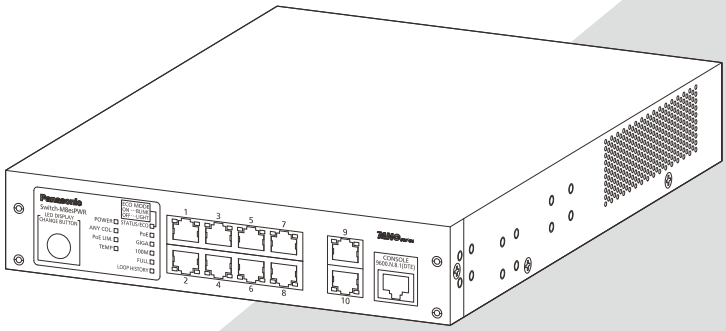
Panasonic

Operation Manual
For Menu Screens

Switch-M8esPWR

Model Number: PN27089NA

- 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 Instructions" on pages 2 to 4.
- 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 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 the 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), 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 sunlight 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 connect any cable other than our optional 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.

⚠WARNING

- **Use the bundled power cord (AC 100 – 240V specifications).**
  Deviation could lead to electric shock, malfunction, and/or equipment failure.
  The warranty does not cover any problems resulting from the use of any power cord other than the one supplied.
- **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), TEMP LED (temperature sensor) 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 dwon because of weight of the main body and connection cable.**
  Deviation could lead to injury and/or equipment failure.
- **Up to two Switching Hubs can be connected by using the connection brackets and connection bracket screws included with the optional PN71052 19-inch rack mount brackets (for two units). Attach the connection brackets to the connection bracket screw holes on the front and back panels to securely fix the Switching Hubs before installation.**
  If the Switching Hubs are not fixed securely, they may fall, leading 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, console port, or power cord hook block.**

Important Requests on Protection from Lightning Strike

- If you connect a network camera, a wireless access point, or other devices that can be affected by a lightning strike (in particular, devices installed outdoors) to the twisted pair port of this Switching Hub, a lightning surge current/voltage may be conducted to this Switching Hub through the twisted pair cable, leading to malfunction. If you connect such a device, it is strongly recommended that you install a surge protective device (SPD) on the twisted pair port side of this Switching Hub.
- A lightning surge current/voltage may be conducted to this Switching Hub through the power supply or ground wire connected to the power port, leading to malfunction. If a lightning surge current/voltage may flow in through the power supply or ground wire, it is recommended that you install a surge protective device (SPD) on the power port side of this Switching Hub.

Basic Instructions for the Use of This Product

- For inspection and/or repair, consult the retailer.
- 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.
- If you install this Switching Hub at a high place, securely fix it on the wall with screws. If you install this Switching Hub at a high place with magnets alone, it may fall, leading to injury or failure of this Switching Hub.
- 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. 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 places where the ambient temperature is in the range from 0 to 40 degrees 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 using two Switching Hubs, do not stack them. When you place them side by side, allow for a space of 20 mm or more between them. This space is not necessary if you use PN71052 connection brackets.
- 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 device.
2. The contents described in this document may be changed without prior notice.
3. For any question, please contact the retailer where you purchased the product.

Table of Contents

1. Product Outline

Switch-M8esPWR is a Layer-2 Ethernet Switching Hub with management function having 8 ports of 10BASE-T/100BASE-TX supporting IEEE802.3af PoE power supply function, and 2 ports of 10BASE-T/100BASE-TX/1000BASE-T. All are twisted pair ports corresponding to auto negotiation.

1.1. Features

- This Switching Hub can supply power conforming with IEEE802.3af. Supplying power up to 15.4 W per port, and up to 124 W in total is possible.
- Ports 1 to 8 are set at MDI-X (default) to prevent a loop failure.
- The loop detection function can prevent a loop failure by automatically blocking a port when a loop occurs.
- The Loop History function allows to identify the port by referring to the loop event notification on the LED and the occurrence history on the configuration screen.
- The ECO mode LED function can save more power consumption by turning off the LEDs on the Switching Hub.
- All twisted pair ports support the 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. Ports 1 to 8 are set at MDI-X. (default))
- Ports 1 to 8 are 10/100BASE-TX ports corresponding to auto negotiation. Ports 9 and 10 can be used as a 10/100/1000BASE-T port corresponding to auto negotiation. The speed and communication mode can be set at fixed.
- The MNO series power saving mode detects the connection status automatically and saves power consumption to minimum.
- Telnet/SSH functions allow remote configuration changes and verifications of the Switching Hub.
- Remotely configure the PoE settings for each port (Ports 1 to 8).
- The Ping command can be used to verify communications.
- The standard MIB (MIB II) is supported, allowing to manage the Switching Hub from the SNMP manager. (For details, refer to Appendix A.)
- Spanning Tree Protocol is supported, allowing to build a redundant system.

- Ring Protocol is supported, allowing to build a redundant system in ring configuration.
- VLAN function allows free grouping of up to 256 VLANs.
- The IEEE802.3ad Link Aggregation is supported, allowing to aggregate up to 8 ports.
- The IEEE802.1p QoS function is supported.
- The IEEE802.1X user authentication function (EAP-MD5/TLS/PEAP) is supported.
- The IGMP Snooping function is supported, allowing to prevent multicast packets from monopolizing bandwidth.
- The Reboot timer function is supported, allowing to automatically reboot the switch after the specified time (within 24 hours).
- The Internet Mansion function is supported, allowing to ensure the security of each room.

1.2. Accessories

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

	Quantity
• Installation Guide	1
• CD-ROM (PDF version of Operating Instuctions)	1
• Rubber foot (magnet built-in)	4
• Screws (for fixing rubber foot)	4
• Power cord (CEE7/7)(*)	1

* The attached power cord is dedicated for AC 100 - 240 V use.

1.3. Optional Accessories

- PN71051
  19-inch rack mount brackets (for 1 unit): 2 pcs/set
- PN71052
  19-inch rack mount brackets (for 2 units): 2 pcs + 2 connection brackets/set
- PN71053
  Wall mount brackets: 2 pcs/set
- PN72001
  RJ45 D-sub 9 pin console cable

1.4. Part Names and Functions

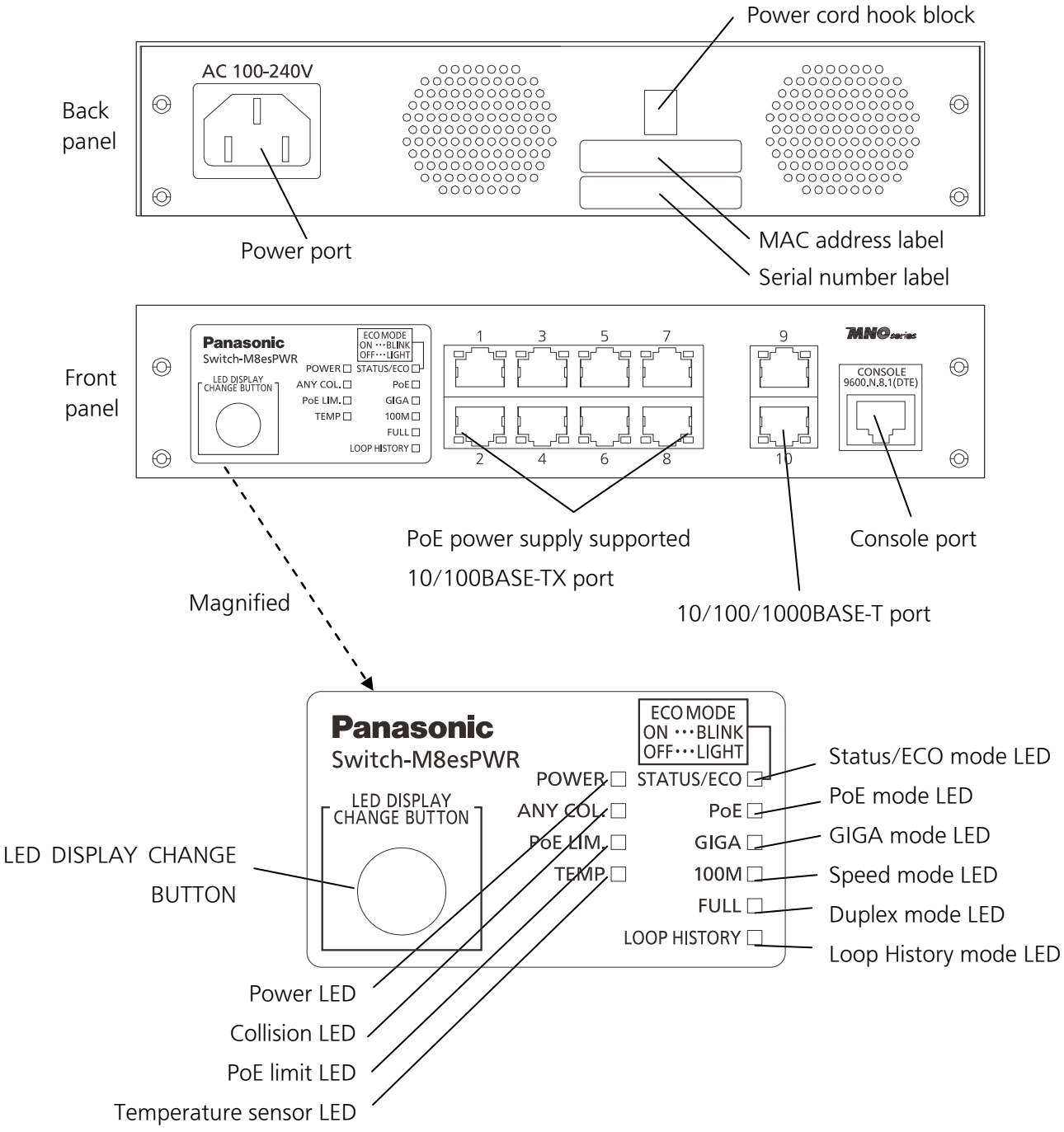


Fig. 1-4 Part names

- Power port
  Connect the supplied power cord into the port and connect the other end into an electric outlet.

- Power cord hook block
  Hooking the supplied power cord on the block makes the cord less likely to be unplugged from the power port.

- MAC address label
  Displays the MAC address of this Switching Hub.

- Serial number label
  Displays the serial number of this Switching Hub.

- PoE power supply supported 10/100BASE-TX port (Ports 1 to 8)
  Supports IEEE802.3af PoE power supply. Connection with 10/100BASE-TX terminal, hub, repeater, bridge, and switching hub is possible.
  The length of the twisted pair cable connecting this Switching Hub and a device must be 100 m or shorter.

- 10/100BASE-TX port LEDs (Ports 9 to 10)
  The length of the twisted pair cable connecting this Switching Hub and a device must be 100 m or shorter.

- Console port
  Used to connect a VT100 compatible terminal to configure and manage this Switching Hub.

Transmission mode:	RS-232C	Emulation mode:	VT100
Transmission speed:	9600 bps	Data length:	8 bits
Stop bit:	1 bit	Parity control:	None
Flow control:	None	Communication connector:	RJ45

  Use our optional RJ45 D-sub 9 pin console cable (PN72001) for connection.

● LED display change button

Used to change the LED display mode settings. For detailed display information and behavior on each LED display mode, refer to 1.5.

The button operation also allows to configure the LED base mode and loop detection function (Enable/Disable).

Operation	Description
Press-and-hold for more than 3 seconds	Changes the LED base mode settings. When the LED display button is pressed and held for more than 3 seconds, all of the STATUS/ECO, PoE, GIGA, 100M and FULL LEDs are lit. Release the button to enter the mode after switching. For detailed behavior on each LED base mode, refer to 1.6.1. The factory default setting of the LED base mode is Status mode.
Press-and-hold for more than 10 seconds	Changes the loop detection status (Enable/Disable). If the LED display change button is pressed and held for more than 10 seconds, the LOOP HISTORY LED are lit. Release the button to complete the settings. For detailed behavior on the loop detection function settings, refer to 1.5.3. The factory default setting of the loop detection function is enable.

1.5. LED Behavior

1.5.1. LED Behavior at Starting-up

When power is supplied, all the LEDs are turned ON.
Then, POWER LED (Power) lights in green, STATUS LED (Status/ECO mode) light in orange, and self-diagnosis of hardware is executed.
On completion of self-diagnosis, POWER LED (Power), STATUS/ECO LED (Status/ECO mode), TEMP LED (Temperature sensor), and FAN LED (Fan sensor) light in green, and the Switching Hub starts operation as a Switching Hub.

1.5.2. 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 LEDs

LED	Behavior	Description
Power LED (POWER)	Green Light	Power is ON
	Off	Power is OFF
Collision LED (ANY COL.)	Orange Light	Packet collisions in either of ports operating in half-duplex.
	Off	No packet collisions
PoE limit LED (PoE LIM.)	Off	Supplying power in the range from 0 to 53 W.
	Green Light	Supplying power in the range from 53 to 60 W.
	Orange Blink	A single port's power supply is exceeding the upper limit, or the total power supply of the Switching Hub is exceeding 60W.
Temperature LED (TEMP)	Green Light	Within the threshold setting of the internal temperature sensor.
	Orange Blink	Exceeding the threshold setting of the internal temperature sensor. (For details, refer to 4.6.3.c.)
Status/ECO mode LED (STATUS/ECO)	Green Light	Operating in the Status mode.
	Green Blink	Operating in the ECO mode. All port LEDs (Left) are turned off.
	Orange Light	Booting.
	Orange Blink	Malfunction. (Contact the seller.)
	Off	Power off
Power supply mode LED (PoE)	Green Light	Operating in the Power supply mode.
GIGA mode LED (GIGA)	Green Light	Operating in the GIGA mode.

LED	Behavior	Description
Speed mode LED (100M)	Green Light	Operating in the Speed mode.
Duplex mode LED (FULL)	Green Light	Operating in the Duplex mode.
Loop History mode LED (LOOP HISTORY)	Green Light	Operating in the Loop History mode.
	Green Blink	Loop is occurring, or occurred within the last 3 days.

● Port LED display mode

In the Status mode described later, the port LED indicates link-up and communication status. Pressing "LED DISPLAY CHANGE BUTTON" on the front panel allows to change the port LED display mode as follows:

Port LED display mode	Description
STATUS/ECO	Displays link-up and communication status.
PoE	Displays power supply status to the connected devices.
GIGA	Displays link-up status in 1000 Mbps.
100M	Displays link-up status in 100 Mbps.
FULL	Displays link-up status in full-duplex and half-duplex.
LOOP HISTORY	Displays the loop detection history and port blocking status.

● Port LEDs

According to the switch of the "Port LED display mode" described in the previous section, the port LED display on each port changes as follows:

Port LEDs	Display mode	Behavior	Description
Left	STATUS/ECO	Green Light	Link is established.
		Green Blink	Transmitting and receiving data.
		Off	No device connected, or set to ECO mode.
	PoE	Green Light	Supplying power normally. (ports 1 to 8 only)
		Orange Blink	Overload caused by a single port or the total power supply of the SwitchingHub (ports 1 to 8 only).
		Off	Not supplying power or no PoE-powered device connected. (* Ports 9 and 10 are always off.)
	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 100Mbps, 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	Loop has been detected within the last 3 days.
		Off	No loop detection history.
Right	-	Orange Light	Shutting down by loop detection.
		Off	Not shutting down by loop detection.

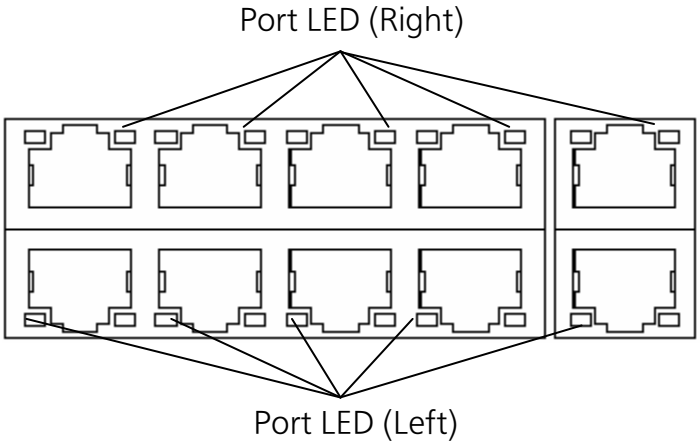


Fig. 1-5 Port LEDs

1.5.3. Loop Detection Function

When a port causes a loop, the corresponding LED lights up in orange. In this case, the port is automatically blocked (Default setting: 60 seconds) to prevent a loop. If the loop is not recovered, the port will be blocked again. Recover the loop while the port is blocked.

You can change the loop detection function settings (Enable/Disable) by pressing and holding the LED display change button for more than 10 seconds or configuring on the configuration screen. For details about settings on the configuration screen, refer to 4.7.11. When successfully changed, the Loop History mode LED is lit.

If you want to turn off the Loop History LED display, turn the Switching Hub off and on. Up to 64 saved loop history entries can be retained in the Switching Hub.

1.5.4. Operation Overview of PoE Power Supply Function

Ports 1 to 8 can support IEEE802.3af PoE power supply. The Switching Hub can supply power up to 15.4 W per port, and up to 124 W in total.

- Power supply operation when the PoE limit LED is blinking orange (the whole unit is overloaded)
  When the whole unit is overloaded because power request exceeds the limit, you can verify a port that stopped supplying power by switching the LED display to the Power supply mode (PoE). To keep power request less than maximum power supply on the whole unit, unplug the cable connected to the port blinking orange.

- Power supply operation when a single port is overloaded
  When power request exceeds the maximum on a single port, the port is overloaded and stops supplying power. You can verify a port that stopped supplying power by switching the LED display to the Power supply mode (PoE). Unplug the cable on the port blinking orange.

Note: Power consumption may be greatly different between during normal operation and during maximum power consumption depending on the PoE power receiving device. Configure the Switching Hub not to exceed the limit.

Note: If power request exceeds the limit of the whole unit, a port with a larger port number is blocked and stops supplying power.

1.6. LED DISPLAY CHANGE BUTTON

1.6.1. LED Base Mode Configuration

You can select either of the two LED display modes in this Switching Hub: "Status mode" and "ECO mode."

The mode after system boot is called "Base mode." By pressing and holding the LED DISPLAY CHANGE BUTTON for more than 3 seconds, you can switch the Base mode. When the LED DISPLAY CHANGE BUTTON is pressed and held for more than 3 seconds, all of the STATUS/ECO, PoE, GIGA, 100M, and FULL LEDs are lit and the Base mode changes to the mode after switching.

- Status mode (Factory default setting)
  This mode displays each port status on the port LEDs according to the Port LED display mode. In the Status mode, the STATUS/ECO LED is lit green.

- ECO mode
  All the port LEDs (Left) are turned off for power saving regardless it is connected or not to the terminal. In the ECO mode, the STATUS/ECO LED is blinking green.

  You can configure the Base mode settings on the configuration screen of this Switching Hub. For details, refer to 4.6.7.d.

1.6.2. LED Display Change

Pressing the "LED DISPLAY CHANGE BUTTON" on the front panel allows to change the port LED display in an order as follows:

Port LED display mode	Description
STATUS/ECO	Displays link establishment and communication status.
PoE	Displays power supply status to the connected devices.
GIGA	Displays link-up status in 1000 Mbps.
100M	Displays link-up status in 100 Mbps.
FULL	Displays link-up status in full-duplex and half-duplex.
LOOP HISTORY	Displays the loop detection history and port blocking status.

If no operation is performed for more than one minute after changing the Port LED display mode to other than the STATUS/ECO mode, the mode is automatically back to the Base mode.

2. Installation

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).

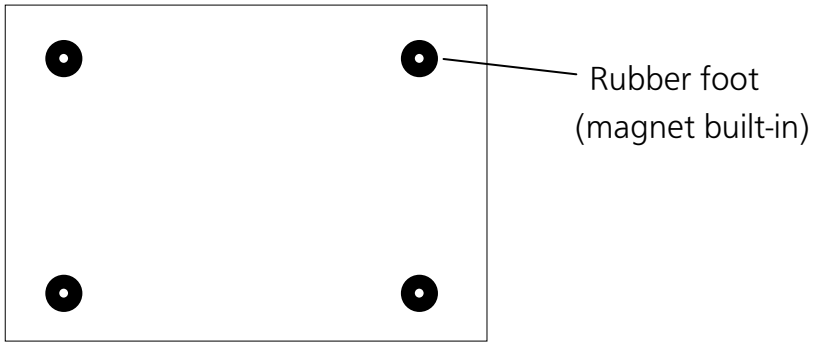
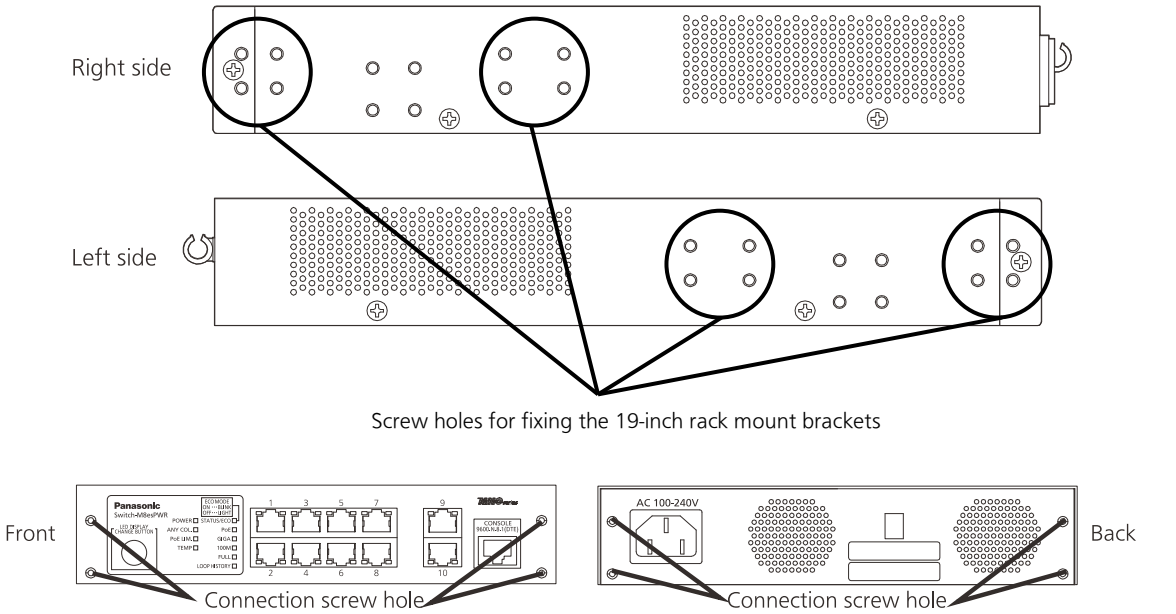


Fig. 2-1 Switch-M8esPWR bottom face

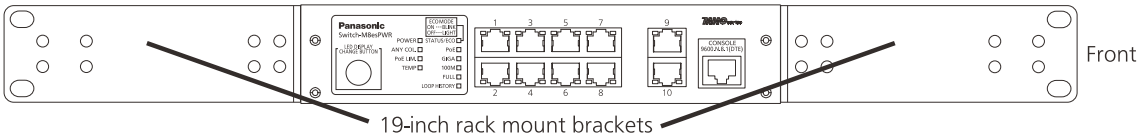
Note: Do not install the Switching Hub in such places as the unstable location, where there is strong vibration or shock, or where a person may walk under this Switching Hub.
Deviation could lead to injury and/or equipment failure.

2.2. Mounting to Rack (Option)

Use the two 19-inch rack mount brackets and eight screws (for fixing the mount brackets to the Switching Hub) included in the PN71051 optional brackets to fix the mount brackets to the four holes on each side of the Switching Hub. Then securely install the Switching Hub on the rack using the four screws (for a 19-inch rack mount) included in the PN71051 brackets or screws supplied with the rack. Up to two Switching Hubs can be connected. When connecting two Switching Hubs and installing them on a rack, use the two 19-inch rack mount brackets and eight screws (for fixing the mount brackets to the Switching Hub) included in the PN71052 optional brackets to fix the mount brackets to the four holes on a side of the Switching Hubs. Then use the two connection brackets and eight screws (for fixing the connection brackets) included in the PN71052 brackets to securely fix the connection brackets to the connection screw holes on the front and back panels, and then install the Switching Hubs on the rack.



● Installation on a rack (one unit)



● Installation on a rack (two units connected)

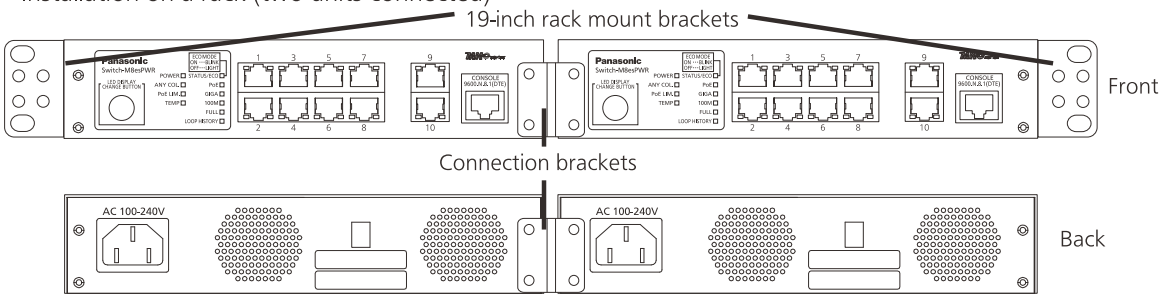


Fig. 2-2 Installing in rack

2.3. Mounting to Wall (Option)

Use the two wall mount brackets and eight screws (for fixing the wall mount brackets to the Switching Hub) included in the PN71053 optional brackets to fix the mount brackets to the four holes on each side of the Switching Hub. Attach the four rubber feet supplied with the Switching Hub to the recesses at the four corners of the bottom surface of the Switching Hub. Then securely install the Switching Hub on the wall with the four screws you prepared.

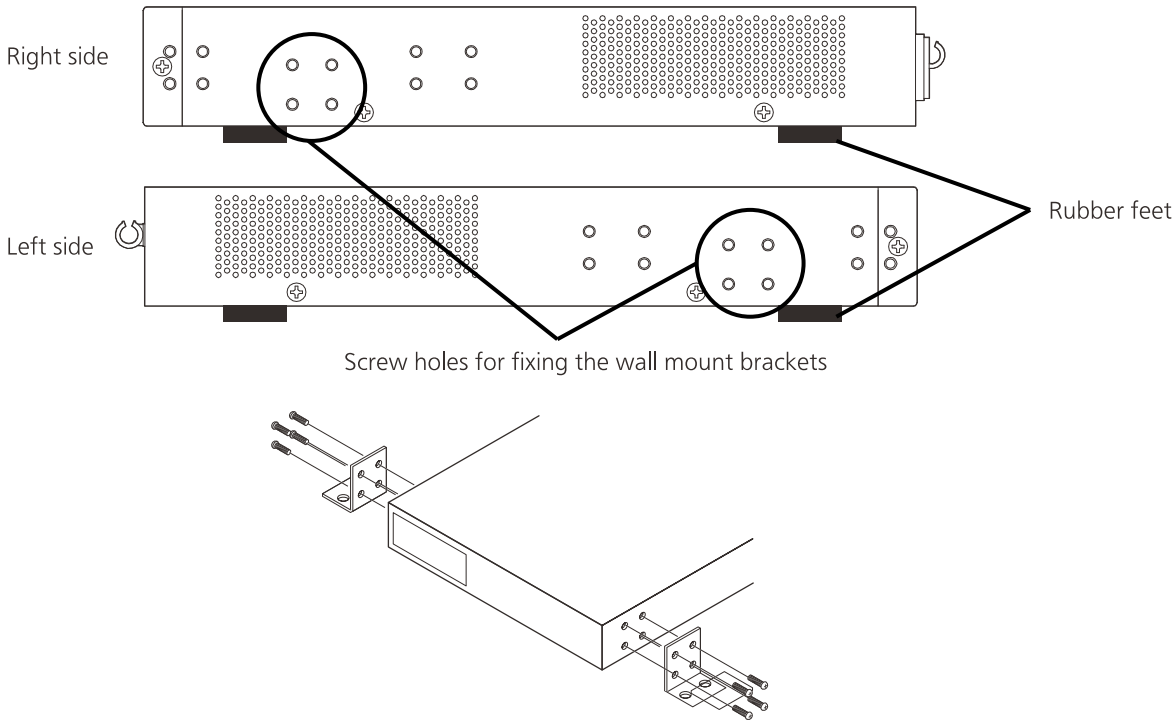


Fig. 2-3 Installing on wall

3. Connection

3.1. Connecting a Twisted Pair Port

● Connection Cable

Use a CAT5E-compliant straight cable (twisted pair) with 8P8C RJ45 modular plugs.

● Network Configuration

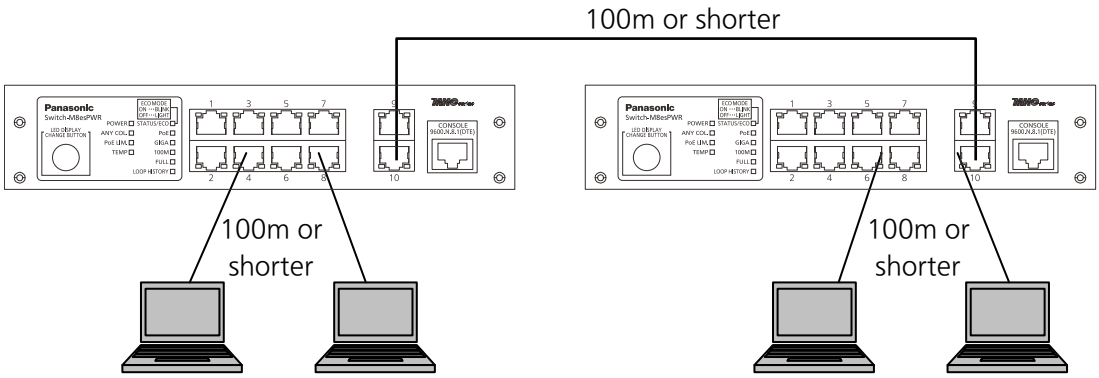


Fig. 3-1 Connection example

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. For detailed configuration procedure, refer to 4.6.4.

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

3.2. Connecting to Power

Connect the supplied power cord to the power port of this Switching Hub and connect the power plug into an electric outlet. The switch operates on AC 100 - 240 V (50/60 Hz).

This Switching Hub does not have a power switch. Plugging the power cord turns on this Switching Hub's power and it starts operating. To power off, unplug the power plug from the electric outlet.

4. Configuration

Upon power ON, this Switching Hub starts working as a Switching Hub. To use the SNMP functions and other functions, you need to configure the Switching Hub by using the console, Telnet, or SSH.
In this chapter, the configuration of this Switching Hub is explained in detail.

Note: To access this Switching Hub via Telnet or SSH, this Switching Hub must have an IP address.
Therefore, before accessing this Switching Hub via Telnet or SSH, configure an IP address by accessing this Switching Hub via console. For details on configuring an IP address, refer to 4.6.2.

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 RJ45 console port of this Switching Hub.
Configure the communication mode for the asynchronous terminal as follows:

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

If you are using Windows XP or older, refer to "Appendix B. Procedures for Console Port Configuration Using Windows HyperTerminal."

4.2. Login

Upon connecting, a login window, similar to Fig. 4-2-1, is displayed. If no similar window is displayed, make sure the transmission mode of console is correct or hit the enter key. If you access the Switching Hub via console, the screen displays as shown in Fig. 4-2-1.

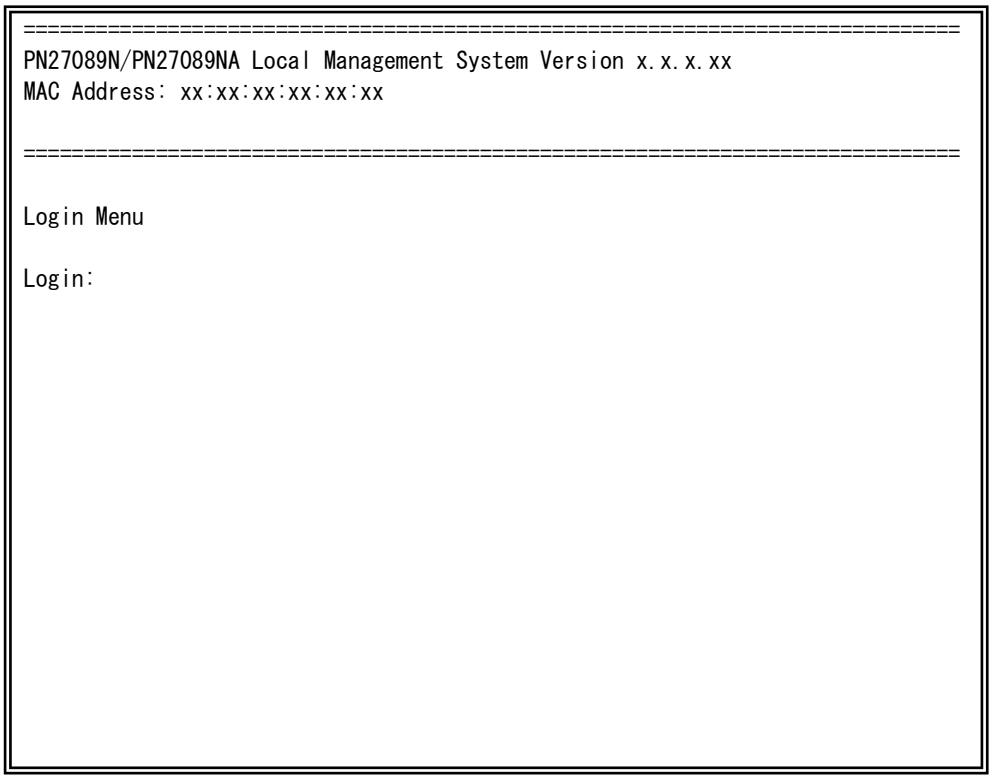


Fig. 4-2-1 Login screen (Console)

If you access the Switching Hub via Telnet, the screen displays "Remote Management System", similar to Fig. 4-2-2.

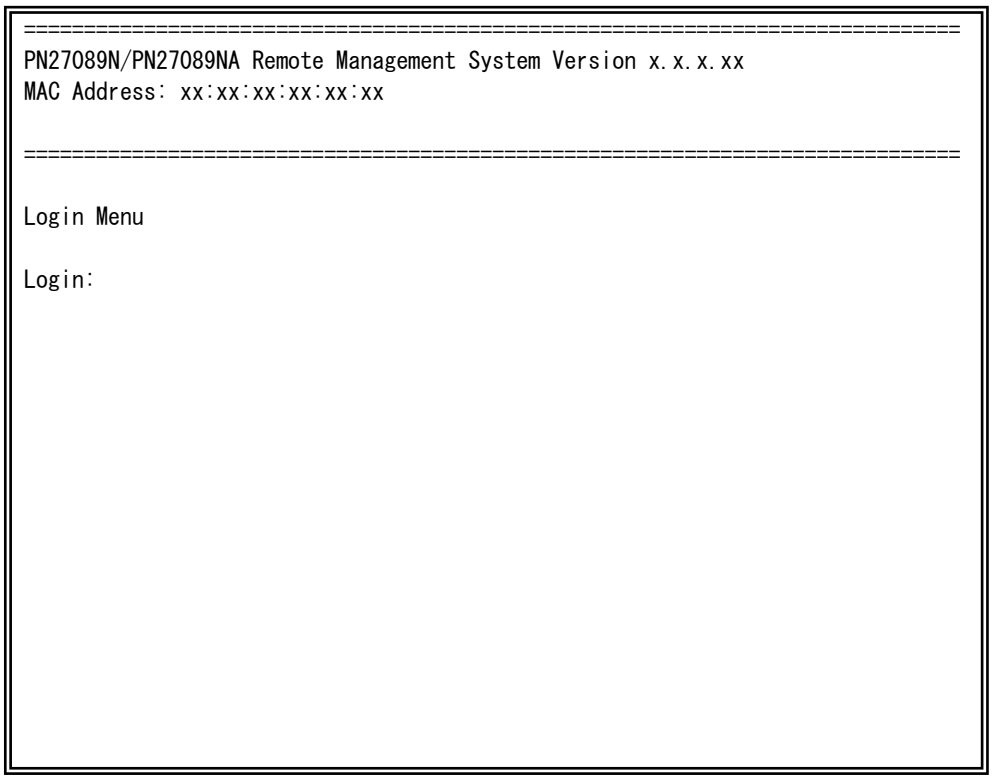


Fig. 4-2-2 Login screen (Telnet)

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

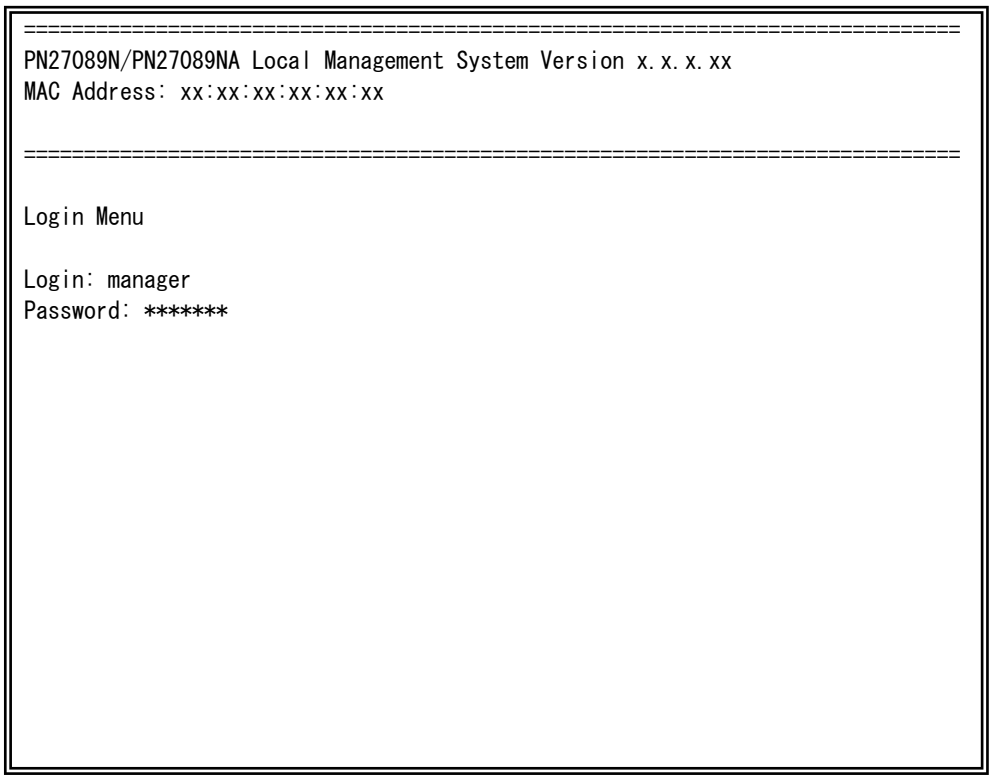


Fig. 4-2-3 Entering password

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

Note: When entered, the password is displayed in asterisks(*).

Note: Up to four users for Telnet or up to two users for SSH can access the Switching Hub concurrently.

Note: For the SSH login method, follow the operating procedures for each SSH client.

4.3. Basic Operations on the Screen

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

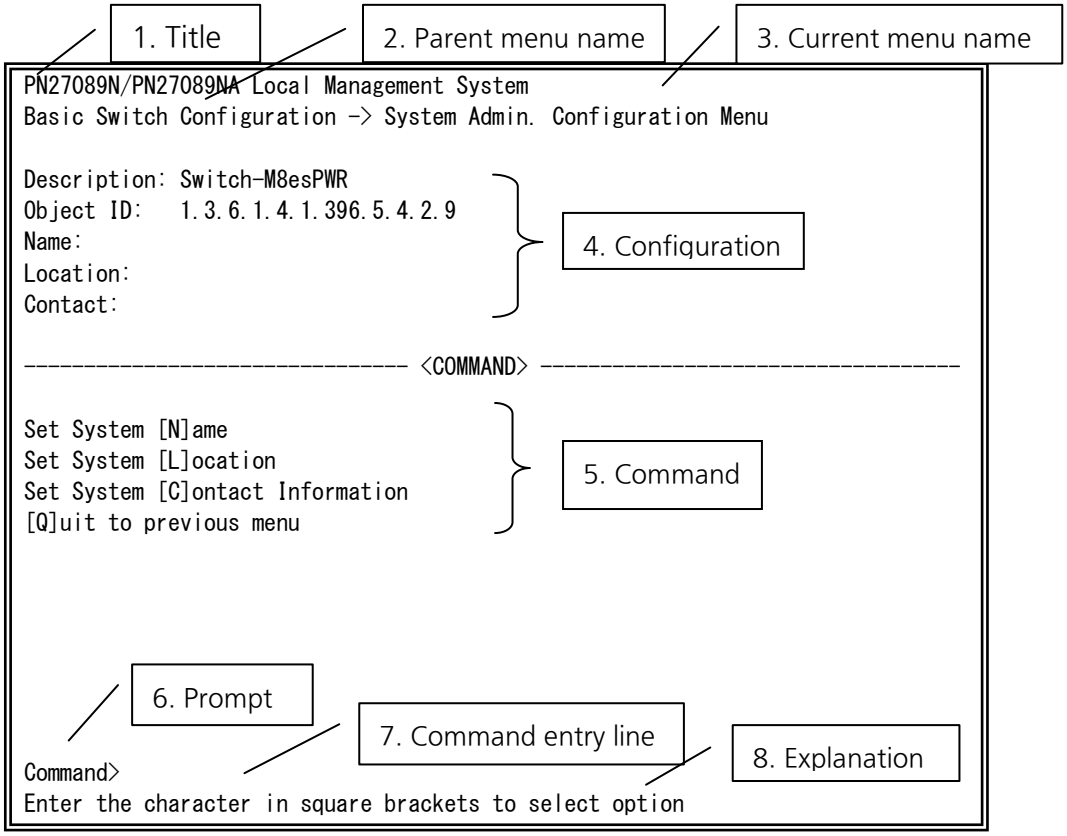


Fig. 4-3-1 Screen structure

Screen Description

1.	Title	The title of this screen. Displays "Local Management System" while being accessed via console. Displays "Remote Management System" while being accessed via Telnet.
2.	Previous menu name	Displays the name of the parent menu. Entering the "Q" command opens the parent menu screen.
3.	Current menu name	Displays the name of the current screen.
4.	Description	Displays the current configuration.
5.	Command	Displays 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 this instruction.
7.	Command entry line	Enter a command or settings.
8.	Explanation	Displays the explanation and/or status of this screen. Also, displays an entry error message if applicable.

All operations on this screen are done by entering letters. Using a cursor or other operations are not available. Available commands (letters) differ on each screen. They are shown in the command section. One letter of each command is enclosed in square brackets ([]). If you enter a command or setting not available, an error message is shown in the explanation field.

4.4. Main Menu

After the login process, the main menu, similar to Fig. 4-4-1, appears.
This Switching Hub has a main menu and multiple sub-menus. These menus has 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, press the "Q" command. The second line from the top displays the current menu name.

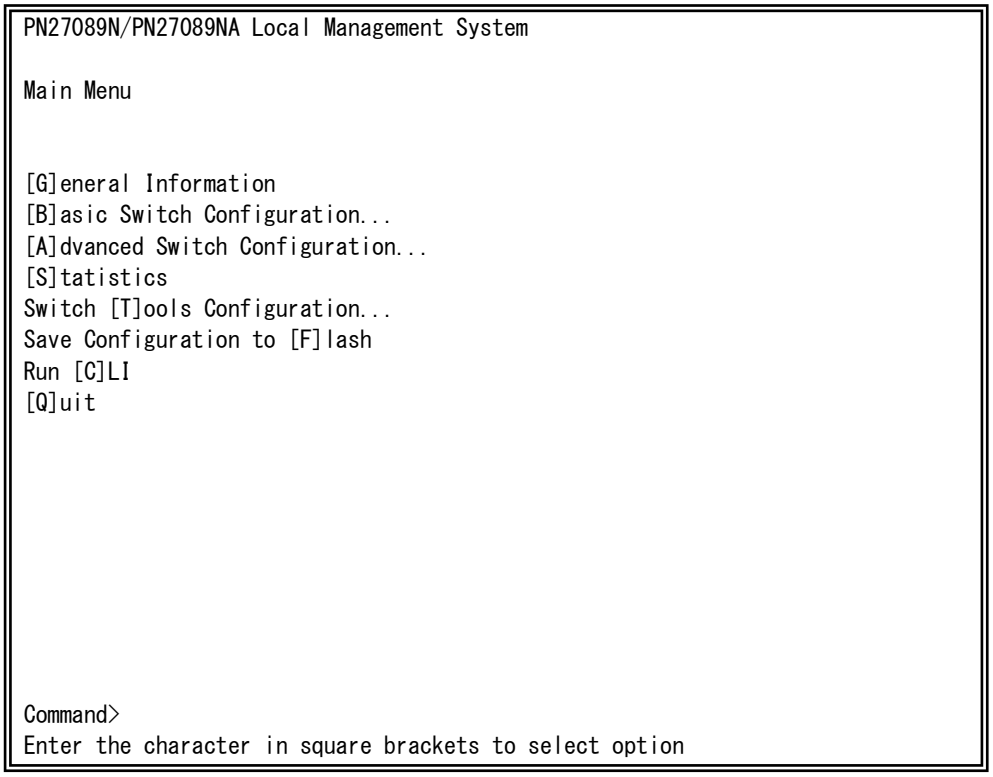


Fig. 4-4-1 Main Menu

Screen Description

General information	Displays this Switching Hub's hardware, firmware and IP address settings.
Basic Switch Configuration	Configures this Switching Hub's basic functions (such as IP address, SNMP and port).
Advanced Switch Configuration	Configures this Switching Hub's advanced functions (such as VLAN, Link Aggregation, Spanning Tree, QoS, IEEE802.1X authentication, IGMP Snooping, and PoE).
Statistics	Displays this Switching Hub's statistical information.
Switch Tools Configuration	Set this Switching Hub's additional tools (such as firmware update, saving/reading settings, Ping, and system log).
Save Configuration to Flash	Saves this Switching Hub's settings into its internal flash memory.
Run CLI	Switches to a command line interface (CLI).

Quit	Logouts 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 displays this Switching Hub's basic information. You cannot edit shown information on this screen.

```
PN27089N/PN27089NA Local Management System
Main Menu -> General Information

System up for:               xxxday(s), xxhr(s), xxmin(s), xxsec(s)
Boot / Runtime Code Version: x.x.x.xx / x.x.x.xx
Hardware Information
  Version:                   Version1
  CPU Utilization:           xx.xx %
  DRAM / Flash Size:         64MB / 8MB
  DRAM User Area Size:       Free: xxxxxxxx bytes / Total: xxxxxxxx bytes
  System Temperature:        CPU/xx ,System/xx degree(s) Celsius

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
  DHCP Mode:                 Disabled
Press any key to continue...
```

Fig. 4-5-1 General Information Menu

Screen Description

System up for:	Displays the cumulative time since the power on of this Switching Hub.	
Boot / Runtime Code Version:	Displays this Switching Hub's firmware version. The left side displays the Boot Code and the right side displays the Runtime Code. ("TFTP Software Upgrade" in 4.9.1 is about Runtime Code update.)	
Hardware Information	Displays the hardware information.	
	Version:	Displays the hardware version information.
	CPU Utilization:	Displays the CPU utilization.
	DRAM / Flash Size:	Displays the sizes of installed DRAM and FLASH memory.
	DRAM User Area Size:	Displays the sizes of the user area memory and unused memory.
	System Temperature:	Displays the internal temperatures of the Switching Hub. The sensors measure the temperature of CPU and system.
Administration Information	Items shown here are configured in accordance with "4.6.1 System Administration Configuration."	
	Switch Name:	Displays the Switching Hub name. The factory default setting is blank.
	Switch Location:	Displays the Switching Hub's location. The factory default setting is blank. For configuration details, refer to 4.6.1.
	Switch Contact:	Displays the contact information. The factory default setting is blank. For configuration details, refer to 4.6.1.
System Address Information	Items shown here are configured in accordance with "4.6.2 System IP Configuration."	
	MAC address:	Displays the MAC address of this Switching Hub. This value is uniquely assigned to each device and cannot be changed.
	IP Address:	Displays the Switching Hub's current IP address. 0.0.0.0 is the factory default setting. For configuration details, refer to 4.6.2.
	Subnet Mask:	Displays the Switching Hub's current subnet mask. 0.0.0.0 is the factory default setting. For configuration details, refer to 4.6.2.
	Default Gateway:	Displays the IP address of the router for the default gateway. 0.0.0.0 is the factory default setting. For configuration details, refer to 4.6.2.
	DHCP Mode:	Displays whether to get an IP address using DHCP. 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 the basic configuration settings, such as IP address, SNMP, and ports.

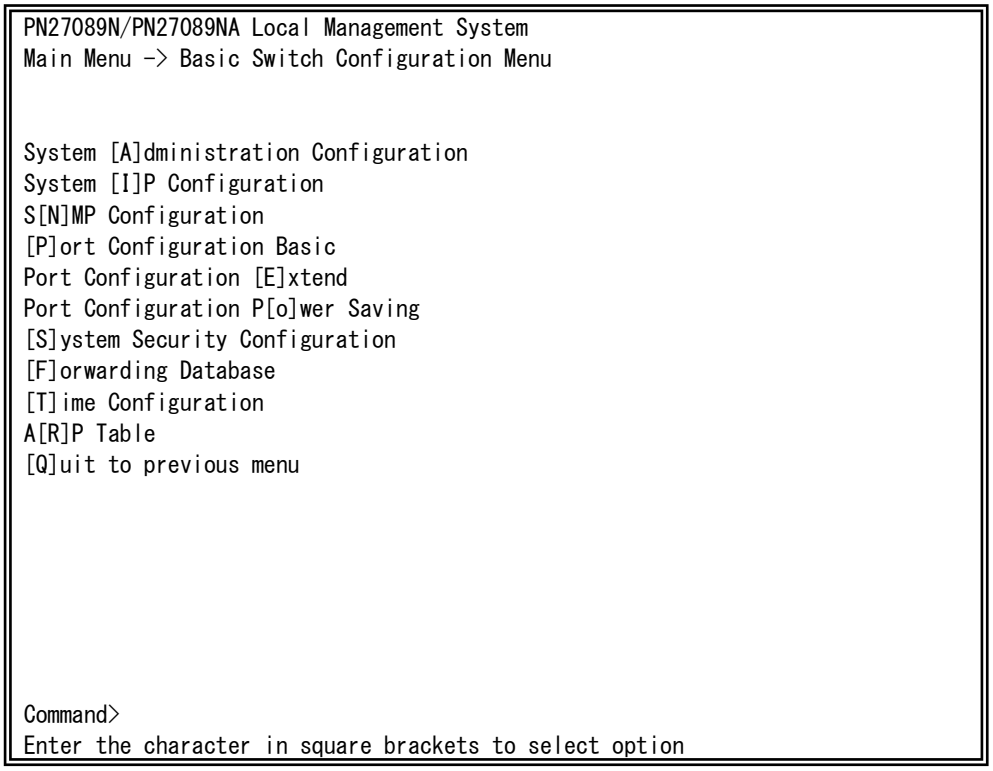


Fig. 4-6-1 Basic Switch Configuration Menu

Screen Description

System Administration Configuration	Configures management information settings, such as switch name used for SNMP, place, and contact.
System IP Configuration	Configures the IP-address-related network information.
SNMP Configuration	Configures SNMP-related settings.
Port Configuration Basic	Configure PoE for each port.
Port Configuration Extend	Configures extended port settings, such as port name.
Port Configuration Power Saving	Configures the MNO series power saving mode.
System Security Configuration	Configures the security settings, such as access limitation for this Switching Hub.
Forwarding Database	Displays the MAC address table.
Time Configuration	Configures the time settings, such as the SNTP-based time synchronization function and manual mode settings.
ARP Table	Displays 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.

```
PN27089N/PN27089NA Local Management System
Basic Switch Configuration -> System Admin. Configuration Menu

Description: Switch-M8esPWR
Object ID:   1.3.6.1.4.1.396.5.4.2.9
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:	Displays the system information. This item is not editable.
Object ID:	Displays the ID, corresponding to MIB. This item is not editable.
Name:	Displays the system name. The factory default setting is blank.
Location:	Displays the device installation location. The factory default setting is blank.
Contact:	Displays the contact information. The factory default setting is blank.

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

4.6.2. System IP Address 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.

```
PN27089N/PN27089NA 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
DHCP Mode:          Disabled

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

Set [I]P Address
Set Subnet [M]ask
Set Default [G]ateway
Set IP P[a]rameter
Set [D]HCP Status
Set DHCP [R]enew
[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:	Displays the MAC address of this Switching Hub. This value is uniquely assigned to each device and cannot be changed.	
IP Address:	Displays the current IP address. 0.0.0.0 is the factory default setting.	
Subnet Mask:	Displays the current subnet mask. 0.0.0.0 is the factory default setting.	
Default Gateway:	Displays the IP address of the router, set as a current default gateway. 0.0.0.0 is the factory default setting.	
DHCP Mode:	Displays the DHCP mode. If enabled, the Switching Hub requests an IP address to the DHCP server. 'Disabled' is the factory default setting.	
	Enabled:	Requests an IP address from the DHCP server when starting up.
	Disabled:	Does not request an IP address from the DHCP server when starting up.

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.
D	Disable/enable the DHCP mode. If enabled, an IP address is automatically obtained from the DHCP server.	
	E	Enable the DHCP mode. (A DHCP server must be operating on the network.)
	D	Disable the DHCP mode.
R	Renew an IP address from the DHCP server.	
		Press "R." The command prompt changes to "Renew DHCP (Y/N)." To renew, press "Y." Otherwise, press "N."
Q	Return to the previous menu.	

Note: Unless you configure these settings, you cannot use the SNMP management functions and remotely connect to the Switching Hub via Telnet or SSH. Be sure to configure. If you are unsure, consult the network administrator. Any IP addresses on the local network must be unique and no duplication is allowed. In addition, you need to set the subnet mask and the default gateway, which are the same for other devices on the same subnet using this switch. These are used for identifying a specific device on the network in combination with IP address.

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.

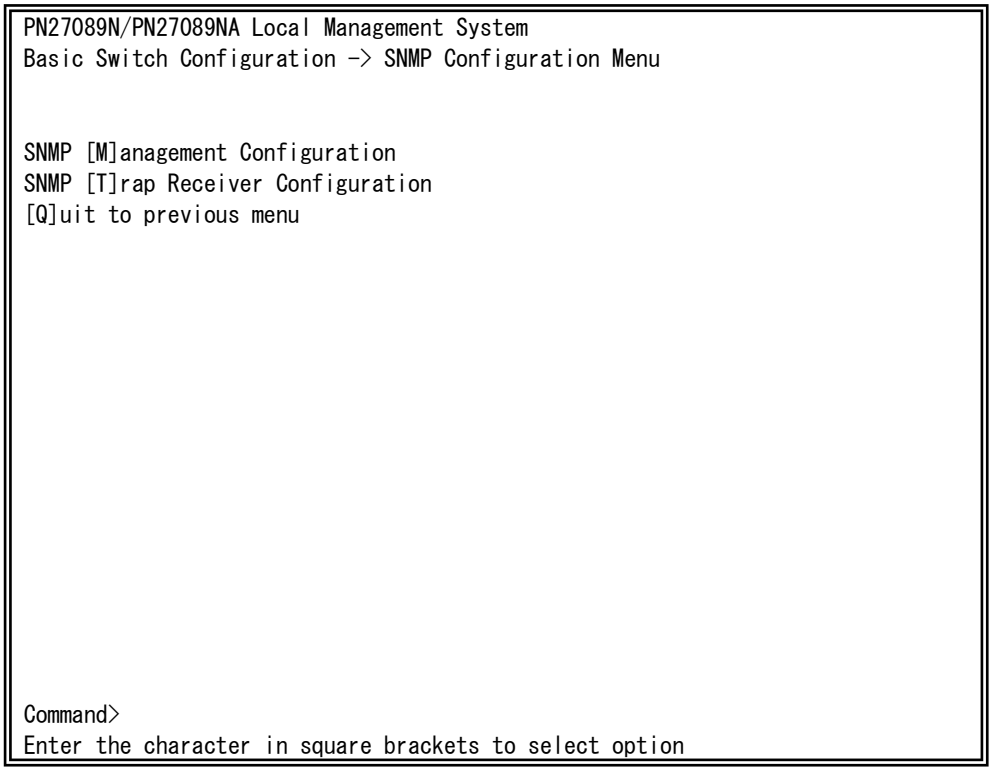


Fig. 4-6-4 SNMP Configuration

Screen Description

SNMP Management Configuration	Configures the SNMP manager settings. For details, refer to the next section (4.6.3.a).
SNMP Trap Receiver Configuration	Configures the SNMP trap sending settings. For details, refer to the next section (4.6.3.b).
Quit to previous menu	Return 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 SNMP traps.
	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.

```
PN27089N/PN27089NA Local Management System
SNMP Configuration -> SNMP Management Configuration Menu

SNMP Manager List:
 No.   Status    Privilege     IP Address          Community
----  --------  ----------  ---------------   ----------------------------
  1   Enabled   Read-Write    0.0.0.0           private
  2   Enabled   Read-Only     0.0.0.0           public
  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          [Q]uit to previous menu
Set Manager P[r]ivilege   Set Manager [C]ommunity

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

Fig. 4-6-5 SNMP Management Configuration

Screen Description

SNMP Manager List:	Displays the current SNMP manager settings.		
	No.	Displays the entry number on the SNMP Manager List.	
	Status	Displays the SNMP manager status.	
		Enabled	The SNMP manager is enabled.
		Disabled	The SNMP manager is disabled.
	Privilege	Displays 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	Displays the IP address of the SNMP manager.	
	Community	Displays 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 to change the setting. 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 to change the setting. Then, the command prompt changes to "Enter IP address for manager>." Enter an IP address.
R	Set access privileges for an SNMP manager.
	Press "R." The command prompt changes to "Enter manager entry number>." Enter an SNMP manager entry number to change the setting. 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 to change the setting. 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 screen, pressing "T" opens the SNMP Trap Receiver Configuration Menu screen, as shown in Fig. 4-6-6. On this screen, you can set the SNMP Trap settings.

```
PN27089N/PN27089NA Local Management System
SNMP Configuration -> SNMP Trap Receiver Configuration Menu

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

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

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

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

Fig. 4-6-6 SNMP Trap Receiver Configuration

Screen Description

Trap Receiver List:	Displays the IP address and the community name for the current trap receiver.		
	No.	Displays the entry number for the trap receiver.	
	Status	Displays the trap sending setting.	
		Enabled	Sends traps.
		Disabled	Does not send traps.
	IP Address	Displays the IP address of the trap receiver.	
	Community	Displays the current community name, set for sending traps.	

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 to change the setting. Then, the command prompt changes to "Enable or Disable Trap Receiver (E/D)>." Press "E" to enable the TRAP receiver. 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 to change the setting. Then, the command prompt changes to "Enter IP address for trap receiver>." Enter the IP address.
D	Set trap conditions.	
		Press "D." The screen changes to the Enable/Disable Individual Trap Menu. For detailed configuration, refer to the next section (4.6.3.c).
C	Set a community name for a trap receiver.	
		Press "C." The command prompt changes to "Enter manager entry number>." Enter an entry number for a trap receiver to change the setting. 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 Menu

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

```
PN27089N/PN27089NA Local Management System
SNMP Trap Receiver Configuration -> Enable/Disable Individual Trap Menu

SNMP Authentication Failure :    Disabled
Enable Link Up/Down Port:        1-10
PoE Trap Control:                Enabled
Temperature Trap Control:        Disabled
Temperature Threshold:           70 degree(s) Celsius

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

Enable/Disable [A]uth Fail Trap
Add Link Up/Down Trap [P]orts
[D]elete Link Up/Down Trap Ports
Enable/Disable Po[E] Trap
Enable/Disable [T]emperature Trap
[S]et Temperature Threshold
[Q]uit to previous menu



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

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

Screen Description

SNMP Authentication Failure:	Displays the trap sending settings for an SNMP authentication failure.	
	Enabled	Enables the trap sending.
	Disabled	Disables the trap sending. (Factory default setting)
Enabled Link Up/Down Port:	Displays the port number to which a trap is sent, when its link status changes. All ports are assigned in factory default setting.	
PoE Trap Control:	Displays the PoE trap control settings.	
	Enabled	Enables the trap sending. (Factory default setting)
	Disabled	Disables the trap sending.
Temperature Trap Control:	Displays the trap sending settings when the internal temperature is above or below the preset temperature.	
	Enabled	Enables the trap sending.
	Disabled	Disables the trap sending. (Factory default setting)
Temperature Threshold:	Displays the threshold temperature value to send the trap. The factory default setting is 70 degrees C.	

Available commands are listed below.

A	Enable/disable the trap sending when the link status changes.	
		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.
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.
E	Enable/disable the trap sending when the power usage percentage exceeds the Power Usage Threshold For Sending Trap, as set on the PoE Global Configuration Menu.	
		Press "E." The command prompt changes to "Enable or Disable PoE trap (E/D)>." Press "E" to enable the trap sending. Press "D" to disable it.
T	Enable/disable the trap sending when the internal temperature exceeds the preset temperature.	
		Press "T." The command prompt changes to "Enable or Disable Temperature trap (E/D)>." Press "E" to enable the trap sending. Press "D" to disable it.
S	Set a temperature threshold value to send the trap for a high device internal temperature.	
		Press "S." The command prompt changes to "Enter temperature threshold>." Enter a temperature threshold value in the range from 0 to 70 degrees C to send the trap.
Q	Return to the previous menu.	

4.6.4. Port Configuration Basic

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

```
PN27089N/PN27089NA Local Management System
Basic Switch Configuration -> Port Configuration Basic Menu

Port  Trunk      Type      Admin     Link      Mode       Flow Ctrl  Auto-MDI
----  -----  ----------  --------   ----   ----------  ---------  --------
  1    ---      100TX     Enabled    Down   Auto          Disabled   Disabled
  2    ---      100TX     Enabled    Down   Auto          Disabled   Disabled
  3    ---      100TX     Enabled    Down   Auto          Disabled   Disabled
  4    ---      100TX     Enabled    Down   Auto          Disabled   Disabled
  5    ---      100TX     Enabled    Down   Auto          Disabled   Disabled
  6    ---      100TX     Enabled    Down   Auto          Disabled   Disabled
  7    ---      100TX     Enabled    Down   Auto          Disabled   Disabled
  8    ---      100TX     Enabled    Down   Auto          Disabled   Disabled
  9    ---      1000T     Enabled    Down   Auto          Disabled   Enabled
 10    ---      1000T     Enabled    Down   Auto          Disabled   Enabled


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

Set [A]dmin Status        Set [F]low Control         [Q]uit to previous menu
Set [M]ode                [S]et Auto-MDI

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

Fig. 4-6-8 Port Configuration Basic Menu

Screen Description

Port	Displays the port number.	
Trunk	Displays the group number for a trunked port.	
Type	Displays the port type.	
	100TX	The port type is 10/100BASE-TX.
	1000T	The port type is 10/100/1000BASE-T.
Admin	Displays the current port status. For all ports, 'Enabled' is the factory default setting.	
	Enabled	The port is available.
	Disabled	The port is not available.
Link	Displays the current link status.	
	Up	A link has been established successfully.
	Down	A link has not been established.
Mode	Displays the communication speed and full-duplex/half-duplex settings. For all ports, 'Auto' is the factory default setting.	
	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	Displays the flow control settings. For all ports, 'Disabled' is the factory default setting.	
	Enabled	The flow control is enabled.
	Disabled	The flow control is disabled.
Auto-MDI	Displays the Auto-MDI function settings. Ports 1-8 are set to "Disabled" and Ports 9-10 are set to "Enabled" at factory default setting.	
	Enabled	The Auto-MDI function is enabled.
	Disabled	The Auto-MDI function is disabled.

Available commands are listed below.

<table>
<tr><td>A</td><td colspan="4">Enable/disable a port.</td></tr>
<tr><td></td><td colspan="4">Press "A." The command prompt changes to "Select port number to be changed>." Enter a port number to change the setting. To configure all ports at once, enter "0" as the port number. Then, the command prompt changes to "Enable or Disable port # (E/D)>." Press "E" to enable the port. Press "D" to disable it. As the change is applied, the display on the upper screen is updated automatically.</td></tr>
<tr><td>M</td><td colspan="4">Configure the speed and full-duplex/half-duplex settings for each port.</td></tr>
<tr><td></td><td colspan="4">Press "M." The command prompt changes to "Enter port number>." Enter a port number to change the setting. To configure all ports at once, enter "0" as the port number. 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, or "H" for half-duplex. As the change is applied, the display on the upper screen is updated automatically.</td></tr>
<tr><td></td><td>Mode:</td><td>A:</td><td colspan="2">Enable the auto negotiation mode.</td></tr>
<tr><td></td><td></td><td>N:</td><td colspan="2">Disable the auto negotiation mode.
(fixing the speed at 1000BASE-T is not supported)</td></tr>
<tr><td></td><td>Speed:</td><td>10:</td><td colspan="2">Set at 10 Mbps.</td></tr>
<tr><td></td><td></td><td>100:</td><td colspan="2">Set at 100 Mbps.</td></tr>
<tr><td></td><td>Duplex:</td><td>F:</td><td colspan="2">Set at full-duplex.</td></tr>
<tr><td></td><td></td><td>H:</td><td colspan="2">Set at half-duplex</td></tr>
<tr><td>F</td><td colspan="4">Enable/disable the flow control.</td></tr>
<tr><td></td><td colspan="4">Press "F." The command prompt changes to "Select port number to be changed>." Enter a port number you to change the setting. To configure all ports at once, enter "0" as the port number. 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. As the change is applied, the display on the upper screen is updated automatically.</td></tr>
<tr><td>S</td><td colspan="4">Enable/disable the AUTO-MDI function.</td></tr>
<tr><td></td><td colspan="4">Press "S." The command prompt changes to "Enter port number>." Enter a port number to change the setting. To configure all ports at once, enter "0" as the port number. 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 upper screen is updated automatically.</td></tr>
<tr><td>Q</td><td colspan="4">Return to the previous menu.</td></tr>
</table>

Note: The screen displays 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 Extend Menu, as shown in Fig. 4-6-9. On this screen, you can configure port status display settings and port settings.

```
PN27089N/PN27089NA Local Management System
Basic Switch Configuration -> Port Configuration Extend Menu

Port  Trunk      Type     Link     Port Name       EAP Pkt FW
----  -----  ----------  ----  ---------------   ------------
  1    ---      100TX     Down  Port_1              Disabled
  2    ---      100TX     Down  Port_2              Disabled
  3    ---      100TX     Down  Port_3              Disabled
  4    ---      100TX     Down  Port_4              Disabled
  5    ---      100TX     Down  Port_5              Disabled
  6    ---      100TX     Down  Port_6              Disabled
  7    ---      100TX     Down  Port_7              Disabled
  8    ---      100TX     Down  Port_8              Disabled
  9    ---      1000T     Down  Port_9              Disabled
 10    ---      1000T     Down  Port_10             Disabled


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

Set Port N[a]me                          [Q]uit to previous menu
Set [E]AP Packet Forwarding

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

Fig. 4-6-9 Port Configuration Extend Menu

Screen Description

Port	Displays the port number.	
Trunk	Displays the group number for a trunked port.	
Type	Displays the port type.	
	100TX	The port type is 10/100BASE-TX.
	1000T	The port type is 10/100/1000BASE-T.
Link	Displays the current link status.	
	Up	A link has been established successfully.
	Down	A link has not been established.
Port Name	Displays the port name.	
EAP Pkt FW	Displays the EAP packet forwarding function settings. For all ports, 'Disabled' is the factory default setting. Set this item to "Enabled" to send EAP frames used in IEEE802.1X authentication and "Disabled" to discard them.	
	Enabled	The EAP Packet Forwarding function is enabled.
	Disabled	The EAP Packet Forwarding function is disabled.

Available commands are listed below.

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 to change the setting. To configure all ports at once, enter "0" as the port number. Then, the command prompt changes to "Enter port name string>." Enter a name in 15 characters or less. As the change is applied, the display on the upper screen is updated automatically.
E	Enable/disable the EAP packet forwarding function.	
		Press "E." The command prompt changes to "Enter port number>." Enter a port number to change the setting. To configure all ports at once, enter "0" as the port number. Then, the command prompt changes to "Enable or Disable EAP forward for port # (E/D)>." Press "E" to enable the function. Press "D" to disable it. As the change is applied, the display on the upper screen is updated automatically.
Q	Return to the previous menu.	

Note: The screen displays 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 detects the connection status automatically and saves power consumption to minimum. This Switching Hub supports two modes: "Half mode" to prioritize connection with other devices and "Full mode" to save more 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 settings and MNO series power saving mode settings.

```
PN27089N/PN27089NA Local Management System
Basic Switch Configuration -> Port Configuration Power Saving Menu

Port   Link    Trunk   Type      Mode        Power-Saving
----  ------   -----  ------  -----------   ------------
  1    Down     ---   100TX   Auto          Half
  2    Down     ---   100TX   Auto          Half
  3    Down     ---   100TX   Auto          Half
  4    Down     ---   100TX   Auto          Half
  5    Down     ---   100TX   Auto          Half
  6    Down     ---   100TX   Auto          Half
  7    Down     ---   100TX   Auto          Half
  8    Down     ---   100TX   Auto          Half
  9    Down     ---   1000T   Auto          Half
 10    Down     ---   1000T   Auto          Half



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

Set [P]ower Saving Mode                [Q]uit to previous menu

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

Fig. 4-6-10 Port Configuration Power Saving Menu

Screen Description

Port	Displays the port number.	
Link	Displays the current link status.	
	Up	A link has been established successfully.
	Down	A link has not been established.
Trunk	Displays the group number for a trunked port.	
Type	Displays the port type.	
	100TX	The port type is 10/100BASE-TX.
	1000T	The port type is 10/100/1000BASE-T.
Mode	Displays the communication speed and full-duplex/half-duplex settings. For all ports, 'Auto' is the factory default setting.	
	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	Displays the status of the MNO series power saving mode. For all ports, 'Half' is the factory default setting.	
	Half	The MNO series power saving mode status is enabled (Half).
	Full	The MNO series power saving mode status is enabled (Full).
	Disabled	The MNO series power saving mode status is disabled.

Available commands are listed below.

P	Configure the MNO series power saving mode.	
		Press "P." The command prompt changes to "Select port number to be changed>." Enter a port number to change the setting. To configure all ports at once, enter "0" as the port number. Then, the command prompt changes to "Enter Power Saving mode for port (F/H/D)>." Press "F" to enable the mode. Press "D" to disable it. Press "H" to select the MNO series power saving mode that prioritizes connection with other devices. As the change is applied, the display on the upper 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 Menu, as shown in Fig. 4-6-11. On this screen, you can configure the various settings for accessing this Switching Hub for configuration and management.

```
PN27089N/PN27089NA Local Management System
Basic Switch Configuration -> System Security Configuration

Console UI Idle Timeout:     5 Min.
Telnet UI Idle Timeout:      5 Min.

Telnet Server:               Enabled
SNMP Agent:                  Disabled
IP Setup Interface:          Enabled
Local User Name:             manager
Syslog Transmission:         Disabled
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           Syslo[g] Transmission Configuration Page
Enable/Disable S[y]slog Transmission  [I]P Setup Interface
Telnet [A]ccess Limitation            L[o]gin Method
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 Timeout:	Displays 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 Timeout:	Displays 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:	Displays the Telnet access settings. 'Enabled' is the factory default setting.	
	Enabled:	Access is enabled.
	Disabled:	Access is disabled.
SNMP Agent:	Displays the SNMP access settings. 'Disabled' is the factory default setting.	
	Enabled:	Access is enabled.
	Disabled:	Access is disabled.
IP Setup Interface:	Displays the access settings for the IP address configuration software, bundled with the Panasonic network cameras. 'Enabled' is the factory default setting. * For instructions, refer to Appendix C.	
	Enabled:	Access is enabled.
	Disabled:	Access is disabled.
Local User Name:	Displays the current login username. 'manager' is the factory default setting.	
Syslog Transmission:	Displays the settings for sending system logs to the Syslog server. 'Disabled' is the factory default setting.	
	Enabled:	Sends system logs to the Syslog server.
	Disabled:	Does not send system logs to the Syslog server.
Login Method:	Displays how to check the username and password for login. The factory default setting is 'Local' for 1 and 'None' for 2.	
	Local	Login with the username and password set for this Switching Hub.
	RADIUS	Login with authentication from the RADIUS server.
	None	Not used. (Only Login Method2 can be configured.)

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 username.	
		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 username in 12 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 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)>." Enter "E" to enable the access. Enter "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)>." Enter "E" to enable the access. Enter "D" to disable the access.
A	Configure a terminal accessible via Telnet.	
		Press "A" to move to the Telnet Access Limitation Menu. For configuration details, refer to the next section (4.6.6.a).
Y	Configure the settings for sending system logs to the Syslog server.	
		Press "Y." The command prompt changes to "Enable or Disable Syslog Transmission (E/D)>." Enter "E" to enable the Syslog transmission to the Syslog server. Enter "D" to disable the Syslog transmission to the Syslog server.
R	Configure the access settings to access the RADIUS server. The RADIUS is used in the IEEE802.1X port-based authentication.	
		Press "R" to move to the RADIUS Configuration page. For configuration details, refer to the next section (4.6.7.b).
G	Configure the settings for sending system logs to the Syslog server.	
		Press "G" to move to the Syslog Transmission Configuration page. For configuration details, refer to the next section (4.6.7.c).
I	Configure 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)>." Enter "E" to enable the access. Enter "D" to disable the access.

O	Configure the location to check the login username and password.	
		Press "O." The command prompt changes to "Enter manager entry number>." Press "1" to change the first location to check. Press "2" to change the second location to check. Then, The command prompt changes to "Select the login method." Press "L" to use the username and password set for this Switching Hub. Press "R" to use the RADIUS authentication. Press "N" when not configuring.
H	Configure SSH server settings.	
		Press "H" to move to the SSH Server Configuration page. For configuration details, refer to the next section (4.6.7.d).
B	Configure LED base mode settings.	
		Press "B" to move to the LED Basic Mode Configuration page. For configuration details, refer to the next section (4.6.7.e).
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.

```
PN27089N/PN27089NA 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">Set Enable/Disable of access limitation via Telnet.</td></tr>
<tr><td></td><td>E</td><td>Set access limitation from Telnet to Enable.</td></tr>
<tr><td></td><td>D</td><td>Set 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></td><td>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 subnetwork mask>." Enter a range of IP address to permit accessing with subnet mask format.

(Setting example)
<table>
<tr><th>No.</th><th>IP Address</th><th>Subnet Mask</th><th>Access permitted IP Address</th></tr>
<tr><td>1</td><td>192.168.1.10</td><td>255.255.255.255</td><td>192.168.1.10
(Only one unit can be accessed)</td></tr>
<tr><td>2</td><td>192.168.1.20</td><td>255.255.255.254</td><td>192.168.1.20, 192.168.1.21
(Two units can be accessed)</td></tr>
<tr><td>3</td><td>192.168.2.1</td><td>255.255.255.128</td><td>192.168.2.1 to 192.168.2.127
(127 units can be accessed)</td></tr>
<tr><td>4</td><td>192.168.3.1</td><td>255.255.255.0</td><td>192.168.3.1 to 192.168.3.254
(254 units can be accessed)</td></tr>
</table>
</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></td><td>Press "D." The command prompt changes to "Enter IP address entry number>." Enter an IP address entry number 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></td><td>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 subnetwork mask>." Enter a range of IP address 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 Page screen, as shown in Fig. 4-6-13. In this screen, you can configure accessing to RADIUS server that is used in IEEE802.1X authentication.

```
PN27089N/PN27089NA 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 :	Indicates an authentication ID (NAS Identifier).
Server IP Address	Indicates an IP address of RADIUS server. The factory default setting is 0.0.0.0.
Shared Secret	Indicates a common key (Shared Secret) that is used in authentication. The same key must be set between the server and the RADIUS client. In general, system manager set this secret key. The factory default setting is no secret key.
Response Time	Indicates maximum response time for authentication request to RADIUS server. The factory default setting is 10 seconds.
Maximum Retransmission	Indicates the number of retransmission times for authentication request to RADIUS server. The factory default setting is 3.

Available commands are listed below.

N	Set the NAS ID (NAS Identifier).
	Press "I." The command prompt changes to "Enter NAS ID>." Enter NAS ID in 16 characters or less.
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 secret key of RADIUS server.
	Press "C." The command prompt changes to "Enter secret string for server>." Enter the secret string in 20 characters or less.
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 sec.
M	Set maximum number of times of retransmission of 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. Syslog Transmission Configuration

On the System Security Configuration Menu, pressing "G" opens the Syslog Transmission Configuration Page screen, as shown in Fig. 4-6-14. In this screen, you can set Syslog server information to send a system log.

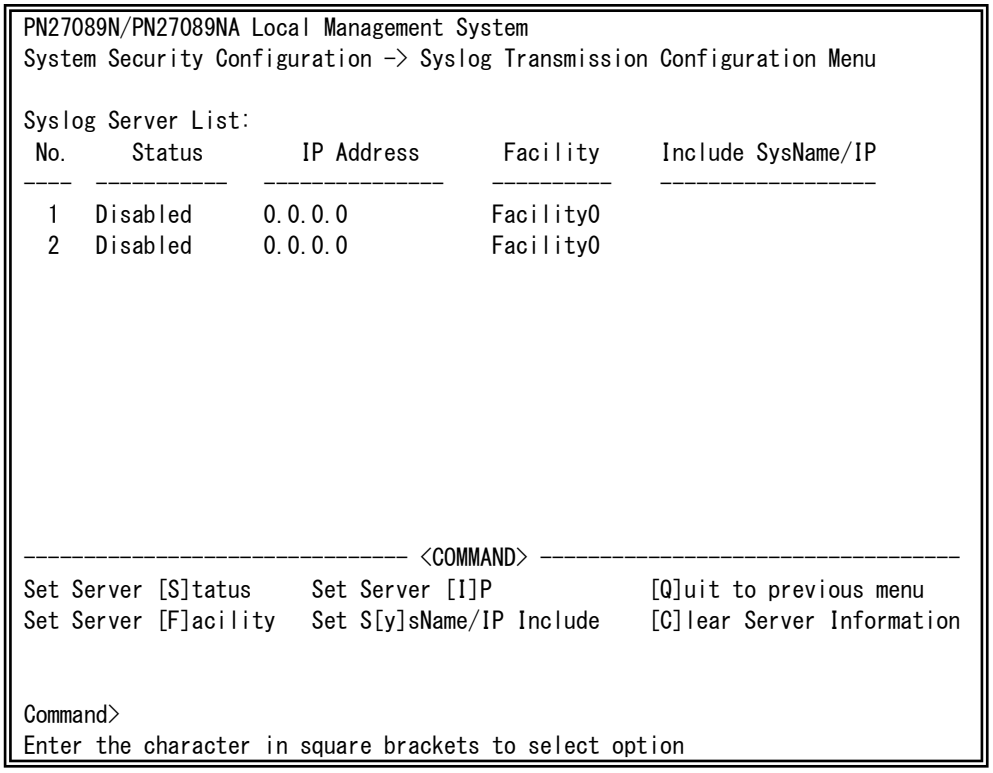


Fig. 4-6-14 Syslog Transmission Configuration

Screen Description

Status	Indicates a status of Syslog Transmission.	
IP Address	Indicates an IP address of Syslog server.	
Facillity	Indicates a value of Facility.	
Include SysName/IP	Indicates information to be added.	
	SysName	Adds a SysName of this Switching Hub to a system log to be transmitted.
	IP address	Adds an IP address of this Switching Hub to a system log to be transmitted.

Available commands are listed below.

S	Set a status of Syslog Transmission.
	Press "S." The command prompt changes to "Enter manager entry number>." Enter No. to change the setting. Then, the command prompt changes to "Enable or Disable Server (E/D)>." Enter "E" to enable, or "D" to disable the server.
F	Set Facility.
	Press "F." The command prompt changes to "Enter manager entry number>." Enter No. to change the setting. Then, the command prompt changes to "Enter Server Facility>." Enter a value of 0 to 7 (Local0 to Local7).
I	Set an IP address of Syslog server.
	Press "I." The command prompt changes to "Enter manager entry number>." Enter No. to change the setting. Then, the command prompt changes to "Enter IP address for manager>." Enter an IP address of Syslog server.
Y	Set information that is added to a system log to be transmitted.
	Press "Y." The command prompt changes to "Enter manager entry number>." Enter No. to change the setting. Then, the command prompt changes to "Enter Include Information>." Enter "S" when adding a SysName of this Switching Hub, or "I" when adding IP address, or "N" when not adding IP address.
C	Delete setting information of Syslog Transmission.
	Press "C." The command prompt changes to "Enter manager entry number>." Enter No. to delete. Then, the command prompt changes to "Clear Syslog Server information>." Enter "Y" when deleting, or "N" when not deleting the sever information.
Q	Return to the previous menu.

4.6.7.d. SSH Server Configuration

On the System Security Configuration Menu, pressing "H" opens the SSH Server Configuration screen, as shown in Fig. 4-6-15. On this screen, you can set SSH server.

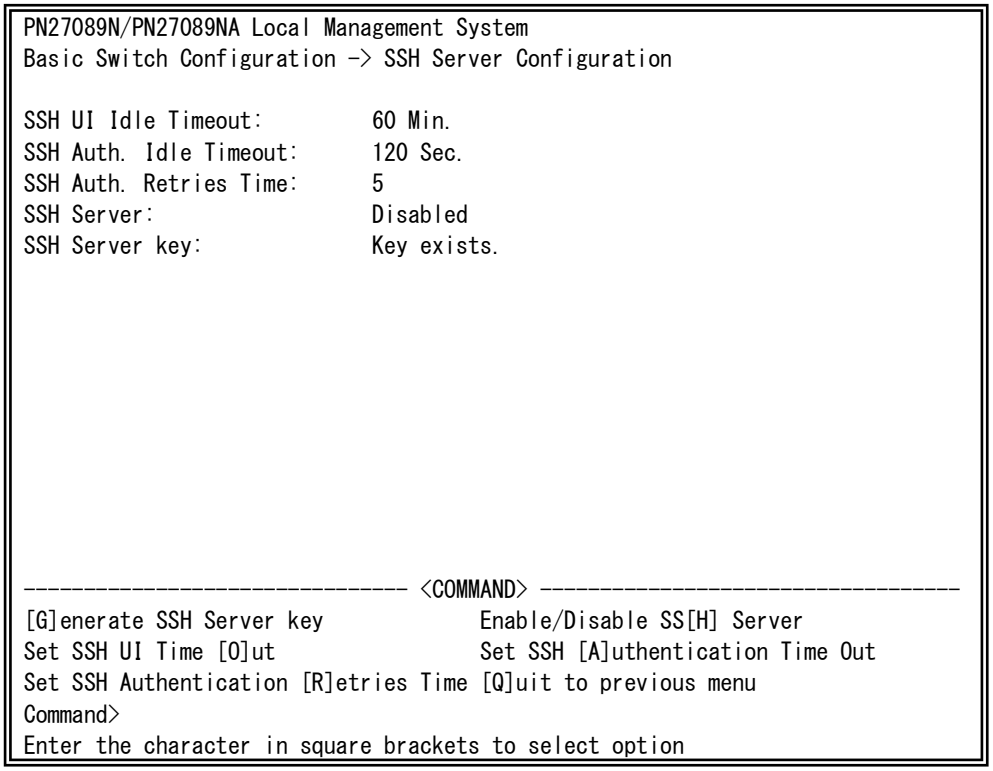


Fig. 4-6-15 SSH Server Configuration

Screen Description

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

Available commands are listed below.

G	Create a SSH server key.
	Press "G" to create the SSH server key.
H	Configure the SSH access settings.
	Press "H." The command prompt changes to "Enable or Disable SSH server(E/D)>." Enter "E" to enable the access. Enter "D" to disable the access.
O	Configure the idle timeout settings for automatically terminating a 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	Configure the time to wait for a response to SSH authentication
	Press "A." The command prompt changes to "Enter SSH authentication idle timeout>." Enter a value from 1 to 120 (seconds).
R	Configure the number of times of 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.e. LED Base Mode Configuration

On the System Security Configuration Menu, pressing "B" opens the LED Base Mode Configuration screen, as shown in Fig. 4-6-16. On this screen, you can set the LED base mode settings.

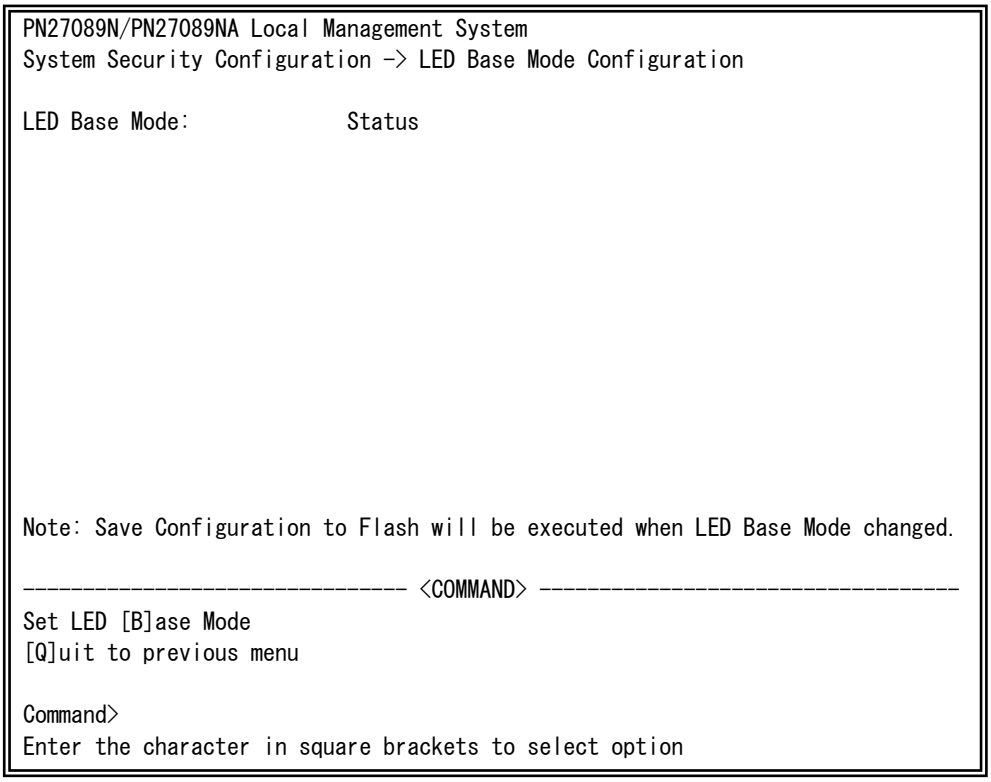


Fig. 4-6-16 LED Base Mode Configuration

Screen Description

LED Base Mode:	Displays the current LED base mode. For all ports, the factory default setting is set to the Status mode (Status).	
	Status	Operating in the Status mode.
	Eco	Operating in the ECO mode.

Available commands are listed below.

B	Change the current 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 to the ECO mode.
Q	Return to the previous menu.

Note: When you change the LED base mode, all configuration information will be saved into the flash memory.

4.6.8. Forwarding Database

On the Basic Switch Configuration Menu, pressing "F" opens the Forwarding Database Information Menu screen, as shown in Fig. 4-6-17. In this screen, a list of MAC address required for transferring packets that have been learned and recorded.

It is possible to add or delete MAC address statically.

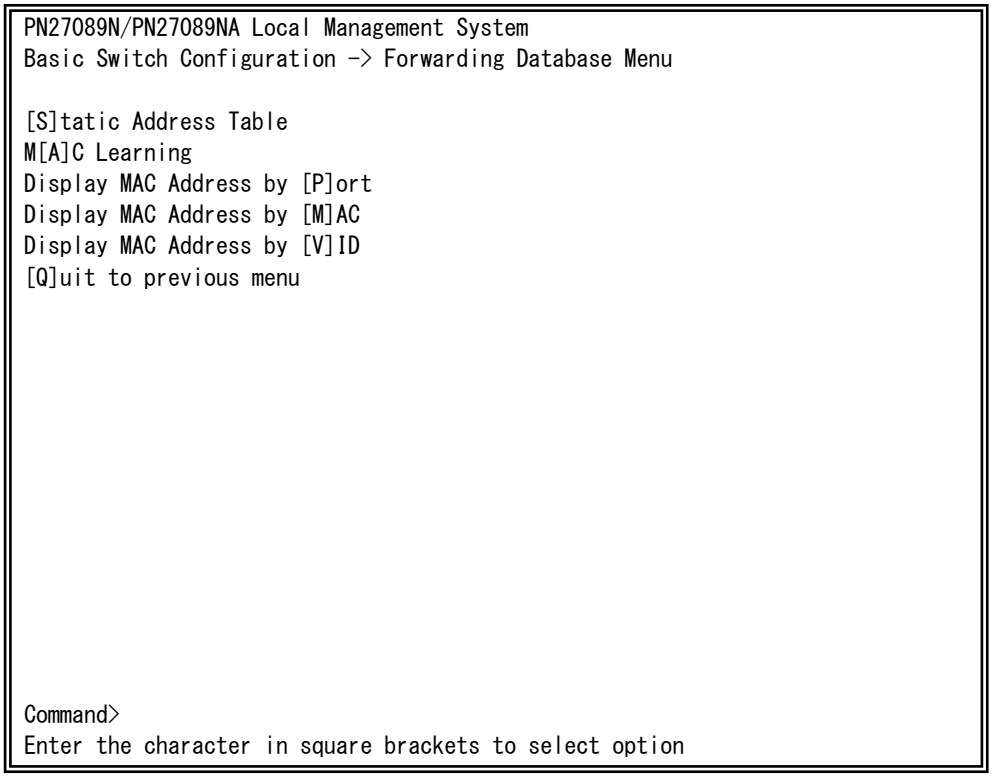


Fig. 4-6-17 Referring the MAC address table

Screen Description

Static Address Table	Adds or deletes MAC address of forwarding database.
MAC Learnig	Configures the learning mode of MAC address.
Display MAC Address by Port	Displays MAC Address table by port.
Display MAC Address by MAC	Displays all registered MAC addresses.
Display MAC Address by VID	Displays a MAC address table by VLAN.
Quit to previous menu	Return 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 screen, as shown in Fig. 4-6-18. In this screen, you can add or delete MAC address statically .

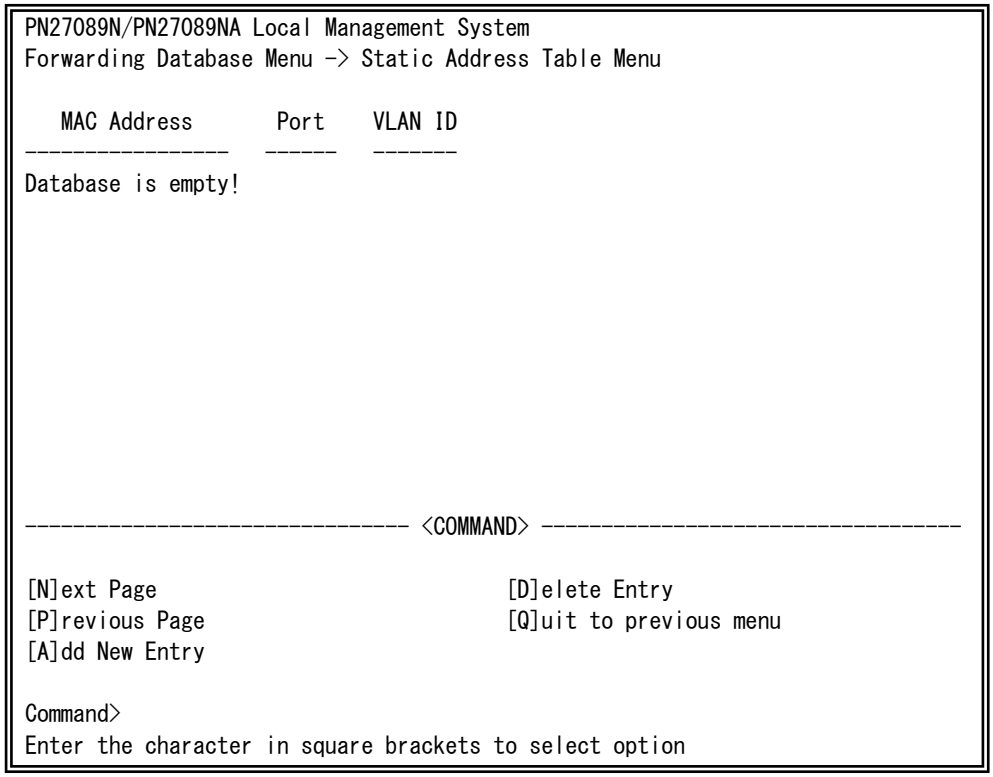


Fig. 4-6-18 Adding or deleting MAC address

Screen Description

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

Available commands are listed below.

N	Display the next page.
	Press "N" to display the next page.
P	Display the previous page.
	Press "P" to display the previous page.
A	Execute additional registration of 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 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 learning mode of MAC address

On the Forwarding Database Information Menu, pressing "A" opens the MAC Learning Menu screen, as shown in Fig. 4-6-19. In this screen, you can set a learning mode of MAC address by port.

```
PN27089N/PN27089NA Local Management System
Forwarding Database Menu -> MAC Learning Menu

 Port   MAC Learning
------  ------------
   1      Auto
   2      Auto
   3      Auto
   4      Auto
   5      Auto
   6      Auto
   7      Auto
   8      Auto
   9      Auto
  10      Auto


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

[S]et MAC Learning Mode                  [Q]uit to previous menu


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

Fig. 4-6-19 MAC Learning Menu

Screen Description

Port	Displays a port number.
MAC Learning	Displays a learning method of MAC address.

Available commands are listed below.

S	Switch learning mode.
	Press "S." The command prompt changes to "Select Port Number to be changed>." Enter a port number to change the setting. Then, the command prompt changes to "Change MAC Learning Mode for port # (specified port number)>." Enter "A" when learning automatically, or "D" when not learning MAC Address.
Q	Return to the previous menu.

Note: When IEEE802.1X port-based authentication is activated, the MAC Learning Mode for a port cannot be disabled in the MAC Learning Menu.

4.6.8.c. Displaying MAC address table by port

On the Forwarding Database Information Menu, press "P." The command prompt changes to "Enter Port Number>." Specifying a port number opens the Display MAC Address by Port screen as shown in Fig. 4-6-20. In this screen, you can display MAC address table by port.

```
PN27089N/PN27089NA Local Management System
Forwarding Database Menu -> Display MAC Address by Port

Age-Out Time:  300 Sec.                  Selected Port: 1

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









---------------------------------- <COMMAND> -------------------------------------
[N]ext Page                              [S]elect Port No
[P]revious Page                          [Q]uit to previous menu
Set [A]ge-Out Time

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

Fig. 4-6-20 Displaying MAC address table by port

Screen Description

Age-Out Time:	Displays 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).
Select Port:	Displays the selected port number.
MAC Address	Displays a MAC address in MAC address table.
Port	Displays a port to which the MAC address has belonged.

Available commands are listed below.

N	Display the next page.
	Press "N" to display the next port.
P	Display the previous page.
	Press "P" to display 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 by seconds.
S	Switch a port to be displayed.	
		Press "S." The command prompt changes to "Enter Port Number>." Enter a port number to display.
Q	Return to the previous menu.	

4.6.8.d. Displaying all MAC addresses

On the Forwarding Database Information Menu, pressing "M" opens the Display MAC Address by MAC screen, as shown in Fig. 4-6-21. In this screen, you can display all the MAC address tables in this Switching Hub.

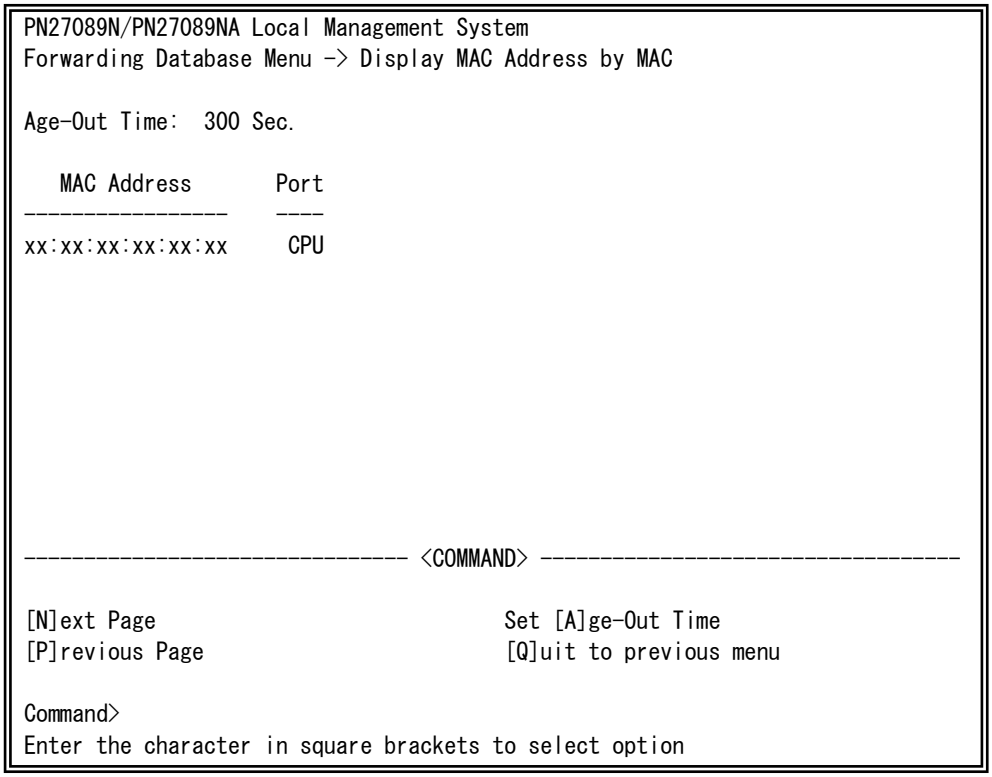


Fig. 4-6-21 Displaying all MAC addresses

Screen Description

Age-Out Time:	Displays 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	Displays all the entries in the MAC address table.
Port	Displays a port to which the MAC address has assigned.

Available commands are listed below.

N	Display the next page.
	Press "N" to display the next port.
P	Display the previous page.
	Press "P" to display 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 by seconds.
Q	Return to the previous menu.

4.6.8.e. Displaying MAC address table by VLAN

On the Forwarding Database Information Menu, press "V." The command prompt changes to "Enter VLAN ID>." Specifying a port number opens the Display MAC Address by VLAN ID screen as shown in Fig. 4-6-22. In this screen, you can display MAC Address table by VLAN.

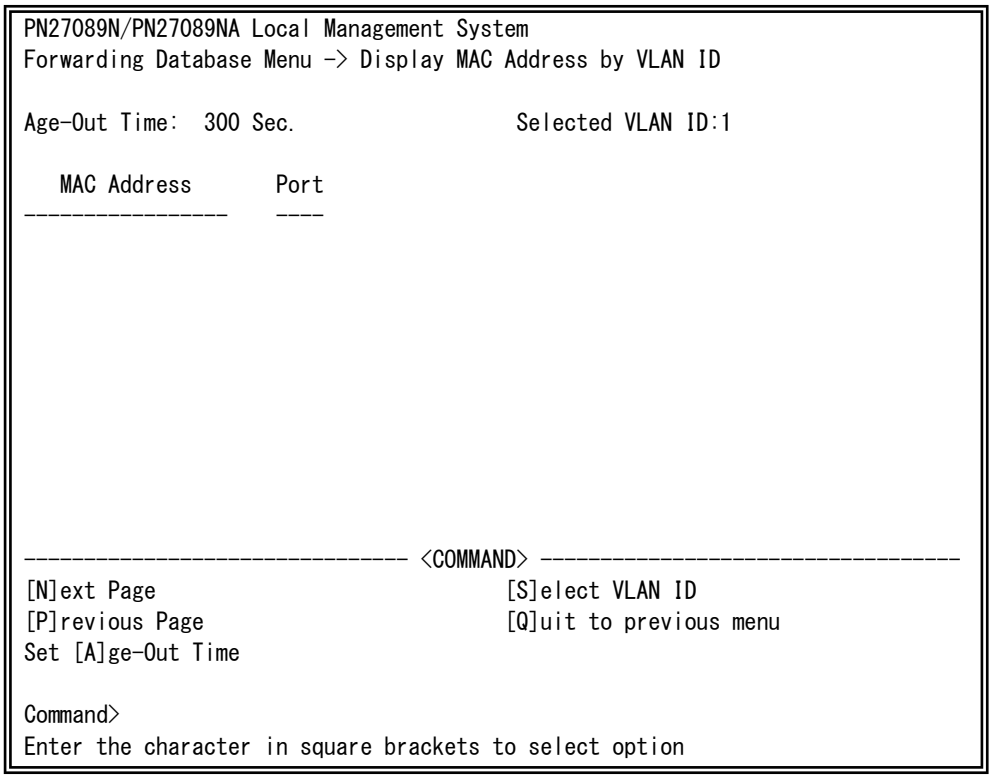


Fig. 4-6-22 Displaying MAC address table by VLAN

Screen Description

Age-Out Time:	Displays 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).
Select VLAN ID	Displays the selected VLAN ID.
MAC Address	Displays all the entries in the MAC address table.
Port	Displays a port to which the MAC address has assigned.

Available commands are listed below.

N	Display the next page.
	Press "N" to display the next port.
P	Display the previous page.
	Press "P" to display 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 by seconds.
S	Switch VLAN to be displayed.	
		Press "S." The command prompt changes to "Enter VLAN ID>." Enter VLAN ID to display.
Q	Return to the previous menu.	

4.6.9. SNTP 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 via SNTP (Simple Network Time Protocol).

On the Basic Switch Configuration Menu, pressing "T" opens the SNMP Configuration Menu, as shown in Fig. 4-6-23. In this screen, you can configure the SNTP settings.

```
PN27089N/PN27089NA Local Management System
Basic Switch Configuration -> Time Configuration Menu

Time ( HH:MM:SS )   : xx:xx:xx
Date ( YYYY/MM/DD ) : xxxx/xx/xx     xxxxxx

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

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

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. 4-6-23 SNTP Configuration Menu

Screen Description

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

Available commands are listed below.

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 time for SNTP synchronization.	
		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 of Daylight Saving (Summer time).	
		Press "E." The command prompt changes to "Enable or Disable Daylight Saving (E/D)>." Enter "E" to apply, or "D" not to apply Daylight Saving. But, in case time zone is set to where daylight saving is not applied, this configuration is not available. When this Switching Hub is used domestically, this configuration is not required.
Z	Set time zone.	
		Press "Z" to open a list of time zones. Specify a time zone to set. The factory default setting is "(GMT+09:00) Osaka, Sapporo, Tokyo."
Q	Return to the previous menu.	

Note: In case SNTP server is located outside of firewall, connection with SNTP server may not be possible depending on settings by system administrator.
For details, ask to your system administrator.
To disable SNTP synchronization function, set SNTP server IP to 0.0.0.0.

4.6.10. ARP Table Configuration

On the Basic Switch Configuration Menu, pressing "R" opens the ARP Table screen, as shown in Fig. 4-6-24. In this screen, you can refer and configure ARP table.

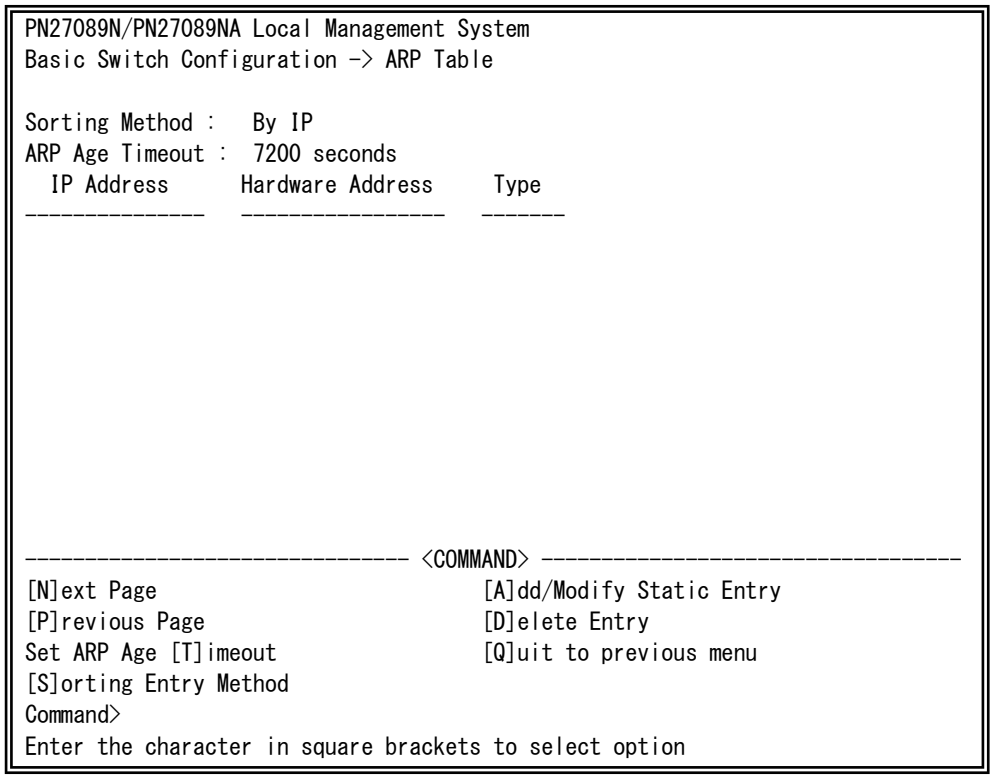


Fig. 4-6-24 ARP Table

Screen Description

Sorting Method:	Displays order of displaying.
ARP Age Timeout:	Displays Age-out time of ARP table.
IP Address	Displays IP address entries.
Hardware Address	Displays hardware(MAC) address on ARP table.
Type	Displays Type on ARP table.

Available commands are listed below.

N	Display the next page.	
		Press "N" to change the display to the next page.
P	Display the previous page.	
		Press "P" to change the display to the previous page.
T	Set an age-out time of ARP table.	
		Press "T." The command prompt changes to "Enter ARP age timeout value >." Enter Age-out time of ARP table with a value of 30 to 86400 (sec.).
S	Select order of displaying ARP table.	
		Press "S." The command prompt changes to "Select method for sorting entry to display (I/M/T)>." Enter "I" when displaying order of IP Address, or "M" when displaying order of Hardware Address, or "T" when displaying order of Type, respectively.
A	Add or correct 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 MAC Address in such way 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

Selecting "A" from Main Menu opens the Advanced Switch Configuration Menu screen, as shown in Fig. 4-7-1. In this screen, you can configure the settings of VLAN, Port Monitoring, Spanning Tree, QoS, Storm Control, IEEE802.1X authentication, IGMP Snooping, PoE, Ling Protocol, and loop detection function for this Switching Hub.

```
PN27089N/PN27089NA Local Management System
Main Menu -> Advanced Switch Configuration Menu

[V]LAN Management
[L]ink Aggregation
Port [M]onitoring Configuration
Rapid [S]panning Tree Configuration
Quality of Service [C]onfiguration
St[o]rm Control Configuration
802.1[X] Port Based Access Control Configuration
[I]GMP Snooping Configuration
Power Over [E]thernet Configuration
[R]RP Configuration
Loop [D]etection Configuration
[Q]uit to previous menu









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

Fig. 4-7-1 Advanced Switch Configuration

Screen Description

VLAN Management	Configures VLAN related settings.
Link Aggregation	Configures link aggregation settings.
Port Monitoring Configuration	Configures port monitoring settings.
Rapid Spanning Tree Configuration	Configures spanning tree related settings.
Access Conrol Configuration	Configures access control related settings.
Storm Control Configuration	Configures storm control settings.
802.1X Port Base Access Control Configuration	Configures IEEE802.1X authentication related settings.
IGMP Snooping Configuration	Configures IGMP Snooping related settings.

Power Over Ethernet Configuration	Configures PoE settings.
RRP Configuration	Configures ring protocol related settings.
Loop Detection Configuration	Configures loop detection settings.
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. VLAN Features

- Corresponding to IEEE802.1Q Tag VLAN, it is possible to send frames attaching a VLAN tag (hereinafter, called as just "tag").

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

- VLAN ID
  VLAN ID is VLAN identifier attached to each frame when tagged frames are handled. Also in case of untagged frames, ports are divided into group by this ID, and a destination of frame forwarding is determined by referring to this ID. Multiple VLAN IDs can be set to each port.

- PVID (Port VLAN ID)
  Only one PVID can be set to each port. When a untagged frame was received, this ID determines to which VLAN ID the frame should be transferred. In case of a tagged frame, this ID is not referred, and VLAN ID within tag is used instead.

4.7.1.b. VLAN Management Menu

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

```
PN27089N/PN27089NA 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]reate VLAN              [S]et Port Config
[P]revious Page           [D]elete VLAN              Set [I]nternet Mansion
Set [M]anagement Status   C[o]nfig VLAN Member       [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:	Displays a status of Internet Mansion mode.	
	Enabled	Internet Mansion mode is enabled.
	Disabled	Internet Mansion mode is disabled. (Factory default setting)
Uplink:	Indicates an Uplink port when Internet Mansion mode is enabled.	
VLAN ID	Indicates a VLAN ID of VLAN.	
VLAN Name	Indicates a VLAN name that has been configured.	
VLAN Type	Indicates a type of VLAN.	
	Permanent	Indicates that the VLAN is the one of initial setting. At least one VLAN must exist and this VLAN cannot be deleted.
	Static	Indicates that the VLAN is the newly configured one.
Mgmt	Indicates whether the VLAN is a management VLAN or not.	
	UP	Indicates that the VLAN is a management VLAN (VLAN that is possible to communicate with CPU).
	DOWN	Indicates that the VLAN is not a management VLAN.

Note: All ports belong to VLAN ID=1 (default VLAN) in factory default setting, and the management VLAN status of VLAN ID=1 is UP.

Available commands are listed below.

N	Display the next page.	
		Press "N" to change the display to the next page.
P	Display the previous page.	
		Press "P" to change the display to the previous page.
C	Create new VLAN.	
		Pressing "C" opens the "VLAN Create Menu" screen. For details, refer to the next section (4.7.1.c).
D	Delete a VLAN that has been configured.	
		Press "D." The command prompt changes to "Enter VLAN ID>." Enter VLAN ID to delete with a value of 2 to 4094.
M	Set the management VLAN.	
		Press "R." The command prompt changes to "Enter index number>." Enter VLAN ID to change the setting as a management VLAN with a value of 1 to 4094.
I	Configure Internet Mansion mode.	
		Press "I." The command prompt changes to "Enable or Disable Internet Mansion Function? (E/D>." Enter "E" to enable or "D" to disable the Internet Mansion mode, respectively. If you press "E", the command prompt changes to "Uplink port?>." Enter a port number to change the setting as Uplink port. By this setting, you can set the device to be optimum environment as a Switching Hub used in Internet Mansion. By this setting, the specified port becomes an Uplink port, and other ports become possible to communicate only with downlink port. Downlink ports become impossible to communicate each other. So, it becomes possible to ensure security between each resident. (There are some constrained conditions for use. Please execute configuration after confirming the precautions shown in the next page.)
O	Configure a port structure in VLAN.	
		Press "O." The command prompt changes to "Enter VLAN ID>." Enter VLAN ID to change the setting with a value of 1 to 4094. Then, the screen changes to "VLAN modification Menu" screen. For details, refer to the section (4.7.1.d).
S	Configure and confirm PVID by port.	
		Pressing "S" opens the "VLAN Port Configuration Menu" screen. For details, refer to the section (4.7.1.e).
Q	Return to the previous menu.	

Note: When creating a new VLAN, PVID settings are also required.
After create VLAN on this screen, make sure to confirm the configuration of Fig. 4-7-5 and Fig. 4-7-6.
You cannot delete VLAN which VLAN ID is still remained as PVID settings. Delete VLAN after changing PVID to other VLAN ID.

Note: When Internet Mansion mode is enabled, there are constrained conditions as the followings.
Please use the device after confirming these constrained conditions.
(1) Combined usage with Spanning Tree function is not possible.
(2) Combined usage with IGMP Snooping function is not possible.
(3) Combined usage with Link Aggregation function is not possible.
(4) Combined usage with Ring Protocol function is not possible.
(5) Registering to MAC Address table with Statically is not possible.
(6) Disabling MAC Learning function in Section 4.6.8.b is not possible.
(7) Only the Uplink port(s) belong to the management VLAN.

4.7.1.c. VLAN Creation Menu

On the VLAN Management Menu, pressing "C" command opens the VLAN Creation Menu screen, as shown in Fig. 4-7-3. In this screen, you can configure creating new VLAN-related settings.

```
PN27089N/PN27089NA 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:	Indicates the VLAN ID to create.
VLAN Name:	Indicates the VLAN name to create.
Port Members:	Indicates the port numbers belonging to new VLAN members.

Available commands are listed below.

S	Set the VLAN ID (VLAN Identifier).	
		Press "S." The command prompt changes to "Set VLAN ID->Enter VLAN ID>." Enter new VLAN ID.
N	Set a name of VLAN.	
		Press "N." The command prompt changes to "Set VLAN name->Enter VLAN name>." Enter new VLAN name in 32 characters or less.
P	Set the member(s) of VLAN.	
		Press "P." The command prompt changes to "Enter egress port number>." Enter a port number to set. When entering multiple port numbers, delimit with comma with no space, or hyphenate the continuous numbers.
A	Apply the VLAN creation.	
		By pressing "A", creates a new VLAN.
Q	Return to the previous menu.	

Note: After inputting the VLAN settings, enter "A" instead of "Q." Unless you enter "A", VLAN is not created.

4.7.1.d. VLAN Modification Menu

On the VLAN Management Menu, pressing "o" command and specifying VLAN ID of object opens the VLAN Modification Menu screen, as shown in Fig. 4-7-4. In this screen, you can modify the VLAN settings.

```
PN27089N/PN27089NA Local Management System
VLAN Management -> VLAN Modification Menu

VLAN ID        : 1
VLAN Name      :

Port Members   : 1-10
Untagged Ports : 1-10

-------------------------------- <COMMAND> ----------------------------------
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. 4-7-4 VLAN Modification Menu

Screen Description

VLAN Name:	Indicates the VLAN name.
Port Member:	Indicates the VLAN port member(s).
Untagged Port:	Indicates the untagged ports.

Available commands are listed below.

N	Set a name of VLAN.	
		Press "N." The command prompt changes to "Set VLAN name->Enter VLAN name>." Enter new VLAN name in 30 characters or less.
P	Set the member(s) port of VLAN.	
		Press "P." The command prompt changes to "Enter egress port number>." Enter a port number to set. When entering multiple port numbers, delimit with comma with no space, or hyphenate the continuous numbers.
A	Apply to modify the VLAN settings.	
		By pressing "A", apply the modifiled settings.
Q	Return to the previous menu.	

4.7.1.e. VLAN Port Configuration Menu

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

```
PN27089N/PN27089NA 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          [Q]uit to previous menu
Set Port [V]ID



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

Fig. 4-7-5 VLAN Port Configuration Menu

Screen Description

Port	Indicates the port number.	
PVID	Indicates a PVID (Port VLAN ID) that has been set to the port. PVID displays VLAN ID to which untagged packet should be transferred when it was received. The factory default setting is 1. When tagged packet was received, destination port is determined by referring the tag regardless of PVID.	
Acceptable Type	Indicates type of received frame.	
	Admit All	Receives all frames.
	Tagged Only	Receives only the tagged frames.

Available commands are listed below.

V	Configure PVID settings.	
		Press "V." The command prompt changes to "Enter port number>." Enter a port number to change the setting. Then, the command prompt changes to "Enter PVID for port #>." Enter VLAN ID you wish to modify among the already configured VLAN IDs.
F	Set type of receive packet.	
		Press "F." The command prompt changes to "Enter port number>." Enter a port number you wish to modify. Then, the command prompt changes to "Select port acceptable frame type (A/T)>." Enter "A" to receive all the frames, or "T" to receive only the tagged frames, respectively.
Q	Return to the previous menu.	

Note: This Switching Hub is possible to assign multiple VLANs to one port. When new VLAN was configured, it belongs to both VLAN to which it has belonged and the new VLAN. So, when you divide the domain, make sure to delete it from a VLAN to which it has belonged.

4.7.2. Link Aggregation

4.7.2.a. About Link aggregation

Link aggregation is a function that is possible to increase bandwidth between switches by grouping multiple Switching Hub ports and connecting the grouped ports each other. Using this Link Aggregation function is called as trunking.
This Switching Hub supports the LACP (Link Aggregation Control Protocol) specified in IEEE802.3ad. By this, it is possible to construct Link Aggregation up to 8 ports per group.

Note:	In this Switching Hub, it is not possible to construct a trunking system in which 100M-port and Giga-port are mixed. Combined usage of Spanning Tree mode and Internet Mansion mode is not possible.

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

4.7.2.b. Trunk Configuration Menu

On the Advanced Switch Configuration Menu, pressing "L" opens the Trunk Configuration Menu screen, as shown in Fig. 4-7-8. In this screen, you can configure trunking.

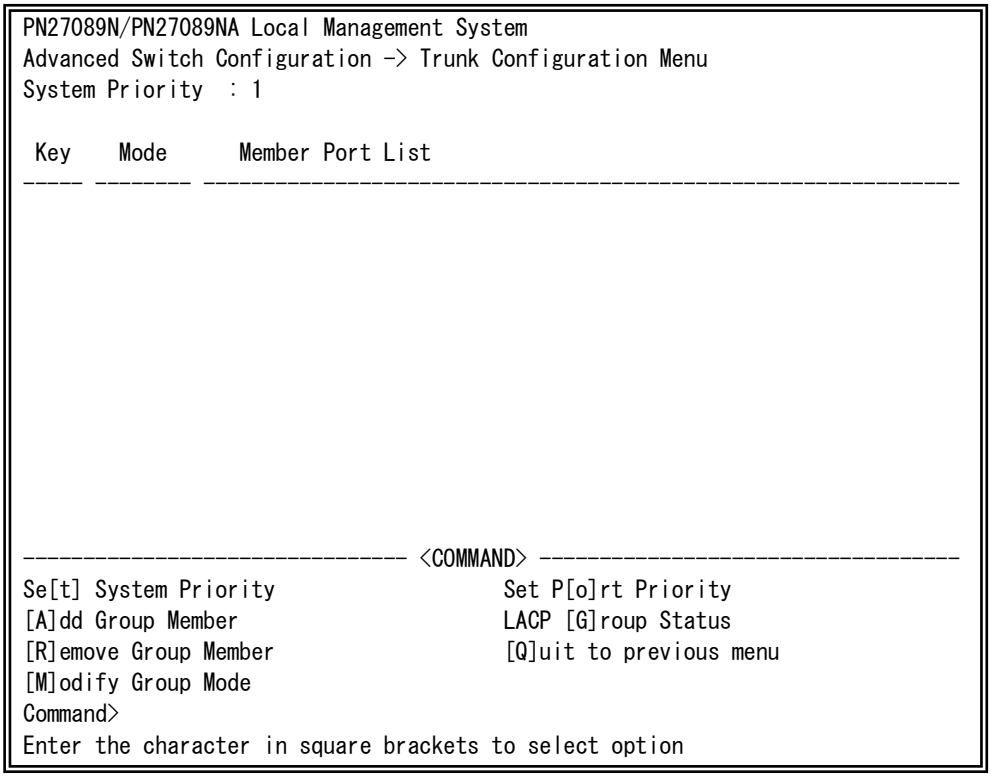


Fig. 4-7-8 Trunk Configuration

Screen Description

System Priority:	System priority is an order of priority in this Switching Hub required for constructing trunking on the network using LACP. Smaller number has higher priority. The factory default setting is 1.	
Key	Indicates the group number of trunking.	
Mode	Indicates the operation mode of trunking.	
	Active	Sends out LACP packet from this Switching Hub and constructs a trunk by negotiating with other side. It is required that the other side mode is Active or Passive.
	Passive	Does not send out LACP packet from this Switching Hub and constructs a trunk by negotiating with other side using LACP packet received from other side. It is required that the other side mode is Active.
	Manual	Constructs trunking forcibly without using LACP packet. It is required that the other side is the same configuration as this side.
Members Port List	Indicates the port belonging to trunking group.	

Note: If each Switching Hub uses LACP passive mode, LACP negotiation is not executed then the packet storm may be occurred. When constructing trunking using LACP, make sure to configure one side to be Active.

Available commands are listed below.

N	Display the next page.	
		Press "N" to change the display to the next page.
P	Display the previous page.	
		Press "P" to change the display to the previous page.
T	Set System Priority value of this Switching Hub in LACP.	
		Press "T." The command prompt changes to "Enter system priority for LACP >."
A	Configure new trunking settings.	
		Press "A." The command prompt changes to "Enter trunk group admin key>." Enter a group number to change the setting. The command prompt changes to "Enter port member for group key #>." Enter a port number you wish to do trunking. When entering multiple port numbers, delimit with comma (,) with no space (example: "1,2,3"), or hyphenate the continuous numbers (example: "1-8"). Then, the command prompt changes to "LACP Active, LACP Passive or Manual trunk setting(A/P/M)>." Enter "A" to make operation mode Active, or "P" to make it Passive, or "M" to make it Manual, respectively.
R	Remove trunking settings.	
		Press "R." The command prompt changes to "Enter trunk group admin key>." Enter a group number you wish to delete. The command prompt changes to "Enter port member port for group key #>." Enter a port number you wish to do rdelete. When entering multiple port numbers, delimit with comma with no space, or hyphenate the continuous numbers.
M	Modify the operation mode of trunking.	
		Press "M." The command prompt changes to "Enter trunk group admin key>." Enter a group number you wish to modify. Then, the command prompt changes to "LACP Active, LACP Passive or Manual trunk setting(A/P/M)>." Enter "A" to make operation mode Active, or "P" to make it Passive, or "M" to make it Manual, respectively.
O	Set System Priority value of this Switching Hub by port in trunking.	
		Press "o" to open the "Set port Priority" screen. For detailed setting procedure, refer to the section (4.7.2.c).
G	Display a status of LACP group.	
		Press "G." The command prompt changes to "Enter trunk group number >." Enter a key of group you wish to display. (Only the group of which mode is Active or Passive can be entered.) Then, the screen changes to "LACP Status." For details, refer to the section (4.7.2.d).
Q	Return to the previous menu.	

Note: In this Switching Hub, it is possible to set members of up to 10 ports to one group, but it is up to 8 ports that execute trunking operation. Members after the 9th port in that group get into backup mode. When a failure occurred in link of 1-8 ports, one of them becomes a member that constructs trunk on behalf of that port. In this case, priority order to become a member is determined by Port Priority that is set in next section (4.7.2.c), and, when Priority value is the same to all, trunk is constructed by a member starting from the smallest port number in order.

4.7.2.c. Set Port Priority for LACP

On the Trunk Configuration Menu, pressing "o" opens the Set Port Priority screen, as shown in Fig. 4-7-9. In this screen, you can set priority value of trunking.

```
PN27089N/PN27089NA Local Management System
Trunk Configuration Menu -> Set Port Priority

System Priority :   1
System ID       :   xx:xx:xx:xx:xx:xx

Port   Priority
-----  ----------
  1       1
  2       1
  3       1
  4       1
  5       1
  6       1
  7       1
  8       1
  9       1
 10       1

-------------------------------- <COMMAND> ----------------------------------
[S]et Port Priority                         [Q]uit to previous menu

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

Fig. 4-7-9 Set Port Priority

Screen Description

System Priority:	System priority is an order of priority in this Switching Hub required for constructing trunking on the network using LACP. Smaller number has higher priority. The factory default setting is 1.
System ID:	System ID is an identifier of this Switching Hub required for constructing trunking on the network using LACP. MAC Address of this Switching Hub becomes this System ID, and it is not possible to change this ID. Combination of System Priority value and System ID becomes a System ID in LACP.
Port	This is a port number of this Switching Hub.
Priority	This is a priority order of this Switching Hub by port in trunking. Smaller number has higher priority. The factory default settings for each port are 1.

Available commands are listed below.

N	Display the next page.	
		Press "N" to change the display to the next page.
P	Display the previous page.	
		Press "P" to change the display to the previous page.
S	Set a Priority value (priority order) by port.	
		Press "S."
Q	Return to the previous menu.	

4.7.2.d. LACP Group Status

On the Trunk Configuration Menu, pressing "G" command and specifying Key that has become LACP group open the LACP Group Status screen, as shown in Fig. 4-7-10. In this screen, you can confirm the status of LACP group. (Displaying status is possible only for key of which mode is Active or Passive.)

```
PN27089N/PN27089NA Local Management System
Trunk Configuration Menu -> LACP Status

System Priority :   1
System ID       :   xx:xx:xx:xx:xx:xx
Key             :   1

Aggregator        Attached Port List
----------  --------------------------------









-------------------------------- <COMMAND> ----------------------------------
[Q]uit to previous menu
Command>
Enter the character in square brackets to select option
```

Fig. 4-7-10 LACP Group Status

Screen Description

System Priority:	System priority is an order of priority in this Switching Hub required for constructing trunking on the network using LACP. Smaller number has higher priority. The factory default setting is 1.
System ID:	System ID is an identifier of this Switching Hub required for constructing trunking on the network using LACP. MAC Address of this Switching Hub becomes this System ID, and it is not possible to change this ID. Combination of System Priority value and System ID becomes a System ID in LACP.
Key:	Indicates the group number of trunking.
Aggregator	Aggregator is a number of logical interface of trunking. This is the same number as the one of the port of which Priority value is the highest in the ports that are constructing trunking.
Attached Port List	This is a number of physical interface (Port) connected to logical interface (Aggregator).

Available commands are listed below.

N	Display the next page.	
		Press "N" to change the display to the next page.
P	Display the previous page.	
		Press "P" to change the display to the previous page.
Q	Return to the previous menu.	

4.7.3. Port Monitoring Configuration

On the Advanced Switch Configuration Menu, pressing "M" opens the Port Monitoring Configuration Menu screen, as shown in Fig. 4-7-11. In this Switching Hub, when analyzing communication using a protocol analyzer, etc., it is possible to monitor other port's packet that is hidden under normal conditions because of being filtered. In this screen, you can configure a port to be monitored.

```
PN27089N/PN27089NA 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 Monitoring Status
[Q]uit to previous menu



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

Fig. 4-7-11 Port Monitoring Configuration

Screen Description

Monitoring Port	Indicates a port number of a port that is possible to monitor other port's packet.	
Be Monitored Port(s)	Indicates a port number of a port to be monitored.	
Direction	Indicates which packet should be monitored either the transmit packet or the receive packet of a monitored port.	
	Tx	Monitors the transmit packet.
	Rx	Monitors the receive packet.
	Both	Monitors both of the transmit and receive packet.
Status	Indicates whether monitoring is executed or not.	
	Enabled	Monitoring the packet is enabled.
	Disabled	Monitoring the packet is disabled.

Available commands are listed below.

S	Set a port to be monitored (port to which analyzer, etc. is connected).	
		Press "S." The command prompt changes to "Enter port number>." Enter a port number to change the setting.
M	Configure a port to be monitored.	
		Press "M." The command prompt changes to "Enter port number>." Enter a port number you wish to monitor. (Possible to configure multiple ports)
D	Configure which packet should be monitored either the transmit packet or the receive packet.	
		Press "D." The command prompt changes to "Select port monitoring direction(R/T/B)>." Enter "R" when monitoring the receive packet, or "T" when monitoring the transmit packet, or "B" when monitoring both of the receive and transmit packet, respectively.
C	Start or stop monitoring.	
		Press "C." The command prompt changes to "Enter the select(E/D)>." Enter "E" if you wish to start (Enable) monitoring. Enter "D" if you wish to stop (Disable) monitoring.
Q	Return to the previous menu.	

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

Note: Management packet such as Ping or ARP transmitted from this Switching Hub cannot be captured.

4.7.4. Rapid Spanning Tree Configuration

On the Advanced Switch Configuration Menu, pressing "S" opens the Rapid Spanning Tree Configuration Menu screen, as shown in Fig. 4-7-12.
This Switching Hub supports the following two modes: IEEE802.1D-compatible Spanning Tree Protocol (STP: Fig. 4-7-13) and IEEE802.1w Rapid Spanning Tree Protocol (RSTP: Fig. 4-7-14).

```
PN27089N/PN27089NA Local Management System
Advanced Switch Configuration -> Rapid Spanning Tree Configuration

Global RSTP Status: Disabled           Protocol Version: RSTP

Root Port:       0                     Time Since Topology Change: 0      Sec.
Root Path Cost:  0                     Topology Change Count:      0

Designated Root: 0000 000000000000     Bridge ID:            0000 000000000000
Hello Time:      2     Sec.            Bridge Hello Time:    2     Sec.
Maximum Age:     20    Sec.            Bridge Maximum Age:   20    Sec.
Forward Delay:   15    Sec.            Bridge Forward Delay: 15    Sec.

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

[E]nable/Disable Global RSTP           Set Bridge [F]orward Delay
Set RSTP Protocol [V]ersion            RSTP [B]asic Port Configuration
Set Bridge [P]riority                  RSTP [A]dvanced Port Configuration
Set Bridge [H]ello Time                Topology [I]nformation
Set Bridge [M]aximum Age               [Q]uit to previous menu


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

Fig. 4-7-12 Spanning Tree Configuration

```
PN27089N/PN27089NA Local Management System
Advanced Switch Configuration -> Rapid Spanning Tree Configuration

Global RSTP Status: Enabled            Protocol Version: STP-Compatible

Root Port:       0                     Time Since Topology Change: 2      Sec.
Root Path Cost:  0                     Topology Change Count:      0

Designated Root: 8000 xxxxxxxxxxxx     Bridge ID:            8000 xxxxxxxxxxxx
Hello Time:      2     Sec.            Bridge Hello Time:    2     Sec.
Maximum Age:     20    Sec.            Bridge Maximum Age:   20    Sec.
Forward Delay:   15    Sec.            Bridge Forward Delay: 15    Sec.

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

[E]nable/Disable Global RSTP           Set Bridge [F]orward Delay
Set RSTP Protocol [V]ersion            RSTP [B]asic Port Configuration
Set Bridge [P]riority                  RSTP [A]dvanced Port Configuration
Set Bridge [H]ello Time                Topology [I]nformation
Set Bridge [M]aximum Age               [Q]uit to previous menu


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

Fig. 4-7-13 STP mode

```
PN27089N/PN27089NA Local Management System
Advanced Switch Configuration -> Rapid Spanning Tree Configuration

Global RSTP Status: Enabled            Protocol Version: RSTP

Root Port:       0                     Time Since Topology Change: 67     Sec.
Root Path Cost:  0                     Topology Change Count:      0

Designated Root: 8000 xxxxxxxxxxxx     Bridge ID:            8000 xxxxxxxxxxxx
Hello Time:      2     Sec.            Bridge Hello Time:    2     Sec.
Maximum Age:     20    Sec.            Bridge Maximum Age:   20    Sec.
Forward Delay:   15    Sec.            Bridge Forward Delay: 15    Sec.

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

[E]nable/Disable Global RSTP           Set Bridge [F]orward Delay
Set RSTP Protocol [V]ersion            RSTP [B]asic Port Configuration
Set Bridge [P]riority                  RSTP [A]dvanced Port Configuration
Set Bridge [H]ello Time                Topology [I]nformation
Set Bridge [M]aximum Age               [Q]uit to previous menu


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

Fig. 4-7-14 RSTP mode

Screen Description

Global RSTP Status:	Indicates the operation status of Spanning Tree.	
	Enabled	Spanning Tree is enabled.
	Disabled	Spanning Tree is disabled. (Factory default setting)
Protocol Version:	Indicates a version of Spanning Tree.	
	RSTP	Operates with IEEE802.1w Rapid Spanning Tree Protocol.
	STP-Compatible	Operates with IEEE802.1D-compatible Spanning Tree Protocol.
Root Port:	Displays the present root port.	
Root Path Cost:	Displays a cost from the root port to root bridge.	
Time Since Topology Change:	Displays elapsed time (sec.) from changing configuration of spanning tree.	
Topology Change Count:	Displays the number of changes in configuration of spanning tree.	
Designated Root:	Displays bridge ID of a root bridge.	
Hello Time:	Displays an access interval with a root bridge for confirming the spanning tree configuration.	
Maximum Age:	Displays a timeout period of the Hello message.	
Forward Delay:	Displays transition time of spanning tree status, such as from Listening to Learning or Learning to Forwarding.	
Bridge ID:	Displays bridge ID of the Switching Hub. Bridge ID is configured with bridge priority and MAC address. The factory default setting of the bridge priority is 8000.	
Bridge Hello Time:	Displays the Hello time when the Switching Hub becomes the root bridge.	
Bridge Maximum Age:	Displays Maximum Age when the Switching Hub becomes the root bridge.	
Bridge Forward Delay:	Displays Forward Delay when the Switching Hub becomes the root bridge.	

Note: Spanning Tree and the Internet Mansion mode or Link Aggregation cannot be used simultaneously.

Available commands are listed below.

E	Configure the global Spanning Tree status
	Press "E." The command prompt changes to "Enable or Disable STP (E/D)>." Enter "E" to enable the Spanning Tree function, or "D" to disable, respectively.
V	Configure an operation mode of Spanning Tree Protocol.
	Press "V." The command prompt changes to "Set RSTP protocol version (S/R)>." Enter "S" to operate with IEEE802.1D-compatible Spanning Tree Protocol, or "R" to operate with IEEE802.1w Rapid Spanning Tree Protocol, respectively.
B	Configure basic setting by port.
	Press "B" to open the "Basic Port Configuration" screen and configure basic setting by port. For configuration method, refer to the section (4.7.3.a).
A	Configure advanced setting by port.
	Press "A" to open the "Advanced Port Configuration" screen and configure advanced setting by port. For configuration method, refer to the section (4.7.3.b).
P	Configure bridge priority.
	Press "P." The command prompt changes to "Enter bridge priority>." Enter a value within the range specified in the black band at the bottom of the screen.
H	Configure Bridge hello time.
	Press "H." The command prompt changes to "Enter bridge hello time>." Enter a value within the range specified in the black band at the bottom of the screen.
M	Configure Bridge maximum age.
	Press "M." The command prompt changes to "Enter bridge maximum age>." Enter a value within the range specified in the black band at the bottom of the screen.
F	Configure Bridge forward delay.
	Press "F." The command prompt changes to "Enter bridge forward delay>." Enter a value within the range specified in the black band at the bottom of the screen.
I	Display topology information by port.
	Press "I" to open the "Designated Topology Information" screen and refer topology information by port. For details, refer to the section (4.7.3.c).
Q	Return to the previous menu.

Note: All values of "Bridge Hello Time", "Bridge Maximum Age", and "Bridge Forward Delay" are related to each other. If you change one parameter, it automatically affects the setting range for other parameters. The setting range will be displayed in the black band at the bottom of the screen.

4.7.4.a. Basic Port Configuration

On the Rapid Spanning Tree Configuration Menu, pressing "B" opens the Basic Port Configuration screen, as shown in Fig. 4-7-15. On this screen, you can do Spanning Tree configuration for each port.

```
PN27089N/PN27089NA Local Management System
Rapid Spanning Tree Configuration -> Basic Port Configuration

Port  Trunk   Link     State        Role     Priority   Path Cost  STP Status
----  -----   ----   ----------   ----------  ---------  ---------  ----------
  1    ---    Down   Discarding   Disabled       128     200000(A)   Enabled
  2    ---    Down   Discarding   Disabled       128     200000(A)   Enabled
  3    ---    Down   Discarding   Disabled       128     200000(A)   Enabled
  4    ---    Down   Discarding   Disabled       128     200000(A)   Enabled
  5    ---    Down   Discarding   Disabled       128     200000(A)   Enabled
  6    ---    Down   Discarding   Disabled       128     200000(A)   Enabled
  7    ---    Down   Discarding   Disabled       128     200000(A)   Enabled
  8    ---    Down   Discarding   Disabled       128     200000(A)   Enabled
  9    ---    Down   Discarding   Disabled       128     20000(A)    Enabled
 10    ---    Down   Discarding   Disabled       128     20000(A)    Enabled


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

Set Port Pr[i]ority                        Set Port STP [S]tatus
Set Port Path [C]ost                       [Q]uit to previous menu

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

Fig. 4-7-15 Basic Port Configuration

Screen Description

Port	Displays the port number.	
Link	Displays the state of link.	
	UP	Link is established normally.
	DOWN	Link is not established.
State	Displays the present state of port.	
	Forwarding	Displays the state of normal communications based on the calculation result.
	Learning	Displays the state under calculation based on information.
	Discarding	Displays the state that calculation is not carried out.
Role	Displays the role of port in the spanning tree.	
	Designated	Operating as a designated port
	Root	Operating as a root port
	Alternate	Operating as an alternate port
	Backup	Operating as a backup port
	Disabled	STP is not working.
Priority	Displays priority of each port in the Switching Hub. Higher number has higher priority. For all ports, the factory default setting is set to 128. (A value is a multiple of 16.)	
Path Cost	Displays the cost of each port. Ports 1 to 8 are set to 200000 and Ports 9 to 10 are set to 20000 at factory default setting.	
STP Status	Displays enable/disable of the spanning tree of each port.	
	Enabled	Spanning Tree is enabled.
	Disabled	Spanning Tree is disabled.

Available commands are listed below.

I	Set priority of each port in the Switching Hub.	
		Press "I" to change the command prompt to "Select port number to be changed>." Enter a port number. Then, "Enter priority for port #>" is displayed. Enter a number from 0 to 255 in a multiple of 16.
C	Set a cost of each port.	
		Press "C" to change the command prompt to "Select port number to be changed>." Enter a port number. Then, "Enter path cost for port #>" is displayed. Enter a number from 1 to 200000000.
S	Set enable/disable of the spanning tree of each port.	
		Press "S" to change the command prompt to "Select port number to be changed>." Enter a port number. Then, "Enable or Disable STP for port # (E/D)>" is displayed. If the spanning tree is used, press "E." If not, press "D."
Q	Return to the previous menu.	

4.7.4.b. Advanced Port Configuration

On the Rapid Spanning Tree Configuration Menu, pressing "A" opens the Advanced Port Configuration screen, as shown in Fig. 4-7-16. On this screen, you can do advanced configuration on Spanning Tree for each port.

```
PN27089N/PN27089NA Local Management System
Rapid Spanning Tree Configuration -> Advanced Port Configuration

Port Trunk  Link    State        Role     Admin/OperEdge Admin/OperPtoP Migrat
---- -----  ----  ----------  ----------  -------------- -------------- ------
  1   ---   Down  Discarding  Disabled     False/False    Auto /False   Init.
  2   ---   Down  Discarding  Disabled     False/False    Auto /False   Init.
  3   ---   Down  Discarding  Disabled     False/False    Auto /False   Init.
  4   ---   Down  Discarding  Disabled     False/False    Auto /False   Init.
  5   ---   Down  Discarding  Disabled     False/False    Auto /False   Init.
  6   ---   Down  Discarding  Disabled     False/False    Auto /False   Init.
  7   ---   Down  Discarding  Disabled     False/False    Auto /False   Init.
  8   ---   Down  Discarding  Disabled     False/False    Auto /False   Init.
  9   ---   Down  Discarding  Disabled     False/False    Auto /False   Init.
 10   ---   Down  Discarding  Disabled     False/False    Auto /False   Init.


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

Set Port [E]dge Status                    Restart Port [M]igration
Set Port P-[t]o-P Status                  [Q]uit to previous menu

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

Fig. 4-7-16 Advanced Port Configuration

Screen Description

Port	Displays the port number.	
Link	Displays the state of link.	
	UP	Link is established normally.
	DOWN	Link is not established.
State	Displays the present state of port.	
	Forwarding	Displays the state of normal communications based on the calculation result.
	Learning	Displays the state under calculation based on information.
	Discarding	Displays the state that calculation is not carried out.
Role	Displays the role of port in the spanning tree.	
	Designated	Operating as a designated port.
	Root	Operating as a root port.
	Alternate	Operating as an alternate port.
	Backup	Operating as a backup port.
	Disabled	STP is not working.
Admin/ OperEdge	Displays the setting of the edge port (a port that can be immediately forwarded). Admin: Administration displays the setting status, and Oper: Operation displays the actual status.	
	True	Can be set to the edge port.
	False	Cannot be set to the edge port.
Admin/ OperPtoP	Displays point-to-point connection of the Switching Hub. Admin: Administration displays the setting status, and Oper: Operation displays the actual status.	
	Auto	Automatically recognizes according to the port status. (Only Admin)
	True	P-to-P connected.
	False	Not P-to-P connected.
Migrat	Displays the current operation status of the spanning tree.	
	STP	STP is working.
	RSTP	RSTP is working.
	Init.	STP is not working.

Available commands are listed below.

E	Set Edge Status of each port.	
		Press "E" to change the command prompt to "Select port number to be changed>." Enter a port number. Then, "Set edge port for port # (T/F)>" is displayed. For True, press "T." For False, press "F."
T	Set P-to-P Status of each port.	
		Press "T" to change the command prompt to "Select port number to be changed>." Enter a port number. Then, "Set point-to-point port for port # (A/T/F)>" is displayed. For Auto, press "A." For True, press "T." For False, press "F."
M	Restart the operation of the spanning tree.	
		Press "M" to change the command prompt to "Select port number to be changed>." Enter a port number. Then, "Restart the protocol migration process for port #? (Y/N)>" is displayed. If you restart, press "Y." If not, press "N."
Q	Return to the previous menu.	

4.7.4.c. Designated Topology Information

On the Rapid Spanning Tree Configuration Menu, pressing "I" opens the Designated Topology Information screen, as shown in Fig. 4-7-17. This screen displays configuration information of the spanning tree for each port.

```
PN27089N/PN27089NA Local Management System
Rapid Spanning Tree Configuration -> Designated Topology Information

Port Trunk  Link     Desig. Root     Desig. Cost   Desig. Bridge   Desig. Port
---- -----  ----  -----------------  ----------- ----------------- -----------
  1   ---   Down  0000 000000000000   0           0000 000000000000    00 00
  2   ---   Down  0000 000000000000   0           0000 000000000000    00 00
  3   ---   Down  0000 000000000000   0           0000 000000000000    00 00
  4   ---   Down  0000 000000000000   0           0000 000000000000    00 00
  5   ---   Down  0000 000000000000   0           0000 000000000000    00 00
  6   ---   Down  0000 000000000000   0           0000 000000000000    00 00
  7   ---   Down  0000 000000000000   0           0000 000000000000    00 00
  8   ---   Down  0000 000000000000   0           0000 000000000000    00 00
  9   ---   Down  0000 000000000000   0           0000 000000000000    00 00
 10   ---   Down  0000 000000000000   0           0000 000000000000    00 00


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


[Q]uit to previous menu

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

Fig. 4-7-17 Designated Topology Information

Screen Description

Port	Displays the port number.	
Link	Displays the state of link.	
	UP	Link is established normally.
	DOWN	Link is not established.
Desig.Root	Displays root bridge ID.	
Desig.Cost	Displays cost under transmission.	
Desig.Bridge	Displays bridge ID of a designated bridge.	
Desig.Port	Displays port ID of a designated port. (Port ID is a combination of port priority value and port number.)	

Available commands are listed below.

Q	Return to the previous menu.

4.7.5. Quality of Service Configuration

On the Advanced Switch Configuration Menu, pressing "C" opens the Quality of Service Configuration Menu, as shown in Fig. 4-7-18. QoS (Quality of Service) configuration of the Switching Hub is available.

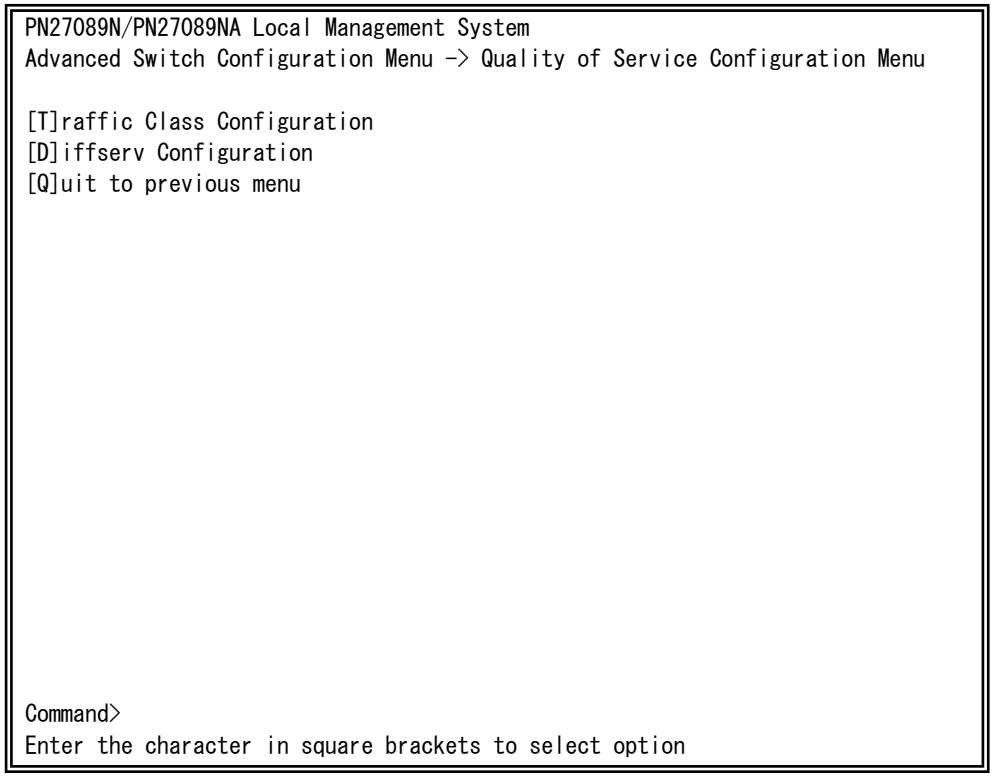


Fig. 4-7-18 QoS Configuration

Available commands are listed below.

T	Move to the Traffic Class configuration screen.	
		Press "T" to change the screen to the Traffic Class Configuration Menu. Refer to the section 4.7.5.a for how to set.
D	Move to the DiffServ configuration screen.	
		Press "D" to change the screen to the Diffserv Configuration Menu. Refer to the section 4.7.5.c for how to set.
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. 4-7-19. On this screen, you can set Traffic Class.

```
PN27089N/PN27089NA 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                      3: Highest

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

[S]et QoS Status                      [Q]uit to previous menu
Set Priority-Traffic Class [M]apping
Scheduling Method [C]onfig.

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

Fig. 4-7-19 Traffic Class Configuration

Screen Description

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

Available commands are listed below.

S	Switch enabled/disabled of the QoS function.	
		Press"S" to change the command prompt to "Enable or Disable QoS (E/D)>." To enable the QoS function, press "E." To disable it, press "D."
M	Assign priority (Traffic Class) to a priority value of IEEE802.1p.	
		Press "M" to change the command prompt 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 Traffic Class (0 to 3).
C	Move to the screen for configuring a scheduling method.	
		Press "C" to change the screen to Scheduling Method. Refer to the section 4.7.5.b for how to set.
Q	Return to the previous menu.	

4.7.5.b. Scheduling Method

On the Quality of Service Configuration Menu, pressing "C" opens the Scheduling Method screen, as shown in Fig. 4-7-20. On this screen, you can set a scheduling method.

```
PN27089N/PN27089NA Local Management System
Quality of Service Configuration -> Scheduling Method

Scheduling Method: Strict

Traffic Class     Weight
-------------     ------
      0               1
      1               2
      2               3
      3               4

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

[S]et Scheduling Method
Set Traffic Class-Weight [M]apping
[Q]uit to previous menu




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

Fig. 4-7-20 Configuration of Scheduling Method

Screen Description

Scheduling Method:	Displays the scheduling method of QoS function.	
	Strict	SPQ: Strict priority queuing (Factory default setting)
	Weighted Round Robin	WRR: Weighted round robin scheduling
Traffic Class	Displays the priority.	
Weight	Displays a weight to distribute packets.	

Available commands are listed below.

S	Select the scheduling method of QoS function.	
		Press "S" to change the command prompt to "Select scheduling method (S/W)>." if Strict Priority Queuing is used, press "S." If Weighted Round Robin is used, press "W."
M	Set weight to priority (Traffic Class).	
		Press "M" to change the command prompt to "Enter traffic class>." Enter Traffic Class (0 to 3). Then, the command prompt changes to "Enter weight for traffic class #>." Enter weight (1 to 127).
Q	Return to the previous menu.	

4.7.5.c. DiffServ Configuration Menu

On the Quality of Service Configuration Menu, pressing "D" opens the DiffServ Configuration screen, as shown in Fig. 4-7-21. On this screen, you can set DiffServ using DSCP values.

```
PN27089N/PN27089NA Local Management System
Quality of Service Configuration -> Diffserv Configuration Menu

Diffserv Status : Disabled                                  0 : Lowest  3 : Highest
DSCP  Priority  DSCP  Priority  DSCP  Priority  DSCP  Priority  DSCP  Priority
----- --------  ----- --------  ----- --------  ----- --------  ----- --------
  0      0       13      0       26      0       39      0       52      0
  1      0       14      0       27      0       40      0       53      0
  2      0       15      0       28      0       41      0       54      0
  3      0       16      0       29      0       42      0       55      0
  4      0       17      0       30      0       43      0       56      0
  5      0       18      0       31      0       44      0       57      0
  6      0       19      0       32      0       45      0       58      0
  7      0       20      0       33      0       46      0       59      0
  8      0       21      0       34      0       47      0       60      0
  9      0       22      0       35      0       48      0       61      0
 10      0       23      0       36      0       49      0       62      0
 11      0       24      0       37      0       50      0       63      0
 12      0       25      0       38      0       51      0
------------------------------ <COMMAND> ----------------------------------
[S]et Diffserv Status                              [Q]uit to previous menu
Set DSCP [M]apping
Command>
Enter the character in square brackets to select option
```

Fig. 4-7-21 DiffServ Configuration Menu

Screen Description

Diffserv Status:	Displays the status of DiffServ function using DSCP values.	
	Enabled	DiffServ is enabled.
	Disabled	DiffServ is disabled. (Factory default setting)
DSCP	Displays the DSCP value.	
Priority	Displays the priority.	

Available commands are listed below.

S	Switch enabled/disabled of the DiffServ function.	
		Press "S." The command prompt changes to "Enable or Disable Diffserv (E/D)>." Press "E" to enable the function. Press "D" to disable it.
M	Assign priority (Priority) to DSCP values.	
		Press "M" to change the command prompt to "Enter DSCP>." Enter a priority value (0 to 63) to be assigned. Then, the command prompt changes to "Enter priority for DSCP # (0-3)>." Enter weight (0 to 3).
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. 4-7-22. You can configure the storm control of unknown unicast, broadcast, and multicast.

```
PN27089N/PN27089NA Local Management System
Advanced Switch Configuration -> Storm Control Configuration Menu

Port Storm Control Setting:
 No.       DLF       Broadcast   Multicast   Threshold
----   ---------   ---------   ---------   ---------
  1     Disabled    Disabled    Disabled     1
  2     Disabled    Disabled    Disabled     1
  3     Disabled    Disabled    Disabled     1
  4     Disabled    Disabled    Disabled     1
  5     Disabled    Disabled    Disabled     1
  6     Disabled    Disabled    Disabled     1
  7     Disabled    Disabled    Disabled     1
  8     Disabled    Disabled    Disabled     1
  9     Disabled    Disabled    Disabled     1
 10     Disabled    Disabled    Disabled     1

-------------------------------- <COMMAND> ----------------------------------
Set [D]LF Status       Set [M]ulticast Status   [Q]uit to previous menu
Set [B]roadcast Status Set [T]hreshold Value


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

Fig. 4-7-22 Storm Control Configuration

Screen Description

DLF	Enables/disables the unknown unicast storm control.	
	Enabled	The unknown unicast storm control is enabled.
	Disabled	The unknown unicast storm control is disabled. (Factory default setting)
Broadcast	Enables/disables the broadcast storm control.	
	Enabled	The broadcast storm control is enabled.
	Disabled	The broadcast storm control is disabled. (Factory default setting)
Multicast	Enables/disables the multicast storm control.	
	Enabled	The multicast storm control is enabled.
	Disabled	The multicast storm control is disabled. (Factory default setting)
Threshold	Displays the threshold of traffic rate (Mbps).	

Available commands are listed below.

D	Enable/disable the unknown unicast storm control.	
		Press "D." The command prompt changes to "Enter port number>." Enter a port number to change the setting. Then, the command prompt changes to "Enable or Disable DLF storm control status (E/D)>." Press "E" to enable the unknown unicast storm control, and press "D" to disable it.
B	Enable/disable the broadcast storm control.	
		Press "B." The command prompt changes to "Enter port number>." Enter a port number to change the setting. Then, the command prompt changes to "Enable or Disable broadcast storm control status (E/D)>." Press "E" to enable the broadcast storm control, and press "D" to disable it.
M	Enable/disable the multicast storm control.	
		Press "M." The command prompt changes to "Enter port number>." Enter a port number to change the setting. Then, the command prompt changes to "Enable or Disable multicast storm control status (E/D)>." Press "E" to enable the multicast storm control, and press "D" to disable it.
T	Set the threshold of traffic rate (Mbps).	
		Press "T." The command prompt changes to "Enter port number>." Enter a port number to change the setting. Then, the command prompt changes to "Enter threshold value." Enter the threshold of traffic rate between 1 and 100 (Mbps) for Ports 1 to 8 and between 1 and 1000 (Mbps) for Ports 9 to 10.
Q	Return to the previous menu.	

4.7.7. Port Based Access Control Configuration Menu

On the Advanced Switch Configuration Menu screen, pressing "x" opens the 802.1X Access Control Configuration screen as shown in Fig. 4-7-23. On this screen, you can configure the IEEE 802.1X access control.
The supported authentication methods are EAP-MD5, TLS, and PEAP.

```
PN27089N/PN27089NA Local Management System
Advanced Switch Configuration -> Port Based Access Control Configuration Menu

NAS ID                          : Nas1
Port No                         : 1
Port Status                     : Authorized
Port Control                    : Force Authorized
Transmission Period             : 30    seconds
Supplicant Timeout              : 30    seconds
Server Timeout                  : 30    seconds
Maximum Request                 : 2
Quiet Period                    : 60    seconds
Re-authentication Period        : 3600  seconds
Re-authentication Status        : Disabled
-------------------------------- <COMMAND> ---------------------------------
[P]ort No                               Q[u]iet Period
Port [C]ontrol                          R[e]-auth Period
[T]ransmission Period                   Re-[a]uth Status
Supp[l]icant Timeout                    [I]nitialize
Server Time[o]ut                        [R]e-auth Initialize
[M]aximum Request                       [Q]uit to previous menu

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

Fig. 4-7-23 IEEE802.1X Access Control Configuration

Note: When IEEE802.1X port-based authentication is activated, MAC learning cannot be disabled.

Screen Description

NAS ID:	Displays the access ID (NAS Identifier).	
Port No:	Displays a port number.	
Port Status:	Displays the authentication status. reflecting the Port Control setting shown below.	
	Unauthorized	The port is not authorized.
	Authorized	The port is authorized.
Port Control:	Displays the operation mode for authentication requests.	
	Auto	The access control function is enabled. The authentication process relay is performed between the client and authentication server.
	Force Unauthorized	The access control function is disabled. All communications are blocked.
	Force Authorized	The access control function is disabled.All communicationsare authorized. (Factory default setting)
Transmission Period:	The number of seconds to wait before requesting the client to reattempt authentication. The factory default setting is 30 seconds.	
Supplicant Timeout:	Displays the timeout for the client. The factory default setting is 30 seconds.	
Server Timeout:	Timeout for the authentication server. The factory default setting is 30 seconds.	
Max Request:	The maximum number of times of retransmitting an authentication request. The factory default setting is 2.	
Quiet Period:	The number of seconds to wait before reattempting a failed authentication. The factory default setting is 60 seconds.	
Re-authentication Period:	Re-authentication time interval. The factory default setting is 3600 seconds.	
Re-authentication Status:	Displays whether the re-authentication is enabled or disabled.	
	Enabled_RADIUS	The re-authentication is performed using the value of the Re-authentication timer on the Radius server.
	Enabled_Local	The re-authentication is performed using the value of the Re-authentication timer on this Switching hub.
	Disabled	The re-authentication is not performed. (Factory default setting)

Available commands are listed below.

P	Set the port number.	
		Press "P." The command prompt changes to "Enter port number>." Enter the port number to display the status.
C	Set the operation mode for authentication requests.	
		Press "C." The command prompt changes to "Select authenticator port control (A/U/F) >." Press "A" to enable the authentication function. Press "U" to disable it and block communications. Press "F" to disable it and authorize communications.
T	Set the interval time for authentication requests.	
		Press "T." The command prompt changes to "Enter Transmission Period>." Enter an integer between 1 and 65535 (seconds).
L	Set the timeout for the supplicant.	
		Press "L." The command prompt changes to "Enter Supplicant Timeout value>." Enter an integer between 1 and 65535 (seconds).
O	Set timeout for the authentication server.	
		Press "O." The command prompt changes to "Enter Server Timeout>." Enter an integer between 1 and 65535 (seconds).
M	Set the maximum number of reattempts of authentication.	
		Press "M." The command prompt changes to "Enter Max request count>." Enter the maximum number of reattempts with an integer between 1 and 10.
U	Set the period time to wait before reattempting a failed authentication.	
		Press "U." The command prompt changes to "Enter Quiet Period>." Enter an integer between 1 and 65535 (seconds).
X	Set the maximum number of reattempts of authentication.	
		Press "X." The command prompt changes to "Enter Max request count>." Enter the maximum number of reattempts with an integer between 1 and 10.
E	Set the re-authentication time interval.	
		Press "E." The command prompt changes to "Enter re-authentication Period>." Enter an integer between 1 and 65535 (seconds).
A	Enable/disable re-authentication.	
		Press "A." The command prompt changes to "Enable or Disable re-authentication ?(E/L/D) >."Press "E" to enable the authentication using the Re-authentication timer value on the RADIUS server.Press "L" to enable the authentication using the Re-authentication timer value on this Switching hub. Press "D" to disable it.
I	Initialize the authentication status.	
		Press "I." The command prompt changes to "Would you initialize authenticator?(Y/N)>." To initialize it, press "Y." Otherwise, press "N."
R	Initialize the re-authentication status.	
		Press "R." The command prompt changes to "Would you want to initialize re-authentication?(Y/N) >." To initialize it, press "Y." Otherwise, press "N."
Q	Return to the previous menu.	

4.7.8. IGMP Snooping Configuration

On the Advanced Switch Configuration Menu, pressing "I" opens the IGMP Snooping Configuration Menu as shown in Fig. 4-7-24. When you use an IP multicast application, such as a video-conference system and video/audio delivery system, this function prevents multicast packets from being sent to all ports and using up the bandwidth.

In addition, the Multicast filtering function can prevent multicast packets from being sent to any ports other than specified ones and the router port even if a multicast group is not created.

```
PN27089N/PN27089NA Local Management System
Advanced Switch Configuration -> IGMP Snooping Configuration Menu

IGMP Snooping Status      : Disabled
Multicast Filtering Status: Disabled
Host Port Age-Out Time    : 260  sec       Router Port Age-Out Time : 125 sec
Report Forward Interval   : 5  sec
VLAN ID  Group MAC Address  Group Members
-------  -----------------  ------------------------------------------------




---------------------------------- <COMMAND> -----------------------------------
[N]ext Page                Set [H]ost Port Aged Time   Show [V]LAN Filter Table
[P]revious Page            Set [R]outer Port Aged Time Show Router Port [T]able
Set I[G]MP Snooping Status Set Report [I]nterval       Set Static [M]ember Port
Set M[u]lticast Filtering  Set [L]eave Mode            [Q]uit to previous menu
Command>
Enter the character in square brackets to select option
```

Fig.4-7-24 IGMP Snooping Configuration

Screen Description

IGMP Snooping Status:	Displays the IGMP Snooping function status.	
	Enabled	IGMP Snooping is enabled.
	Disabled	IGMP Snooping is disabled.
Multicast Filtering Status:	Displays the Multicast filtering function status.	
	Enabled	The Multicast filtering function is enabled.
	Disabled	The Multicast filtering function is disabled.
Host Port Age-Out Time:	Displays the time between a multicast member leaving the group and automatically opening the host port. The factory default setting is 260 seconds.	
Router Port Age-Out Timer:	Displays the time before the router port is automatically opened. The factory default setting is 125 seconds.	
Report Forward Interval:	Displays the Proxy Report waiting time.	
VLAN ID	Displays the VLAN ID of the multicast group.	
Group MAC Address:	Displays the MAC address of the multicast group.	
Group Members:	Displays member ports of the multicast group.	

Available commands are listed below.

N	Show the next page.
	Press "N" to display the next page.
P	Show the previous page.
	Press "P" to display the previous page.
G	Change the IGMP Snooping function status.
	Press "G." The command prompt changes to "Enable or Disable IGMP snooping (E/D)>." Press "E" to enable the function. Press "D" to disable it.
U	Change the Multicast filtering function status.
	Press "U." The command prompt changes to "Enable or Disable Multicast Filtering (E/D)>." Press "E" to enable the function. Press "D" to disable it.
H	Set the aging time of multicast group members.
	Press "S." The command prompt changes to "Enter age out time>." Set the time between 150 and 300 seconds.
R	Set the aging time of the multicast group's router port.
	Press "S." The command prompt changes to "Enter age out time>." Set the time between 150 and 300 seconds.
I	Set the Proxy Report waiting time.
	Press "I." The command prompt changes to "Enter forward interval>." Set the time between 0 and 25 seconds.
L	Move to the Leave mode configuration screen.
	Press "L." The Set Leave Mode Menu opens. (Refer to 4.7.8.a.)
V	Move to the VLAN filter configuration screen.
	Press "V." The Show IGMP Snooping VLAN Filter Table Menu opens. (Refer to 4.7.8.b.)
T	Show the router port table.
	Press "T." The Show Router Port Table Menu opens. (Refer to 4.7.8.c.)
M	Statically set a router port.
	Press "M." The command prompt changes to "Add or Delete static group member(A/D)>." Press "A" to add a router port. Press "D" to delete it. Then, enter the target VLAN ID, multicast MAC address, and port number.
Q	Return to the previous menu.

Note: The IGMP Snooping function and the Internet Mansion mode cannot be used simultaneously.

4.7.8.a. Set Leave Mode Menu

On the IGMP Snooping Configuration Menu, pressing "L" opens the Set Leave Mode Menu as shown in Fig. 4-7-25. On this screen, you can set the operation when receiving a Leave packet.

```
PN27089N/PN27089NA Local Management System
IGMP Snooping Configuration -> Set Leave Mode Menu

Leave Delay Time : 5 sec

 Port       Mode
------  ------------
   1        Normal
   2        Normal
   3        Normal
   4        Normal
   5        Normal
   6        Normal
   7        Normal
   8        Normal
   9        Normal
  10        Normal
-------------------------------- <COMMAND> ----------------------------------

Set Leave Delay [T]ime        [S]et Leave Mode        [Q]uit to previous menu


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

Fig. 4-7-25 Set Leave Mode Menu

Screen Description

Leave Delay Time:	Displays the waiting time after receiving a Leave packet. The factory default setting is 5 seconds.	
Port	Displays the port number.	
Mode	Displays the operation after receiving a Leave packet.	
	Normal	Waits for the specified Leave Delay Time after receiving a Leave packet and then sends it to the router port. (Factory default setting)
	Immediate	Sends a Leave packet to the router port immediately after receiving it.

Available commands are listed below.

T	Set the waiting time after receiving a Leave packet.	
		Press "T." The command prompt changes to "Set leave delay time>." Set the time to wait after receiving a Leave packet in seconds between 1 and 10.
S	Set the operation after receiving a Leave packet.	
		Press "S." The command prompt changes to "Select port number to be changed>." Enter the port number to change the setting. Then, the command prompt changes to "Set leave mode (N/I)>." Press "I" to send a Leave packet to the router port immediately after receiving it. Press "N" to wait for the specified Leave Delay Time before sending it to the router port.
Q	Return to the previous menu.	

4.7.8.b. VLAN Filter Configuration

On the IGMP Snooping Configuration Menu, pressing "V" opens the Show IGMP Snooping VLAN Filter Table Menu as shown in Fig. 4-7-26. On this screen, you can configure VLANs to be filtered out from the target of IGMP Snooping.

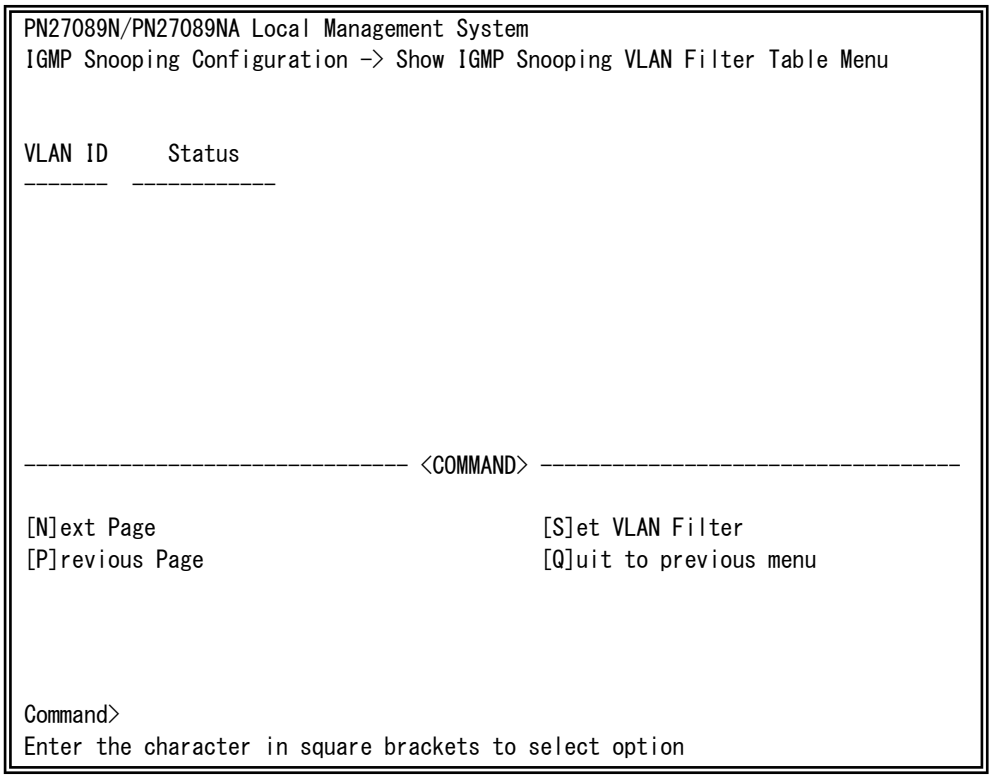


Fig. 4-7-26 VLAN Filter Configuration

Screen Description

VLAN ID	Displays VLAN ID.	
Status	Displays the filter status.	
	Filtered	VLAN that is filtered out of the target of IGMP snooping.

Available commands are listed below.

N	Show the next page.	
	Press "N." The screen displays the next page.	
P	Show the previous page.	
	Press "P." The screen displays the previous page.	
S	Set a VLAN to be filtered out of the target of IGMP snooping.	
	Press "S." The command prompt changes to "Enter VLAN ID >." Set the VLAN ID with a value between 1 and 4094.	
Q	Return to the previous menu.	

4.7.8.c. Router Port Table Configuration

On the IGMP Snooping Configuration Menu, pressing "T" opens the Show Router Port Table Menu as shown in Fig. 4-7-27.

```
PN27089N/PN27089NA Local Management System
IGMP Snooping Configuration -> Show Router Port Table Menu

Dynamic Detection: PIM and DVMRP

VLAN ID  Port List
-------  ------------------------------------------------------------------------
--------------------------------- <COMMAND> ----------------------------------

[N]ext Page              [P]revious Page              [Q]uit to previous menu
[S]et Static Router Port Set Dynamic [L]earning Method



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

Fig. 4-7-27 Router Port Table view

Screen Description

Dynamic Detection:	Displays a learning method of router port.	
	PIM and DVMRP	Learns a port that receives PIM and DVMRP packets as a router port.
	IGMP Query	Learns a port that receives IGMP packets as a router port.
	PIM and DVMRP, IGMP Query	Learns a port that receives PIM, DVMRP, and IGMP packets as a router port.
VLAN ID	Displays VLAN ID.	
Port List	Displays the port list.	

Available commands are listed below.

N	Show the next page.	
		Press "N." The screen displays the next page.
P	Show the previous page.	
		Press "P." The screen displays the previous page.
S	Statically set a router port.	
		Press "S." The command prompt changes to "Add or Delete Static Multicast Router Port (A/D)>." Press "A" to add a router port. Press "D" to delete it. After the entry, the command prompt changes to "Enter port number>." Enter the port number between 1 and 10.
L	Specifya learning method of router port.	
		Press "L." The command prompt changes to "Set dynamic learning method (P/I/B)>." Press "P" for PIM/DVMRP. Press "I" for IGMP Query. Press "B" for both.
Q	Return to the previous menu.	

4.7.9. Power Over Ethernet Configuration

On the Advanced Switch Configuration Menu, pressing "P" opens the Power Over Ethernet Configuration Menu as shown in **Fig. 4-7-28**. You can configure IEEE 802.3af power supply.

```
PN27089N/PN27089NA Local Management System
Advanced Switch Configuration -> Power Over Ethernet Configuration Menu


PoE [P]ort Configuration
PoE [G]lobal Configuration
[Q]uit to previous menu









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

Fig. 4-7-28 Power Over Ethernet Configuration

Available commands are listed below.

P	Configure PoE for each port.	
		Press "P." The PoE Port Configuration Menu opens. Refer to 4.7.9.a.
G	Configure PoE settings.	
		Press "G." The PoE Global Configuration Menu opens. Refer to 4.7.9.b.
Q	Return to the previous menu.	

4.7.9.a. PoE Port Configuration Menu

On the Power Over Ethernet Configuration Menu, pressing "P" opens the PoE Port Configuration Menu as shown in Fig. 4-7-29. On this screen, you can configure PoE settings for each port.

```
PN27089N/PN27089NA Local Management System
Power Over Ethernet Configuration -> PoE Port Configuration Menu

No.  Admin  Status         Class Limit(mW)   Pow.(mW)   Vol.(V)   Cur.(mA)
---- ----- -------------- ----- ---------  ---------  --------- ----------
 1   Up    Not Powered       0      15400          0          0          0
 2   Up    Not Powered       0      15400          0          0          0
 3   Up    Not Powered       0      15400          0          0          0
 4   Up    Not Powered       0      15400          0          0          0
 5   Up    Not Powered       0      15400          0          0          0
 6   Up    Not Powered       0      15400          0          0          0
 7   Up    Not Powered       0      15400          0          0          0
 8   Up    Not Powered       0      15400          0          0          0









--------------------------------- <COMMAND> -----------------------------------
Set PoE Port Admin [S]tatus           Set PoE Port Power [L]imit
[Q]uit to previous menu

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

Fig. 4-7-29 PoE Port Configuration Menu

Screen Description

Admin	Displays whether or not power supply is possible.	
	Up	Displays that power supply is possible.
	Down	Displays that power supply is not possible.
Status	Show the power supply status.	
	Powered	Displays that power is supplied.
	Not Powered	Displays that power is not supplied.
	Overload	Displays that power supply is stopped because power request exceeds the limit.
Class	Displays the class selected by the Classification function.	
Limit	Displays the upper limit of power supply amount. (in units of 200 mW)	
Pow.	Displays the amount of power supply. (in units of 100 mW)	
Vol.	Displays the voltage.	
Cur.	Displays the current.	

Available commands are listed below.

S	Set whether the power supply is enabled or disabled.	
		Press "S." The command prompt changes to "Select port number to be changed>." Enter the port number to change the setting. Press "0" to change the settings of all ports at a time. Then, the command prompt changes to "Up or Down PoE port admin status (U/D)>." Press "U" to enable power supply (Up). Press "D" to disable it (Down).
L	Set the upper limit of supplied power.	
		Press "L." The command prompt changes to "Select port number to be changed>." Enter the port number to change the setting. Press "0" to change the settings of all ports at a time. Then, the command prompt changes to "Enter the power limit>." Enter the limit between 3000 and 15400 mW (in units of 200 mW).
Q	Return to the previous menu.	

Note: If power request exceeds the limit of the whole unit, a port with a larger port number is blocked and stops supplying power.

4.7.9.b. PoE Global Configuration Menu

On the Power Over Ethernet Configuration Menu, pressing "G" opens the PoE Global Configuration Menu as shown in Fig. 4-7-30. On this screen, you can configure PoE settings.

```
PN27089N/PN27089NA Local Management System
Power Over Ethernet Configuration -> PoE Global Configuration Menu

Power Budget :                          60W
Power Consumption :                     0W
Power Usage Threshold For Sending Trap:  50 %



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

Set Power [U]sage
[Q]uit to previous menu









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

Fig. 4-7-30 PoE configuration

Screen Description

Power Budget:	Displays the maximum amount of power this Switching Hub can supply.
Power Consumption:	Displays the amount of power supplied by this Switching Hub.
Power Usage Threshold For Sending Trap:	Displays the power supply threshold for sending a trap. The factory default setting is 50%.

Available commands are listed below.

U	Set the threshold for sending a trap.	
		Press "U." The command prompt changes to "Enter power usage threshold>." Enter the threshold for sending a trap in a range from 1 to 99%.
Q	Return to the previous menu.	

4.7.10. Ring Redundant Protocol Configuration

On the Advanced Switch Configuration Menu screen, pressing "R" opens the Ring Redundant Protocol Configuration screen as shown in Fig. 4-7-31. On this screen, you can configure the Ring Redundant Protocol (RRP).

```
PN27089N/PN27089NA Local Management System
Advanced Switch Configuration -> Ring Redundant Protocol Configuration

RRP Status : Disabled          Total Domain Number : 0
Domain Name                Ctrl VLAN  Data VLAN(s) Ring Status Node Type
-------------------------- ---------- ------------ ---------- ---------









--------------------------------- <COMMAND> -----------------------------------
Set RRP [S]tatus                        [M]odify RRP Domain
[C]reate RRP Domain                     [D]elete RRP Domain
S[h]ow RRP Domain information           [Q]uit to previous menu

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

Fig. 4-7-31 Ring Redundant Protocol Configuration Menu

Screen Description

RRP Status:	Displays the Ring Redundant Protocol function status.	
	Enabled	The Ring Redundant Protocol function is enabled.
	Disabled	The Ring Redundant Protocol function is disabled. (Factory default setting)
Domain Name	Displays the domain name.	
Total Domain Number:	Displays the number of registered domains. (The maximum number of registered domains: 1)	
Ctrl VLAN	Displays the control VLAN ID.	
Data VLAN(s)	Displays the data VLAN ID.	
Ring Status	Displays the ring status.	
	IDLE	Displays that the Ring Redundant Protocol function is disabled.
	Complete	Displays that a ring topology has been correctly established. This status is displayed for the Master nodes only.
	Failed	Displays that a ring topology has not been established. This status is displayed for the Master nodes only.
	Link-Up	Displays that the primary and secondary ports are linked correctly. This status is displayed for the Transit nodes only.
	Link-Down	Displays that the primary and/or secondary ports are down. This status is displayed for the Transit nodes only.
	Pre-Forwarding	Displays that a ring topology is being established. This status is displayed for the Transit nodes only.
Node Type	Displays the node role.	
	Master	Displays that the Switching Hub is Master node, controller of the ring topology. Each domain must have only one Master node.
	Transit	Displays that the Switching Hub is Transit node.

Available commands are listed below.

S	Enable/disable the Ring Redundant Protocol function.	
		Press "S." The command prompt changes to "Enable or Disable RRP status (E/D)>." Press "E" to enable the function. Press "D" to disable it.
C	Create a new domain.	
		Press "C." The RRP Domain Creation Menu opens. For details, refer to the next section (4.7.10.a).
D	Delete a domain.	
		Press "D." The command prompt changes to "Enter RRP Domain Name >." Enter the domain name to delete.
M	Modify domain settings.	
		Press "M." The command prompt changes to "Enter RRP Domain Name >." Enter the domain name to modify the settings. Then, the RRP Domain Modification Menu opens. For details, refer to the next section (4.7.10.b).
H	Show the domain information.	
		Press "H." The command prompt changes to "Enter RRP Domain Name >." Enter the domain name to display the domain information. Then, the RRP Domain information Menu opens. For details, refer to the next section (4.7.10.c).
Q	Return to the previous menu.	

Note: The Ring Redundant Protocol function and the Internet Mansion mode cannot be used simultaneously.

Note: Disable the loop detection function for the primary/secondary ports. For detailed loop detection function settings, refer to 4.7.11.

4.7.10.a. RRP Domain Creation Menu

On the Ring Redundant Protocol Configuration screen, pressing "C" opens the RRP Domain Creation Menu as shown in Fig. 4-7-32. You can create a RRP domain.

```
PN27089N/PN27089NA Local Management System
RRP Management -> RRP Domain Creation Menu

RRP Domain Name  :                          RRP Node Type :
Primary Port     :
Secondary Port   :
Polling Interval : 1                        Fail Period : 2
Control VLAN     :
Data VLAN        :


-------------------------------- <COMMAND> ----------------------------------
Set RRP Domain [N]ame                   Set Node [T]ype
Set [P]rimary Port                      Set [S]econdary Port
Set P[o]lling Interval                  Set [F]ail Period
Set [C]ontrol VLAN                      Set [D]ata VLAN
[A]pply                                 [Q]uit to previous menu




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

Fig. 4-7-32 RRP Domain Creation Menu

Screen Description

RRP Domain Name:	Displays the domain name.	
RRP Node Type:	Displays the node role.	
	Master	Displays that the Switching Hub is Master node, controller of the ring topology. Each domain must have only one Master node.
	Transit	Displays that the Switching Hub is Transit node.
Primary Port:	Displays the primary port.	
Secondary Port:	Displays the secondary port.	
Polling Interval:	Displays the polling interval.	
Fail Period:	Displays the timeout for polling.	
Control VLAN:	Displays the control VLAN ID.	
Data VLAN:	Displays the data VLAN ID.	

Available commands are listed below.

N	Set the domain name.
	Press "N." The command prompt changes to "Enter RRP Domain Name>." Enter a name of the domain to be configured in 25 characters or less.
T	Set the node role.
	Press "N." The command prompt changes to "Enter RRP Node Type (M/T) >." Press "M" to set the domain for a master node. Press "T" to set the domain for a transit node.
P	Set the primary port.
	Press "P." The command prompt changes to "Enter RRP Primary Port >." Enter the port number (1-10) to set as a primary port.
S	Set the secondary port.
	Press "S." The command prompt changes to "Enter RRP Secondary Port >." Enter the port number (1-10) to set as a secondary port.
O	Set the polling interval.
	Press "O." The command prompt changes to "Enter RRP Polling Interval>." Enter a value between 1 and 2 (seconds) as the polling interval.
F	Set the timeout for polling.
	Press "F." The command prompt changes to "Enter RRP Fail Period>." Enter a value between 2 and 5 (seconds) as the timeout for polling.
S	Set the control VLAN ID.
	Press "S." The command prompt changes to "Enter Control VLAN ID >." Enter the VLAN ID (2-4094) to set as a control VLAN. When entering two or more port numbers, separate them with a comma without a space, or use a hyphen for consecutive numbers.
D	Set the data VLAN ID.
	Press "D." The command prompt changes to "Enter Data VLAN ID >." Enter the VLAN ID (1-4094) to set as a data VLAN. When entering two or more VLAN IDs, separate them with a comma without a space, or use a hyphen for consecutive numbers.
A	Set a domain.
	Press "A" to apply your settings.
Q	Return to the previous menu.

Note: If you press "Q" (Quit) after setting a domain, your settings will not be applied.
Be sure to press "A" (Apply) to apply your domain settings.

4.7.10.b. RRP Domain Modification Menu

On the Ring Redundant Protocol Configuration screen, pressing "M" opens the RRP Domain Modification Menu as shown in Fig. 4-7-33. On this screen, you can modify RRP domain settings.

```
PN27089N/PN27089NA Local Management System
RRP Management -> RRP Domain Modification Menu

RRP Domain Name  :                          RRP Node Type :
Primary Port     :
Secondary Port   :
Polling Interval : 1                        Fail Period : 2
Control VLAN     :
Data VLAN        :


-------------------------------- <COMMAND> ----------------------------------
Set RRP Domain [N]ame                   Set Node [T]ype
Set [P]rimary Port                      Set [S]econdary Port
Set P[o]lling Interval                  Set [F]ail Period
Set [C]ontrol VLAN                      Set [D]ata VLAN
[A]pply                                 [Q]uit to previous menu




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

Fig. 4-7-33 RRP Domain Modification Menu

Screen Description

RRP Domain Name:	Displays the domain name.	
RRP Node Type:	Displays the node role.	
	Master	Displays that the Switching Hub is Master node, controller of the ring topology. Each domain must have only one Master node.
	Transit	Displays that the Switching Hub is Transit node.
Primary Port:	Displays the primary port.	
Secondary Port:	Displays the secondary port.	
Polling Interval:	Displays the polling interval.	
Fail Period:	Displays the timeout for polling.	
Control VLAN:	Displays the control VLAN ID.	
Data VLAN:	Displays the data VLAN ID.	

Available commands are listed below.

N	Set the domain name.
	Press "N." The command prompt changes to "Enter RRP Domain Name>." Enter a name of the domain to be configured in 25 characters or less.
T	Set the node role.
	Press "N." The command prompt changes to "Enter RRP Node Type (M/T) >." Press "M" to set the domain for a master node. Press "T" to set the domain for a transit node.
P	Set the primary port.
	Press "P." The command prompt changes to "Enter RRP Primary Port >." Enter the port number (1-10) to set as a primary port.
S	Set the secondary port.
	Press "S." The command prompt changes to "Enter RRP Secondary Port >." Enter the port number (1-10) to set as a secondary port.
O	Set the polling interval.
	Press "O." The command prompt changes to "Enter RRP Polling Interval>." Enter a value between 1 and 2 (seconds) as the polling interval.
F	Set the timeout for polling.
	Press "F." The command prompt changes to "Enter RRP Fail Period>." Enter a value between 2 and 5 (seconds) as the timeout for polling.
S	Set the control VLAN ID.
	Press "S." The command prompt changes to "Enter Control VLAN ID >." Enter the VLAN ID (2-4094) to set as a control VLAN. When entering two or more port numbers, separate them with a comma without a space, or use a hyphen for consecutive numbers.
D	Set the data VLAN ID.
	Press "D." The command prompt changes to "Enter Data VLAN ID >." Enter the VLAN ID (1-4094) to set as a data VLAN. When entering two or more VLAN IDs, separate them with a comma without a space, or use a hyphen for consecutive numbers.
A	Set a domain.
	Press "A" to apply your settings.
Q	Return to the previous menu.

Note: If you press "Q" (Quit) after setting a domain, your settings will not be applied.
Be sure to press "A" (Apply) to apply your domain setting modifications.

4.7.10.c. RRP Domain information Menu

On the Ring Redundant Protocol Configuration screen, pressing "H" opens the RRP Domain information Menu as shown in Fig. 4-7-34. On this screen, you can check RRP domain information.

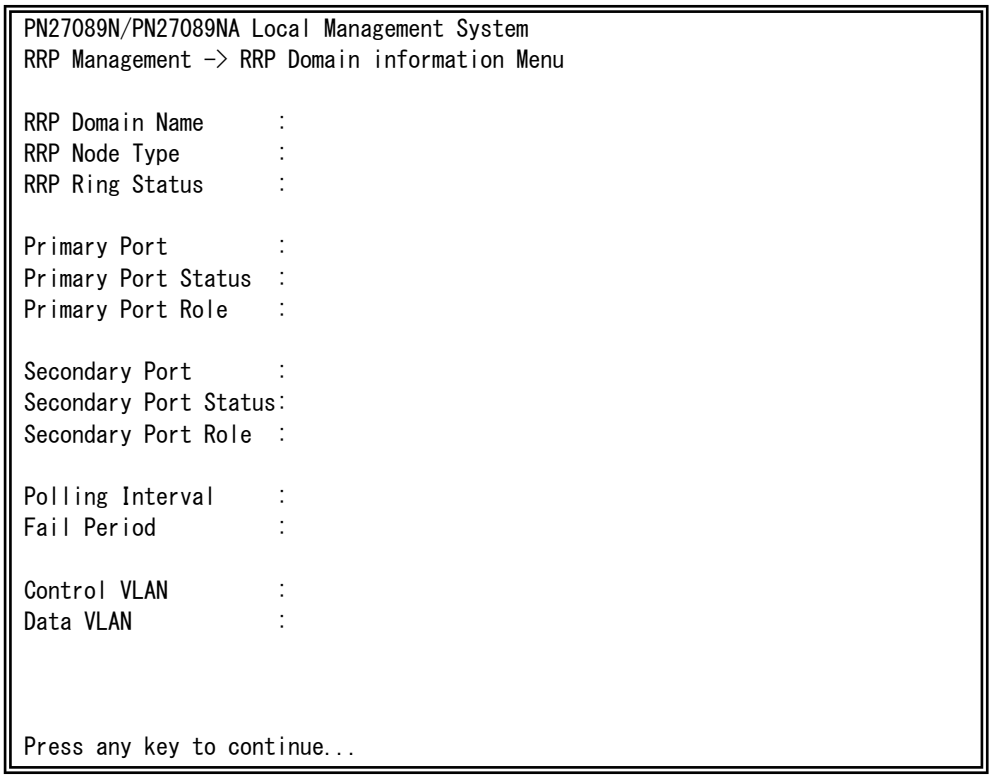


Fig. 4-7-34 RRP Domain information Menu

Screen Description

RRP Domain Name:	Displays the domain name.	
Node Type:	Displays the node role.	
	Master	Displays that the Switching Hub is Master node, controller of the ring topology.
	Transit	Displays that the Switching Hub is Transit node.
Ring Status:	Displays the ring status.	
	Idle	Displays that the RRP Status is disabled.
	Complete	Displays that a ring topology has been correctly established. This status is displayed for the Master nodes only.
	Failed	Displays that a ring topology has not been established. This status is displayed for the Master nodes only.
	Link-Up	Displays that the primary and secondary ports are linked correctly. This status is displayed for the Transit nodes only.
	Link-Down	Displays that the primary and/or secondary ports are down. This status is displayed for the Transit nodes only.
	Pre-Forwarding	Displays that a ring topology is being established. This status is displayed for the Transit nodes only.
Primary Port:	Displays the primary port.	
Primary Port Status:	Displays the primary port status.	
	Unknown	Displays that the domain is invalid.
	Fowarding	Displays normal communication status.
	Down	Displays that the port does not link up.
	Blocking	Displays that no frames other than control frames are not received.
Primary Port Role:	Displays the primary port role.	
	Upstream	Operating as an upstream port.
	Downstream	Operating as a downstream port.
Secondory Port:	Displays the secondary port.	
Secondory Port Status:	Displays the secondary port status.	
	Unknown	Displays that the domain is invalid.
	Fowarding	Displays normal communication status.
	Down	Displays that the port does not link up.
	Blocking	Displays that no frames other than control frames are not received.
Secondory Port Role:	Displays the secondary port role.	
	Upstream	Operating as an upstream port.
	Downstream	Operating as a downstream port.
Polling Interval:	Displays the polling interval.	
Fail Period:	Displays the timeout for polling.	
Ctrl VLAN:	Displays the set control VLAN ID.	
Data VLAN:	Displays the set data VLAN ID.	

4.7.11. Loop Detection Configuration Menu

On the Advanced Switch Configuration Menu, pressing "D" opens the Loop Detection Configuration Menu as shown in Fig. 4-7-35. In this screen, you can configure the loop detection function settings.

For network configuration, refer to Appendix D "Network Configuration Example and Notes Using Loop Detection Function" in this Operation Manual.

```
PN27089N/PN27089NA 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    Disabled       Enabled          60
 10    ---   Down  Forwarding    Disabled       Enabled          60


-------------------------------- <COMMAND> ----------------------------------
[E]nable/Disable Loop Detection       Set Port [L]oop Detect Status
Loop History [I]nformation            Set Port Recovery [S]tatus
[Q]uit to previous menu               Set Port Recovery [T]imer

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

Fig. 4-7-35 Loop Detection Configuration Menu

Screen Description

Global Loop Detection Status:	Displays the status of the loop detection function.	
	Enabled	The loop detection function is enabled. (Factory default setting)
	Disabled	The loop detection function is disabled.
Port	Displays the port number.	
Trunk	Displays the link aggregation group ID.	
Link	Displays link-up status.	
	Up	Linking up.
	Down	Linking down.
State	Displays the operation of the loop detection function.	
	Forwarding	Sending packets normally.
	Loop Detect	Detecting a loop and blocking a port.
Loop Detect	Displays the status of the loop detection function for each port.	
	Enabled	The loop detection function is enabled. (Factory default setting: Ports 1 to 8)
	Disabled	The loop detection function is disabled. (Factory default setting: Ports 9 to 10)
Recovery	Displays the status of the Recovery mode that can automatically recover a blocked port.	
	Enabled	Automatically recovers a blocked port after the Recovery Time period. (Factory default setting)
	Disabled	Does not recover a blocked port until manually configured.
Recovery Time	Displays the Recovery Time (seconds) which is a waiting time until a port starts to be automatically recovered after being blocked. (Factory default setting is 60 seconds.)	

Available commands are listed below.

E	Configure the status of the loop detection function.	
		Press "E." The command prompt changes to "Enable or Disable Loop Detection (E/D)>." Press "E" to enable the function. Press "D" to disable it.
I	Press "I." The Loop History screen opens.	
L	Configure the status of the loop detection function for each port.	
		Press "L."The command prompt changes to "Select port number to be changed>." Enter a port number you to change the setting. The command prompt changes to "Enable or Disable Loop Detection (E/D)>." Press "E" to enable the function. Press "D" to disable it. When entering multiple port numbers, delimit with comma, or hyphenate the continuous numbers. To configure all ports, enter "0" as the port number.
S	Configure the status of the Recovery mode that can automatically recover a blocked port.	
		Press "S." The command prompt changes to "Select port number to be changed>."Enter the port number to change the setting. Then, the command prompt changes to "Enable or Disable Recovery for port x (E/D)>." Press "E" to enable the automatic port recovery. Press "D" to disable it. When entering multiple port numbers, delimit with comma, or hyphenate the continuous numbers. To configure all ports, enter "0" as the port number.
T	Displays the Recovery Time (seconds) which is a waiting time until a port starts to be automatically recovered after being blocked.	
		Press "T." The command prompt changes to "Select port number to be changed>." Enter the port number to change the setting. Then, the command prompt changes to "Enter Recovery Timer >." Enter a value between 60 and 600 (seconds) as the recovery time.
Q	Return to the previous menu.	

Note: When you change the Global Loop Detection status, all configuration will be saved into the flash automatically.

4.7.11.a. Loop History Information

On the Loop Detection Configuration Menu, pressing "I" opens the Loop History Information screen, as shown in Fig. 4-7-36. On this screen, you can view the loop detection date and time and a list of event information.

```
PN27089N/PN27089NA Local Management System
Loop Detection Configuration Menu -> Loop History Information

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

                                 <COMMAND>
[N]ext Page
[P]revious Page
[C]lear Loop Detection History
[Q]uit to previous menu


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

Fig. 4-7-36 Loop History Information view

Screen Description

Entry	Displays the event number.	
Time	Displays the time when the event occurred, or the time accumulated after boot if the clock is not set.	
Event	Displays the description of the event caused to the Switching Hub.	
	The loop detected on portX.	Displays that a loop was detected and connection was blocked on a switch in Port X.
	The loop detected between portX and portY.	Displays that a loop was detected and connection was blocked on a switch between Port X and Port Y.
	PortX auto recovery.	Displays that the blocked Port X was automatically recovered.

Available commands are listed below.

N	Show the next page.
	Press "N" to change the display to the next page.
P	Show the previous page.
	Press "P" to change the display to the previous page.
C	Delete the history information of the Loop History function.
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 monitor the number of packets as statistics information of the Switching Hub and thereby keep an eye on the network status.

```
PN27089N/PN27089NA Local Management System
Main Menu -> Statistics Menu
Port:  1   Refresh: 300 Sec.      Elapsed Time Since System Up: xxx:xx:xx:xx
<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
Over 1024 Pkts          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 after reboot

Screen Description

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

Available commands are listed below.

N	Show the values of the next port.	
		Press "N." The screen displays the counter values of the next port. The command is invalid for Port 10.
P	Show the values of the previous port.	
		Press "P." The screen displays the counter values of the previous port. The command is invalid for Port 1.
S	Switch a port to be displayed.	
		Press "S." The command prompt changes to "Select Port number>." Enter the port number you to display the statistics.
F	Set the display refresh mode.	
		Press "F." The command prompt changes to "1 for start to refresh,2 for set refresh rate." Press "1" to cancel the automatic 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." The counter values are reset and immediately changed with those accumulated after resetting the counters.
Q	Return to the previous menu.	

On this screen, you can display two types of counter values: Values accumulated after booting this Switching Hub (Fig. 4-8-1), and values accumulated after resetting the counters (Fig. 4-8-2). The values accumulated after booting the Switching Hub are retained even after you reset the counters.

```
PN27089N/PN27089NA Local Management System
Main Menu -> Statistics Menu
Port:  1   Refresh : 300 Sec.   Elapsed Time Since System Reset: xxx:xx:xx:xx
<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
Over 1024 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 Display of values accumulated after resetting the counters

Screen Description

Port:	Displays the port number.
Refresh	Displays the screen refresh interval.
Elapsed Time Since Reset:	Displays the time elapsed since resetting of the counters.
Counter Name	Displays each counter name.
Total	Displays values accumulated in the counters.
Avg./s	Displays the average per second of each value.

Available commands are listed below.

N	Show the values of the next port.	
		Press "N." The screen displays the counter values of the next port. The command is invalid for Port 10.
P	Show the values of the previous port.	
		Press "P." The screen displays the counter values of the previous port. The command is invalid for Port 1.
S	Switch a port to be displayed.	
		Press "S." The command prompt changes to "Select Port number>." Enter the port number to display the statistics.
F	Set the display refresh mode.	
		Press "F." The command prompt changes to "1 for start to refresh,2 for set refresh rate." Press "1" to cancel the automatic 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." The counter values are reset and immediately changed with those accumulated after resetting the counters.
U	Set the display refresh mode.	
		Press "U." The counter values are changed with those accumulated after the system boot.
Q	Return to the previous menu.	

The counters are described below.

Total RX Bytes	Displays the number of bytes of all packets received.
Total RX Pkts	Displays the number of all packets received.
Good Broadcast	Displays the number of broadcast packets received.
Good Multicast	Displays the number of multicast packets received.
CRC/Align Errors	Displays 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 Align error.
Undersize Pkts	Displays the number of error packets that have a packet length less than 64 bytes; however, have no other errors.
Oversize Pkts	Displays the number of packets having a packet length greater than 1518 bytes.
Fragments	Displays the number of error packets that have a packet length less than 64 bytes and have a CRC or alignment error.
Jabbers	Displays the number of error packets that have a packet length less than 1518 bytes and have a CRC or alignment error.
Collisions	Displays the number of packet collisions.
64-Byte Pkts	Displays the total number of packets having a packet length of 64 bytes.
65-127 Pkts	Displays the total number of packets having a packet length of 65 to 127 bytes.
128-255 Pkts	Displays the total number of packets having a packet length of 128 to 255 bytes.
256-511 Pkts	Displays the total number of packets having a packet length of 256 to 511 bytes.
512-1023 Pkts	Displays the total number of packets having a packet length of 512 to 1023 bytes.
Over 1024 Pkts	Displays the total number of packets having a packet length of 1024 bytes or greater.

Note: By factory default, this screen is set to refresh about every 300 seconds. Therefore, both the console and Telnet timeouts do not occur.

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 use and configure the Switching Hub tools for firmware upgrade, upload/download of configuration files, system reboot, log viewing, etc.

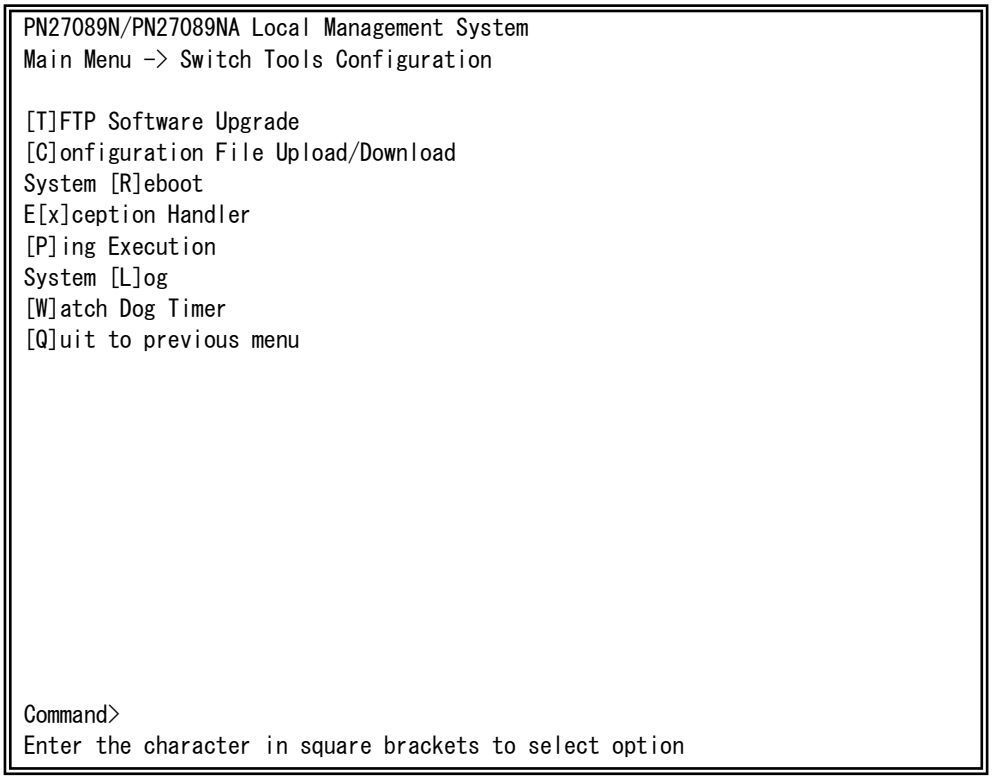


Fig. 4-9-1 Switch Tools Configuration

Screen Description

TFTP Software Upgrade	Configure and execute firmware upgrade of this Switching Hub.
Configuration File Upload/Download	Configure and execute upload/download of the configuration of this Switching Hub.
System Reboot	Configure and execute reboot of this Switching Hub.
Exception Handler	Configure exception handling operations.
Ping Execution	Execute ping from this Switching Hub.
System Log	View the system log of this Switching Hub.
Watch Dog Timer	Configure the Watch Dog Timer function.
Quit to previous menu	Quit the Switch Tools Configuration Menu and return 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 execute and configure firmware upgrades.

```
PN27089N/PN27089NA 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
 (Please set timer value at Reboot Menu)

------------------------------ <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:	Displays the current firmware version.
TFTP Server IP:	Displays the IP address of the TFTP server with the firmware to be upgraded installed.
Image File Name:	Displays the file name of the firmware to be upgraded.
Reboot Timer:	Displays the time before rebooting after upgrading 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 with the firmware to be upgraded installed.	
		Press "S." The command prompt changes to "Enter IP address of TFTP server>." Enter an IP address of 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 in 39 characters or less.
U	Start the upgrade.	
		Press "D." The command prompt changes to "Download file(Y/N)>." Confirm whether or not to start the process. Press "Y" to start the upgrade. Press "N" to cancel the upgrade.
Q	Return to the previous menu.	

When the download starts, the screen shown in Fig. 4-9-3 opens, and you can check the download status. After the download completes, the system automatically reboots, and the login screen opens.

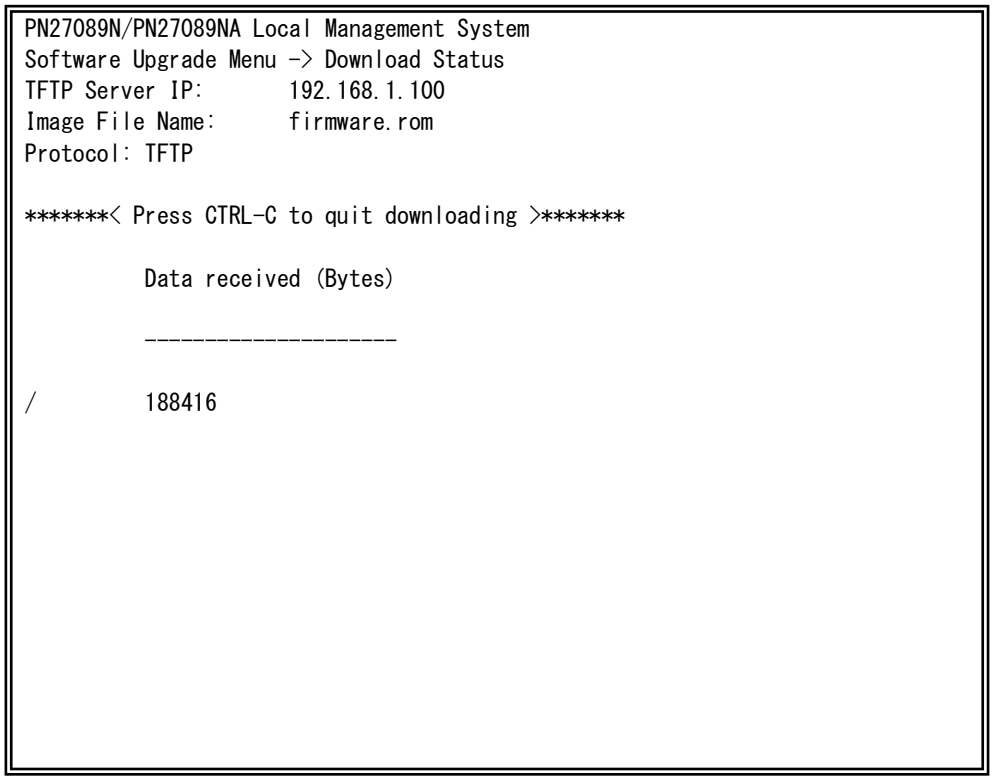


Fig. 4-9-3 Download in process

Note: After the download completes, the black band at the bottom of the screen displays "System will reset automatically after image program into flash." When this message is displayed, the firmware is written in flash memory. Be sure not to power off the Switching Hub.

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 execute and configure upload/download of the configuration file of this Switching Hub to/from a PC.

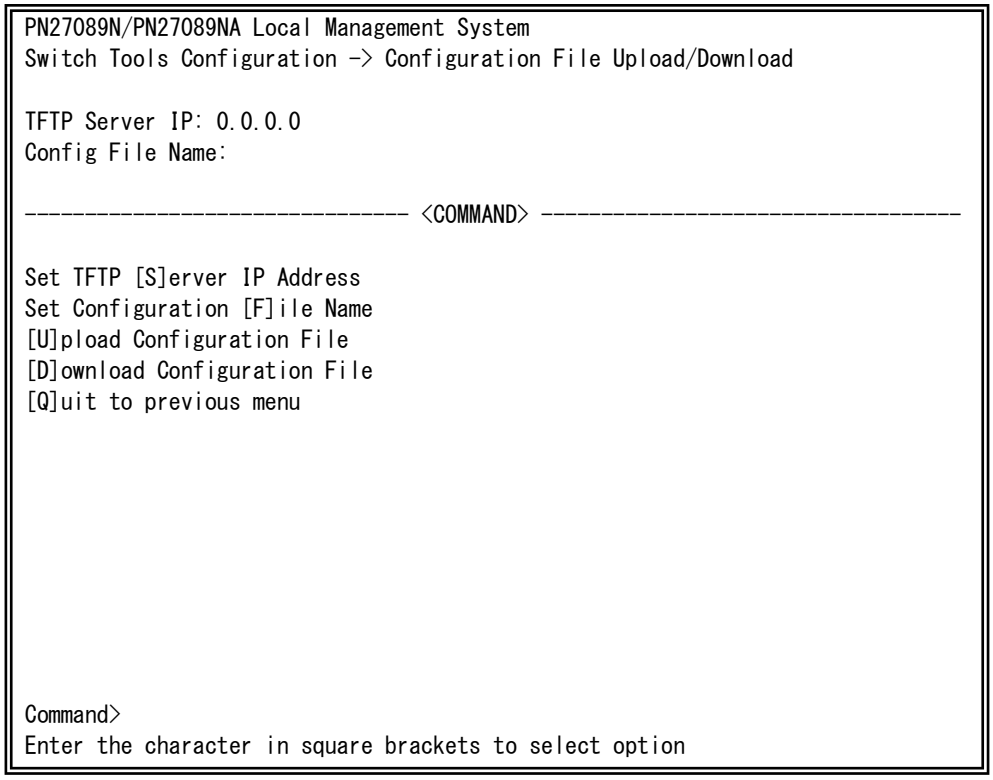


Fig. 4-9-4 Configuration File Upload/Download

Screen Description

TFTP Server IP:	Displays the IP address of the TFTP server that executes upload/download the configuration file.
Config File Name:	Displays the configuration file name.

Available commands are listed below.

S	Set the IP address of the TFTP server that executes upload/download the configuration file.	
		Press "S." The command prompt changes to "Enter IP address of TFTP server>." Enter an IP address of TFTP server.
F	Set the name of the configuration file to be uploaded/downloaded.	
		Press "F." The command prompt changes to "Enter file name>." Specify the file name of the downloaded program in 30 half-width characters or less.
U	Start the upload of the configuration file.	
		Press "U." The command prompt changes to "Upload file(Y/N)>." Confirm whether or not to start the process. Press "Y" to start the process. Press "N" to cancel the upload.
D	Start the download of the configuration file.	
		Press "D." The command prompt changes to "Download file(Y/N)>." Confirm whether or not to start the process. Press "Y" to start the download. Press "N" to cancel the download.
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.

```
PN27089N/PN27089NA 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:	Displays whether or not the reboot command is executed.	
	Stop	Displays that the reboot command is not executed.
Reboot Type:	Displays 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:	Displays the time between execution of the reboot command and actual reboot. The factory default setting is 0 seconds.	
Time Left:	Displays 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, "F" to return it to factory default, or "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" to change the command prompt 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.

```
PN27089N/PN27089NA 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 configuration

Screen Description

Exception Handler:	Displays the exception handling function status. 'Disabled' is the factory default setting.	
	Enabled	The exception handler is enabled.
	Disabled	The exception handler is disabled.
Exception Handler Mode:	Displays the exception handling method. 'Debug Message' is the factory default setting.	
	Debug Message	Outputs a debug message to the console when an exception is occurred.
	System Reboot	Automatically reboots when an exception is occurred.
	Debug Message and System Reboot	Outputs a debug message to the console and then automatically reboots when an exception is occurred.

Available commands are listed below.

X	Enable/disable the exception handler function.	
		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 exception handler method.	
		Press "M." The command prompt changes to "Select Exception Handler Mode (M/R/B)>." Press "M" to display the debug message, "R" to reboot, or "B" to execute both.
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.

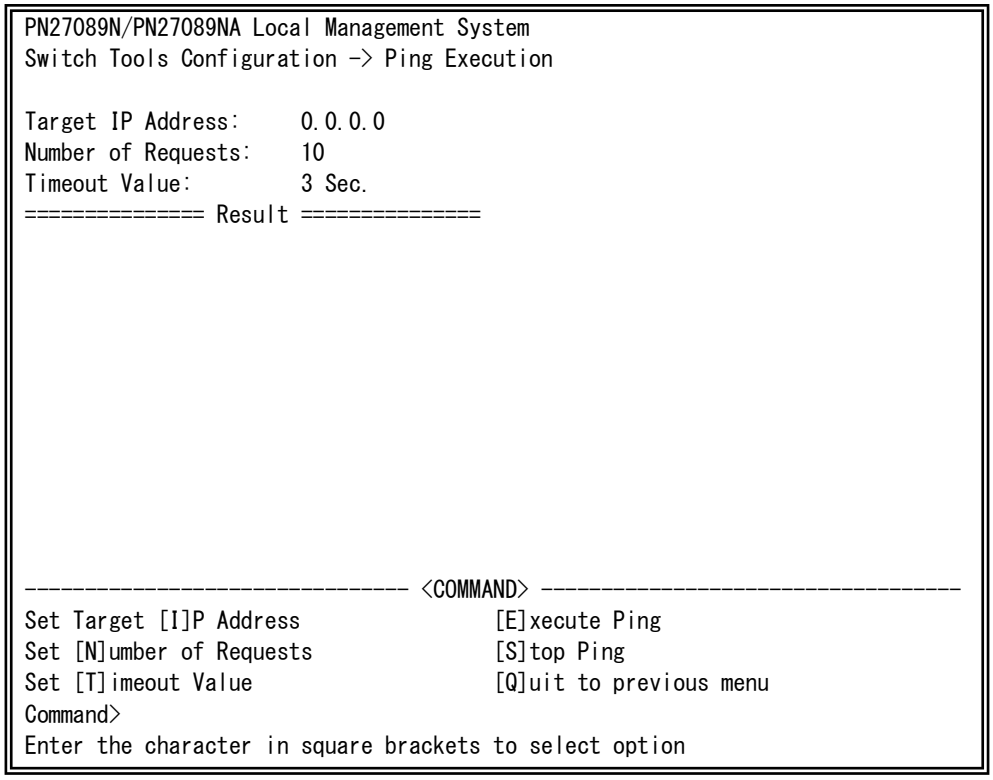


Fig. 4-9-7 Ping Execution

Screen Description

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

```
PN27089N/PN27089NA Local Management System
Switch Tools Configuration -> Ping Execution

Target IP Address:     192.168.1.2
Number of Requests:    10
Timeout Value:         3 Sec.
============== Result ==============
     No. 1                  14 ms
     No. 2                  9 ms
     No. 3                  7 ms
     No. 4                  7 ms
     Waiting for response...









-------------------------------- <COMMAND> ----------------------------------
Set Target [I]P Address                [E]xecute Ping
Set [N]umber of Requests               [S]top Ping
Set [T]imeout Value                    [Q]uit to previous menu

S or Ctrl-C Stop ping function
```

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 displays logs of events caused to the Switching Hub. By viewing events, you can check activities related to the Switching Hub, which is useful information for network management and troubleshooting.

```
PN27089N/PN27089NA Local Management System
Switch Tools Configuration -> System Log Menu

Entry  Time(YYYY/MM/DD HH:MM:SS)                    Event
-----  -------------------------   ------------------------------------------
   1   2001/01/01 00:01:15         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

SNMP trap logs are also recorded as System Log entries, beginning from "(TRAP)".

Screen Description

Entry	Displays the event number.	
Time	Displays the time when the event occurred, or the time accumulated after boot if the clock is not set.	
Event	Displays the description of the event caused to the Switching Hub.	
	Login from console	Indicates a login from the console.
	Login failed from console	Indicates a login authentication failure from the console.
	Login from telnet <IP: xxx.xxx.xxx.xxx>	Indicates a login from the host with IP address xxx.xxx.xxx.xxx via Telnet.
	Login from SSH <IP: xxx.xxx.xxx.xxx>	Indicates a login from the host with IP address xxx.xxx.xxx.xxx via SSH.
	Login failed from telnet <IP: xxx.xxx.xxx.xxx>	Indicates a login authentication failure from the host with IP address xxx.xxx.xxx.xxx via Telnet.
	Login failed from SSH <IP: xxx.xxx.xxx.xxx>	Indicates a login authentication failure from the host with IP address xxx.xxx.xxx.xxx via SSH.
	Reboot: Normal	Indicates that this Switching Hub rebooted.
	Reboot: Factory Default	Indicates that this Switching Hub rebooted to return settings to factory default.
	Reboot: Factory Default Except IP	Indicates that this Switching Hub rebooted to return settings except the IP address to factory default.
	Reboot: Exception..	Indicates that this Switching Hub rebooted due to an exception handling.
	Configuration changed	Indicates that the configuration was changed.
	Switch start	Indicates that this Switching Hub booted.
	Runtime changes from xxx.xxx.xxx.xxx	Indicates that firmware was downloaded from IP xxx.xxx.xxx.xxx and updated.
	Configuration file uploaded	Indicates that the configuration file was uploaded via TFTP.
	Configuration file downloaded	Indicates that the configuration file was downloaded via TFTP.
	Port-xx link-down	Indicates that Port xx was linked down.
	Port-xx link-up	Indicates that Port xx was linked up.
	Enter Command Line Interface	Indicates that the user moved from the configuration menu to CLI (Command Line Interface).
	xx:xx:xx:xx:xx:xx was authorized at port xx.	Indicates that IEEE802.1X authentication succeeded on Port xx from the terminal with xx:xx:xx:xx:xx:xx.
	xx:xx:xx:xx:xx:xx was rejected at port xx.	Indicates that IEEE802.1X authentication failed on Port xx from the terminal with xx:xx:xx:xx:xx:xx.
	Authentication failure	Indicates that an unauthorized manager accessed by SNMP.
	Port-xx Power ON notification	Indicates that the PoE power supply to Port xx is turned on.
	Port-xx Power OFF notification	Indicates that the PoE power supply to Port xx is turned off.

	SNTP first update to yyyy/mm/dd	Indicates that the time was retrieved via SNTP for the first time.
	Temperature over threshold.	Indicates that the internal temperature exceeded the threshold.
	Temperature under threshold.	Indicates that the internal temperature decreased below the threshold.
	(Bridge) Topology Change	Indicates that a topology change occurred in the Spanning Tree function.
	PortX auto recovery.	Indicates that Port X was automatically recovered from being blocked 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 in Port X.
	(RRP) FDB Flush	Indicates that Forwarding Database was flushed.
	(RRP) Ring Recover	Indicates that a ring topology was restored. This log is displayed for the Master nodes only.
	(RRP) Ring Failure	Indicates that a ring topology problem occurred. This log is displayed for the Master nodes only.
	(RRP) Change to Link-Up Status	Displays that a ring topology has been established. This log is displayed for the Transit nodes only.
	(RRP) Change to Link-Down Status	Indicates that a ring topology problem occurred. This log is displayed for the Transit nodes only.
	(RRP) Change to Pre-Forwarding Status	Displays that a ring topology is being established. This log is displayed for the Transit nodes only.
	(TRAP)Usage power is above the threshold	Indicates that the PoE power supply exceeded the threshold.
	(TRAP)Usage power is below the threshold	Indicates that the PoE power supply exceeded the threshold and then decreased below the threshold.
	(TRAP)System authentication failure	Indicates that authentication from the SNMP manager failed.
	(TRAP)System Cold Start	Indicates that this Switching Hub booted.

Available commands are listed below.

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

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 configure the Watch Dog Timer function settings.

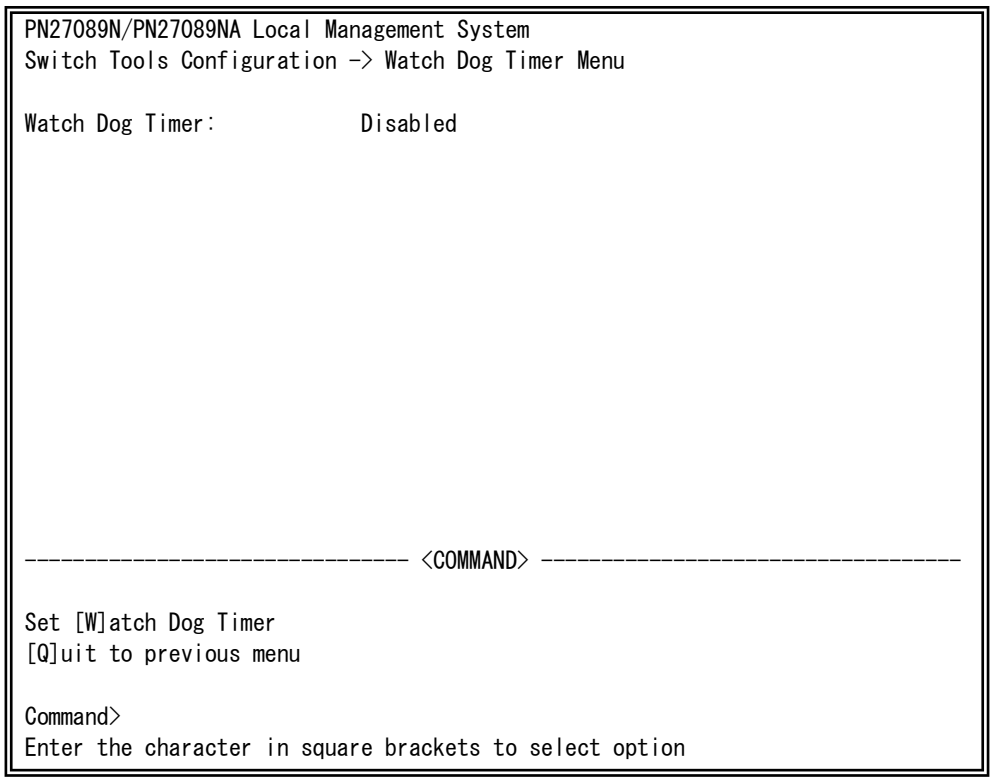


Fig. 4-9-10 Watch Dog Timer Menu

Screen Description

Watch Dog Timer:	Displays the Watch Dog Timer function status. 'Disabled' is the factory default setting.	
	Enabled	The function is enabled.
	Disabled	The function is disabled.

Available commands are listed below.

W	Switch the Watch Dog Timer function status.	
	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 flash memory. On this screen, the command prompt displays "Save current configuration?(Y/N)." Press "Y" to save the configuration. Otherwise, press "N."

If you don't save the configuration, the changed configuration will be cleared after system reboot or power cycle.

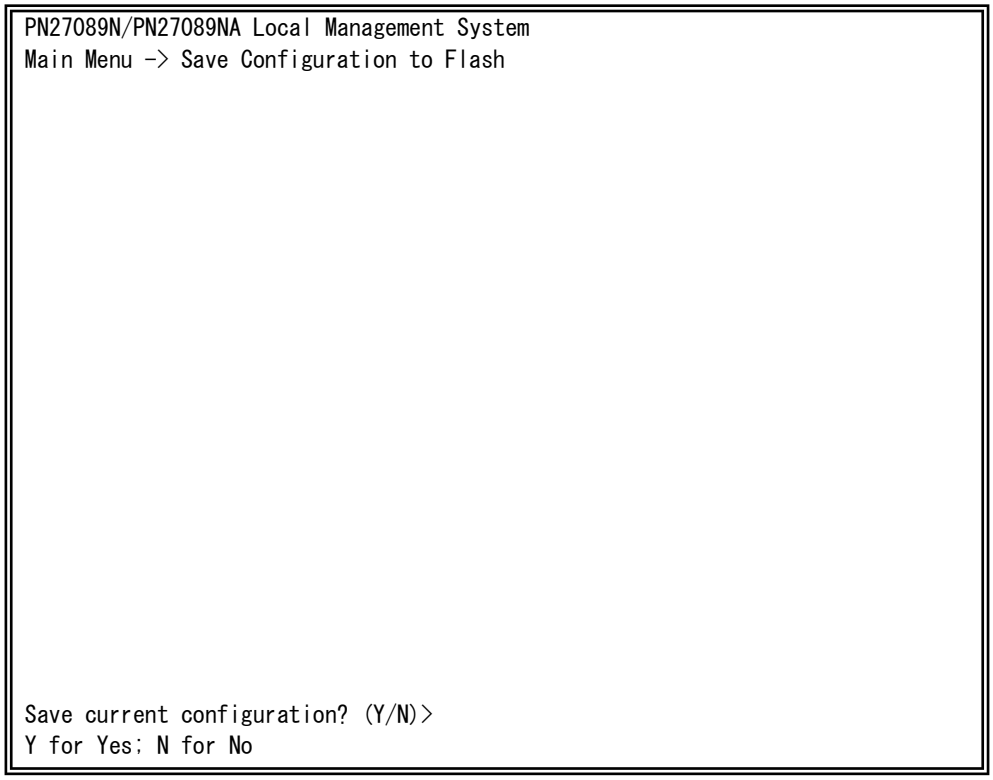


Fig. 4-10-1 Save Configuration to Flash screen: Confirm whether to save or not

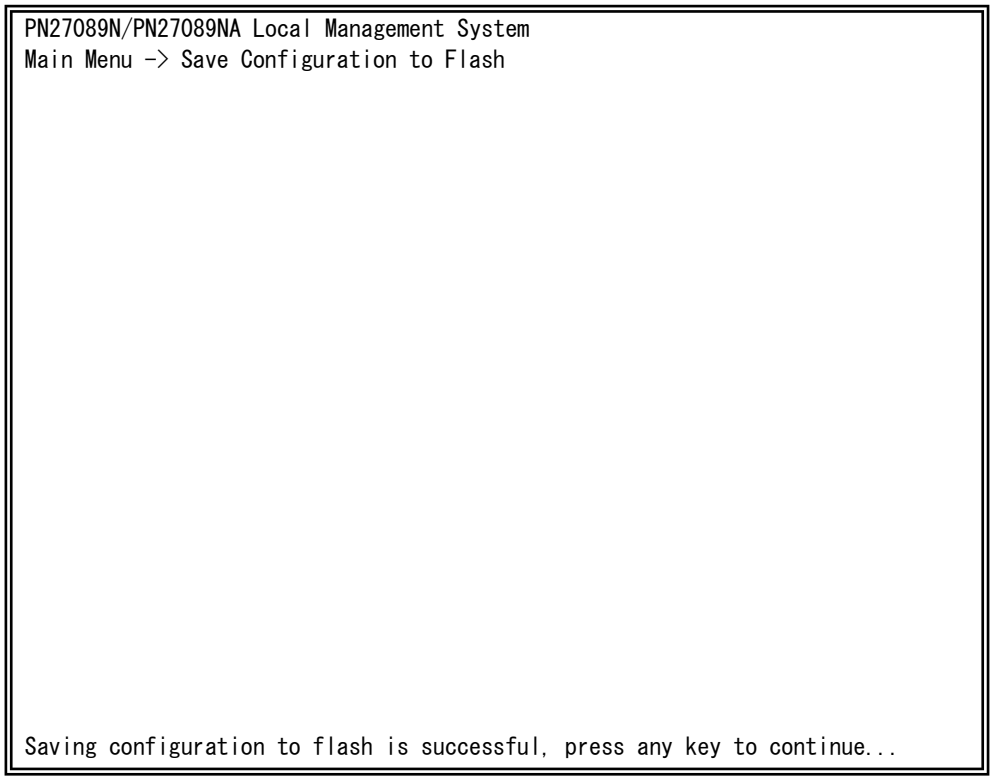


Fig. 4-10-2 Save Configuration to Flash screen: Confirm whether to save or not

4.11. Command Line Interface (CLI)

On the Main Menu, pressing "C" opens the screen as shown in Fig. 4-11-1. On this screen, you can use the command line for configuration instead of the menu. Refer to the separate volume, "Command Line Interface Manual" for configuration procedures. Enter "logout" at the command prompt to return to the Menu from CLI.

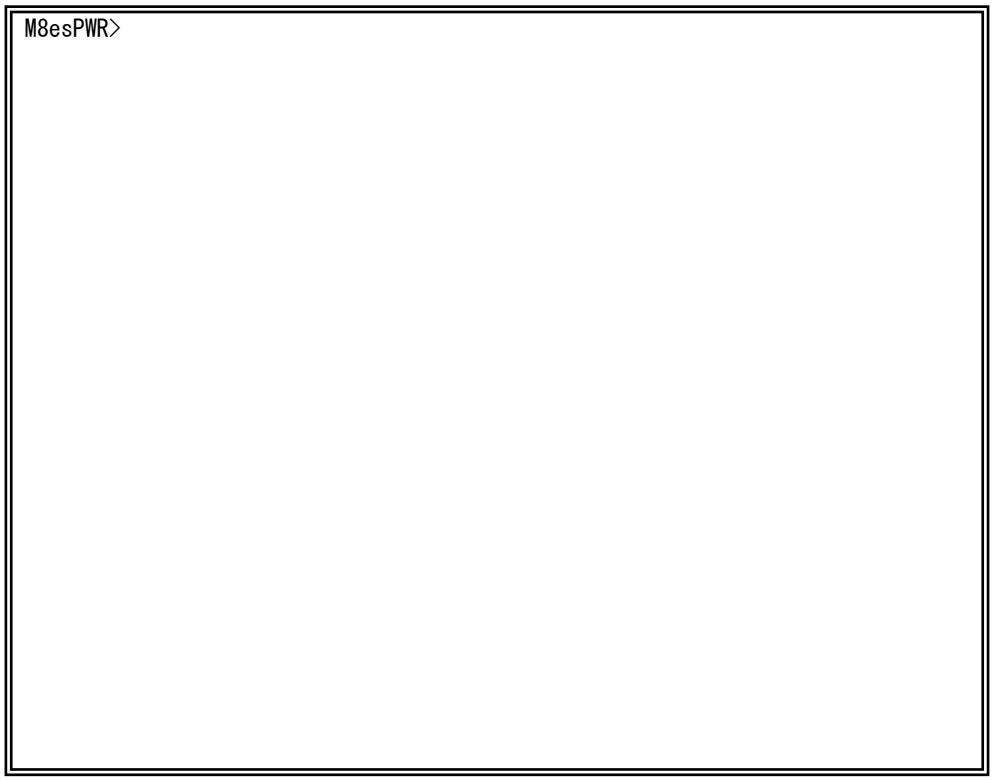


Fig. 4-11-1 Command Line Interface (CLI)

4.12. Logout

On the Main Menu, pressing "Q" logouts the session, then displays the login screen as shown in Fig. 4-2-1. If you access using Telnet or SSH, pressing "Q" terminates the session. Follow the login procedures shown in section 4.2 to log in again.

Additionally, the session is automatically logged out after the console/telnet timeout time in section 4.6.7 System Security Configuration has elapsed.

Appendix A. Specifications

- Interface
  - Twisted-pair ports: Port 1 - 8 (RJ45 connector)
    - Transmission system IEEE802.3 10BASE-T
      IEEE802.3u 100BASE-TX
  - Twisted-pair ports: Port 9 - 10 (RJ45 connector)
    - Transmission system IEEE802.3 10BASE-T
      IEEE802.3u 100BASE-TX
      IEEE802.3ab 1000BASE-T
  - Console port x 1 (RJ45 connector)
    - RS-232C (ITU-TS V.24)

- Switching system
  - Store and forward
  - Forwarding rate 10BASE-T 14,880pps
    100BASE-TX 148,800pps
    1000BASE-T 1,488,000pps
  - MAC address table 16 K entries/unit
  - Buffer memory 1.5 M bytes/unit
  - Flow control IEEE802.3x (full duplex)
    Back pressure (half duplex)

- Major functions
  - IEEE802.1D Spanning Tree Protocol
  - IEEE802.1w Rapid Spanning Tree Protocol
  - IEEE802.1Q Tag VLAN (Max. 256 VLANs including the default VLAN)
  - IEEE802.3ad Link aggregation
    (Configurable up to eight ports in five groups each)
  - IEEE802.1p QoS (Four Priority Queue supported)
  - IEEE802.1X Port-based authentication
    (EAP-MD5/TLS/PEAP supported)
  - IEEE802.3x Flow control
  - IEEE802.3af PoE power supply (Max. 15.4 W)
    (Alternative B; using idle line, 4, 5, 7, and 8)
  - Port monitoring Capable of monitoring multiple ports; 1:n
  - Access control Capable of creating up to 128 policies
  - IGMP snooping Multicast filtering supported
  - Ring protocol Capable of ring configuration of up to 1 domain

- Management methods
  - SNMP, Telnet, SSH, and serial console

- Agent specifications
  - SNMPv1/v2c (RFC1157, RFC1901)
  - TELNET (RFC854)
  - SSHv2 (RFC4251-4254, RFC4716)
  - TFTP (RFC783)
  - SNTPv3 (RFC1769)

- Supported MIB
  - MIB II (RFC1213) except at(3),epg(8) groups.
  - Power-Ethernet-MIB (RFC 3621)
    [pethPsePortPowerPriority not supported]

- Power supply specifications
  - Power supply AC 100 - 240 V, 50/60 Hz, 3.0 A
  - Power consumption Normally, Max. 79 W
    (9.1 W when not supplying power), Min. 7.3 W

- Environment specifications
  - Operating temperature 0 - 40 degrees C
    Caution: 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.
  - Operating humidity 20 - 80% RH (no condensation)
  - Storage temperature -20 - 70 degrees C
  - Storage humidity 10 - 90% RH (no condensation)

- External specifications
  - Dimensions 44 mm (Height) x 210 mm (Width) x 280 mm (Depth)
    (Excluding protruding sections)
  - Mass (Weight) 1,900 g

Appendix B. Procedures for Console Port Configuration 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 section 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 Eco Solutions Networks Co., Ltd.; “Support Tool” Ver.1.2.0.1
Panasonic Corporation; "Easy IP Address Setup Software" V3.01/4.00/4.24R00
Panasonic System Networks Co., Ltd.; "Easy Config" Ver3.10R00

[User-settable items]
- IP address, subnet mask and default gateway
- System name
  * Can be configured only with the software "Easy Config."
    The software displays "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 "Easy Config" 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 the 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.

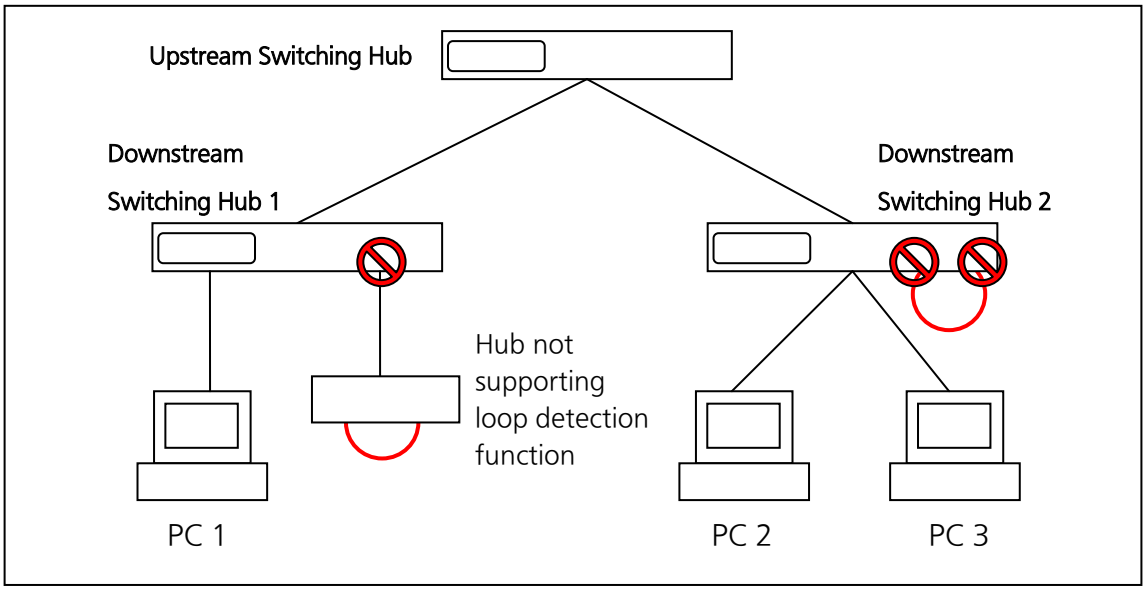
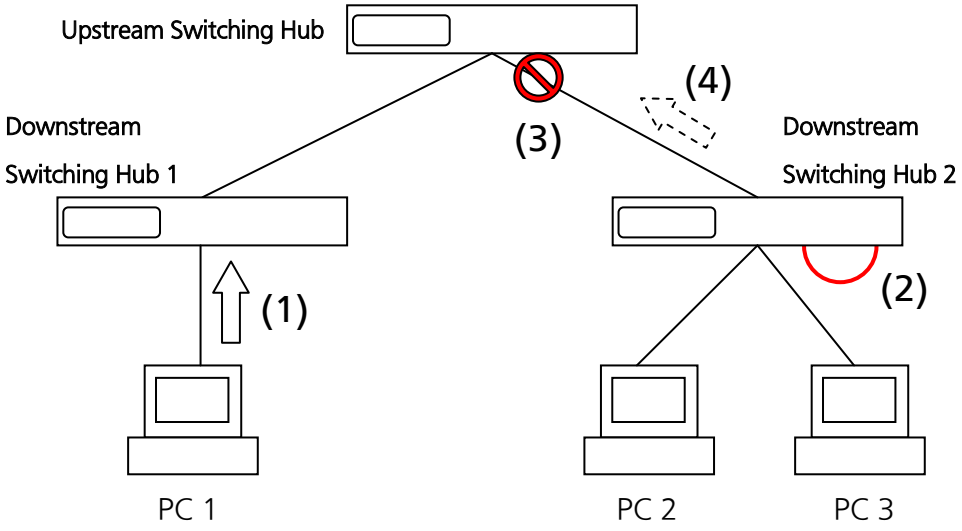


Fig. 1 Example of configuration using the loop detection function

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(s).

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.



[Occurrence conditions]

(1) Communications between PC 1 and PC 2, and between PC 1 and PC 3 are OK.

(2) A loop occurs in the 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

Troubleshooting

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

1. LED indicators
   * The power LED (POWER) is not lit.
     - Is the correct port LED display mode selected by pressing the LED display change button?
     - Is the power cord connected? Please confirm that the power cord is securely connected to the power port.
     - Use the Switching Hub within the range of operating temperature.
   * The port LED (left) is not lit on the Status mode.
     - Is the Switching Hub is 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 an appropriate cable used?
     - 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) is lit in orange.
     - A loop is occurring. When you recover the loop, orange LED is turned off.
   * LOOP HISTORY LED is blinking green.
     - This is to notify that there is a port in which a loop is occurring, or has been recovered within three days.

2. Communications are slow.
   * Communications with all ports are down 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 the bandwidth usage rate of the network to which this Switching Hub is connected excessively high?
  ➔ Try separating this Switching Hub from the network.
* Is the port LED (right) lit in orange?
  ➔ If the port LED (right) is lit in orange, the port is being blocked by the loop detection function. After the loop was recovered in the port, wait for more than the recovery time until a port starts to be automatically recovered, or unblock the port on the configuration screen.

3. PoE power supply is impossible.

* Power is not supplied to a Powered Device.
  - If you use an STP cable, PoE power supply may not be possible depending on the installation environment. In such cases, use a UTP cable.
  - Is a CAT5e or better straight cable (RJ45-8/8) used?
  - Is the cable connected to the port 1- 8 that supports PoE power supply?
  - Ensure that either the port alone or the entire equipment is not overloaded.
  - Is the Powered Device connected to the port compliant with the IEEE802.3af standard or IEEE802.3 at Type 1 (15.4W) standard?
* When the PoE mode LED is lit and a Port LED (left) is blinking orange:
  - Ensure that the total power supply demand from PoE-powered devices does not exceed 60 W.
* When the power supply is suddenly shut off:
  - It is likely that a PoE-powered device in use has a different power consumption in normal operation and standby states.
    After turning on the PoE LED (power supply mode), confirm that a single port is not overloaded [the Port LED (left) is not blinking orange] and that the maximum limit of the total power supply is not exceeded (the PoE LIM. LED is not blinking orange).

After-sales Service

1. Warranty card

A warranty card is 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 the product.

Memo (Fill in for future reference)

<table>
<tr><td rowspan="2">Date of purchase</td><td colspan="2" rowspan="2"></td><td>Product name</td><td>Switch-M8esPWR</td></tr>
<tr><td>Model No.</td><td>PN27089NA</td></tr>
<tr><td rowspan="2">Firmware version (*)</td><td>Boot Code</td><td colspan="3"></td></tr>
<tr><td>Runtime Code</td><td colspan="3"></td></tr>
<tr><td rowspan="2">Serial No.</td><td colspan="4"></td></tr>
<tr><td colspan="4">(11 alphanumeric characters labeled on the product)</td></tr>
<tr><td>Shop/Sales company</td><td colspan="4">Tel:</td></tr>
<tr><td>Customer service contact</td><td colspan="4">Tel:</td></tr>
</table>

(* 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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