ALAXALA AX3600S and AX2400S

Hardware Instruction Manual

AX36S-H001-50X

Please read the entire manual, and then properly store it.

- Before using the product, be sure to read and understand all the safety precautions.
- Keep the manual somewhere where it can be readily accessed.

AlaxalA

■Relevant Products

This manual covers the following products: 7 models in the AX2400S series including AX2430S-24T, AX2430S-24T2X, AX2430S-48T, AX2430S-48T2X, AX2430S-24TD, AX2430S-24T2XD and AX2430S-48TD; and 15 models in the AX3600S series including AX3630S-24T, AX3630S-24T2X, AX3630S-24P, AX3630S-24TD, AX3630S-24T2XD, AX3630S-24S2XW, AX3630S-48TW, AX3630S-48T2XW, AX3640S-24T, AX3640S-24TW, AX3640S-24T2XW, AX3640S-24SW, AX3640S-24S2XW, AX3640S-48TW and AX3640S-48T2XW.

■Export Restrictions

If you export this product, please check all restrictions, such as Japan's Foreign Exchange and Foreign Trade Law and USA export control laws and regulations, and carry out all required procedures.
If you require more information, please contact your ALAXALA sales representative.

■Trademarks

- Ethernet is a product name of Xerox Corporation.
- Windows is a registered trademark of Microsoft Corporation.
- Other company and product names are trademarks or registered trademarks of their respective owners.

■Reading and Storing this Manual

Before you use the equipment, read the manual carefully and make sure that you understand all safety precautions.
After reading the manual, keep it in a convenient place for easy reference.

■Notes

Information in this document is subject to change without notice.

■Radio Interference

This device is a Class A product based on the standard of the Voluntary Control Council for Interference (VCCI) for information technology equipment. In a domestic environment this product may cause radio interference in which case the user may be required to take corrective actions.

■Limits for Harmonic Current Emissions

Conforming products to the standard harmonic current emissions JIS C 61000-3-2.
Conforming devices:

AX-2430-24T	(AX2430S-24T)
AX-2430-24T2X	(AX2430S-24T2X)
AX-2430-48T	(AX2430S-48T)
AX-2430-48T2X	(AX2430S-48T2X)
AX-3630-24T	(AX3630S-24T)
AX-3630-24T2X	(AX3630S-24T2X)
AX-3630-24P	(AX3630S-24P)
AX-3630-24S2XW	(AX3630S-24S2XW)
AX-3630-48TW	(AX3630S-48TW)
AX-3630-48T2XW	(AX3630S-48T2XW)
AX-3640-24T	(AX3640S-24T)
AX-3640-24TW	(AX3640S-24TW)
AX-3640-24T2XW	(AX3640S-24T2XW)
AX-3640-24SW	(AX3640S-24SW)
AX-3640-24S2XW	(AX3640S-24S2XW)
AX-3640-48TW	(AX3640S-48TW)

AX-3640-48T2XW	(AX3640S-48T2XW)
AX-F2430-EPUA	(EPU-A)
AX-F2430-EPUB	(EPU-B)

■Edition history

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■Copyright

Preface

■About This Manual

This manual describes the hardware instructions for ALAXALA AX2400S series compact gigabit layer 2 switches and ALAXALA AX3600S series compact gigabit layer 3 switches. Before you operate the equipment, read this manual carefully and make sure that you understand all instructions and notes. After reading the manual, keep it in a convenient place for easy reference.

■Intended Readers

This manual is intended for engineers who install and handle the AX2400S and AX3600S series products. It is therefore assumed that they are familiar with electrical circuits, wiring and networks.

■Structure of Manual

Safety Information

Notes for safe use of AX2400S series and AX3600S series switches are described. Make sure to read them prior to using the switch.

Chapter 1 Components Overview

An overview of the components of the switch is provided.

Chapter 2 Preparation for Installation

Environmental conditions and required preparation for installation of the switch are described.

Chapter 3 Preparation of Interface Cables and Terminals

The interface cables and the terminals used for the devices are described.

Chapter 4 Installation of the Components

The procedures to install the components are provided.

Chapter 5 Expansion, Replacement and Removal

The procedures to expand, replace and remove the switches, external power units (EPUs) and power supply modules are provided.

Appendix A Cleaning Optical Connecters

The procedures to clean the optical connectors of the transceivers and the optical fiber cable connecters are described.

Appendix B Physical Specifications of Network Interfaces

The specifications of the interfaces on the device are listed.

Appendix C Specifications of the Setup Terminal

The setup terminal and the connection cable to use for the device are described.

■Find Description from the AX2400S Series Manuals

● **Unpacking the switch and the basic settings for initial installation**

AX3600S and AX2400S
Quick Start Guide
(AX36S-Q001)

● **Determining the hardware facility conditions and how to handle the hardware**

AX3600S and AX2400S
Hardware Manual
(AX36S-H001)

● **Understanding the software functions, configuration settings, and use of the operation commands**

AX2400S Software Manual
Configuration Guide
Vol.1 (AX24S-S001)
Vol.2 (AX24S-S002)

● **How to troubleshoot when a problem occurs**

AX6700S / AX6600S / AX6300S/
AX3600S / AX2400S
Troubleshooting Guide
(AX36S-T001)

● **Learning the syntax of configuration commands and the details of command parameters**

AX2400S Software Manual
Configuration Command
Reference
Vol. 1 (AX24S-S003)

● **Learning the syntax of operation commands and the details of command parameters**

AX2400S Software Manual
Operation Command Reference
Vol. 1 (AX24S-S004)

● **Understanding messages and logs**

AX2400S Software Manual
Message and Log Reference
(AX24S-S005)

● **Understanding the MIB**

AX2400S Software Manual
MIB Reference
(AX24S-S006)

■Find Description from the AX3600S Series Manuals

- **Unpacking the switch and the basic settings for initial installation**

  AX3600S and AX2400S
  Quick Start Guide
  (AX36S-Q001)

- **Determining the hardware facility conditions and how to handle the hardware**

  AX3600S and AX2400S
  Hardware Manual
  (AX36S-H001)

- **Understanding the software functions, configuration settings, and use of the operation commands**

  AX3600S Software Manual
  Configuration Guide
  Vol.1 (AX36S-S001)
  Vol.2 (AX36S-S002)
  Vol.3 (AX36S-S003)

- **Learning the syntax of configuration commands and the details of command parameters**

  AX3600S Software Manual
  Configuration Command Reference
  Vol. 1 (AX36S-S004)
  Vol. 2 (AX36S-S005)

- **Learning the syntax of operation commands and the details of command parameters**

  AX3600S Software Manual
  Operation Command Reference
  Vol. 1 (AX36S-S006)
  Vol. 2 (AX36S-S007)

- **Understanding messages and logs**

  AX3600S Software Manual
  Message and Log Reference
  (AX36S-S008)

- **Understanding the MIB**

  AX3600S Software Manual
  MIB Reference
  (AX36S-S009)

- **How to troubleshoot when a problem occurs**

  AX6700S / AX6600S / AX6300S/
  AX3600S / AX2400S
  Troubleshooting Guide
  (AX36S-T001)

■How to Obtain This Manual

For the manuals of AX2400S Series AX3600S series switches, see the following website:

http://www.alaxala.com/

■Acronyms

EIA	Electronic Industries Alliance
EPU	External Power Unit
FG	Frame Ground
G	Ground
IEEE	Institute of Electrical and Electronics Engineers, Inc.
JIS	Japanese Industrial Standards
LAN	Local Area Network
LED	Light Emitting Diode
MDI	Medium Dependent Interface
MDI-X	Medium Dependent Interface Crossover
PoE	Power over Ethernet
PS	Power Supply
RS-232C	Recommended Standard 232C
SD	Secure Digital
SFP	Small Form factor Pluggable
TCP/IP	Transmission Control Protocol/Internet Protocol
T/R	Transmitter/Receiver
URL	Uniform Resource Locator
UTP	Unshielded Twisted Pair
XFP	10 gigabit small Form factor Pluggable

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Appendix

⚠ Safety Information

■To Use AX2400S Series and AX3600S Series Switches Safely

- This manual includes notes for safe use of AX2400S series and AX3600S series switches. Be sure to read through this document before use.
- After reading this manual, keep it in an accessible place for easy reference.
- To use the switch, follow the instructions and procedures described in this manual.
- Make sure to observe the notes indicated on the switch and in the manual. Otherwise, personal injury or damage to the switch could occur.

■Prior to Use

- Symbols
  These symbols in the manual and on the switch are intended to assist you in operating the device safely and properly, and also to prevent harm to you and other people and damage to your property. Be sure to understand the meanings of these labels before reading the main contents.

⚠WARNING	Ignoring instructions marked with this label and using the switch incorrectly could result in death or serious injury to yourself and others.
⚠CAUTION	Ignoring instructions marked with this label and using the switch incorrectly could result in serious injury to yourself and others.
CAUTION	Ignoring instructions marked with this label and using the switch incorrectly could result in serious damage to the switch or nearby property.
NOTE	Information preceded by this indication is supplementary information that, even if ignored, will not result in physical injury or serious damage to the switch.

■Operation and Action

- Do not perform any operations or actions except those described in this document.
  In case of trouble with the device, turn it off, disconnect the power supply cable and then contact the maintenance staff.

■Self-Driven Action

We have striven to provide every note necessary on both the switch and in the manual.
However, a situation beyond our expectations might arise. While operating the switch, it is important for you to pay close attention in addition to observing the instructions.

⚠WARNING

■If any problem occurs, immediately turn off the device.

- In the case of smoke, a bad smell or an intrusion of substances or water into the device, follow the instructions below to turn off the device. Continuous use might cause a fire or an electric shock.

Countermeasures Against Problems

Faulty device		Actions
AC power model AC (PoE) model	Without the external power unit (EPU)	Turn off the main device and disconnect the power supply cable.
	With the external power unit (EPU)	Turn off the main device and the power supply module, which outputs power to the device, and disconnect the power supply cable.
DC power model		Turn off the main device and open the circuit breaker for the electrical power equipment.
Power redundancy model	With AC power supplies	Turn off all power supplies installed the device and disconnect the power supply cable.
	With DC power supplies	Turn off all power supplies installed the device and the circuit breaker for the electrical power equipment.
EPU		Turn off the EPU and disconnect the power supply cable.

■Do not put any foreign substances into the device.

- Do not insert or drop metal objects or flammable materials through the air vents into the device. A fire or an electric shock might be caused.

■When attempting to push the RESET switch, do not use a tool with a fragile tip, a pin or a paper clip, which can be caught or dropped inside the switch and will not be taken out.

- When attempting to push the RESET switch, do not use a tool with a fragile tip, a pin or a paper clip, which can be caught or dropped inside the switch and will not be taken out. A fire or an electric shock might be caused.

■Do not modify the device.

- Do not modify the device. A fire or an electric shock might be caused.

■Do not make bump or drop the switch.

- In case that the device is dropped or a component is damaged, turn off the device, disconnect the power supply cable from the outlet and contact the maintenance staff. Continuous use might cause a fire or an electric shock.

■Do not put any objects on the device.

- Do not put metal objects including pins and paper clips or containers with water such as vases and plant pots on the device. If such objects get into the device, a fire or an electric shock might be caused.

⚠WARNING

■Use the device only with the indicated power source.

- Use the device only with the indicated voltage of power. A fire or an electric shock might be caused.

■Ensure that the capacity of incoming current to the distribution board should be larger than the breaker operating current capacity.

- Ensure that the capacity of incoming current to the distribution board should be larger than the breaker operating current capacity. Otherwise, the breakers cannot operate properly in case of trouble, which might cause a fire.

■Ground the switch.

- For the AC power and the AC (PoE) models, the power redundancy models with AC power supplies, and the external power unit (EPU), make sure to use an outlet with a ground terminal. Not connecting the grounded outlet to the switch can cause electric shocks, as well as a cause of failure due to electrical noise.
- For the DC power model and the power redundancy model with DC power supplies, use the ground cable for grounding. Not connecting the grounded outlet to the switch can cause electric shocks, as well as cause failures due to electrical noise.

■A trained engineer or maintenance staff should attach and detach the DC power supply cable.

- A trained engineer or maintenance staff should connect and disconnect the DC power supply cable to and from the electrical power equipment. The terminals of the DC power supply cable are connected to the electrical power equipment. Wrong handling of the DC power supply cable can cause a fire or an electric shock.

■Prior to connecting or disconnecting the DC power supply cable, turn off the circuit breaker of the electrical power equipment.

- Prior to connecting or disconnecting the DC power supply cable, turn off the circuit breaker of the electrical power equipment. Otherwise, a fire or an electric shock might result.

■Cover the G and -48 V terminals of the DC power supply cable with an insulation jacket.

- Cover the G and -48 V terminals of the DC power supply cable (on the electrical power equipment side) with an insulation jacket. Otherwise, an electric shock might result.

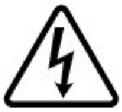
⚠WARNING

■Cut the DC power supply cable jackets to the specified length.

- To use the DC power supply cable on the power redundancy model, cut the cable jackets (on the switch side) to 8 to 10 mm.
  Too short a sheath length might result in poor contact or a disconnected cable. On the contrary, too long a sheath length might expose the core wire and cause an electric shock.

■Do not use the switch without the protective caps.

- Keep the protective cap in place except when attaching a cable. Otherwise, a fire or an electric shock might be caused.
  Note that EPU-B outputs higher voltage and the label shown below is therefore attached near the stand-by power supply connector.



■Take care of the power supply cable.

- Do not have the power supply cable laid under heavy objects, stretched, bended or processed. The damaged cable might cause a fire or an electric shock. Pay attention to the rug over the cable, which might conceal the cable and lead to the cable bearing a heavy load.
- Make sure to use the accessory power supply cable or the specified one. Otherwise, a fire or an electric shock might result. In addition, use the accessory cable only for this product. Otherwise, a fire or an electric shock might result.
- If the power supply cable is damaged, exposing the core wires, or is broken, contact the maintenance staff for a replacement. Continuous use might cause a fire or an electric shock.
- Check for dust on the power supply plug. Securely insert the full length of the blades to exclude any play. Dust on the plug or insufficient connection might cause a fire or an electric shock.

■Do not use a power strip.

- Do not connect multiple appliances of power plugs to one outlet. Doing so can cause a fire as well as circuit breaker operation due to excessive power consumption affecting other devices.

■Prior to inserting or removing the power supply, disconnect the power supply cable.

- Prior to inserting or removing the power supply, disconnect the power supply cable from the power supply. When the power supply cable is connected, part of the circuit is energized even though the power switch is off. Therefore, inserting or removing the power supply with the power supply cable connected can cause a fire or an electric shock.

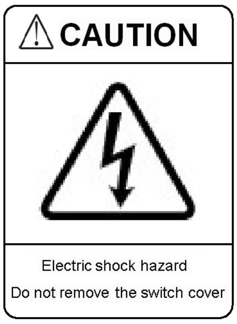
⚠CAUTION

■Do not install the device on an unstable place.

- Horizontally install the device on a work table that can sufficiently bear the load of the device. Using an unstable place including wobbly tables and tilted surfaces might cause the switch to fall and possibly cause injury.
- When mounting the device in a rack, check thoroughly that the device is in a stable condition. Otherwise, the switch might fall or the rack might tip over, which could result in serious injury.

■Do not remove the exterior panels of the device.

- Do not remove the exterior panels of the device. Otherwise, an electric shock might be caused. The label shown below is attached on the device.



■Do not block the air vents of the device.

- Do not block the air vents of the device. Otherwise, the internal heat is not discharged, which might cause a fire. Keep more than 50 mm of space from the air vents.

■Keep your hair or any objects away from the air vents of the device.

- The device has cooling fans. Keep any objects away from the air vents. Otherwise, increasing temperature inside the device might cause a failure. Also, keep the air vents clear of hair or objects that might be caught and cause injury.

■When moving the device, do not hold the handles of the power supply, the fan unit or the power supply module.

- When moving the power redundancy model, do not hold the handle of the power supply or the fan unit. The handle can come off and the device can fall, possibly causing injury. Or the device might be distorted to cause a fire or an electric shock.
- When moving the EPU, do not hold the handle of the power supply modules. The handle can come off and the device can fall, which might cause injury. Or the EPU might be distorted to cause a fire or an electric shock.

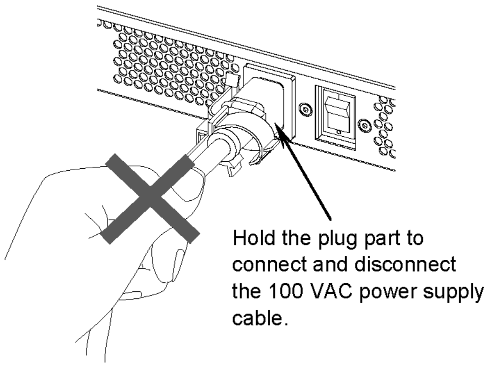
⚠CAUTION

■Precautions for transportation

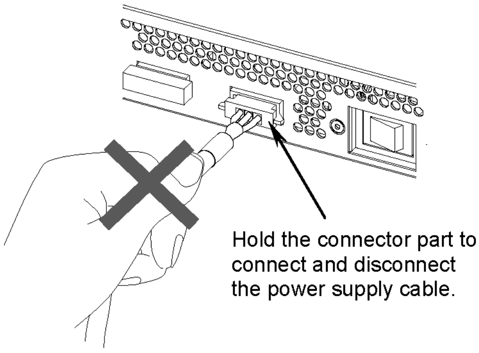
- Prior to moving the device, turn it off and remove all cables from it. Otherwise, distorted or damaged device cables might cause a fire or an electric shock.
- Since the device might need to be stacked under other things during transportation, put it in the shipping box. Otherwise, a distorted or damaged device might cause a fire or an electric shock.

■Take care of the power supply cable.

- Keep the power supply cable away from heating appliances. Otherwise, the melted cable jacket might cause a fire or an electric shock.
- Hold the cable plug when connecting or disconnecting the AC power supply cable into or from an outlet. Pulling the cable part might break the wire.


Hold the plug part to connect and disconnect the 100 VAC power supply cable.

- Hold the cable connector when connecting or disconnecting the DC power supply cable. Pulling the cable part might break the wire.


Hold the connector part to connect and disconnect the power supply cable.

⚠CAUTION

■Prior to turning off the device, shut off all power to the device.

- As for the AC power and AC (PoE) models with backup power supplied from the EPU, turning off the power switch of the switch does not shut off the power to the switch. Turn off the switches of the switch and the power supply modules to shut off the power supplies.
- As for the power redundancy model with the redundant power supply, turning off either power switch does not shut off the power to the switch. Turn off the switches of all power supplies mounted on the switch to shut off the power supplies.

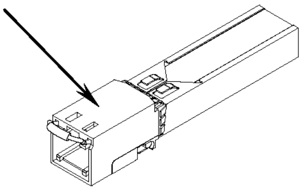
■Pay attention to the laser beam.

- This device uses a laser beam, which is colorless and invisible. Do not directly look into the optical transmitter/receiver part.

■Do not touch the SFP-T(T) during or immediately after operation.

- The temperature of operating an SFP-T(T) can rise up to 65 degrees Celsius after a link is established. Do not touch it during or immediately after operation. Otherwise, you might get burned.

CAUTION: Hot surface
(All surfaces including top, bottom
and sides become hot during
operation.)



To remove an SFP-T(T), do either of the procedures below. Otherwise, a burn injury might result.

• When the device is on, block the SFP slot and wait for 5 minutes before removing the SFP.

• Turn off the device and wait for 5 minutes before removing the SFP.

The label shown below is attached to an SFP-T(T).

■Do not place the device in a humid or dusty environment.

- Do not place the device in humid or dusty environment. A fire or an electric shock might result.
- When the device is exposed to a large temperature difference (for example, when it is moved from a cold place to a warm place), dew condensation might occur on the surfaces and inside of the device. If the device is immediately used as it is, a fire or electric shock might result. After moving the device to a place with an extreme temperature change, wait a few hours before using it.

⚠CAUTION

■Do not step on or lean against the device. Do not put heavy objects on the device.

- Do not step on or lean against the device. The device might be damaged, or if it becomes unstable, it could fall, causing injury.
- Do not put anything that is 5 kg or more on the device. The device might be damaged, or if it becomes unstable, it could fall, causing injury.

■Do not touch the inside of the device.

- Do not put your hands inside the device carelessly. The components might cause an injury.

■For the power redundancy model, install a fan unit into a slot that does not contain a power supply.

- For the power redundancy model, install a fan unit into a slot that does not contain a power supply. Otherwise, a failure might occur due to increasing temperatures inside the device. In addition, the components might cause injury or invading foreign matter might cause a failure.

■For the EPU, use blank panels to cover the slots that do not contain power supply modules.

- For the EPU, use blank panels to cover the slots that do not contain power supply modules. Otherwise, the components might cause injury or invading foreign matter might cause a failure.

■Cleaning

- Regularly clear dust from the device and its surroundings. Dust does not only possibly interrupt device operation but also might cause a fire or an electric shock.

CAUTION

■Do not expose the device to high temperatures.

- Placing the device in direct sunlight or near heating appliances such as stoves has a bad influence on the components.

■Keep the device away from TV sets or radios.

- TV sets or radios next to the device might adversely affect each other. When the TV or the radio is noisy, take the following measures:
  - Place the device as far away from the TV set or radio as possible.
  - Change the direction of the TV or radio antenna.
  - Use a different outlet.

■Do not place the device in the environment where hydrogen sulfide is produced or in a salty atmosphere.

- Any places where hydrogen sulfide is produced such as hot spring resorts or where salt content is rich in the air, such as seaside areas, might shorten the service life of the device.

■Prior to connecting or disconnecting the power supply cable, turn off the switches.

- For the AC power, the AC (PoE) models and the EPU, turn off the device before connecting or disconnecting the power supply cable.
- As for the power redundancy model, turn off the power supply before connecting or disconnecting the power supply cable or the cable connector.
- As for the stand-by power supply cable, turn off the power supply module.

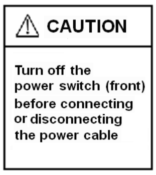
■When the power supply or the fan unit is replaced with the device turned on, keep the time limit.

- When the power supply or the fan unit is replaced with the main device turned on, do not leave the device more than three minutes without the power supply and the fan unit. Otherwise, a failure might occur due to increasing temperatures inside the device.

CAUTION

■Prior to inserting or removing the power supply module, turn off the switches.

- Prior to inserting or removing the power supply module, turn off the switch of the relevant power supply module. Otherwise, a fault might occur or the device might fail. The label shown below is attached on the EPU.



⚠ CAUTION

Turn off the
power switch (front)
before connecting
or disconnecting
the power cable

■Prior to turning on the main switch of the EPU, turn off the power supply modules.

- Prior to turn on the main switch of the EPU, make sure all power switches of the inserted power supply modules are turned off.

■When backup power is still supplied to the device, do not turn off the main switch of the EPU.

- When the main switch of the EPU is turned off, all backup power supply to the device is shut off. When backup power is still supplied to the device, do not turn off the main switch of the EPU.

■Carefully handle the memory card and the dummy memory card.

- When inserting the memory card or dummy memory card, do not push it too strongly or too quickly. Do not forcibly pull a locked card to remove it. Otherwise, the connector part of the memory card slot might be damaged.
- Make sure to remove the memory card and the dummy memory card before moving the main device. Excessive stress applied on the card during transfer might damage the connector part of the memory card slot.

■Do not remove the memory card or turn off the device while the ACC LED is lit up.

- The device is accessing the memory card whenever the ACC LED on the device front panel is lit up. Do not remove the memory card or turn off the device. Otherwise, the memory card might be damaged.
  In addition, some commands take long time to access the memory card after being executed. Confirm that access has ended before removing the memory card or turning the power supply off.

CAUTION

■Do not attach other labels to the transceiver.

- The transceivers have labels to certify that they are standard products of the manufacturer or ALAXALA. These labels are attached so as not to disturb heat radiation from the transceiver or the mechanism to avoid dropping from the cage.
  Attaching a label on an interfering part with heat radiation or the mechanism to avoid dropping from the cage might cause a failure in the transceiver or damage to the device.

■Do not shut off the power to the device while the ST1 LED is blinking green.

- In the following situations, do not switch off the device until the blinking green ST1 LED on the device front panel turns to a constant green. Otherwise, the device might break down:
  • Updating software

■While carrying or packing the device and optional components, wear an antistatic wrist strap.

- Make sure to wear an antistatic wrist strap. Handling the device without an antistatic wrist strap might damage the device due to an electrostatic discharge.

■Carefully carry or pack optional components.

- Do not touch the connector part of the transceiver, the memory card, the power supply, the fan unit and the power supply module while carrying or packing them. For storage, put them in an antistatic bag.

■Cleaning

- To clean the exterior of the device, use a dry clean cloth or those that have been immersed in water or mild detergent and wrung out. Do not use volatile organic solvents, such as benzine and paint thinner, chemicals, chemical dusters or pesticides. Otherwise, discoloration, distortion or failure might result.

■Long-term shut down

- When the device is not used for a long time (for example, during a long vacation or trip), remove the power supply cable from the outlet for safety. When the DC power supply is used, turn off the circuit breaker of your electrical power equipment.

■Disposal of the device

- Dispose of the device according to the ordinances and regulations of your municipality or contact your local waste disposal facilities.

1

Components Overview

This chapter provides an overview of the various parts of the switch.

1.1 Main Device

AX2400S series switches provide layer 2 switching that is capable of 10-gigabit communication. These switches are good as edge switches for local area networks and server aggregation switches in a server farm.

AX3600S series switches provide layer 3 switching and can be used as distribution switches for large-scale LANs, core switches for small and middle-scale LANs and customer edge switches.

The following models belong to the AX2400S series and AX3600S series.

Table 1-1 List of AX2400S series and AX3600S series switches

Number	LAN Interface			Series Name	Model Name
	10/100/1000 BASE-T	SFP slot	XFP slot		
1	24 ports	4 slots	-	AX2400S	AX2430S-24T (AC power model) AX2430S-24TD (DC power model)
				AX3600S	AX3630S-24T (AC power model) AX3630S-24TD (DC power model) AX3640S-24T (AC power model) AX3640S-24TW (power redundancy model)
2	24 ports	4 slots	2 slots	AX2400S	AX2430S-24T2X (AC power model) AX2430S-24T2XD (DC power model)
				AX3600S	AX3630S-24T2X (AC power model) AX3630S-24T2XD (DC power model) AX3640S-24T2XW (power redundancy model)
3	24 ports (PoE)	4 slots	-	AX3600S	AX3630S-24P (AC (PoE) model)
4	48 ports	4 slots	-	AX2400S	AX2430S-48T (AC power model) AX2430S-48TD (DC power model)
				AX3600S	AX3630S-48TW (power redundancy model) AX3640S-48TW (power redundancy model)
5	48 ports	-	2 slots	AX2400S	AX2430S-48T2X (AC power model)
				AX3600S	AX3630S-48T2XW (power redundancy model) AX3640S-48T2XW (power redundancy model)
6	4 ports	24 slots	-	AX3600S	AX3640S-24SW (power redundancy model)
7	4 ports	24 slots	2 slots	AX3600S	AX3630S-24S2XW (power redundancy model) AX3640S-24S2XW (power redundancy model)

NOTE

This switch has a flash disk to store the operating system, the configuration data and the log information.
The number of times the disk can be written to is limited, and should be noted during operation.
For detailed precautions on writing data to the flash memory, see *Section 11 Device Management* in the *Software Manual Configuration Guide Vol. 1*. : 11 TM

1.1.1 AX2430S-24T/AX2430S-24TD/AX3630S-24T/AX3630S-24TD/AX3640S-24T Models

The AX2430S-24T, AX2430S-24TD, AX3630S-24T, AX3630S-24TD and AX3640S-24T models have the following hardware specifications:

- Ethernet 10/100/1000BASE-T ports: 24
- SFP slots: 4
- Memory card slot: 1
- CONSOLE port: 1

NOTE

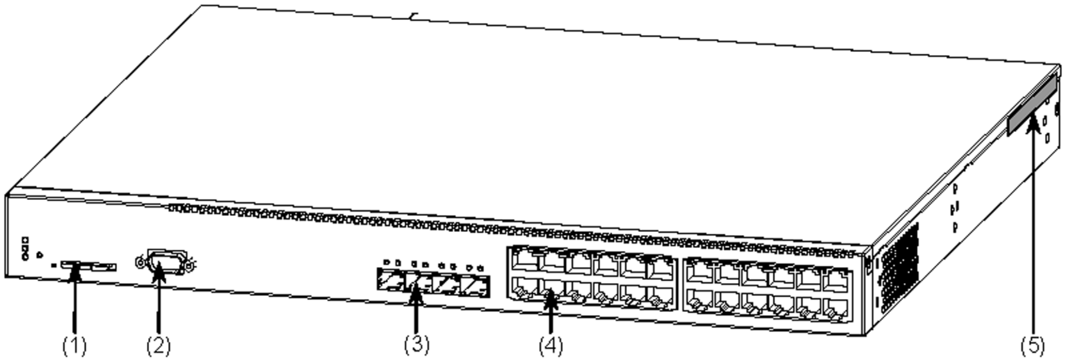
Since switch ports 1 to 4 are shared by the SFP slots and 10/100/1000BASE-T, the ports cannot be assigned to both SFP and 10/100/1000BASE-T at the same time. Configure each port so that it is either assigned to an SFP slot or as a 10/100/1000BASE-T port. (By default, ports 1 to 4 are SFP slots.)
For details about editing the configuration, see the Software Manual.

NOTE

For information about the SFPs supported by this switch, see 1.7.1 SFP.

(1) External Appearance

Figure 1-1 Front View

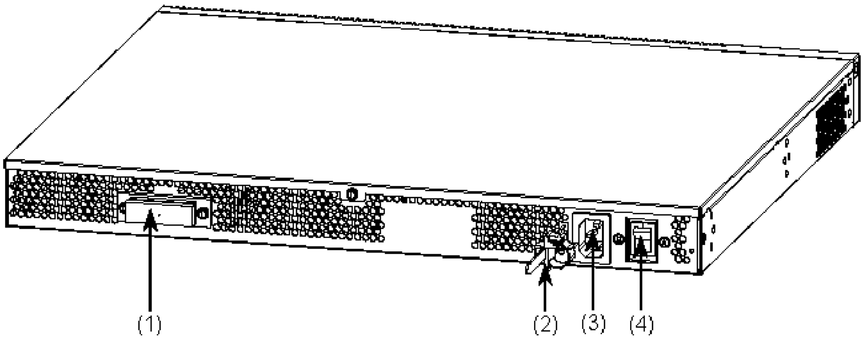


(1) Memory card slot
(2) CONSOLE port
(3) SFP slots
(4) 10/100/1000BASE-T Ethernet ports
(5) Tamper-evident security tape

NOTE

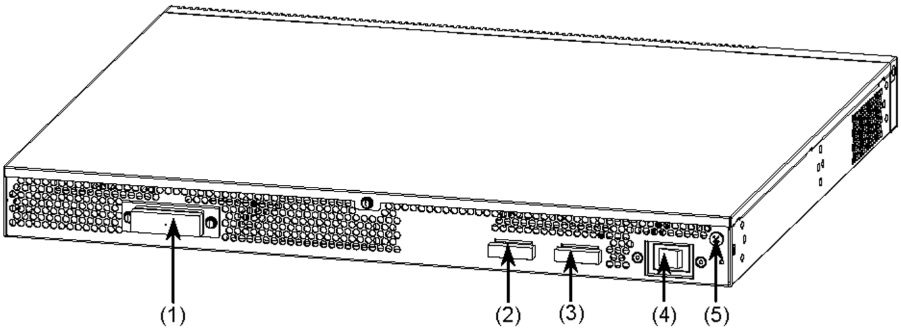
Do not peel off the tamper-evident security tape. Removing the tape makes the warranty null and void.

Figure 1-2 Back View of the AC Power Model



(1) Stand-by power supply connector (with protective cap)
(2) Cable clamp
(3) AC power connector
(4) Power switch

Figure 1-3 Back View of the DC Power Model



(1) Stand-by power supply connector (with protective cap)
(2) DC power connector 2
(3) DC power connector 1
(4) Power switch
(5) Ground terminal

(2) Front Panel

The front panel layout is shown in Figure 1-4 Front Panel Layout. The numbers in the figure correspond to those in Table 1-2 LED Indications, Switches and Connectors.

Figure 1-4 Front Panel Layout

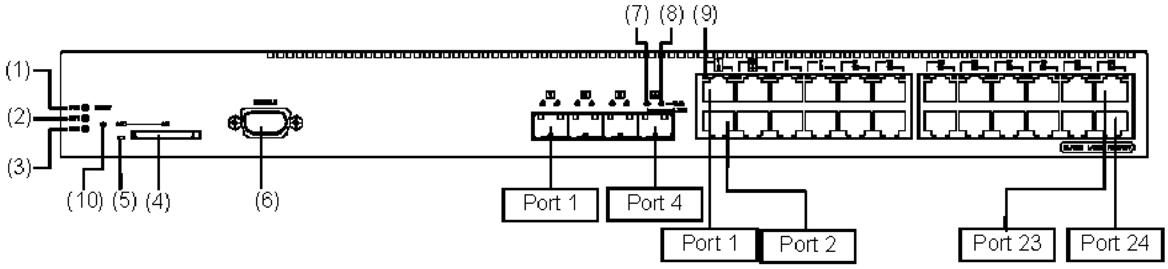


Table 1-2 LED Indications, Switches and Connectors

Number	Name	Type	Description	Details
(1)	PWR	Green LED	Indicates the power supply status.	Lit in green : Powered-on Off : Powered-off or failure with power supply
(2)	ST1	Green/Red LED	Indicates the device status.	Lit in green : Standing by or running Blinking green : Getting ready (starting up) Blinking red : Partial failure with the switch Lit in red : Fatal failure with the switch (cannot be used) Off : Powered-off or failure with a power supply
(3)	ST2	Green LED	(Not used)	Off
(4)	MC	Connector	Memory card slot	Memory card slot
(5)	ACC	Green LED	Indicates the memory card status.	Lit : Accessing the memory card. (Do not remove the memory card.) Off : Memory card is in idle mode. (The memory card can be removed.)
(6)	CONSOLE	Connector	CONSOLE port	RS-232C port to connect a console terminal.
(7)	LINK	Green/Orange LED	Indicates the operating status of an SFP slot Ethernet port.	Lit in green : A link is established. Lit in orange : Detecting line disturbances. Off : Alink failure or block when the green ST1 LED is lit
(8)	T/R	Green LED		Lit in green : Sending or receiving frames
(9)	1-24	Green/Orange LED	Indicates the operating status of a 10/100/1000BASE-T Ethernet port.	Lit in green : A link is established. Blinking green : A link is established and frames are being sent or received. Lit in orange : Detecting line disturbances. Off : A link failure or block when the green ST1 LED is lit.
(10)	RESET	Switch (momentary)	Manual reset switch for the switch[*1]	Restarts the device.

[*1] The switch is behind the front panel. Use a small-head screwdriver to press it.

⚠WARNING

When attempting to push the RESET switch, do not use a tool with fragile tip, pin or paper clip that can be caught or dropped inside and will not be taken out. A fire or an electric shock may be caused.

1.1.2 AX3640S-24TW Model

The AX3640S-24TW model has the following hardware specifications:

- Ethernet 10/100/1000BASE-T ports: 24
- SFP slots: 4
- Memory card slot: 1
- CONSOLE port: 1
- Power supply slots: 2

NOTE

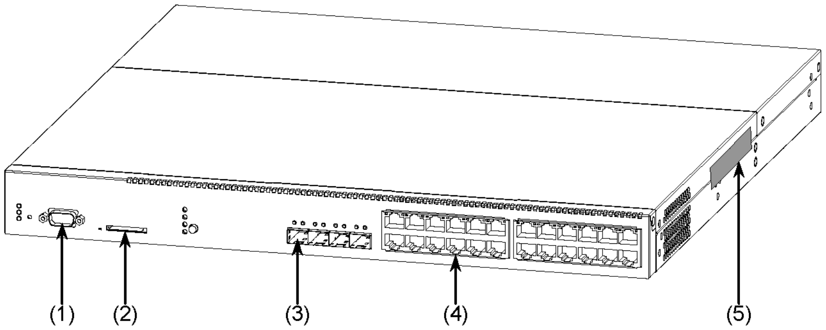
Since switch ports 1 to 4 are shared by the SFP slots and 10/100/1000BASE-T, the ports cannot be assigned to both SFP and 10/100/1000BASE-T at the same time. Configure each port so that it is either assigned to an SFP slot or as a 10/100/1000BASE-T port. (By default, ports 1 to 4 are SFP slots.)
For details about editing the configuration, see the Software Manual.

NOTE

For information about the SFPs supported by the switch, see 1.7.1 SFP.

(1) External Appearance

Figure 1-5 Front View

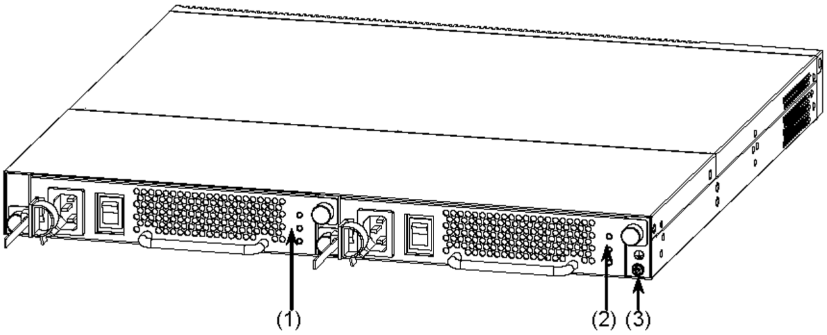


(1) Memory card slot
(2) CONSOLE port
(3) SFP slots
(4) 10/100/1000BASE-T Ethernet ports
(5) Tamper-evident security tape

NOTE

Do not peel off the tamper-evident security tape. Removing the tape makes the warranty null and void.

Figure 1-6 Back View



(1) Power supply slot 2
(2) Power supply slot 1
(3) Ground terminal

NOTE

> To build a redundant power supply system, insert power supplies into both power supply slots 1 and 2. Otherwise, insert a power supply into power supply slot 1 and a fan unit into power supply slot 2.

(2) Front Panel

The front panel layout is shown in Figure 1-7 Front Panel Layout. The numbers in the figure correspond to those in Table 1-3 LED Indications, Switches and Connectors.

Note that the AX3640S-24TW model has a mode button to switch how Ethernet port statuses are shown.

Figure 1-7 Front Panel Layout

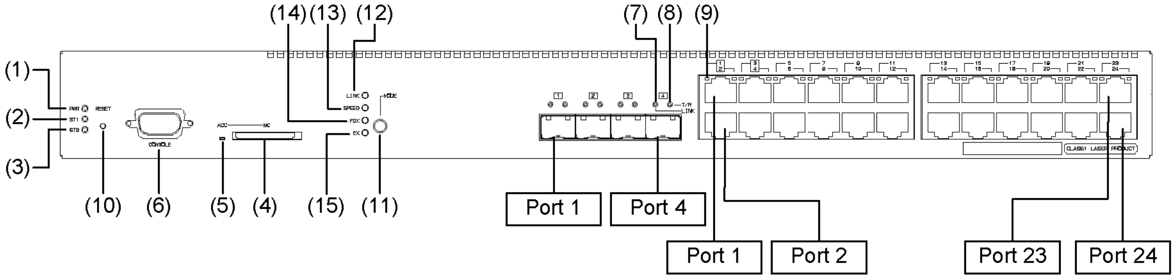


Table 1-3 LED Indications, Switches and Connectors

Number	Name	Type	Description	Details
(1)	PWR	Green LED	Indicates the power supply status.	Lit in green : Powered-on. Off : Powered-off or a failure with a power supply.
(2)	ST1	Green/Red LED	Indicates the device status.	Lit in green : Standing by or operating. Blinking green : Getting ready (starting up). Blinking red : Partial failure with the switch Lit in red : Fatal failure with the switch (cannot be used) Off : Powered-off or a failure with a power supply.
(3)	ST2	Green LED	(Not used)	Off
(4)	MC	Connector	Memory card slot	Memory card slot
(5)	ACC	Green LED	Indicates the memory card status.	Lit : Accessing the memory card. (Do not remove the memory card.) Off : Memory card is in idle mode. (The memory card can be removed.)
(6)	CONSOLE	Connector	CONSOLE port	RS-232C port to connect a console terminal.
(7)	LINK	Green/Orange LED	Indicates the operating status of an SFP slot Ethernet port.	What these LEDs mean depends on the selected LED indication mode from (12) to (15) below. For meanings of LEDs, see Table 1-4 Operating Status in a Specific LED Indication Mode (LINK Mode) to Table 1-6 Operating Status in a Specific LED Indication Mode (DUPLEX Mode).
(8)	T/R	Green LED		
(9)	1-24	Green/Orange LED	Indicates the operating status of a 10/100/1000BASE-T Ethernet port.	
(10)	RESET	Switch (momentary)	Manual reset switch of the device[*1]	Restarts the device.
(11)	MODE	Button (momentary)	Mode button	Changing the LED indication modes from (12) to (15) by pressing this button. (The order is as follows: LINK > SPEED > FDX > EX > LINK...)
(12)	LINK	Green LED	Corresponding LED indication mode is selected for the Ethernet ports.	Lit in green : LINK mode is selected.
(13)	SPEED	Green LED		Lit in green : SPEED mode is selected.
(14)	FDX	Green LED		Lit in green : DUPLEX mode is selected.
(15)	EX[*2]	Green LED		Lit in green : Extension mode is selected.

*1 The switch is behind the front panel. Use a small-head screwdriver to press it.

*2 Not supported.

⚠WARNING

When attempting to push the RESET switch, do not use a tool with fragile tip, pin or paper clip that can be caught or dropped inside and will not be taken out. A fire or an electric shock may be caused.

Table 1-4 Operating Status in a Specific LED Indication Mode (LINK Mode)

Number	Name	Type	Description	Details
(7)	LINK	Green/Orange LED	Indicates the operating status of an SFP slot Ethernet port.	Lit in green : A link is established. Lit in orange : Detecting line disturbances. Off : A link failure or block when the green ST1 LED is lit.
(8)	T/R	Green LED		Blinking green : A link is established and frames are being sent or received. Off : The switch is in any other status except sending or receiving when the green ST1 LED is lit.
(9)	1-24	Green/Orange LED	Indicates the operating status of a 10/100/1000BASE-T Ethernet port.	Lit in green : A link is established. Blinking green : A link is established and frames are being sent or received. Lit in orange : Detecting line disturbances. Off : A link failure or block when the green ST1 LED is lit.

Table 1-5 Operating Status in a Specific LED Indication Mode (SPEED Mode)

Number	Name	Type	Description	Details
(7)	LINK	Green/Orange LED	Indicates the operating status of an SFP slot Ethernet port.	Lit in green:100 Mbps[*1] Blinking green:1000 Mbps[*1] Lit in orange : Detecting line disturbances. Off:10 Mbps[*1]
(8)	T/R	Green LED	(Not used)	Off
(9)	1-24	Green/Orange LED	Indicates the operating status of a 10/100/1000BASE-T Ethernet port.	Lit in green:100 Mbps[*1] Blinking green:1000 Mbps[*1] Lit in orange : Detecting line disturbances. Off:10 Mbps[*1]

*1 These indications are valid after a link is established.

Table 1-6 Operating Status in a Specific LED Indication Mode (DUPLEX Mode)

Number	Name	Type	Description	Details
(7)	LINK	Green/Orange LED	Indicates the operating status of an SFP slot Ethernet port.	Lit in green:Full duplex[*1] Lit in orange : Detecting line disturbances. Off:Half duplex[*1]
(8)	T/R	Green LED	(Not used)	Off
(9)	1-24	Green/Orange LED	Indicates the operating status of a 10/100/1000BASE-T Ethernet port.	Lit in green:Full duplex[*1] Lit in orange : Detecting line disturbances. Off:Half duplex[*1]

*1 These indications are valid after a A link is established.

1.1.3 AX2430S-24T2X, AX2430S-24T2XD, AX3630S-24T2X, AX3630S-24T2XD Models

The AX2430S-24T2X, AX2430S-24T2XD, AX3630S-24T2X and AX3630S-24T2XD models have the following hardware specifications:

- Ethernet 10/100/1000BASE-T ports: 24
- SFP slots: 4
- XFP slots: 2
- Memory card slot: 1
- CONSOLE port: 1

NOTE

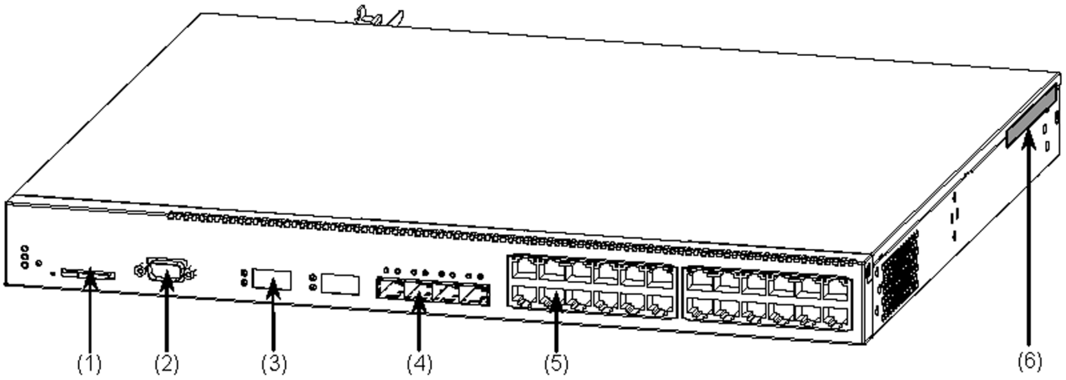
Since switch ports 1 to 4 are shared by the SFP slots and 10/100/1000BASE-T, the ports cannot be assigned to both SFP and 10/100/1000BASE-T at the same time. Configure each port so that it is either assigned to an SFP slot or as a 10/100/1000BASE-T port. (By default, ports 1 to 4 are SFP slots.)
For details about editing the configuration, see the Software Manual.

NOTE

For information about the SFPs and XFPs supported by the switch, see 1.7.1 SFP and 1.7.2 XFP.

(1) External Appearance

Figure 1-8 Front View

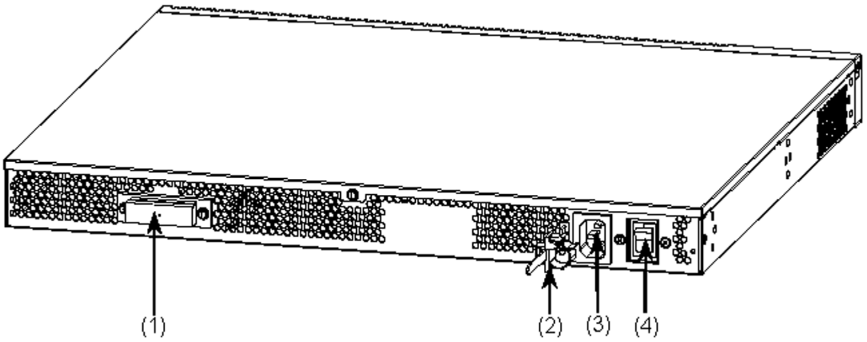


(1) Memory card slot
(2) CONSOLE port
(3) XFP slot
(4) SFP slot
(5) 10/100/1000BASE-T Ethernet port
(6) Tamper-evident security tape

NOTE

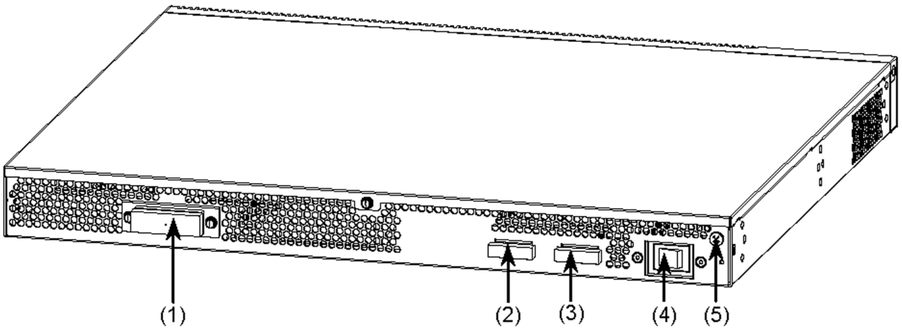
Do not peel off the tamper-evident security tape. Removing the tape makes the warranty null and void.

Figure 1-9 Back View of the AC Power Model



(1) Stand-by power supply connector (with protective cap)
(2) Cable clamp
(3) AC power connector
(4) Power switch

Figure 1-10 Back View of the DC Power Model



(1) Stand-by power supply connector (with protective cap)
(2) DC power connector 2
(3) DC power connector 1
(4) Power switch
(5) Ground terminal

(2) Front Panel

The front panel layout is shown in Figure 1-11 Front Panel Layout. The numbers in the figure correspond to those in Table 1-7 LED Indications, Switches and Connectors.

Figure 1-11 Front Panel Layout

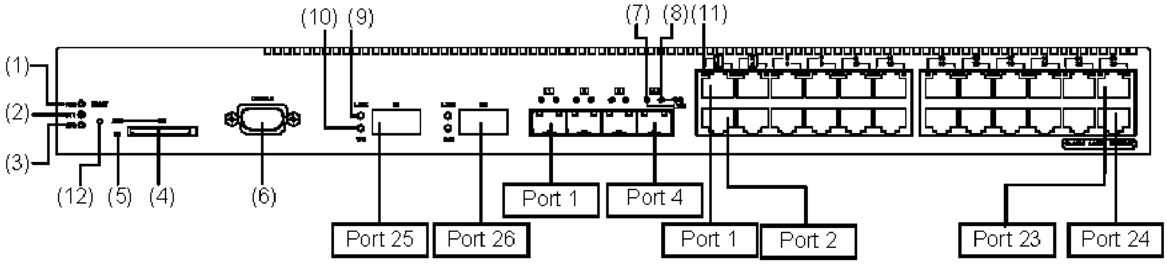


Table 1-7 LED Indications, Switches and Connectors

Number	Name	Type	Description	Details
(1)	PWR	Green LED	Indicates the power supply status.	Lit in green : Powered-on. Off : Powered-off or a failure with a power supply.
(2)	ST1	Green/Red LED	Indicates the device status.	Lit in green : Standing by or operating. Blinking green : Getting ready (starting up). Blinking red : Partial failure with the switch Lit in red : Fatal failure in the device (operation cannot continue) Off : Powered-off or a failure with a power supply.
(3)	ST2	Green LED	(Not used)	Off
(4)	MC	Connector	Memory card slot	Memory card slot
(5)	ACC	Green LED	Indicates the memory card status.	Lit : Accessing the memory card. (Do not remove the memory card.) Off : Memory card is in idle mode. (The memory card can be removed.)
(6)	CONSOLE	Connector	CONSOLE port	RS-232C port to connect a console terminal.
(7)	LINK	Green/Orange LED	Indicates the operating status of an SFP slot Ethernet port.	Lit in green : A link is established. Lit in orange : Detecting line disturbances. Off : A link failure or block when the green ST1 LED is lit.
(8)	T/R	Green LED		Lit in green : Sending or receiving frames.
(9)	LINK	Green/Orange LED	Indicates the operating status of an XFP slot Ethernet port.	Lit in green : A link is established. Lit in orange : Detecting line disturbances. Off : A link failure or block when the green ST1 LED is lit.
(10)	T/R	Green LED		Blinking green : Sending or receiving frames.
(11)	1-24	Green/Orange LED	Indicates the operating status of a 10/100/1000BASE-T Ethernet port.	Lit in green : A link is established. Blinking green : A link is established and frames are being sent or received. Lit in orange : Detecting line disturbances. Off : A link failure or block when the green ST1 LED is lit.
(12)	RESET	Switch (momentary)	Manual reset switch of the device[*1]	Restarts the device.

[*1] The switch is behind the front panel. Use a small-head screwdriver to press it.

⚠WARNING

When attempting to push the RESET switch, do not use a tool with fragile tip, pin or paper clip that can be caught or dropped inside and will not be taken out. A fire or an electric shock may be caused.

1.1.4 AX3640S-24T2XW Model

The AX3640S-24T2XW model has the following hardware specifications:

- Ethernet 10/100/1000BASE-T ports: 24
- SFP slots: 4
- XFP slots: 2
- Memory card slot: 1
- CONSOLE port: 1
- Power supply slots: 2

NOTE

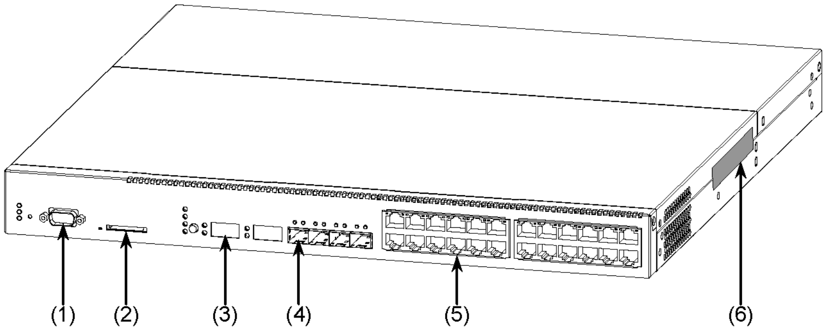
Since switch ports 1 to 4 are shared by the SFP slots and 10/100/1000BASE-T, the ports cannot be assigned to both SFP and 10/100/1000BASE-T at the same time. Configure each port so that it is either assigned to an SFP slot or as a 10/100/1000BASE-T port. (By default, ports 1 to 4 are SFP slots.)
For details about editing the configuration, see the Software Manual.

NOTE

For information about the SFPs and XFPs supported by the switch, see 1.7.1 SFP and 1.7.2 XFP.

(1) External Appearance

Figure 1-12 Front View

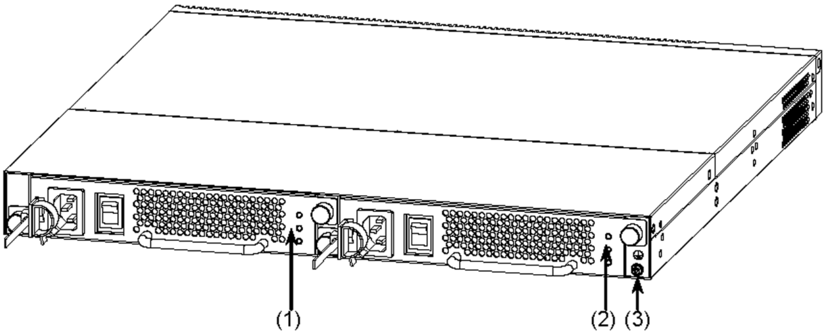


(1) CONSOLE port
(2) Memory card slot
(3) XFP slot
(4) SFP slot
(5) 10/100/1000BASE-T Ethernet port
(6) Tamper-evident security tape

NOTE

Do not peel off the tamper-evident security tape. Removing the tape makes the warranty null and void.

Figure 1-13 External Appearance



(1) Power supply slot 2

(2) Power supply slot 1

(3) Ground terminal

NOTE

> To build a redundant power supply system, mount power supplies into both power supply slots 1 and 2. Otherwise, mount a power supply into power supply slot 1 and a fan unit into power supply slot 2.

(2) Front Panel

The front panel layout is shown in Figure 1-14 Front Panel Layout. The numbers in the figure correspond to those in Table 1-8 LED Indications, Switches and Connectors.

Note that the AX3640S-24T2XW model has a mode button to switch how the Ethernet port status is shown.

Figure 1-14 Front Panel Layout

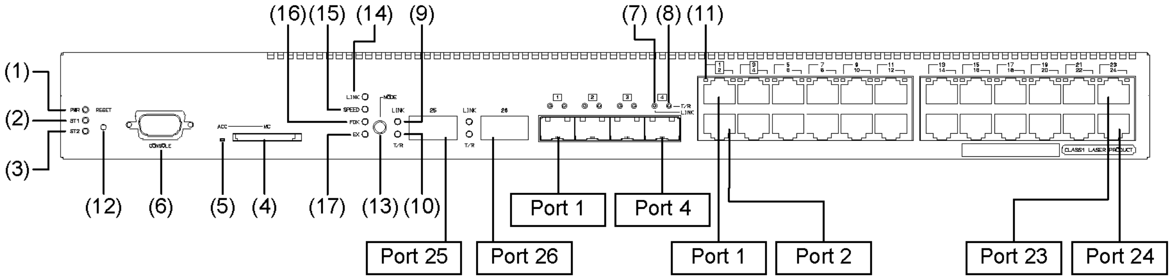


Table 1-8 LED Indications, Switches and Connectors

Number	Name	Type	Description	Details
(1)	PWR	Green LED	Indicates the power supply status.	Lit in green : Powered-on. Off : Powered-off or a failure with a power supply.
(2)	ST1	Green/Red LED	Indicates the device status.	Lit in green : Standing by or operating. Blinking green : Getting ready (starting up). Blinking red : Partial failure with the switch Lit in red : Fatal failure in the device (operation cannot continue) Off : Powered-off or a failure with a power supply.
(3)	ST2	Green LED	(Not used)	Off
(4)	MC	Connector	Memory card slot	Memory card slot
(5)	ACC	Green LED	Indicates the memory card status.	Lit : Accessing the memory card. (Do not remove the memory card.) Off : Memory card is in idle mode. (The memory card can be removed.)
(6)	CONSOLE	Connector	CONSOLE port	RS-232C port to connect a console terminal.
(7)	LINK	Green/Orange LED	Indicates the operating status of an SFP slot Ethernet port.	What these LEDs mean depends on the selected LED indication mode from (14) to (17) below. For meanings of LED indications, see Table 1-9 Operating Status in a Specific LED Indication Mode (LINK Mode) to Table 1-11 Operating Status in the Specific LED Indication Mode (DUPLEX Mode).
(8)	T/R	Green LED		
(9)	LINK	Green/Orange LED	Indicates the operating status of an XFP slot Ethernet port.	
(10)	T/R	Green LED		
(11)	1-24	Green/Orange LED	Indicates the operating status of a 10/100/1000BASE-T Ethernet port.	
(12)	RESET	Switch (momentary)	Manual reset switch of the device[*1]	Restarts the device.
(13)	MODE	Button (momentary)	Mode button	Changing the LED indication modes from (14) to (17) by pressing this button. (The order is as follows: LINK > SPEED > FDX > EX > LINK...)
(14)	LINK	Green LED	Corresponding LED indication mode is selected for the Ethernet ports.	Lit in green : LINK mode is selected.
(15)	SPEED	Green LED		Lit in green : SPEED mode is selected.
(16)	FDX	Green LED		Lit in green : DUPLEX mode is selected.
(17)	EX[*2]	Green LED		Lit in green : Extension mode is selected.

[*1] The switch is behind the front panel. Use a small-head screwdriver to press it.

[*2] Not supported.

⚠WARNING

When attempting to push the RESET switch, do not use a tool with fragile tip, pin or paper clip that can be caught or dropped inside and will not be taken out. A fire or an electric shock may be caused.

Table 1-9 Operating Status in a Specific LED Indication Mode (LINK Mode)

Number	Name	Type	Description	Details
(7)	LINK	Green/Orange LED	Indicates the operating status of an SFP slot Ethernet port.	Lit in green : A link is established. Lit in orange : Detecting line disturbances. Off : A link failure or block when the green ST1 LED is lit.
(8)	T/R	Green LED		Blinking green : A link is established and frames are being sent or received. Off : The device is in any other status except sending or receiving when the green ST1 LED is lit.
(9)	LINK	Green/Orange LED	Indicates the operating status of an XFP slot Ethernet port.	Lit in green : A link is established. Lit in orange : Detecting line disturbances. Off : A link failure or block when the green ST1 LED is lit.
(10)	T/R	Green LED		Blinking green : A link is established and frames are being sent or received. Off : The device is in any other status except sending or receiving when the green ST1 LED is lit.
(11)	1-24	Green/Orange LED	Indicates the operating status of a 10/100/1000BASE-T Ethernet port.	Lit in green : A link is established. Blinking green : A link is established and frames are being sent or received. Lit in orange : Detecting line disturbances. Off : A link failure or block when the green ST1 LED is lit.

Table 1-10 Operating Status in a Specific LED Indication Mode (SPEED Mode)

Number	Name	Type	Description	Details
(7)	LINK	Green/Orange LED*1	Indicates the operating status of an SFP slot Ethernet port.	Lit in green : 100 Mbps*1 Blinking green : 1000 Mbps*1 Lit in orange : Detecting line disturbances. Off : 10 Mbps*1
(8)	T/R	Green LED	(Not used)	Off
(9)	LINK	Green/Orange LED	Indicates the operating status of an XFP slot Ethernet port.	Blinking green : 10 Gbps*1 Lit in orange : Detecting line disturbances.
(10)	T/R	Green LED	(Not used)	Off
(11)	1-24	Green/Orange LED	Indicates the operating status of a 10/100/1000BASE-T Ethernet port.	Lit in green : 100 Mbps*1 Blinking green : 1000 Mbps*1 Lit in orange : Detecting line disturbances. Off : 10 Mbps*1

*1 These indications are valid after a link is established.

Table 1-11 Operating Status in the Specific LED Indication Mode (DUPLEX Mode)

Number	Name	Type	Description	Details
(7)	LINK	Green/Orange LED[*1]	Indicates the operating status of an SFP slot Ethernet port.	Lit in green : Full duplex[*1] Lit in orange : Detecting line disturbances. Off : Half duplex[*1]
(8)	T/R	Green LED	(Not used)	Off
(9)	LINK	Green/Orange LED[*1]	Indicates the operating status of an XFP slot Ethernet port.	Lit in green : Full duplex[*1] Lit in orange : Detecting line disturbances.
(10)	T/R	Green LED	(Not used)	Off
(11)	1-24	Green/Orange LED[*1]	Indicates the operating status of a 10/100/1000BASE-T Ethernet port.	Lit in green : Full duplex[*1] Lit in orange : Detecting line disturbances. Off : Half duplex[*1]

*1 These indications are valid after a link is established.

1.1.5 AX3630S-24P Model

The AX3630S-24P model has the following hardware specifications:

- Ethernet 10/100/1000BASE-T ports (PoE supported): 24
- SFP slots: 4
- Memory card slot: 1
- CONSOLE port: 1

NOTE

Since switch ports 1 to 4 are shared by the SFP slots and 10/100/1000BASE-T, the ports cannot be assigned to both SFP and 10/100/1000BASE-T at the same time. Configure each port so that it is either assigned to an SFP slot or as a 10/100/1000BASE-T port. (By default, ports 1 to 4 are SFP slots.)
For details about editing the configuration, see the Software Manual.

NOTE

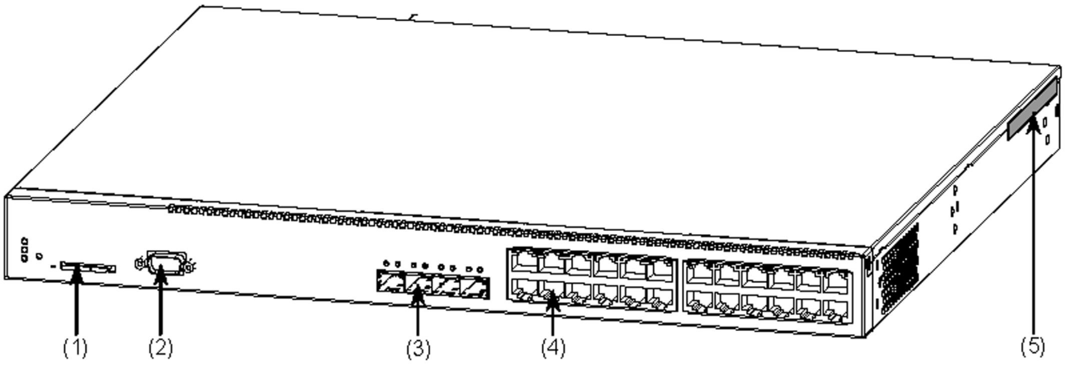
The Type A PoE system (Alternative A) is used for the switch. For details, see *3.2.1 Ethernet 10/100/1000BASE-T*.

NOTE

For information about the SFPs supported by the switch, see 1.7.1 SFP.

(1) External Appearance

Figure 1-15 Front View

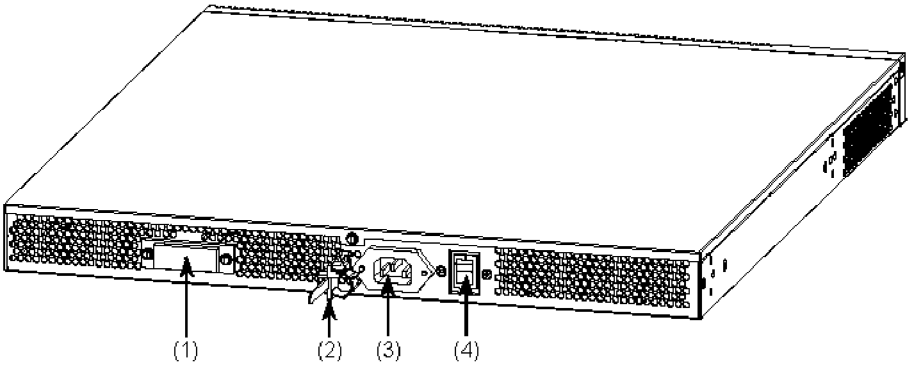


(1) Memory card slot
(2) CONSOLE port
(3) SFP slot
(4) 10/100/1000BASE-T Ethernet port
(5) Tamper-evident security tape

NOTE

Do not peel off the tamper-evident security tape. Removing the tape makes the warranty null and void.

Figure 1-16 Back View



(1) Stand-by power supply connector (with protective cap)
(2) Cable clamp
(3) AC power connector
(4) Power switch

(2) Front Panel

The front panel layout is shown in Figure 1-17 Front Panel Layout. The numbers in the figure correspond to those in Table 1-12 LED Indications, Switches and Connectors.

Figure 1-17 Front Panel Layout

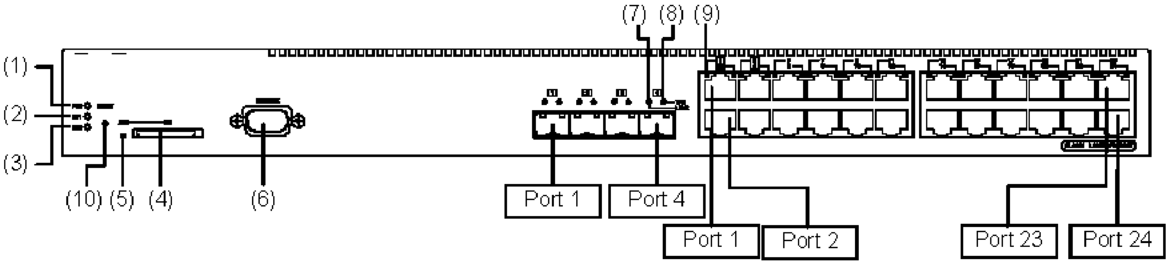


Table 1-12 LED Indications, Switches and Connectors

Number	Name	Type	Description	Details
(1)	PWR	Green LED	Indicates the power supply status.	Lit in green : Powered-on. Off : Powered-off or a failure with a power supply.
(2)	ST1	Green/Red LED	Indicates the device status.	Lit in green : Standing by or operating. Blinking green : Getting ready (starting up). Blinking red : Partial failure with the switch Lit in red : Fatal failure in the device (operation cannot continue) Off : Powered-off or a failure with a power supply.
(3)	ST2	Green LED	(Not used)	Off
(4)	MC	Connector	Memory card slot	Memory card slot
(5)	ACC	Green LED	Indicates the memory card status.	Lit : Accessing the memory card. (Do not remove the memory card.) Off : Memory card is in idle mode. (The memory card can be removed.)
(6)	CONSOLE	Connector	CONSOLE port	RS-232C port to connect a console terminal.
(7)	LINK	Green/Orange LED	Indicates the operating status of an SFP slot Ethernet port.	Lit in green : A link is established. Lit in orange : Detecting line disturbances. Off : A link failure or block when the green ST1 LED is lit.
(8)	T/R	Green LED		Lit in green : Sending or receiving frames.
(9)	1-24	Green/Orange LED	Indicates the operating status of a 10/100/1000BASE-T Ethernet port.	Lit in green : A link is established. Blinking green : A link is established and frames are being sent or received. Lit in orange : Detecting line disturbances. Off : A link failure or block when the green ST1 LED is lit.
(10)	RESET	Switch (momentary)	Manual reset switch of the device*1	Restarts the device.

*1 The switch is behind the front panel. Use a small-head screwdriver to press it.

⚠WARNING

When attempting to push the RESET switch, do not use a tool with fragile tip, pin or paper clip that can be caught or dropped inside and will not be taken out. A fire or an electric shock may be caused.

1.1.6 AX2430S-48T/AX2430S-48TD Models

The AX2430S-48T and AX2430S-48TD models have the following hardware specifications:

- Ethernet 10/100/1000BASE-T ports: 48
- SFP slots: 4
- Memory card slot: 1
- CONSOLE port: 1

NOTE

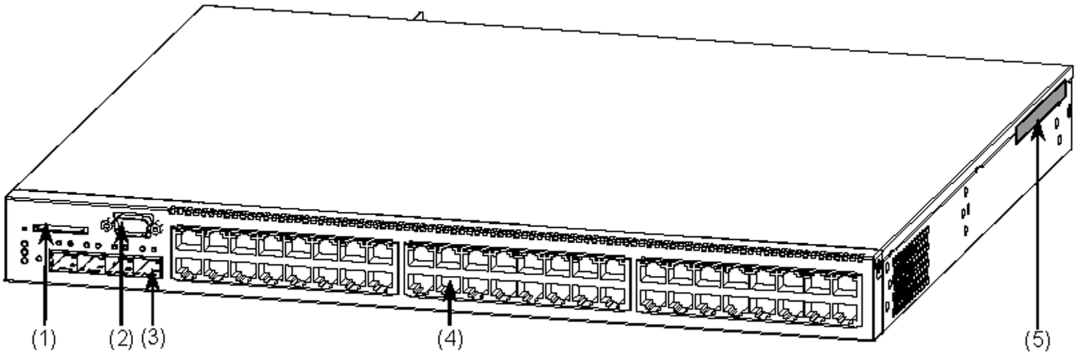
Since switch ports 1 to 4 are shared by the SFP slots and 10/100/1000BASE-T, the ports cannot be assigned to both SFP and 10/100/1000BASE-T at the same time. Configure each port so that it is either assigned to an SFP slot or as a 10/100/1000BASE-T port. (By default, ports 1 to 4 are SFP slots.)
For details about editing the configuration, see the Software Manual.

NOTE

For information about the SFPs supported by the switch, see 1.7.1 SFP.

(1) External Appearance

Figure 1-18 Front View

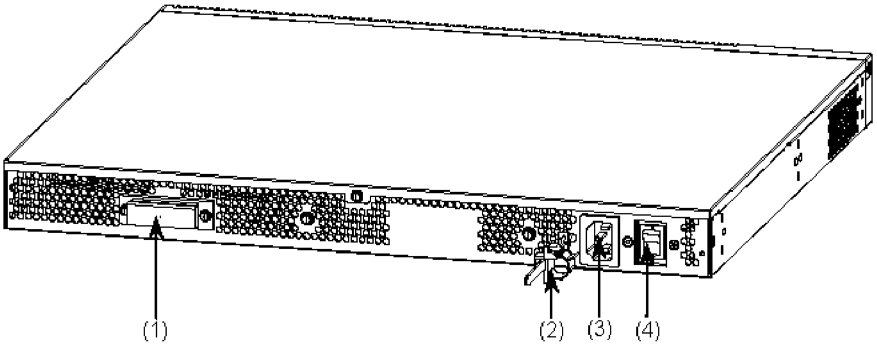


(1) Memory card slot
(2) CONSOLE port
(3) SFP slot
(4) 10/100/1000BASE-T Ethernet port
(5) Tamper-evident security tape

NOTE

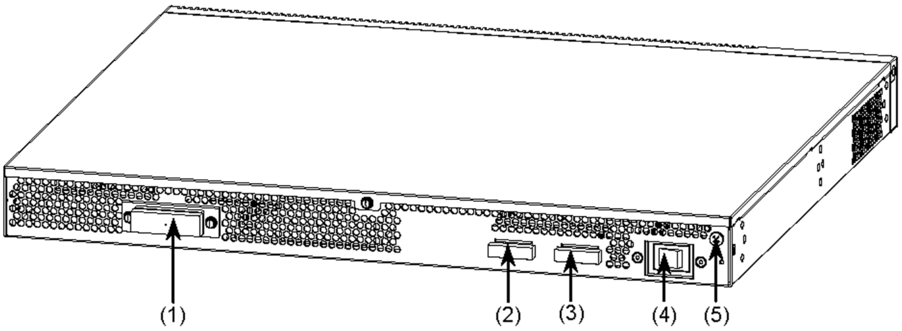
Do not peel off the tamper-evident security tape. Removing the tape makes the warranty null and void.

Figure 1-19 Back View of the AC Power Model



(1) Stand-by power supply connector (with protective cap)
(2) Cable clamp
(3) AC power connector
(4) Power switch

Figure 1-20 Back View of the DC Power Model



(1) Stand-by power supply connector (with protective cap)
(2) DC power connector 2
(3) DC power connector 1
(4) Power switch
(5) Ground terminal

(2) Front Panel

The front panel layout is shown in Figure 1-21 Front Panel Layout. The numbers in the figure correspond to those in Table 1-13 LED Indications, Switches and Connectors.

Figure 1-21 Front Panel Layout

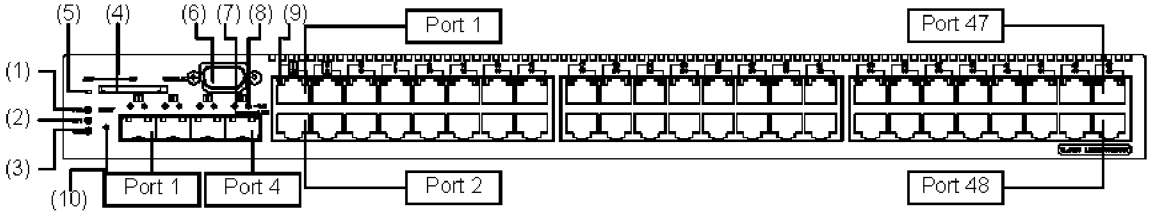


Table 1-13 LED Indications, Switches and Connectors

Number	Name	Type	Description	Details
(1)	PWR	Green LED	Indicates the power supply status.	Lit in green : Powered-on. Off : Powered-off or a failure with a power supply.
(2)	ST1	Green/Red LED	Indicates the device status.	Lit in green : Standing by or operating. Blinking green : Getting ready (starting up). Blinking red : Partial failure with the switch Lit in red : Fatal failure in the device (operation cannot continue) Off : Powered-off or a failure with a power supply.
(3)	ST2	Green LED	(Not used)	Off
(4)	MC	Connector	Memory card slot	Memory card slot
(5)	ACC	Green LED	Indicates the memory card status.	Lit : Accessing the memory card. (Do not remove the memory card.) Off : Memory card is in idle mode. (The memory card can be removed.)
(6)	CONSOLE	Connector	CONSOLE port	RS-232C port to connect a console terminal.
(7)	LINK	Green/Orange LED	Indicates the operating status of an SFP slot Ethernet port.	Lit in green : A link is established. Lit in orange : Detecting line disturbances. Off : A link failure or block when the green ST1 LED is lit.
(8)	T/R	Green LED		Lit in green : Sending or receiving frames.
(9)	1-48	Green/Orange LED	Indicates the operating status of a 10/100/1000BASE-T Ethernet port.	Lit in green : A link is established. Blinking green : A link is established and frames are being sent or received. Lit in orange : Detecting line disturbances. Off : A link failure or block when the green ST1 LED is lit.
(10)	RESET	Switch (momentary)	Manual reset switch of the device*1	Restarts the device.

*1 The switch is behind the front panel. Use a small-head screwdriver to press it

.

⚠WARNING

When attempting to push the RESET switch, do not use a tool with fragile tip, pin or paper clip that can be caught or dropped inside and will not be taken out. A fire or an electric shock may be caused.

1.1.7 AX3630S-48TW/AX3640S-48TW Models

The AX3630S-48TW and AX3640S-48TW models have the following hardware specifications:

- Ethernet 10/100/1000BASE-T ports: 48
- SFP slots: 4
- Memory card slot: 1
- CONSOLE port: 1
- Power supply slots: 2

NOTE

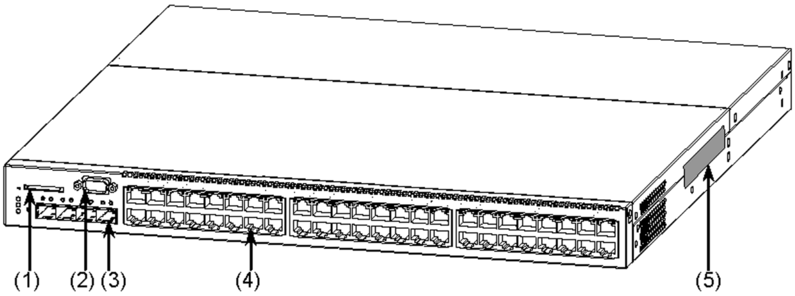
Since switch ports 1 to 4 are shared by the SFP slots and 10/100/1000BASE-T, the ports cannot be assigned to both SFP and 10/100/1000BASE-T at the same time. Configure each port so that it is either assigned to an SFP slot or as a 10/100/1000BASE-T port. (By default, ports 1 to 4 are SFP slots.)
For details about editing the configuration, see the Software Manual.

NOTE

For information about the SFPs supported by the switch, see 1.7.1 SFP.

(1) External Appearance

Figure 1-22 Front View

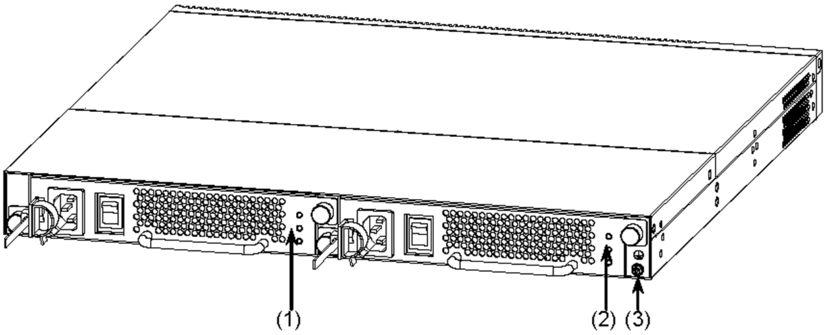


(1) Memory card slot
(2) CONSOLE port
(3) SFP slot
(4) 10/100/1000BASE-T Ethernet port
(5) Tamper-evident security tape

NOTE

Do not peel off the tamper-evident security tape. Removing the tape makes the warranty null and void.

Figure 1-23 Back View



(1) Power supply slot 2
(2) Power supply slot 1
(3) Ground terminal

NOTE

To build a redundant power supply system, insert power supplies into both power supply slots 1 and 2.
Otherwise, mount the power supply to Power supply slot 1 and the fan unit to Power supply slot 2.

(2) Front Panel

The front panel layout is shown in Figure 1-24 Front Panel Layout. The numbers in the figure correspond to those in Table 1-14 LED Indications, Switches and Connectors.

Figure 1-24 Front Panel Layout

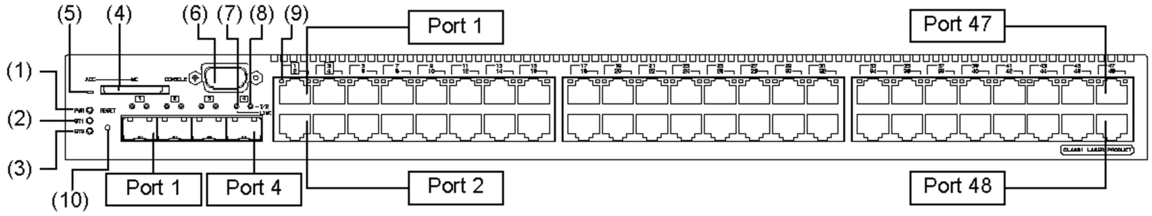


Table 1-14 LED Indications, Switches and Connectors

Number	Name	Type	Description	Details
(1)	PWR	Green LED	Indicates the power supply status.	Lit in green : Powered-on. Off : Powered-off or a failure with a power supply.
(2)	ST1	Green/Red LED	Indicates the device status.	Lit in green : Standing by or operating. Blinking green : Getting ready (starting up). Blinking red : Partial failure with the switch Lit in red : Fatal failure in the device (operation cannot continue) Off : Powered-off or a failure with a power supply.
(3)	ST2	Green LED	(Not used)	Off
(4)	MC	Connector	Memory card slot	Memory card slot
(5)	ACC	Green LED	Indicates the memory card status.	Lit : Accessing the memory card. (Do not remove the memory card.) Off : Memory card is in idle mode. (The memory card can be removed.)
(6)	CONSOLE	Connector	CONSOLE port	RS-232C port to connect a console terminal.
(7)	LINK	Green/Orange LED	Indicates the operating status of an SFP slot Ethernet port.	Lit in green : A link is established. Lit in orange : Detecting line disturbances. Off : A link failure or block when the green ST1 LED is lit.
(8)	T/R	Green LED		Lit in green : Sending or receiving frames.
(9)	1-48	Green/Orange LED	Indicates the operating status of a 10/100/1000BASE-T Ethernet port.	Lit in green : A link is established. Blinking green : A link is established and frames are being sent or received. Lit in orange : Detecting line disturbances. Off : A link failure or block when the green ST1 LED is lit.
(10)	RESET	Switch (momentary)	Manual reset switch of the device[*1]	Restarts the device.

[*1] The switch is behind the front panel. Use a small-head screwdriver to press it.

⚠WARNING

When attempting to push the RESET switch, do not use a tool with fragile tip, pin or paper clip that can be caught or dropped inside and will not be taken out. A fire or an electric shock may be caused.

1.1.8 AX2430S-48T2X Model

The AX2430S-48T2X model has the following hardware specifications:

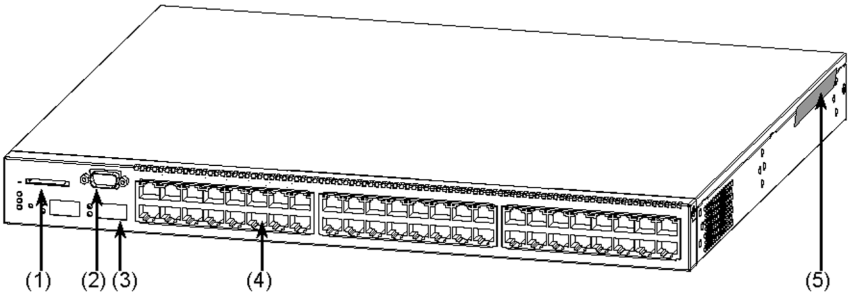
- Ethernet 10/100/1000BASE-T ports: 48
- XFP slots: 2
- Memory card slot: 1
- CONSOLE port: 1

NOTE

For information about the XFPs supported by the switch, see 1.7.2 XFP.

(1) External Appearance

Figure 1-25 Front View

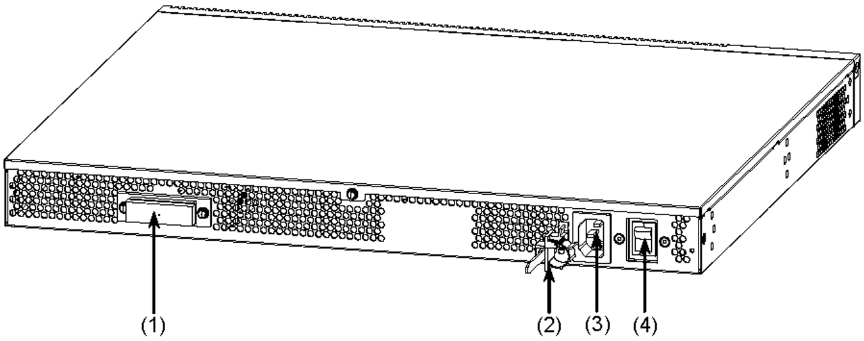


(1) Memory card slot
(2) CONSOLE port
(3) XFP slot
(4) 10/100/1000BASE-T Ethernet port
(5) Tamper-evident security tape

NOTE

Do not peel off the tamper-evident security tape. Removing the tape makes the warranty null and void.

Figure 1-26 Back View of the AC Power Model



(1) Stand-by power supply connector (with protective cap)
(2) Cable clamp
(3) AC power connector
(4) Power switch

(2) Front Panel

The front panel layout is shown in Figure 1-27 Front Panel Layout. The numbers in the figure correspond to those in Table 1-15 LED Indications, Switches and Connectors.

Figure 1-27 Front Panel Layout

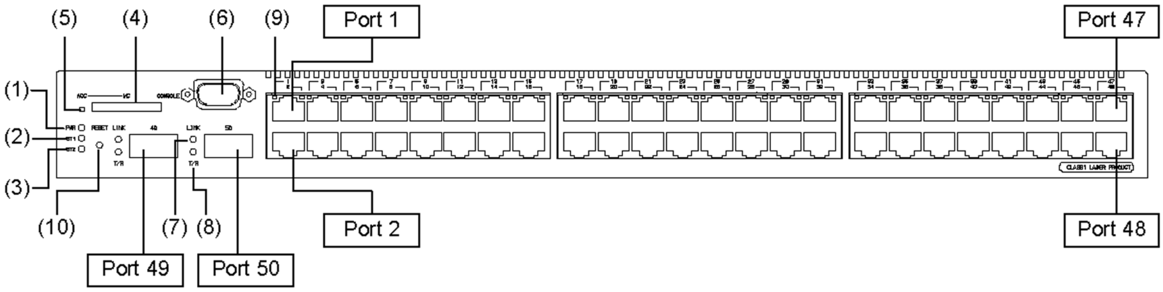


Table 1-15 LED Indications, Switches and Connectors

Number	Name	Type	Description	Details
(1)	PWR	Green LED	Indicates the power supply status.	Lit in green : Powered-on. Off : Powered-off or a failure with a power supply.
(2)	ST1	Green/Red LED	Indicates the device status.	Lit in green : Standing by or operating. Blinking green : Getting ready (starting up). Blinking red : Partial failure with the switch Lit in red : Fatal failure in the device (operation cannot continue) Off : Powered-off or a failure with a power supply.
(3)	ST2	Green LED	(Not used)	Off
(4)	MC	Connector	Memory card slot	Memory card slot
(5)	ACC	Green LED	Indicates the memory card status.	Lit : Accessing the memory card. (Do not remove the memory card.) Off : Memory card is in idle mode. (The memory card can be removed.)
(6)	CONSOLE	Connector	CONSOLE port	RS-232C port to connect a console terminal.
(7)	LINK	Green/Orange LED	Indicates the operating status of an XFP slot Ethernet port.	Lit in green : A link is established. Lit in orange : Detecting line disturbances. Off : A link failure or block when the green ST1 LED is lit.
(8)	T/R	Green LED		Blinking green : Sending or receiving frames.
(9)	1-48	Green/Orange LED	Indicates the operating status of a 10/100/1000BASE-T Ethernet port.	Lit in green : A link is established. Blinking green : A link is established and frames are being sent or received. Lit in orange : Detecting line disturbances. Off : A link failure or block when the green ST1 LED is lit.
(10)	RESET	Switch (momentary)	Manual reset switch of the device[*1]	Restarts the device.

*1 The switch is behind the front panel. Use a small-head screwdriver to press it.

⚠WARNING

When attempting to push the RESET switch, do not use a tool with fragile tip, pin or paper clip that can be caught or dropped inside and will not be taken out. A fire or an electric shock may be caused.

1.1.9 AX3630S-48T2XW/AX3640S-48T2XW Models

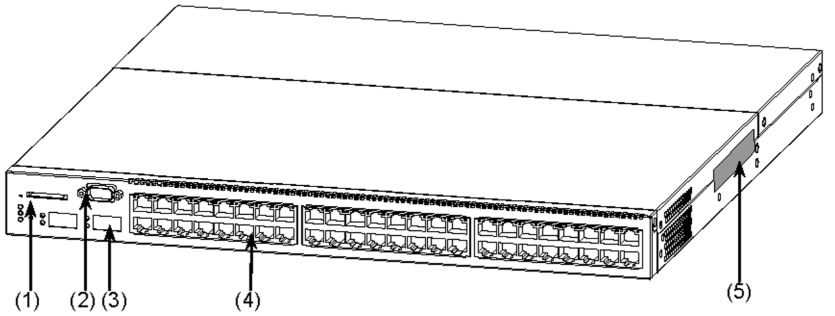
The AX3630S-48T2XW and AX3640S-48T2XW models have the following hardware specifications:

- Ethernet 10/100/1000BASE-T ports: 48
- XFP slots: 2
- Memory card slot: 1
- CONSOLE port: 1
- Power supply slots: 2

NOTE For information about the XFPs supported by the switch, see 1.7.2 XFP.

(1) External Appearance

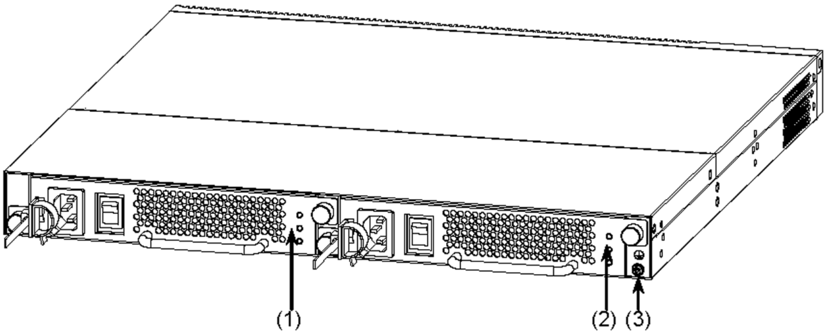
Figure 1-28 Front View



(1) Memory card slot
(2) CONSOLE port
(3) XFP slot
(4) 10/100/1000BASE-T Ethernet port
(5) Tamper-evident security tape

NOTE Do not peel off the tamper-evident security tape. Removing the tape makes the warranty null and void.

Figure 1-29 Back View



(1) Power supply slot 2
(2) Power supply slot 1
(3) Ground terminal

NOTE

To build a redundant power supply system, insert power supplies into both power supply slots 1 and 2.
Otherwise, insert a power supply into power supply slot 1 and a fan unit into power supply slot 2.

(2) Front Panel

The front panel layout is shown in Figure 1-30 Front Panel Layout. The numbers in the figure correspond to those in Table 1-16 LED Indications, Switches and Connectors.

Figure 1-30 Front Panel Layout

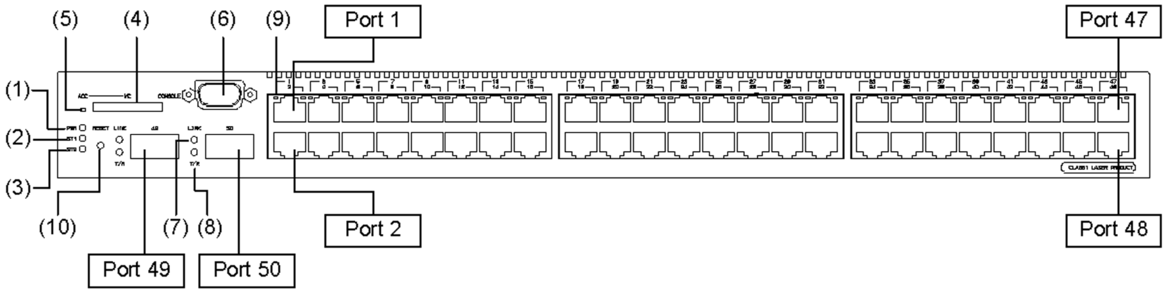


Table 1-16 LED Indications, Switches and Connectors

Number	Name	Type	Description	Details
(1)	PWR	Green LED	Indicates the power supply status.	Lit in green : Powered-on. Off : Powered-off or a failure with a power supply.
(2)	ST1	Green/Red LED	Indicates the device status.	Lit in green : Standing by or operating. Blinking green : Getting ready (starting up). Blinking red : Partial failure with the switch Lit in red : Fatal failure in the device (operation cannot continue) Off : Powered-off or a failure with a power supply.
(3)	ST2	Green LED	(Not used)	Off
(4)	MC	Connector	Memory card slot	Memory card slot
(5)	ACC	Green LED	Indicates the memory card status.	Lit : Accessing the memory card. (Do not remove the memory card.) Off : Memory card is in idle mode. (The memory card can be removed.)
(6)	CONSOLE	Connector	CONSOLE port	RS-232C port to connect a console terminal.
(7)	LINK	Green/Orange LED	Indicates the operating status of an XFP slot Ethernet port.	Lit in green : A link is established. Lit in orange : Detecting line disturbances. Off : A link failure or block when the green ST1 LED is lit.
(8)	T/R	Green LED		Blinking green : Sending or receiving frames.
(9)	1-48	Green/Orange LED	Indicates the operating status of a 10/100/1000BASE-T Ethernet port.	Lit in green : A link is established. Blinking green : A link is established and frames are being sent or received. Lit in orange : Detecting line disturbances. Off : A link failure or block when the green ST1 LED is lit.
(10)	RESET	Switch (momentary)	Manual reset switch of the device[*1]	Restarts the device.

*1 The switch is behind the front panel. Use a small-head screwdriver to press it.

⚠WARNING

When attempting to push the RESET switch, do not use a tool with fragile tip, pin or paper clip that can be caught or dropped inside and will not be taken out. A fire or an electric shock may be caused.

1.1.10 AX3640S-24SW Model

The AX3640S-24SW model has the following hardware specifications:

- Ethernet 10/100/1000BASE-T ports: 4
- SFP slots: 24
- Memory card slot: 1
- CONSOLE port: 1
- Power supply slots: 2

NOTE

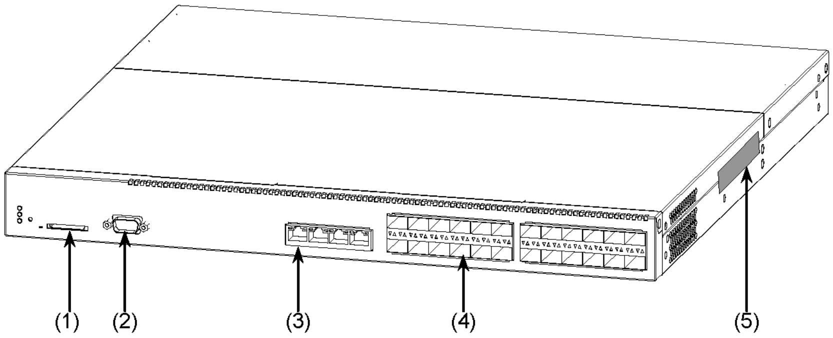
Since switch ports 1 to 4 are shared by the SFP slots and 10/100/1000BASE-T, the ports cannot be assigned to both SFP and 10/100/1000BASE-T at the same time. Configure each port so that it is either assigned to an SFP slot or as a 10/100/1000BASE-T port. (By default, ports 1 to 4 are SFP slots.)
For details about editing the configuration, see the Software Manual.

NOTE

For information about the SFPs supported by the switch, see 1.7.1 SFP.

(1) External Appearance

Figure 1-31 Front View

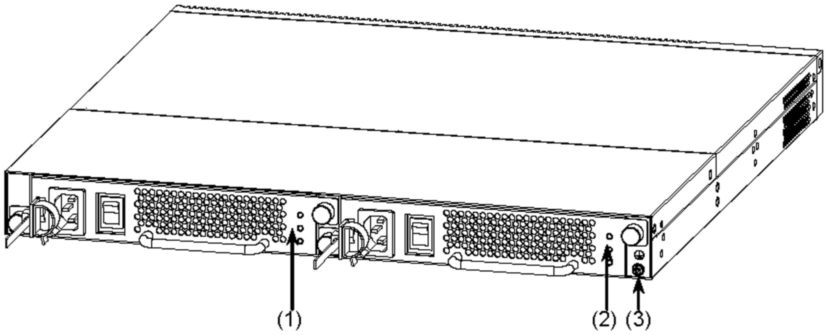


(1) Memory card slot
(2) CONSOLE port
(3) 10/100/1000BASE-T Ethernet port
(4) SFP slot
(5) Tamper-evident security tape

NOTE

Do not peel off the tamper-evident security tape. Removing the tape makes the warranty null and void.

Figure 1-32 Back View



(1) Power supply slot 2
(2) Power supply slot 1
(3) Ground terminal

NOTE

To build a redundant power supply system, insert power supplies into both power supply slots 1 and 2.
Otherwise, insert a power supply into power supply slot 1 and a fan unit into power supply slot 2.

(2) Front Panel

The front panel layout is shown in Figure 1-33 Front Panel Layout. The numbers in the figure correspond to those in Table 1-17 LED Indications, Switches and Connectors.

Figure 1-33 Front Panel Layout

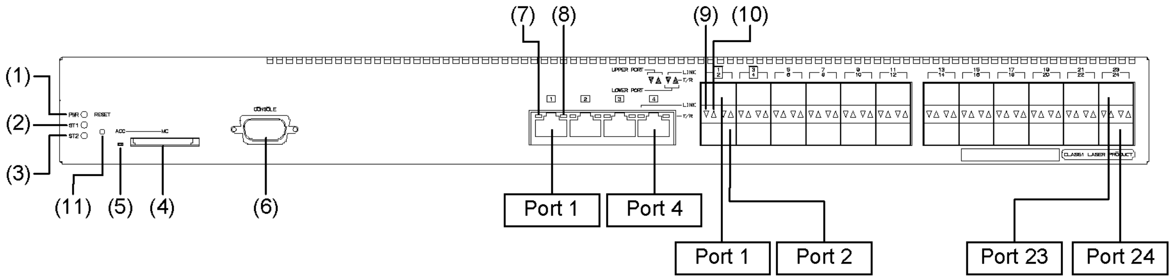


Table 1-17 LED Indications, Switches and Connectors

Number	Name	Type	Description	Details
(1)	PWR	Green LED	Indicates the power supply status.	Lit in green : Powered-on. Off : Powered-off or a failure with a power supply.
(2)	ST1	Green/Red LED	Indicates the device status.	Lit in green : Standing by or operating. Blinking green : Getting ready (starting up). Blinking red : Partial failure with the switch Lit in red : Fatal failure in the device (operation cannot continue) Off : Powered-off or a failure with a power supply.
(3)	ST2	Green LED	(Not used)	Off
(4)	MC	Connector	Memory card slot	Memory card slot
(5)	ACC	Green LED	Indicates the memory card status.	Lit : Accessing the memory card. (Do not remove the memory card.) Off : Memory card is in idle mode. (The memory card can be removed.)
(6)	CONSOLE	Connector	CONSOLE port	RS-232C port to connect a console terminal.
(7)	LINK	Green/Orange LED	Indicates the operating status of a 10/100/1000BASE-T Ethernet port.	Lit in green : A link is established. Lit in orange : Detecting line disturbances. Off : A link failure or block when the green ST1 LED is lit.
(8)	T/R	Green LED		Blinking green : Sending or receiving frames.
(9)	LINK	Green/Orange LED	Indicates the operating status of an SFP slot Ethernet port.	Lit in green : A link is established. Lit in orange : Detecting line disturbances. Off : A link failure or block when the green ST1 LED is lit.
(10)	T/R	Green LED		Blinking green : Sending or receiving frames.
(11)	RESET	Switch (momentary)	Manual reset switch of the device*1	Restarts the device.

*1 The switch is behind the front panel. Use a small-head screwdriver to press it.

⚠WARNING

When attempting to push the RESET switch, do not use a tool with fragile tip, pin or paper clip that can be caught or dropped inside and will not be taken out. A fire or an electric shock may be caused.

1.1.11 AX3630S-24S2XW/AX3640S-24S2XW Models

The AX3630S-24S2XW and AX3640S-24S2XW models have the following hardware specifications:

- Ethernet 10/100/1000BASE-T ports: 4
- SFP slots: 24
- XFP slots: 2
- Memory card slot: 1
- CONSOLE port: 1
- Power supply slots: 2

NOTE

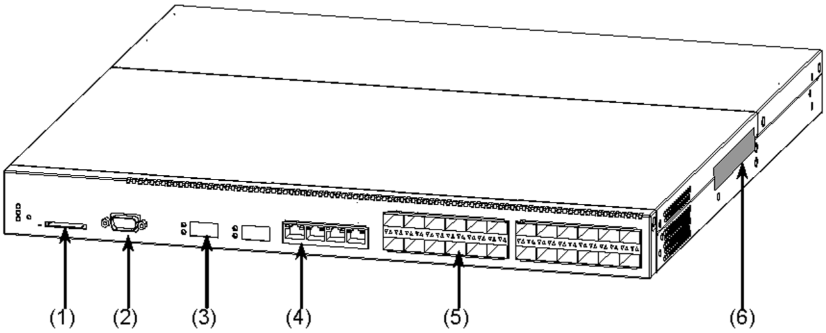
Since switch ports 1 to 4 are shared by the SFP slots and 10/100/1000BASE-T, the ports cannot be assigned to both SFP and 10/100/1000BASE-T at the same time. Configure each port so that it is either assigned to an SFP slot or as a 10/100/1000BASE-T port. (By default, ports 1 to 4 are SFP slots.)
For details about editing the configuration, see the Software Manual.

NOTE

For information about the SFPs and XFPs supported by the switch, see 1.7.1 SFP and 1.7.2 XFP.

(1) External Appearance

Figure 1-34 Front View

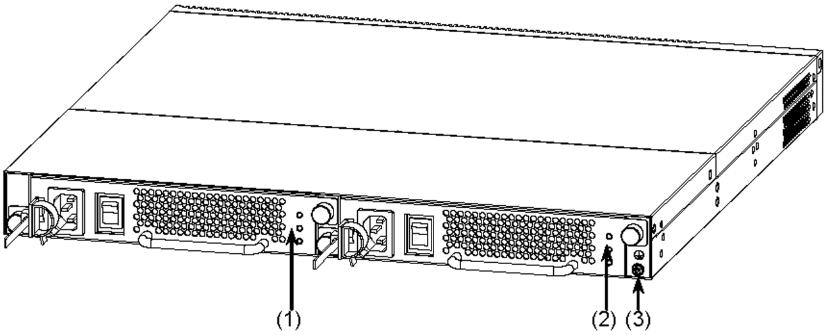


(1) Memory card slot
(2) CONSOLE port
(3) XFP slot
(4) 10/100/1000BASE-T Ethernet port
(5) SFP slot
(6) Tamper-evident security tape

NOTE

Do not peel off the tamper-evident security tape. Removing the tape makes the warranty null and void.

Figure 1-35 Back View



(1) Power supply slot 2
(2) Power supply slot 1
(3) Ground terminal

NOTE

To build a redundant power supply system, insert power supplies into both power supply slots 1 and 2.
Otherwise, insert a power supply into power supply slot 1 and a fan unit into power supply slot 2.

(2) Front Panel

The front panel layout is shown in Figure 1-36 Front Panel Layout. The numbers in the figure correspond to those in Table 1-18 LED Indications, Switches and Connectors.

Figure 1-36 Front Panel Layout

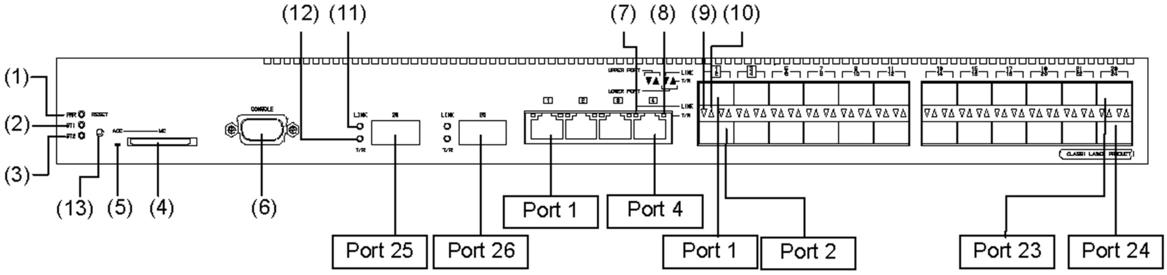


Table 1-18 LED Indications, Switches and Connectors

Number	Name	Type	Description	Details
(1)	PWR	Green LED	Indicates the power supply status.	Lit in green : Powered-on. Off : Powered-off or a failure with a power supply.
(2)	ST1	Green/Red LED	Indicates the device status.	Lit in green : Standing by or operating. Blinking green : Getting ready (starting up). Blinking red : Partial failure with the switch Lit in red : Fatal failure in the device (operation cannot continue) Off : Powered-off or a failure with a power supply.
(3)	ST2	Green LED	(Not used)	Off
(4)	MC	Connector	Memory card slot	Memory card slot
(5)	ACC	Green LED	Indicates the memory card status.	Lit : Accessing the memory card. (Do not remove the memory card.) Off : Memory card is in idle mode. (The memory card can be removed.)
(6)	CONSOLE	Connector	CONSOLE port	RS-232C port to connect a console terminal.
(7)	LINK	Green/Orange LED	Indicates the operating status of a 10/100/1000BASE-T Ethernet port.	Lit in green : A link is established. Lit in orange : Detecting line disturbances. Off : A link failure or block when the green ST1 LED is lit.
(8)	T/R	Green LED		Lit in green : Sending or receiving frames.
(9)	LINK	Green/Orange LED	Indicates the operating status of an SFP slot Ethernet port.	Lit in green : A link is established. Lit in orange : Detecting line disturbances. Off : A link failure or block when the green ST1 LED is lit.
(10)	T/R	Green LED		Blinking green : Sending or receiving frames.
(11)	LINK	Green/Orange LED	Indicates the operating status of an XFP slot Ethernet port.	Lit in green : A link is established. Lit in orange : Detecting line disturbances. Off : A link failure or block when the green ST1 LED is lit.
(12)	T/R	Green LED		Blinking green : Sending or receiving frames.
(13)	RESET	Switch (momentary)	Manual reset switch of the device*1	Restarts the device.

*1 The switch is behind the front panel. Use a small-head screwdriver to press it.

⚠ **WARNING**

When attempting to push the RESET switch, do not use a tool with fragile tip, pin or paper clip that can be caught or dropped inside and will not be taken out. A fire or an electric shock may be caused.

1.1.12 Accessories

The items listed in Table 1-19 Switch Accessories are included as accessories with shipment of the switch.

Table 1-19 Switch Accessories

Number	Item	Applicable Model			Quantity	Notes
		AC power model AC power (PoE) model	DC power model	Power redundancy model		
1	Prior to Use AX3600S/ AX2400S Series	○	○	○	1	
2	For Safe Operation	○	○	○	1	
3	Software License Agreement	○	○	○	1	
4	AC power supply cable	○	-	-	1	3 m
5	DC power supply cable	-	○	-	1	3 m
6	Ground cable	-	○	-	1	3 m
7	Rubber pad	○	○	○	4	
8	Rack mounted bracket	○	○	○	2	1 each for left and right
9	Screw	○	○	○	12	M3 × 6
10	Dummy memory card	○	○	○	1	
11	Attention to Use of the Dummy Memory Card	○	○	○	1	

(1) Prior to Use of an AX3600S/AX2400S Series Switch

List of the bundled items with shipment of the main device.

(2) For Safe Operation

Notes for safe use of the swich.

Be sure to read through this document before using the switch.

(3) Software License Agreement

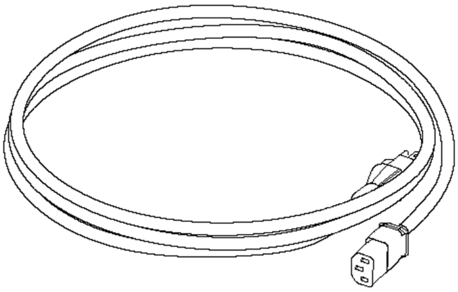
Terms and conditions regarding use of the software installed on the switch.

Be sure to read through this document before using this switch.

(4) AC power supply cable

The cable (3 m long) is for a 100 V AC power supply. This item is bundled with AC power and AC (PoE) models.

Figure 1-37 AC Power Supply Cable



⚠WARNING

Make sure to use the accessory power supply cable when any AC power or AC (PoE) model is connected to 100 V AC. Other cables except the bundled one might cause a fire or electric shock. In addition, use the accessory cable only for this device. Otherwise, a fire or electric shock might result.

⚠WARNING

Make sure to use a power supply cable specified by ALAXALA when any AC power model is connected to 200 V AC. Otherwise, a fire or electric shock might result.

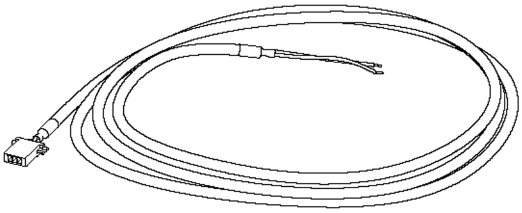
NOTE

For required specifications of power supply cables, see *2.3.2 Electrical Power Equipment for 200 VAC*.

(5) DC power supply cable

The cable (3 m long) is for a -48 V DC power supply. This item is bundled with DC power models.

Figure 1-38 DC Power Supply Cable



⚠WARNING

Make sure to use the accessory power supply cable for any DC power model. Other cables except the bundled one might cause a fire or electric shock. In addition, use the accessory cable only for this device. Otherwise, a fire or electric shock might result.

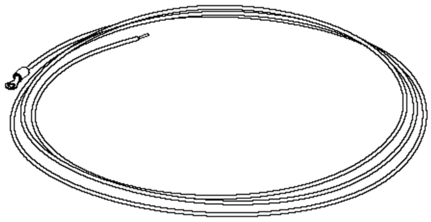
NOTE

Optional DC power supply cables are available. Use an optional one when a DC power model is connected to two power supply systems.

(6) Ground cable

Three meter ground cable shown in Figure 1-39 Ground Cable is bundled with DC power models.

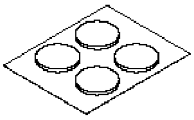
Figure 1-39 Ground Cable



(7) Rubber pad

Use these pads to install the product on a table.

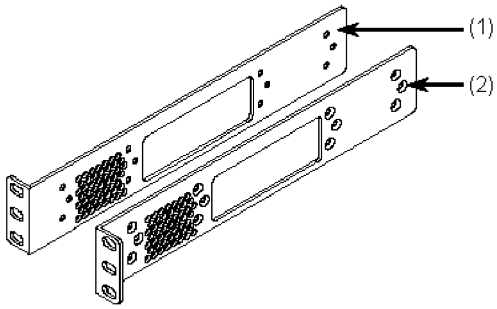
Figure 1-40 Rubber Pad



(8) Rack mounted bracket

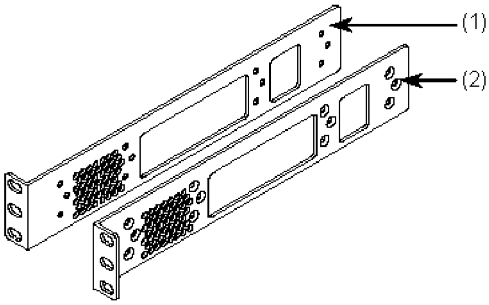
Use these brackets to mount the device on a 19-inch cabinet rack.

Figure 1-41 Rack Mounted Brackets for AC and DC Power Models



(1) Rack mounted bracket (L)
(2) Rack mounted bracket (R)

Figure 1-42 Rack Mounted Brackets for AC (PoE) and Power Redundancy Models



(1) Rack mounted bracket (L)
(2) Rack Mounted Bracket (R)

NOTE

There are two types of rack mounted brackets:

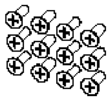
- For AC and DC power models
- For AC (PoE) and power redundancy models and EPUs

The latter is labeled "24P/EPU”. Confirm that the correct brackets have been selected before attaching the brackets to the device.

(9) Screws

Use the screws to attach the rack mounted brackets to the device.

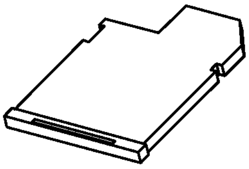
Figure 1-43 Screws



(10) Dummy memory card

When no memory card is used, insert this item to the memory card slot of the device as a substitute. Keep it in place after the device is installed.

Figure 1-44 Dummy Memory Card



(11) Note on Use of the Dummy Memory Card

Procedures and notes on handling the dummy memory card.

1.2 Power Supply (PS)

The power supply is a system to supply electrical power to a power redundancy model, which is mounted into a power supply slot in the switch.

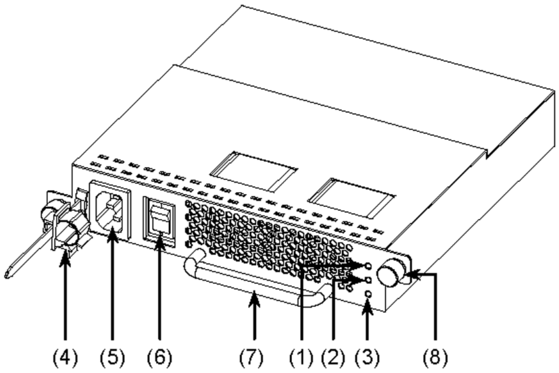
There are two types of power supplies: 100/200 V AC and -48 V DC input power supplies.

1.2.1 PS-A01

Power supplies for 100 and 200 V AC are described below.

Figure 1-45 External Appearance shows the appearance of a power supply. For the LEDs in the figure, see Table 1-20 LED Indications.

Figure 1-45 External Appearance



(1) POWER LED
(2) ALM1 LED
(3) ALM2 LED
(4) Cable clamp
(5) AC power connector
(6) Power switch
(7) Handle
(8) Screw: Thumb screw

Table 1-20 LED Indications

Number	Name	Type	Description	Details
(1)	POWER	Green LED	Indicates the status of the power supply.	Lit in green : Powered-on.[*1] Off : Powered-off.
(2)	ALM1	Red LED	Indicates an internal power supply failure.	Lit in red : A failure is detected.[*1] Off : Normal.
(3)	ALM2	Red LED	Indicates a failure with the integrated fan.	Lit in red : A failure is detected.[*1] Off : Normal.

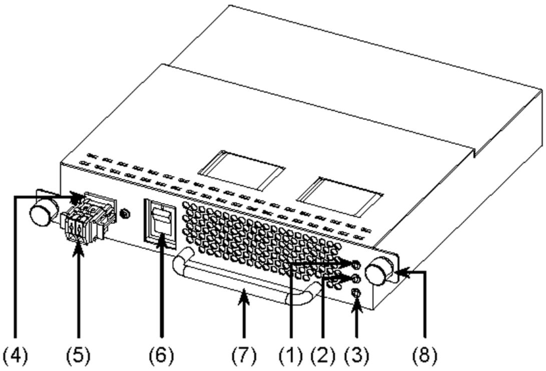
*1 In some cases of a failure, none of the POWER, ALM1 and ALM2 LEDs are turned on or only the ALM2 LED is lit.

1.2.2 PS-D01

Power supplies for -48 VDC are described below.

Figure 1-46 External Appearance shows its appearance. For the LEDs in the figure, see Table 1-21 LED Indications.

Figure 1-46 External Appearance



(1) POWER LED
(2) ALM1 LED
(3) ALM2 LED
(4) Connector
(5) Cable connector
(6) Power switch
(7) Handle
(8) Screw: Thumb screw

Table 1-21 LED Indications

Number	Name	Type	Description	Details
(1)	POWER	Green LED	Indicates the status of the power supply.	Lit in green : Powered-on.[*1] Off : Powered-off.
(2)	ALM1	Red LED	Indicates an internal power supply failure.	Lit in red : A failure is detected.[*1] Off : Normal.
(3)	ALM2	Red LED	Indicates a failure with the integrated fan.	Lit in red : A failure is detected.[*1] Off : Normal.

[*1] In some cases of a failure, none of the POWER, ALM1 and ALM2 LEDs are turned on or only the ALM2 LED is lit.

1.2.3 Power Supply Accessories

The items listed in Table 1-22 Power Supply Accessories are included as accessories with shipment of the power supply.

Table 1-22 Power Supply Accessories

Number	Item	Quantity	Notes
1	Check List for Bundled Items	1	
2	For Safe Operation	1	
3	AC power supply cable	1	3 m (PS-A01 only)
4	Ground cable	1	3 m (PS-D01 only)

(1) Check List for Bundled Items

List of the bundled items with shipment of the power supply.

(2) For Safe Operation

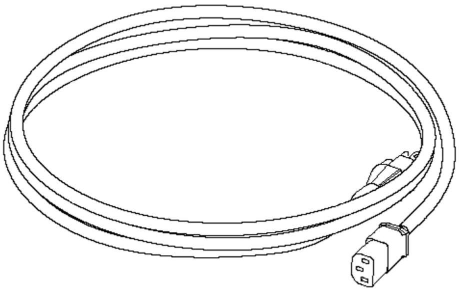
Notes for safe use of the switch are described.

Be sure to read through this document before using the switch.

(3) AC power supply cable

The cable (3 m long) is for 100 V AC power supplies. Use it to connect PS-A01 with your electrical power equipment. This item is bundled with PS-A01.

Figure 1-47 AC Power Supply Cable



⚠WARNING Make sure to use this accessory power supply cable when a PS-A01 is connected to 100 V AC. Other cables except the bundled one might cause a fire or electric shock. In addition, use the accessory cable only for this device. Otherwise, a fire or electric shock might result.

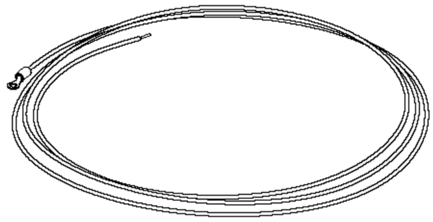
⚠WARNING Make sure to use a power supply cable specified by ALAXALA when a PS-A01 is connected to 200 V AC. Otherwise, a fire or electric shock might result.

NOTE For required specifications of power supply cables, see *2.3.2 Electrical Power Equipment for 200 VAC*.

(4) Ground cable

The cable (3 m long) is for grounding. Use it when a PS-D01 is inserted into any power redundancy model. This item is bundled with a PS-D01.

Figure 1-48 Ground Cable



⚠WARNING

A PS-D01 does not have an accessory power supply cable. Make sure to use a power supply cable for a PS-D01 specified by ALAXALA. Otherwise, a fire or electric shock might result.

NOTE

For required specifications of power supply cables, see *2.3.4 Electrical Power Equipment for -48 VDC (Power Redundancy Models)*.

1.3 Fan Unit (FAN)

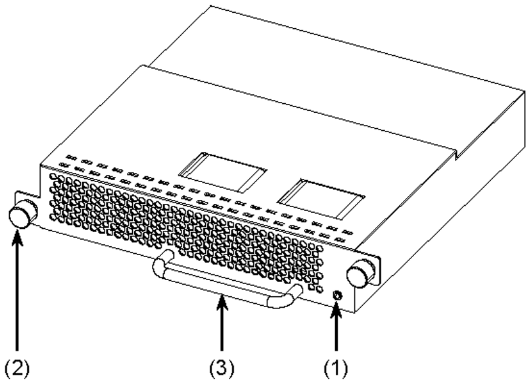
The fan unit cools the inside of the power redundancy model.

When only one power supply is inserted into a power redundancy model, a fan unit is inserted into power supply slot 2 of the switch.

1.3.1 FAN-01

Figure 1-49 External Appearance shows its appearance. For the LEDs in the figure, see Table 1-23 LED Indications.

Figure 1-49 External Appearance



(1) ALM LED
(2) Screw: Thumb screw
(3) Handle

Table 1-23 LED Indications

Number	Name	Type	Description	Details	
(1)	ALM	Red LED	Indicates fan failure.	Lit in red Off	: A failure is detected. : Normal.

1.3.2 Fan Unit Accessories

The items listed in Table 1-24 Fan Unit Accessories are included as accessories with shipment of the fan unit.

Table 1-24 Fan Unit Accessories

Number	Item	Quantity	Notes
1	Check List for Bundled Items	1	
2	For Safe Operation	1	

(1) Check List for Bundled Items

List of the bundled items with shipment of the fan unit

(2) For Safe Operation

Notes for safe use of the switch are described.

Be sure to read through this document before using the switch.

1.4 External Power Unit (EPU)

Connected via the special accessory cable, the external power unit (EPU) supplies stand-by power to the main device of AX2400S series and AX3600S series switches to configure power redundancy, which allows continuous operation of the device without interruptions, even if a failure occurs within the internal power unit.

There are two types of EPUs: EPU-A for AC power models and EPU-B for AC (PoE) models. Available combination of the main devices, EPUs and power supply modules are shown in Table 1-25 Compatibility of Main Devices with External Power Units (EPU) and Power Supply Modules

EPUs contain power supply modules. One power supply module can serve as the stand-by power supply for one switch. By adding power supply modules to an EPU, standby power can be supplied to up to four switches (EPU-A) (or two switches (EPU-B)).

Table 1-25 Compatibility of Main Devices with External Power Units (EPUs) and Power Supply Modules

Main device		Compatible EPU	Compatible power supply module
Power supply type	Model name		
AC power model	AX2430S-24T AX2430S-24T2X AX2430S-48T AX2430S-48T2X AX3630S-24T AX3630S-24T2X	EPU-A	EPU-AM
AC power (PoE) model	AX3630S-24P	EPU-B	EPU-BM

1.4.1 EPU-A

External power units for AC power models are described below.

EPU-A has the following hardware specifications:

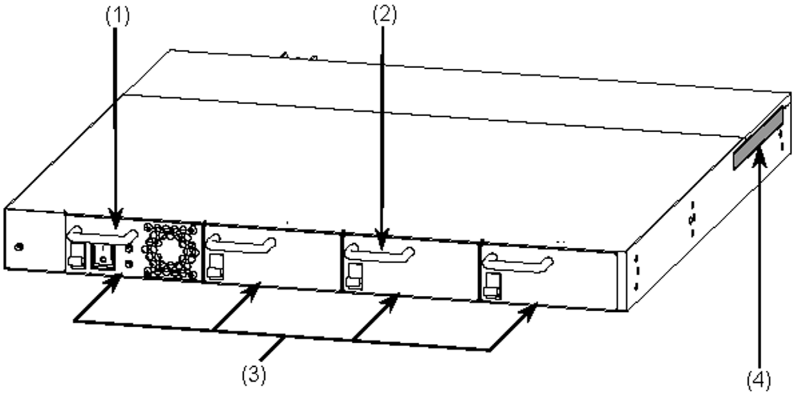
- Power supply module slots: 4
- Power supply module (EPU-AM): 1

NOTE

The EPU has one power supply module in slot 1 and blank panels over the other slots when shipped.

(1) External Appearance

Figure 1-50 Front View

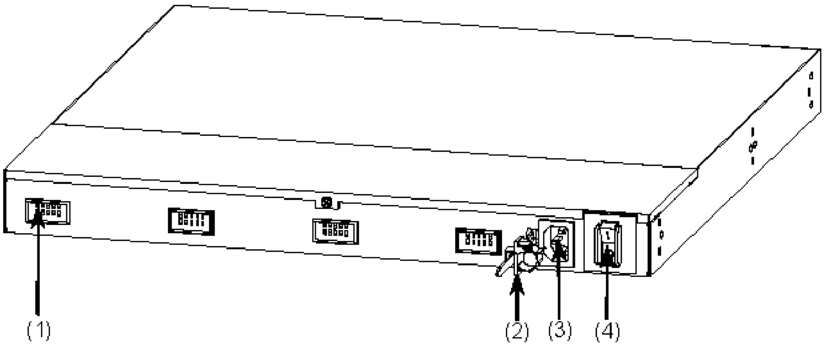


(1) Power supply module EPU-AM (mounted in slot 1 when shipped)
(2) Blank panel
(3) Power supply module slots (4)
(4) Tamper-evident security tape

NOTE

Do not peel off the tamper-evident security tape. Removing the tape makes the warranty null and void.

Figure 1-51 Back View



(1) Stand-by power supply connectors (4)
(2) Cable clamp
(3) AC power connector
(4) Main power switch

(2) Panel Layout

The front layout and back layout are shown in Figure 1-52 Front Layout and Figure 1-53 Back Layout, respectively. The numbers in the figure correspond to those in Table 1-26 LED Indications, Switches and Connectors.

Figure 1-52 Front Layout

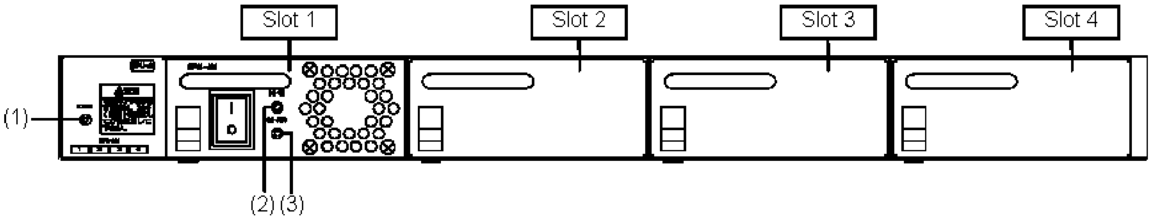


Figure 1-53 Back Layout

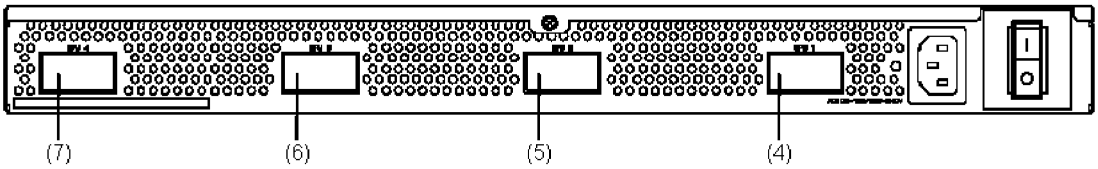


Table 1-26 LED Indications, Switches and Connectors

Number	Name	Type	Description	Details
(1)	POWER	Green LED	Indicates the power supply status.	Lit in green : Powered-on. Electrical power is output to the mounted power supply modules. Off : Input power failure to the EPU or powered-off.
(2)	DC-OK	Green LED	Indicates the power output status from the power supply modules.	Lit in green : Normal output from the power supply modules. Off : Output power failure from the power supply modules or powered-off.
(3)	DC-ALM	Red LED	Indicates the power output status from the power supply modules.	Lit in red : Output power failure from the power supply modules. Off : Normal output from the power supply modules or powered-off.
(4)	EPU 1	Connector	Stand-by power supply connector 1	To output electrical power from the power supply module mounted in slot 1. Connect the stand-by power supply cable bundled with the EPU to the stand-by power supply connector on the back face of the switch.
(5)	EPU 2	Connector	Stand-by power supply connector 2	To output electrical power from the power supply module mounted in slots 2 to 4. Connect the stand-by power supply cable bundled with the power supply module to the stand-by power supply connector on the back face of the switch.
(6)	EPU 3	Connector	Stand-by power supply connector 3	
(7)	EPU 4	Connector	Stand-by power supply connector 4	

1.4.2 EPU-B

External power unit for the AC (PoE) models.

EPU-B has the following hardware specifications:

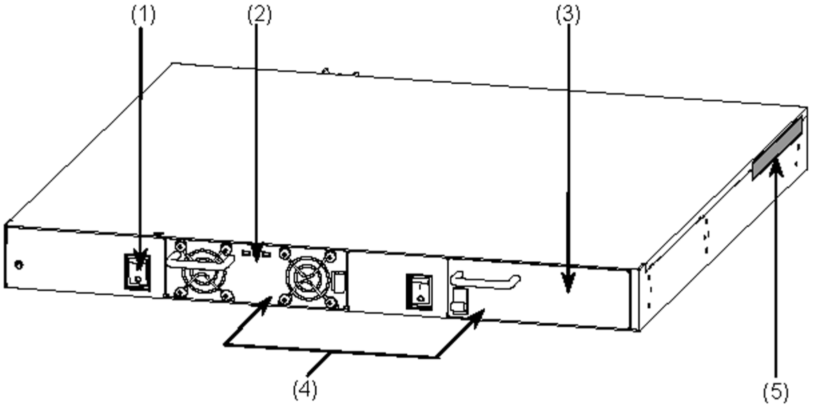
- Power supply module slots: 2
- Power supply module (EPU-BM): 1

NOTE

The EPU has one power supply module in slot 1 and blank panels over the other slots when shipped.

(1) External Appearance

Figure 1-54 Front View

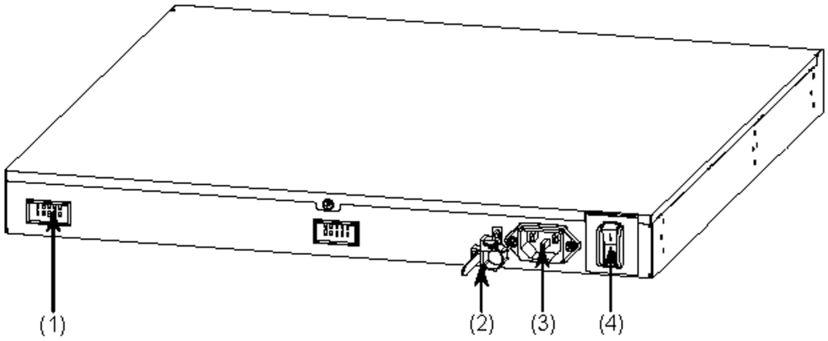


(1) Power switches for the power supply modules (2)
(2) Power supply module EPU-BM (mounted in slot 1 when shipped)
(3) Blank panel
(4) Power supply module slots (2)
(5) Tamper-evident security tape

NOTE

Do not peel off the tamper-evident security tape. Removing the tape makes the warranty null and void.

Figure 1-55 Back View



(1) Stand-by power supply connectors (2)

(2) Cable clamp

(3) AC power connector

(4) Main power switch

(2) Panel Layout

The front layout and back layout are shown in Figure 1-56 Front Layout and Figure 1-57 Back Layout, respectively. The numbers in the figure correspond to those in Table 1-27 LED Indications, Switches and Connectors.

Figure 1-56 Front Layout

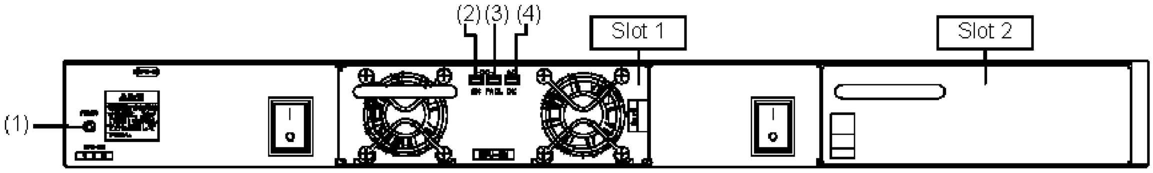


Figure 1-57 Back Layout

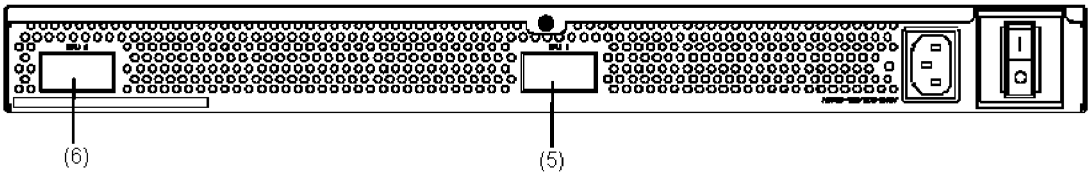


Table 1-27 LED Indications, Switches and Connectors

Number	Name	Type	Description	Details
(1)	POWER	Green LED	Indicates the power supply status.	Lit in green : Powered-on. Electrical power is output to the mounted power supply modules. Off : Input power failure to the EPU or powered-off.
(2)	DC-OK	Green LED	Indicates the power output status from the power supply modules.	Lit in green : Normal output from the power supply modules. Off : Output power failure from the power supply modules or powered-off.
(3)	DC-FAIL	Red LED	Indicates the power output status from the power supply modules.	Lit in red : Output power failure from the power supply modules. Off : Normal output from the power supply modules or powered-off.
(4)	AC-OK	Green LED	Indicates the power input status to the power supply modules.	Lit in green : Normal input to the power supply modules. Off : Input power failure to the power supply modules or powered-off.
(5)	EPU 1	Connector	Stand-by power supply connector 1	To output electrical power from the power supply module mounted in slot 1. Connect the stand-by power supply cable bundled with the EPU to the stand-by power supply connector on the back face of the switch.
(6)	EPU 2	Connector	Stand-by power supply connector 2	To output electrical power from the power supply module mounted in slot 2. Connect the stand-by power supply cable bundled with the power supply module to the stand-by power supply connector on the back face of the switch.

1.4.3 EPU Accessories

The items listed in Table 1-28 EPU Accessories are included as accessories with the shipment of an EPU.

Table 1-28 EPU Accessories

Number	Item	Quantity	Notes
1	Check List for Bundled Items	1	
2	For Safe Operation	1	
3	AC power supply cable	1	3 m
4	Stand-by power supply cable	1	1.5 m
5	Rubber pad	4	
6	Rack mounted bracket	2	1 each for left and right
7	Screws	12	M3 × 6

(1) Check List for Bundled Items

List of the bundled items with shipment of the EPU

(2) For Safe Operation

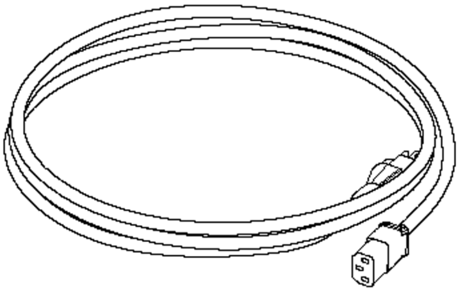
Notes for safe use of the switch are described.

Be sure to read through this document before using the switch.

(3) AC power supply cable

The cable (3 m long) is for a 100 V AC power supply. Use it to connect the EPU with your electrical power equipment.

Figure 1-58 AC Power Supply Cable



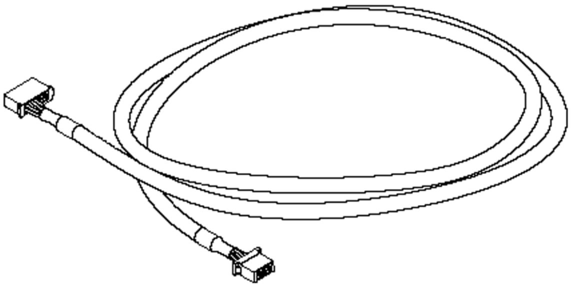
⚠WARNING

Make sure to use the accessory power supply cable. Other cable except the bundled one may cause a fire and/or an electric shock.In addition, use the accessory cable only for these devices. Otherwise, a fire and/or an electric shock may be the result.

(4) Stand-by power supply cable

A stand-by power supply cable of 1.5 meter long. Use it to connect the EPU to the switch.

Figure 1-59 Stand-by Power Supply Cable



⚠WARNING

Make sure to use the accessory power supply cable. Other cable except the bundled one may cause a fire and/or an electric shock.In addition, use the accessory cable only for these devices. Otherwise, a fire and/or an electric shock may be the result.

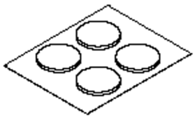
NOTE

There are two types of stand-by power supply cables: for EPU-A and EPU-B.
The cable for EPU-A has a tag labeled "EPU-A/C CABLE" and the cable for EPU-B has a tag labeled "EPU-B CABLE."

(5) Rubber pad

Use these pads to install the product on a table.

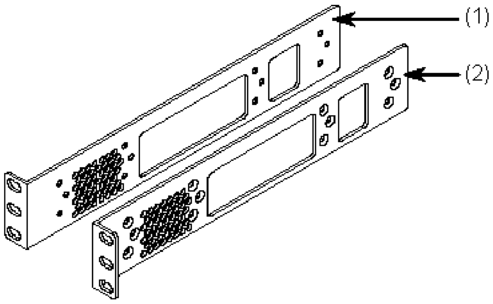
Figure 1-60 Rubber Pad



(6) Rack mounted bracket

Use these brackets to mount the EPU on a 19-inch cabinet rack.

Figure 1-61 Rack Mounted Bracket



(1) Rack mounted bracket (L)

(2) Rack Mounted Bracket (R)

NOTE

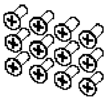
There are two types of rack mounted brackets:
- For AC and DC power models
- For AC (PoE) and power redundancy models and EPUs

The latter is labeled "24P/EPU”. Confirm that the correct brackets have been selected before attaching the brackets to the device.

(7) Screws

Use the screws to attach the rack mounted brackets to the EPU.

Figure 1-62 Screws



1.5 Power Supply Module

This section describes the power supply modules used in external power units (EPU) for AX2400S series and AX3600S series switches. Add power supply modules to the EPU to use the EPU for more than one switch.

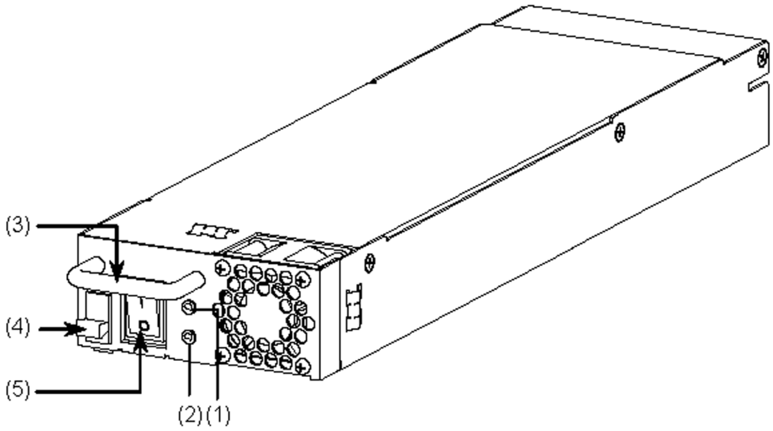
There are two types of power supply modules: EPU-AM for EPU-A and EPU-BM for EPU-B. For available combination of switches, EPUs and power supply modules, see 1.4 External Power Unit (EPU).

1.5.1 EPU-AM

EPU-AM is a power supply module for EPU-A and mounted in a power supply module slot of EPU-A.

Figure 1-63 External Appearance shows its appearance. For descriptions about (1) and (2) in the figure, see Table 1-29 LED Indications.

Figure 1-63 External Appearance



(1) DC-OK LED
(2) DC-ALM LED
(3) Handle
(4) Latch
(5) Power switch

Table 1-29 LED Indications

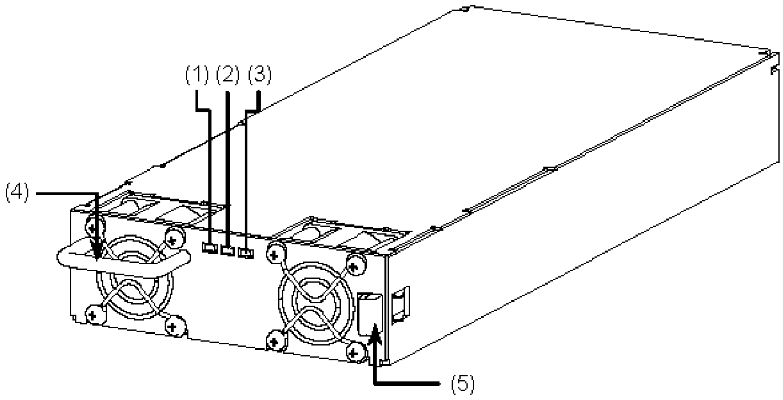
Number	Name	Type	Description	Details	
(1)	DC-OK	Green LED	Indicates the power output status from the power supply modules.	Lit in green Off	: Normal output from the power supply modules. : Output power failure from the power supply modules or powered-off.
(2)	DC-ALM	Red LED	Indicates the power output status from the power supply modules.	Lit in red Off	: Output power failure from the power supply modules. : Normal output from the power supply modules or powered-off.

1.5.2 EPU-BM

EPU-BM is a power supply module for EPU-B and mounted in a power supply module slot of EPU-B.

Figure 1-64 External Appearance shows its appearance. For descriptions about (1) to (3) in the figure, see Table 1-30 LED Indication.

Figure 1-64 External Appearance



(1) DC-OK LED
(2) DC-FAIL LED
(3) AC-OK LED
(4) Handle
(5) Latch

Table 1-30 LED Indication

Number	Name	Type	Description	Details	
(1)	DC-OK	Green LED	Indicates the power output status from the power supply modules.	Lit in green Off	: Normal output from the power supply modules. : Output power failure from the power supply modules or powered-off.
(2)	DC-FAIL	Red LED	Indicates the power output status from the power supply modules.	Lit in red Off	: Output power failure from the power supply modules. : Normal output from the power supply modules or powered-off.
(3)	AC-OK	Green LED	Indicates the power input status to the power supply modules.	Lit in green Off	: Normal input to the power supply modules. : Input power failure to the power supply modules or powered-off.

1.5.3 Power Supply Module Accessories

The items listed in Table 1-31 Power Supply Module Accessories are included as accessories with shipment of the power supply module.

Table 1-31 Power Supply Module Accessories

Number	Item	Quantity	Notes
1	Check List for Bundled Items	1	
2	For Safe Operation	1	
3	Stand-by power supply cable	1	1.5 m

(1) Check List for Bundled Items

List of the bundled items with shipment of the power supply module

(2) For Safe Operation

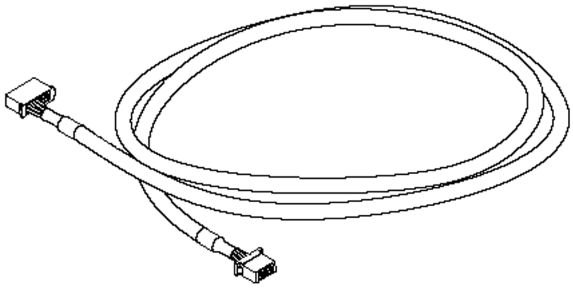
Notes for safe use of the switch are described.

Be sure to read through this document before using the switch.

(3) Stand-by Power Supply Cable

Stand-by power supply cable (1.5 meter long). Use it to connect the EPU to the main device.

Figure 1-65 Stand-by Power Supply Cable



⚠WARNING

Make sure to use the accessory power supply cable. Other cable except the bundled one may cause a fire and/or an electric shock.In addition, use the accessory cable only for these devices. Otherwise, a fire and/or an electric shock may be the result.

NOTE

There are two types of stand-by power supply cables: for EPU-A and EPU-B.
The cable for EPU-A has a tag labeled "EPU-A/C CABLE" and the cable for EPU-B has a tag labeled "EPU-B CABLE."

1.6 Memory Card

A memory card is inserted in the memory card slot of the main device.

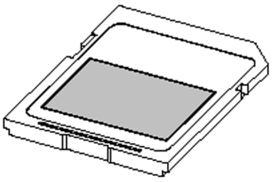
The memory card is used for the following:

- Backing up operating information.
- Saving troubleshooting information in the event of a failure.
- Updating the switch software.

(1) SD128 (T)

Below is an SD memory card with a 128-MB capacity.

Figure 1-66 External Appearance



Label information: ALAXALA SD128 (T)

NOTE

Make sure to use our standard products with the label shown in the figure. Otherwise, correct operation is not guaranteed.

NOTE

The memory card can be written to approximately ten thousand times.

1.7 Transceiver

1.7.1 SFP

To use an SFP, insert it into a switch SFP slot. The SFP type can be identified by the color indicated by the arrows in the figure. Note that which SFPs are supported depends on the switch. For compatibility between the switch and SFPs, see Table 1-32 SFP List.

Table 1-32 SFP List

Number	Module name	Interface	Supported models
1	SFP-T (T)	Ethernet 10/100/1000BASE-T (PoE not supported)	AX3630S-24S2XW[*1] AX3640S-24SW[*1] AX3640S-24S2XW[*1]
2	SFP-SX (T)	Gigabit Ethernet 1000BASE-SX	All models of the AX2400S series and AX3600S series
3	SFP-SX2 (T)	Gigabit Ethernet 1000BASE-SX2	
4	SFP-LX (T)	Gigabit Ethernet 1000BASE-LX	
5	SFP-LH (T)	Gigabit Ethernet 1000BASE-LH	
6	SFP-BX1U (T)	Gigabit Ethernet 1000BASE-BX10-U[*2]	
7	SFP-BX1D (T)	Gigabit Ethernet 1000BASE-BX10-D[*2]	
8	SFP-BX4U (T)	Gigabit Ethernet 1000BASE-BX40-U[*3]	
9	SFP-BX4D (T)	Gigabit Ethernet 1000BASE-BX40-D[*3]	

*1 Connections can be established with SFP slot ports 5 to 24.

*2 1000BASE-BX10-U and 1000BASE-BX10-D are paired for use.

*3 1000BASE-BX40-U and 1000BASE-BX40-D are paired for use.

⚠CAUTION

The SFPs (except for SFP-T (T)) use laser beams that are colorless and invisible. Do not directly look into the optical transmitter/receiver part.

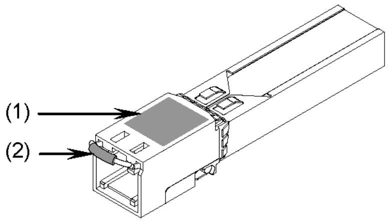
CAUTION

Do not attach other labels to the transceiver.
The transceivers have labels to certificate that they are standard products of the manufacturer or ALAXALA. These labels are attached so as not to disturb heat radiation from the transceiver or the mechanism to avoid dropping from the cage.
Attaching a label on an interfering part with heat radiation or the mechanism to avoid dropping from the cage might cause failure in the transceiver or damage to the device.

NOTE Make sure to use our standard products with the label shown in the figure. Otherwise, correct operation is not guaranteed.

(1) SFP-T (T)

Figure 1-67 External Appearance



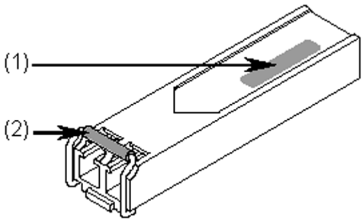
(1) Label information: ALAXALA SFP-T (T)
Label color: White
(2) Handle color: Yellow

NOTE SFP-T (T) is supported by the following three models: AAX3630S-24S2XW, AX3640S-24SW and AX3640S-24S2XW.

NOTE PoE is not supported.

(2) SFP-SX (T)

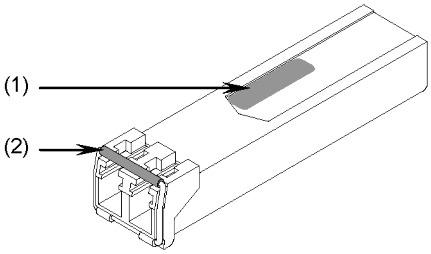
Figure 1-68 External Appearance



(1) Label information: ALAXALA SFP-SX (T)
Label color: Black
(2) Handle color: Black

(3) SFP-SX2 (T)

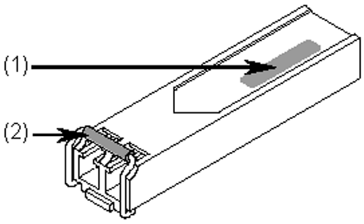
Figure 1-69 External Appearance



(1) Label information: ALAXALA SFP-SX2 (T)
Label color: White
(2) Handle color: Silver

(4) SFP-LX (T)

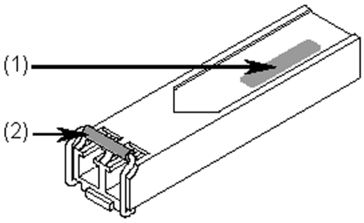
Figure 1-70 External Appearance



(1) Label information: ALAXALA SFP-LX (T)
Label color: Blue
(2) Handle color: Blue

(5) SFP-LH (T)

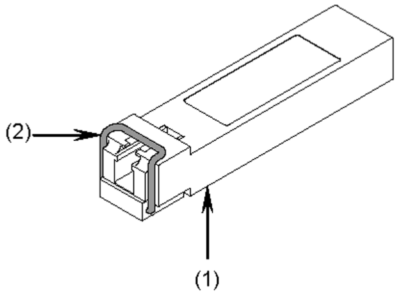
Figure 1-71 External Appearance



(1) Label information: ALAXALA SFP-LH (T)
Label color: Green
(2) Handle color: Green

(6) SFP-BX1U (T)

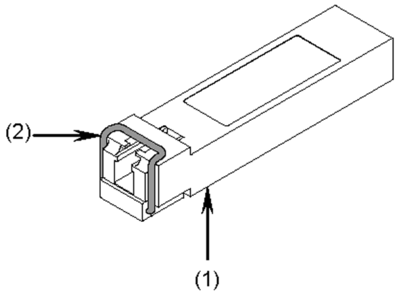
Figure 1-72 External Appearance



(1) SFP back label information: ALAXALA SFP-BX1U (T)
Label color: White
(2) Handle color: Blue

(7) SFP-BX1D (T)

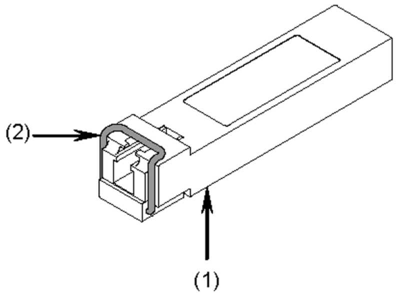
Figure 1-73 External Appearance



(1) SFP back label information: ALAXALA SFP-BX1D (T)
Label color: White
(2) Handle color: Magenta

(8) SFP-BX4U (T)

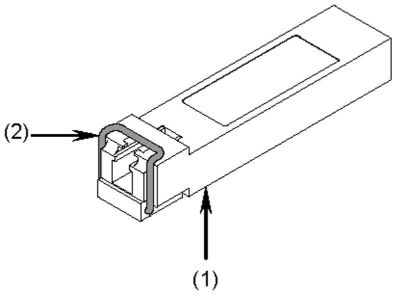
Figure 1-74 External Appearance



(1) SFP back label information: ALAXALA SFP-BX4U (T)
Label color: White
(2) Handle color: Yellow

(9) SFP-BX4D (T)

Figure 1-75 External Appearance



(1) SFP back label information: ALAXALA SFP-BX4D (T)
Label color: White
(2) Handle color: Green

1.7.2 XFP

To use an XFP, insert it into an XFP slot in the switch.

The XFPs supported by the devices are listed in Table 1-33 XFP List.

Table 1-33 XFP List

Number	Module name	Interface
1	XFP-SR (T)	10 Gigabit Ethernet 10GBASE-SR
2	XFP-LR (T)	10 Gigabit Ethernet 10GBASE-LR
3	XFP-ER (T)	10 Gigabit Ethernet 10GBASE-ER
4	XFP-ZR (T)	10 Gigabit Ethernet 10GBASE-ZR

⚠CAUTION

Laser beam, which is colorless and invisible, is used. Do not directly look into the optical transmitter/receiver part.

CAUTION

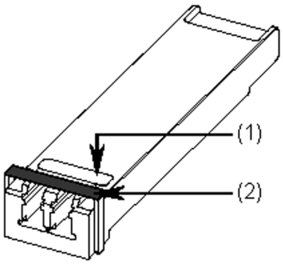
Do not attach other labels to the transceiver.
The transceivers have labels to certificate that they are standard products of the manufacturer or ALAXALA. These labels are attached so as not to disturb heat radiation from the transceiver or the mechanism to avoid dropping from the cage.
Attaching a label on an interfering part with heat radiation or the mechanism to avoid dropping from the cage might cause failure in the transceiver or damage to the device.

NOTE

Make sure to use our standard products with the label shown in the figure. Otherwise, correct operation is not guaranteed.

(1) XFP-SR (T)

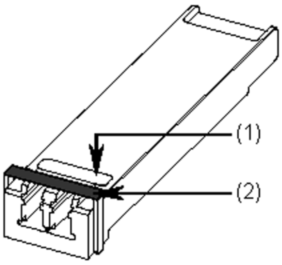
Figure 1-76 External Appearance



(1) Label information: ALAXALA XFP-SR (T)
(2) Handle color: Ivory

(2) XFP-LR (T)

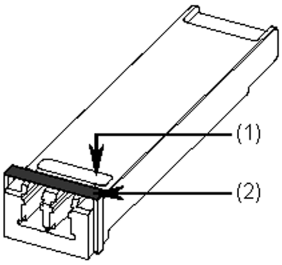
Figure 1-77 External Appearance



(1) Label information: ALAXALA XFP-LR (T)
(2) Handle color: Blue

(3) XFP-ER (T)

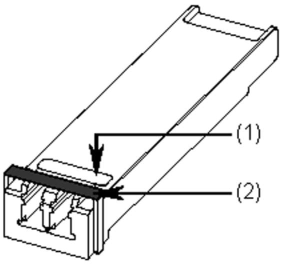
Figure 1-78 External Appearance



(1) Label information: ALAXALA XFP-ER (T)
(2) Handle color: Red

(4) XFP-ZR (T)

Figure 1-79 External Appearance



(1) Label information: ALAXALA XFP-ZR (T)
(2) Handle color: White

1.7.3 Transceiver Accessories

The items listed in Table 1-34 Transceiver Accessories are included as accessories with shipment of the transceiver.

Table 1-34 Transceiver Accessories

Number	Item	Quantity	Notes
1	Check List for Bundled Items	1	
2	For Safe Operation	1	

(1) Check List for Bundled Items

List of the bundled items with shipment of the transceiver

(2) For Safe Operation

Notes for safe use of the switch are described.

Be sure to read through this document before using the switch.

2

Preparation for Installation

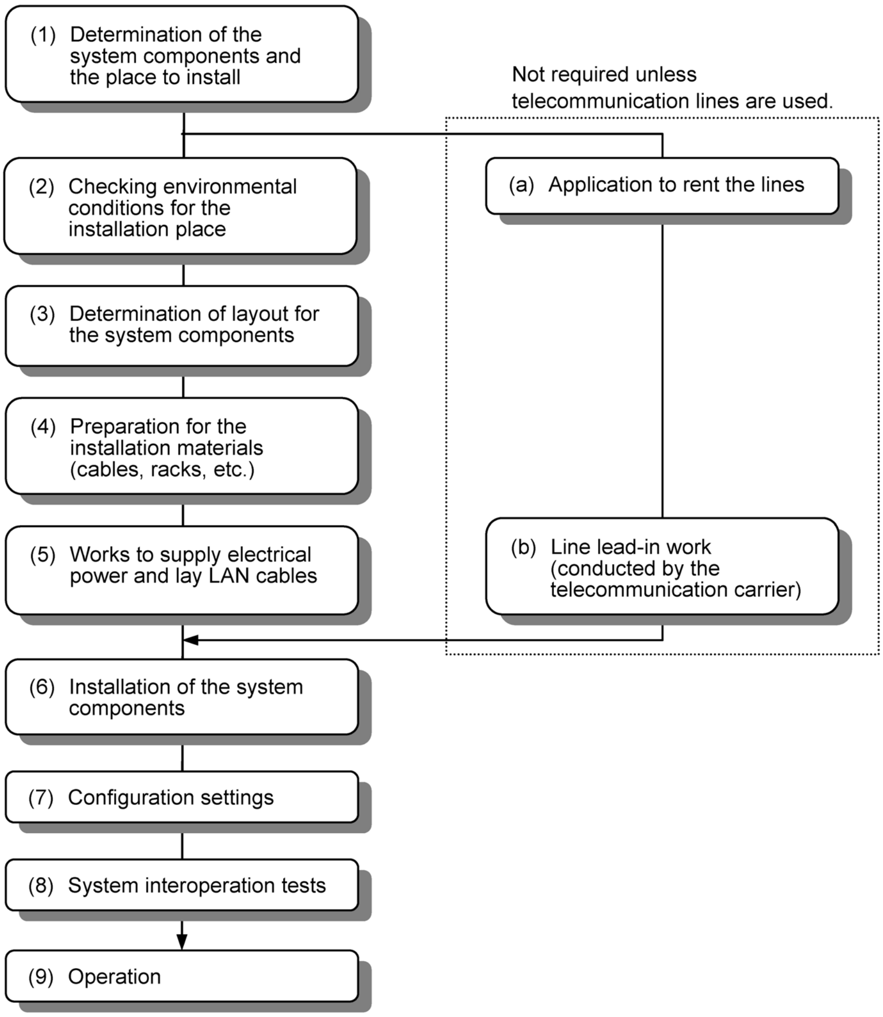
This chapter describes environmental conditions and the required preparation for installation of the device. Before preparing for an installation, read this chapter carefully and make sure that you understand all instructions and notes in this chapter.

2.1 Preparation Workflow

The workflow to prepare for installation is shown in Figure 2-1 Flowchart of the Installation Preparation.

The workflow for supplying power, communication functions and LAN cable installation should be completed prior to carrying in the components. Make sure to schedule them in good time.

Figure 2-1 Flowchart of the Installation Preparation


(1) Determination of the system components and the place to install
Not required unless telecommunication lines are used.
(2) Checking environmental conditions for the installation place
(a) Application to rent the lines
(3) Determination of layout for the system components
(4) Preparation for the installation materials (cables, racks, etc.)
(5) Works to supply electrical power and lay LAN cables
(b) Line lead-in work (conducted by the telecommunication carrier)
(6) Installation of the system components
(7) Configuration settings
(8) System interoperation tests
(9) Operation

2.2 Installation Conditions

This section provides the conditions for installing the main device and an external power unit (EPU). The installation environment must meet these conditions.

2.2.1 General Installation Conditions

The General Installation Conditions for the device are listed below.

Table 2-1 General Installation Conditions for AX2400S Series Switches (AC or DC Power Models)

Item		Model Name						
		AX2430S -24T	AX2430S -24T2X	AX2430S -48T	AX2430S -48T2X	AX2430S -24TD	AX2430S -24T2XD	AX2430S -48TD
Dimensions (W × D × H)[*1]		445 × 380 × 43 mm						
Weight[*2]		5 kg or less		5.5 kg or less		5 kg or less		5.5 kg or less
Input voltage	Rating	Single phase 100 to 120 V AC, 200 to 240 V AC[*3]				-48 V DC		
	Variation range	90 to 127.2 V AC, 180 to 254.4 V AC				-40 to -57 V DC		
Frequency		50/60 ± 1 Hz				-		
Maximum input current		0.8 A @ 100 V AC	0.9 A @ 100 V AC	1.2 A @ 100 V AC	1.3 A @ 100 V AC	1.5 A @ -48 V DC	1.7 A @ -48 V DC	2.5 A @ -48 V DC
		0.4 A @ 200 V AC	0.5 A @ 200 V AC	0.6 A @ 200 V AC	0.7 A @ 200 V AC	-	-	-
Maximum power consumption		74 W	88 W	118 W	130 W	69 W	80 W	118 W
Maximum heat emission		267 kJ/h	317 kJ/h	425 kJ/h	468 kJ/h	249 kJ/h	288 kJ/h	425 kJ/h

*1 Excluding the dimensions of connectors.

*2 Weight of the main device only. The weight of cables, rack mounted brackets, memory cards and transceivers are excluded.

*3 The power supply cable bundled with the main device is only applicable to 100 V AC.

Table 2-2 General Installation Conditions for AX3630S Series Switches (AC, AC (PoE) or DC Power Models)

Item		Model Name				
		AX3630S -24T	AX3630S -24T2X	AX3630S -24P	AX3630S -24TD	AX3630S -24T2XD
Dimensions (W × D × H)*1		445 × 380 × 43 mm		445 × 490 × 43 mm	445 × 380 × 43 mm	
Weight*2		5 kg or less		8 kg or less	5 kg or less	
Input voltage	Rating	Single phase 100 to 120 V AC, 200 to 240 V AC*3		Single phase 100 to 120 V AC	-48 V DC	
	Variation range	90 to 127.2 V AC, 180 to 254.4 V AC		90 to 127.2 V AC	-40 to -57 V DC	
Frequency		50/60 ± 1 Hz			-	
Maximum input current		0.8 A @ 100 V AC	0.9 A @ 100 V AC	5.8 A @ 100 V AC	1.5 A @ -48 V DC	1.8 A @ -48 V DC
		0.4 A @ 200 V AC	0.5 A @ 200 V AC	-	-	-
Maximum power consumption		75 W	89 W	580 W	70 W	82 W
Maximum heat emission		270 kJ/h	321 kJ/h	757 kJ/h*4	252 kJ/h	296 kJ/h

*1 Excluding the dimensions of connectors.

*2 Weight of the main device only. The weight of cables, rack mounted brackets, memory cards and transceivers are excluded.

*3 The power supply cable bundled with the main device is only applicable to 100 V AC.

*4 Heat emission of the main device only.

Table 2-3 General Installation Conditions for AX3630S Series Switches (Power Redundancy Models)

Item		Model Name					
		AX3630S-24S2XW		AX3630S-48TW		AX3630S-48T2XW	
		PS-A01 mounted	PS-D01 mounted	PS-A01 mounted	PS-D01 mounted	PS-A01 mounted	PS-D01 mounted
Dimensions (W × D × H)*1		445 × 440 × 43 mm					
Weight*2		9 kg or less					
Input voltage	Rating	Single phase 100 to 120 V AC, 200 to 240 V AC*3	-48 V DC	Single phase 100 to 120 V AC, 200 to 240 V AC*3	-48 V DC	Single phase 100 to 120 V AC, 200 to 240 V AC*3	-48 V DC
	Variation range	90 to 127.2 V AC, 180 to 254.4 V AC	-40 to -57 V DC	90 to 127.2 V AC, 180 to 254.4 V AC	-40 to -57 V DC	90 to 127.2 V AC, 180 to 254.4 V AC	-40 to -57 V DC
Frequency		50/60 ± 1 Hz	-	50/60 ± 1 Hz	-	50/60 ± 1 Hz	-
Maximum input current		1.0 A @ 100 V AC	1.8 A @ -48 V DC	1.4 A @ 100 V AC	2.6 A @ -48 V DC	1.5 A @ 100 V AC	2.8 A @ -48 V DC
		0.5 A @ 200 V AC	-	0.7 A @ 200 V AC	-	0.8 A @ 200 V AC	-
Maximum power consumption		92 W	85 W	134 W	124 W	143 W	133 W
Maximum heat emission		332 kJ/h	306 kJ/h	483 kJ/h	447 kJ/h	515 kJ/h	479 kJ/h

*1 Excluding the dimensions of connectors and handles.

*2 Weight of the main device with two power supplies. However, the weight of cables, rack mounted brackets, memory cards and transceivers are excluded.

*3 The power supply cable bundled with the main device is only applicable to 100 V AC.

Table 2-4 General Installation Conditions for AX3640S Series Switches (AC Power Models)

Item		Model Name
		AX3640S-24T
Dimensions (W × D × H)*1		445 × 380 × 43 mm
Weight*2		5 kg or less
Input voltage	Rating	Single phase 100 to 120 V AC, 200 to 240 V AC*3
	Variation range	90 to 127.2 V AC, 180 to 254.4 V AC
Frequency		50/60 ± 3 Hz
Maximum input current		0.8 A @ 100 V AC
		0.4 A @ 200 V AC
Maximum power consumption		75 W
Maximum heat emission		270 kJ/h

*1 Excluding the dimensions of connectors.

*2 Weight of the main device only. The weight of cables, rack mounted brackets, memory cards and transceivers are excluded.

*3 The power supply cable bundled with the main device is only applicable to 100 V AC.

Table 2-5 General Installation Conditions for AX3640S Series Switches (Power Redundancy Models) 1/2

Item		Model Name					
		AX3640S-24TW		AX3640S-24T2XW		AX3640S-48TW	
		PS-A01 mounted	PS-D01 mounted	PS-A01 mounted	PS-D01 mounted	PS-A01 mounted	PS-D01 mounted
Dimensions (W × D × H)*1		445 × 440 × 43 mm					
Weight*2		9 kg or less					
Input voltage	Rating	Single phase 100 to 120 V AC, 200 to 240 V AC*3	-48 V DC	Single phase 100 to 120 V AC, 200 to 240 V AC*3	-48 V DC	Single phase 100 to 120 V AC, 200 to 240 V AC*3	-48 V DC
	Variation range	90 to 127.2 V AC, 180 to 254.4 V AC	-40 to -57 V DC	90 to 127.2 V AC, 180 to 254.4 V AC	-40 to -57 V DC	90 to 127.2 V AC, 180 to 254.4 V AC	-40 to -57 V DC
Frequency		50/60 ± 1 Hz	-	50/60 ± 1 Hz	-	50/60 ± 1 Hz	-
Maximum input current		0.9 A @ 100 V AC	1.6 A @ -48 V DC	1.0 A @ 100 V AC	1.9 A @ -48 V DC	1.4 A @ 100 V AC	2.7 A @ -48 V DC
		0.5 A @ 200 V AC	-	0.5 A @ 200 V AC	-	0.7 A @ 200 V AC	-
Maximum power consumption		85 W	75 W	100 W	90 W	135 W	125 W
Maximum heat emission		306 kJ/h	270 kJ/h	360 kJ/h	324 kJ/h	486 kJ/h	450 kJ/h

*1 Excluding the dimensions of connectors.

*2 Weight of the main device with two power supplies. However, the weights of cables, rack mounted brackets, memory cards and transceivers are excluded.

*3 The power supply cable bundled with the main device is only applicable to 100 V AC.

Table 2-6 General Installation Conditions for AX3640S Series Switches (Power Redundancy Models) 2/2

Item		Model Name					
		AX3640S-48T2XW		AX3640S-24SW		AX3640S-24S2XW	
		PS-A01 mounted	PS-D01 mounted	PS-A01 mounted	PS-D01 mounted	PS-A01 mounted	PS-D01 mounted
Dimensions (W × D × H)*1		445 × 440 × 43 mm					
Weight*2		9 kg or less					
Input voltage	Rating	Single phase 100 to 120 V AC, 200 to 240 V AC*3	-48 V DC	Single phase 100 to 120 V AC, 200 to 240 V AC*3	-48 V DC	Single phase 100 to 120 V AC, 200 to 240 V AC*3	-48 V DC
	Variation range	90 to 127.2 V AC, 180 to 254.4 V AC	-40 to -57 V DC	90 to 127.2 V AC, 180 to 254.4 V AC	-40 to -57 V DC	90 to 127.2 V AC, 180 to 254.4 V AC	-40 to -57 V DC
Frequency		50/60 ± 1 Hz	-	50/60 ± 1 Hz	-	50/60 ± 1 Hz	-
Maximum input current		1.5 A @ 100 V AC	2.9 A @ -48 V DC	0.9 A @ 100 V AC	1.6 A @ -48 V DC	1.0 A @ 100 V AC	1.9 A @ -48 V DC
		0.8 A @ 200 V AC	-	0.5 A @ 200 V AC	-	0.5 A @ 200 V AC	-
Maximum power consumption		145 W	135 W	85 W	75 W	100 W	90 W
Maximum heat emission		522 kJ/h	486 kJ/h	306 kJ/h	270 kJ/h	360 kJ/h	324 kJ/h

*1 Excluding the dimensions of connectors.

*2 Weight of the main device with two power supplies. However, the weight of cables, rack mounted brackets, memory cards and transceivers are excluded.

*3 The power supply cable bundled with the main device is only applicable to 100 V AC.

Table 2-7 General Installation Conditions for External Power Units (EPUs)

Item		Model Name	
		EPU-A	EPU-B
Dimensions (W × D × H)*1		445 × 440 × 43 mm	
Weight*2		12 kg or less	9 kg or less
Input voltage	Rating	Single phase 100 to 120 V AC	
	Variation range	90 to 127.2 V AC	
Frequency		50/60 ± 1 Hz	
Maximum input current		10.5 A @ 100 V AC	15.0 A @ 100 V AC
Maximum power consumption		1,050 W	1,500 W
Maximum heat emission*3		1,534 kJ/h	1,008 kJ/h

*1 Excluding the dimensions of connectors and handles.

*2 Weight of the unit with maximum number of power supply modules. The weight of cables and rack mounted brackets are excluded.

*3 Heat emission of the main device only.

2.2.2 Environmental Conditions

The environmental conditions of the device are listed below.

Table 2-8 Environmental Conditions

Item		Requirement				
		Device			EPU	
		AC power model DC power model	AC (PoE) model	Power redundancy model	EPU-A	EPU-B
Noise[*1]		45 dB or less	50 dB or less[*2]	25 deg. C: 35 dB or less[*3] 40 deg. C: 45 dB or less	45 dB or less	50 dB or less[*2]
Vibration		2.45 m/s^2 or less				
Dust		0.15 mg/m^3 or less[*4]				
Temperature	Operating	0 to 40 deg. C (23 to 28 deg. C recommended)				
	Not operating : to + to +	-10 to 43 deg. C				
	Storage and transportation	-25 to 65 deg. C				
Humidity[*5]	Operating	10 to 85 % (45 to 55 % recommended)				
	Not operating	8 to 85%				
	Storage and transportation	5 to 85%				

*1 Measured value according to ISO 7779.

*2 When PoE supply is turned off.

*3 Fan speed is controlled according to the intake air temperature, which causes the noise level to vary.

*4 According to JIS Z 8813 Measuring Methods for Suspended Particulate Matter Concentration in Air - General Requirements.

*5 No condensation

2.3 Electrical Power Equipment

2.3.1 Electrical Power Equipment for 100 V AC

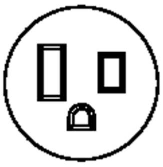
(1) Standards for Electrical Outlets

Use the electrical outlets conforming to the following JIS or NEMA standard. These electrical outlets are available at general electrical contractors.

Table 2-9 Standards for Electrical Outlets

Standard		Specifications
JIS	C-8303	15 A/125 V, 2-pole grounded straight-blade receptacle
NEMA	5-15R	

Figure 2-2 Two-Pole Grounded Outlet (15 A/125 V)



⚠WARNING

Make sure to connect the AC power model to a grounded outlet. Not connecting the grounded outlet to the device can cause electric shocks, as well as a cause of failure due to electrical noise.

(2) Distribution Board

The branch circuit to supply power to the device requires circuit breakers that meet the following specifications:

- Rated breaking capacity: 15 AT with single phase 100 V AC (for a 15 A circuit)

NOTE

For easy operation, it is recommended that the distribution board be installed in the same room as the device or in an adjacent room.

(3) Conditions for the Incoming Power to the Distribution Board

The capacity of electrical current supplied to the distribution board needs to be larger than that of the breaker operating current shown in (2) Distribution Board.

⚠WARNING

Ensure that the capacity of incoming current to the distribution board should be larger than the breaker operating current capacity. Otherwise, the breakers cannot operate properly in case of trouble, which may cause a fire.

NOTE

Generally, the breaker operating current is larger than the rated current. Check the specifications of the circuit breaker.

(4) Providing Two Power Supply Systems to the Electrical Power Equipment

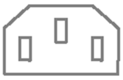
To build a redundant power supply system, provide another system of electrical power equipment to serve.

2.3.2 Electrical Power Equipment for 200 V AC

(1) AC Power Supply Cable

Use the power supply cable described below.

Table 2-10 Specifications of AC Power Supply Cable

Item	Connector on the device	Cable	Plug for the outlet
Rating	10 A, 250 V Japan PSE certified	10 A, 250 V Japan PSE certified	10 A, 250 V Japan PSE certified
Shape		Triplex	Prepare a plug that suitable for the outlet.

(2) Electrical Outlet

Use the electrical outlet described below. These electrical outlets are available at general electrical contractors.

Two-pole grounded twist-locking receptacle (10 A/250 V)

⚠WARNING

Make sure to connect the AC power model to a grounded outlet. Not connecting the grounded outlet to the device can cause electric shocks, as well as cause a failure due to electrical noise.

(3) Distribution Board

The branch circuit to supply power to the device requires circuit breakers that meet the following specifications.

- Rated breaking capacity: 10 AT with single phase 200 V AC (for a 10 A circuit)

NOTE For easy operation, it is recommended that the distribution board should be installed in the same room as the device or the adjacent room.

(4) Conditions of the Incoming Power to the Distribution Board

The capacity of electrical current supplied to the distribution board should be larger than that of the breaker operating current shown in (3) Distribution Board.

⚠WARNING Ensure that the capacity of incoming current to the distribution board should be larger than the breaker operating current capacity. Otherwise, the breakers cannot operate properly if there is a problem, which might cause a fire.

NOTE Generally, the breaker operating current is larger than the rated current. Check the specifications of the circuit breaker.

(5) Providing Two Power Supply Systems to the Electrical Power Equipment

To build a redundant power supply system, make sure that another system of electrical power equipment is available.

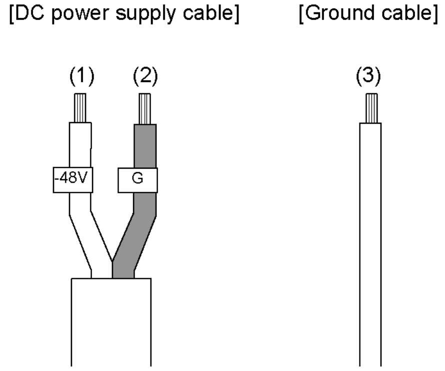
2.3.3 Electrical Power Equipment for -48 V DC (DC Power Models)

(1) DC Power Supply Cable

Make sure to use the accessory DC power supply cable.

The DC power supply cable shipped with the terminal for the electrical power equipment is not prepared. The specifications of the DC power supply cable for the electrical power equipment are shown in Figure 2-3 Specifications of the DC Power Supply Cable (for Electrical Power Equipment). Fit the cable end properly with terminals or by some other means to connect to your electrical power equipment.

Figure 2-3 Specifications of the DC Power Supply Cable (for Electrical Power Equipment)



(1) -48V (white)
(2) 0V (red)
(3) Ground (green/yellow)

Table 2-11 Specifications of -48 V DC Power Supply Cable

Cable Type	Cable Specifications	
	Number of Core Wires	AWG No.
DC power supply cable	2	16
Ground cable	1	14

⚠WARNING

A trained engineer or maintenance staff should attach or detach the DC power supply cable to or from the electrical power equipment. The terminals of the DC power supply cable are connected to the electrical power equipment. Wrong handling of the DC power supply cable can cause a fire or electric shock.

⚠WARNING

Prior to attaching or detaching the DC power supply cable, turn off the circuit breaker of the electrical power equipment. Otherwise, an electric shock might result.

⚠WARNING

Cover the G and -48 V terminals of the DC power supply cable (on the electrical power equipment side) with an insulation jacket. Otherwise, an electric shock might result.

⚠WARNING

For the DC power models, make sure to connect the ground cable. Not connecting the grounded outlet to the device can cause electric shocks, as well as cause a failure due to electrical noise.

(2) Distribution Board

The branch circuit to supply power to the device requires circuit breakers that meet the following specifications:

- Rated breaking capacity: 15 AT (for a 15 A circuit)

NOTE

For easy operation, it is recommended that the distribution board be installed in the same room as the device or in an adjacent room.

(3) Conditions for the Incoming Power to the Distribution Board

The capacity of electrical current supplied to the distribution board should be larger than that of the breaker operating current shown in (2) Distribution Board.

⚠WARNING

Ensure that the capacity of incoming current to the distribution board should be larger than the breaker operating current capacity. Otherwise, the breakers cannot operate properly in case of trouble, which may cause a fire.

NOTE

Generally, the breaker operating current is larger than the rated current. Check the specifications of the circuit breaker.

(4) Providing Two Power Supply Systems to the Electrical Power Equipment

Using the optional DC power supply cable, two power supply systems can be connected and used.

2.3.4 Electrical Power Equipment for -48 V DC (Power Redundancy Models)

(1) DC Power Supply Cable

The power redundancy models contain no accessory power supply cables. Use the power supply cable specified below to connect the device to -48 V DC.

Table 2-12 DC Power Supply Cable Specifications

Cable Type	Cable Specifications		
	Number of Core Wires	AWG No.	Margin to peel the jacket (on the device side)
DC power supply cable	2	16	8 to 10 mm

⚠WARNING

A trained engineer or maintenance staff should attach or detach the DC power supply cable. The terminals of DC power supply cable are for connections. Wrong handling of the DC power supply cable can cause a fire or electric shock.

⚠WARNING

Prior to attaching or detaching the DC power supply cable, turn off the circuit breaker of the electrical power equipment. Otherwise, an electric shock might result.

⚠WARNING

Peel the DC power supply cable jackets (on the device side) to 8 to 10 mm.
Too short a sheath length might result in poor contact or a disconnected cable. On the contrary, too long a sheath length might expose the core wire and cause an electric shock.

(2) Ground Cable

Make sure to use the ground cable supplied with the device..

A cable is shipped whose terminal for the electrical power equipment is unprocessed. The specifications of the cable for the electrical power equipment are shown in Figure 2-4 Ground Cable Specifications (for Electrical Power Equipment). Fit the cable end properly with terminals or by some other means to connect to your electrical power equipment.

Figure 2-4 Ground Cable Specifications (for Electrical Power Equipment)

(1) Ground (green/yellow)

Table 2-13 Ground Cable Specifications

Cable Type	Cable Specifications	
	Number of Core Wires	AWG No.
Ground cable	1	14

⚠WARNING Make sure to connect the ground cable. Not connecting the grounded outlet to the device can cause electric shocks, as well as a cause a failure due to electrical noise.

(3) Distribution Board

The branch circuit to supply power to the device requires circuit breakers that meet the following specifications:

- Rated breaking capacity: 15 AT (for a 15 A circuit)

NOTE For easy operation, it is recommended that the distribution board should be installed in the same room as the device or in an adjacent room.

(4) Conditions for the Incoming Power to the Distribution Board

The capacity of electrical current supplied to the distribution board should be larger than that of the breaker operating current shown in (3) Distribution Board.

⚠WARNING Ensure that the capacity of incoming current to the distribution board is larger than the breaker operating current capacity. Otherwise, the breakers cannot operate properly if there isa problem, which might cause a fire.

NOTE Generally, the breaker operating current is larger than the rated current. Check the specifications of the circuit breaker.

(5) Providing Two Power Supply Systems to the Electrical Power Equipment

To build a redundant power supply system, use another system of electrical power equipment to supply power.

2.4 Notes on Electrical Noise

Electrical noise emitted by other instruments can cause failures.

Note the following points when designing an electrical power equipment plan:

- The branch circuit of a power supply to the device should not be accompanied with devices or instruments that have a relay or micro switches to turn it on and off repeatedly, such as air conditioners.
- The service ground terminal of the device (Type D grounding) should directly connect to the ground plate or, if possible, a dedicated ground system for the device.
- As for the devices and the instruments emitting electrical noise, embed a circuit to prevent noise generation.
- The cables connected to the device are roughly categorized into power supply cables and signal cables, which are basically different in electrical characteristics. Avoid banding or twisting both types of cables when laying them.
- Do not route the communication lines along the power supply cables.

2.5 Leakage Current

This device is equipped with a noise filter to prevent failures due to electrical noise and leakage current through the protective ground line (Type D grounding).

Each device has at most 1 mA of leakage current. Be sure to take other factors into consideration, such as compliance with the Fire Service Act or other legislation.

2.6 Environmental Conditions

(1) Dust

Cooling fans are embedded in switches. Do not install a switch in a humid or dusty place. The dust conditions of the switch are as follows:

- Airborne dust concentration: 0.15 mg/m^3 or less (according to JIS Z 8813 Measuring Methods for Suspended Particulate Matter Concentration in Air - General Requirements)

NOTE

Generally, areas around printers or lots of people contain a lot of toner or dust. Do not install a switch in such places.

(2) Corrosive and Flammable Gases

Install a switch somewhere without corrosive or flammable gases. Corrosive gas can deteriorate the switch and reduce its reliability.

(3) Floor Surface Material

This device can be installed in an ordinary office room. However, it is recommended that the floor surface be the following:

- Fire resistance
- Dust-free

(4) Direct Sunlight

Do not expose the switch to direct sunlight.

(5) Water

Keep the device away from spilt water when cleaning the floor.

(6) Electromagnetic Interference

Note high-frequency equipment might emit interfering waves and affect normal operation of the switch.

This switch also generates faint high-frequency radio waves and might have an effect on indoor antennas for television, radio and transceivers within 30 m of the device.

(7) Protecting Cables

Route the cables through ducts or cover them for protection.

Mice might bite off unprotected cables.

Optical fiber requires special handling; lay the cables with a bend radius of more than 100 mm along the major axis and 50 mm along the minor axis, and protect them with metal covers.

Regarding optical fiber cables containing the required number of cores, ensure that there is a protective structure against repeated mechanical stress due to bending, stretching, compressing and straightening during laying the cables as well as environmental stresses after installed.

(8) Spraying

Before using pesticide spray or disinfectant in the room where the device is installed, cover the device to prevent exposure to chemicals.

(9) Earthquake Countermeasures

An earthquake can cause a switch to be moved, fall, or knocked out of a window, possibly resulting in death or injury. Take sufficient measures to prevent the switch from moving or falling.

NOTE

The actual seismic force on the device is different from that on land and varies based on the amplification factor affected by the building structure and the floor level of the room containing the switch. In general, the fifth floor and above of a nine-story medium-rise building causing two to three times the amount of shaking expected on land.
In actual earthquake cases in the past, the following has been discovered:

- A switch moved 10 to 30 cm.
- A rack fell down.
- An object on the fixture in the room dropped onto a switch.

2.7 Where to Install

This device can be installed either on a table or a 19-inch cabinet rack.

(1) Table

Install the device on a level, stable and flat table. In addition, satisfy the requirements described in Table 2-14 Conditions for Installing the Device on a Table.

Table 2-14 Conditions for Installing the Device on a Table

Item	Requirements
Space for air intake and exhaust	Ensure more than 50 mm of free space around all air vents of the switch. (For details, see 2.9 Cooling Conditions.)
Space for cables	Ensure 100 mm of free space in front and rear of the switch to deal with the cables.
Noise of the switch	For details about noise, see 2.10 Noise of the Switch.

⚠CAUTION

Horizontally install the device on a work table that can sufficiently bear the load of the device. Using an unstable place including wobbly tables and tilted surfaces might cause the switch to fall, resulting in injury.

(2) 19-Inch Cabinet Rack

When mounting the device on a rack, satisfy the rack requirements described in Table 2-15 Rack Requirements. In addition, provide the items listed in Table 2-16 Required Items for Mounting the Device on a Rack.

Table 2-15 Rack Requirements

Item	Requirements
Rack Standard	19-inch cabinet rack conforming to the EIA standard
Space for air intake and exhaust	Ensure more than 50 mm of free space from all air vents of the switch, the rack pillars and side walls. (For details, see 2.9 Cooling Conditions.)
Space for cables	Ensure 100 mm of free space in front and rear of the switch to deal with the cables.

Table 2-16 Required Items for Mounting the Device on a Rack

Item	Requirements
Screws supplied with the rack	M5 screws × 4

NOTE

The accessory rack mounted brackets are compatible with M5 screws. Use a rack compatible with M5 screws.

2.8 Maintenance Area

Ensure the proper amount of space for switch maintenance as described below.

(1) Maintenance Area for a Switch on a Table

The required space for maintenance varies depending on the models. For the required maintenance area in front and rear of the switch, see Table 2-17 Front and Rear Maintenance Space.

Figure 2-5 Maintenance Area for a Switch on a Table

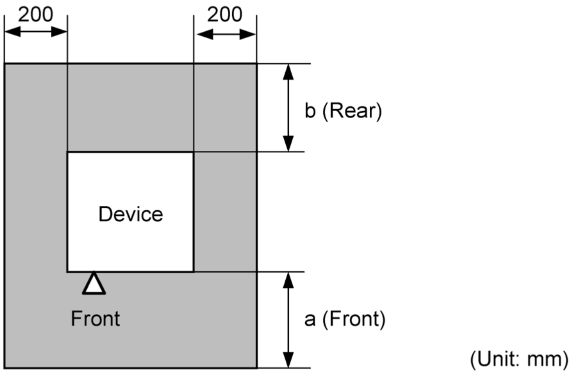


Table 2-17 Front and Rear Maintenance Space

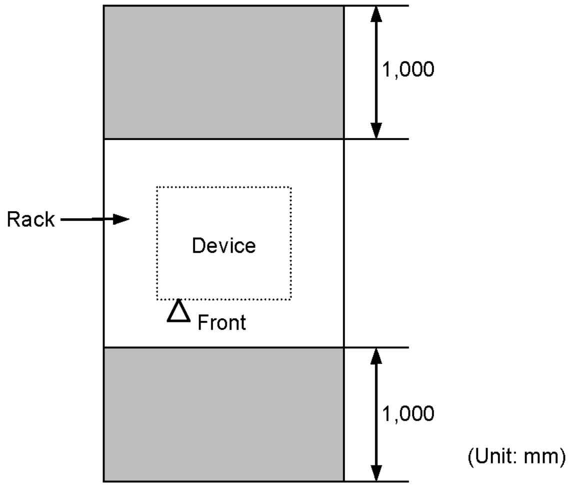
Device	a (front)	b (rear)
AC power model AC (PoE) model DC power model	200	200
Power redundancy model	200	300[*1]
External Power Unit (EPU)	400[*2]	200

*1 Required to insert or take out power supplies and fan units.

*2 Required to insert of take out power supply modules.

(2) Maintenance Area for a Rack-Mounted Switch

Figure 2-6 Maintenance Area for a Rack-Mounted Switch



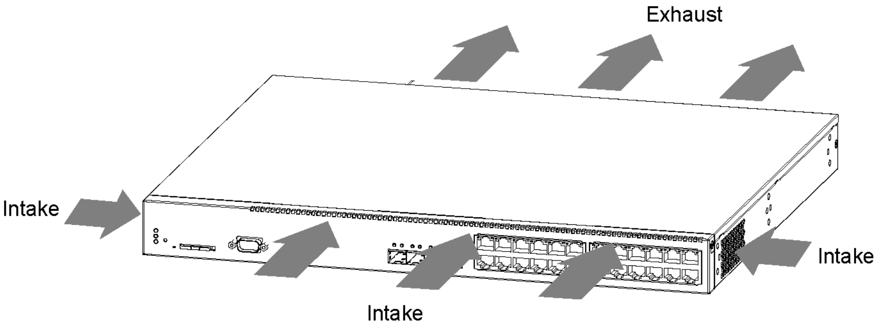
2.9 Cooling Conditions

2.9.1 Air Flow

(1) Main Device

The air flow into and out of a switch is shown in Figure 2-7 Air Flow Into and Out of the Main Device.

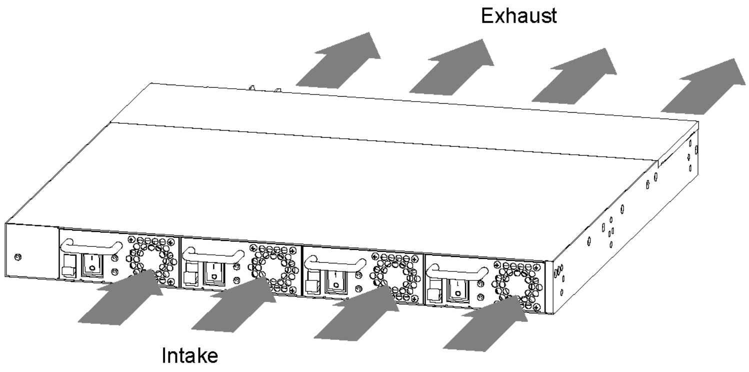
Figure 2-7 Air Flow Into and Out of the Main Device



(2) External Power Unit (EPU)

The air flow into and out of the EPU is shown in Figure 2-8 Air Flow Into and Out of the EPU.

Figure 2-8 Air Flow Into and Out of the EPU



2.9.2 Cooling Conditions for a Switch on a Table

Ensure more than 50 mm of space for air flow from the sides of the device.

⚠CAUTION

Do not block the air vents of the device. Otherwise, the internal heat is not discharged, which may cause a fire. Keep more than 50 mm of space from the air vents.

NOTE

When other equipment with a forced air cooling system exists near this switch, air flow from different systems can interfere and adversely affect the cooling of the switch. Keep sufficient space or place a partition between the systems to prevent air flow interference.
Note that the partition should be more than 50 mm away from the side panel of the switch.

- The exhaust air from the other equipment might be taken into the switch, and the intake air temperature of the device might exceed the environmental specification limits.
- When the other equipment has a too strong an intake exhaust air system, adverse air pressure to the device air flow might be generated and the internal cooling performance might decrease.

2.9.3 Cooling Conditions for a Rack-Mounted Device

Ensure more than 50 mm of space between the device and all structural components of the rack including the side walls, pillars, guide rails and front and rear doors.

⚠CAUTION

Do not block the air vents of the device. Otherwise, the internal heat is not discharged, which may cause a fire. Keep more than 50 mm of space from the air vents.

NOTE

Make sure that the temperature inside the rack is within the operating temperature specified for the switch. Otherwise, the device might malfunction or fail. To meet the temperature requirements, consider the following means:

- Install fans inside the rack for sufficient ventilation.
- Replace the front and the rear doors with punched holes for cooling or remove the doors in order to achieve good ventilation.
- Reduce the number of items contained in the rack and mount the device under other heat emitting bodies when necessary.

NOTE

When other equipment with forced air cooling system exists above or under this device, air flow from different systems can interfere and adversely affect cooling, causing a malfunction or a failure. Keep spaces between the systems in the rack to prevent air flow interference.

- The exhausted air from other equipment might be taken into the switch, and the intake air temperature of the switch might exceed the environmental specification limits.
- When other equipment has an intake or exhaust air system that is too strong, air moving in the opposite direction of the switch's air flow might be generated, affecting the internal cooling performance.

2.10 Noise of the Switch

This switch generates noise due to internal cooling fans. Take noise into account when planning the switch installation layout.

For details about the noise from the switch, see 2.2 Installation Conditions.

NOTE

The following tips are for a layout design that takes noise into account:

- Separate the area by partitions or shelves to block direct noise.
- Do not install the switch in areas frequently used by people such as offices, meeting rooms and desk areas.
- Install the switch in the corner of the office area.
- Install the switch in the rack.
- Avoid areas near the windows or anything that easily reflects sound.

3

Preparation of Interface Cables and Terminals

This chapter describes the interface cables and the terminals used for devices.

3.1 Connecting Interface Cables and Terminals

The applicable interfaces for the devices and the cables to connect them are listed in Table 3-1 Interface Cables and Terminal Connection Cables.

The user should provide these cables.

Table 3-1 Interface Cables and Terminal Connection Cables

Port/Slot	Transceiver	Interface	Cable	Connector
10/100/1000BASE-T port (PoE not supported)	-	10BASE-T	UTP cable (Category 3 or higher)	RJ45 connector
		100BASE-TX	UTP cable (Category 5 or higher)	
		1000BASE-T	UTP cable (Enhanced Category 5 or higher)	
10/100/1000BASE-T port (PoE supported)	-	10BASE-T	UTP cable (Category 5 or higher)	
		100BASE-TX	UTP cable (Category 5 or higher)	
		1000BASE-T	UTP cable (Enhanced Category 5 or higher)	
SFP slot	SFP-T (T) (PoE not supported)	10BASE-T	UTP cable (Category 5 or higher)	RJ45 connector
		100BASE-TX		
		1000BASE-T	UTP cable (Enhanced Category 5 or higher)	
	SFP-SX (T)	1000BASE-SX	Multiple-terminal mode optical fiber (core/cladding diameter = 50 µm/125 µm)	LC duplex connector
			Multiple-terminal mode optical fiber (core/cladding diameter = 62.5 µm/125 µm)	
	SFP-SX2 (T)	1000BASE-SX2	Multiple-terminal mode optical fiber (core/cladding diameter = 50 µm/125 µm)	
			Multiple-terminal mode optical fiber (core/cladding diameter = 62.5 µm/125 µm)	
	SFP-LX (T)	1000BASE-LX	Multiple-terminal mode optical fiber[*1] (core/cladding diameter = 50 µm/125 µm)	
			Multiple-terminal mode optical fiber[*1] (core/cladding diameter = 62.5 µm/125 µm)	
			Single-terminal mode optical fiber (core/cladding diameter = 10 µm/125 µm)	
	SFP-LH (T)	1000BASE-LH	Single-terminal mode optical fiber (core/cladding diameter = 10 µm/125 µm)	
			Single-terminal mode (DSF) optical fiber (core/cladding diameter = 8 µm/125 µm)	
	SFP-BX1U (T)	1000BASE-BX10-U	Single-terminal mode optical fiber (core/cladding diameter = 10 µm/125 µm)	LC simplex connector
	SFP-BX1D (T)	1000BASE-BX10-D		
	SFP-BX4U (T)	1000BASE-BX40-U		
	SFP-BX4D (T)	1000BASE-BX40-D		

Port/Slot	Transceiver	Interface	Cable	Connector
XFP slot	XFP-SR (T)	10GBASE-SR	Multiple-terminal mode optical fiber (core/cladding diameter = 50 µm/125 µm)	LC duplex connector
			Multiple-terminal mode optical fiber (core/cladding diameter = 62.5 µm/125 µm)	
	XFP-LR (T)	10GBASE-LR	Single-terminal mode optical fiber (core/cladding diameter = 10 µm/125 µm)	
	XFP-ER (T)	10GBASE-ER		
	XFP-ZR (T)	10GBASE-ZR		
CONSOLE port	-	RS-232C	RS-232C crossover cable	D-sub (9-pin)

*1 Regarding 1000BASE-LX, some kinds of multiple-terminal mode optical fiber may increase the BER (bit error rate). In such cases, use of mode-conditioning patch cords can clear the communication problem.

NOTE

The optical fiber cables should be 3 m longer than the length needed to maintain the device. The extra part should be wound near the device. When optical fiber and other interface cables are used together, pay attention not to apply excessive stress on the optical fibers.

NOTE

Always have some extra optical fiber cables on hand.

NOTE

For details about interfaces, see *Appendix BÅ@Physical Specifications of Network Interfaces*.

3.2 Network Interface Specifications

3.2.1 Ethernet 10/100/1000BASE-T

(1) Mode Setting on the Port

Any of the following modes can be specified for the Ethernet 10/100/1000BASE-T port. The factory default setting is auto-negotiation.

- Auto negotiation (default)
- 100BASE-TX Full duplex (fixed)
- 100BASE-TX Half duplex (fixed)
- 10BASE-T Full duplex (fixed)
- 10BASE-T Half duplex (fixed)

NOTE

The following modes and auto negotiation are applicable to the Ethernet 10/100/1000BASE-T port:

- 1000BASE-T Full duplex
- 100BASE-TX Full duplex
- 100BASE-TX Half duplex
- 10BASE-T Full duplex
- 10BASE-T Half duplex

NOTE

As for 1000BASE-T, the fixed settings and half-duplex communication are not supported.

(2) Flow Control Functionality

This function is enabled when the connection is fixed to full duplex.

(3) Auto MDI/MDI-X Functionality

This function is enabled when auto negotiation is specified.

In the fixed settings, MDI-X is always selected.

(4) PoE System

As for the pin assignment of the power supply to the AC (PoE) models, Alternative A defined in IEEE802.3af is used and power supplies to the power receiver devices conforming to IEEE802.3af are supported.

For power supply pin assignments on the device, see Table 3-2 Power Supply Pin Assignment.

Table 3-2 Power Supply Pin Assignment

RJ-45 Pin Number	Signal Name
1	Positive Vport
2	Positive Vport
3	Negative Vport
4	-
5	-
6	Negative Vport
7	-
8	-

3.2.2 Ethernet 1000BASE-X

(1) Mode Setting on the Port

Either of the following modes can be specified for the Ethernet 1000BASE-X port. The factory default setting is auto-negotiation.

- Auto negotiation (default)
- 1000BASE-X Full duplex (fixed)

NOTE Half-duplex (fixed) communication is not supported.

(2) Flow Control Functionality

This function is enabled when the connection is fixed to full duplex.

3.2.3 Ethernet 10GBASE-R

(1) Mode Setting on the Port

Available mode setting for the Ethernet 10GBASE-R port is only full duplex (fixed).

NOTE Auto-negotiation and half-duplex (fixed) communication are not supported.

(2) Flow Control Functionality

This function is enabled when the connection is fixed to full duplex.

4

Installation of the Components

This chapter provides the procedures for installing components.

4.1 Necessary Tools

The following tools are necessary for installing the components:

Phillips screwdriver no. 1:
Use this screwdriver to attach the rack mounted brackets to the device.

Phillips screwdriver no. 2:
Use this screwdriver to mount the device to the rack and to attach the ground cable to the DC power model and the power redundancy model.

Antistatic wrist strap:
Protect the device from electrostatic discharges.

4.2 Precautions Before Starting the Installation

⚠CAUTION

For switches on tables, avoid an unstable places including wobbly tables and tilted surfaces. Install the switch horizontally on a solid table. Otherwise, the switch might fall and cause injury.

⚠CAUTION

Do not block the air vents of the device. Otherwise, the internal heat is not discharged, which may cause a fire. Keep more than 50 mm of space from the air vents.

⚠CAUTION

Do not put anything that is 5 kg or more on the switch. The switch might be damaged or fall over, causing injury.

CAUTION

Make sure to wear the antistatic wrist strap. Handling the device without the antistatic wrist strap may damage the device due to electrostatic discharge.

NOTE

Install the device somewhere where the LEDs can be easily seen.

NOTE

Route the cables through ducts or cover them for protection. Optical fiber requires special handling; lay the cables with a bend radius of more than 100 mm on the major axis and 50 mm on the minor axis, and protect them with metal covers.

NOTE

The optical fiber cables should be 3 m longer than the exact length needed to maintain the switch. The extra cable should be rolled near the switch. When optical fiber and other interface cables are used together, be sure to not to apply excessive stress on the optical fibers.

4.3 Installation of the Main Device

This section describes the way to install the device on a table or a rack. Follow the procedures below.

⚠CAUTION When moving a power redundancy model, do not hold the handle of the power supply or the fan unit. The handle might come off, causing the device to fall and possibly injury. Or the device might be distorted and cause a fire or an electric shock.

4.3.1 Tabletop

This device can be installed on the level, stable, flat surface. The installation procedures are as follows:

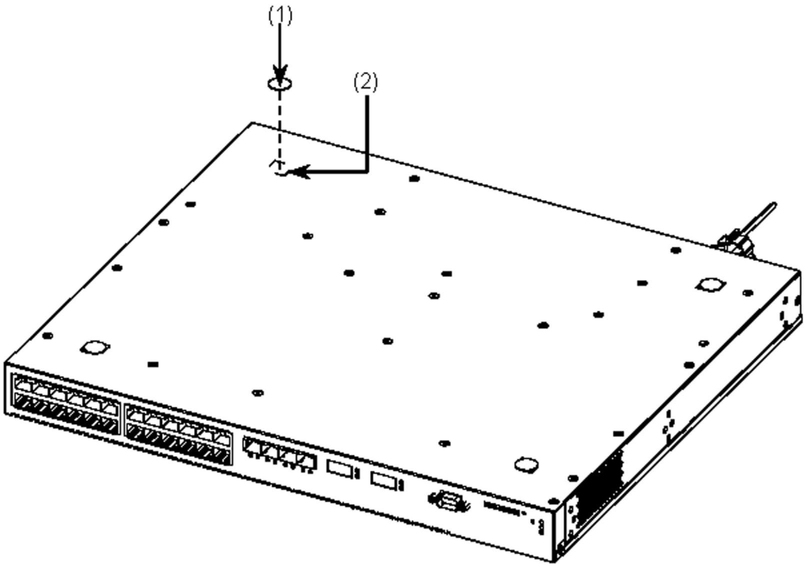
[Step 1]

Put the device upside down on a flat surface.

[Step 2]

Attach the four rubber pads within the marks on the bottom of the device.

Figure 4-1 Attaching the Rubber Pads



(1) Rubber pad

(2) Mark

NOTE Confirm that the position to attach the rubber pad has no dirt. Wipe any dirt off with a dry cloth before attaching the rubber pad.

[Step 3]

Flip the device back around and set it on the table.

4.3.2 Rack Mount

This device can be installed into a 19-inch cabinet rack conforming to the EIA standard. The procedure is as follows:

NOTE

The accessory rack mounted brackets are compatible with M5 screws. Use a rack compatible with M5 screws.

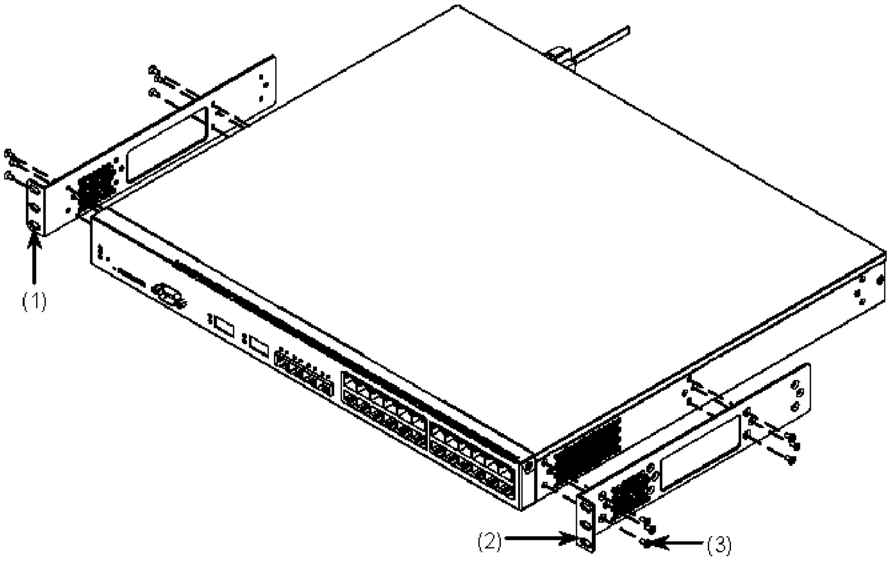
NOTE

For rack-mounting conditions, see *(2) 19-Inch Cabinet Rack* in *2.7 Place to Install*.

[Step 1]

Attach the rack mounted brackets to the device.

Figure 4-2 Attaching the Rack Mounted Brackets

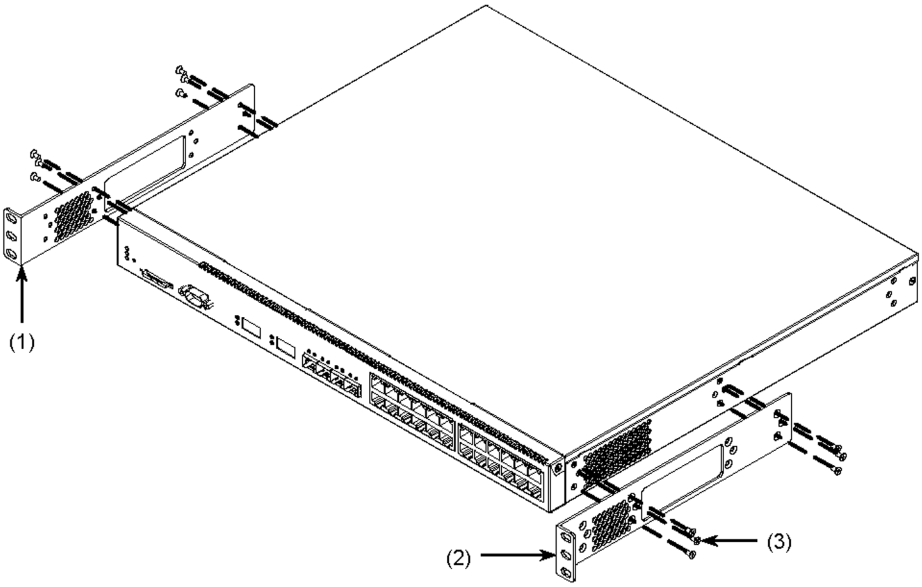


(1) Rack mounted bracket (L)
(2) Rack mounted bracket (R)
(3) M3 × 6 screws (12)

NOTE

If 100 mm of space for cables cannot be provided in front of the device, shift the rack mounted brackets by 50 mm so that they protrude, as shown in the figure below.

Figure 4-3 Attaching the Rack Mounted Brackets (50 mm Adjustment)



(1) Rack mounted bracket (L)
(2) Rack mounted bracket (R)
(3) M3 × 6 screws (12)

NOTE Use the accessory screws to attach the rack mounted brackets to the device.

NOTE There are two types of rack mounted brackets:

- For AC and DC power models
- For AC (PoE) and power redundancy models and EPUs

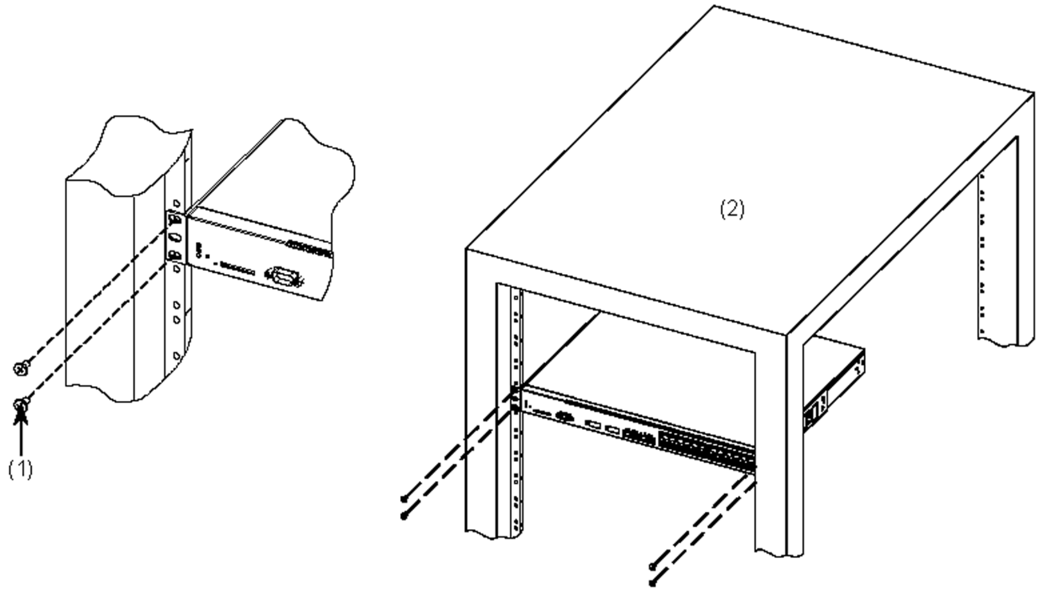
The latter is labeled "24P/EPU”. Confirm that the correct brackets have been selected before attaching the brackets to the device.

NOTE The left bracket is marked with an “L”, and the right with an “R”.

[Step 2]

Mount the device into the rack.

Figure 4-4 Mounting onto the Rack



(1) M5 screws (4)
(2) 19-inch cabinet rack

CAUTION

When mounting the device on a rack, check thoroughly that the device is in a stable condition. Otherwise, the dropped device or fallen rack may cause injury.

NOTE

When mounting the device into a rack, use the M5 screws supplied with the rack.

4.4 Mounting External Power Units (EPUs) and Power Supply Modules

This section describes how to install the external power units (EPU) on a table or in a rack. Follow the procedures below to use the EPU.

When an EPU is connected to more than one main device, add power supply modules to the EPU. Follow the procedures below to add power supply modules.

⚠CAUTION

When moving an EPU, do not hold the handle of the power supply modules. The handle might come off causing the device to fall and possibly injury. Or the device might be distorted and cause a fire or electric shock.

NOTE

The figures below show EPU-A. The same procedures are applicable to EPU-B.

4.4.1 Table Mount

The EPU can be placed on the level, stable, flat surface. The installation procedures are as follows:

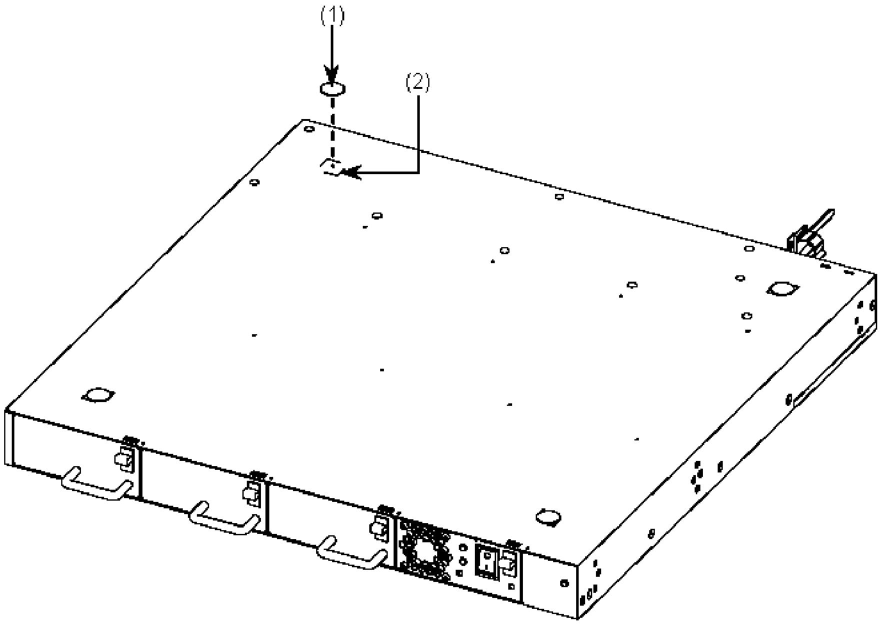
[Step 1]

Flip the EPU upside down on a flat surface.

[Step 2]

Attach the four rubber pads within the marks on the bottom of the EPU.

Figure 4-5 Attaching the Rubber Pads



(1) Rubber pad

(2) Mark

NOTE

Confirm that the position to attach the rubber pad has no dirt. Wipe any dirt off with a dry cloth before attaching the rubber pad.

[Step 3]

Flip the EPU back over and mount it on the table.

4.4.2 Rack Mount

The EPU can be installed on a 19-inch cabinet rack conforming to the EIA standard.

The procedure is as follows:

NOTE

The accessory rack mounted brackets are compatible with M5 screws. Use a rack compatible with M5 screws.

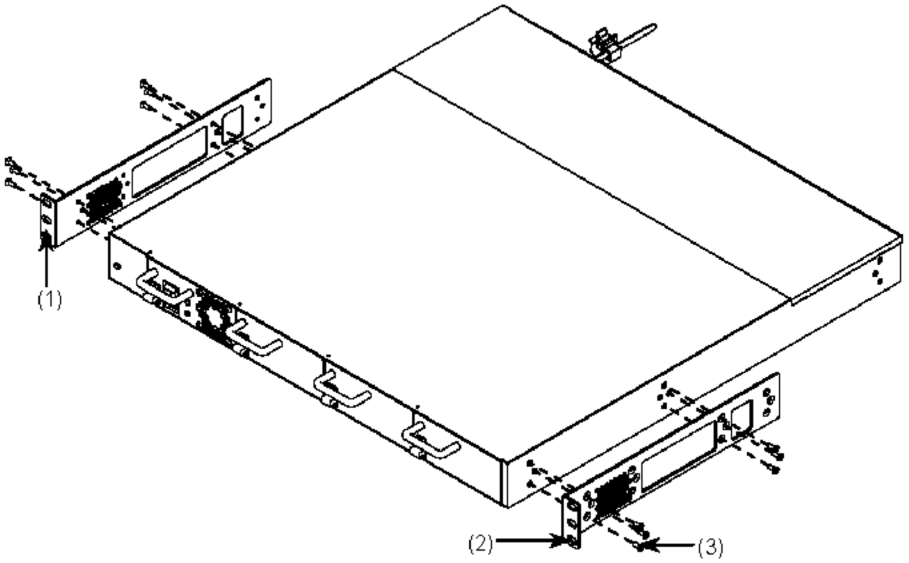
NOTE

For rack-mounting conditions, see *(2) 19-Inch Cabinet Rack* in *2.7 Place to Install.*

[Step 1]

Attach the rack mounted brackets to the EPU.

Figure 4-6 Attaching the Rack Mounted Brackets

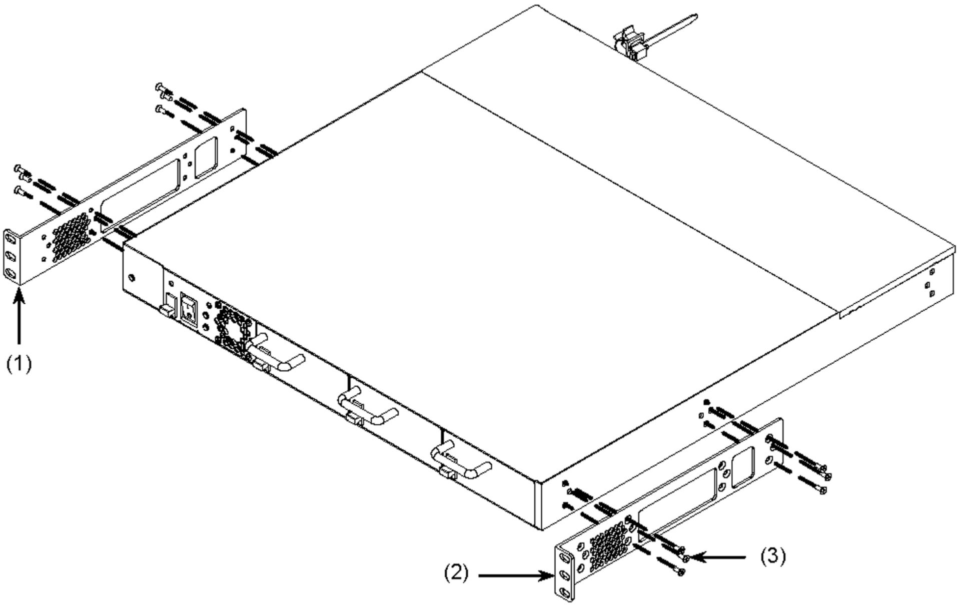


(1) Rack mounted bracket (L)
(2) Rack mounted bracket (R)
(3) M3 × 6 screws (12)

NOTE

If 100 mm of space for cables cannot be provided in front of the EPU, shift the rack mounted brackets by 50 mm so that they protrude in the front, as shown in the figure below.

Figure 4-7 Attaching the Rack Mounted Brackets (50 mm Adjustment)



(1) Rack mounted bracket (L)
(2) Rack mounted bracket (R)
(3) M3 × 6 screws (12)

NOTE

Use the accessory screws to attach the rack mounted brackets to the EPU.

NOTE

There are two types of rack mounted brackets:
- For AC and DC power models
- For AC (PoE) and power redundancy models and EPUs

The latter is labeled "24P/EPU". Confirm that the correct brackets have been selected before attaching the brackets to the device.

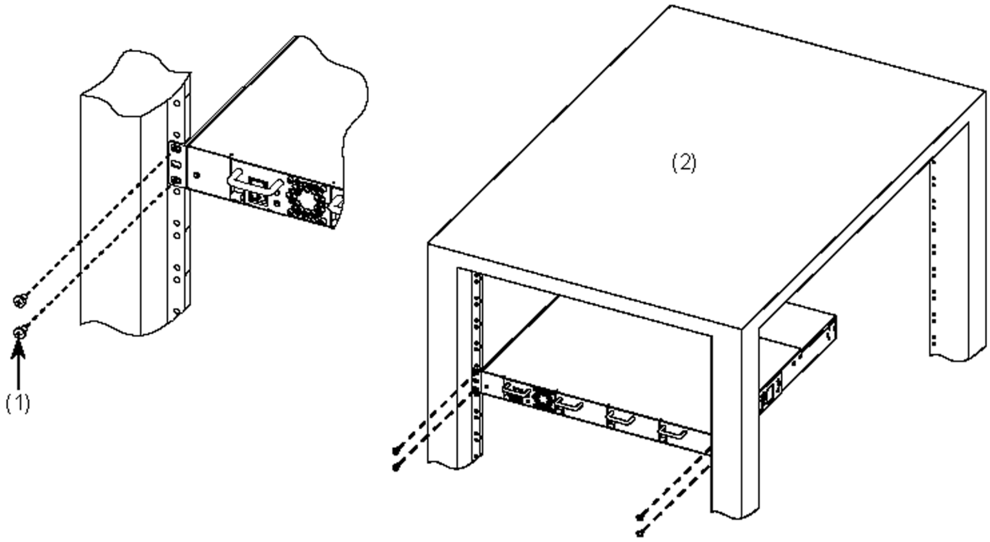
NOTE

The left bracket is marked with an “L”, and the right with an “R”.

[Step 2]

Mount the EPU into the rack.

Figure 4-8 Mounting into the Rack



(1) M5 screws (4)

(2) 19-inch cabinet rack

⚠CAUTION

When mounting the device on a rack, check thoroughly that the device is in a stable condition. Otherwise, the dropped device or fallen rack may cause injury.

NOTE

When mounting the device into a rack, use the M5 screws supplied with the rack.

4.4.3 Inserting and Removing Power Supply Modules

CAUTION

Prior to mounting/dismounting the power supply module, turn off the switch of it.

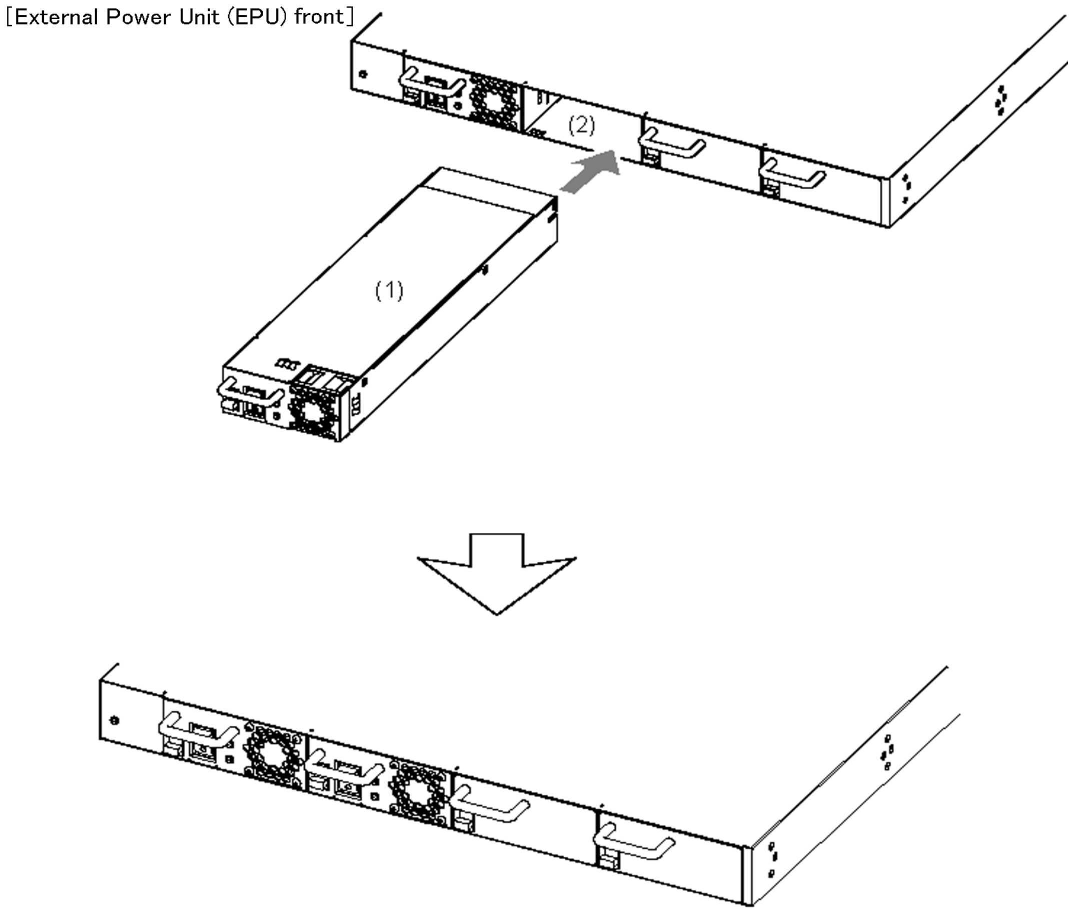
NOTE

The figures below show how to insert and remove a power supply module to and from slot 2 of the external power unit EPU-A. The same procedures are applicable to the other slots of EPU-A as well as EPU-B.

(1) Inserting

Insert the power supply module until you hear a click.

Figure 4-9 Inserting the Power Supply Module

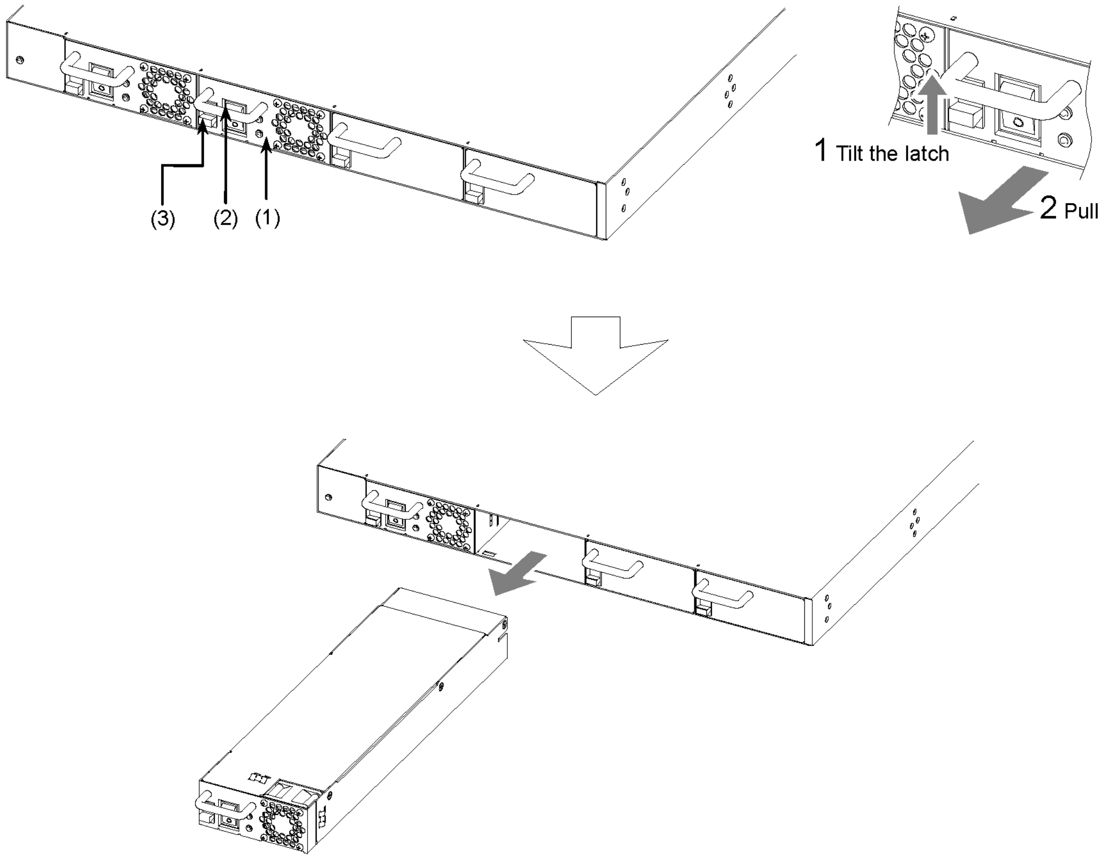


(1) Power supply module
(2) Power supply module slot

(2) Removing

Tilt and keep the latch in the direction of the arrow. Hold the handle of the power supply module and pull it a little. While holding the bottom, pull out the power supply module.

Figure 4-10 Removing the Power Supply Module



(1) Power supply module
(2) Handle
(3) Latch

4.5 Connecting and Disconnecting a Power Supply Cable to and from the Main Device

This section describes how to connect and disconnect a power supply cable to and from the main device.

For the AC power and AC (PoE) models and the power redundancy model with the AC power supplies, use an AC power supply cable.

For the DC power model and the power redundancy model with DC power supplies, use the DC power supply cable.

Follow the procedures below to connect or disconnect the power supply cable.

4.5.1 AC Power Supply Cable (AC Power and AC (PoE) Models)

⚠WARNING

Make sure to connect the device to a grounded outlet. Not connecting the grounded outlet to the device can cause electric shocks, as well as a cause of failure due to electrical noise.

NOTE

The figures below show the AC power model with the external power unit (EPU). The same procedures are applicable to the AC (PoE) model with the EPUs.

NOTE

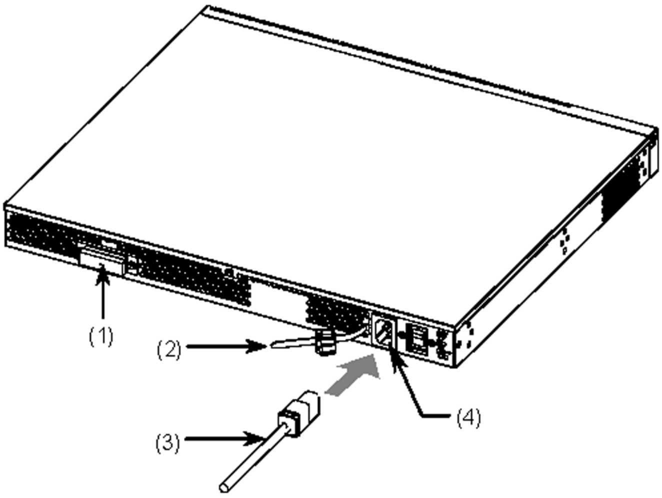
When the device is mounted in a rack, fasten the power supply cable with the cable holder of the rack in order to avoid stress on the cable connection part.

(1) Connecting

[Step 1]

Connect the accessory power supply cable to the AC power connector on the back face of the device.

Figure 4-11 Attaching the Power Supply Cable



(1) Stand-by power supply connector (with protective cap)
(2) Cable clamp
(3) AC power supply cable
(4) AC power connector

⚠WARNING

Make sure to use the accessory power supply cable when the device is connected to 100 V AC. Other cables except the bundled one might cause a fire or electric shock.
In addition, use the accessory cable only for this device. Otherwise, a fire or electric shock might result.

⚠WARNING

Make sure to use a power supply cable specified by ALAXALA when any AC power model is connected to 200 V AC. Otherwise, a fire or electric shock might result.

⚠WARNING

Keep the protective cap in place, except when attaching the cable. Otherwise, a fire and/or an electric shock may be caused.

CAUTION

Prior to connecting/disconnecting the power supply cable, turn off the switch of the main device.

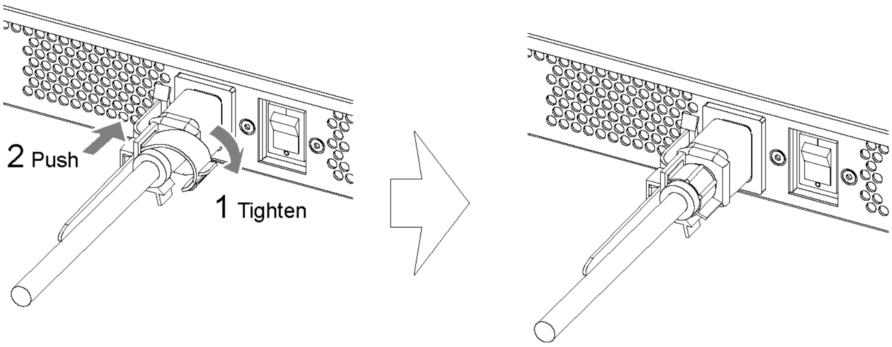
NOTE

For required specifications of the power supply cables, see *2.3.2 Electrical Power Equipment for 200 VAC.*

[Step 2]

Hold the power supply cable connector with the cable clamp.

Figure 4-12 Clamping the Power Supply Cable



(2) Disconnecting

Unfasten the cable clamp to detach the power supply cable.

CAUTION

Prior to connecting/disconnecting the power supply cable, turn off the switch of the main device.

4.5.2 AC Power Supply Cable (Power Redundancy Models)

⚠WARNING Be sure to connect the device to a grounded outlet. Not connecting the grounded outlet to the device can cause electric shocks, as well as cause failures due to electrical noise.

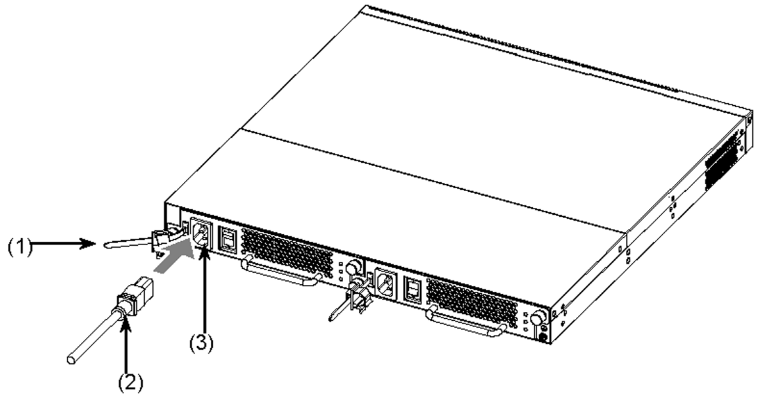
NOTE When the device is mounted on a rack, fasten the power supply cable with the cable holder of the rack in order to avoid stress on the cable connection part.

(1) Connecting

[Step 1]

Connect the accessory power supply cable to the AC power connector on the back face of the device.

Figure 4-13 Attaching the Power Supply Cable



(1) Cable clamp
(2) AC power supply cable
(3) AC power connector

⚠WARNING Make sure to use the accessory power supply cable when the device is connected to 100 V AC. Other cables except the bundled one might cause a fire or electric shock. In addition, use the accessory cable only for this device. Otherwise, a fire or an electric shock might result.

⚠WARNING Make sure to use a power supply cable specified by ALAXALA when the device is connected to 200 V AC. Otherwise, a fire or electric shock might result.

CAUTION Prior to attaching or detaching a power supply cable, turn off the switch of relevant power unit.

NOTE For required specifications of the power supply cables, see *2.3.2 Electrical Power Equipment for 200 VAC*.

[Step 2]

Hold the power supply cable connector with the cable clamp.

Figure 4-14 Clamping the Power Supply Cable

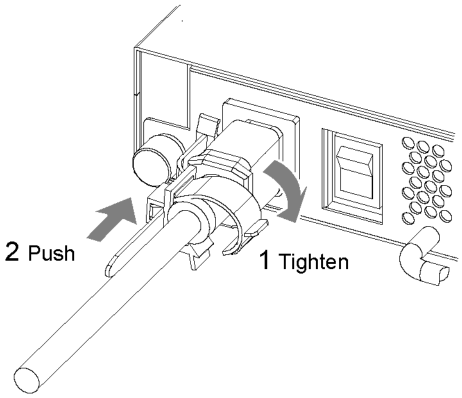
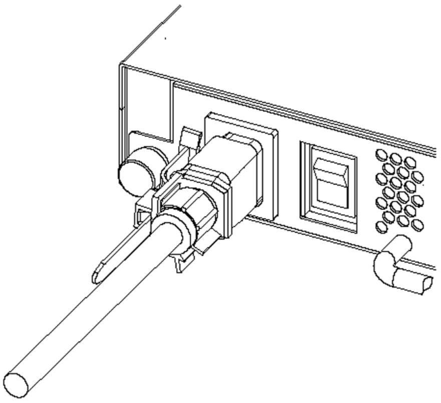


Figure 4-15 Clamped Power Supply Cable



(2) Disconnecting

Unfasten the cable clamp to detach the power supply cable.

CAUTION Prior to attaching or detaching the power supply cable, turn off the switch of relevant power unit.

4.5.3 DC Power Supply Cable (DC Power Models)

⚠WARNING

Make sure to use the accessory power supply cable. Other cable except the bundled one may cause a fire and/or an electric shock.In addition, use the accessory cable only for these devices. Otherwise, a fire and/or an electric shock may be the result.

⚠WARNING

Prior to connecting/disconnecting the power supply cable, shut off your electrical power equipment. Otherwise, a fire and/or an electric shock may be caused.

NOTE

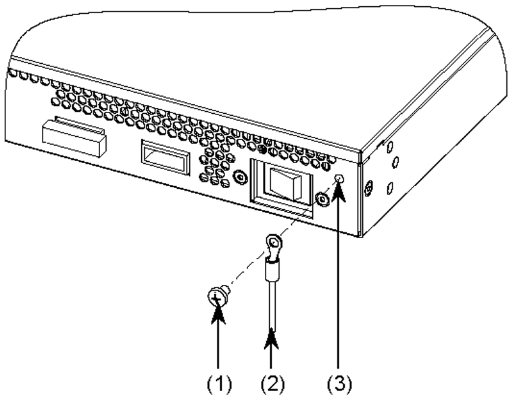
When the device is mounted in a rack, fasten the power supply cable with the cable holder of the rack in order to avoid stress on the cable connection part.

(1) Connecting

[Step 1]

Attach the ground cable to the device.

Figure 4-16 Attaching the Ground Cable



(1) M4 × 8 screw
(2) Ground cable
(3) Ground terminal

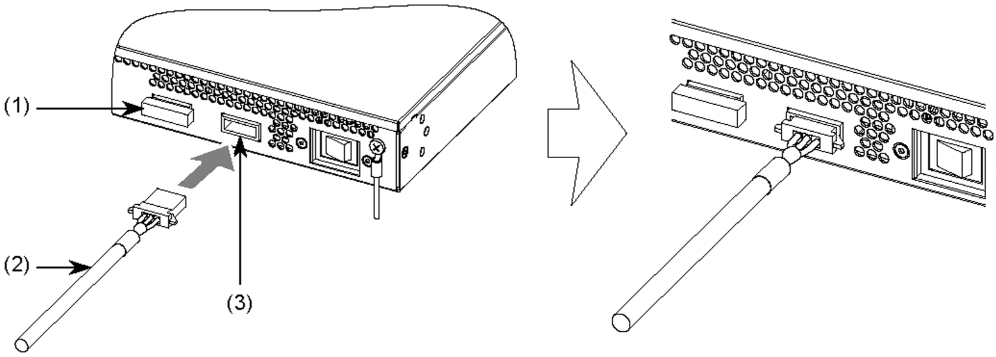
⚠WARNING

Be sure to connect the ground cable to the ground terminal. Not connecting the grounded outlet to the device can cause electric shocks, as well as cause failures due to electrical noise.

[Step 2]

Connect the accessory power supply cable to DC power connector 1 on the back face of the device. Insert the connecter until you hear a click.

Figure 4-17 Attaching the Power Supply Cable



(1) DC power connector 2 (with protective cap)
(2) DC power supply cable
(3) DC power connector 1

⚠WARNING

Keep the protective cap in place, except when attaching the cable. Otherwise, a fire and/or an electric shock may be caused.

NOTE

The optional DC power supply cable is required when two systems of electrical power equipment are used.
To add a second power supply system, remove the protective cap from DC power connector 2 and attach the DC power supply cable. Store the removed cap somewhere safe.

NOTE

By adding a second power supply, a redundant supply of DC power can be provided to a device. However, in such cases, shut off the electrical power equipment before attaching the redundant power supply cable.

(2) Disconnecting

[Step 1]

Disconnect the DC power supply cable from the DC power connector on the back face of the device. Push the tabs on the both sides and pull it out.

[Step 2]

Detach the ground cable from the device.

⚠WARNING

Prior to connecting/disconnecting the power supply cable, shut off your electrical power equipment. Otherwise, a fire and/or an electric shock may be caused.

NOTE

By adding a second power supply, a redundant supply of DC power can be provided to a device. However, in such cases, shut off the electrical power equipment before detaching the redundant power supply cable.

4.5.4 DC Power Supply Cable (Power Redundancy Models)

⚠WARNING

Be sure to use a DC power supply cable specified by ALAXALA. Otherwise, a fire or an electric shock might result.

⚠WARNING

A trained engineer or maintenance staff should attach and detach the DC power supply cable.
The terminals of DC power supply cable are to be connected. Improper handling of the DC power supply cable can cause a fire or an electric shock.

⚠WARNING

Prior to attaching or detaching the DC power supply cable, shut off your electrical power equipment. Otherwise, a fire or an electric shock might be caused.

NOTE

For required specifications of the power supply cables, see *2.3.4 Electrical Power Equipment for -48 VDC (Power Redundancy Models)*.

NOTE

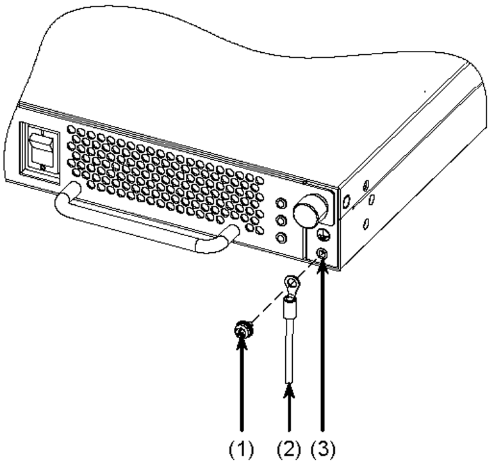
When the device is mounted on a rack, fasten the power supply cable with the cable holder of the rack in order to avoid stress on the cable connection part.

(1) Connecting

[Step 1]

Attach the ground cable to the device.

Figure 4-18 Attaching the Ground Cable



(1) M4 × 8 screw
(2) Ground cable
(3) Ground terminal

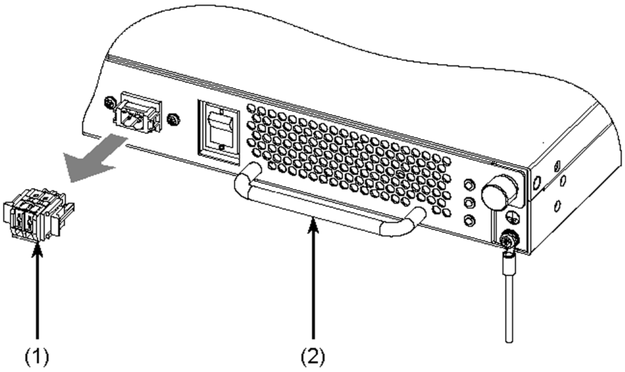
⚠WARNING

Make sure to connect the ground cable to the ground terminal. Not connecting the grounded outlet to the device can cause electric shocks, as well as cause failures due to electrical noise.

[Step 2]

Remove the cable connector from the power unit. Push the tabs on the both sides and pull it out.

Figure 4-19 Removing the Cable Connector



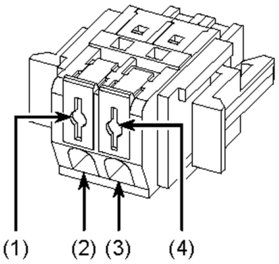
(1) Cable connector
(2) Power supply

[Step 3]

Attach the DC power supply cable to the cable connector.

1. Push the buttons using a screwdriver head. The buttons are locked when pushed to the end.

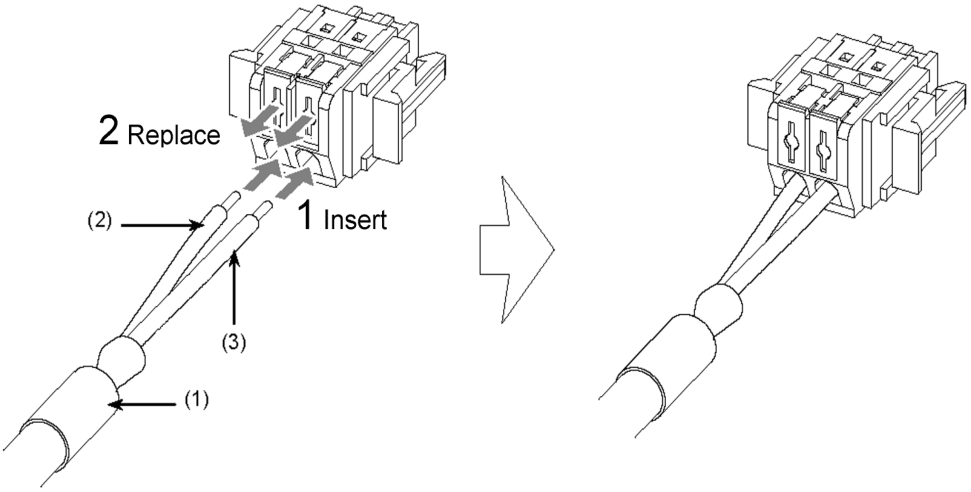
Figure 4-20 Attaching the Power Supply Cable 1



(1) Button (white)
(2) -48V
(3) 0V
(4) Button (red)

2. Insert the power supply cables and replace the buttons to secure the cables.

Figure 4-21 Attaching the Power Supply Cable 2



(1) DC power supply cable
(2) -48V
(3) 0V

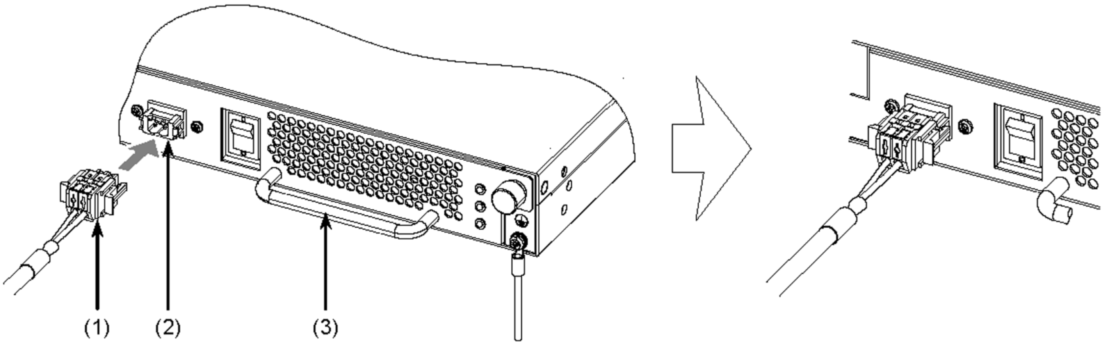
⚠WARNING

Peel the DC power supply cable jackets (on the device side) to 8 to 10 mm.Too short a sheath length might result in poor contact or disconnected cable. On the contrary, too long a sheath length might expose the core wire and cause an electric shock.

[Step 4]

Attach the cable connector to the power supply. Insert the connecter until you hear a click.

Figure 4-22 Attaching the Cable Connector



(1) Cable connector
(2) DC power connector
(3) Power supply

CAUTION Prior to attaching or detaching the cable connector, turn off the power.

(2) Disconnecting

[Step 1]

Remove the cable connector from the power unit. Push the tabs on the both sides and pull it out.

CAUTION Prior to attaching or detaching the cable connector, turn off the power.

[Step 2]

Push the buttons of the cable connector to remove the DC power supply cable.

⚠WARNING Prior to attaching or detaching the power supply cable, shut off your electrical power equipment. Otherwise, a fire or an electric shock might result.

[Step 3]

Detach the ground cable from the device.

NOTE Put the detached cable connector into the power unit.

4.6 Attaching and Detaching a Power Supply Cable to and from a External Power Unit (EPU)

This section describes how to attach and detach a power supply cable to and from an EPU.

As for the EPU, connect the AC power supply cable as well as the stand-by power supply cable to output backup power to the main device.

To use the EPU, follow the procedures below to attach or detach the AC power supply cable and the stand-by power supply cable.

NOTE

The figures below show how to attach and detach the power supply cable to the external power unit EPU-A. The same procedures are applicable to EPU-B.

4.6.1 AC Power Supply Cable

⚠WARNING

Make sure to connect the device to a grounded outlet. Not connecting the grounded outlet to the device can cause electric shocks, as well as a cause of failure due to electrical noise.

NOTE

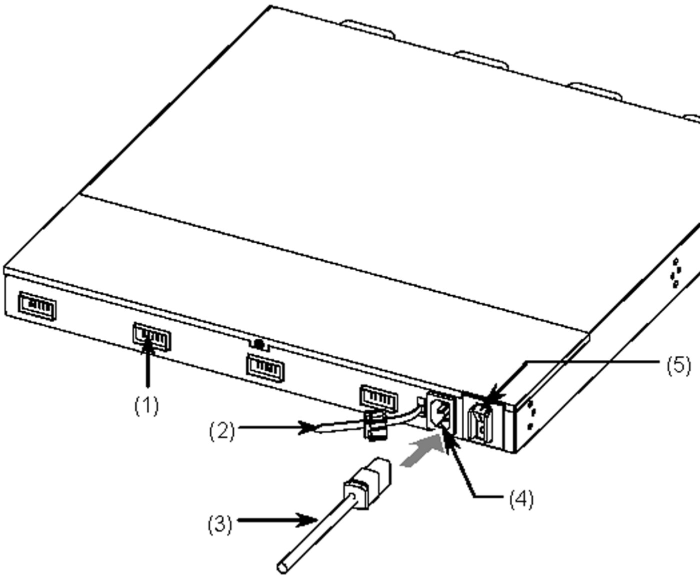
When the device is mounted in a rack, fasten the power supply cable with the cable holder of the rack in order to avoid stress on the cable connection part.

(1) Connecting

[Step 1]

Connect the accessory power supply cable to the AC power connector on the back face of the EPU.

Figure 4-23 Attaching the Power Supply Cable



(1) Stand-by power supply connector (with protective cap)
(2) Cable clamp
(3) AC power supply cable
(4) AC power connector
(5) Main power switch

⚠WARNING

Make sure to use the accessory power supply cable. Other cable except the bundled one may cause a fire and/or an electric shock.In addition, use the accessory cable only for these devices. Otherwise, a fire and/or an electric shock may be the result.

⚠WARNING

Keep the protective cap in place, except when attaching the cable. Otherwise, a fire and/or an electric shock may be caused.

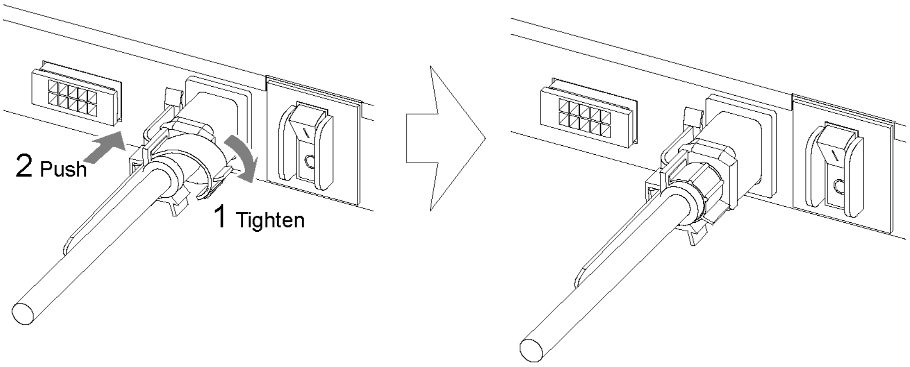
CAUTION

Prior to connecting/disconnecting the power supply cable, turn off the main switch of the EPU.

[Step 2]

Hold the power supply cable connector with the cable clamp.

Figure 4-24 Clamping the Power Supply Cable



(2) Disconnecting

Unfasten the cable clamp to detach the power supply cable.

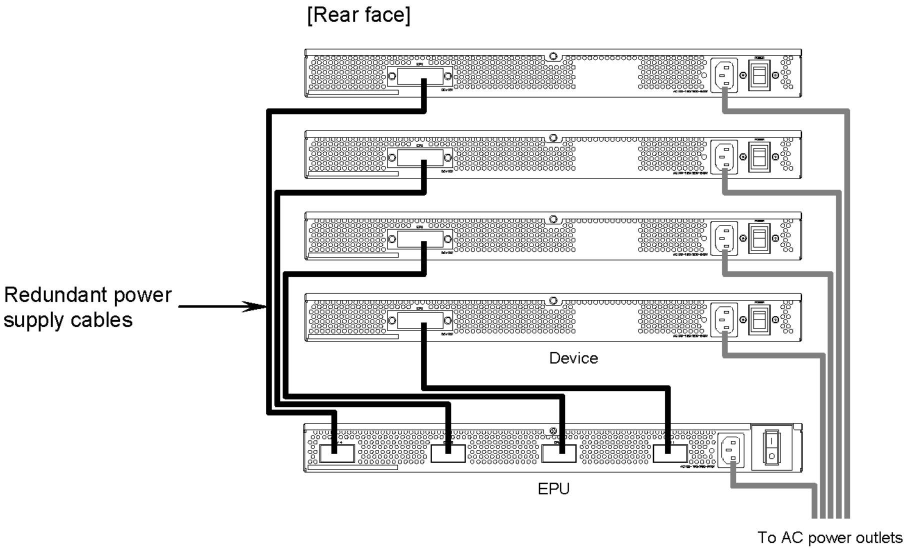
CAUTION

Prior to connecting/disconnecting the power supply cable, turn off the main switch of the EPU.

4.6.2 Stand-by Power Supply Cable

Use the stand-by power supply cable to connect the EPU with the main device.

Figure 4-25 Connection Schematic of the Stand-by Power Supply Cable



⚠WARNING

Make sure to use the accessory power supply cable. Other cable except the bundled one may cause a fire and/or an electric shock.In addition, use the accessory cable only for these devices. Otherwise, a fire and/or an electric shock may be the result.

NOTE

When the device is mounted in a rack, fasten the power supply cable with the cable holder of the rack in order to avoid stress on the cable connection part.

(1) Connecting

CAUTION

Prior to attaching or detaching the stand-by power supply cable, turn off the power supply module in the relevant slot.

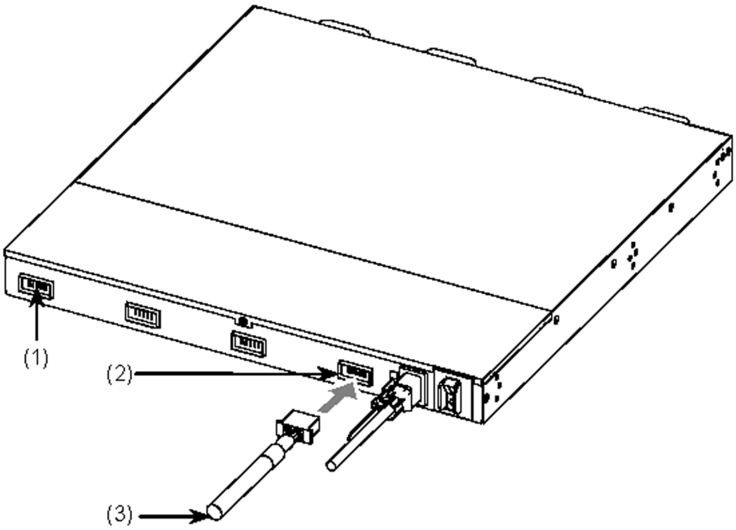
NOTE

The figure above shows a connection between slot 1 of EPU-A and the main device. The same procedures are applicable to the other slots of EPU-A as well as EPU-B.

[Step 1]

Attach the stand-by power supply cable to the stand-by power supply connector on the back face of the EPU. Insert the connecter until you hear a click.

Figure 4-26 Attaching the Stand-by Power Supply Cable to the EPU



(1) Stand-by power supply connector (with protective cap)
(2) Stand-by power supply connector
(3) Stand-by power supply cable

⚠WARNING

Keep the protective cap in place, except when attaching the cable. Otherwise, a fire and/or an electric shock may be caused.

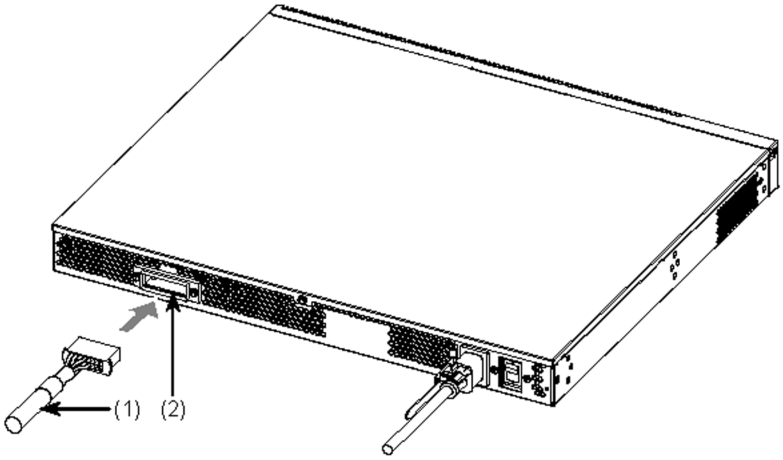
NOTE

When one EPU supplies backup power to multiple devices, attach the stand-by power supply cables to stand-by power supply connectors 2 and 3 and so on. In such cases, remove each protective cap to connect the stand-by power supply cable. Store the removed cap somewhere safe.

[Step 2]

Attach the stand-by power supply cable to the stand-by power supply connector on the back face of the main device. Insert the connecter until you hear a click.

Figure 4-27 Attaching the Stand-by Power Supply Cable to the Main Unit



(1) Stand-by power supply cable

(2) Stand-by power supply connector (with protective cap)

⚠WARNING

Keep the protective cap in place, except when attaching the cable. Otherwise, a fire and/or an electric shock may be caused.

NOTE

The stand-by power supply connectors have protective caps. Remove each protective cap to connect the stand-by power supply cable. Store the removed cap securely.

(2) Disconnecting

Push the tabs on the both sides and pull the cable out.

4.7 Inserting and Removing Memory Cards and the Dummy Memory Card

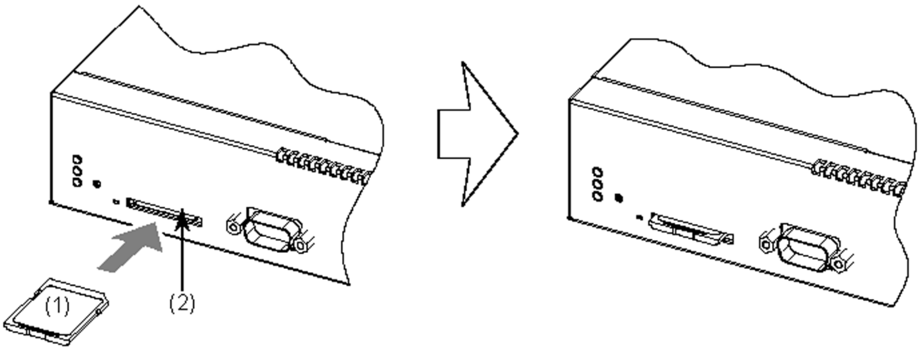
4.7.1 Inserting and Removing Memory Cards

CAUTION Be sure to remove the memory card before moving the main device. Excessive stress applied on the memory card during transfer might damage the connector part of the memory card slot.

(1) Inserting

Hold the memory card with the cut-off corner on the right. Insert it into the device until you hear a click and then release your finger slowly.

Figure 4-28 Inserting the Memory Card



(1) Memory card
(2) Memory card slot

CAUTION When inserting the memory card, do not push it too strongly or too quickly. Otherwise, the connector part of the memory card slot might be damaged.

NOTE Insert a memory card after removing a dummy memory card if it is inserted.

NOTE To avoid deleting and writing data, slide the protection switch to Lock.

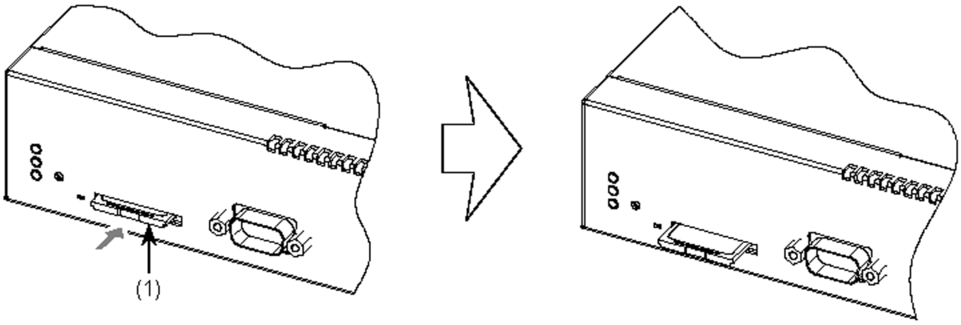
NOTE Clean the memory card slot with a dry cloth if it is dusty.

(2) Removing

[Step 1]

Push the memory card once until you hear a click. The lock is released and the memory card is ejected a little.

Figure 4-29 Removing the Memory Card

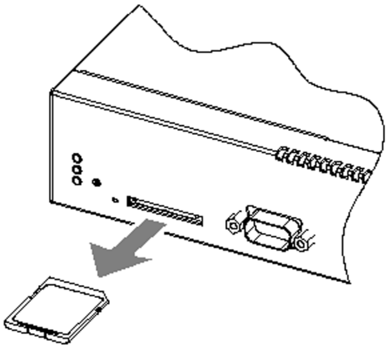


(1) Memory card

[Step 2]

Remove the memory card.

Figure 4-30 Removing the Memory Card



CAUTION

The device is accessing the memory card while the ACC LED is lighting. Do not remove the memory card or turn off the device. Otherwise, the memory card may be damaged.
In addition, some commands take long time to complete accessing the memory card after entered. Confirm the access has ended before removing the memory card or turning the power supply off.

CAUTION

Do not forcibly pull the locked memory card to remove it. Otherwise, the connector part of the memory card slot might be damaged.

NOTE

After the memory card is removed, insert the dummy memory card.

4.7.2 Inserting and Removing the Dummy Memory Card

When no memory card is used, insert the dummy memory card (hereinafter *dummy card*) into the memory card slot of the device as a substitute.

The dummy card is supplied together with the main device. After the device is installed, follow the procedures below to use the dummy card.

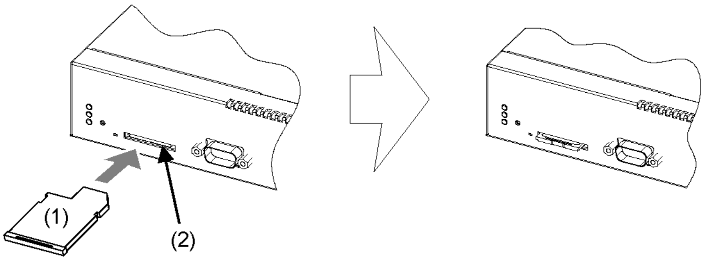
CAUTION Be sure to remove the dummy card before moving the main device. Excessive stress applied to the dummy card during transfer might damage the connector part of the memory card slot.

---

(1) Inserting

Hold the dummy card with the large cutout on the left. Insert it until you hear a click and then release your finger slowly.

Figure 4-31 Inserting the Dummy Card



(1) Dummy card
(2) Memory card slot

CAUTION When inserting the dummy card, do not push it too strongly or too quickly. Otherwise, the connector part of the memory card slot might be damaged.

NOTE Clean the memory card slot with a dry cloth if it is dusty.

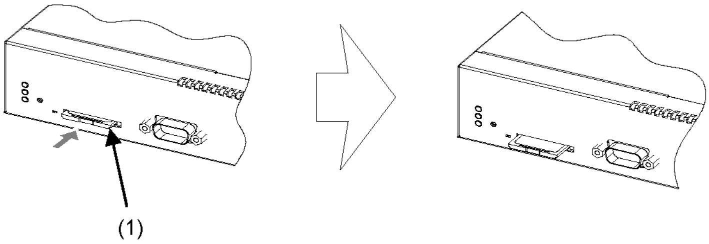
---

(2) Removing

[Step 1]

Push the dummy card until until you hear a click. The lock is released and the dummy card is ejected a little.

Figure 4-32 Removing the Dummy Card

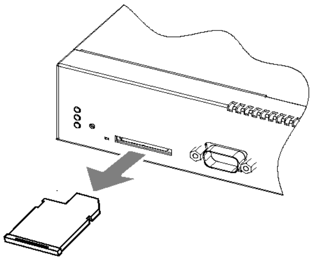


(1) Dummy Card

[Step 2]

Remove the dummy card.

Figure 4-33 Removing the Dummy Card



CAUTION Do not forcibly pull a locked dummy card to remove it. Otherwise, the connector part of the memory card slot might be damaged.

NOTE Store the removed dummy card securely.

4.8 Inserting and Removing SFPs

SFPs can be inserted and removed without turning off the switch.

4.8.1 Inserting and Removing SFP-T(T)

⚠CAUTION

The temperature of operating SFP-T(T) can rise up to 65 deg. C after a link is established. Do not touch it during or immediately after operation. Otherwise, you might get burned.
To remove SFP-T(T), do either of the steps below. Otherwise, you might get burned.

- When the device is on, block the SFP slot and wait for 5 minutes before removing the SFP.
- Turn off the device and wait for 5 minutes before removing the SFP.

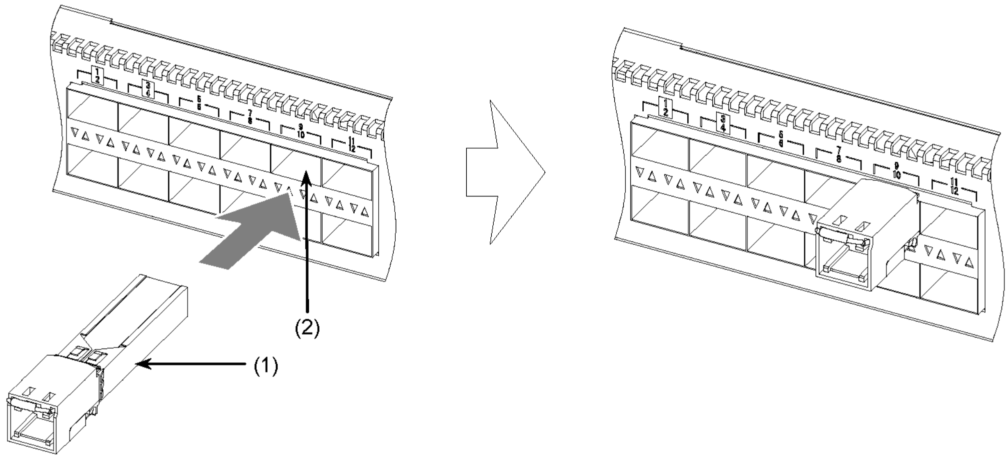
NOTE

To block the SFP slot, use the shutdown command. For details about the shutdown command, see *13. Ethernet* in the *Software Manual Configuration Guide Vol. 1*.

(1) Inserting

Keep the handle upright as shown in the figure and insert the SFP until you hear a click.

Figure 4-34 Inserting the SFP into an Upper Port

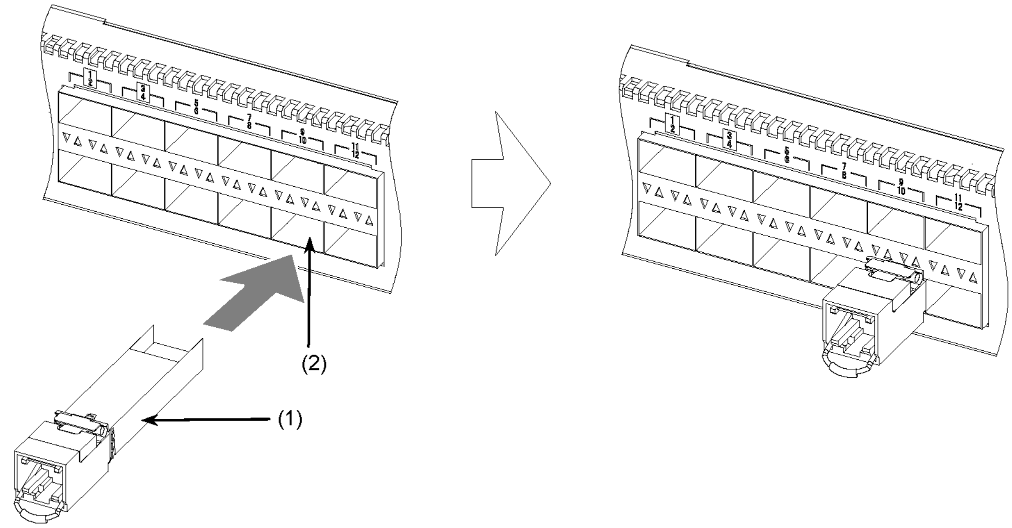


(1) SFP
(2) SFP slot

NOTE

The figure above shows how to install an SFP into an upper SFP slot of the AX3630S-24S2XW, AX3640S-24SW or AX3640S-24S2XW model. To install it into the lower SFP slot, flip it around as shown in the figure below.

Figure 4-35 Installing the SFP into a Lower Port

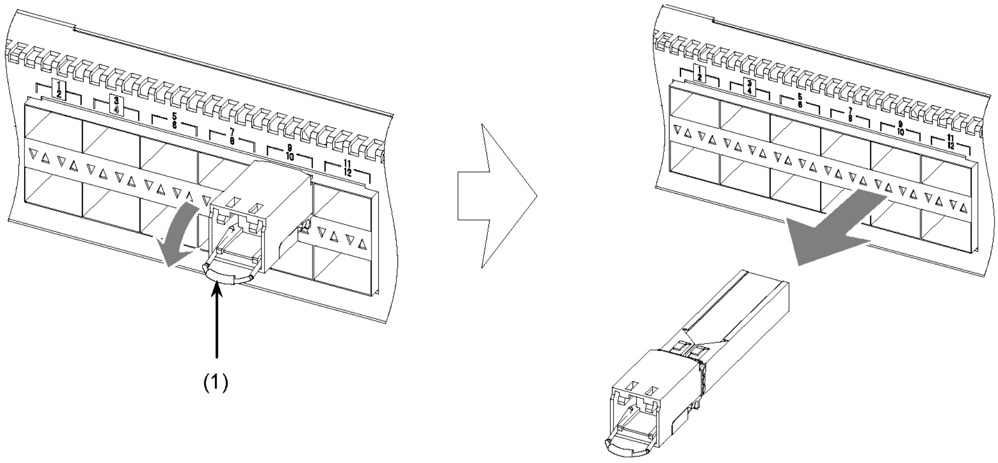


(1) SFP
(2) SFP slot

(2) Removing

Move down the handle in the direction of the arrow. Hold the handle to pull out the SFP.

Figure 4-36 Removing the SFP



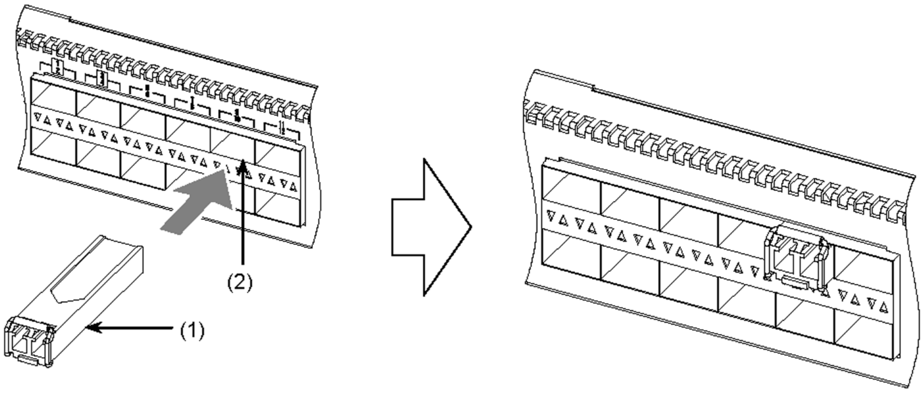
(1) Handle

4.8.2 Inserting or Removing SFP-SX (T)/SFP-SX2 (T)/SFP-LX (T)/ SFP-LH (T)/SFP-BX1U (T)/SFP-BX1D (T)/SFP-BX4U (T)/ SFP-BX4D (T)

(1) Inserting

Keep the handle upright as shown in the figure and insert the SFP until you hear a click.

Figure 4-37 Inserting the SFP into an Upper Port

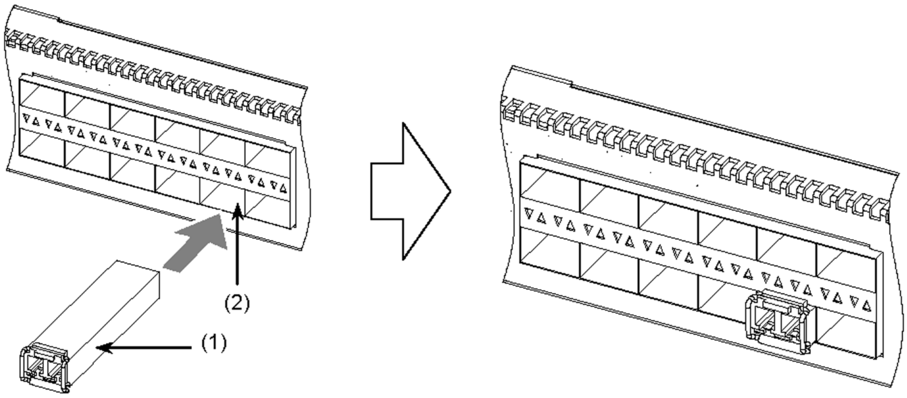


(1) SFP
(2) SFP slot

NOTE

The figure above shows how to install the SFP into an upper SFP slot of an AX3630S-24S2XW, AX3640S-24SW or AX3640S-24S2XW model. As for the other models with four SFP slots, install the SFP in the same way as shown in the figure above.
To install an SFP into a lower SFP slot of AX3630S-24S2XW, AX3640S-24SW or AX3640S-24S2XW, flip it around as shown in the figure below.

Figure 4-38 Installing an SFP into a Lower Port

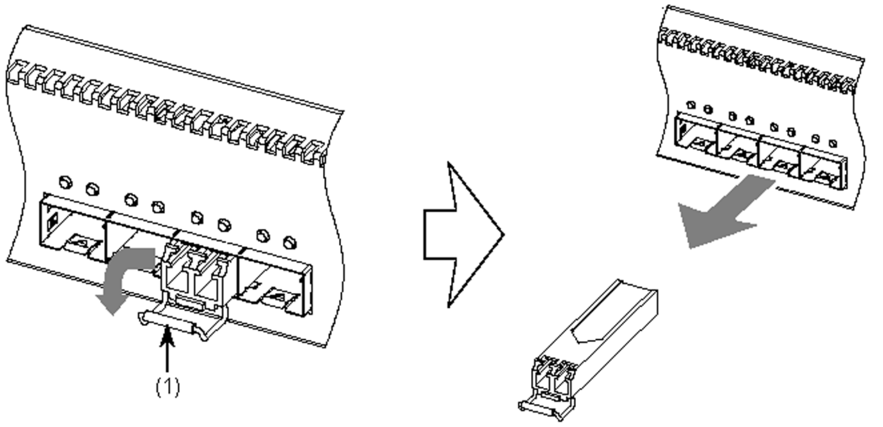


(1) SFP
(2) SFP slot

(2) Removing

Move down the handle in the direction of the arrow. Hold the handle to pull out the SFP.

Figure 4-39 Removing the SFP



(1) Handle

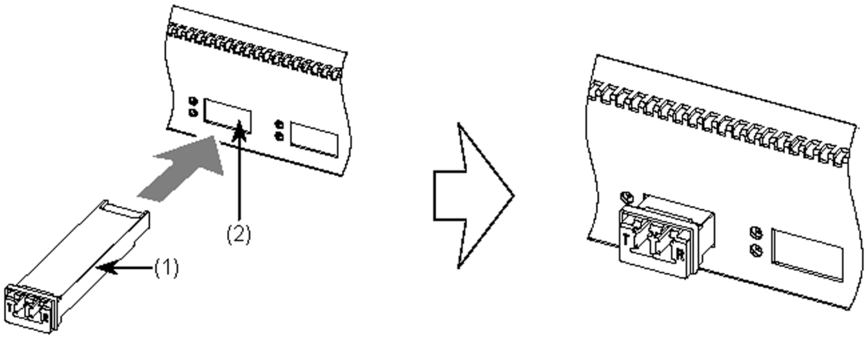
4.9 Inserting and Removing XFPs

XFPs can be inserted and removed without turning off the switch.

(1) Inserting

Keep the handle upright as shown in the figure and insert the XFP until you hear a click.

Figure 4-40 Inserting the XFP

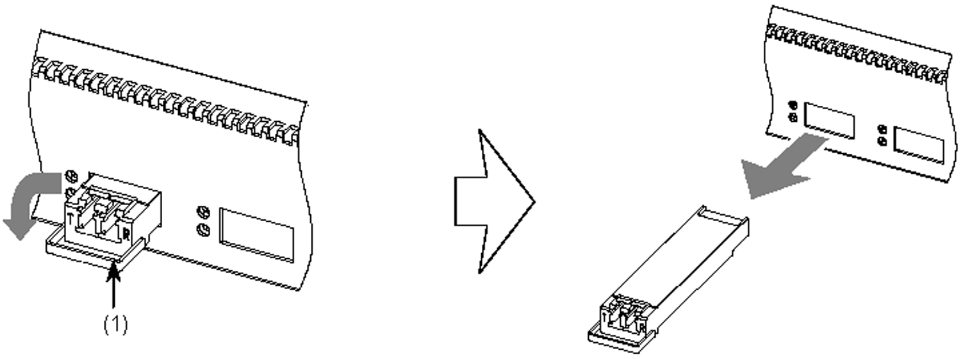


(1) XFP
(2) XFP slot

(2) Removing

Move down the handle in the direction of the arrow. Hold the handle to pull out the XFP.

Figure 4-41 Removing the XFP



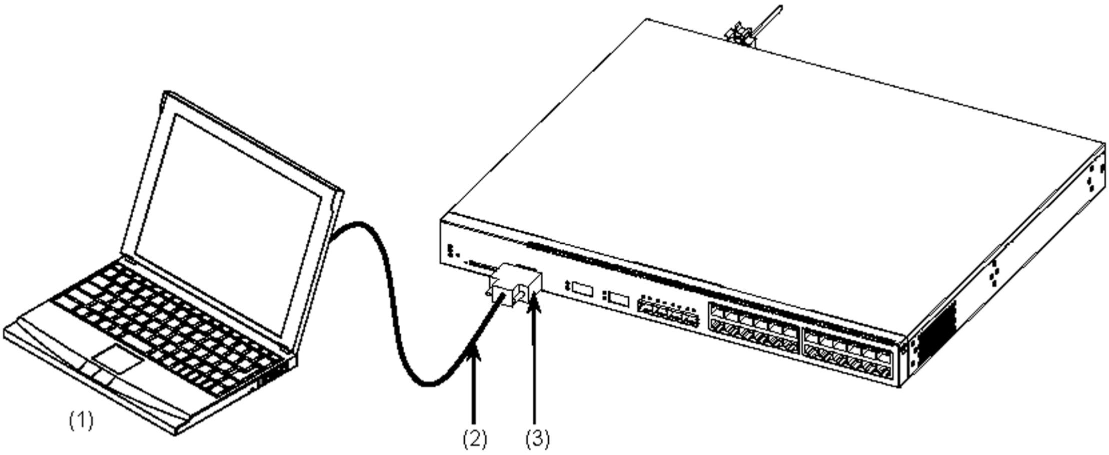
(1) Handle

4.10 Connecting a Setup Terminal

Connect a setup terminal to the CONSOLE port of the main device.

For this connection, use an RS-232C crossover cable with D-sub 9-pin female connectors on both ends.

Figure 4-42 Connection Schematic of the Setup Terminal

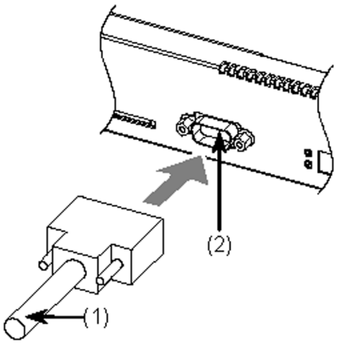


(1) Setup terminal
(2) RS-232C cable
(3) CONSOLE port

[Step 1]

Connect an RS-232C cable to the CONSOLE port of the main device.

Figure 4-43 Connecting the RS-232C Cable



(1) RS-232C cable
(2) CONSOLE port

NOTE

Tighten the screws after the connection and confirm that the connector is securely fastened.

[Step 2]

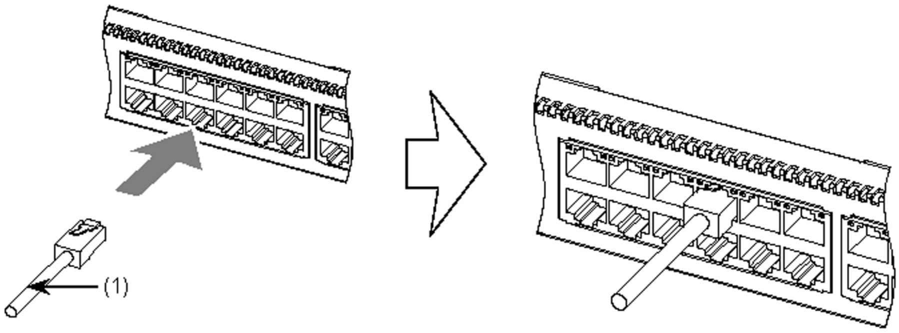
Connect an RS-232C cable to the setup terminal in the same way.

4.11 Connecting Interface Cables

(1) UTP Cable

Insert the connector until you hear a click.

Figure 4-44 Attaching the UTP cable



(1) UTP cable

NOTE

The figure above shows a connection to an Ethernet 10/100/1000BASE-T port of the main device. Connect the cable to the SFP-T(T) in the same way.

NOTE

For detaching the cable, pull out the connector with the tab held down.

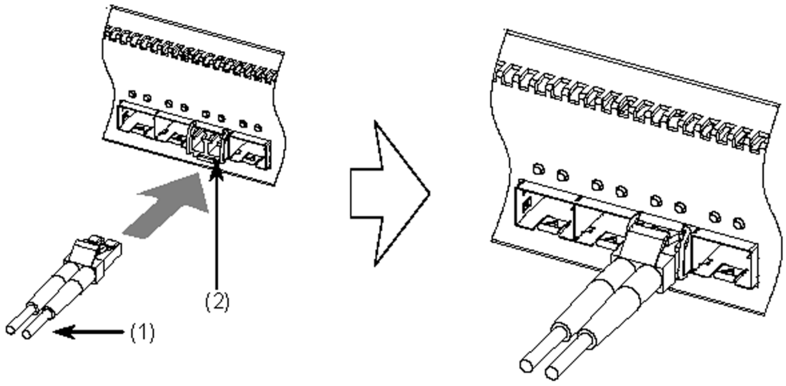
NOTE

For PoE connections, if the connected UTP cable is detached and attached again within two seconds, the power class of the power receiver device might not be correctly recognized. Wait for more than two seconds before attaching the cable again.

(2) Optical Fiber Cable (LC Duplex Connector)

Insert the connector until you hear a click.

Figure 4-45 Optical Fiber Cable (LC Duplex Connector)



(1) Optical fiber cable (LC duplex connector)
(2) Transceiver

NOTE

To clean the optical connector, see *Appendix A Cleaning Optical Connectors*.

NOTE

For detaching the cable, pull out the connector with the tab held down.

NOTE

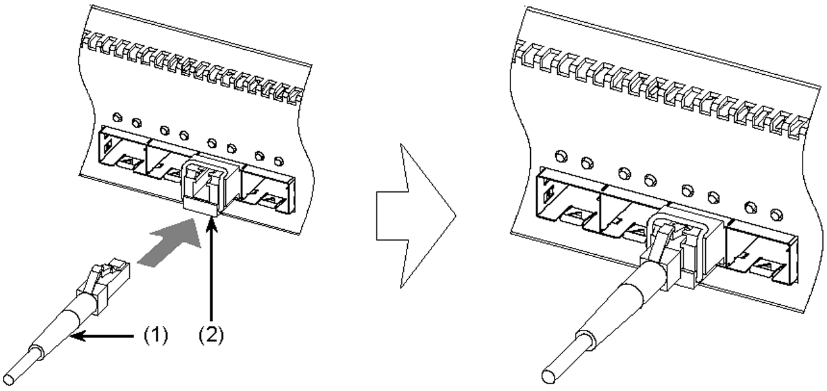
The figure above shows a connection to an SFP. Connect XFPs in the same way.

---

(3) Optical Fiber Cable (LC Simplex Connector)

Insert the connector until you hear a click.

Figure 4-46 Optical Fiber Cable (LC Simplex Connector)



(1) Optical fiber cable (LC simplex connector)
(2) Transceiver

NOTE

To clean the optical connector, see *Appendix A Cleaning Optical Connectors*.

NOTE

For detaching the cable, pull out the connector with the tab held down.

4.12 Powering the Main Device On and Off

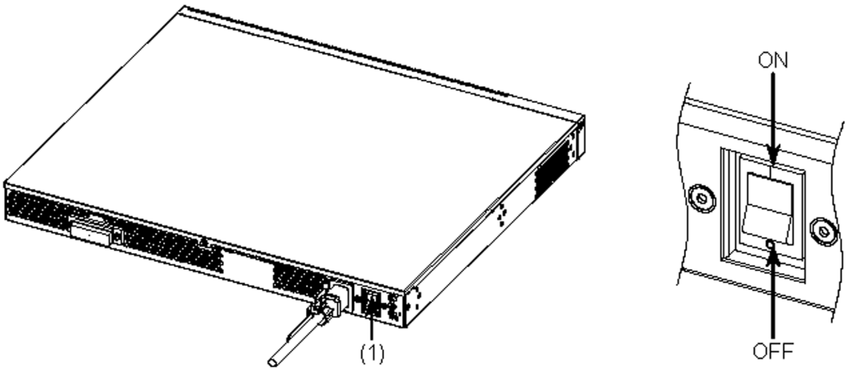
4.12.1 AC Power and AC (PoE) Models

NOTE The description below is about powering the AC power model on and off. The same procedures are applicable to the AC (PoE) models.

(1) Power On

Turn on the power switch on the back face of the device.

Figure 4-47 Power On (AC Power Model)



(1) Power switch

NOTE To supply backup power from the EPU, also turn on the EPU and the power supply module. To turn on the EPU and the power supply module, see 4.13 Powering the External Power Unit (EPU) On or Off.

(2) Power Off

Turn off the power switch on the back face of the device.

⚠CAUTION When backup power is supplied from the EPU, turning off the power switch of the device does not shut off the power supply to the device.
Turn off the power supply module which supplies backup power as well as the main device.

CAUTION The device is accessing the memory card while the ACC LED is lighting. Do not remove the memory card or turn off the device. Otherwise, the memory card may be damaged.
In addition, some commands take long time to complete accessing the memory card after entered. Confirm the access has ended before removing the memory card or turning the power supply off.

CAUTION

In the following situations, do not switch off the device until the blinking ST1 LED in green turns to lighting continuously in green. Otherwise, the device may break down.

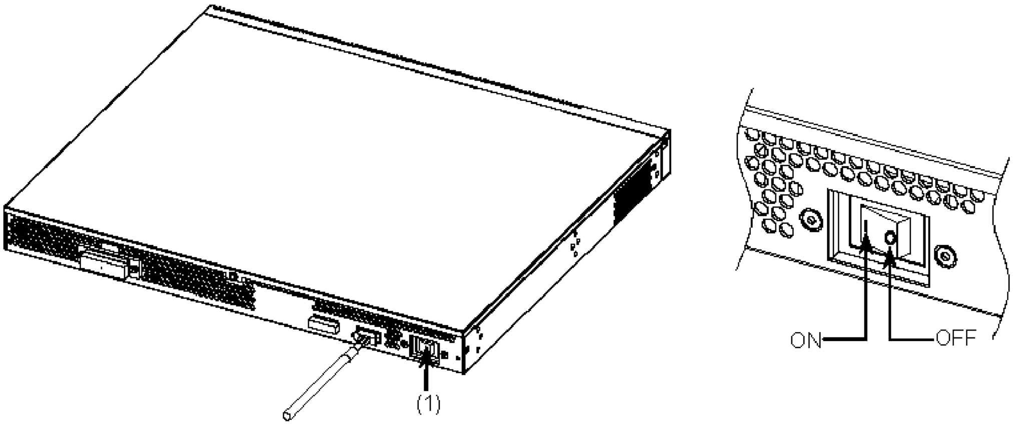
- Updating software

4.12.2 DC Power Model

(1) Power On

Turn on the power switch on the back face of the device.

Figure 4-48 Power On (DC Power Model)



(1) Power switch

(2) Power Off

Turn off the power switch on the back face of the device.

CAUTION

The device is accessing the memory card while the ACC LED is lighting. Do not remove the memory card or turn off the device. Otherwise, the memory card may be damaged.
In addition, some commands take long time to complete accessing the memory card after entered. Confirm the access has ended before removing the memory card or turning the power supply off.

CAUTION

In the following situations, do not switch off the device until the blinking ST1 LED in green turns to lighting continuously in green. Otherwise, the device may break down.

- Updating software

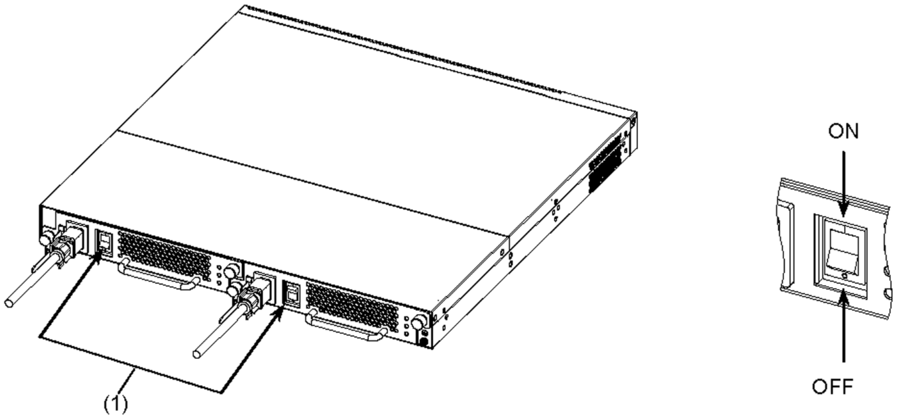
4.12.3 Power Redundancy Model

NOTE The description below is about powering the device on and off with a PS-A01. The same procedures are applicable to the device with PS-D01.

(1) Power On

Turn on all the power switches on the back face of the device.

Figure 4-49 Power On (Power Redundancy Model)



(1) Power switch

NOTE For devices with redundant power supplies, if one of the power switches is turned off, a power failure might be detected and the ST1 LED might blink red.
Turn on all the power switches to recover from the power failure.

(2) Power Off

Turn off all power switches on the back face of the device.

⚠WARNING

For devices with redundant power supplies, turning off either power switch does not shut off the power to the device.
Turn off the switches of all power units mounted on the device to shut it off.

CAUTION

The device is accessing the memory card whenever the ACC LED is lit it. Do not remove the memory card or turn off the device. Otherwise, the memory card might be damaged.
In addition, some commands take a long time to access the memory card after being executed. Confirm that access has ended before removing the memory card or turning the power supply off.

CAUTION

In the following situations, do not switch off the device until the blinking ST1 LED in green turns to lighting continuously in green. Otherwise, the device might break down.

- Updating software

4.13 Powering the External Power Unit (EPU) On or Off

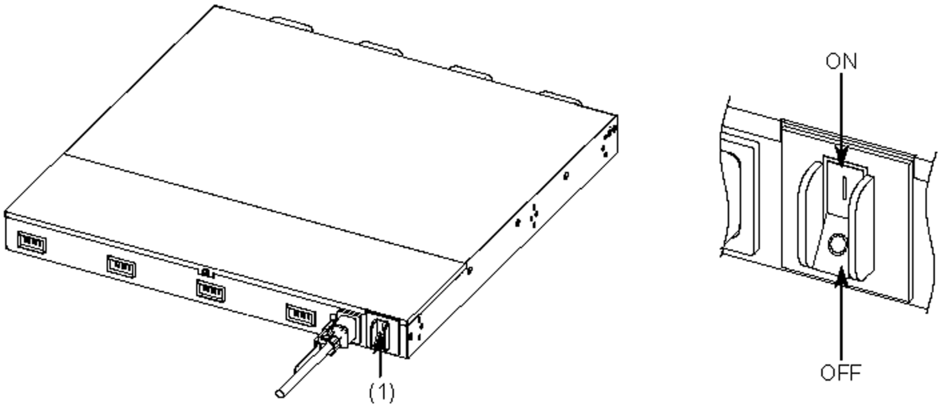
4.13.1 EPU-A

(1) Power On

[Step 1]

Turn on the main power switch on the back face of the EPU.

Figure 4-50 Power On (Main Body of the EPU)



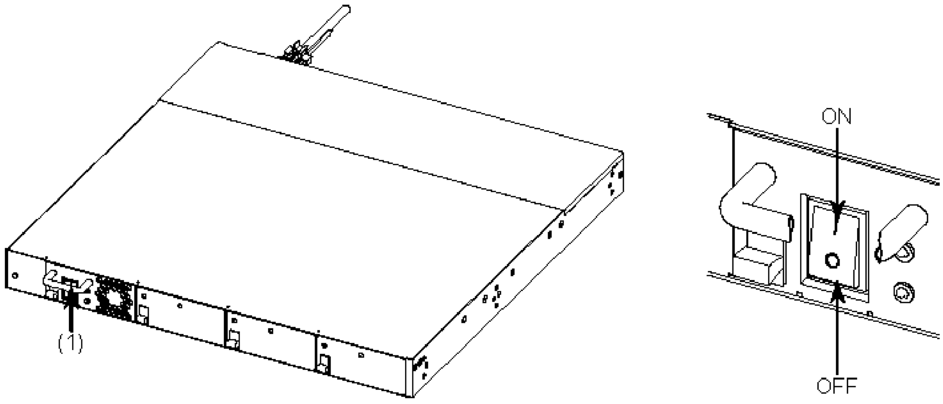
(1) Main power switch

CAUTION Prior to turning on the main switch of the EPU, make sure all power switches of the mounted power supply modules are turned off.

[Step 2]

Turn on the power supply modules.

Figure 4-51 Power On (Power Supply Module)



(1) Power switch

(2) Power Off

Turn off the main switch of the EPU to shut off all backup power supply to the device.

[Step 1]

Turn off the power supply modules.

NOTE

Check the cable connection on the back face of the EPU and switch off the power supply module to stop.

[Step 2]

When all power supply modules are switched off, turn off the main switch on the back face of the EPU.

⚠CAUTION

When the main switch of the EPU is turned off, all backup power supply to the device is shut off. When backup power is still supplied to the device, do not turn off the main switch of the EPU.

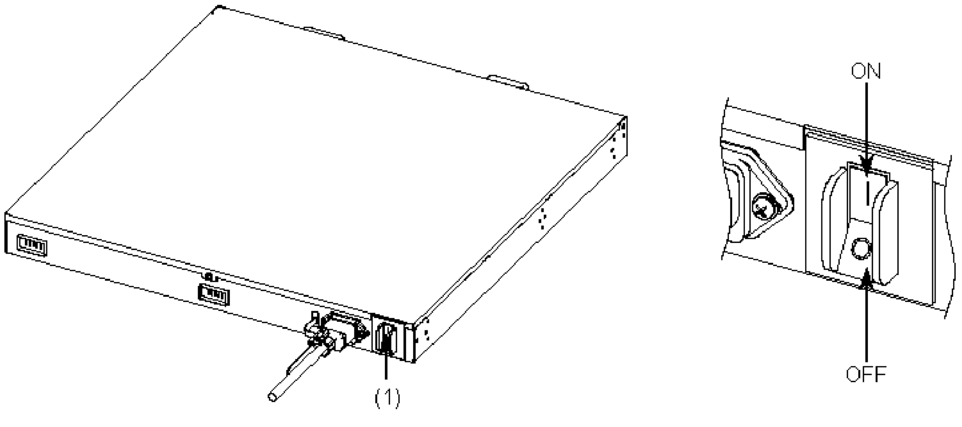
4.13.2 EPU-B

(1) Power On

[Step 1]

Turn on the main power switch on the back face of the EPU.

Figure 4-52 Power On (Main Body of the EPU)



(1) Main power switch

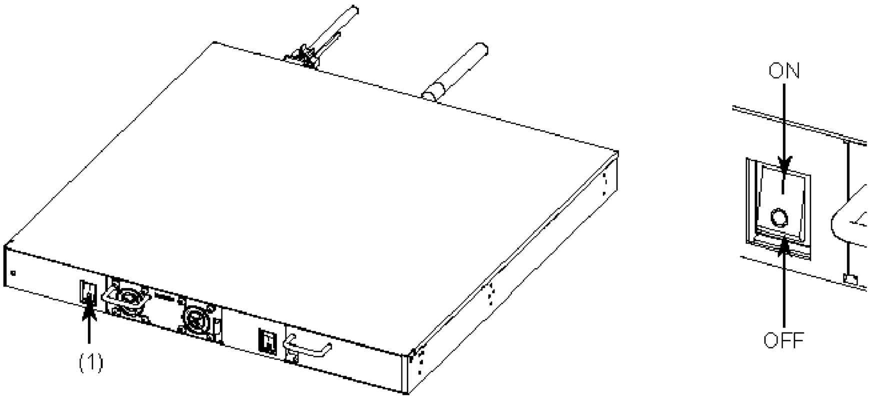
CAUTION

Prior to turning on the main switch of the EPU, make sure all power switches of the mounted power supply modules are turned off.

[Step 2]

Turn on the power supply modules.

Figure 4-53 Power On (Power Supply Module)



(1) Power switch

(2) Power Off

[Step 1]

Turn off the power supply modules.

NOTE

Check the cable connection on the back face of the EPU and switch off the power supply module to stop.

[Step 2]

When all power supply modules are switched off, turn off the main switch on the back face of the EPU.

⚠CAUTION

When the main switch of the EPU is turned off, all backup power supply to the device is shut off. When backup power is still supplied to the device, do not turn off the main switch of the EPU.

4.14 Miscellaneous Operations

(1) Time Setting

The clock is not set on delivery. Specify the current time.

To set the time, see the corresponding manual shown below.

Table 4-1 Manuals for Time Setting

Series	Manual
AX2400S Series	AX2400S Software Manual Configuration Guide Vol. 1
AX3600S Series	AX3600S Software Manual Configuration Guide Vol. 1

NOTE

The time setting of the device is retained for about ten days after being shut down. After more than ten days, the clock is reset when the device is turned on the next time.

(2) Operation Management and Configuration Settings

For details about operation management and configuration settings, see the corresponding manuals in Table 4-2 Manuals for Operation Management and Configuration Settings.

For details about the operation commands and the configuration commands, see the respective manuals in Table 4-3 Manuals for Detailed Operation Commands and Table 4-4 Manuals for Detailed Configuration Commands.

Table 4-2 Manuals for Operation Management and Configuration Settings

Series	Manual
AX2400S Series	AX2400S Software Manual Configuration Guide Vol. 1 AX2400S Software Manual Configuration Guide Vol. 2
AX3600S Series	AX3600S Software Manual Configuration Guide Vol. 1 AX3600S Software Manual Configuration Guide Vol. 2 AX3600S Software Manual Configuration Guide Vol. 3

Table 4-3 Manuals for Detailed Operation Commands

Series	Manual
AX2400S Series	AX2400S Software Manual Operation Command Reference
AX3600S Series	AX3600S Software Manual Operation Command Reference Vol. 1 AX3600S Software Manual Operation Command Reference Vol. 2

Table 4-4 Manuals for Detailed Configuration Commands

Series	Manual
AX2400S Series	AX2400S Software Manual Configuration Command Reference
AX3600S Series	AX3600S Software Manual Configuration Command Reference Vol. 1 AX3600S Software Manual Configuration Command Reference Vol. 2

NOTE

After configuration settings, make sure to back up the operating information for easy restoration in case that a fault occurs and some components are replaced.
For details about back up operations, see *11. Device Management* in the *Software Manual Configuration Guide Vol. 1*.

(3) System Interoperation Tests

Before actual system operation, conduct a test to check the configuration settings.

(4) Troubleshooting

For countermeasures against problems, see the corresponding manual shown below.

Table 4-5 Troubleshooting Manual

Series	Manual
AX2400S Series	AX6700S, AX6300S, AX3600SEAX2400S Troubleshooting Guide
AX3600S Series	

5

Expansion, Replacement and Removal

This chapter describes the procedures to expand, replace and remove the main devices, external power units (EPUs) and power supply modules.

5.1 Necessary Tools

The following tools are necessary to expand, replace or remove the components:

Phillips screwdriver no. 1:

Use this screwdriver to attach the rack mounted brackets to the device and to installing or removing a power supply and a fan unit to or from the power redundancy model.

Phillips screwdriver no. 2:

Use this screwdriver to install or remove the device to or from the rack and to connect or disconnect the ground cable to or from the DC power model and the power redundancy model.

Antistatic wrist strap:

Protect the device from electrostatic discharge.

5.2 Precautions Before Starting an Installation

⚠CAUTION

Do not put your hands inside the device carelessly. The components may cause the injury.

⚠CAUTION

For EPUs, use blank panels to cover the slots which do not contain power supply modules. Otherwise, the components might cause an injury or invading foreign matters might cause a failure.

CAUTION

Prior to mounting/dismounting the power supply module, turn off the switch of it.

CAUTION

Make sure to wear the antistatic wrist strap. Handling the device without the antistatic wrist strap may damage the device due to electrostatic discharge.

CAUTION

Do not touch the parts or the soldered surfaces on the power supply module. For storage, put the module in an antistatic bag.

5.3 Expansion, Replacement and Removal of Main Devices

This section describes the procedures for installing or uninstalling the main device.

Follow the steps shown in *Figure 5-1 Steps to Uninstall the Device* to uninstall the device. For installations, perform the steps in reverse.

NOTE

The figures below show the AC power model with the external power unit (EPU). The same procedures are applicable to the AC (PoE) model with the EPUs.

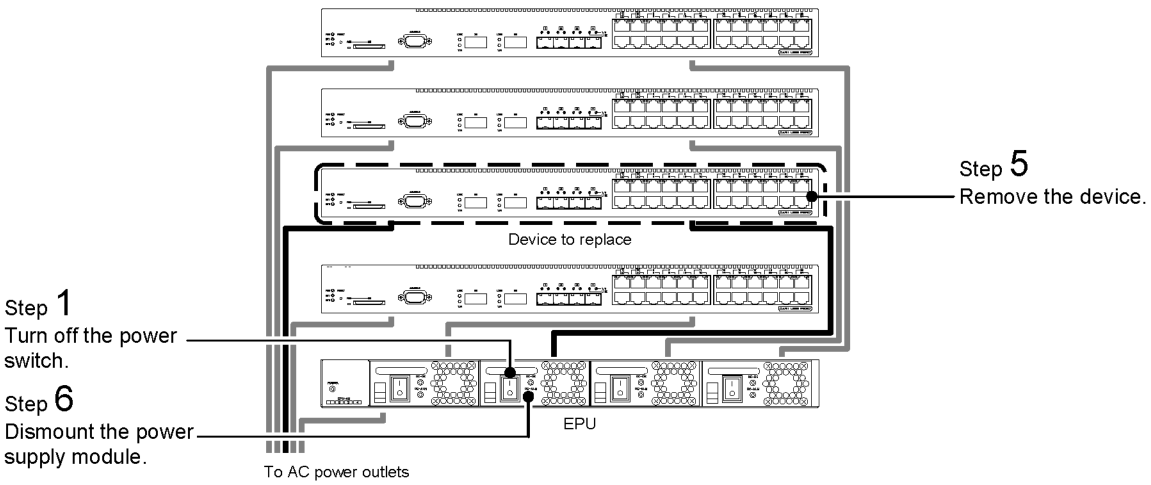
NOTE

Skip steps 1, 3 and 6 in the cases below. Perform only steps 2, 4 and 5.

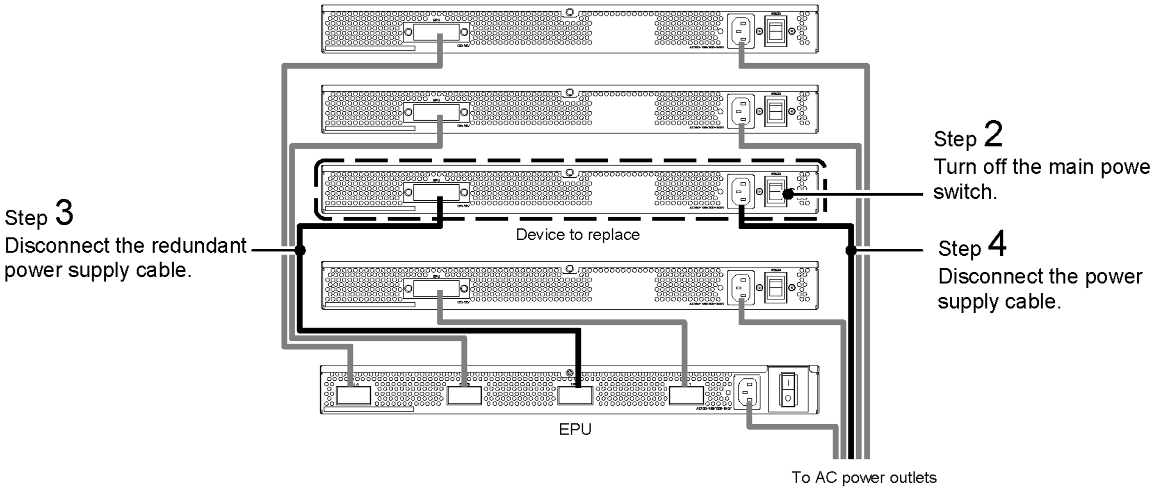
- AC power and AC (PoE) models without EPU
- DC power and power redundancy models

Figure 5-1 Steps to Uninstall the Device

[Front face]



[Rear face]


Step 2
Turn off the main powe switch.
Step 3
Disconnect the redundant power supply cable.
Device to replace
Step 4
Disconnect the power supply cable.
EPU
To AC power outlets

⚠**CAUTION**

Do not put your hands inside the device carelessly. The components may cause the injury.

⚠**CAUTION**

When moving the power redundancy model, do not hold the handle of the power supply or the fan unit. The handle might come off, causing the device to fall, which might cause injury. Or the device might become distorted and cause a fire or electric shock.

CAUTION

Prior to mounting/dismounting the power supply module, turn off the switch of it.

CAUTION

Do not touch the parts or the soldered surfaces on the power supply module. For storage, put the module in an antistatic bag.

(1) Uninstallation

[Step 1]

Check the EPU and the slot from which backup power is supplied to a device. Turn off the power supply module mounted in the slot.

[Step 2]

Turn off the main device.

[Step 3]

Disconnect the stand-by power supply cable from the main device and the EPU.

[Step 4]

Disconnect the AC power supply cable from the main device.

[Step 5]

Remove the main device.

[Step 6]

The EPU and the power supply module used for a backup power supply to the switch can be reused for other switches. Place them as they are if you intend to use them repeatedly, or else, remove them.

⚠CAUTION

When the EPU is used with the removed power supply module, install the blank panel. Otherwise, the components may cause the injury or invading foreign matters may cause failure.

(2) Installing

[Step 1]

Install the switch.

[Step 2]

Mount the power supply module to the EPU.

[Step 3]

Connect the AC power supply cable to the switch.

[Step 4]

Connect the stand-by power supply cable to the switch and the EPU.

[Step 5]

Turn on the switch.

[Step 6]

Turn on the power supply module to output power to the switch.

NOTE

After replacement of the main device, restore operating information when the device starts up. Use the restore command for restoration of operating information. For details about the restore command, see *8. Software Version and Switch Status Check* in the manual *Software Manual Operation Command Reference*.

5.4 Expansion, Replacement and Removal of Power Supplies

This section describes the procedures to expand, replace and remove the power supplies in the power redundancy models.

Power supplied can be added, replaced, and removed while the switch is on.

⚠CAUTION

After a power supply is removed, mount a fan unit. Otherwise, the air flow of the device is not guaranteed and a failure might occur due to increasing temperatures inside the device.

CAUTION

When a power supply is replaced while the switch is still on, do not leave the switch on for more than three minutes without a power supply. Otherwise, a failure might occur due to increasing temperatures inside the device.

NOTE

When using only one power supply, insert the power supply into power supply slot 1 and the fan unit to power supply slot 2.
To install the fan unit, see *5.5 Replacement of Fan Unit*.

NOTE

The figures below show the power supply for AC power supplies.The same procedures are applicable to the power supply for DC power supplies.

(1) Removing

[Step 1]

Turn off the power supply to be replaced.

[Step 2]

Disconnect the power supply cable from the power supply to be replaced.

⚠WARNING

For the extension or replacement of a power supply, disconnect the power supply cable from the power supply to be replaced. When the power supply cable is connected, part of the circuit is energized even though the power switch is off. Therefore, the extension or replacement of the power supply with the power supply cable connected can cause a fire or an electric shock.

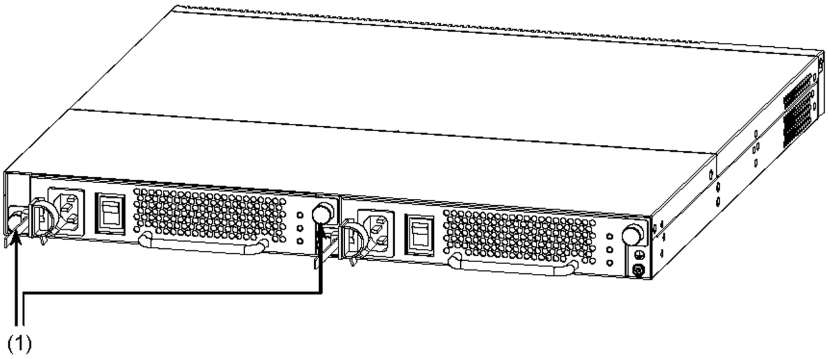
NOTE

To change the power supply from a DC power supply to an AC power supply, disconnect the power supply cable and then the ground cable. Store the removed ground cable securely.

[Step 3]

Loosen the screws of the power supply.

Figure 5-2 Removing the Power Supply 1

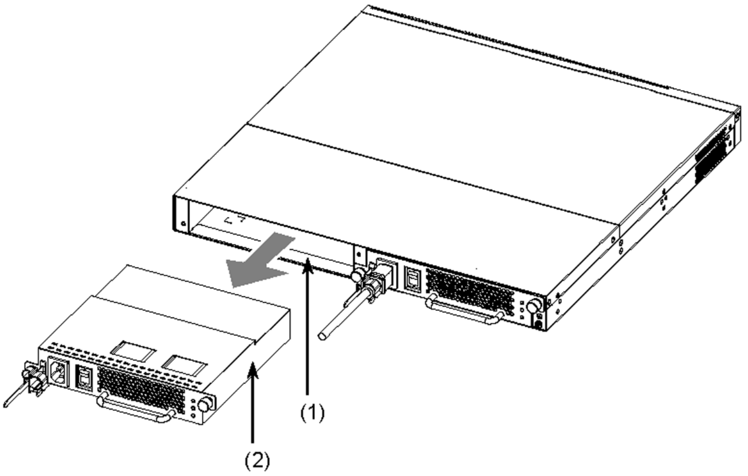


(1) Screws

[Step 4]

Hold the handle of the power supply and pull it a little. Supporting the bottom, pull out the power supply.

Figure 5-3 Removing the Power Supply 2



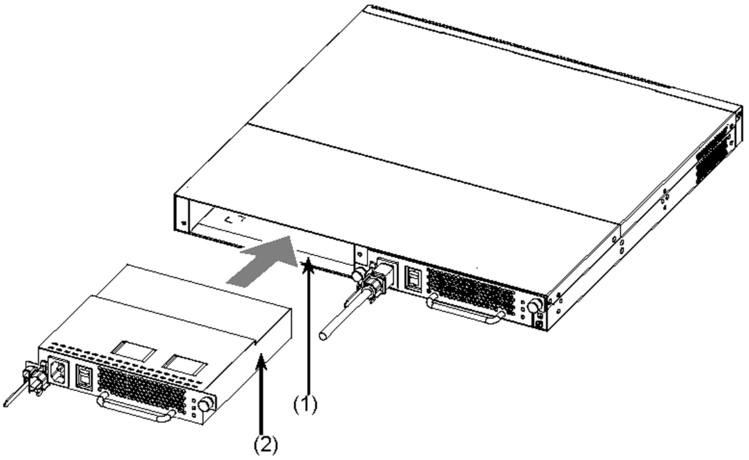
(1) Power supply slot
(2) Power supply

(2) Installing

[Step 1]

Insert the power supply into the power supply slot.

Figure 5-4 Connecting the Power Supply 1

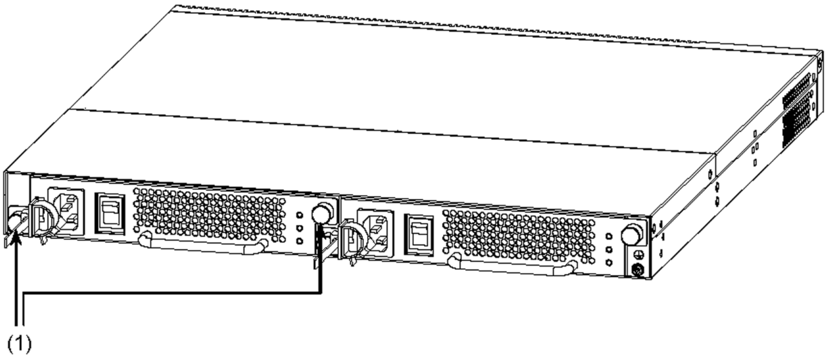


(1) Power supply slot
(2) Power supply

[Step 2]

Tighten the screws of the power supply.

Figure 5-5 Connecting the Power Supply 2



(1) Screw

[Step 3]

Connect the power supply cable to the power supply.

[Step 4]

Turn on the power supply.

5.5 Replacement of a Fan Unit

This section describes the procedures to replace the fan unit in the power redundancy model.

The fan unit can be removed while the switch is on.

CAUTION

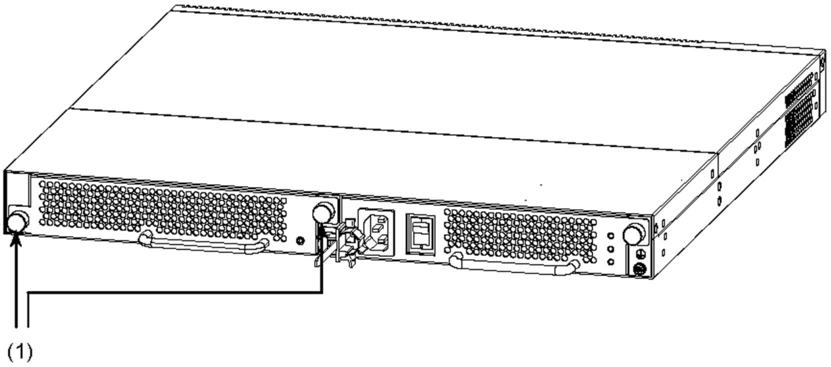
When the fan unit is replaced while the switch is still on, do not leave the device for more than three minutes without a replacement fan unit. Otherwise, a failure might occur due to increasing temperatures inside the switch.

(1) Removing

[Step 1]

Loosen the screws of the fan unit.

Figure 5-6 Removing the Fan Unit 1

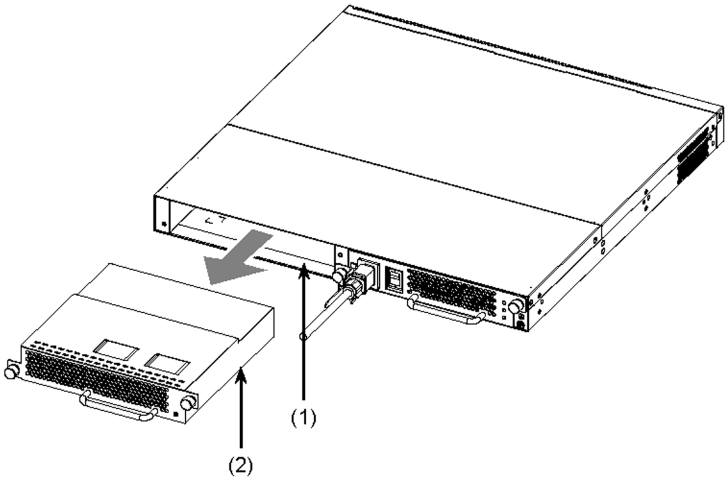


(1) Screws

[Step 2]

Hold the handle of the fan unit and pull it a little. Supporting the bottom, pull out the fan unit.

Figure 5-7 Removing the Fan Unit 2



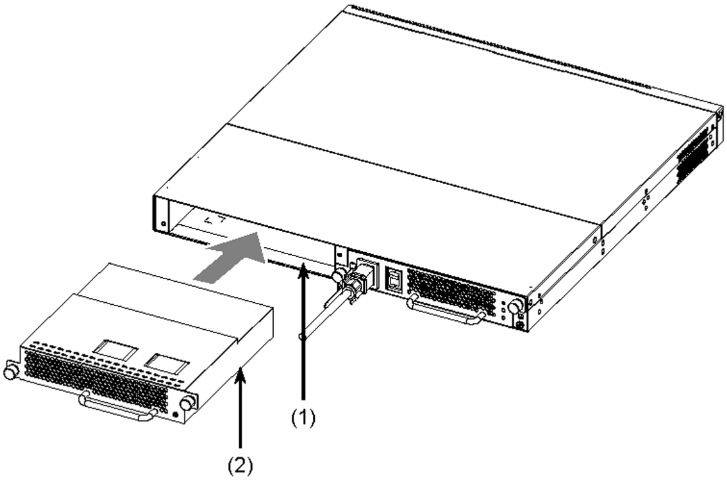
(1) Power supply slot 2
(2) Fan unit

(2) Inserting

[Step 1]

Insert the fan unit into power supply slot 2.

Figure 5-8 Inserting the Fan Unit 1

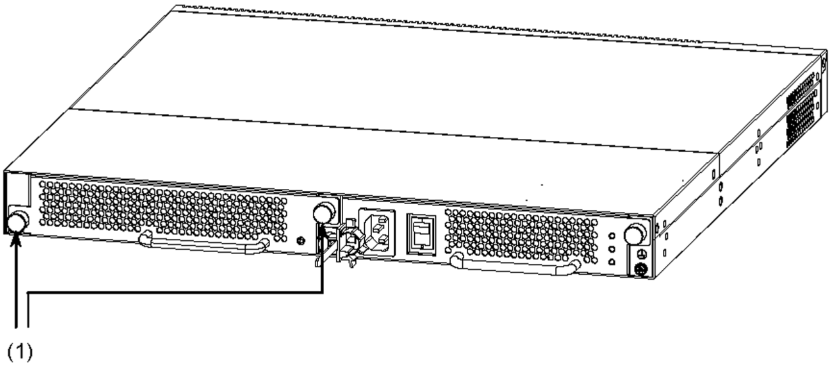


(1) Power supply slot 2
(2) Fan unit

[Step 2]

Tighten the screws of the fan unit.

Figure 5-9 Inserting the Fan Unit 2



(1) Screws

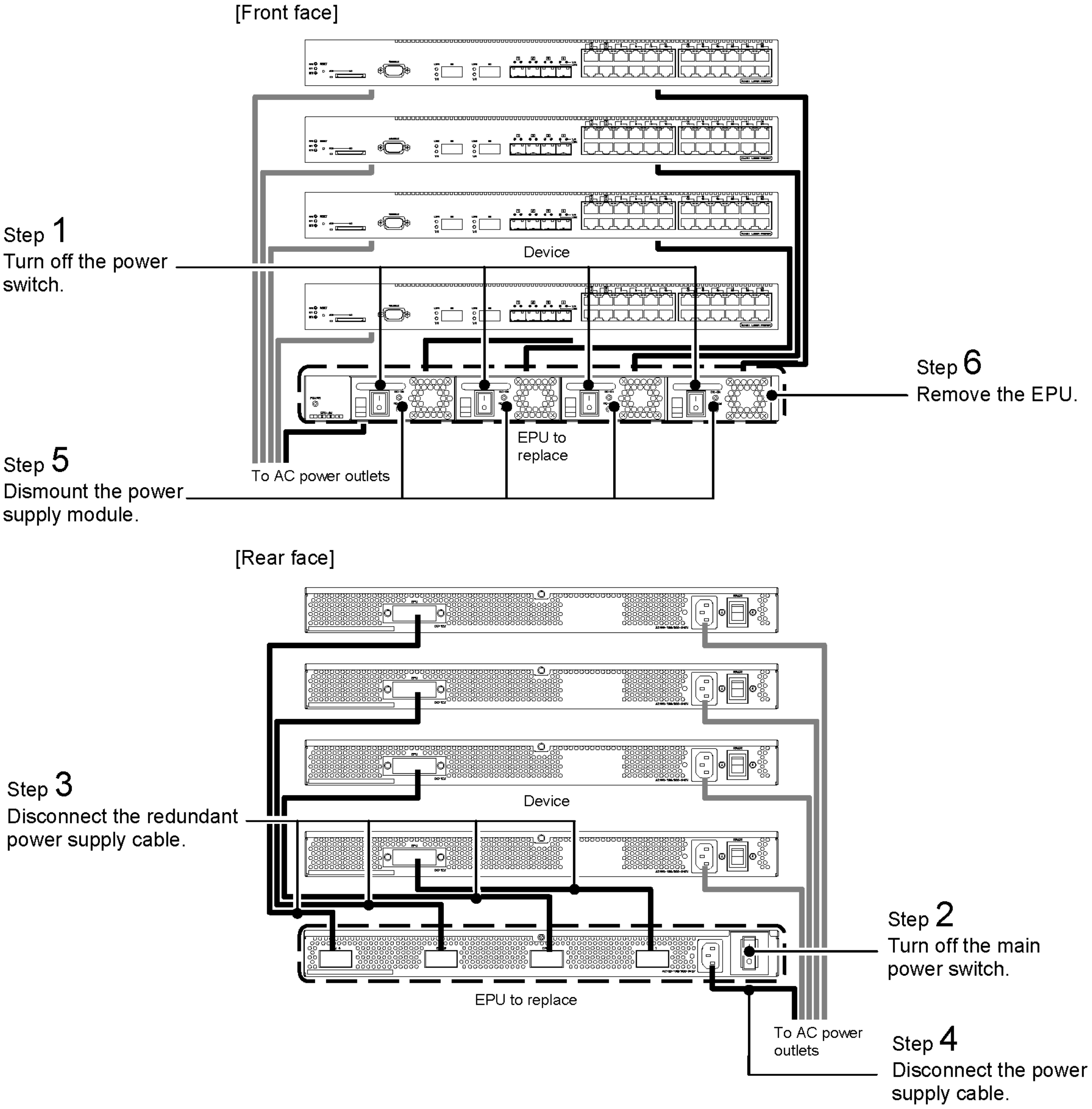
5.6 Expansion, Replacement and Removal of External Power Units (EPUs)

This section describes the procedures for installing and uninstalling the EPUs.

Follow the steps shown in *Figure 5-10 Steps to Replace the EPU* to uninstall the EPU. For installation, perform the steps in reverse.

NOTE The figures below shows an EPU-A. The same procedures are applicable to an EPU-B.

Figure 5-10 Steps to Replace an EPU


[Front face]
Step 1
Turn off the power switch.
Device
Step 6
Remove the EPU.
EPU to replace
Step 5
Dismount the power supply module.
To AC power outlets
[Rear face]
Step 3
Disconnect the redundant power supply cable.
Device
Step 2
Turn off the main power switch.
EPU to replace
To AC power outlets
Step 4
Disconnect the power supply cable.

⚠CAUTION

Do not put your hands inside the device carelessly. The components may cause the injury.

⚠CAUTION

When moving the EPU, do not hold the handle of the power supply modules. The handle might come off, causing the device to fall, which might cause injury. Or the EPU might be distorted, possibly causing a fire or an electric shock.

CAUTION

Prior to mounting/dismounting the power supply module, turn off the switch of it.

CAUTION

Do not touch the parts or the soldered surfaces on the power supply module. For storage, put the module in an antistatic bag.

(1) Removing

[Step 1]

Turn off the power supply modules.

[Step 2]

Turn off the main power switch of the EPU.

[Step 3]

Disconnect all stand-by power supply cables from the switch and the EPU.

[Step 4]

Disconnect the AC power supply cable from the EPU.

[Step 5]

Remove all power supply modules installed in Slots 2, 3 and 4.

NOTE

As for EPU-Bs, remove the power supply module installed in slot 2.

[Step 6]

Remove the EPU.

(2) Installing

[Step 1]

Install the EPU.

[Step 2]

Mount the power supply module to the EPU.

[Step 3]

Connect the AC power supply cable to the EPU.

[Step 4]

Connect the stand-by power supply cables to the switches and the EPU.

[Step 5]

Turn on the main power switch of the EPU.

[Step 6]

Turn on the power supply modules.

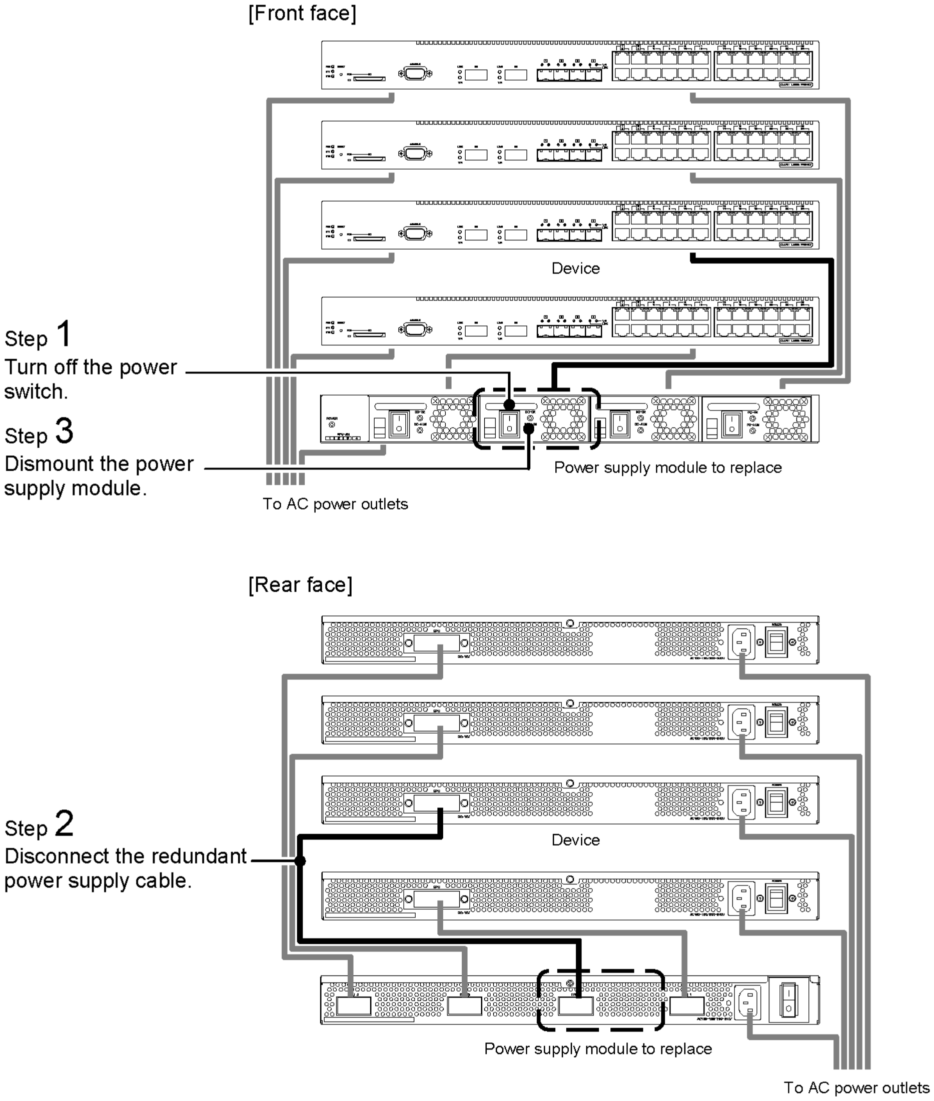
5.7 Expansion, Replacement and Removal of Power Supply Modules

This section describes the procedures to install and remove the power supply modules while the EPU is on.

Follow the steps shown in *Figure 5-11 Replacement of the Power Supply Modules* to remove the power supply module. For installation, perform them in reverse.

NOTE The figures below show an EPU-AM. The same procedures are applicable to an EPU-BM.

Figure 5-11 Replacement of the Power Supply Modules



[Front face]

Step 1
Turn off the power switch.

Step 3
Dismount the power supply module.

Device
Power supply module to replace
To AC power outlets

[Rear face]

Step 2
Disconnect the redundant power supply cable.

Device
Power supply module to replace
To AC power outlets

⚠CAUTION

Do not put your hands inside the device carelessly. The components may cause the injury.

CAUTION

Prior to mounting/dismounting the power supply module, turn off the switch of it.

CAUTION

Do not touch the parts or the soldered surfaces on the power supply module. For storage, put the module in an antistatic bag.

(1) Removing

[Step 1]

Turn off the power supply module to replace.

[Step 2]

Disconnect the stand-by power supply cable from the main device and the EPU.

[Step 3]

Remove the power supply module.

⚠CAUTION

When the EPU is used with the removed power supply module, install the blank panel. Otherwise, the components may cause the injury or invading foreign matters may cause failure.

(2) Installing

[Step 1]

Mount the power supply module to the EPU.

NOTE

Remove the blank panel to extend the power supply module. Store the removed blank panel securely.

[Step 2]

Connect the stand-by power supply cable to the main device and the EPU.

[Step 3]

Turn on the power supply modules.

Appendix

Appendix A Cleaning Optical Connectors

Appendix A.1 Cleaning Optical Connectors of Transceivers

Follow the procedures below to clean the optical connector of the transceiver.

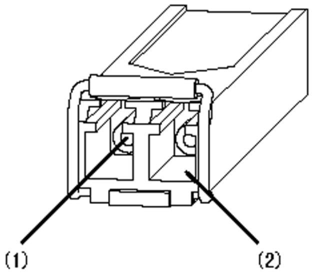
⚠CAUTION A laser beam, which is colorless and invisible, is used. Do not directly look into the optical transmitter/receiver part.

NOTE The figures below show the way to clean the optical connector of SFPs. The same procedures are applicable to XFPs.

[Step 1]

Use an air duster to remove foreign particle and dust in the optical connector.

Figure A-1 Optical Connector and the End of the Ferrule



(1) Ferrule end (inner position from the line)

(2) Optical connector

⚠WARNING When the air duster gas is combustible, do not use it near fire. Otherwise, a fire may be caused.

CAUTION Use the special air duster for cleaning optical connectors. Otherwise, the ferrule end may be contaminated.

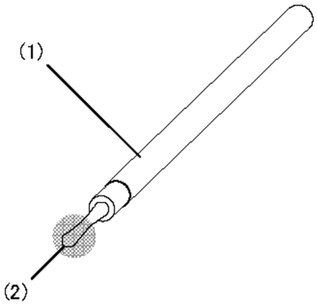
CAUTION Do not touch the air duster nozzle or the bottle to the ferrule end. Otherwise, a failure may be caused.

NOTE See the instructions of the air duster before use.

[Step 2]

Check the tip of the stick-type optical connector cleaner for torn surface fabric, stains and foreign substances.

Figure A-2　Check of the Optical Connector Cleaner



(1) Stick-type optical connector cleaner
(2) Part to check

CAUTION

Check the tip of the optical connector cleaner for torn surface fabric, stains and foreign substances before cleaning the connector.
The faulty tip might damage the ferrule end.

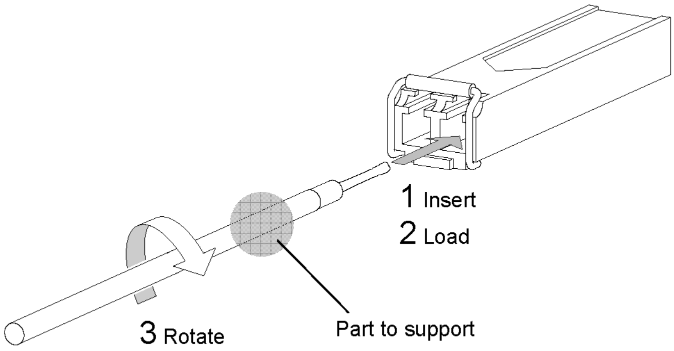
CAUTION

Make sure to use a dedicated optical connector cleaner. Otherwise, the ferrule end may be contaminated.

[Step 3]

Use the stick-type optical connector cleaner to clear any adhered dirt from the ferrule end.

Figure A-3 Cleaning the Ferrule End



CAUTION Do not apply excessive pressure for cleaning. Otherwise, the ferrule end may be damaged.

CAUTION Rotate the optical connector cleaner only clockwise. Rotating it clockwise and counterclockwise alternately may damage the ferrule end.

NOTE See the instructions of the optical connector cleaner before use.

Appendix A.2 Cleaning Optical Fiber Cables

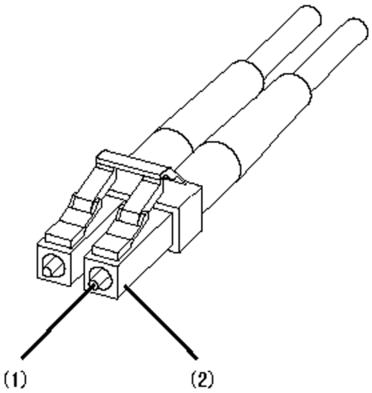
Follow the procedures below to clean the connector of the optical fiber cable.

⚠CAUTION A laser beam, which is colorless and invisible, is used. Do not directly look into the optical transmitter/receiver part.

[Step 1]

Use the air duster to remove foreign particles and dust on the tip of the connector.

Figure A-4 Connector and the End of Ferrule



(1) Ferrule end
(2) Connector

⚠WARNING When the air duster gas is combustible, do not use it near fire. Otherwise, a fire may be caused.

CAUTION Use the special air duster for cleaning optical connectors. Otherwise, the ferrule end may be contaminated.

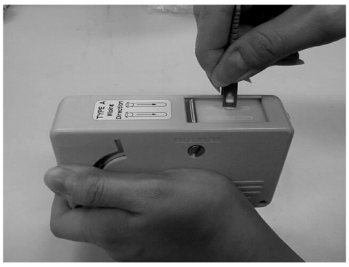
CAUTION Do not touch the air duster nozzle or the bottle to the ferrule end. Otherwise, a failure may be caused.

NOTE See the instructions of the air duster before use.

[Step 2]

Use a reel-type optical connector cleaner to clear any adhered dirt from the ferrule end.

Figure A-5 Cleaning the Ferrule End



CAUTION

Make sure to use the dedicated optical connector cleaner. Otherwise, the ferrule end might be damaged.

CAUTION

Do not apply excessive pressure for cleaning. Otherwise, the ferrule end may be damaged.

NOTE

See the instructions of the optical connector cleaner before use.

Appendix B Physical Specifications of Network Interfaces

Appendix B.1 Ethernet 10BASE-T/100BASE-TX/1000BASE-T

Table B-1 Physical Specifications of 10BASE-T/100BASE-TX/1000BASE-T (Ethernet Port on the Main Device)

Item		Physical Specifications		
		10BASE-T	100BASE-TX	1000BASE-T
UTP cable	Non-PoE	Category 3 or higher	Category 5 or higher	Enhanced Category 5 or higher
	PoE	Category 5 or higher[*1]		
Transmission distance (max.)		100 m	100 m	100 m

[*1] Category 5 or higher UTP cable is recommended for the PoE connection.

Table B-2 Physical Specifications of 10BASE-T/100BASE-TX/1000BASE-T (SFP-T(T))

Item		Physical Specifications		
		10BASE-T	100BASE-TX	1000BASE-T
UTP cable	Non-PoE	Category 5 or higher	Category 5 or higher	Enhanced Category 5 or higher
Transmission distance (max.)		100 m	100 m	100 m

Table B-3 10BASE-T/100BASE-TX/1000BASE-T Pin Assignment

RJ45 Pin Number	Physical Specifications		
	10BASE-T	100BASE-TX	1000BASE-T
1	Receive (+) (A)	Receive (+) (A)	Send/Receive A (+) (A)
2	Receive (-) (a)	Receive (-) (a)	Send/Receive A (-) (a)
3	Send (+) (B)	Send (+) (B)	Send/Receive B (+) (B)
4	Not used[*1](C)	Not used[*1](C)	Send/Receive C (+) (C)
5	Not used[*1](c)	Not used[*1](c)	Send/Receive C (-) (c)
6	Send (-) (b)	Send (-) (b)	Send/Receive B (-) (b)
7	Not used[*1](D)	Not used[*1](D)	Send/Receive D (+) (D)
8	Not used[*1](d)	Not used[*1](d)	Send/Receive D (-) (d)

[*1] Connect them when a 4-pair 8-core cable is used.

[*2] The cable is of twisted pair configuration. For a 4-pair 8-core cable, (A) and (a), (B) and (b), (C) and (c) and (D) and (d) should be paired. For a 2-pair 4-core cable, (A) and (a) and (B) and (b) should be paired.

Appendix B.2 Ethernet 1000BASE-X Interface

Table B-4 Physical Specifications of 1000BASE-SX

Item	Physical Specifications			
Cable type	Multiple-terminal mode			
Core/cladding diameter	50 µm/125 µm		62.5 µm/125 µm	
Transmission bandwidth	400 MHz·km	500 MHz·km	160 MHz·km	200 MHz·km
Laser center wavelength	0.770 to 0.860 µm			
Optical transmission power (mean)	-9.5 to 0 dBm			
Optical reception power (mean)	-17.0 to 0 dBm			
Optical transmission loss (max.)	7.5 dB			
Transmission distance	2 to 500 m	2 to 550 m	2 to 220 m	2 to 275 m

Table B-5 Physical Specifications of 1000BASE-SX2

Item	Physical Specifications	
Cable type	Multiple-terminal mode	
Core/cladding diameter	50 µm/125 µm	62.5 µm/125 µm
Transmission bandwidth	500 MHz·km	500 MHz·km
Laser center wavelength	1.270 to 1.355 µm	
Optical transmission power (mean)	-9.0 to -3.0 dBm	
Optical reception power (mean)	-19.0 to -3.0 dBm	
Optical transmission loss (max.)	10.0 dB	
Transmission distance	2 m to 2 km	2 m to 1 km[*1]

*1 Use of mode-conditioning patch cords can extend the transmission distance. However, the maximum distance for transmission is 2 km, which might result in transmission loss. For the purpose of transmissions at a 2-km distance, it is required to reduce the transmission loss to around 10 dB or less.

Table B-6 Physical Specifications of 1000BASE-LX

Item	Physical Specifications			
Cable type	Multiple-terminal mode[*1]			Single-terminal mode
Core/cladding diameter	50 µm/125 µm		62.5 µm/125 µm	10 µm/125 µm
Transmission bandwidth	400 MHz·km	500 MHz·km	500 MHz·km	-
Laser center wavelength	1.270 to 1.355 µm			
Optical transmission power (mean)	-11.5 to -3.0 dBm			-11.0 to -3.0 dBm
Optical reception power (mean)	-19.0 to -3.0 dBm			
Optical transmission loss (max.)	7.5 dB			8.0 dB
Transmission distance	2 to 550m			2 m to 5 km

*1 For 1000BASE-LX, some kinds of multiple-terminal mode optical fiber might increase the BER (bit error rate). In such cases, the use of the mode-conditioning patch cords can clear the communication problem.

Table B-7 Physical Specifications of 1000BASE-LH

Item	Physical Specifications	
Cable type	Single-terminal mode	Single-terminal mode (DSF)
Core/cladding diameter	10 µm/125 µm	8 µm/125 µm
Laser center wavelength	1.540 to 1.570 µm	
Optical transmission power (mean)	0 to +5.0 dBm	
Optical reception power (mean)	-22.0 to 0 dBm	
Optical transmission loss (max.)	22 dB[*1]	
Transmission distance	2 m to 70km	

*1 When optical transmission loss is 5.0 dB or less, use an optical attenuator to adjust the loss.

Table B-8 Physical Specifications of 1000BASE-BX

Item	Physical Specifications			
Interface	1000BASE-BX10-U[*1]	1000BASE-BX10-D[*1]	1000BASE-BX40-U[*2]	1000BASE-BX40-D[*2]
Cable type	Single-terminal mode			
Core/cladding diameter	10 µm/125 µm			
Laser center wavelength	1.260 to 1.360 µm	1.480 to 1.500 µm	1.260 to 1.360 µm	1.480 to 1.500 µm
Receiving wavelength	1.480 to 1.500 µm	1.260 to 1.360 µm	1.480 to 1.500 µm	1.260 to 1.360 µm
Optical transmission power (mean)	-9.0 to -3.0 dBm		-3.0 to 3.0 dBm	
Optical reception power (mean)	-19.5 to -3.0 dBm		-23.0 to -3.0 dBm	
Optical transmission loss (max.)	10.5 dBm		20.0 dBm[*3]	
Transmission distance	0.5 m to 10 km		0.5 m to 40 km	

*1 1000BASE-BX10-U and 1000BASE-BX10-D are paired to use.

*2 1000BASE-BX40-U and 1000BASE-BX40-D are paired to use.

*3 When optical transmission loss is 6.0 dB or less, use an optical attenuator to adjust the loss.

Appendix B.3 Ethernet 10GBASE-R Interface

Table B-9 Physical Specifications of 10GBASE-SR

Item	Physical Specifications				
Cable type	Multiple-terminal mode				
Core/cladding diameter	50 µm/125 µm			62.5 µm/125 µm	
Transmission bandwidth	400 MHz·km	500 MHz·km	2000 MHz·km	160 MHz·km	200 MHz·km
Laser center wavelength	0.840 to 0.860 µm				
Optical transmission power (mean)	-7.3 to -1.0 dBm				
Optical reception power (mean)	-9.9 to -1.0 dBm				
Optical transmission loss (max.)	2.6 dB				
Transmission distance	2 m to 66 m	2 m to 82 m	2 m to 300 m	2 m to 26 m	2 m to 33 m

Table B-10 Physical Specifications of 10GBASE-LR

Item	Physical Specifications
Cable type	Single-terminal mode
Core/cladding diameter	10 µm/125 µm
Laser center wavelength	1.260 to 1.355 µm
Optical transmission power (mean)	-8.2 to +0.5 dBm
Optical reception power (mean)	-14.4 to +0.5 dBm
Optical transmission loss (max.)	6.2 dB
Transmission distance	2 m to 10 km

Table B-11 Physical Specifications of 10GBASE-ER

Item	Physical Specifications
Cable type	Single-terminal mode
Core/cladding diameter	10 µm/125 µm
Laser center wavelength	1.530 to 1.565 µm
Optical transmission power (mean)	-4.7 to +4.0 dBm
Optical reception power (mean)	-15.8 to -1.0 dBm
Optical transmission loss (max.)	11.1 dB*1
Transmission distance	2 m to 40 km

*1 When optical transmission loss is 5 dB or less, use an optical attenuator to adjust the loss.

Table B-12 Physical Specifications of 10GBASE-ZR

Item	Physical Specifications
Cable type	Single-terminal mode
Core/cladding diameter	10 µm/125 µm
Laser center wavelength	1.530 to 1.565 µm
Optical transmission power (mean)	+0.5 to +4.0 dBm
Optical reception power (mean)	-24.0 to -7.0 dBm
Optical transmission loss (max.)	24.5 dB*1
Transmission distance	2 m to 80 km

*1 When optical transmission loss is 15 dB or less, use an optical attenuator to adjust the loss.

Appendix C Specifications of Setup Terminal

Appendix C.1 Specifications of Setup Terminal

Be sure to use a personal computer or a workstation that meets the requirements listed in Table C-1 Specifications of the Terminal.

Table C-1 Specifications of the Terminal

Item		Requirement
Communication port		RS-232C port
Communication software		Tera Term Pro (Version 2.3) or other communication software that allows the communication settings below
Communication settings	Communication protocol	ZMODEM protocol
	Communication parameters	8 bits, 1 stop bits, non-parity
	Communication speed*1	19,200 bit/s, 9,600 bit/s, 4,800 bit/s, 2,400 bit/s, 1,200 bit/s
Other		CD-ROM drive*2

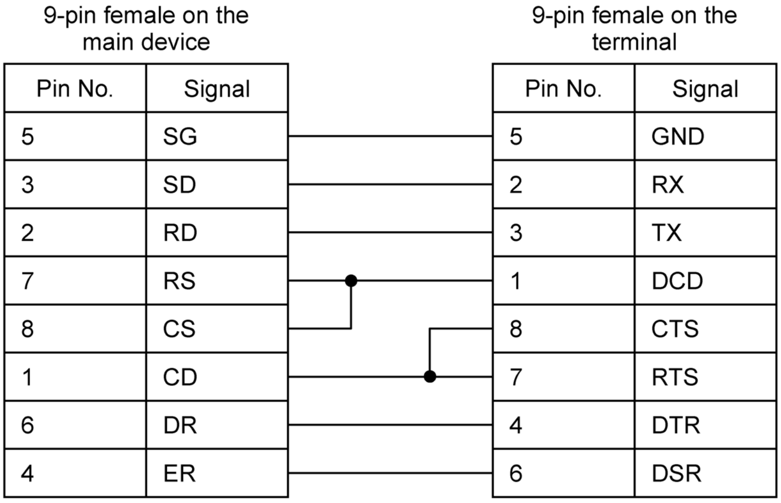
*1 The factory default communication speed of the device is 9,600 bit/s.

*2 It is used for installing the optional license.

Appendix C.2 Specifications of Cable to Connect Setup Terminal

The RS-232C crossover cable with D-sub 9-pin female connectors on both ends is required for connection between the main device and the setup terminal. For pin assignment of the RS-232C crossover cable, see Figure C-1 Pin Assignment of the Cable to Connect the Setup Terminal.

Figure C-1 Pin Assignment of the Cable to Connect the Setup Terminal



9-pin female on the main device

Pin No.	Signal
5	SG
3	SD
2	RD
7	RS
8	CS
1	CD
6	DR
4	ER

9-pin female on the terminal

Pin No.	Signal
5	GND
2	RX
3	TX
1	DCD
8	CTS
7	RTS
4	DTR
6	DSR