
Set Image [F]ile Name
[U]pgrade Image
[Q]uit to previous menu









Command>
Enter the character in square brackets to select option
```

Fig. 4-9-2 TFTP Software Upgrade

Screen Description

Image Version	Shows the current firmware version.
TFTP Server IP	Shows the IP address of the TFTP server providing the firmware to be used for update.
Image File Name	Shows the file name of the firmware to be upgraded.
Reboot Timer	Shows the time before rebooting after downloading the firmware. You can set the time in the System Reboot Menu.

Available commands are listed below.

S	Set the IP address of the TFTP server providing the firmware to be used for update.	
		Press "S." The command prompt changes to "Enter IP address of TFTP server>." Enter the IP address of the TFTP server.
F	Set the file name of the firmware to be upgraded.	
		Press "F." The command prompt changes to "Enter file name>." Specify the file name of the downloaded program within 30 one-byte characters.
U	Start upgrading.	
		Press "D." The command prompt changes to "Download file(Y/N)>." Confirm whether or not you wish to start the process. Confirm that all settings are correct. Press "Y" to start upgrading. If you find any incorrect setting, press "N" to reset the settings.
Q	Return to the previous menu.	

When the download starts, the screen shown in Fig. 4-9-3 opens, and the download status is displayed. (To cancel the TFTP transfer process, press Ctrl+C during transfer.) When download is completed, the firmware is rewritten. After waiting for the time set by the Reboot Timer, rebooting is automatically executed.

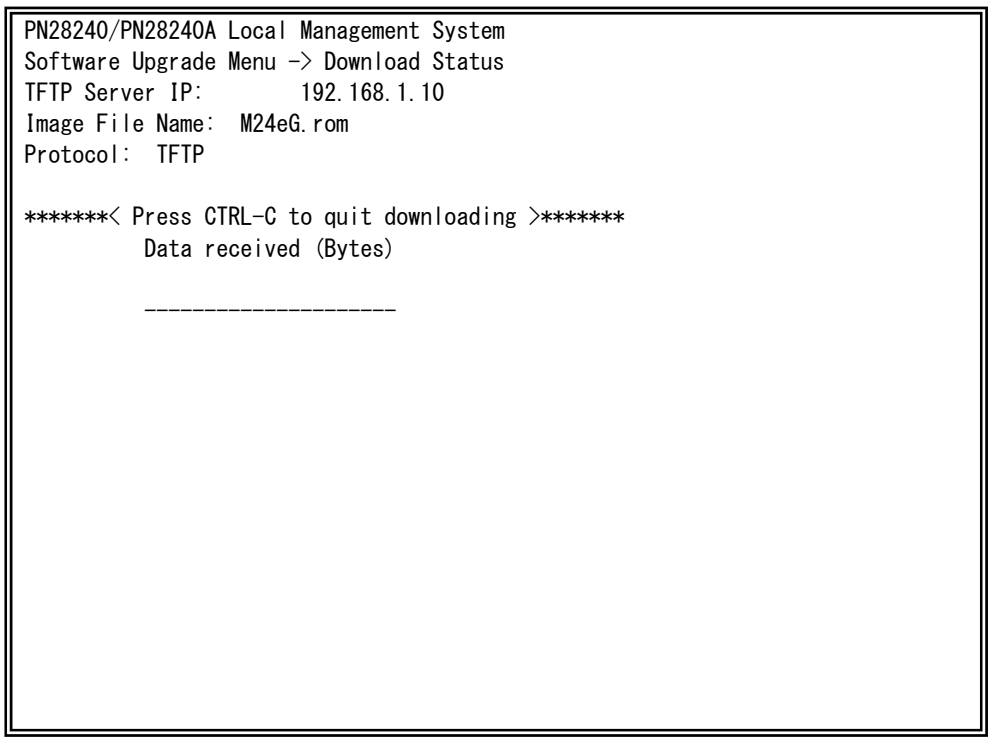


Fig. 4-9-3 Download in Process

Note: Be sure not to turn off the power of the Switching Hub while upgrading the firmware version.

4.9.2. Configuration File Upload/Download

On the Switch Tools Configuration Menu, pressing "C" opens the Configuration File Upload/Download Menu, as shown in Fig. 4-9-4. On this screen, you can upload/download the configuration information of this Switching Hub to/from a PC as a file.

```
PN28240/PN28240A Local Management System
Switch Tools Configuration -> Configuration File Upload/Download

TFTP Server IP:   0.0.0.0
Config File Name:

-------------------------------- <COMMAND> ----------------------------------

Set TFTP [S]erver IP Address
Set Configuration [F]ile Name
[U]pload Configuration File
[D]ownload Configuration File
[Q]uit to previous menu









Command>
Enter the character in square brackets to select option
```

Fig. 4-9-4 Configuration File Upload/Download

Screen Description

TFTP Server IP	Shows the IP address of the TFTP server to upload/download the configuration.
Config File Name	Shows the configuration file name.

Available commands are listed below.

S	Set the IP address of the TFTP server to upload/download the configuration information.	
		Press "S." The command prompt changes to "Enter IP address of TFTP server>." Enter the IP address of the TFTP server.
F	Set the file name of the configuration information to be uploaded/downloaded.	
		Press "F." The command prompt changes to "Enter file name>." Specify the file name of the downloaded program within 30 one-byte characters.
U	Start uploading the configuration information.	
		Press "U." The command prompt changes to "Upload file(Y/N)>." Confirm whether or not you wish to start the process. Confirm that all settings are correct. Press "Y" to start uploading. If you find any incorrect setting, press "N" to reset the settings.
D	Start downloading the configuration information.	
		Press "D." The command prompt changes to "Download file(Y/N)>." Confirm whether or not you wish to start the process. Confirm that all settings are correct. Press "Y" to start downloading. If you find any incorrect setting, press "N" to reset the settings.
Q	Return to the previous menu.	

4.9.3. System Reboot

On the Switch Tools Configuration Menu, pressing "R" opens the System Reboot Menu, as shown in Fig. 4-9-5. On this screen, you can reboot this Switching Hub.

```
PN28240/PN28240A Local Management System
Switch Tools Configuration -> System Reboot Menu

 Reboot Status:         Stop
 Reboot Type:           Normal
 Reboot Timer:          0 seconds
 Time Left:             N/A

-------------------------------- <COMMAND> ----------------------------------
Set Reboot [O]ption
Start [R]eboot Process
Set Reboot [T]imer
[Q]uit to previous menu









Command>
Enter the character in square brackets to select option
```

Fig. 4-9-5 System Reboot

Screen Description

Reboot Status	Shows whether or not the reboot command is being executed.	
	Stop	Indicates that the reboot command is not being executed.
Reboot Type	Shows the reboot type. The factory default setting is "Normal."	
	Normal	Normal reboot is executed.
	Factory Default	All settings are reset to factory default.
	Factory Default Except IP	All settings except the IP address are reset to factory default.
Reboot Timer	Shows the time between execution of the reboot command and actual reboot. The factory default setting is 0 seconds.	
Time Left	Shows the time left before the system actually reboots after execution of the reboot command. A key entry refreshes the screen display, allowing you to check the elapsed time.	

Available commands are listed below.

O	Set the reboot type to normal reboot or factory default.	
		Press "O." The command prompt changes to "Select one option (N/F/I)>." Press "N" to set the type to normal reboot. Press "F" to return it to factory default. Press "I" to save only the IP address setting and return the other settings to factory default.
R	Execute the reboot.	
		Press "R." The command prompt changes to "Are you sure to reboot the system (Y/N)>." Press "Y" to execute it. Press "N" to cancel it.
T	Set the time before the system reboots.	
		Press "T." The command prompt changes to "Enter Reboot Timer>." Enter a value between 0 and 86400 seconds (24 hours).
Q	Return to the previous menu.	

4.9.4. Exception Handler

On the Switch Tools Configuration Menu, pressing "x" opens the Exception Handler screen, as shown in Fig. 4-9-6. On this screen, you can configure the exception handling operations.

```
PN28240/PN28240A Local Management System
Switch Tools Configuration -> Exception Handler

Exception Handler:              Disabled
Exception Handler Mode:         Debug Message









-------------------------------- <COMMAND> ----------------------------------
Enable/Disable E[x]ception Handler
Set Exception Handler [M]ode
[Q]uit to previous menu



Command>
Enter the character in square brackets to select option
```

Fig. 4-9-6 Exception Handler

Screen Description

Exception Handler	Shows the status of exception handler. The factory default setting is "Disabled."	
	Enabled	Exception handler is enabled.
	Disabled	Exception handler is disabled.
Exception Handler Mode	Shows the method of exception handler.	
	Debug Message	When the Switching Hub detects exception handler, a debug message is displayed on the console screen.
	System Reboot	When the Switching Hub detects exception handler, the system automatically starts rebooting.

Available commands are listed below.

X	Enable/disable exception handler.	
		Press "X." The command prompt changes to "Enable or Disable Exception Handler (E/D)>." Press "E" to enable the function. Press "D" to disable it.
M	Set the method of exception handler.	
		Press "M." The command prompt changes to "Select Exception Handler Mode (M/R)>." Press "M" to display a debug message. Press "R" to reboot.
Q	Return to the previous menu.	

4.9.5. Ping Execution

On the Switch Tools Configuration Menu, pressing "P" opens the Ping Execution screen, as shown in Fig. 4-9-7. On this screen, you can execute the ping command from the Switching Hub to confirm communications with connected terminals and other devices.

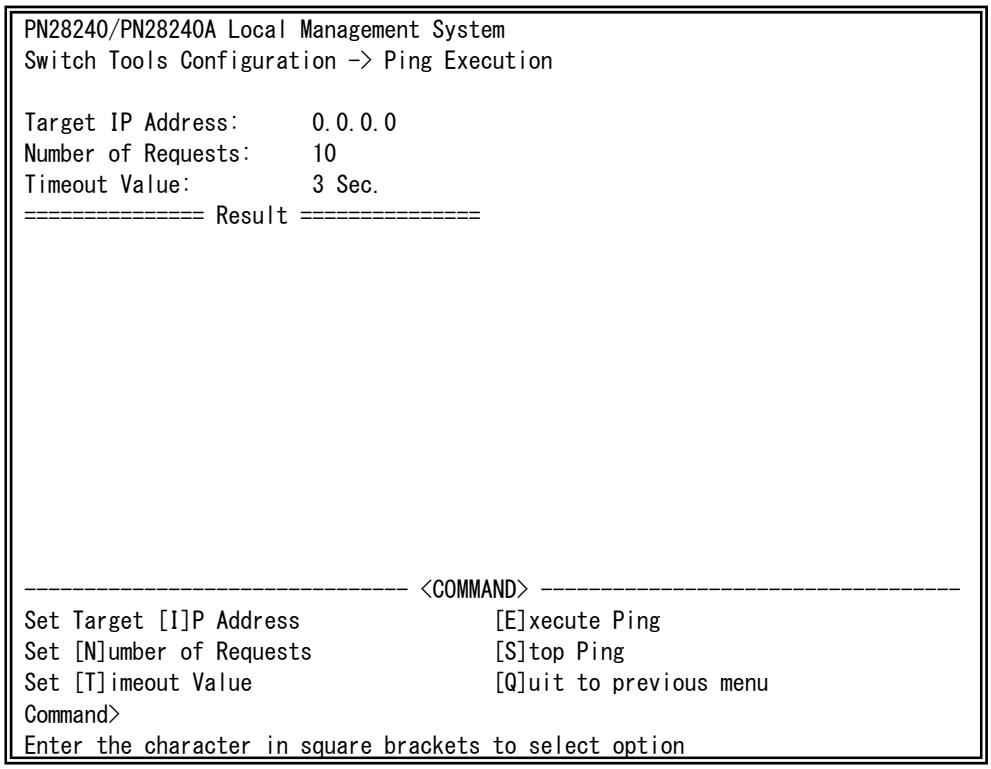


Fig. 4-9-7 Ping Execution

Screen Description

Target IP Address:	Shows the IP address of the target of the ping. The factory default setting is 0.0.0.0.
Number of Request	Shows the number of times of ping. The factory default setting is 10 times.
Timeout Value	Shows the time before timeout occurs. The factory default setting is 3 seconds.
Result	Shows the ping result.

Available commands are listed below.

I	Set the IP address of the target of the ping.	
		Press "I." The command prompt changes to "Enter new Target IP Address >." Enter the IP address.
N	Set the number of times of ping.	
		Press "N." The command prompt changes to "Enter new Request Times>." Enter the number of times. Ping can be executed up to 10 times. Enter the number of times between 1 and 10.
T	Set the time before timeout occurs.	
		Press "T." The command prompt changes to "Enter new Timeout Value>." Set the time in seconds. Up to 5 seconds can be set. Enter the time between 1 to 5 seconds.
E	Execute the ping command. Or, clear the display.	
		Press "E." The command prompt changes to "Execute Ping or Clean before Ping Data (E/C)>." Press "E" to execute ping. Press "C" to only clear the display.
S	Cancel the ping command.	
		Press "S" or "Ctrl+C" during the ping execution to cancel it.
Q	Return to the previous menu.	

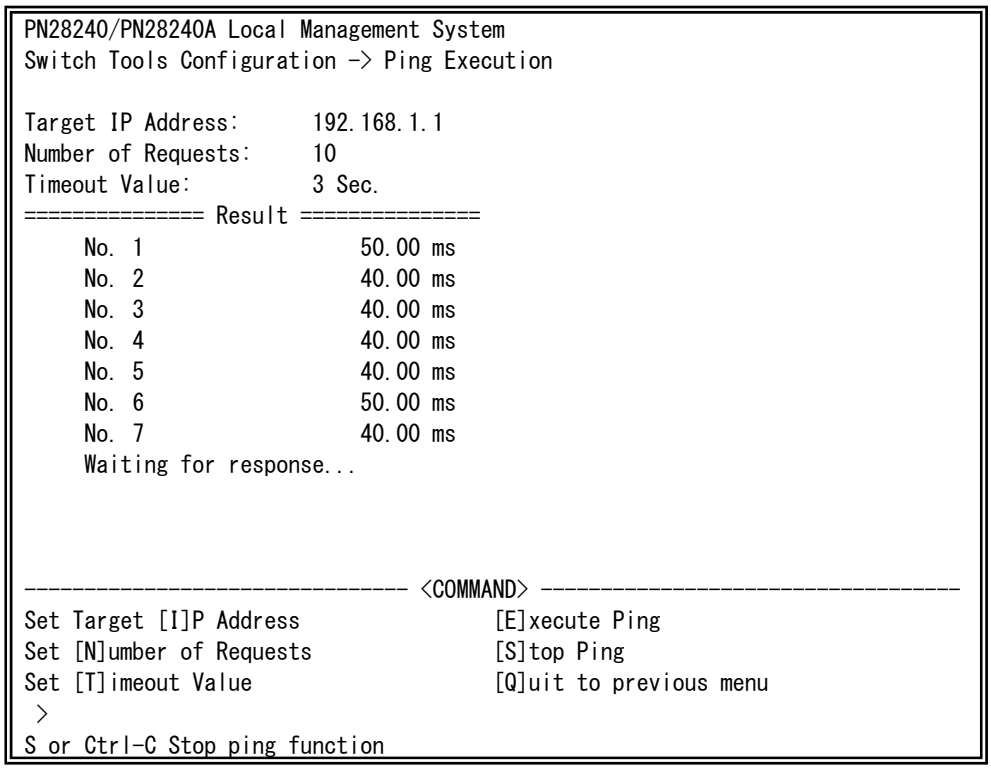


Fig. 4-9-8 Display during Ping Execution

4.9.6. System Log

On the Switch Tools Configuration Menu, pressing "L" opens the System Log Menu, as shown in Fig. 4-9-9. This screen shows logs of events occurred to the Switching Hub. This allows you to grasp the events occurred to the Switching Hub and utilize them for network management.

```
PN28240/PN28240A Local Management System
Switch Tools Configuration -> System Log Menu

Entry  Time(YYYY/MM/DD HH:MM:SS)                    Event
-----  ------------------------  ------------------------------------------

   1   1970/01/01  00:00:00      Login from console









-------------------------------- <COMMAND> ----------------------------------
[N]ext Page
[P]revious Page
[C]lear System Log
[Q]uit to previous menu


Command>
Enter the character in square brackets to select option
```

Fig. 4-9-9 System Log

Each event displayed on this screen links to an SNMP trap. An event for which a trap is set is displayed here. The relationships with traps are described below.

Screen Description

Entry	Shows the event number.
Time	Shows the time when the event occurred. If the time is not set, the accumulated running time since boot is shown.
Event	Shows the description of the event occurred to the Switching Hub.

Available commands are listed below.

N	Show the next page.
	Press "N." The screen shows the next page.
P	Show the previous page.
	Press "P." The screen shows the previous page.
C	Clear all logs.
	Press "C" to clear all logs.
Q	Return to the previous menu.

System logs are as follows.

ARL	
err	Memory allocation fail!
	Indicates that allocation of memory for MAC address table has failed.
CLI	
warn	Get reboot timer fail.
	Indicates that the operation of reboot timer has failed.
info	Reboot: Factory Default Except IP.
	Indicates that the Switching Hub was rebooted in the mode to return settings other than IP addresses to the factory default.
	Reboot: Factory Default.
	Indicates that the Switching Hub was rebooted in the mode to return all settings to the factory default.
	Reboot: Normal.
	Indicates that the Switching Hub was rebooted.
CONSOLE	
info	Login from console
	Indicates that the login operation was executed via console, and was successful.
LINE-PROTOCOL	
info	PortX auto recovery.
	Indicates that Port X has auto-recovered from shutoff after loop detection.
	The loop detected between portA and portB.
	Indicates that a loop was detected between Port A and Port B.
	The loop detected on portX.
	Indicates that a loop was detected on Port X.
PORT	
err	PortX hardware register set fail in port initialization!

	Indicates that port initialization has failed due to hardware error.
info	Port-X link-down
	Indicates that Port X was linked down.
	Port-X link-up
	Indicates that Port X was linked up.
SNMP	
info	Not authorized!(IP: IP ADDRESS)
	Indicates that an unauthorized IP address has accessed SNMP.
	System authentication failure.
	Indicates that SNMP authentication has failed.
SNTP	
err	sendto: No route to host
	Indicates that communication has failed due to no transmission route to configured SNTP server.
	recvfrom: Operation timed out
	Indicates that time-out occurred in time synchronization with SNTP server.
info	SNTP first update to 2010/05/31 18:15:11
	Indicates the initial time of synchronization with SNTP server after booting the Switching Hub.
	SNTP update to YYYY/MM/DD HH:MM:SS.
	Indicates the time synchronized with SNTP server.
SYSTEM	
emerg	System exception in thread:THREAD freeMem:FREE_MEM!
	System information indicating that exception handler is called in the Switching Hub. THREAD indicates the thread name, and FREE_MEM indicates the free memory capacity.
err	Cannot open running-config file running_config!
	Indicates that access to "running_config" file has failed.
	Cannot save to configuration file, file not found!
	Indicates that saving of configuration file has failed because the file was not found.
	TFTP module initialization failed!
	Indicates that TFTP execution has failed due to system error.
	Cannot execute Ping by system error!
	Indicates that Ping execution has failed due to system error.
warn	Duplication of IP address IP ADDRESS (MAC ADDRESS).
	Indicates that IP address of the Switching Hub is already used and conflicting.
	Write configuration to primary file failed
	Indicates that saving of the configuration has failed.
info	Configuration changed
	Indicates that the configuration was changed.
	Configuration file download

	Indicates that download of configuration file from TFTP server was successful.
	Configuration file upload
	Indicates that upload of configuration file to TFTP server was successful.
	Failure: Reload system default-config!
	Indicates that the system was booted with factory default setting due to failure in reading configuration.
	Firmware upgrade via CLI!
	Indicates that the firmware version was upgraded via CLI command interface.
	Reboot the system!
	Indicates that the Switching Hub was rebooted.
	System Cold Start.
	Indicates that the power of the Switching Hub was turned on.
	System MAC address found: MAC ADDRESS
	Indicates the MAC address of this Switching Hub.
	Write configuration to primary file success.
	Indicates that configuration was successfully saved.
TELNET	
info	Login failure(IP:IP ADDRESS).
	Indicates that the login operation was executed via Telnet, but failed.
	Login from telnet. (IP : IP ADDRESS)
	Indicates that the login operation was executed via Telnet, and was successful.
	Logout by user(IP: IP ADDRESS).
	Indicates that connection via Telnet was terminated by user.
	Logout due to time out(IP:IP ADDRESS).
	Indicates that connection via Telnet was terminated due to timeout.
VLAN	
err	Port add failed(vlan_id=A, port_id=B).
	Indicates that addition of PVID has failed. "A" indicates VLAN ID, and "B" indicates port number.
	Port delete failed(vlan_id=A, port_id=B).
	Indicates that deletion of PVID has failed. "A" indicates VLAN ID, and "B" indicates port number.
	PVID set failed(vlan_id=A, port_id=B).
	Indicates that configuration of PVID has failed. "A" indicates VLAN ID, and "B" indicates port number.
	VLAN entry allocate failed.
	Indicates that allocation of VLAN entry has failed.
	VLAN X create failed.
	Indicates that creation of VLAN ID "X" has failed.
	VLAN X destory failed.

Indicates that deletion of VLAN ID "X" has failed.
VLAN X: interface list add failed.
Indicates that addition of interface to VLAN ID "X" has failed.

4.9.7. Watch Dog Timer Menu

On the Switch Tools Configuration Menu, pressing "W" opens the Watch Dog Timer Menu, as shown in Fig. 4-9-10. On this screen, you can enable/disable the Watch Dog Timer function.

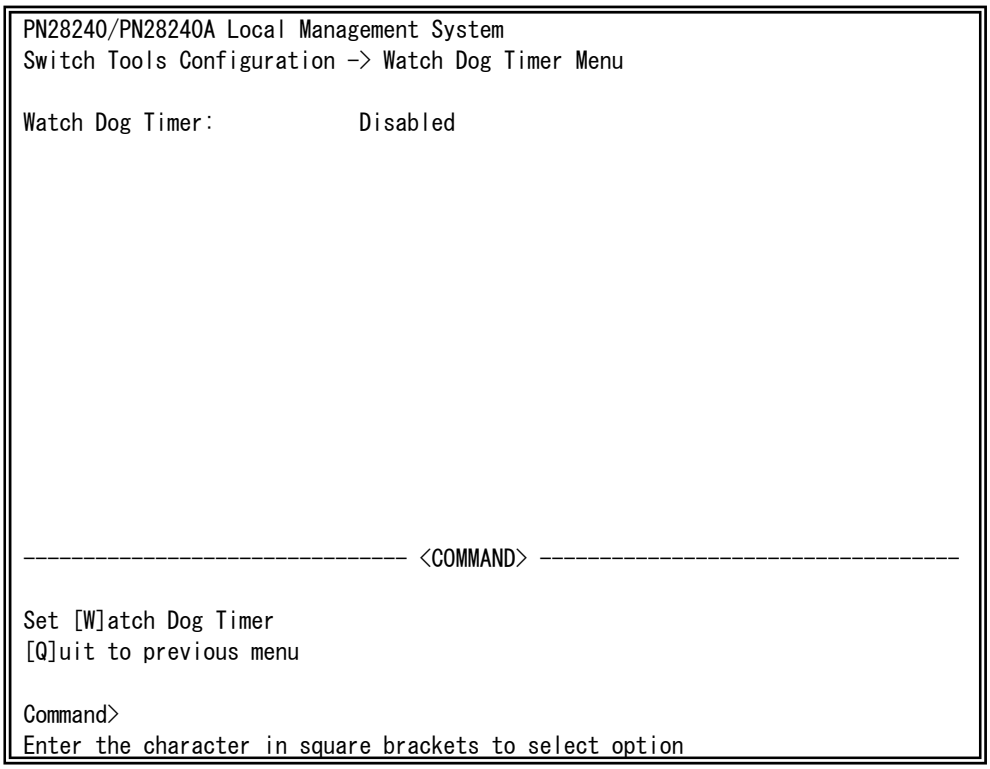


Fig. 4-9-10 Watch Dog Timer Menu

Screen Description

Watch Dog Timer	Shows the status of the Watch Dog Timer function. The factory default setting is "Disabled."	
	Enabled	The function is enabled.
	Disabled	The function is disabled.

Available commands are listed below.

W	Enable/disable the Watch Dog Timer function.	
		Press "W." The command prompt changes to "Enable or Disable Watch Dog Timer(E/D)>." Press "E" to enable the function. Press "D" to disable it.
Q	Return to the previous menu.	

4.10. Save Configuration to Flash

On the Main Menu, pressing "F" opens the Save Configuration to Flash screen, as shown in Fig. 4-10-1. Execute this command to save the Switching Hub configuration to the built-in memory. On this screen, the command prompt shows "Save current configuration?(Y/N)." Press "Y" to save the configuration. Press "N" to cancel it.
If you don't save the configuration on this screen, it will be deleted when the system is rebooted or turned off.

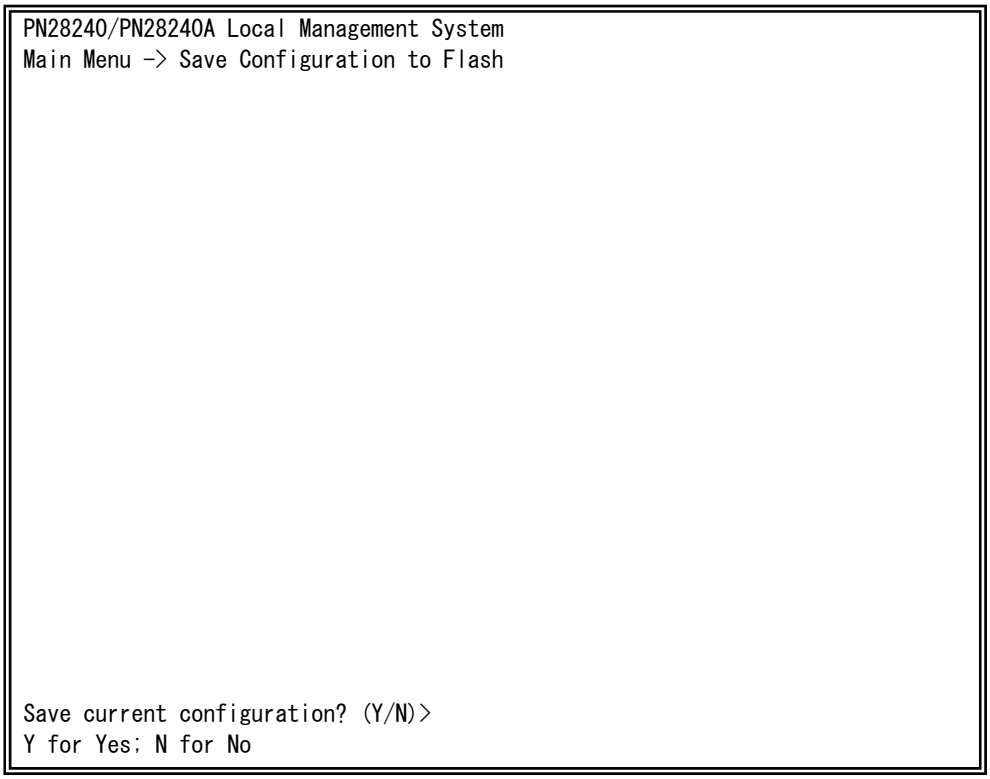


Fig. 4-10-1 Save Configuration to Flash screen: Confirmation to save

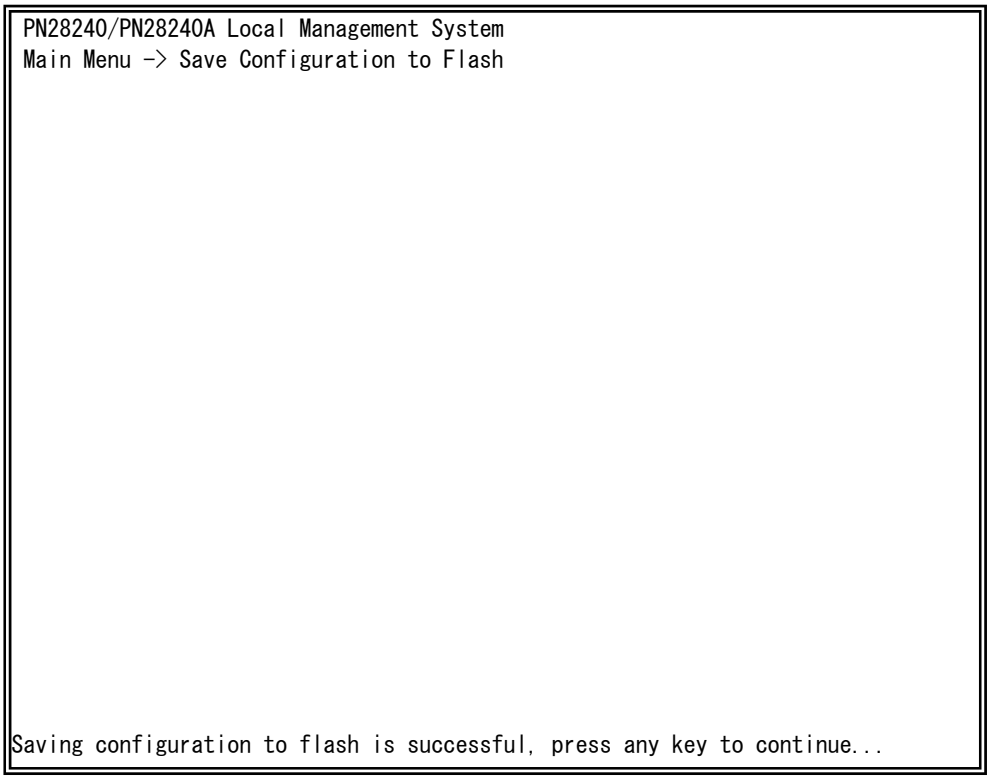


Fig. 4-10-2 Saving Configuration to Flash screen: Completion of save

4.11. Command Line Interface (CLI)

On the Main Menu, pressing "C" opens the screen shown in Fig. 4-11-1.
On this screen, you can use the command line for configuration instead of the menu screen. For configuration procedure, refer to the separate volume "Operation Manual (CLI)." Enter "logout" at the command prompt to return from CLI to menu screens.

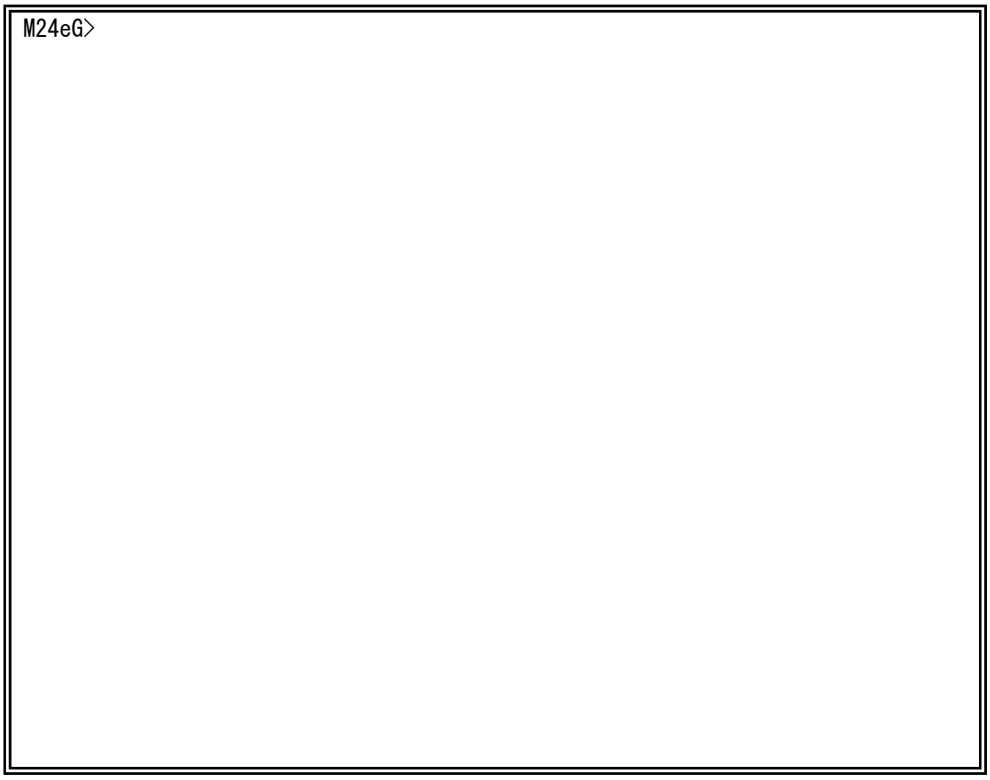


Fig. 4-11-1 Command Line Interface (CLI)

4.12. Logout

If you access from the console port, pressing "Q" on the Main Menu opens the login screen shown in Fig. 4-2-1. If you access using Telnet, pressing "Q" terminates the connection. To login again, follow the login procedures shown in the section 4.2.
You are automatically logged out after a specified timeout period.

Appendix A. Specifications

○ Interface

- Twisted-pair port 1 - 24 (RJ45 connector)
  - ✧ Standards: IEEE 802.3 10BASE-T
    IEEE 802.3u 100BASE-TX
    IEEE 802.3ab 1000BASE-T

- SFP extension slot 23 and 24 (*Select either of RF45 or SFP for use)
  - ✧ Standards: IEEE 802.3z
    1000BASE-SX/1000BASE-LX

- Console port x 1 (RJ45 connector)
  - ✧ RS-232C (ITU-TS V.24)

○ Switching functions

- Store and forward
- Forwarding rate: 10BASE-T: 14,880 pps
  100BASE-TX: 148,800 pps
  1000BASE-T/SFP: 1,488,000 pps
- MAC address table: 8K entries/unit
- Buffer memory: 512 KBytes
- Flow control: IEEE 802.3x (full duplex)
  Back pressure (half duplex)

○ Major functions

- IEEE 802.1Q: Tag VLAN (256 VLANS max.)
- IEEE 802.1p: QoS function(4 priority queues supported)
- IEEE 802.3x: Flow control
- Link aggregation: Configurable up to 8 ports and 8 groups
- Port monitoring: 1: n supported

○ Agent specifications

- SNMP v1/v2c (RFC1157)
- TELNET (RFC854)
- TFTP (RFC783)
- SNTP v3 (RFC1769)
- SSH v2 (RFC4250, RFC4251, RFC4252, RFC4253, RFC4254)

○ Supported MIB

- MIB II (RFC1213)
- Bridge-MIB (RFC1493)

○ Power supply specifications

- Power supply	AC 100-240 V, 50/60 Hz, 0.8 A
- Power consumption	Normally, max. 25 W, min. 8 W

○ Environment specifications

- Operating temperature	0 – 50°C
- Operating humidity	20 – 80% RH (no condensation)
- Storage temperature	-20 – 70°C
- Storage humidity	10 – 90% RH (no condensation)

○ External specifications

- Dimensions	44 mm (Height) × 330 mm (Width) × 230 mm (Depth) (Excluding the protruding sections)
- Mass (Weight)	2,400 g

Appendix B. Procedures for Console Port Connection using Windows HyperTerminal

Connect a Windows-based PC to this Switching Hub with a console cable and follow the procedures shown below to activate HyperTerminal.

(If your PC is using Windows Vista or later, you need to install a terminal emulator first.)

(1) On Windows, click Start on Task Bar ➔ All Programs ➔ Accessories ➔ Communications ➔ HyperTerminal.

(2) The Connection Description window opens. Enter a name (e.g. Switch), choose an icon, and click OK.

(3) The Connect To window opens. Click on the pull-down menu of the Connect Using field, choose COM1, and click OK.
Note that the above setting applies to cases where the console cable is connected to COM1.

(4) At the COM1 Properties window, click on the pull-down menu of the Bits per second field, and choose 9600.

(5) Click on the pull-down menu of the Flow control field, choose None, and click OK.

(6) Click File in the main menu of HyperTerminal and choose Properties.

(7) The <name> Properties window appears (<name>: the name you entered in step 2 is indicated). Click the Settings tab and click on the pull-down menu of the Emulation field. In the list, choose VT100 and click OK.

(8) Configure this Switching Hub in accordance with chapter 4 of the Operation Manual.

(9) After completing the configuration, click File in the main menu of HyperTerminal and Exit. Click Yes when asked if you want to disconnect the terminal. Then click Yes when asked if you want to save the session for HyperTerminal configuration.

(10) A file named "<name>.ht" (<name>: the name you entered in step 2 is indicated) is created in the HyperTerminal window.

From the next session, you can activate HyperTerminal by double-clicking "<name>.ht" and configure this Switching Hub by following step 8.

Appendix C. Easy IP Address Setup Function

The following are points to note when using an easy IP address setup function.

[Known compatible software]

Panasonic Corporation; "Easy IP Address Setup Software" V3.01/V4.00/V4.24R00
Panasonic System Networks Co., Ltd.; "Easy Config" Ver3.10R00
Panasonic Eco Solutions Networks Co., Ltd.; "Support Tool" Ver.1.2.0.0

[User-settable items]

- IP address, subnet mask and default gateway
- System name
  * Settable with only the software of Panasonic System Networks Co., Ltd.
    The software shows "Camera name."

[Restrictions]

- The time for accepting setting changes is limited to 20 minutes after power-on to ensure security.
  However, you can change settings regardless of the time limit if the IP address, subnet mask, default gateway, user name and password values are the factory defaults.
  * You can check the current settings because the list is displayed even after the time limit elapses.
- The following function of the software of Panasonic System Networks Co., Ltd. cannot be used.
  - Auto setup function

* Please contact each manufacturer for information about network cameras.

Appendix D. Example of Network Configuration using Loop Detection Function and Its Precautions

Example of configuration using loop detection function

By using the loop detection function, you can prevent a loop failure that is likely to be caused in a downstream Switching Hub that the user directly uses.

In addition, if a downstream Switching Hub is connected with a device, such as a hub without loop detection function, and a loop failure occurs under the device, the downstream Switching Hub shuts down the corresponding port to prevent the failure from extending to the entire network.

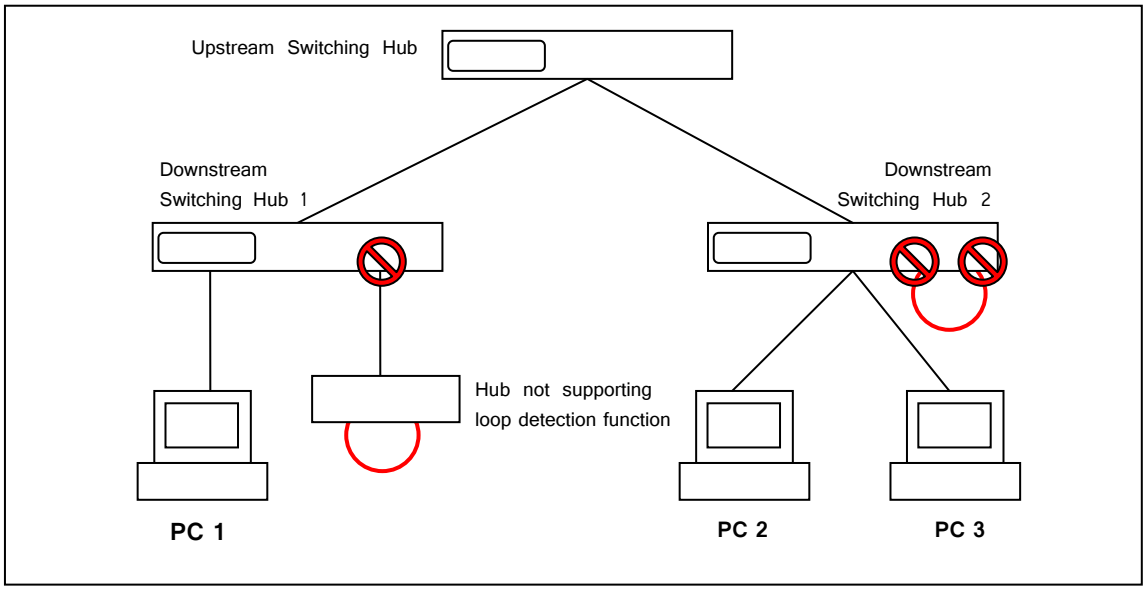


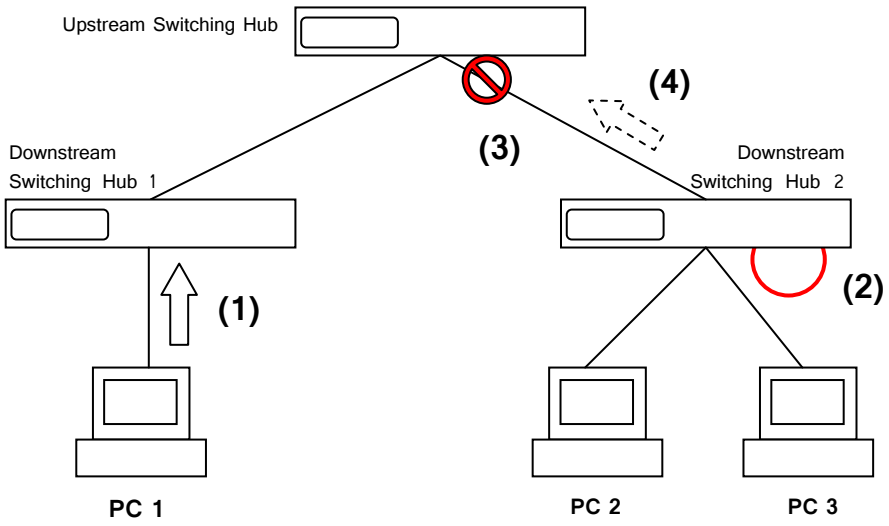
Fig. 1 Example of configuration using loop detection function

Precautions in using loop detection function

– Disable loop detection at upstream port(s)

If a network is consisted of only Switching Hub equipped with loop detection function, an upstream Switching Hub may detect on ahead and block a loop occurred in a downstream Switching Hub. This may block all communications to the downstream Switching Hub.

To minimize the communication failure by loop detection, disable the loop detection function of the upstream Switching Hub so that only a port of the Switching Hub causing loop will be blocked. You need to examine this type of network configuration and Switching Hub settings.



[Conditions of occurrence]

(1) Communications between PC1 and PC2, and between PC1 and PC3 are OK.

(2) A loop occurs in downstream Switching Hub 2.

(3) The upstream Switching Hub detects the loop first, and shuts down the uplink port to downstream Switching Hub 2. (Normally, only a port having loop connection is shut down.)

(4) The uplink port to downstream Switching Hub 2 is linked down, and communications to all other Switching Hubs are blocked.

Fig. 2 Precautions in using loop detection function

Appendix E. MIB List

The MIB list of this Switching Hub is as follows.

<port_num> is a port number.
<ip_address> is an IP address.

1.1. system group			
MIB object	**Access**	**Identifier**	**Remarks**
sysDescr	RO	sysDescr.0	
sysObjectID	RO	sysObjectID.0	
sysUpTime	RO	sysUpTimeInstance.0	
sysContact	R/W	sysContact.0	
sysName	R/W	sysName.0	
sysLocation	R/W	sysLocation.0	
sysServices	RO	sysServices.0	
sysORLastChange	RO	sysORLastChange.0	
sysORID	RO	sysORID.1	
sysORDescr	RO	sysORDescr.1	
sysORUpTime	RO	sysORUpTime.1	
1.2. interfaces group			
MIB object	**Access**	**Identifier**	
ifNumber	RO	ifNumber.0	
ifIndex	RO	ifIndex.<port_num>	
ifDescr	RO	ifDescr.<port_num>	
ifType	RO	ifType.<port_num>	
ifMtu	RO	ifMtu.<port_num>	Shows the size without a header (1500 bytes).
ifSpeed	RO	ifSpeed.<port_num>	Shows the maximum port speed (1 Gbps).
ifPhysAddress	RO	ifPhysAddress.<port_num>	
ifAdminStatus	R/W	ifAdminStatus.<port_num>	Supports up and down.
ifOperStatus	RO	ifOperStatus.<port_num>	
ifOLastChange	RO	ifOLastChange.<port_num>	
ifInOctets	RO	ifInOctets.<port_num>	
ifInUcastPkts	RO	ifInUcastPkts.<port_num>	
ifInNUcastPkts	RO	ifInNUcastPkts.<port_num>	
ifInDiscards	RO	ifInDiscards.<port_num>	
ifInErrors	RO	ifInErrors.<port_num>	
ifInUnknownProtos	RO	ifInUnknownProtos.<port_num>	
ifOutOctets	RO	ifOutOctets.<port_num>	
ifOutUcastPkts	RO	ifOutUcastPkts.<port_num>	
ifOutNUcastPkts	RO	ifOutNUcastPkts.<port_num>	
ifOutDiscards	RO	ifOutDiscards.<port_num>	
ifOutErrors	RO	ifOutErrors.<port_num>	

	ifOutQLen	RO	ifOutQLen.<port_num>	
	ifSpecific	RO	ifSpecific.<port_num>	
1.3. IP group				
	MIB object	**Access**	**Identifier**	
	ipForwarding	R/W	ipForwarding.0	
	ipDefaultTTL	R/W	ipDefaultTTL.0	
	ipInReceives	RO	ipInReceives.0	
	ipInHdrErrors	RO	ipInHdrErrors.0	
	ipInAddrErrors	RO	ipInAddrErrors.0	
	ipInUnknownProtos	RO	ipInUnknownProtos.0	
	ipInDiscards	RO	ipInDiscards.0	
	ipInDelivers	RO	ipInDelivers.0	
	ipOutRequests	RO	ipOutRequests.0	
	ipOutDiscards	RO	ipOutDiscards.0	
	ipOutNoRoutes	Ro	ipOutNoRoutes.0	
	ipReasmTomeout	RO	ipReasmTomeout .0	
	ipReasmReqds	RO	ipReasmReqds.0	
	ipReasmOKs	RO	ipReasmOKs.0	
	ipReasmFails	RO	ipReasmFails.0	
	ipFragOKs	RO	ipFragOKs.0	
	ipFragFails	RO	ipFragFails.0	
	ipFragCreates	RO	ipFragCreates.0	
	ipRoutingDiscards	RO	ipRoutingDiscards	
	ipAdEntAddr	RO	ipAdEntAddr.<ip_address>	
	ipAdEntIfIndex	RO	ipAdEntIfIndex.<ip_address>	
	ipAdEntNetMask	RO	ipAdEntNetMask.<ip_address>	
	ipAdEntBcastAddr	RO	ipAdEntBcastAddr.<ip_address>	
	ipAdEntReasmMaxSize	RO	ipAdEntReasmMaxSize.<ip_address>	
	ipNetToMediaIfIndex	RO	ipNetToMediaIfIndex.<ip_address>	
	ipNetToMediaPhysAddress	RO	ipNetToMediaPhysAddress.<ip_address>	
	ipNetToMediaNetAddress	RO	ipNetToMediaNetAddress.<ip_address>	
	ipNetToMediaType	RO	ipNetToMediaType.<ip_address>	
1.4. TCP group				
	MIB object	**Access**	**Identifier**	
	tcpRtoAlgorithm	RO	tcpRtoAlgorithm.0	
	tcpRtoMin	RO	tcpRtoMin.0	
	tcpRtoMax	RO	tcpRtoMax.0	
	tcpMaxConn	RO	tcpMaxConn.0	
	tcpPassiveOpens	RO	tcpPassiveOpens.0	
	tcpAttemptFails	RO	tcpAttemptFails.0	
	tcpEstabResets	RO	tcpEstabResets.0	
	tcpCurrEstab	RO	tcpCurrEstab.0	
	tcpInSegs	RO	tcpInSegs.0	
	tcpOutSegs	RO	tcpOutSegs.0	
	tcpRetransSegs	RO	tcpRetransSegs.0	
	tcpInErrs	RO	tcpInErrs.0	

	tcpOutRsts	RO	tcpOutRsts.0	
	tcpConnState	RO		
	tcpConnLocalAddress	RO		
	tcpConnLocalPort	RO		
	tcpConnRemAddress	RO		
	tcpConnRemPort	RO		
1.5. UDP group				
	MIB object	**Access**	**Identifier**	
	udpInDatagrams	RO	udpInDatagrams.0	
	udpNoPorts	RO	udpNoPorts.0	
	udpInErrors	RO	udpInErrors.0	
	udpOutDatagrams	RO	udpOutDatagrams.0	
	udpLocalAddress	RO		
	udpLocalPort	RO		
1.6. SNMP group				
	MIB object	**Access**	**Identifier**	
	snmpInPkts	RO	snmpInPkts.0	
	snmpOutPkts	RO	snmpOutPkts.0	
	snmpInBadVersions	RO	snmpInBadVersions.0	
	snmpInASNParseErrs	RO	snmpInASNParseErrs.0	
	snmpInTotalReqVars	RO	snmpInTotalReqVars.0	
	snmpInTotalSetVars	RO	snmpInTotalSetVars.0	
	snmpInGetRequests	RO	snmpInGetRequests.0	
	snmpInGetNexts	RO	snmpInGetNexts.0	
	snmpInSetRequests	RO	snmpInSetRequests.0	
	snmpInGetResponses	RO	snmpInGetResponses.0	
	snmpInTraps	RO	snmpInTraps.0	
	snmpOutGetResponses	RO	snmpOutGetResponses.0	
	snmpOutTraps	RO	snmpOutTraps.0	
1.7. dot1dBase group				
	MIB object	**Access**	**Identifier**	
	dot1dBaseBridgeAddress	RO	dot1dBaseBridgeAddress.0	
	dot1dBaseNumPorts	RO	dot1dBaseNumPorts.0	
	dot1dBaseType	RO	dot1dBaseType.0	
	dot1dBasePort	RO	dot1dBasePort.<port_num>	
	dot1dBasePortIfIndex	RO	dot1dBasePortIfIndex.<port_num>	
	dot1dBasePortCircuit	RO	dot1dBasePortCircuit.<port_num>	
	dot1dBasePortDelayExceededDiscards	RO	dot1dBasePortDelayExceededDiscards.<port_num>	
	dot1dBasePortMtuExceededDiscards	RO	dot1dBasePortMtuExceededDiscards.<port_num>	
1.8. dot1dTp group				
	MIB object	**Access**	**Identifier**	
	dot1dTpLearnedEntryDiscards	RO	dot1dTpLearnedEntryDiscards.0	
	dot1dTpAgingTime	R/W	dot1dTpAgingTime.0	
	dot1dTpFdbAddress	RO		
	dot1dTpFdbPort	RO		

	dot1dTpFdbStatus	RO		
	dot1dTpPort	RO	dot1dTpPort.<port_num>	
	dot1dTpPortMaxInfo	RO	dot1dTpPortMaxInfo.<port_num>	
	dot1dTpPortInFrames	RO	dot1dTpPortInFrames.<port_num>	
	dot1dTpPortOutFrames	RO	dot1dTpPortOutFrames.<port_num>	
	dot1dTpPortInDiscards	RO	dot1dTpPortInDiscards.<port_num>	
2.1. Supporting trap				
	Trap description	**Access**	**Identifier**	
	Linku Up/Down			
	Login Failure			
	Authentication Failure			
	mnoLoopDetection			ObjectID: 1.3.6.1.4.1.396.5.5.2.1
	mnoLoopRecovery			ObjectID: 1.3.6.1.4.1.396.5.5.2.2

Troubleshooting

If you find any problem, please take the following steps to check.

1. LED indicators

* The POWER LED is not lit.
  - Is the power cord connected?
    → Please confirm that the power cord is securely connected to the power port.
* The port LED (left) is not lit in Status mode.
  - Is the Switching Hub set to Status mode?
    If the Switching Hub is set to the ECO mode, all LEDs are turned off regardless of terminal connection state.
  - Is the cable correctly connected to the target port?
  - Is the cable appropriate to use?
  - Is each terminal connected to the relevant port conforming with 10BASE-T, 100BASE-TX, or 1000BASE-T standard?
  - Auto-negotiation may have failed.
    → Set the port of this Switching Hub or the terminal to half-duplex mode.
* The port LED (right) lights in orange.
  - A loop has occurred. By removing the loop, orange LED will be turned off.
* LOOP HISTORY LED blinks in orange.
  - This is to notify that there is a port in which a loop is occurring, or has been removed within 3 days.

2. Communications are slow.

* Communications with all ports are impossible or slow.
  - Are the communication speed and mode settings correct?
    → If the communication mode signal cannot be properly obtained, apply half-duplex mode. Switch the communication mode of the connection target to half-duplex mode. Do not fix the communication mode of the connected terminal to full-duplex mode.
  - Is the link up?
    → If the power saving mode is set to "Full," change it to "Half" or "Disabled."
  - Is not the utilization ratio of the network to which this Switching Hub is connected too high?
    → Try separating this Switching Hub from the network.
  - Doesn't the port LED (right) light in orange?
    → When the port LED (right) lights in orange, the port has been shut down by loop detection function. After removing the loop under this port, wait for the auto-recovery time set in loop detection function, or unblock the port on the configuration screen.

After-sales Service

1. Warranty card

A warranty card is included in the operating instructions (paper) provided with this Switching Hub. Be sure to confirm that the date of purchase, shop (company) name, etc., have been entered in the warranty card and then receive it from the shop. Keep it in a safe place. The warranty period is one year from the date of purchase.

2. Repair request

If a problem is not solved even after taking the steps shown in the "Troubleshooting" section in this manual, please use the Memo shown on the next page and make a repair request with the following information to the shop where you purchased this Switching Hub.

- **Product name** - **Model No.**
- **Product serial No.** (11 alphanumeric characters labeled on the product)
- **Firmware version** (The number after "Ver." labeled on the unit package)
- **Problem status (Please give as concrete information as possible.)**

* Within the warranty period:
  Repair service will be provided in accordance with the conditions stipulated in the warranty card.
  Please bring your product and warranty card in the shop where you purchased it.
* After the warranty period expires:
  If our check determines that your product is repairable, a chargeable repair service is available upon your request.
  Please contact the shop where you purchased the product.

3. Inquiries about after-sales service and the product

Contact the shop where you purchased this product.

Memo (Fill in for future reference.)

Date of purchase		Product name	Switch-M24eG
		Model No.	PN28240A
Firmware version (*)	Boot Code		
	Runtime Code		
Serial No.			
	(11 alphanumeric characters labeled on the product)		
Shop/Sales company	Tel:		
Customer service contact	Tel:		

(* You can check the version on the screen described in section 4.5 of this document.)

Panasonic Eco Solutions Networks Co., Ltd.

2-12-7, Higashi-Shimbashi, Minato-ku, Tokyo Japan, 105-0021

URL: http://panasonic.co.jp/es/pesnw/english/

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