ALAXALA AX3800S/AX3600S/AX2400S

Hardware Instruction Manual

AX36S-H001-70X

Reading and storing this manual:

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

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 18 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, AX3640S-48T2XW, AX3650S-24T6XW, AX3650S-48T4XW, AX3650S-20S6XW, and AX3830S-44XW of the AX3800S series.

Export Restrictions

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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 switch is a class A information technology device. In a domestic environment this product may cause radio interference in which case the user may be required to take corrective actions.

VCCI-A

Limits for Harmonic Current Emissions

Conforming products to the standard harmonic current emissions JIS C 61000-3-2.
Conforming devices:
AX2430S-24T
AX2430S-24T2X
AX2430S-48T
AX2430S-48T2X
AX3630S-24T
AX3630S-24T2X
AX3630S-24P
AX3630S-24S2XW
AX3630S-48TW
AX3630S-48T2XW
AX3640S-24T
AX3640S-24TW
AX3640S-24T2XW
AX3640S-24SW
AX3640S-24S2XW
AX3640S-48TW
AX3640S-48T2XW
AX3650S-24T6XW
AX3650S-48T4XW
AX3650S-20S6XW
AX3830S-44XW
EPU-A
EPU-B

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Preface

About this Manual

This manual describes the hardware instructions for ALAXALA Networks Corporation AX2400S series compact gigabit Layer 2 switches, ALAXALA Networks Corporation AX3600S series compact gigabit Layer 3 switches, and ALAXALA Networks Corporation AX3800S series compact 10-gigabit Layer 3 switches. Before you operate the equipment, read this manual carefully and make sure that you understand all instructions and cautionary 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 AX3800S, AX3600S, and AX2400S series switches. It is therefore assumed that they are familiar with electrical circuits, wiring and networks.

Structure of manual

Safety Information

Cautionary notes for safe use of AX3800S, AX3600S, and AX2400S 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 Switch are described.

Chapter 4 Installation of the Components

The procedures to install the Switch 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 Switch are listed.

Appendix C Specifications of Setup Terminal

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

Find description from the AX2400S series manuals

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

AX3800S/AX3600S/AX2400S Quick Start Guide (AX36S-Q001X)

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

AX3800S/AX3600S/AX2400S Hardware Instruction Manual (AX36S-H001X)

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

AX2400S Software Manual Configuration Guide Vol.1 (AX24S-S001X)

AX2400S Software Manual Configuration Guide Vol.2 (AX24S-S002X)

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

AX2400S Software Manual Configuration Command Reference (AX24S-S003X)

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

AX2400S Software Manual Operation Command Reference (AX24S-S004X)

● **Understanding messages and logs**

AX2400S Software Manual Message and Log Reference (AX24S-S005X)

● **Understanding the MIB**

AX2400S Software Manual MIB Reference (AX24S-S006X)

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

AX6700S/AX6600S/AX6300S/AX3800S/AX3600S/AX2400S Troubleshooting Guide (AX36S-T001X)

Find description from the AX3640S and AX3630S series manuals

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

AX3800S/AX3600S/AX2400S Quick Start Guide (AX36S-Q001X)

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

AX3800S/AX3600S/AX2400S Hardware Instruction Manual (AX36S-H001X)

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

AX3640S/AX3630S Software Manual Configuration Guide Vol.1 (AX36S-S001X)

AX3640S/AX3630S Software Manual Configuration Guide Vol.2 (AX36S-S002X)

AX3640S/AX3630S Software Manual Configuration Guide Vol.3 (AX36S-S003X)

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

AX3640S/AX3630S Software Manual Configuration Command Reference Vol.1 (AX36S-S004X)

AX3640S/AX3630S Software Manual Configuration Command Reference Vol.2 (AX36S-S005X)

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

AX3640S/AX3630S Software Manual Operation Command Reference Vol.1 (AX36S-S006X)

AX3640S/AX3630S Software Manual Operation Command Reference Vol.2 (AX36S-S007X)

● **Understanding messages and logs**

AX3640S/AX3630S Software Manual Message and Log Reference (AX36S-S008X)

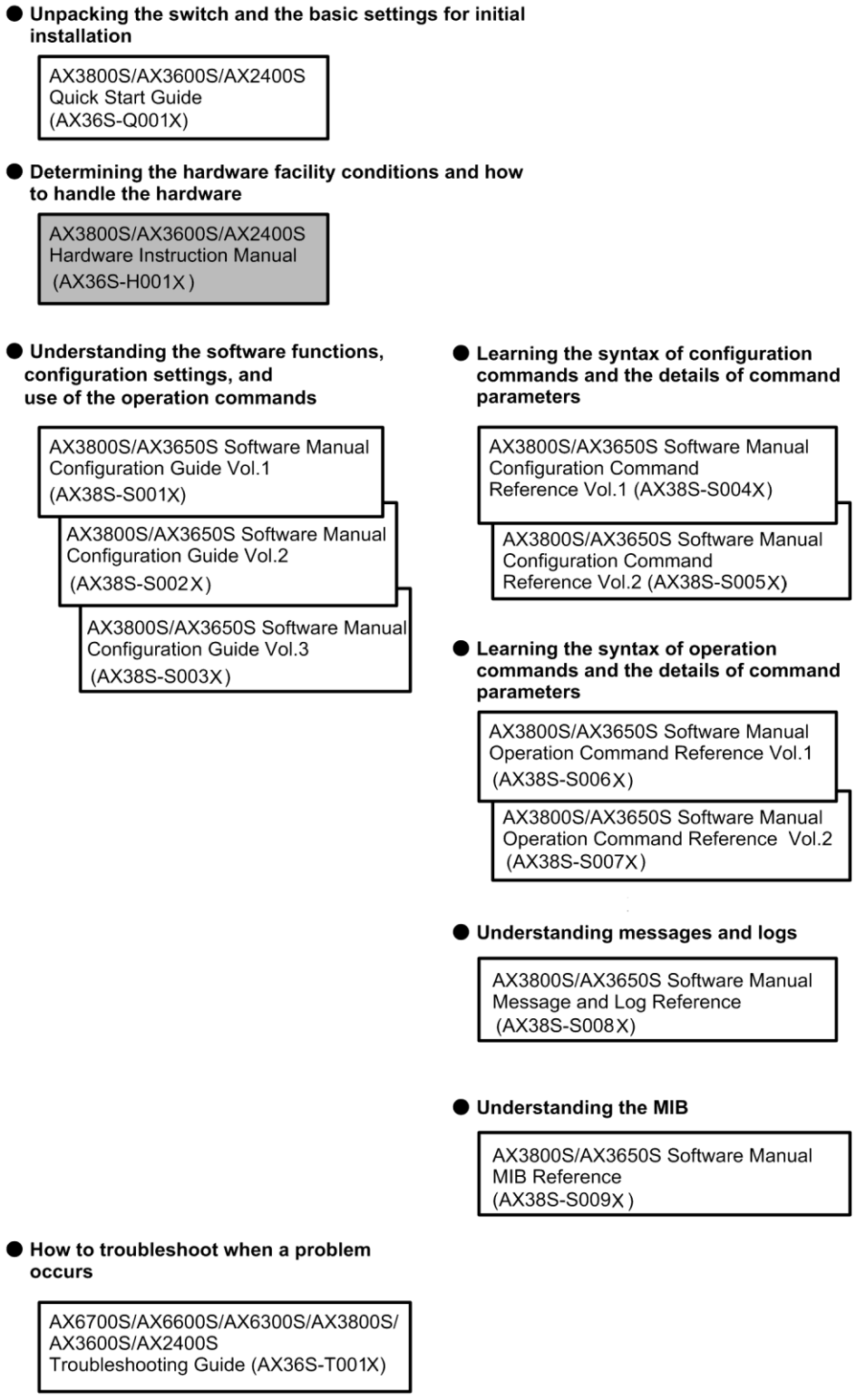
● **Understanding the MIB**

AX3640S/AX3630S Software Manual MIB Reference (AX36S-S009X)

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

AX6700S/AX6600S/AX6300S/AX3800S/AX3600S/AX2400S Troubleshooting Guide (AX36S-T001X)

Find description from the AX3800S and AX3650S series manuals



How to obtain this manual

For the manuals of AX3800S, AX3600S, and AX2400S series switches, see the following

website:

http://www.alaxala.com/en/index.html

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
SFP+	Enhanced 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

Conventions: The terms "Switch" and "switch"

The term *Switch* (upper-case "S") is an abbreviation for any or all of the following models:

- AX2400S series switch
- AX3600S series switch
- AX3800S series switch

The term *switch* (lower-case "s") might refer to a Switch, another type of switch from the current vendor, or a switch from another vendor. The context decides the meaning.

Contents

Safety Information

Using AX3800S, AX3600S, and AX2400S series switches safely

- This guide provides important information for ensuring safe use of AX3800S, AX3600S, and AX2400S series switches. Please read this manual completely before using the Switches
- Keep this manual handy after reading it, so that it is available for later reference.
- Operate the Switch according to the instructions and procedures provided in this manual.
- Heed all warnings and cautions for the Switch in this guide. Failure to do so could result in injury or damage to the Switch.

Before using the Switch

- Caution indications

  These indications are intended to ensure safe and correct use of the Switch and to prevent serious injury, and equipment and property damage. Caution information in this manual and on the Switch is preceded by the indications shown below. Make sure you fully understand the meaning of the indications before continuing with the main body of this manual.

⚠WARNING	Ignoring instructions preceded by this indication and using the Switch incorrectly could result in death or serious injury to yourself and others.
⚠CAUTION	Ignoring instructions preceded by this indication and using the Switch incorrectly could result in serious injury to yourself and others.
CAUTION	Ignoring instructions preceded by this indication 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, if ignored, will not result in physical injury or serious damage to the Switch.

Unauthorized operations

- Do not attempt to perform any operations that are not described in this guide.

  In the event of a Switch problem, turn off the power, unplug the power cable, and contact maintenance personnel.

Using common sense

The warnings and cautions provided on the Switch and in this guide have been selected after careful consideration.

Nevertheless, there is always the possibility of the unexpected occurring. Therefore, while using a Switch, stay alert and use common sense in addition to all following instructions.

⚠WARNING

If anything seems wrong, immediately turn off the power.

- If smoke or an unusual smell is emanating from the Switch, or if liquid is spilled into the Switch or a foreign object falls into the Switch, immediately turn off Switch power as described below. Continuing operation could result in fire or electric shock.

Actions to take for abnormal conditions

Device in which an error occurred		Action to take
AC model AC (PoE) model	When an external power unit (EPU) is not used	Turn off the Switch and unplug the power cable.
	When an external power unit (EPU) is used	Turn off the Switch and the power supply module supplying power to the Switch, and then unplug the power cable.
DC model		Turn off the Switch and open the circuit breaker for the electrical power equipment.
Redundant power model	With AC power supplies	Turn off all power supplies installed in the Switch and disconnect the power cable.
	With DC power supplies	Turn off all power supplies installed in the Switch and the circuit breaker for the electrical power equipment.
EPU		Turn off the EPU, and then unplug the power cable.

Do not allow any foreign objects to get into the Switch.

- Do not insert or drop any foreign objects, such as anything metallic or flammable, through the Switch's ventilation slots. Doing so could result in fire or electric shock.

When pressing the RESET button, do not use anything with a fragile tip, or anything that might become caught in the Switch, such as a pin or paper clip.

- When pressing the **RESET** button, do not use anything with a fragile tip, or anything that might become caught in the Switch, such as a pin or paper clip. Doing so could result in fire or electric shock.

Do not alter the physical makeup of the Switch.

- Do not alter the physical makeup of the Switch. Doing so could result in a fire or electric shock.

Do not subject the Switch to shocks.

- In the event that the Switch is dropped or any of its components damaged, turn off the power, unplug the power cable, and contact maintenance personnel. Discontinue using the cable to avoid the risk of a fire or electric shock.

Do not place anything on the Switch

- Do not place any metallic object such as a small pin or a paper clip or any container

with a liquid, such as a vase or a flower pot, on the Switch. Liquid or metallic objects falling into the Switch could result in a fire or electric shock.

⚠WARNING

Use the Switch only with the indicated power source.

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

Ensure that the capacity for incoming current to the distribution board is greater than the operating current of the circuit breaker.

- Ensure that the capacity for incoming current to the distribution board is greater than the operating current of the circuit breaker. If it is not, the circuit breaker might not operate properly in the event of a failure, which could result in a fire.

Ground the Switch.

- For the AC power and the AC (PoE) models, the redundant power 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 cause failures due to electrical noise.
- For the DC model and the redundant power 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 cable.

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

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

- Prior to connecting or disconnecting the DC power 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 cable with an insulation jacket.

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

⚠WARNING

Cut the DC power cable jackets to the specified length.

- To use the DC power cable on the redundant power 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 with the protection cap removed.

- 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 standby power connector.

Handle power cables carefully.

- Do not place anything heavy on a power cable. Do not pull, bend, or process a cable. Doing so could damage the cable, resulting in fire or electric shock. If the power cable is covered with a carpet or the like, it is easy to forget that the cable is there and to place something heavy on it.
- Use the supplied or a designated power cable. Using another cable could result in fire or electric shock. In addition, do not use the supplied cable with other devices. Doing so could result in a fire or electric shock.
- If the power cable is damaged so that the wires underneath the covering are visible or cut, stop using it, and ask maintenance personnel to replace it. Discontinue using the cable to avoid the risk of fire or electric shock.
- Make sure the power plug is free of dust, and insert the plug completely up to the base of the prongs to prevent any looseness. Using a power plug with dust on it or one that is imperfectly connected could result in fire or electric shock.

Do not overload the power outlet.

- Do not overload the power outlet by connecting multiple power plugs to the same outlet. Overloading the outlet could result in fire or the circuit breaker tripping due to excessive power used. This might affect other equipment.

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

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

⚠WARNING

Do not use an air duster near a flame.

- When cleaning the optical connectors, do not use an air duster that contains flammable gas near a flame. Doing so could result in a fire.

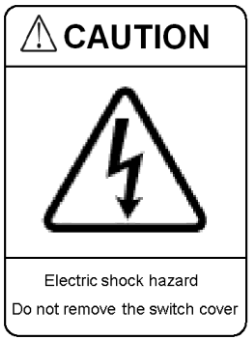
⚠CAUTION

Do not place the Switch in a place where it is unstable.

- If placing the Switch on a desk, lay it on its side on a workbench capable of withstanding the weight of the Switch. If, for example, you place the Switch on a shaky table or a tilted surface, the Switch might fall and possibly injure someone.
- When installing the Switch in a rack, make sure the Switch in the rack is stably positioned. If the Switch is not positioned correctly, injury could result from falling equipment or stumbling over the equipment.

Do not remove the Switch cover.

- Do not remove the Switch cover. Doing so could result in electric shock. The following label is attached to a Switch.



Do not block the air vents of the Switch.

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

Do not allow hair or objects near the ventilation slots.

- The Switch has cooling fans. Keep any objects away from the air vents. Otherwise, increasing temperature inside the Switch might cause a failure. Do not allow hair or other objects near the ventilation slots. They might be sucked into the Switch, resulting in injury.

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

- Do not hold the handle of the power supply unit or the fan unit when moving the redundant power model. The handle can come off and the Switch can fall, which might cause injury. Or the EPU might be distorted to cause a fire or an electric shock.
- Do not hold the handle of the power supply module when moving an EPU. The handle might come off, resulting in the Switch falling and possibly causing injury. Also, the EPU or the power supply module might become damaged, resulting in a fire or electric shock.

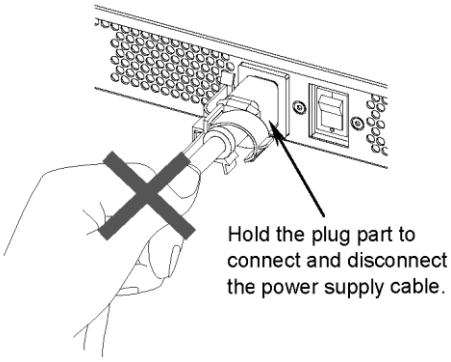
⚠CAUTION

When moving a Switch

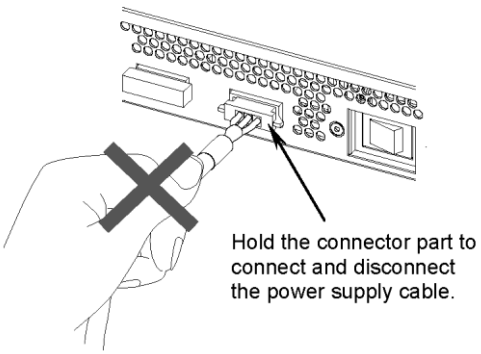
- Before moving a Switch, you must turn it off and unplug all cables. Failure to do so might cause the Switch or cable to become deformed, or might damage the Switch, resulting in fire or electric shock.
- If you must stack multiple Switches during transport, use appropriate packaging. Failure to do so might cause the Switch to become deformed or might damage the Switch, resulting in fire or electric shock.

Handle the power cable carefully.

- Do not place the power cable near a heat-generating apparatus. The heat could melt the cable coating, resulting in fire or electric shock.
- When connecting or disconnecting the AC power cable from the outlet, always hold the plug, not the cable itself. Pulling the cable might cause the wires to break.



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



⚠CAUTION

When turning off the power, stop the supply of all power to the Switch.

- 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 redundant power model with the redundant power supply units, 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.

Do not touch the Switch directly if you have a metal allergy.

- The Switch is coated with zinc, nickel, gold, and other elements. Do not touch the Switch directly if you have an allergic reaction to these metals. Doing so might cause eczema or skin irritation.

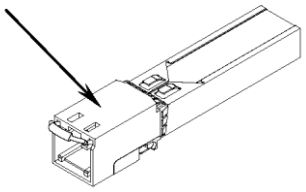
Avoid looking directly at laser beams.

- The Switch uses laser beams that are colorless and transparent, and invisible to the eye. Never look directly into the optical transceiver.

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

- The temperature of operating an SFP-T or SFP-T (T) can rise up to 65°C 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 or SFP-T (T), do either of the procedures below. Otherwise, a burn injury might result.

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

- Turn off the Switch and wait for 5 minutes before removing the SFP.

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

⚠CAUTION

Do not install the Switch in a dusty or humid location.

- Do not install the Switch in a dusty or humid location. Doing so could result in fire or electric shock.
- Condensation might form on the surfaces and the inside of the Switch if it is moved from a cold location to a warm location. Using the Switch in this condition could result in fire or electric shock. After moving the Switch between two locations with a large temperature variation, let the Switch stand a few hours before using it.

Do not step on the Switch, lean against it, or place heavy objects on it.

- Do not step on the Switch or lean against it. Doing so might damage the Switch. Furthermore, the Switch might fall, or become unbalanced, resulting in injury.
- Do not place any objects that are 5 kg or more on the Switch. Doing so might damage the Switch. Furthermore, the Switch might fall, or become unbalanced, resulting in injury.

Do not touch the inside of the Switch with your hands.

- Do not carelessly put your hands inside the Switch. The frame and components might cause injury.

For the redundant power model (AX3630S and AX3640S), install a fan unit into a slot that does not contain a power supply unit.

- For the redundant power model (AX3630S and AX3640S), install a fan unit into a slot that does not contain a power supply unit. Otherwise, the following problems might occur:

  - An increase in the temperature inside the switch might cause a failure.

  - The components might cause an injury.

  - Foreign matter inside the switch might cause a failure.

  - Waves emitted by the Switch might affect other devices, or waves emitted by other devices might affect the Switch and cause a malfunction.

For the redundant power model (AX3830S and AX3650S), insert a blank panel into a slot that does not contain a power supply unit.

- For the redundant power model (AX3830S and AX3650S), install a blank panel into a slot that does not contain a power supply unit. Otherwise, the following problems might occur:

  - An increase in the temperature inside the switch might cause a failure.

  - The components might cause an injury.

  - Foreign matter inside the switch might cause a failure.

  - Waves emitted by the Switch might affect other devices, or waves emitted by other devices might affect the Switch and cause a malfunction.

⚠CAUTION

Attach a blank panel to a slot in which a power supply module for an EPU is not installed.

- Be sure to attach a blank panel to any slots for which a power supply module for an EPU is not installed. If you use the Switch without attaching the blank panel, you might be injured by a moving part. In addition, if foreign objects fall into the Switch, the Switch might no longer work properly.

Cleaning

- Remove dust on and around the Switch regularly. In addition to possibly causing the Switch to stop, accumulated dust might result in fire or electric shock.

CAUTION

Do not place a Switch in a high-temperature location.

- Do not place a Switch in direct sunlight or near a heater or other heat-generating apparatus. Doing so could adversely affect parts of the Switch.

Do not use a TV or a radio near a Switch.

- Placing a Switch near a TV or a radio could affect both devices. If you hear noise on the TV or radio, do the following:

  - Place the Switch as far away as possible from the TV or radio.

  - Adjust the orientation of the TV or radio antenna.

  - Use separate outlets.

Do not place the Switch in an undesirable environment.

- Using the switch in the following locations might shorten the life of the switch or result in a switch malfunction.

  - An area with salty air, such as the coast

  - An area where corrosive gases are present, such as a hot-springs area

  - An area where oily smoke is present

  - An area where continuous vibrations are present

Ensure that voltage drop does not occur in the power facility due to an inrush current.

- Turning on the Switch causes an inrush current. Ensure that voltage drop does not occur in the power facility due to the inrush current. Voltage drops affect not only the Switch, but also the devices connected to the same electrical power equipment.

Turn off the power before connecting or disconnecting the power cable.

- For the AC power, the AC (PoE) models and the EPU, turn off the Switch before connecting or disconnecting the power cable.
- As for the redundant power model, turn off the power supply unit before connecting or disconnecting the power cable or the cable connector.
- For a standby power cable, turn off the power of the power supply module first.

CAUTION

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

- When performing any of the following replacements with the switch turned on, do not leave the switch for more than three minutes without a power supply unit or a fan unit. Otherwise, a failure might occur due to increasing temperatures inside the Switch.

  - When replacing a power supply unit or fan unit of redundant power models (AX3630S and AX3640S)

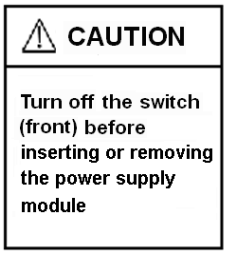
  - When replacing a fan unit of redundant power models (AX3650S)

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

  - When replacing a fan unit of redundant power models (AX3830S)

Turn off the power before installing or removing a power supply module.

- Before installing or removing a power supply module, turn off its power. Installing or removing the module with the power supply module turned on causes a (Switch) failure. The following label is attached to the EPU.



Turn off the power of the power supply modules before turning on the main power switch of an EPU.

- Before setting the main power switch of the EPU to ON, you must set the power switches of the installed power supply modules to OFF.

Do not turn off the main power switch of an EPU if the standby power supply unit is used for the Switch.

- Turning off the main power switch of an EPU stops the supply of all standby power to the Switch. Do not turn off the main power switch if a standby power supply unit is being used for the Switch.

CAUTION

Handle memory cards and dummy memory cards carefully.

- When installing a memory card and a dummy memory card, do not force the card. When removing a memory card, do not forcibly pull out the card if it is locked. Doing so might damage the connector of the memory card slot.
- When moving the Switch, remove memory cards and dummy memory cards. If a card is subjected to excessive force when the switch is moved, the connector of the memory card slot might be damaged.

When the ACC LED is lit, do not remove the memory card or turn off the power.

- When the ACC LED on the front panel of the Switch is lit, the memory card is being accessed. When a memory card is being accessed, do not remove the memory card or turn off the power. Doing so might damage the memory card.

  In addition, some commands require a certain amount of time after being entered to finish accessing the card. Make sure that the memory card is no longer being accessed before removing the card or turning off the power.

Do not attach any labels to a transceiver or a direct attach cable connector.

- A label attached to the transceiver or direct attach cable connector indicates that the transceiver or direct attach cable connector is a standard product from ALAXALA Networks Corporation or another manufacturer. However, such labels are attached where they do not interfere with heat dissipation from the transceiver or from the direct attach cable connector or interfere with the mechanism that prevents the transceiver or the direct attach cable connector from coming loose from the cage.

  Attaching a label to a location that interferes with these functions could cause a malfunction in the transceiver or a direct attach cable connector, or cause damage to the Switch.

Make sure that you use a valid combination of direct attach cables and the Switch.

- SFPP-CU1M/3M/5Ms are supported by the switches below. Use them only with the indicated switches. Otherwise, the switch might fail.

  - AX3650S-24T6XW (target ports 25 to 30)
  - AX3650S-20S6XW (target ports 25 to 30)
  - AX3650S-48T4XW (target ports 49 to 52)
  - AX3830S-44XW (target ports 1 to 44)

CAUTION

Make sure that you use an appropriate combination of transceivers and switches.

- The switches below support SFP-FX and SFP-FX (T). Use them only with the indicated switches. Otherwise, the switch might fail.
  - AX3640S-24SW (target ports 5 to 24)
  - AX3640S-24S2XW (target ports 5 to 24)
  - AX3650S-20S6XW (target ports 1 to 20)
- The switches below support SFP-SX2 and SFP-SX2 (T). Use them only with the indicated switches. Otherwise, the switch might fail.
  - AX2430S series
  - AX3630S series
  - AX3640S series
  - AX3650S-20S6XW (target ports 1 to 20)

Do not shut off the power to the switch while the ST1 LED is blinking green. (On: 0.5 seconds; off: 0.5 seconds)

- In the following situations, do not switch off the Switch until the blinking green ST1 LED on the Switch front panel (on: 0.5 seconds; off: 0.5 seconds) turns to a constant green. Otherwise, the Switch might break down:
- Updating software

When carrying or packing a Switch and an optional module, wear a wrist strap to protect against static electricity.

- Be sure to wear an antistatic wrist strap. If you handle the Switch without wearing an antistatic wrist strap, the Switch might be damaged by static electricity.

When carrying and packing optional modules, handle them carefully.

- Do not touch a connector when carrying or packaging a transceiver, direct attach cable, memory card, power supply unit, fan unit, or power supply module. Also, when storing an optional module, use an antistatic bag.

Use care when handling an air duster.

- Use an air duster specially designed for cleaning optical connectors. Using another type of air duster could cause the ferrule tip to become dirty.
- Keep the nozzle or container of the air duster from coming into contact with the ferrule tip. Contact could result in a malfunction.

CAUTION

Use care when handling an optical connector cleaner.

- Always use a dedicated optical connector cleaner. If you use another type of cleaner, the ferrule tip might become dirty.
- Before cleaning, make sure that the tip of the optical connector cleaner is clean and free of defects, such as lint, dirt, or other foreign substances. Using a cleaner with a defective tip might damage the ferrule tip.
- Do not apply excessive pressure when cleaning. Doing so might damage the ferrule tip.
- Rotate the optical connector cleaner (stick) clockwise only. Rotating the cleaner alternately clockwise and counterclockwise might damage the ferrule tip.

Maintenance

- Clean any dirty areas on the exterior of the switch with a clean, dry cloth, or a cloth damp with (but not soaked with) water or a neutral detergent. Do not use volatile organic solutions (such as benzene or paint thinner), chemicals, chemically treated cloths, or pesticides because these substances might deform, discolor, or damage the switch.

If the Switch will not be used for a long time

- For safety reasons, unplug the power cable from the outlet if the Switch will not be used for a long time. When the DC power supply is used, turn off the circuit breaker of your electrical power equipment.

Disposing of a Switch

- When disposing of a switch, you should either follow local ordinances or regulations or contact your local waste disposal and treatment facility.

1. Components Overview

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

1.1 Main device

AX3800S series switches provide Layer 3 switching that is capable of 10-gigabit communication. These switches can be used as core switches for small- and middle-scale LANs, user aggregation switches for providers, and server aggregation switches that take advantage of the high switching capacity and 10-gigabit interfaces.

AX3600S series switches provide Layer 3 switching that is capable of gigabit communication. These switches can be used as distribution switches for large-scale LANs, core switches for small and middle-scale LANs, and customer edge switches.

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

The following models belong to the AX3800S, AX3600S, and AX2400S series.

Table 1-1 List of AX3800S, AX3600S, and AX2400S series switches

Number	LAN interface				Series name	Model name
	10/100/1000BASE-T	SFP slots	SFP+ slots	XFP slots		
1	24 ports	4 slots	--	--	AX2400S	AX2430S-24T (AC model) AX2430S-24TD (DC model)
					AX3600S	AX3630S-24T (AC model) AX3630S-24TD (DC model) AX3640S-24T (AC model) AX3640S-24TW (redundant power model)
2	24 ports	4 slots	--	2 slots	AX2400S	AX2430S-24T2X (AC model) AX2430S-24T2XD (DC model)
					AX3600S	AX3630S-24T2X (AC model) AX3630S-24T2XD (DC model) AX3640S-24T2XW (redundant power model)
3	24 ports	--	6 slots	--	AX3600S	AX3650S-24T6XW (redundant power model)
4	24 ports (PoE)	4 slots	--	--	AX3600S	AX3630S-24P (AC (PoE) model)
5	48 ports	4 slots	--	--	AX2400S	AX2430S-48T (AC model) AX2430S-48TD (DC model)
					AX3600S	AX3630S-48TW (redundant power model) AX3640S-48TW (redundant power model)
6	48 ports	--	--	2 slots	AX2400S	AX2430S-48T2X (AC model)

Number	LAN interface				Series name	Model name
	10/100/1000BASE-T	SFP slots	SFP+ slots	XFP slots		
					AX3600S	AX3630S-48T2XW (redundant power model) AX3640S-48T2XW (redundant power model)
7	48 ports	--	4 slots	--	AX3600S	AX3650S-48T4XW (redundant power model)
8	4 ports	24 slots	--	--	AX3600S	AX3640S-24SW (redundant power model)
9	4 ports	24 slots	--	2 slots	AX3600S	AX3630S-24S2XW (redundant power model) AX3640S-24S2XW (redundant power model)
10	4 ports	20 slots	6 slots	--	AX3600S	AX3650-20S6XW (redundant power model)
11	4 ports	--	44 slots	--	AX3800S	AX3830S-44XW (redundant power model)

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.)

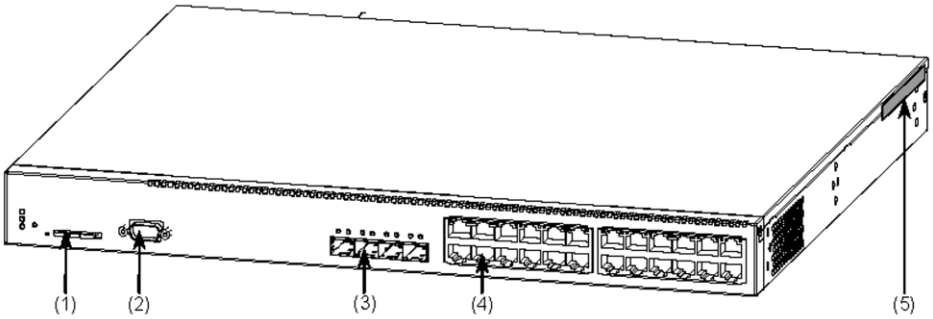
For details about editing the configuration, see the *Software Manual*.

NOTE

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

(1) External appearance

Figure 1-1 Front view



(1) Memory card slot

(2) CONSOLE port

(3) SFP slot

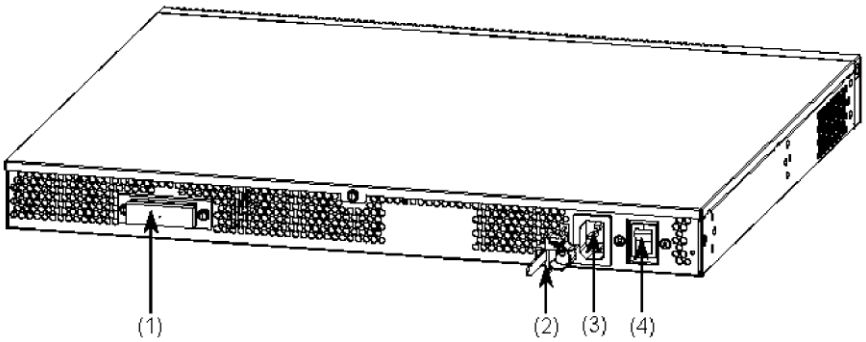
(4) 10/100/1000BASE-T Ethernet port

(5) Security tape

NOTE

Do not peel away the security tape. If you do so, 開封済 will be displayed. The device is no longer under warranty if 開封済 is displayed.

Figure 1-2 Back view of the AC model



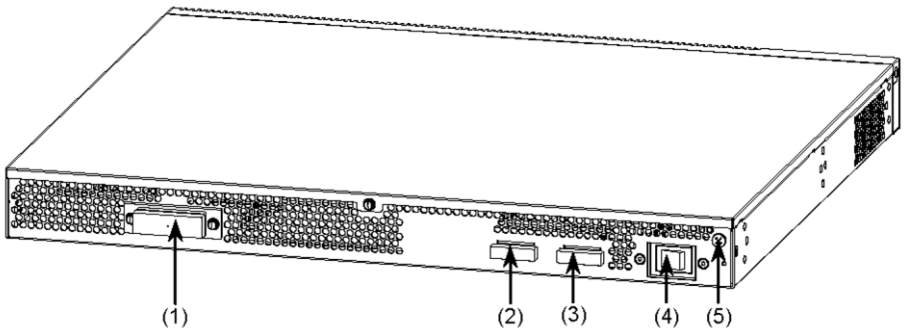
(1) Standby power connector (with protective cap)

(2) Cable clamp

(3) AC power connector

(4) Power switch

Figure 1-3 Back view of the DC model



(1) Standby power 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

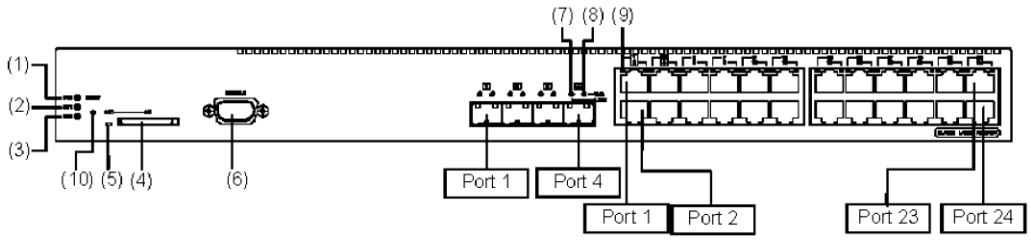


Table 1-2 LED Indications, switches and connectors

Number	Name	Type	Description	Details
(1)	PWR	Green LED	Indicates the power supply status.	Lit in green: Powered-on. Off: Powered-off or a failure with a power supply unit.
(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 unit.
(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		Blinking green: Frames are being sent or received.

Number	Name	Type	Description	Details
(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	Button (momentary)	Manual RESET button 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 button, 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.

1.1.2 AX3640S-24TW

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

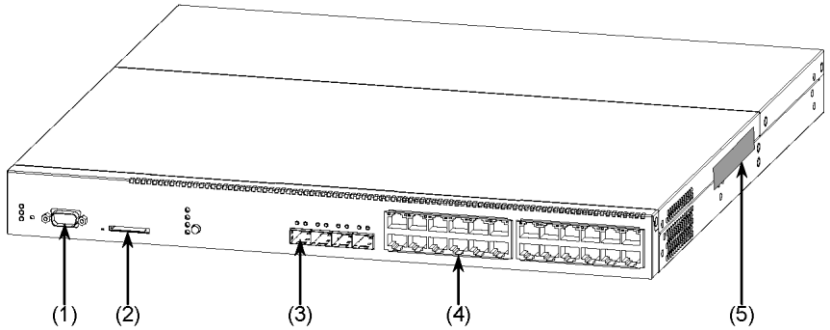
- Ethernet 10/100/1000BASE-T ports: 24
- SFP slots: 4
- Memory card slot: 1
- CONSOLE port: 1
- Power supply unit slots: 2

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) CONSOLE port

(2) Memory card slot

(3) SFP slot

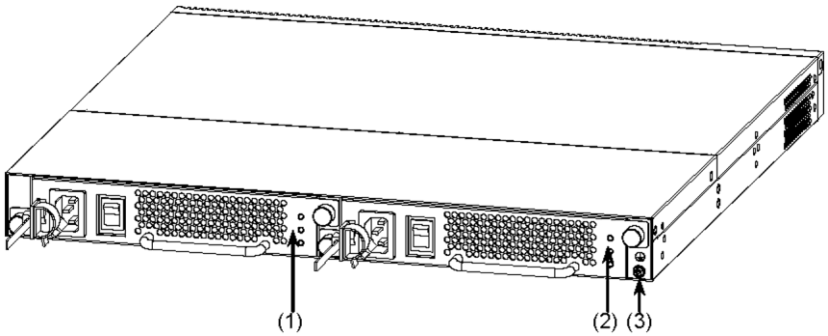
(4) 10/100/1000BASE-T Ethernet port

(5) Security tape

NOTE

Do not peel away the security tape. If you do so, 開封済 will be displayed. The device is no longer under warranty if 開封済 is displayed.

Figure 1-6 Back view



(1) Power supply unit slot 2

(2) Power supply unit slot 1

(3) Ground terminal

NOTE

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

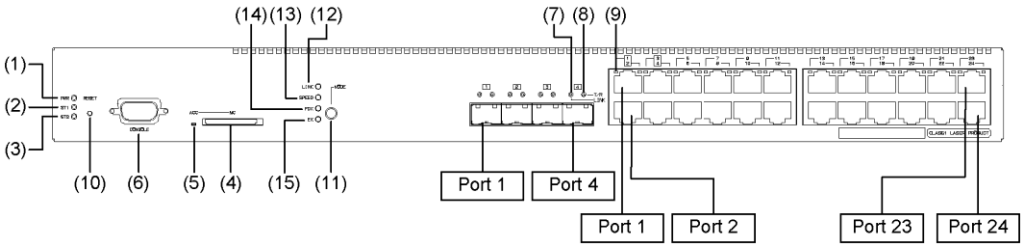


Table 1-3 LED indications, switches and connectors

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 unit.
(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 unit.
(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 LED indications, see *Table 1-4 Operating status in a specific LED indication mode (LINK mode)* to *Table 1-6 Operating status in the 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	Button (momentary)	Manual RESET button 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 button, 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.

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 device 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 the 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 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.)

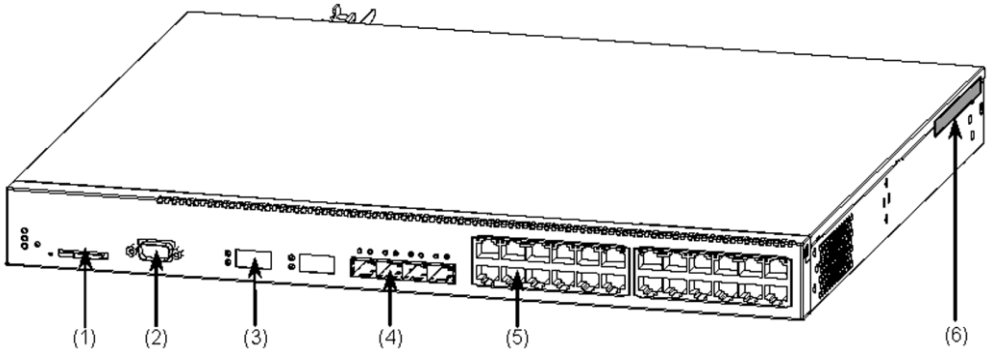
For details about editing the configuration, see the *Software Manual*.

NOTE

For information about the SFPs and XFPs supported by the Switch, see *1.7.1 SFP* and *1.7.3 XFP*.

(1) External appearance

Figure 1-8 Front view



(1) Memory card slot

(2) CONSOLE port

(3) XFP slot

(4) SFP slot

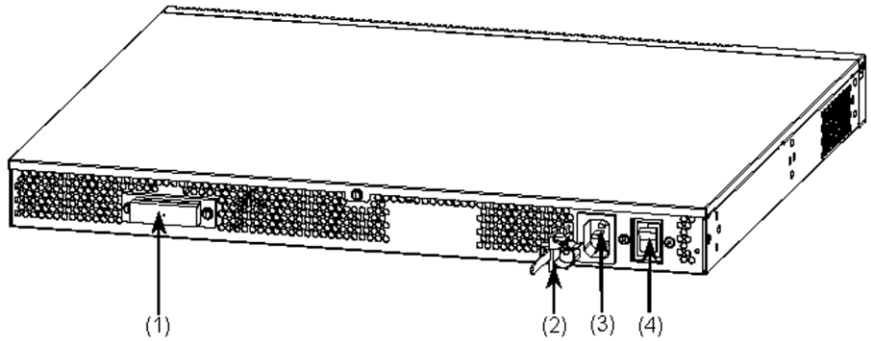
(5) 10/100/1000BASE-T Ethernet port

(6) Security tape

NOTE

Do not peel away the security tape. If you do so, 開封済 will be displayed. The device is no longer under warranty if 開封済 is displayed.

Figure 1-9 Back view of the AC model



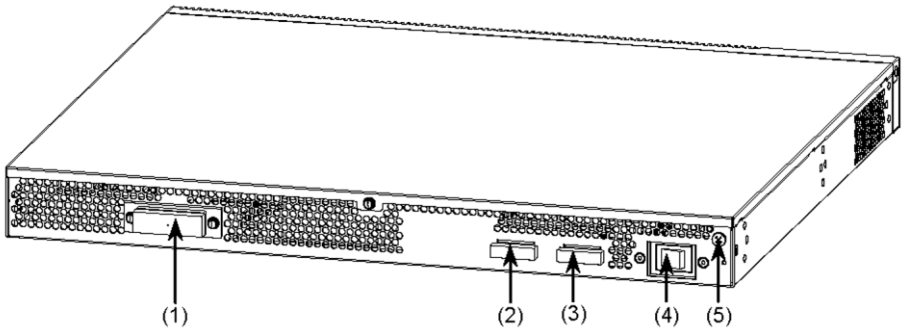
(1) Standby power connector (with protective cap)

(2) Cable clamp

(3) AC power connector

(4) Power switch

Figure 1-10 Back view of the DC model



(1) Standby power 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

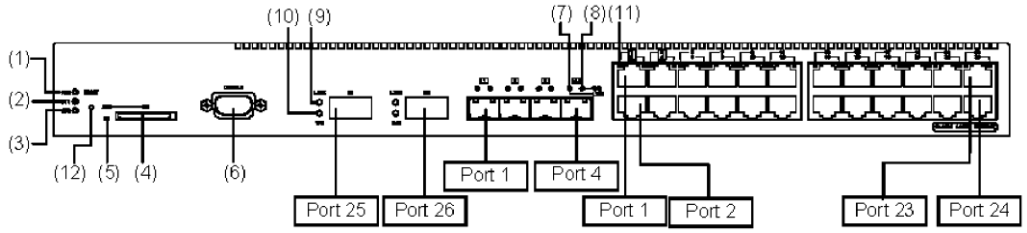


Table 1-7 LED indications, switches and connectors

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 unit.
(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 unit.
(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		Blinking green: Frames are being sent or received.
(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: Frames are being sent or received.

Number	Name	Type	Description	Details
(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	Button (momentary)	Manual RESET button 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 button, 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.

1.1.4 AX3640S-24T2XW

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

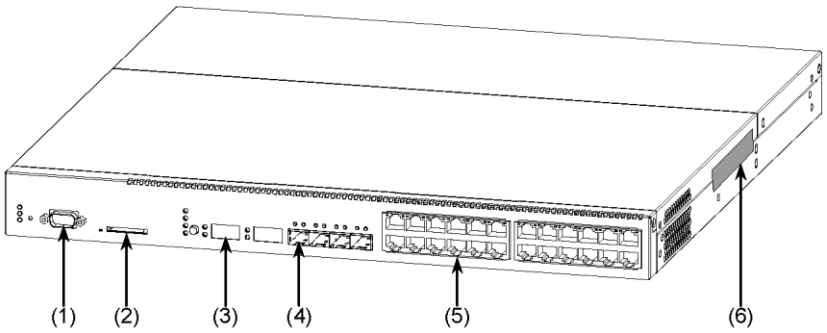
- Ethernet 10/100/1000BASE-T ports: 24
- SFP slots: 4
- XFP slots: 2
- Memory card slot: 1
- CONSOLE port: 1
- Power supply unit slots: 2

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 *1.7.3 XFP*.

(1) External appearance

Figure 1-12 Front view



(1) CONSOLE port

(2) Memory card slot

(3) XFP slot

(4) SFP slot

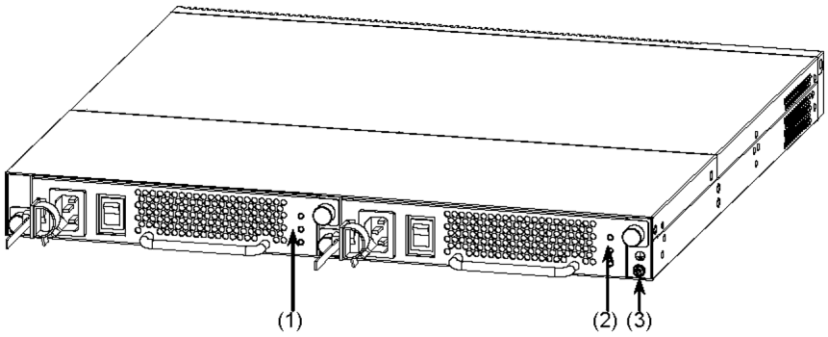
(5) 10/100/1000BASE-T Ethernet port

(6) Security tape

NOTE

Do not peel away the security tape. If you do so, 開封済 will be displayed. The device is no longer under warranty if 開封済 is displayed.

Figure 1-13 External appearance of the device



(1) Power supply unit slot 2

(2) Power supply unit slot 1

(3) Ground terminal

NOTE

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

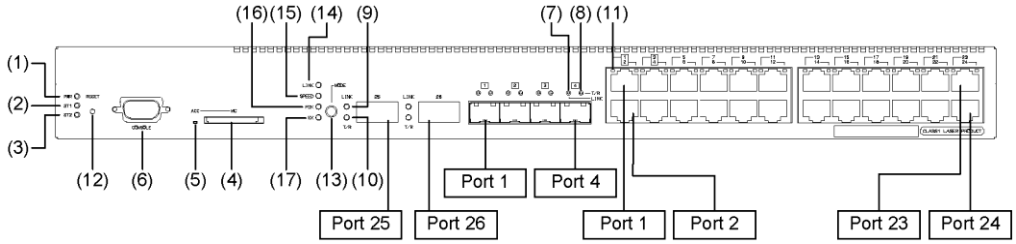


Table 1-8 LED indications, switches and connectors

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 unit.
(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 unit.
(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	Button (momentary)	Manual RESET button of the device[#1]	Restarts the device.

Number	Name	Type	Description	Details
(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 button, 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.

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.

Number	Name	Type	Description	Details
(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

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

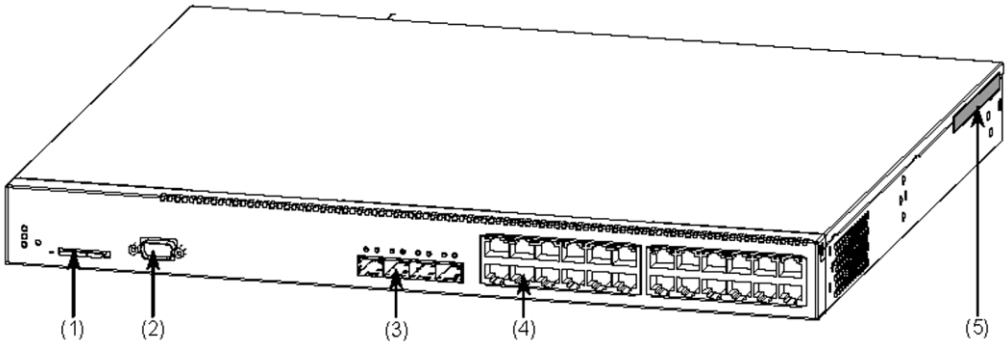
The Type A PoE system (Alternative A) is used for the Switch. For details, see *3.2.1 Ethernet 10/100/1000BASE-T*.

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

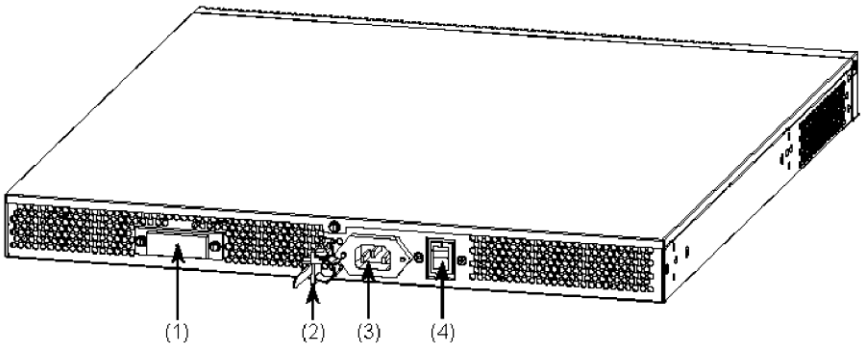
(4) 10/100/1000BASE-T Ethernet port

(5) Security tape

NOTE

Do not peel away the security tape. If you do so, 開封済 will be displayed. The device is no longer under warranty if 開封済 is displayed.

Figure 1-16 Back view



(1) Standby power 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

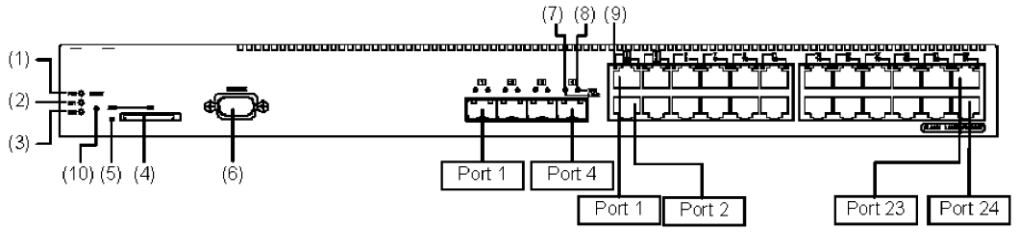


Table 1-12 LED indications, switches and connectors

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 unit.
(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 unit.
(3)	ST2	Green LED	(Not used)	Off
(4)	MC	Connector	Memory card slot	Memory card slot

Number	Name	Type	Description	Details
(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		Blinking green: Frames are being sent or received.
(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	Button (momentary)	Manual RESET button 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 button, 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.

1.1.6 AX2430S-48T/AX2430S-48TD models

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

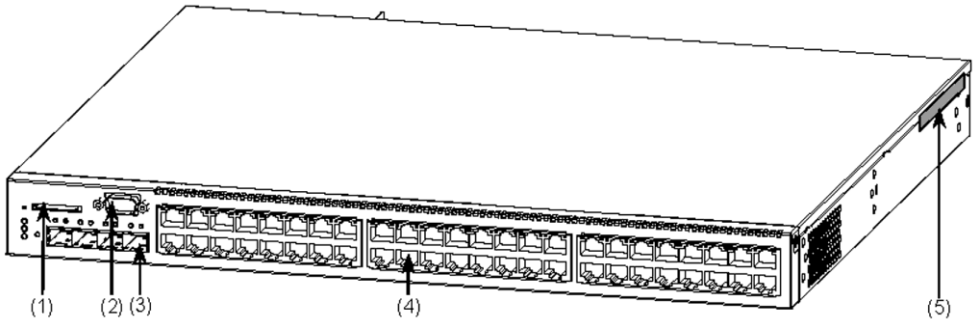
- Ethernet 10/100/1000BASE-T ports: 48
- SFP slots: 4
- Memory card slot: 1
- CONSOLE port: 1

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

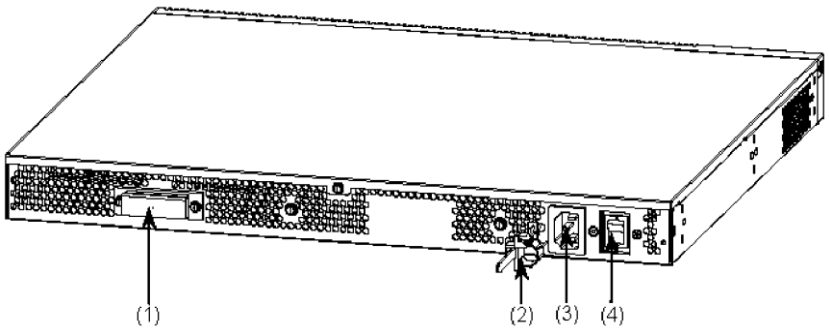
(4) 10/100/1000BASE-T Ethernet port

(5) Security tape

NOTE

Do not peel away the security tape. If you do so, 開封済 will be displayed. The device is no longer under warranty if 開封済 is displayed.

Figure 1-19 Back view of the AC model



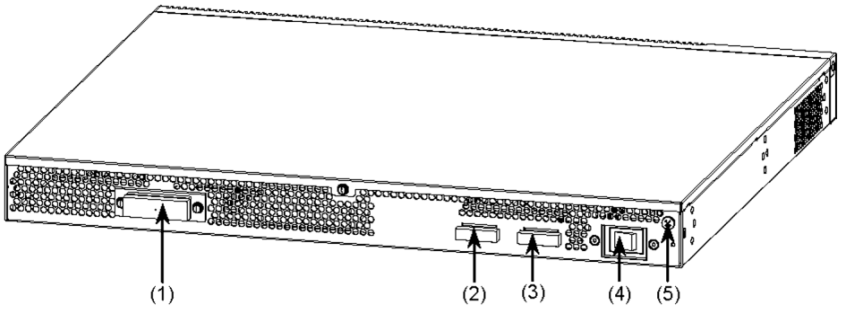
(1) Standby power connector (with protective cap)

(2) Cable clamp

(3) AC power connector

(4) Power switch

Figure 1-20 Back view of the DC model



(1) Standby power 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

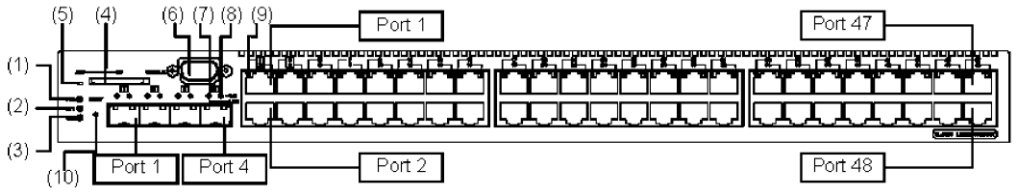


Table 1-13 LED indications, switches and connectors

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 unit.
(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 unit.
(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		Blinking green: Frames are being sent or received.

Number	Name	Type	Description	Details
(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	Button (momentary)	Manual RESET button 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 button, 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.

1.1.7 AX3630S-48TW/AX3640S-48TW models

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

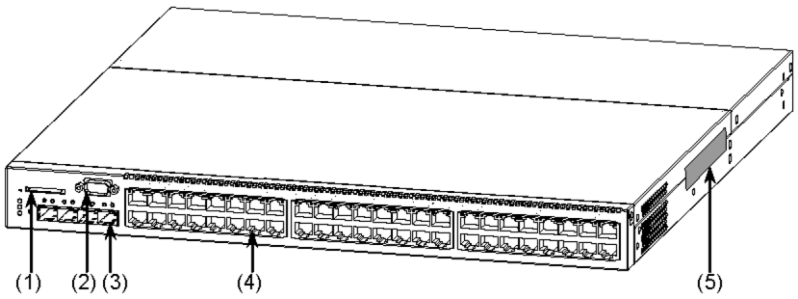
- Ethernet 10/100/1000BASE-T ports: 48
- SFP slots: 4
- Memory card slot: 1
- CONSOLE port: 1
- Power supply unit slots: 2

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

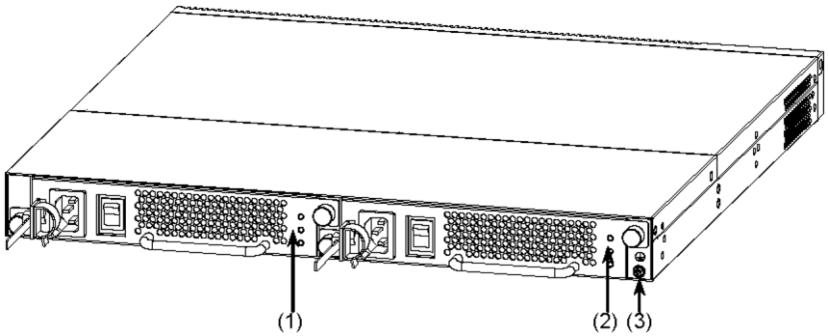
(4) 10/100/1000BASE-T Ethernet port

(5) Security tape

NOTE

Do not peel away the security tape. If you do so, 開封済 will be displayed. The device is no longer under warranty if 開封済 is displayed.

Figure 1-23 Back view



(1) Power supply unit slot 2

(2) Power supply unit slot 1

(3) Ground terminal

NOTE

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

Otherwise, insert a power supply unit into power supply unit slot 1 and a fan unit into power supply unit 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

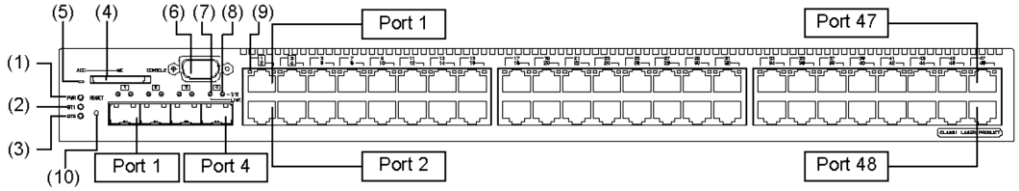


Table 1-14 LED indications, switches and connectors

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 unit.

Number	Name	Type	Description	Details
(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 unit.
(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		Blinking green: Frames are being sent or received.
(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	Button (momentary)	Manual RESET button 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 button, 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.

1.1.8 AX2430S-48T2X

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

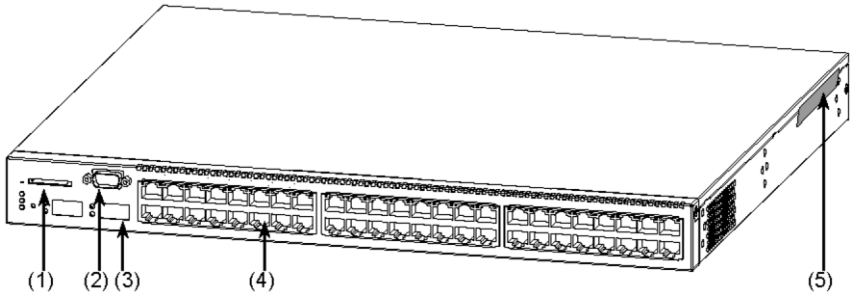
- Ethernet 10/100/1000BASE-T ports: 48
- XFP slots: 2
- Memory card slot: 1
- CONSOLE port: 1

NOTE

For information about the XFPs supported by the Switch, see *1.7.3 XFP*.

(1) External appearance

Figure 1-25 Front view



(1) Memory card slot

(2) CONSOLE port

(3) XFP slot

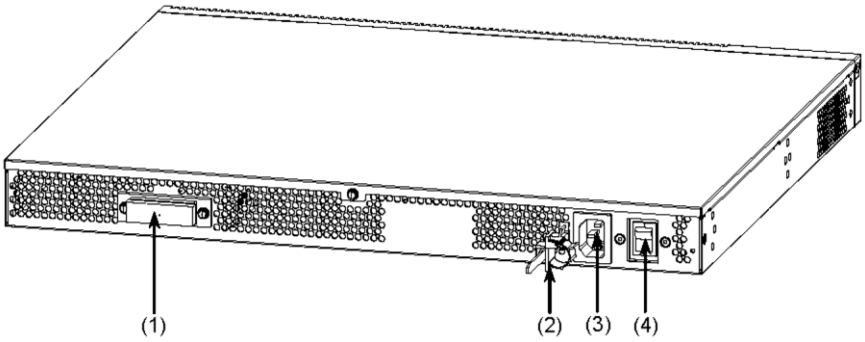
(4) 10/100/1000BASE-T Ethernet port

(5) Security tape

NOTE

Do not peel away the security tape. If you do so, 開封済 will be displayed. The device is no longer under warranty if 開封済 is displayed.

Figure 1-26 Back view of the AC model



(1) Standby power 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

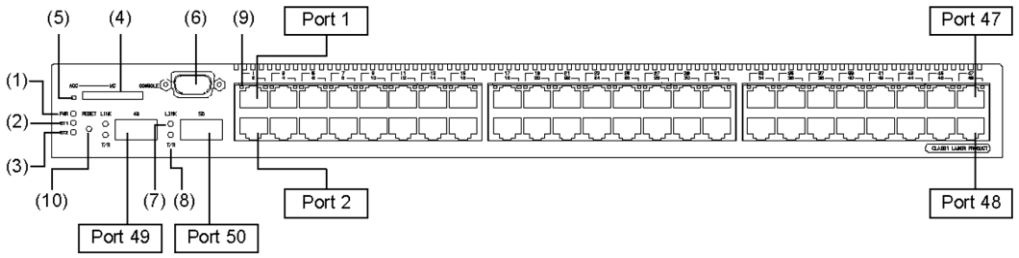


Table 1-15 LED indications, switches and connectors

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 unit.
(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 unit.
(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: Frames are being sent or received.
(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	Button (momentary)	Manual RESET button 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 button, 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.

1.1.9 AX3630S-48T2XW/AX3640S-48T2XW models

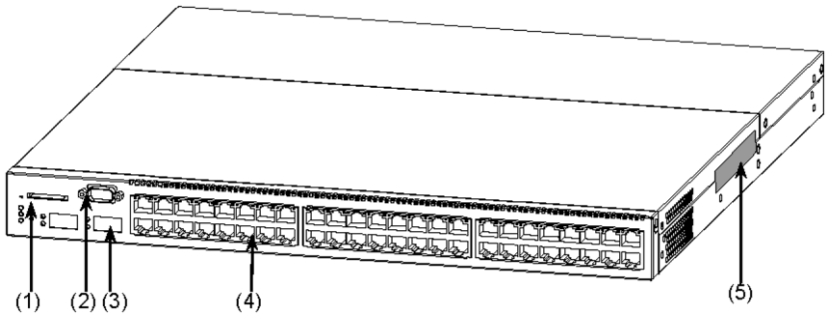
The AX3630S-48T2XW and AX3640S-48T2XW models have the following hardware specifications:

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

NOTE For information about the XFPs supported by the Switch, see *1.7.3 XFP*.

(1) External appearance

Figure 1-28 Front view



(1) Memory card slot

(2) CONSOLE port

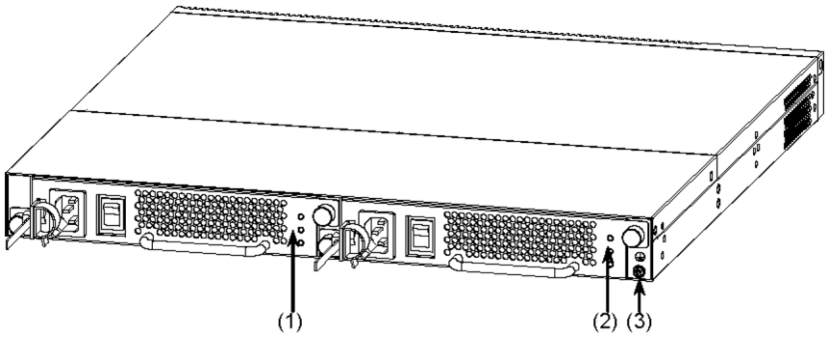
(3) XFP slot

(4) 10/100/1000BASE-T Ethernet port

(5) Security tape

NOTE Do not peel away the security tape. If you do so, 開封済 will be displayed. The device is no longer under warranty if 開封済 is displayed.

Figure 1-29 Back view



(1) Power supply unit slot 2

(2) Power supply unit slot 1

(3) Ground terminal

NOTE

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

Otherwise, insert a power supply unit into power supply unit slot 1 and a fan unit into power supply unit 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

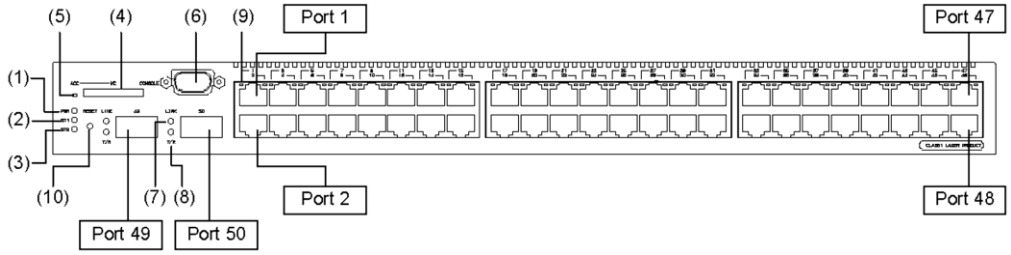


Table 1-16 LED indications, switches and connectors

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 unit.
(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 unit.
(3)	ST2	Green LED	(Not used)	Off

Number	Name	Type	Description	Details
(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: Frames are being sent or received.
(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	Button (momentary)	Manual RESET button 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 button, 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.

1.1.10 AX3640S-24SW

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

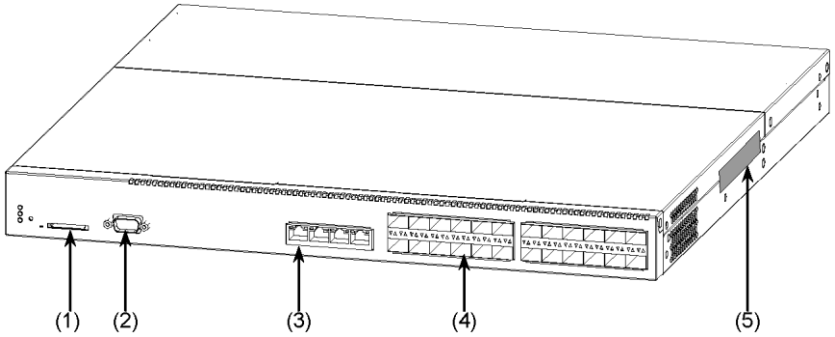
- Ethernet 10/100/1000BASE-T ports: 4
- SFP slots: 24
- Memory card slot: 1
- CONSOLE port: 1
- Power supply unit slots: 2

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

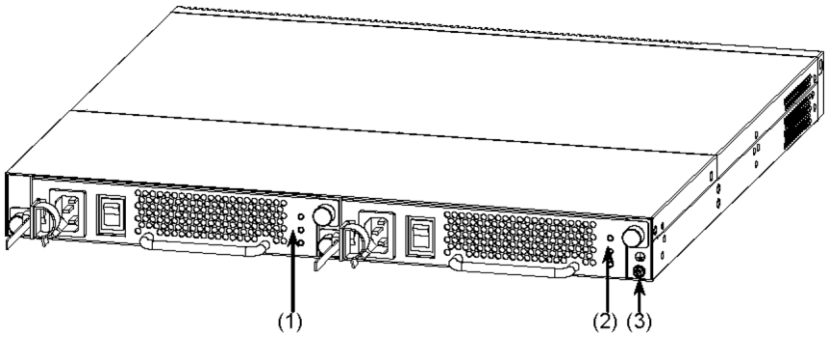
(4) SFP slot

(5) Security tape

NOTE

Do not peel away the security tape. If you do so, 開封済 will be displayed. The device is no longer under warranty if 開封済 is displayed.

Figure 1-32 Back view



(1) Power supply unit slot 2

(2) Power supply unit slot 1

(3) Ground terminal

NOTE

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

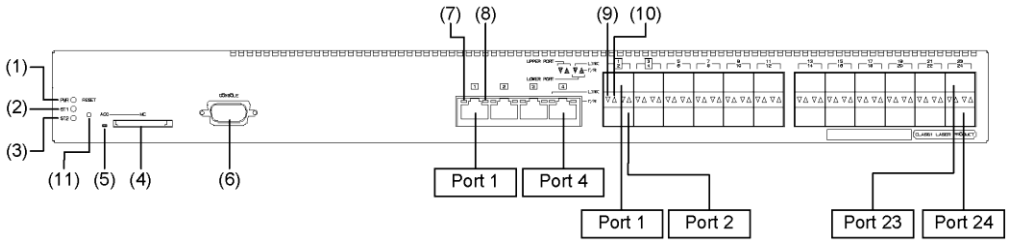


Table 1-17 LED indications, switches and connectors

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 unit.
(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 unit.
(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: Frames are being sent or received.
(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: Frames are being sent or received.
(11)	RESET	Button (momentary)	Manual RESET button 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 button, 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.

1.1.11 AX3630S-24S2XW/AX3640S-24S2XW models

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

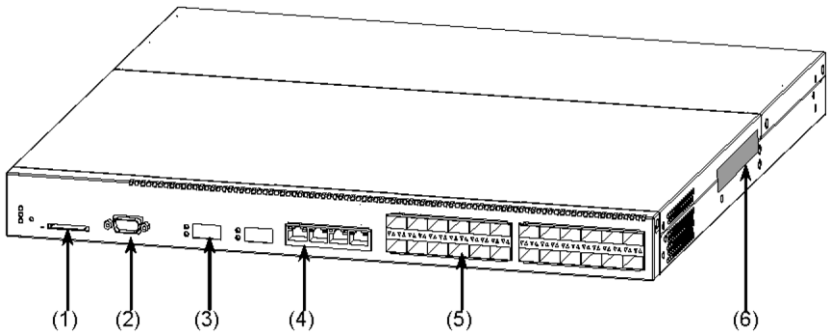
- Ethernet 10/100/1000BASE-T ports: 4
- SFP slots: 24
- XFP slots: 2
- Memory card slot: 1
- CONSOLE port: 1
- Power supply unit slots: 2

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 *1.7.3 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

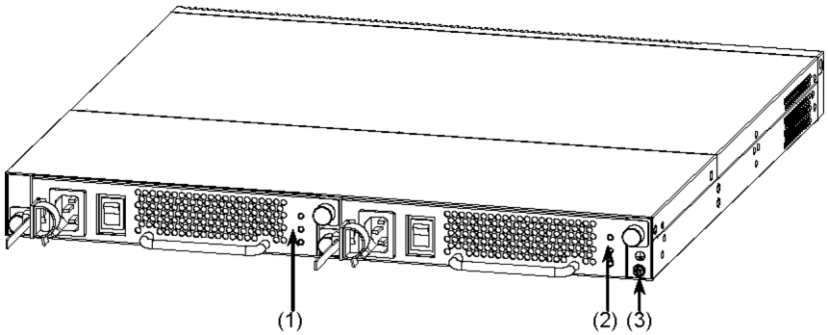
(5) SFP slot

(6) Security tape

NOTE

Do not peel away the security tape. If you do so, 開封済 will be displayed. The device is no longer under warranty if 開封済 is displayed.

Figure 1-35 Back view



(1) Power supply unit slot 2

(2) Power supply unit slot 1

(3) Ground terminal

NOTE

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

Otherwise, insert a power supply unit into power supply unit slot 1 and a fan unit into power supply unit 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

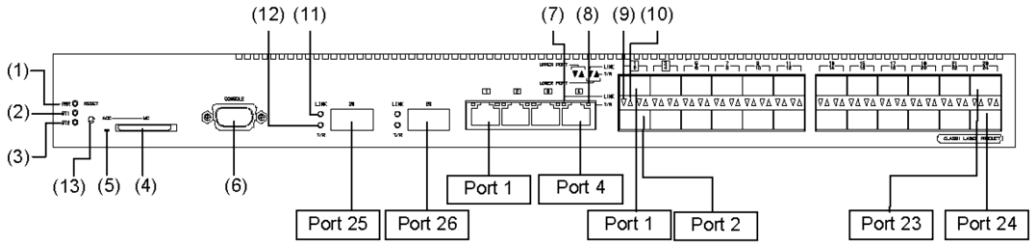


Table 1-18 LED indications, switches and connectors

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 unit.

Number	Name	Type	Description	Details
(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 unit.
(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: Frames are being sent or received.
(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: Frames are being sent or received.
(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: Frames are being sent or received.
(13)	RESET	Button (momentary)	Manual RESET button 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 button, 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.

1.1.12 AX3650S-24T6XW

The AX3650S-24T6XW model has the following hardware specifications:

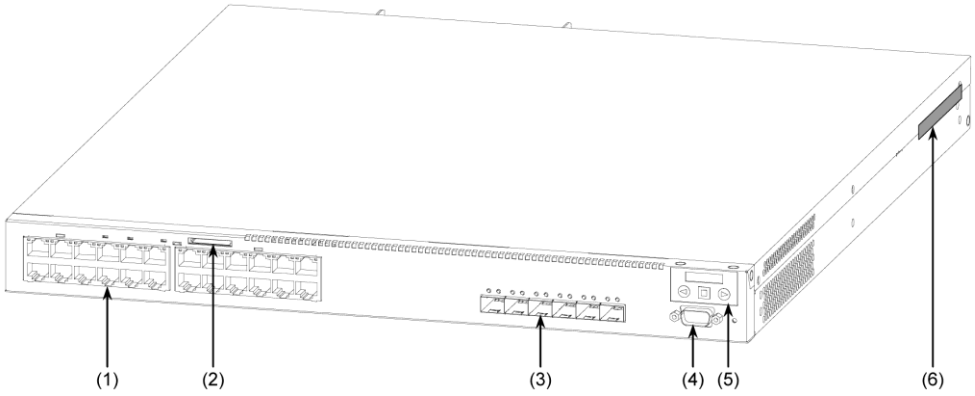
- Ethernet 10/100/1000BASE-T ports: 24
- SFP+ slots: 6
- Memory card slot: 1
- CONSOLE port: 1
- Power supply unit slots: 2
- Fan unit slot: 1

NOTE

For information about the SFPs and SFP+s supported by the Switch, see *1.7.1 SFP* and *1.7.2 SFP+*.

(1) External appearance

Figure 1-37 Front view



(1) 10/100/1000BASE-T Ethernet port

(2) Memory card slot

(3) SFP+ slot

(4) CONSOLE port

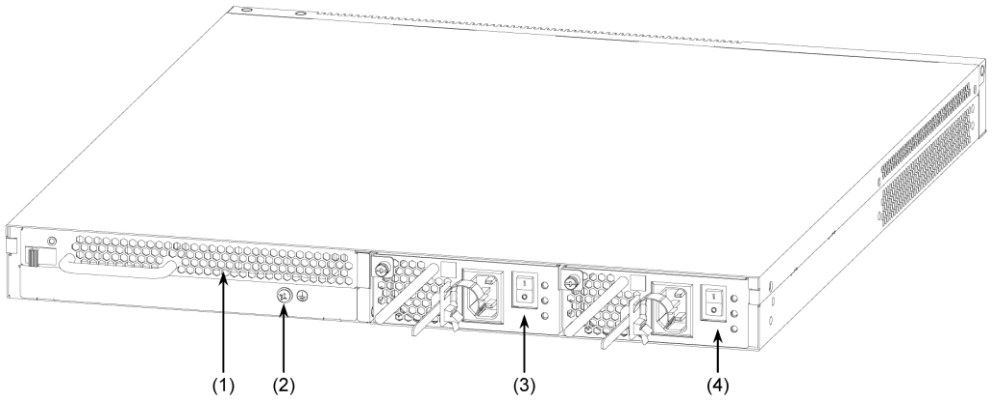
(5) System operation panel

(6) Security tape

NOTE

Do not peel away the security tape. If you do so, 開封済 will be displayed. The device is no longer under warranty if 開封済 is displayed.

Figure 1-38 Back view



(1) Fan unit slot

(2) Ground terminal

(3) Power supply unit slot 2

(4) Power supply unit slot 1

(2) Front panel

The front panel layout is shown in *Figure 1-39 Front panel layout*.

The numbers in the figure correspond to those in *Table 1-19 LED indications, switches and connectors*.

AX3650-24T6XW switches support the device sleep function and LED brightness control function (power control (brightness) mode and off mode) in order to save power.

Figure 1-39 Front panel layout

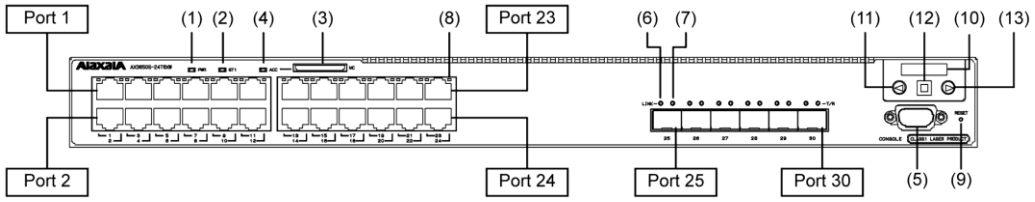


Table 1-19 LED indications, switches and connectors

Number	Name	Type	Description		LED brightness	Details
(1)	PWR	Green LED	Indicates the power supply status.	Lit in green	Normal	Powered-on.
				Blinking green[#1]	Normal	Asleep.
				Off	--	Powered-off or a failure with a power supply unit.
(2)	ST1	Green/ Red LED	Indicates the device status.	Lit in green	Normal	Standing by or operating.
					Low[#3]	
				Blinking green	Normal	Getting ready (starting up).
				Blinking green[#1]	Lowest	Running in off mode.
				Blinking red	Normal	Partial failure with the switch
					Low[#2]	
				Lit in red	Normal	Fatal failure in the device (operation cannot continue)
					Low[#2]	
				Off	--	Powered-off or a failure with a power supply unit.
(3)	MC	Connector	Memory card slot	--	--	Memory card slot
(4)	ACC	Green LED	Indicates the memory card status.	Lit	Normal	Accessing the memory card. (Do not remove the memory card.)
					Low[#2]	
				Off	--	Memory card is in idle mode. (The memory card can be inserted or removed.)
(5)	CONSOLE	Connector	CONSOLE port	--	--	RS-232C port to connect a console terminal.
(6)	LINK	Green/ Orange LED	Indicates the operating status of an SFP+ slot Ethernet port.	Lit in green	Normal	A link is established.
					Low[#3]	
				Lit in orange	Normal	Detecting line disturbances.
					Low[#3]	
				Off	--	A link failure or block when the green ST1 LED is lit.[#4]

Number	Name	Type	Description		LED brightness	Details
(7)	T/R	Green LED		Blinking green	Normal	Sending or receiving frames.
					Low[#3]	
(8)	1-24	Green/ Orange LED	Indicates the operating status of a 10/100/1000BASE-T Ethernet port.	Lit in green	Normal	A link is established.
					Low[#3]	
				Blinking green	Normal	A link is established and frames are being sent or received.
					Low[#3]	
				Lit in orange	Normal	Detecting line disturbances.
					Low[#3]	
				Off	--	A link failure or block when the green ST1 LED is lit.[#4]
(9)	RESET	Button (momentary)	Manual RESET button of the device[#5]	--	--	Restarts the device.
(10)	Display	--	Not supported.			
(11)	BACK	Button	Not supported.			
(12)	ENTR	Button				
(13)	FWRD	Button				

#1: Blinking green over a long period of time (on: 0.5 seconds; off: 5 seconds)

#2: Operating in power control (brightness) mode or off mode

#3: Operating in power control (brightness) mode

#4: In off mode, a link might be established, frames might be sent or received, or line disturbances might be detected.

#5: The switch is behind the front panel. Use a small-head screwdriver to press it.

⚠WARNING When attempting to push the RESET button, 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.

1.1.13 AX3650S-48T4XW

The AX3650S-48T4XW model has the following hardware specifications:

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

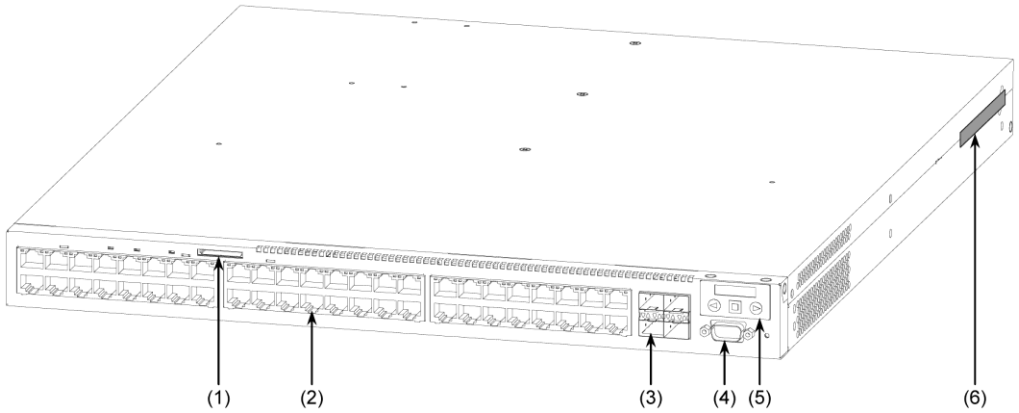
- Power supply unit slots: 2
- Fan unit slot: 1

NOTE

For information about the SFPs and SFP+s supported by the Switch, see *1.7.1 SFP* and *1.7.2 SFP+*.

(1) External appearance

Figure 1-40 Front view



(1) Memory card slot

(2) 10/100/1000BASE-T Ethernet port

(3) SFP+ slot

(4) CONSOLE port

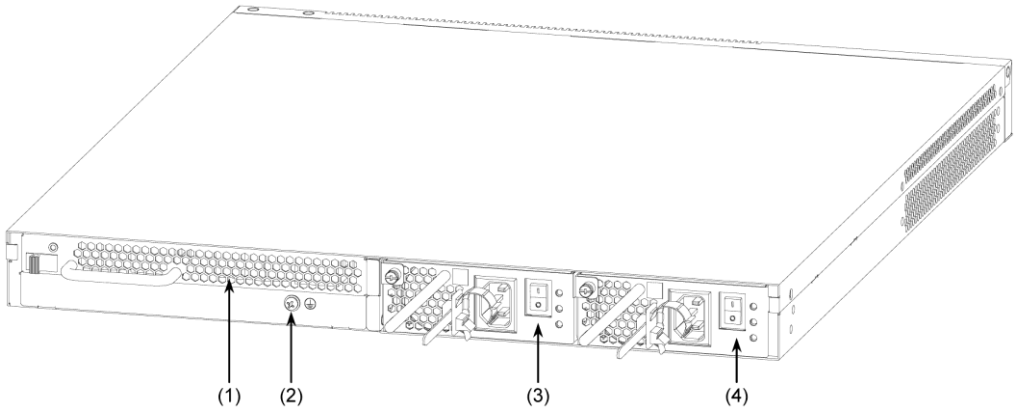
(5) System operation panel

(6) Security tape

NOTE

Do not peel away the security tape. If you do so, 開封済 will be displayed. The device is no longer under warranty if 開封済 is displayed.

Figure 1-41 Back view



(1) Fan unit slot

(2) Ground terminal

(3) Power supply unit slot 2

(4) Power supply unit slot 1

(2) Front panel

The front panel layout is shown in *Figure 1-42 Front panel layout*. The numbers in the figure correspond to those in *Table 1-20 LED indications, switches and connectors*.

AX3650S-48T4XW switches support the device sleep function and LED brightness control function (power control (brightness) mode and off mode) in order to save power.

Figure 1-42 Front panel layout

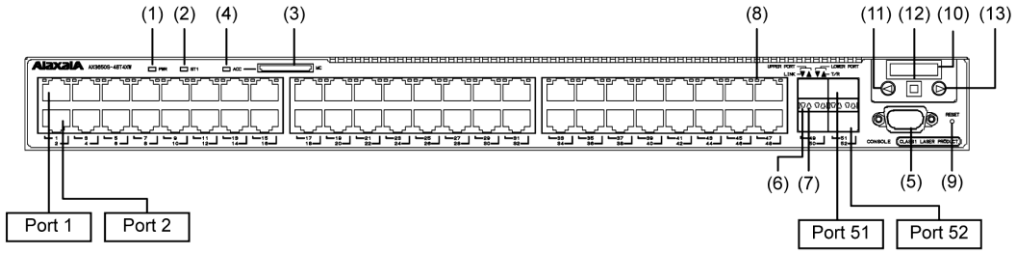


Table 1-20 LED indications, switches and connectors

Number	Name	Type	Description		LED brightness	Details
(1)	PWR	Green LED	Indicates the power supply status.	Lit in green	Normal	Powered-on.
				Blinking green[#1]	Normal	Asleep.
				Off	--	Powered-off or a failure with a power supply unit.
(2)	ST1	Green/Red LED	Indicates the device status.	Lit in green	Normal	Standing by or operating.
					Low[#3]	
				Blinking green	Normal	Getting ready (starting up).
				Blinking green[#1]	Lowest	Running in off mode.
				Blinking red	Normal	Partial failure with the switch
					Low[#2]	
				Lit in red	Normal	Fatal failure in the device (operation cannot continue)
					Low[#2]	
				Off	--	Powered-off or a failure with a power supply unit.
(3)	MC	Connector	Memory card slot	--	--	Memory card slot
(4)	ACC	Green LED	Indicates the memory card status.	Lit	Normal	Accessing the memory card. (Do not remove the memory card.)
					Low[#2]	
				Off	--	Memory card is in idle mode. (The memory card can be inserted or removed.)
(5)	CONSOLE	Connector	CONSOLE port	--	--	RS-232C port to connect a console terminal.
(6)	LINK	Green/Orange LED	Indicates the operating status of an SFP+ slot Ethernet port.	Lit in green	Normal	A link is established.
					Low[#3]	
				Lit in orange	Normal	Detecting line disturbances.
					Low[#3]	
				Off	--	A link failure or block when the green ST1 LED is lit.[#4]

Number	Name	Type	Description		LED brightness	Details
(7)	T/R	Green LED		Blinking green	Normal	Sending or receiving frames.
					Low[#3]	
(8)	1-48	Green/Orange LED	Indicates the operating status of a 10/100/1000BASE-T Ethernet port.	Lit in green	Normal	A link is established.
					Low[#3]	
				Blinking green	Normal	A link is established and frames are being sent or received.
					Low[#3]	
				Lit in orange	Normal	Detecting line disturbances.
					Low[#3]	
				Off	--	A link failure or block when the green ST1 LED is lit.[#4]
(9)	RESET	Button (momentary)	Manual RESET button of the device[#5]	--	--	Restarts the device.
(10)	Display	--	Not supported.			
(11)	BACK	Button	Not supported.			
(12)	ENTR	Button				
(13)	FWRD	Button				

#1: Blinking green over a long period of time (on: 0.5 seconds; off: 5 seconds)

#2: Operating in power control (brightness) mode or off mode

#3: Operating in power control (brightness) mode

#4: In off mode, a link might be established, frames might be sent or received, or line disturbances might be detected.

#5: The switch is behind the front panel. Use a small-head screwdriver to press it.

⚠WARNING When attempting to push the RESET button, 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.

1.1.14 AX3650S-20S6XW

The AX3650S-20S6XW model has the following hardware specifications:

- Ethernet 10/100/1000BASE-T ports: 4
- SFP slots: 20
- SFP+ slots: 6

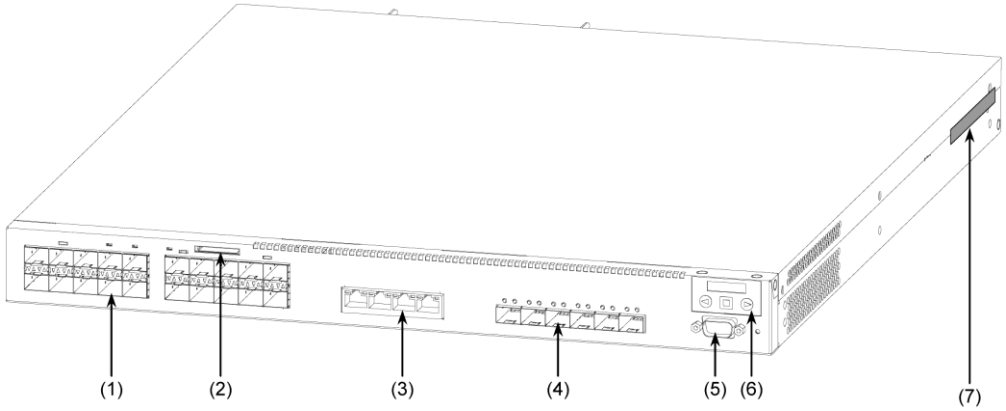
- Memory card slot: 1
- CONSOLE port: 1
- Power supply unit slots: 2
- Fan unit slot: 1

NOTE

For information about the SFPs and SFP+s supported by the Switch, see *1.7.1 SFP* and *1.7.2 SFP+*.

(1) External appearance

Figure 1-43 Front view



(1) SFP slot

(2) Memory card slot

(3) 10/100/1000BASE-T Ethernet port

(4) SFP+ slot

(5) CONSOLE port

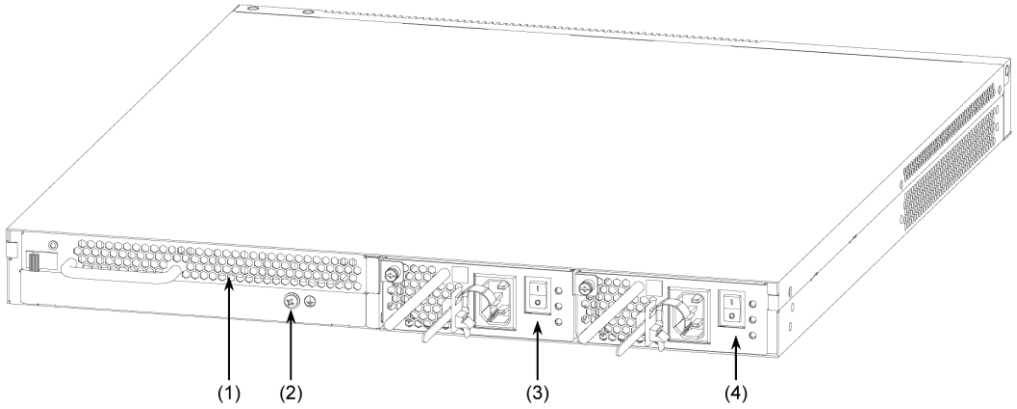
(6) System operation panel

(7) Security tape

NOTE

Do not peel away the security tape. If you do so, 開封済 will be displayed. The device is no longer under warranty if 開封済 is displayed.

Figure 1-44 Back view



(1) Fan unit slot

(2) Ground terminal

(3) Power supply unit slot 2

(4) Power supply unit slot 1

(2) Front panel

The front panel layout is shown in *Figure 1-45 Front panel layout*. The numbers in the figure correspond to those in *Table 1-21 LED indications, switches and connectors*.

AX3650-20S6XW switches support the device sleep function and LED brightness control function (power control (brightness) mode and off mode) in order to save power.

Figure 1-45 Front panel layout

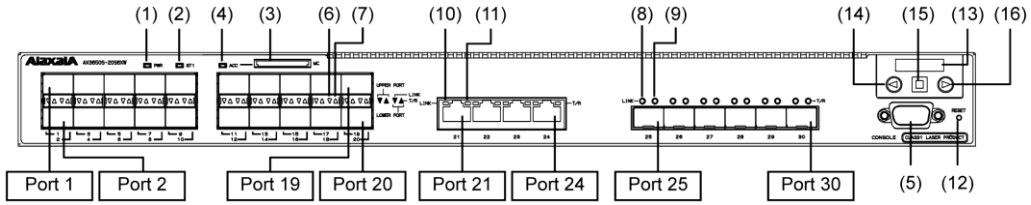


Table 1-21 LED indications, switches and connectors

Number	Name	Type	Description		LED brightness	Details
(1)	PWR	Green LED	Indicates the power supply status.	Lit in green	Normal	Powered-on.
				Blinking green[#1]	Normal	Asleep.
				Off	--	Powered-off or a failure with a power supply unit.
(2)	ST1	Green/Red LED	Indicates the device status.	Lit in green	Normal	Standing by or operating.
					Low[#3]	
				Blinking green	Normal	Getting ready (starting up).
				Blinking green[#1]	Lowest	Running in off mode.
				Blinking red	Normal	Partial failure with the switch
					Low[#2]	
				Lit in red	Normal	Fatal failure in the device (operation cannot continue)
					Low[#2]	
				Off	--	Powered-off or a failure with a power supply unit.
(3)	MC	Connector	Memory card slot	--	--	Memory card slot
(4)	ACC	Green LED	Indicates the memory card status.	Lit	Normal	Accessing the memory card. (Do not remove the memory card.)
					Low[#2]	
				Off	--	Memory card is in idle mode. (The memory card can be inserted or removed.)
(5)	CONSOLE	Connector	CONSOLE port	--	--	RS-232C port to connect a console terminal.
(6)	LINK	Green/Orange LED	Indicates the operating status of an SFP slot Ethernet port.	Lit in green	Normal	A link is established.
					Low[#3]	
				Lit in orange	Normal	Detecting line disturbances.
					Low[#3]	

Number	Name	Type	Description		LED brightness	Details
				Off	--	A link failure or block when the green ST1 LED is lit.[#4]
(7)	T/R	Green LED		Blinking green	Normal	Sending or receiving frames.
					Low[#3]	
(8)	LINK	Green/Orange LED	Indicates the operating status of an SFP+ slot Ethernet port.	Lit in green	Normal	A link is established.
					Low[#3]	
				Lit in orange	Normal	Detecting line disturbances.
					Low[#3]	
				Off	--	A link failure or block when the green ST1 LED is lit.[#4]
(9)	T/R	Green LED		Blinking green	Normal	Sending or receiving frames.
					Low[#3]	
(10)	LINK	Green/Orange LED	Indicates the operating status of a 10/100/1000BASE-T Ethernet port.	Lit in green	Normal	A link is established.
					Low[#3]	
				Lit in orange	Normal	Detecting line disturbances.
					Low[#3]	
				Off	--	A link failure or block when the green ST1 LED is lit.[#4]
(11)	T/R	Green LED		Blinking green	Normal	Sending or receiving frames.
					Low[#3]	
(12)	RESET	Button (momentary)	Manual RESET button of the device[#5]	--	--	Restarts the device.
(13)	Display	--	Not supported.			
(14)	BACK	Button	Not supported.			
(15)	ENTR	Button				
(16)	FWRD	Button				

#1: Blinking green over a long period of time (on: 0.5 seconds; off: 5 seconds)

#2: Operating in power control (brightness) mode or off mode

#3: Operating in power control (brightness) mode

#4: In off mode, a link might be established, frames might be sent or received, or line disturbances might be detected.

#5: The switch is behind the front panel. Use a small-head screwdriver to press it.

⚠WARNING When attempting to push the RESET button, 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.

1.1.15 AX3830S-44XW

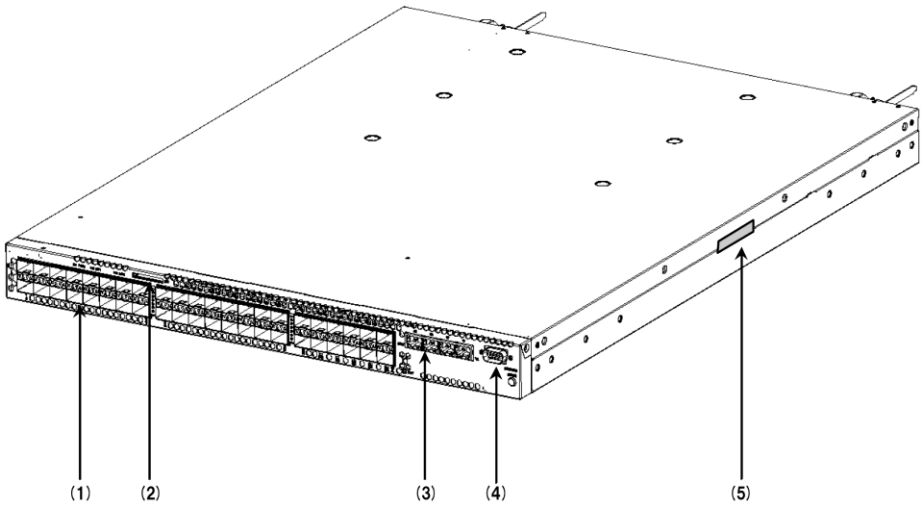
The AX3830S-44XW model has the following hardware specifications:

- Ethernet 10/100/1000BASE-T ports: 4
- SFP+ slots: 44
- Memory card slot: 1
- CONSOLE port: 1
- Power supply unit slots: 2
- Fan unit slot: 1

NOTE For information about the SFPs and SFP+s supported by the Switch, see *1.7.1 SFP* and *1.7.2 SFP+*.

(1) External appearance

Figure 1-46 Front view



(1) SFP+ slot

(2) Memory card slot

(3) 10/100/1000BASE-T Ethernet port

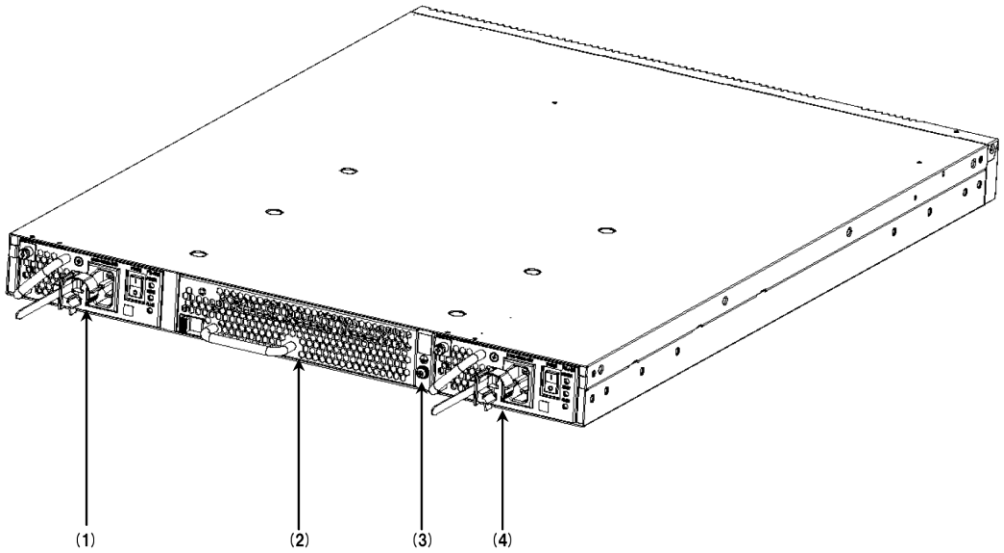
(4) CONSOLE port

(5) Security tape

NOTE

Do not peel away the security tape. If you do so, 開封済 will be displayed. The device is no longer under warranty if 開封済 is displayed.

Figure 1-47 Back view



(1) Power supply unit slot 2

(2) Fan unit slot

(3) Ground terminal

(4) Power supply unit slot 1

(2) Front panel

The front panel layout is shown in *Figure 1-48 Front panel layout*. The numbers in the figure correspond to those in *Table 1-22 LED indications, switches and connectors*.

AX3830S-44XW supports the device sleep function and LED brightness control function (power control (brightness) mode and off mode).

Figure 1-48 Front panel layout

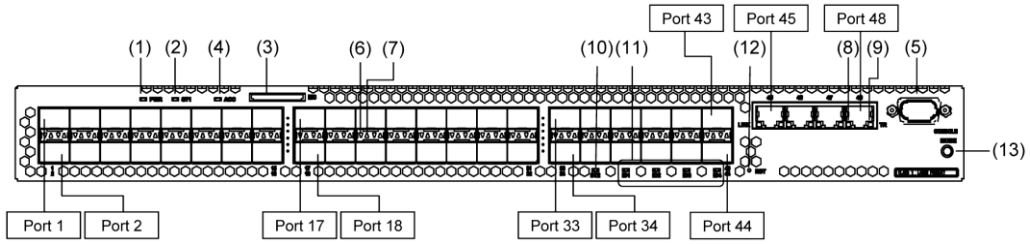


Table 1-22 LED indications, switches and connectors

Number	Name	Type	Description		LED brightness	Details
(1)	PWR	Green LED	Indicates the power supply status.	Lit in green	Normal	Powered-on.
				Blinking green[#1]	Normal	Asleep.
				Off	--	Powered-off or a failure with a power supply unit.
(2)	ST1	Green/Red LED	Indicates the device status.	Lit in green	Normal	Standing by or operating.
					Low[#3]	
				Blinking green	Normal	Getting ready (starting up).
				Blinking green[#1]	Lowest	Running in off mode.
				Blinking red	Normal	Partial failure with the switch
					Low[#2]	
				Lit in red	Normal	Fatal failure in the device (operation cannot continue)
					Low[#2]	
				Off	--	Powered-off or a failure with a power supply unit.
(3)	MC	Connector	Memory card slot	--	--	Memory card slot
(4)	ACC	Green LED	Indicates the memory card status.	Lit	Normal	Accessing the memory card. (Do not remove the memory card.)
					Low[#2]	
				Off	--	Memory card is in idle mode. (The memory card can be inserted or removed.)
(5)	CONSOLE	Connector	CONSOLE port	--	--	RS-232C port to connect a console terminal.
(6)	LINK	Green/Orange LED	Indicates the operating status of an SFP+ slot Ethernet port.	Lit in green	Normal	A link is established.
					Low[#3]	
				Lit in orange	Normal	Detecting line disturbances.
					Low[#3]	

Number	Name	Type	Description		LED brightness	Details
				Off	--	A link failure or block when the green ST1 LED is lit.[#4]
(7)	T/R	Green LED		Blinking green	Normal	Sending or receiving frames.
					Low[#3]	
(8)	LINK	Green/Orange LED	Indicates the operating status of a 10/100/1000BASE-T Ethernet port.	Lit in green	Normal	A link is established.
					Low[#3]	
				Lit in orange	Normal	Detecting line disturbances.
					Low[#3]	
				Off	--	A link failure or block when the green ST1 LED is lit.[#4]
(9)	T/R	Green LED		Blinking green	Normal	Sending or receiving frames.
					Low[#3]	
(10)	ST2	Green LED	(Not used)	Off	--	
(11)	ID1 to ID4	Green LED	(Not used)	Off	--	
(12)	RESET	Button (momentary)	Manual RESET button of the device[#5]	--	--	Restarts the device.
(13)	MODE	Button (momentary)	(Not used)	--	--	

#1: Blinking green over a long period of time (on: 0.5 seconds; off: 5 seconds)

#2: Operating in power control (brightness) mode or off mode

#3: Operating in power control (brightness) mode

#4: In off mode, a link might be established, frames might be sent or received, or line disturbances might be detected.

#5: The switch is behind the front panel. Use a small-head screwdriver to press it.

⚠WARNING When attempting to push the RESET button, 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.

1.1.16 Accessories

The items listed in *Table 1-23 Switch accessories* are included as accessories with shipment of the switch.

Table 1-23 Switch accessories

Number	Item	Applicable model				Quantity	Notes
		AC power model AC power (PoE) model	DC power model	Power redundancy model (AX3600S)	Power redundancy model (AX3830S)		
1	Prior to using a "switch"	Yes	Yes	Yes	Yes	1	"switch" is replaced with the series name.
2	For Safe Operation	Yes	Yes	Yes	Yes	1	
3	Software License Agreement	Yes	Yes	Yes	Yes	1	
4	AC power cable	Yes	--	--	--	1	3m
5	DC power cable	--	Yes	--	--	1	3m
6	Ground cable	--	Yes	--	--	1	3m
7	Rubber pad	Yes	Yes	Yes	Yes	4	
8	Rack mounting bracket	Yes	Yes	Yes	--	2	1 each for left and right
		--	--	--	Yes	6	One left bracket and one right bracket for the front surface, the rear surface, and for attaching to the rear surface
9	Screws	Yes	Yes	Yes	--	12	M3'6
		--	--	--	Yes	16	M4'6
		--	--	--	Yes	4	M3'8
10	Dummy memory card	Yes	Yes	Yes	Yes	1	

Number	Item	Applicable model				Quantity	Notes
		AC power model AC power (PoE) model	DC power model	Power redundancy model (AX3600S)	Power redundancy model (AX3830S)		
11	Note on Use of the dummy memory card	Yes	Yes	Yes	Yes	1	

(1) Prior to use of AX3800S/AX3600S/AX2400S series switches

List of the bundled items with shipment of the Switch.

(2) For Safe Operation

Cautionary notes for safe use of the Switch are described.

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

(3) Software License Agreement

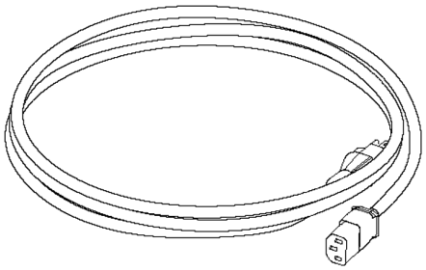
Terms and conditions regarding use of the software installed on the Switch.

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

(4) AC power cable

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

Figure 1-49 AC power cable



⚠WARNING Make sure to use the accessory power cable when any AC power or AC (PoE) model is connected to 100 V AC. Other cable except the bundled one may cause a fire and/or an electric shock. In addition, use the accessory cable only for the Switch. Otherwise, a fire and/or an electric shock may be the result.

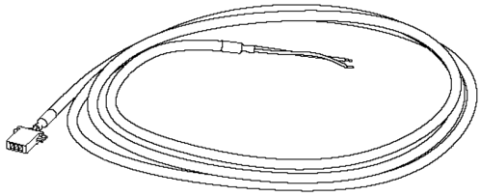
⚠WARNING Make sure to use a power cable specified by ALAXALA Networks Corporation when any AC model is connected to 200 V AC. Otherwise, a fire or an electric shock might result.

NOTE For required specifications of power cables, see *2.3.2 Electrical power equipment for 200 V AC*.

(5) DC power cable

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

Figure 1-50 DC power cable



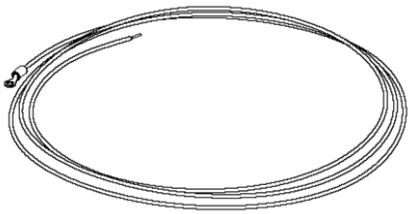
⚠WARNING Make sure to use the accessory power cable for any DC model. Other cable except the bundled one may cause a fire and/or an electric shock. In addition, use the accessory cable only for the Switch. Otherwise, a fire and/or an electric shock may be the result.

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

(6) Ground cable

Three meter ground cable shown in *Figure 1-51 Ground cable* is bundled with DC models.

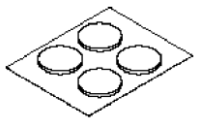
Figure 1-51 Ground cable



(7) Rubber pad

Use these pads to install the product on a table.

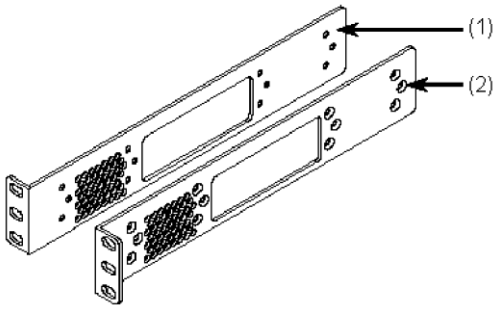
Figure 1-52 Rubber pad



(8) Rack mounting bracket

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

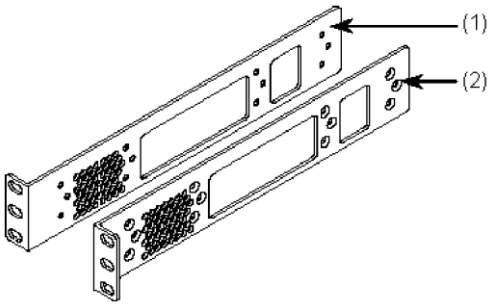
Figure 1-53 Rack mounting brackets for AC and DC models



(1) Rack mounting bracket (L)

(2) Rack mounting bracket (R)

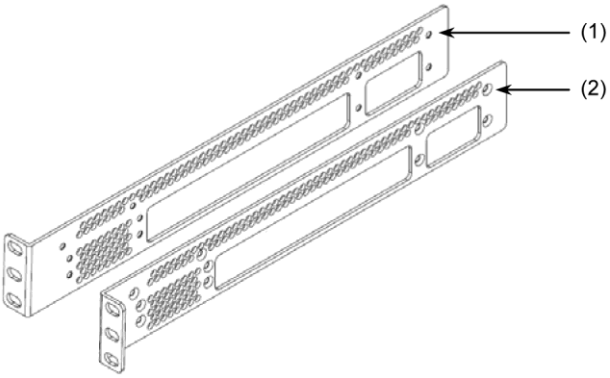
Figure 1-54 Rack mounting brackets for AC (PoE) and redundant power models (AX3630S and AX3640S)



(1) Rack mounting bracket (L)

(2) Rack mounting bracket (R)

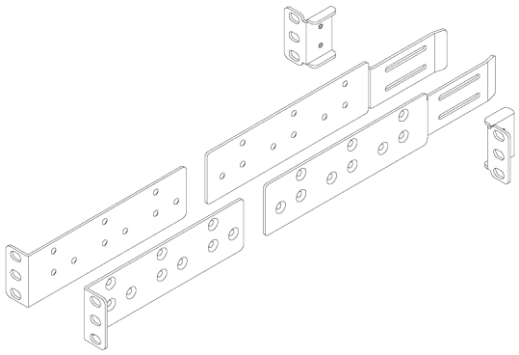
Figure 1-55 Rack mounting brackets for redundant power model (AX3650S)



(1) Rack mounting bracket (L)

(2) Rack mounting bracket (R)

Figure 1-56 Rack mounting brackets (for redundant power models in the AX3830S series)



NOTE

There are four types of rack mounting brackets:

- For AC and DC models: 12 screw holes
- For AC power (PoE) and redundant power models (AX3630S and AX3640S), and EPU: 12 screw holes with label information "24P/EPU"
- For redundant power model (AX3650S): 10 screw holes
- For redundant power model (AX3830S): 20 screw holes

Confirm that the correct brackets have been selected before attaching the brackets to the device.

(9) Screws

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

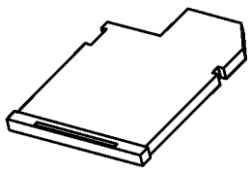
Figure 1-57 Screws (AX2400S and AX3600S)

Figure 1-58 Screws (AX3830S)

(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 1-59 Dummy memory card



(11) Note on use of the dummy memory card

Procedures and cautionary notes on handling the dummy memory card.

1.2 Power supply (PS)

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

There are different types of power supplies: those that support redundant power models, AX3630S and AX3640S series switches, and those that support AX3650S and AX3830S series switches.

The available combinations of switches and power supplies are shown in *Table 1-24 Available combinations of switches and power supplies*.

Table 1-24 Available combinations of switches and power supplies

Series	Model name	Compatible power supply	
		100 V AC and 200 V AC	−48 V DC
AX3630S	AX3630S-48TW AX3630S-48T2XW AX3630S-24S2XW	PS-A01	PS-D01
AX3640S	AX3640S-24TW AX3640S-24T2XW AX3640S-48TW AX3640S-48T2XW AX3640S-24SW AX3640S-24S2XW		
AX3650S	AX3650S-24T6XW AX3650S-48T4XW AX3650S-20S6XW	PS-A03	--
AX3830S	AX3830S-44XW		

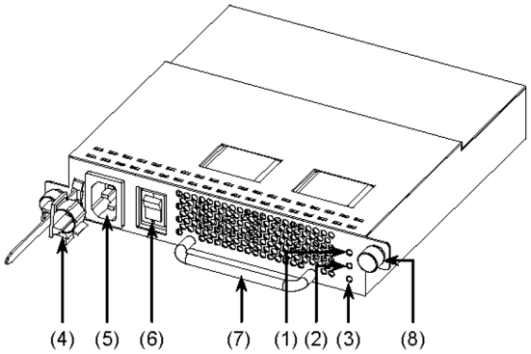
1.2.1 PS-A01

PS-A01 is a power supply unit for the redundant power models in the AX3630S and AX3640S series.

This power supply unit supports 100 V AC and 200 V AC.

Figure 1-60 External appearance shows its appearance. For the LEDs in the figure, see *Table 1-25 LED indication*.

Figure 1-60 External appearance



(1) POWER LED

(2) ALM1 LED

(3) ALM2 LED

(4) Cable clamp

(5) AC power connector

(6) Power switch

(7) Handle

(8) Screws

Table 1-25 LED indication

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

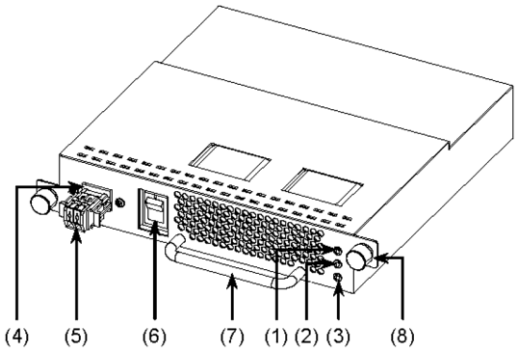
1.2.2 PS-D01

PS-D01 is a power supply unit for the redundant power models in the AX3630S and AX3640S series.

This power supply unit supports −48 V DC.

Figure 1-61 External appearance shows its appearance. For the LEDs in the figure, see *Table 1-26 LED indication*.

Figure 1-61 External appearance



(1) POWER LED

(2) ALM1 LED

(3) ALM2 LED

(4) Connector

(5) Cable connector

(6) Power switch

(7) Handle

(8) Screws

Table 1-26 LED indications

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

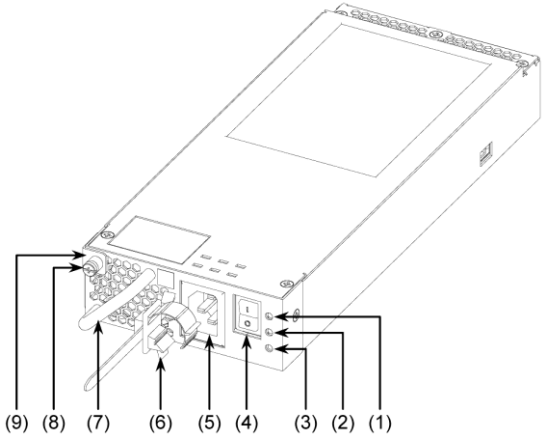
1.2.3 PS-A03

PS-A03 is a power supply unit for the redundant power models in the AX3830S and AX3650S series.

This power supply unit supports 100 V AC and 200 V AC.

Figure 1-62 External appearance shows its appearance. For the LEDs in the figure, see *Table 1-27 LED indication*.

Figure 1-62 External appearance



(1) POWER LED

(2) ALM1 LED

(3) ALM2 LED

(4) Power switch

(5) AC power connector

(6) Cable clamp

(7) Handle

(8) Screws

(9) Handle

Table 1-27 LED indications

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

#2: LED is turned off in the sleep mode.

1.2.4 Power supply accessories

The items listed in *Table 1-28 Power supply accessories* are included as accessories with shipment of the power supply unit.

Table 1-28 Power supply accessories

Number	Item	Quantity	Notes
1	Check list for bundled items	1	
2	For Safe Operation	1	
3	AC power cable	1	3 m (for PS-A01 and PS-A03)
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 unit.

(2) For Safe Operation

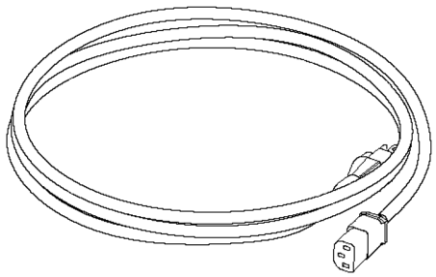
Cautionary notes for safe use of the Switch are described.

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

(3) AC power cable

The cable (3 m long) is for a 100 V AC power supply unit. Use it to connect a PS-A01 or PSA03 with your electrical power equipment. This item is bundled with PS-A01s and PS-A03s.

Figure 1-63 AC power cable



⚠WARNING Make sure to use this accessory power cable when a PS-A01 or PS-A03 is connected to 100 V AC. Other cable except the bundled one may cause a fire and/or an electric shock. In addition, use the accessory cable only for the Switch. Otherwise, a fire and/or an electric shock may be the result.

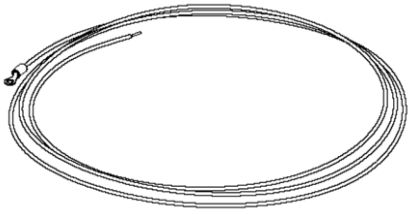
⚠WARNING Make sure to use a power cable specified by ALAXALA Networks Corporation when a PS-A01 or PS-A03 is connected to 200 V AC. Otherwise, a fire or an electric shock might result.

NOTE For required specifications of power cables, see *2.3.2 Electrical power equipment for 200 V AC*.

(4) Ground cable

The cable (3 m long) is for grounding. Use it when a PS-D01 is inserted into any redundant power model (AX3630S or AX3640S). This item is bundled with a PS-D01.

Figure 1-64 Ground cable



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

NOTE For required specifications of power cables, see *2.3.4 Electrical power equipment for −48 V DC (redundant power models (AX3630S and AX3640S))*.

1.3 Fan unit (FAN)

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

There are different types of fan units: those that support redundant power models, AX3630S and AX3640S series switches, and those that support AX3650S and AX3830S series switches.

The available combinations of switches and fan units are shown in *Table 1-29 Combinations of switches and fan units*.

Table 1-29 Combinations of switches and fan units

Series	Model name	Compatible fan unit
AX3630S	AX3630S-48TW AX3630S-48T2XW AX3630S-24S2XW	FAN-01
AX3640S	AX3640S-24TW AX3640S-24T2XW AX3640S-48TW AX3640S-48T2XW AX3640S-24SW AX3640S-24S2XW	
AX3650S	AX3650S-24T6XW AX3650S-48T4XW AX3650S-20S6XW	FAN-03
AX3830S	AX3830S-44XW	FAN-04

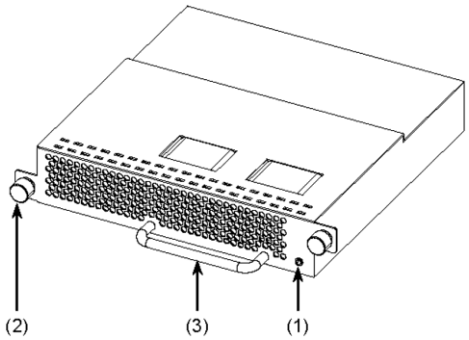
1.3.1 FAN-01

FAN-01 is a fan unit for the redundant power models in the AX3630S and AX3640S series.

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

Figure 1-65 External appearance shows its appearance. For the LEDs in the figure, see *Table 1-30 LED indication*.

Figure 1-65 External appearance



(1) ALM LED

(2) Screws

(3) Handle

Table 1-30 LED indication

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

NOTE

Two fan components are installed in the fan unit and the other two fan components are installed in the power supply unit (PS-A01/D01). This enables uninterrupted operation and cooling performance, even if one of the four fan components fails. If a fan unit fails, replace it.

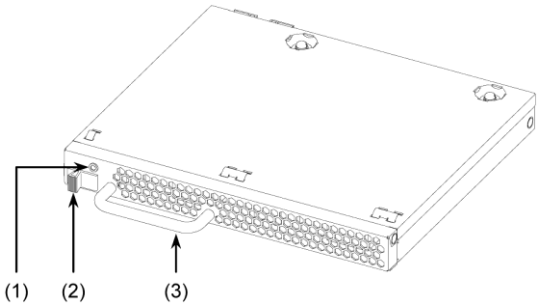
To replace the fan unit, see *5.5 Replacement of a fan unit*.

1.3.2 FAN-03

FAN-03 is a fan unit for the redundant power models in the AX3650S series. It is inserted into the fan unit slot on the chassis regardless of the number of power supply units.

Figure 1-66 External appearance shows its appearance. For the LEDs in the figure, see *Table 1-31 LED indication*.

Figure 1-66 External appearance



(1) ALM LED

(2) Latch

(3) Handle

Table 1-31 LED indication

Number	Name	Type	Description	Details
(1)	ALM	Red LED	Indicates fan failure.	Lit in red: Fault detection[#1] Off: Normal.

#1: LED is turned off in the sleep mode.

NOTE

Four fan components are installed in the fan unit. This enables uninterrupted operation and cooling performance even if one of the four fan components fails. However, if the fan unit has failed, replace it.

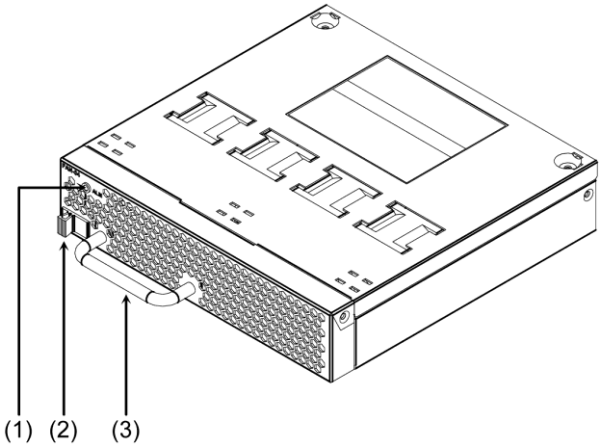
To replace the fan unit, see *5.5 Replacement of a fan unit*.

1.3.3 FAN-04

FAN-04 is a fan unit for the redundant power models in the AX3830S series. It is inserted into the fan unit slot on the chassis regardless of the number of power supply units.

Figure 1-67 External appearance shows its appearance. For the LEDs in the figure, see *Table 1-32 LED indication*.

Figure 1-67 External appearance



(1) ALM LED

(2) Latch

(3) Handle

Table 1-32 LED indication

Number	Name	Type	Description	Details
(1)	ALM	Red LED	Indicates fan failure.	Lit in red: Fault detection[#1] Off: Normal.

#1: LED is turned off in the sleep mode.

NOTE

Four fan components are installed in the fan unit. This enables uninterrupted operation and cooling performance even if one of the four fan components fails. However, if the fan unit has failed, replace it.
To replace the fan unit, see *5.5 Replacement of a fan unit*.

1.3.4 Fan unit accessories

The items listed in *Table 1-33 Fan unit accessories* are included as accessories with shipment of the fan unit.

Table 1-33 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

Cautionary 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 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 models and EPU-B for AC (PoE) models. Available combination of the main devices, EPUs and power supply modules are shown in *Table 1-34 Compatibility of main devices with external power units (EPUs) and power supply modules*.

EPUs contain power supply modules. One power supply module can serve as the stand-by power supply unit 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 1-34 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 model	AX2430S-24T AX2430S-24T2X AX2430S-48T AX2430S-48T2X AX3630S-24T AX3630S-24T2X AX3640S-24T	EPU-A	EPU-AM
AC (PoE) model	AX3630S-24P	EPU-B	EPU-BM

1.4.1 EPU-A

External power units for AC models are described below.

EPU-A has the following hardware specifications:

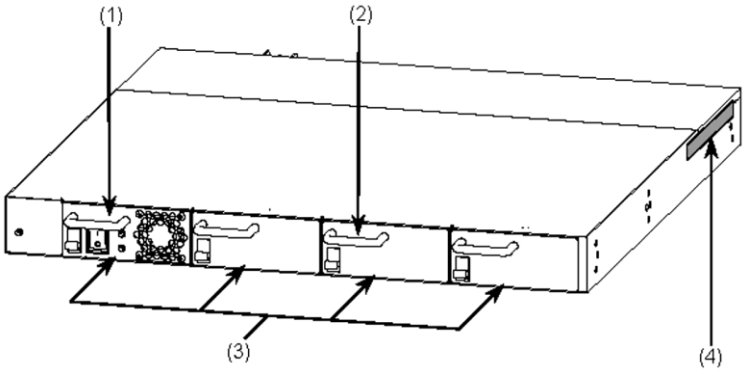
- Power supply module slots: 4
- Power supply module (EPU-AM): 1

NOTE

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

(1) External appearance

Figure 1-68 Front view



(1) Power supply module EPU-AM (mounted in slot 1 when shipped)

(2) Blank panel

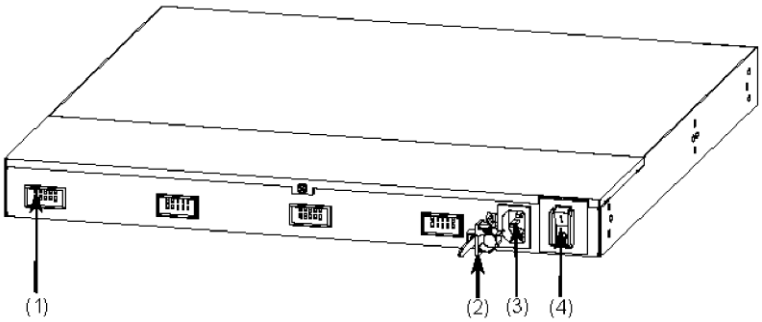
(3) Power supply module slots (4)

(4) Security tape

NOTE

Do not peel away the security tape. If you do so, 開封済 will be displayed. The device is no longer under warranty if 開封済 is displayed.

Figure 1-69 Back view



(1) Standby power 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 1-70 Front layout* and *Figure 1-71 Back layout*, respectively. The numbers in the figure correspond to those in *Table 1-35 LED indications, switches and connectors*.

Figure 1-70 Front layout

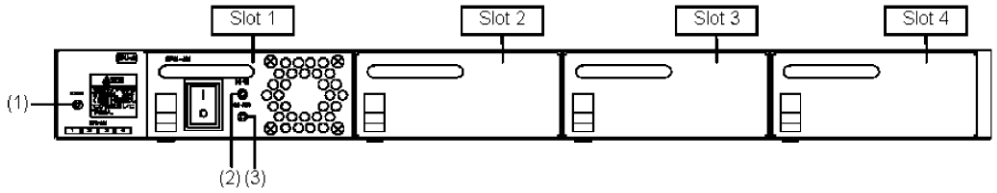


Figure 1-71 Back layout

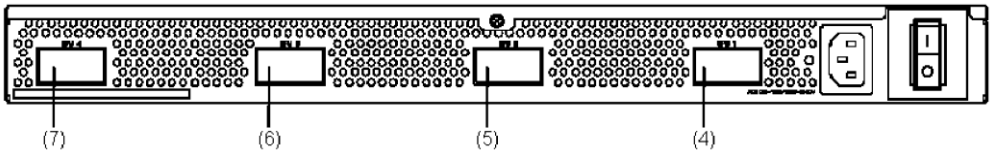


Table 1-35 LED indications, switches and connectors

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	Standby power connector 1	To output electrical power from the power supply module mounted in slot 1. Connect the standby power cable bundled with the EPU to the standby power connector on the back face of the switch.
(5)	EPU 2	Connector	Standby power connector 2	To output electrical power from the power supply module mounted in slots 2 to 4. Connect the standby power cable bundled with the power supply module to the standby power connector on the back face of the switch.
(6)	EPU 3	Connector	Standby power connector 3	
(7)	EPU 4	Connector	Standby power connector 4	

1.4.2 EPU-B

External power unit for the AC (PoE) models.

EPU-B has the following hardware specifications:

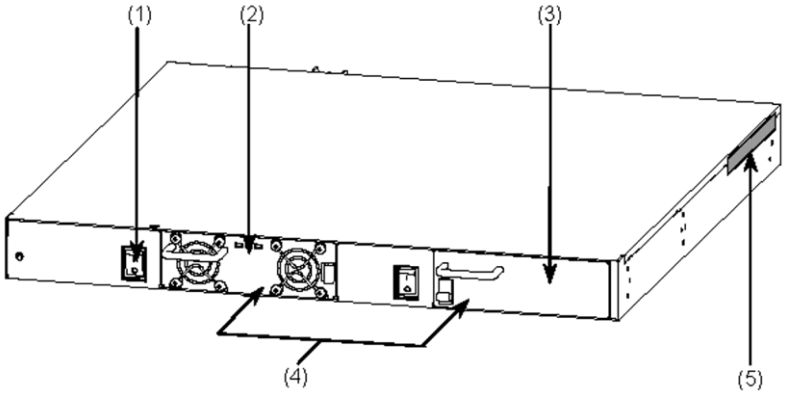
- Power supply module slots: 2
- Power supply module (EPU-BM): 1

NOTE

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

(1) External appearance

Figure 1-72 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

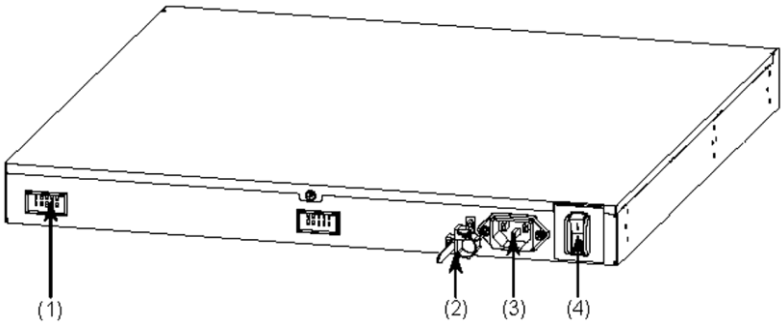
(4) Power supply module slots (2)

(5) Security tape

NOTE

Do not peel away the security tape. If you do so, 開封済 will be displayed. The device is no longer under warranty if 開封済 is displayed.

Figure 1-73 Back view



(1) Standby power 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 1-74 Front layout* and *Figure 1-75 Back layout*, respectively. The numbers in the figure correspond to those in *Table 1-36 LED indications, switches and connectors*.

Figure 1-74 Front layout

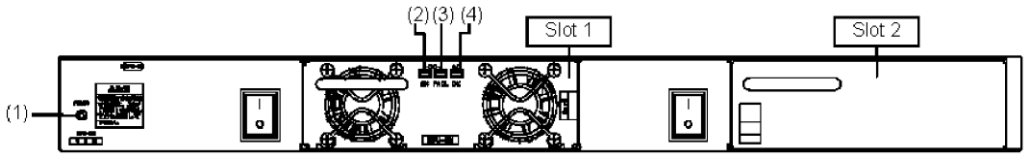


Figure 1-75 Back layout

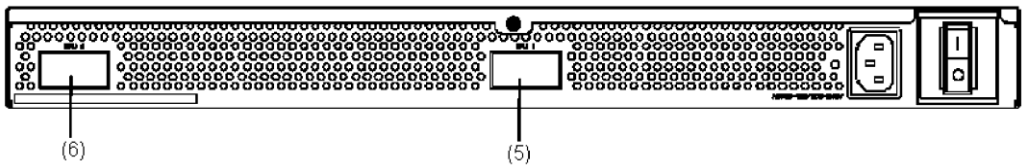


Table 1-36 LED indications, switches and connectors

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	Standby power connector 1	To output electrical power from the power supply module mounted in slot 1. Connect the standby power cable bundled with the EPU to the standby power connector on the back face of the switch.

Number	Name	Type	Description	Details
(6)	EPU 2	Connector	Standby power connector 2	To output electrical power from the power supply module mounted in slot 2. Connect the standby power cable bundled with the power supply module to the standby power connector on the back face of the switch.

1.4.3 EPU accessories

The items listed in *Table 1-37 EPU accessories* are included as accessories with the shipment of an EPU.

Table 1-37 EPU accessories

Number	Item	Quantity	Notes
1	Check list for bundled items	1	
2	For Safe Operation	1	
3	AC power cable	1	3m
4	Standby power cable	1	1.5m
5	Rubber pad	4	
6	Rack mounting bracket	2	1 each for left and right
7	Screws	12	M3 x 6

(1) Check list for bundled items

List of the bundled items with shipment of the EPU

(2) For Safe Operation

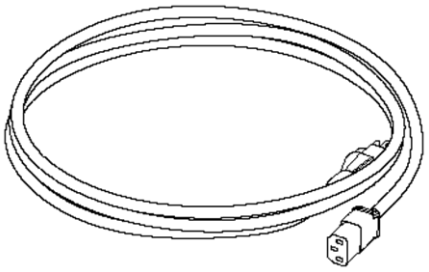
Cautionary notes for safe use of the Switch are described.

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

(3) AC power cable

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

Figure 1-76 AC power cable

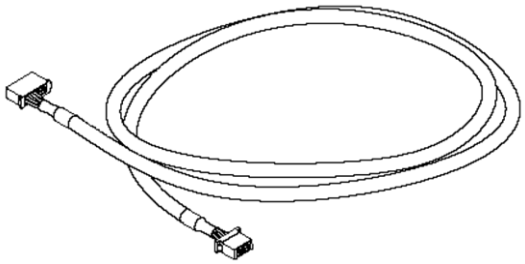


⚠WARNING Make sure to use the accessory power cable. Other cable except the bundled one may cause a fire and/or an electric shock. In addition, use the accessory cable only for the Switch. Otherwise, a fire and/or an electric shock may be the result.

(4) Standby power cable

Standby power cable (1.5 meter long). Use it to connect the EPU to the main device.

Figure 1-77 Standby power cable



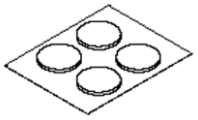
⚠WARNING Make sure to use the accessory power cable. Other cable except the bundled one may cause a fire and/or an electric shock. In addition, use the accessory cable only for the Switch. Otherwise, a fire and/or an electric shock may be the result.

NOTE There are two types of standby power 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.

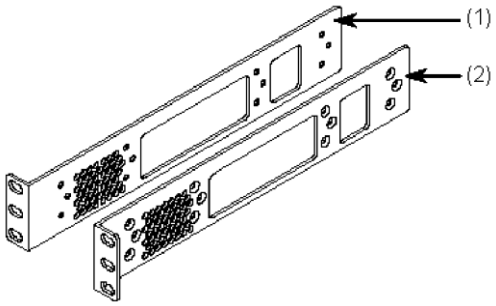
Figure 1-78 Rubber pad



(6) Rack mounting bracket

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

Figure 1-79 Rack mounting bracket



(1) Rack mounting bracket (L)

(2) Rack mounting bracket (R)

NOTE

There are four types of rack mounting brackets:

- For AC and DC models: 12 screw holes
- For AC power (PoE) and redundant power models (AX3630S and AX3640S), and EPU: 12 screw holes with label information "24P/EPU"
- For redundant power model (AX3650S): 10 screw holes
- For redundant power model (AX3830S): 20 screw holes

Confirm that the correct brackets have been selected before attaching the brackets to the device.

(7) Screws

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

Figure 1-80 Screws

1.5 Power supply module

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

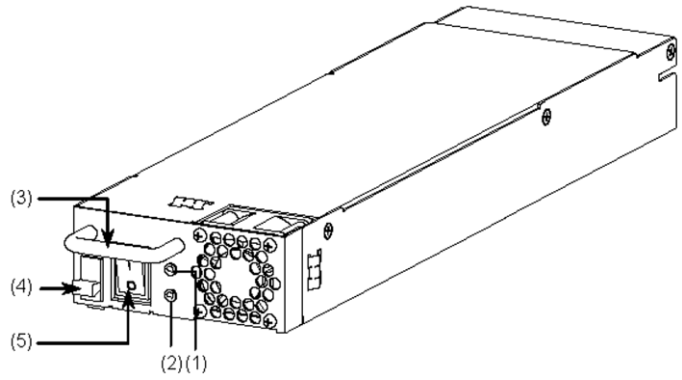
There are two types of power supply modules: EPU-AM for EPU-A and EPU-BM for EPU-B. For available combination of switches, EPUs and power supply modules, see *1.4 External power unit (EPU)*.

1.5.1 EPU-AM

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

Figure 1-81 External appearance shows its appearance. For descriptions about (1) and (2) in the figure, see *Table 1-38 LED indication*.

Figure 1-81 External appearance



(1) DC-OK LED

(2) DC-ALM LED

(3) Handle

(4) Latch

(5) Power switch

Table 1-38 LED indications

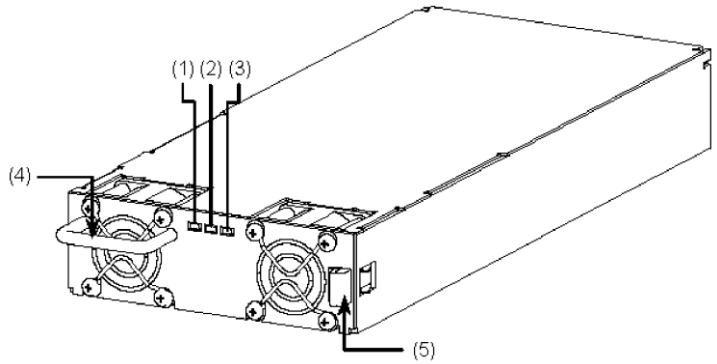
Number	Name	Type	Description	Details
(1)	DC-OK	Green LED	Indicates the power output status from the power supply modules.	Lit in green: Normal output from the power supply modules. Off: Output power failure from the power supply modules or powered-off.
(2)	DC-ALM	Red LED	Indicates the power output status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

Figure 1-82 External appearance shows its appearance. For descriptions about (1) to (3) in the figure, see *Table 1-39 LED indication*.

Figure 1-82 External appearance



(1) DC-OK LED

(2) DC-FAIL LED

(3) AC-OK LED

(4) Handle

(5) Latch

Table 1-39 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: Normal output from the power supply modules. Off: 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: Output power failure from the power supply modules. Off: 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: Normal input to the power supply modules. Off: Input power failure to the power supply modules or powered-off.

1.5.3 Power supply module accessories

The items listed in *Table 1-40 Power supply module accessories* are included as accessories with shipment of the power supply module.

Table 1-40 Power supply module accessories

Number	Item	Quantity	Notes
1	Check list for bundled items	1	
2	For Safe Operation	1	

Number	Item	Quantity	Notes
3	Standby power cable	1	1.5m

(1) Check list for bundled items

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

(2) For Safe Operation

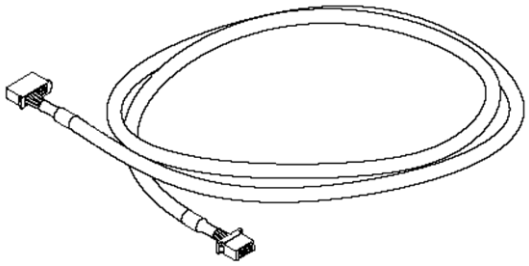
Cautionary notes for safe use of the Switch are described.

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

(3) Standby power cable

Standby power cable (1.5 meter long). Use it to connect the EPU to the main device.

Figure 1-83 Standby power cable



⚠WARNING

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

NOTE

There are two types of standby power 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.

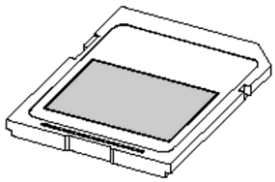
The memory card is used for the following:

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

(1) SD128 and SD128 (T)

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

Figure 1-84 External appearance

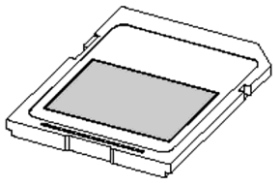


Label information: AlaxalA SD128 or AlaxalA SD128 (T)

(2) SD1G

Below is an SD memory card with a 1-GB capacity.

Figure 1-85 External appearance



Label information: AlaxalA SD1G

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 an SFP or SFP+ slot on the chassis. The SFP type can be identified by one of the following items:

- SFP shape and handle color (except for SFP-FX, SFP-FX (T), SFP-SX, and SFP-SX (T))
- Label information

Note that which SFPs are supported depends on the switch. For compatibility between the switch and SFPs, see *Table 1-41 SFP list*.

NOTE

To identify an SFP-FX, SFP-FX (T), SFP-SX, or SFP-SX (T), check the label information.

NOTE

If the SFP is inserted into a switch, the SFP type can be identified by the interface information displayed by the `show port` command.

For details about the `show port` command, see *14. Ethernet* in the *Software Manual Configuration Guide Vol. 1*.

Table 1-41 SFP list

Number	Module name	Interface	Supported models
1	SFP-T SFP-T (T)	Ethernet 10/100/1000BASE-T (PoE not supported)	AX3630S-24S2XW[#1] AX3640S-24SW[#1] AX3640S-24S2XW[#1] AX3650S-20S6XW[#2] AX3830S series[#5]
2	SFP-FX SFP-FX (T)	Ethernet 100BASE-FX	AX3640S-24SW[#1] AX3640S-24S2XW[#1] AX3650S-20S6XW[#2]
3	SFP-SX SFP-SX (T)	Gigabit Ethernet 1000BASE-SX	AX2430S series AX3630S series AX3640S series AX3650S series AX3830S series
4	SFP-SX2 SFP-SX2 (T)	Gigabit Ethernet 1000BASE-SX2	AX2430S series AX3630S series AX3640S series AX3650S-20S6XW[#2]
5	SFP-LX SFP-LX (T)	Gigabit Ethernet 1000BASE-LX	AX2430S series AX3630S series AX3640S series AX3650S series AX3830S series
6	SFP-LH SFP-LH (T)	Gigabit Ethernet 1000BASE-LH	

Number	Module name	Interface	Supported models
7	SFP-LHB SFP-LHB (T)	Gigabit Ethernet 1000BASE-LHB	
8	SFP-BX1U SFP-BX1U (T)	Gigabit Ethernet 1000BASE-BX10-U#3	
9	SFP-BX1D SFP-BX1D (T)	Gigabit Ethernet 1000BASE-BX10-D#3	
10	SFP-BX4U SFP-BX4U (T)	Gigabit Ethernet 1000BASE-BX40-U#4	
11	SFP-BX4D SFP-BX4D (T)	Gigabit Ethernet 1000BASE-BX40-D#4	

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

#2: Connections can be established with SFP slot ports 1 to 20.

#3: 1000BASE-BX10-U and 1000BASE-BX10-D are paired for use.

#4: 1000BASE-BX40-U and 1000BASE-BX40-D are paired for use.

#5: Only 1000BASE-T operations are supported.

⚠CAUTION The SFPs (except for SFP and SFP-T (T) transceivers) 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 certify that they are standard products of the manufacturer or ALAXALA Networks Corporation. These labels are attached so as not to disturb heat radiation from the transceiver or the mechanism to avoid dropping from the cage.

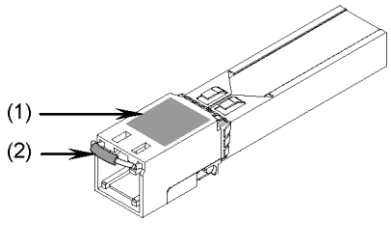
Attaching a label on an interfering part with heat radiation or the mechanism to avoid dropping from the cage might cause a failure in the transceiver or damage to the device.

NOTE

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

(1) SFP-T and SFP-T (T)

Figure 1-86 External appearance



(1) Label information: AlaxalA SFP-T or AlaxalA SFP-T (T) transceivers

Label color: White

(2) Handle color: Yellow

NOTE

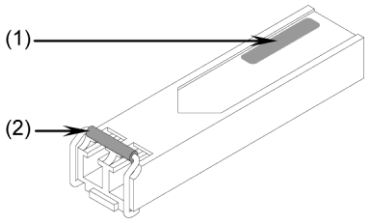
SFP-T and SFP-T (T) transceivers are supported by ports 5 to 24 of the AX3630S-24S2XW, AX3640S-24SW, and AX3640S-24S2XW switches, and ports 1 to 20 of AX3650S-20S6XW switches. If SFP-T and SFP-T (T) transceivers are used with AX3830S series switches, only 1000BASE-T operations are supported.

NOTE

PoE is not supported.

(2) SFP-FX and SFP-FX (T)

Figure 1-87 External appearance



(1) Label information: AlaxalA SFP-FX or AlaxalA SFP-FX (T)

Label color: White

(2) Handle color: Black

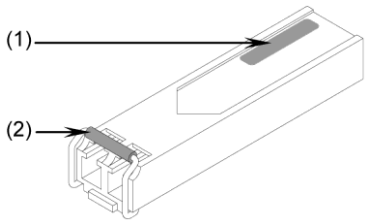
CAUTION

SFP-FX and SFP-FX (T) are supported by the switches below. Use them only with the indicated switches. Otherwise, the switch might fail.

- AX3640S-24SW (target ports 5 to 24)
- AX3640S-24S2XW (target ports 5 to 24)
- AX3650S-20S6XW (target ports 1 to 20)

(3) SFP-SX and SFP-SX (T)

Figure 1-88 External appearance



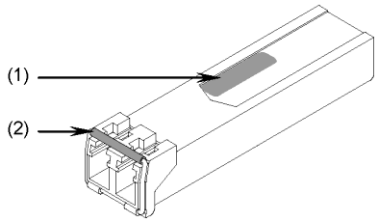
(1) Label information: AlaxalA SFP-SX or AlaxalA SFP-SX (T)

Label color: Black

(2) Handle color: Black

(4) SFP-SX2 and SFP-SX2 (T)

Figure 1-89 External appearance



(1) Label information: AlaxalA SFP-SX2 or AlaxalA SFP-SX2 (T)

Label color: White

(2) Handle color: Silver

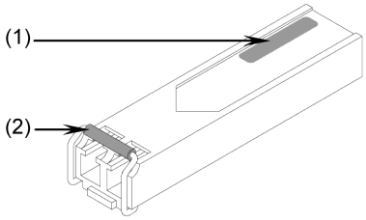
CAUTION

SFP-SX2 and SFP-SX2 (T) are supported by the switches below. Use them only with the indicated switches. Otherwise, the switch might fail.

- AX2430S series
- AX3630S series
- AX3640S series
- AX3650S-20S6XW (target ports 1 to 20)

(5) SFP-LX and SFP-LX (T)

Figure 1-90 External appearance



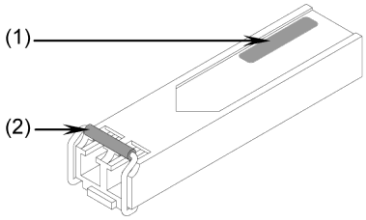
(1) Label information: AlaxalA SFP-LX or AlaxalA SFP-LX (T)

Label color: Blue

(2) Handle color: Blue

(6) SFP-LH and SFP-LH (T)

Figure 1-91 External appearance



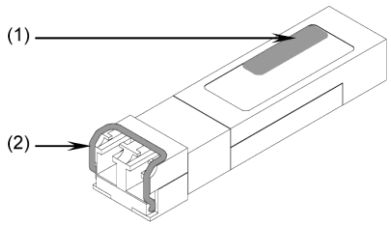
(1) Label information: AlaxalA SFP-LH or AlaxalA SFP-LH (T)

Label color: Green

(2) Handle color: Green

(7) SFP-LHB and SFP-LHB (T)

Figure 1-92 External appearance

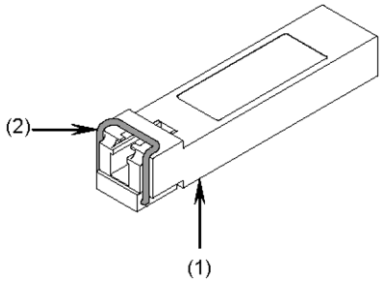


(1) Label information: AlaxalA SFP-LHB or AlaxalA SFP-LHB (T)
Label color: White

(2) Handle color: Yellow-green

(8) SFP-BX1U and SFP-BX1U (T)

Figure 1-93 External appearance

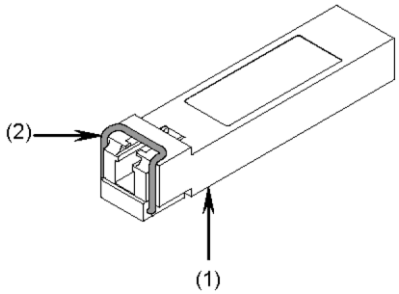


(1) SFP back label information: AlaxalA SFP-BX1U or AlaxalA SFP-BX1U (T)
Label color: White

(2) Handle color: Blue

(9) SFP-BX1D and SFP-BX1D (T)

Figure 1-94 External appearance

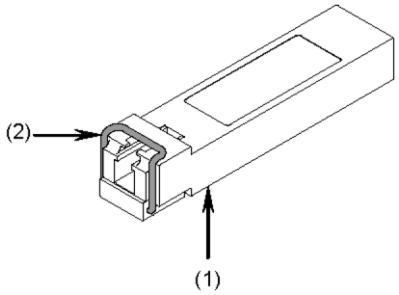


(1) SFP back label information: AlaxalA SFP-BX1D or AlaxalA SFP-BX1D (T)
Label color: White

(2) Handle color: Magenta

(10) SFP-BX4U and SFP-BX4U (T)

Figure 1-95 External appearance



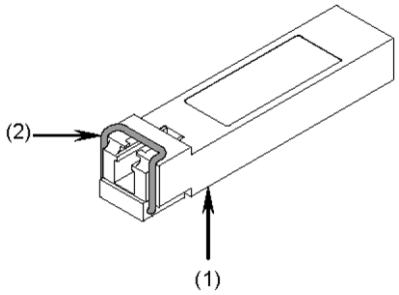
(1) SFP back label information: AlaxalA SFP-BX4U or AlaxalA SFP-BX4U (T)

Label color: White

(2) Handle color: Yellow

(11) SFP-BX4D and SFP-BX4D (T)

Figure 1-96 External appearance



(1) SFP back label information: AlaxalA SFP-BX4D or AlaxalA SFP-BX4D (T)

Label color: White

(2) Handle color: Green

1.7.2 SFP+

To use an SFP+, insert it into a switch SFP+ slot. The SFP+ type can be identified by the label information or the handle color.

The SFP+ transceivers supported by the Switch are listed in *Table 1-42 SFP+ list*.

Table 1-42 SFP+ list

Number	Module name	Interface	Supported models
1	SFPP-SR	10 gigabit Ethernet 10GBASE-SR	AX3650S series AX3830S series
2	SFPP-LR	10 gigabit Ethernet 10GBASE-LR	
3	SFPP-ER	10 gigabit Ethernet 10GBASE-ER	

⚠CAUTION SFP+ uses a laser beam, which is 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 certify that they are standard products of the manufacturer or ALAXALA Networks Corporation. These labels are attached so as not to disturb heat radiation from the transceiver or the mechanism to avoid dropping from the cage.

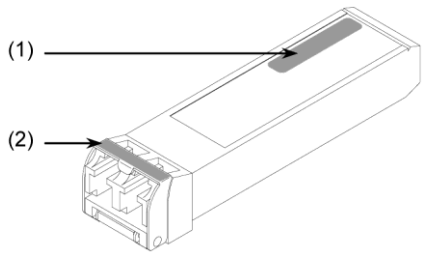
Attaching a label on an interfering part with heat radiation or the mechanism to avoid dropping from the cage might cause a failure in the transceiver or damage to the device.

NOTE

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

(1) SFPP-SR

Figure 1-97 External appearance

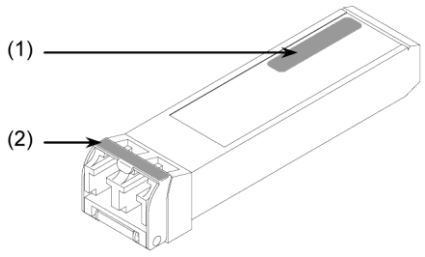


(1) Label information: AlaxalA SFPP-SR

(2) Handle color: Ivory

(2) SFPP-LR

Figure 1-98 External appearance

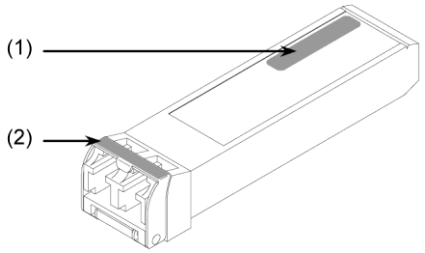


(1) Label information: AlaxalA SFPP-LR

(2) Handle color: Blue

(3) SFPP-ER

Figure 1-99 External appearance



(1) Label information: AlaxalA SFPP-ER

(2) Handle color: Red

1.7.3 XFP

To use an XFP, insert it into an XFP slot in the switch. The differences between XFP types can be distinguished by the label information or handle color.

The XFPs supported by the Switch are listed in *Table 1-43 XFP list*.

Table 1-43 XFP list

Number	Module name	Interface
1	XFP-SR XFP-SR (T)	10 Gigabit Ethernet 10GBASE-SR
2	XFP-LR XFP-LR (T)	10 Gigabit Ethernet 10GBASE-LR
3	XFP-ER XFP-ER (T)	10 Gigabit Ethernet 10GBASE-ER
4	XFP-ZR 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 certify that they are standard products of the manufacturer or ALAXALA Networks Corporation. These labels are attached so as not to disturb heat radiation from the transceiver or the mechanism to avoid dropping from the cage.

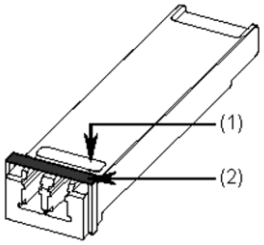
Attaching a label on an interfering part with heat radiation or the mechanism to avoid dropping from the cage might cause a failure in the transceiver or damage to the device.

NOTE

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

(1) XFP-SR and XFP-SR (T)

Figure 1-100 External appearance



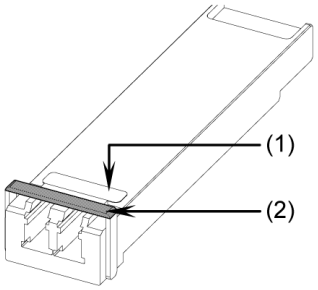
(1) Label information: AlaxalA XFP-SR or AlaxalA XFP-SR (T)

(2) Handle color: Ivory

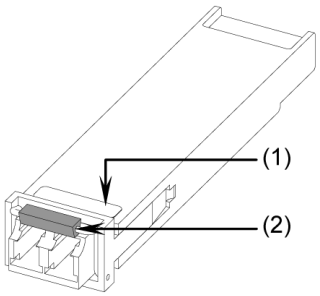
(2) XFP-LR and XFP-LR (T)

Figure 1-101 External appearance

● Module A type



● Module B type



(1) Label information: AlaxalA XFP-LR or AlaxalA XFP-LR (T)

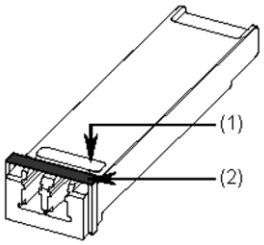
(2) Handle color: Blue

NOTE

XFP-LR and XFP-LR (T) transceivers have two types: the module A type and the module B type. There is no difference between the types.

(3) XFP-ER and XFP-ER (T)

Figure 1-102 External appearance

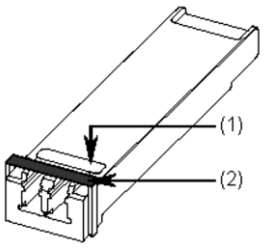


(1) Label information: AlaxalA XFP-ER or AlaxalA XFP-ER (T)

(2) Handle color: Red

(4) XFP-ZR and XFP-ZR (T)

Figure 1-103 External appearance



(1) Label information: AlaxalA XFP-ZR or AlaxalA XFP-ZR (T)

(2) Handle color: White

1.7.4 Transceiver accessories

The items listed in *Table 1-44 Transceiver accessories* are included as accessories with shipment of the transceiver.

Table 1-44 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

Cautionary notes for safe use of the Switch are described.

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

1.8 Direct attach cable

A direct attach cable is an interface cable for which both ends are the shape of a transceiver.

In AX3830S and AX3650S series switches, direct attach cables are connected to the SFP+ slot of switches to connect them when they are a short distance from each other.

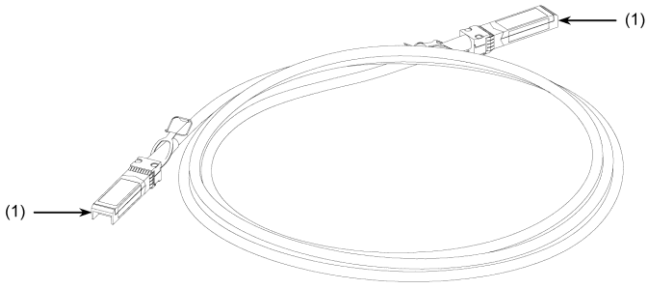
Direct attach cables supported by the Switch are listed in *Table 1-45 Direct attach cable list*.

Table 1-45 Direct attach cable list

Number	Cable name	Length	AWG No.	Label information	Supported models
1	SFPP-CU1M	1m	30	AlaxalA SFPP-CU1M	AX3650S series AX3830S series
2	SFPP-CU3M	3m	30	AlaxalA SFPP-CU3M	
3	SFPP-CU5M	5m	24	AlaxalA SFPP-CU5M	

(1) SFPP-CU1M, SFPP-CU3M and SFPP-CU5M

Figure 1-104



(1) Connector

CAUTION

Do not attach other labels to the connector.

The connectors have labels to certify that they are standard products of the manufacturer or ALAXALA Networks Corporation. These labels are attached so as not to disturb heat radiation from the connector 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 connector or damage to the device.

CAUTION

SFPP-CU1M/3M/5Ms are supported by the switches below. Use them only with the indicated switches. Otherwise, the switch might fail.

- AX3650S-24T6XW (target ports 25 to 30)
- AX3650S-20S6XW (target ports 25 to 30)
- AX3650S-48T4XW (target ports 49 to 52)
- AX3830S-44XW (target ports 1 to 44)

NOTE

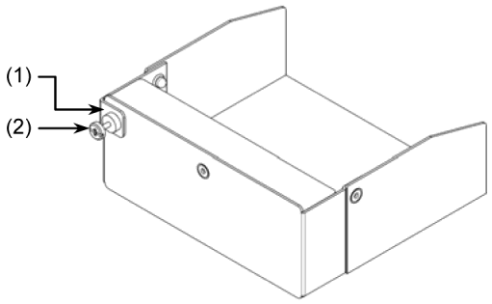
Make sure to use our standard products with the label shown in the table.
Otherwise, correct operation is not guaranteed.

1.9 Blank panel

Blank panels are attached instead of power supplies when only one power supply unit is installed in AX3830S or AX3650S series switches.

(1) BPNL-01

Figure 1-105



(1) Handle

(2) Screws

2. Preparation for Installation

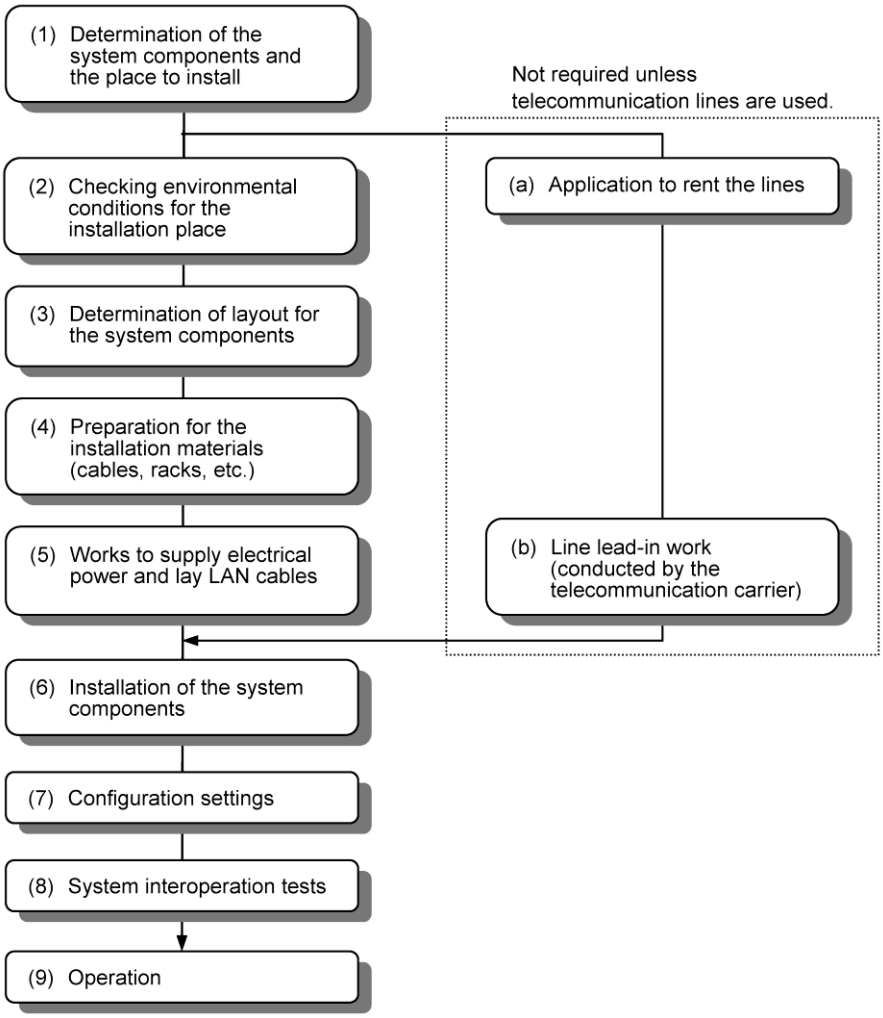
This chapter describes environmental conditions and the required preparation for installation of the Switch. Before preparing for an installation, read this chapter carefully and make sure that you understand all instructions and cautionary notes in this chapter.

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



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 Switch are listed below.

Table 2-1 General installation conditions for AX2400S series switches (AC or DC models)

Item		Model name						
		AX2430S -24T	**AX2430S -24T2X**	**AX2430S -48T**	**AX2430S -48T2X**	**AX2430S -24TD**	**AX2430S -24T2XD**	**AX2430S -48TD**
Dimensions (W x D x H)[#1]		445 x 380 x 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 AC 100 to 120 V, 200 to 240 V[#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 ± 3Hz				--		
Maximum input current		0.8A @ 100 V AC	0.9A @ 100 V AC	1.2A @ 100 V AC	1.3A @ 100 V AC	1.5A @ −48 V DC	1.7A @ −48 V DC	2.5A @ −48 V DC
		0.4A @ 200 V AC	0.5A @ 200 V AC	0.6A @ 200 V AC	0.7A @ 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 mounting brackets, memory cards and transceivers are excluded.

#3: The power cable bundled with the Switch is only applicable to 100 V AC.

Table 2-2 General installation conditions for AX3630S series switches (AC, AC (PoE) or DC models)

Item		Model name				
		AX3630S -24T	**AX3630S -24T2X**	**AX3630S -24P**	**AX3630S -24TD**	**AX3630S -24T2XD**
Dimensions (W x D x H)[#1]		445 x 380 x 43 mm		445 x 490 x 43 mm	445 x 380 x 43 mm	
Weight[#2]		5 kg or less		8 kg or less	5 kg or less	
Input voltage	Rating	Single phase AC 100 to 120 V, 200 to 240 V[#3]		Single phase AC 100 to 120 V	−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 ± 3Hz			--	
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		270kJ/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 mounting brackets, memory cards and transceivers are excluded.

#3: The power cable bundled with the Switch is only applicable to 100 V AC.

#4: Heat emission of the Switch only.

Table 2-3 General installation conditions for AX3630S series switches (redundant power 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 x D x H)[#1]	445 x 440 x 43 mm					
Weight[#2]	9 kg or less					

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
Input voltage	Rating	Single phase AC 100 to 120 V, 200 to 240 V#3	−48 V DC	Single phase AC 100 to 120 V, 200 to 240 V#3	−48 V DC	Single phase AC 100 to 120 V, 200 to 240 V#3	−48 V DC
	Variation range	AC 90 to 127.2 V, 180 to 254.4 V	DC −40 to −57 V	AC 90 to 127.2 V, 180 to 254.4 V	DC −40 to −57V	AC 90 to 127.2V, 180 to 254.4V	DC −40 to −57V
Frequency		50/60 ± 3Hz	--	50/60 ± 3Hz	--	50/60 ± 3Hz	--
Maximum input current		1.0A @ 100 V AC	1.8A @ −48 V DC	1.4A @ 100 V AC	2.6A @ −48 V DC	1.5A @ 100 V AC	2.8A @ −48 V DC
		0.5A @ 200 V AC	--	0.7A @ 200 V AC	--	0.8A @ 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 mounting brackets, memory cards and transceivers are excluded.

#3: The power cable bundled with the Switch is only applicable to 100 V AC.

Table 2-4 General installation conditions for AX3640S series switches (AC models)

Item		Model name
		AX3640S-24T
Dimensions (W x D x H)#1		445 x 380 x 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 ± 3Hz

Item	Model name
	AX3640S-24T
Maximum input current	0.8A@AC100V
	0.4A@AC200V
Maximum power consumption	75 W
Maximum heat emission	270kJ/h

#1: Excluding the dimensions of connectors.

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

#3: The power cable bundled with the Switch is only applicable to 100 V AC.

Table 2-5 General installation conditions for AX3640S series switches (redundant power 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 x D x H)[#1]		445 x 440 x 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	AC 90 to 127.2V AC, 180 to 254.4V	DC −40 to −57V	AC 90 to 127.2V AC, 180 to 254.4V	DC −40 to −57V	AC 90 to 127.2V AC, 180 to 254.4V	DC −40 to −57V
Frequency		50/60 ± 3Hz	--	50/60 ± 3Hz	--	50/60 ± 3Hz	--
Maximum input current		0.9A @ 100 V AC	1.6A @ −48 V DC	1.0A @ 100 V AC	1.9A @ −48 V DC	1.4A @ 100 V AC	2.7A @ −48 V DC

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**
	0.5A @ 200 V AC	--	0.5A @ 200 V AC	--	0.7A @ 200 V AC	--
Maximum power consumption	85 W	75 W	100 W	90 W	135 W	125 W
Maximum heat emission	306 kJ/h	270kJ/h	360 kJ/h	324 kJ/h	486 kJ/h	450kJ/h

#1: Excluding the dimensions of connectors.

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

#3: The power cable bundled with the Switch is only applicable to 100 V AC.

Table 2-6 General installation conditions for AX3640S series switches (redundant power 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 x D x H)[#1]		445 x 440 x 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	AC 90 to 127.2V AC, 180 to 254.4V	DC −40 to −57V	AC 90 to 127.2V AC, 180 to 254.4V	DC −40 to −57V	AC 90 to 127.2V AC, 180 to 254.4V	DC −40 to −57V
Frequency		50/60 ± 3Hz	--	50/60 ± 3Hz	--	50/60 ± 3Hz	--
Maximum input current		1.5A @ 100 V AC	2.9A @ −48 V DC	0.9A @ 100 V AC	1.6A @ −48 V DC	1.0A @ 100 V AC	1.9A @ −48 V DC

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
	0.8A @ 200 V AC	--	0.5A @ 200 V AC	--	0.5A @ 200 V AC	--
Maximum power consumption	145 W	135 W	85 W	75 W	100 W	90 W
Maximum heat emission	522kJ/h	486 kJ/h	306 kJ/h	270kJ/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 mounting brackets, memory cards and transceivers are excluded.

#3: The power cable bundled with the Switch is only applicable to 100 V AC.

Table 2-7 General installation conditions for AX3650S series switches

Item		Model name		
		AX3650S-24T6XW	AX3650S-48T4XW	AX3650S-20S6XW
		PS-A03 mounted	PS-A03 mounted	PS-A03 mounted
Dimensions (W x D x H)[#1]		445 x 500 x 43 mm		
Weight[#2]		9 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 ± 3Hz		
Maximum input current		1.1A @ 100 V AC	1.2A @ 100 V AC	1.2A @ 100 V AC
		0.6A @ 200 V AC	0.6A @ 200 V AC	0.6A @ 200 V AC
Maximum power consumption		105 W	115 W	120 W
Maximum heat emission		378kJ/h	414kJ/h	432kJ/h

#1: Excluding the dimensions of connectors.

#2: Weight of the main device with two power supplies and one fan unit. However, the weight of cables, rack mounting brackets, memory cards and transceivers are excluded.

#3: The power cable bundled with the Switch is only applicable to 100 V AC.

Table 2-8 General installation conditions for AX3830S series switches

Item		Model name
		AX3830S-44XW
		PS-A03 mounted
Dimensions (W x D x H)[#1]		445 x 580 x 43 mm
Weight[#2]		11kg 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 ± 3Hz
Maximum input current		2.5A @ 100 V AC
		1.3A @ 200 V AC
Maximum power consumption		250 W
Maximum heat emission		900kJ/h

#1: Excluding the dimensions of connectors.

#2: Weight of the main device with two power supplies and one fan unit. However, the weight of cables, rack mounting brackets, memory cards and transceivers are excluded.

#3: The power cable bundled with the Switch is only applicable to 100 V AC.

Table 2-9 General installation conditions for external power units (EPUs)

Item		Model name	
		EPU-A	**EPU-B**
Dimensions (W x D x H)[#1]		445 x 440 x 43 mm	
Weight[#2]		12kg 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 ± 3Hz	
Maximum input current		10.5A @ 100 V AC	15.0 A @ 100 V AC
Maximum power consumption		1,050 W	1,500 W

Item	Model name	
	EPU-A	**EPU-B**
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 mounting brackets are excluded.

#3: Heat emission of the Switch only.

2.2.2 Environmental conditions

The environmental conditions of the Switch are listed below.

Table 2-10 Environmental conditions (AC models, DC models, AC (PoE) models, and EPU models)

Item		Requirement			
		Device		**EPU**	
		AC model DC model	**AC (PoE) model**	**EPU-A**	**EPU-B**
Noise[#1]		45 dB or less	50 dB or less[#2]	45 dB or less	50 dB or less[#2]
Vibration		2.45 m/s^2 or less			
Dust		0.15 mg/m3 or less[#3]			
Temperature	Operating	0 to 40 deg. C (23 to 28 deg. C recommended)[#4]		0 to 40 deg. C (23 to 28 deg. C recommended)	
	Not operating	-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: According to JIS Z 8813 Measuring Methods for Suspended Particulate Matter Concentration in Air - General Requirements.

#4: If the temperature sensor for the intake air temperature exceeds 50 deg. C, the Switch stops.

#5: No condensation

Table 2-11 Environmental conditions (redundant power models)

Item		**Requirement**					
		AX3630S, AX3640S		**AX3650S**		**AX3830S**	
		Quietness-focused settings[#1]	**Cooling-focused settings[#1]**	**Quietness-focused settings[#1]**	**Cooling-focused settings[#1]**	**Quietness-focused settings[#1]**	**Cooling-focused settings[#1]**
Noise[#2#3]	25 deg. C	35 dB or less	45 dB or less	37 dB or less	45 dB or less	65 dB or less	69 dB or less
	30 deg. C						
	35 deg. C						
	40 deg. C	45 dB or less		45 dB or less		69 dB or less	
	50 deg. C	--	--	52 dB or less	52 dB or less	73 dB or less	73 dB or less
Vibration		2.45 m/s^2 or less					
Dust		0.15 mg/m3 or less[#4]					
Temperature	Operating	0 to 40 deg. C (23 to 28 deg. C recommended)[#5]		-10 to 50 deg. C (23 to 28 deg. C recommended)[#6#7]			
	Not operating	-10 to 43 deg. C		-10 to 50 deg. C			
	Storage and transportation	-25 to 65 deg. C					
Humidity[#8]	Operating	10 to 85% (45 to 55% recommended)		10 to 90% (45 to 55% recommended)			
	Not operating	8 to 85%		8 to 90%			
	Storage and transportation	5 to 85%		5 to 90%			

#1: The settings for the operating mode of the switch's fan.

#2: Measured value according to ISO 7779.

#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: If the temperature sensor for the intake air temperature exceeds 50 deg. C, the Switch stops.

#6: If the temperature sensor for the intake air temperature exceeds 60 deg. C, the Switch stops.

#7: When starting the switch, make sure that the temperature is in the range from 0 to 50 deg. C.

#8: No condensation

NOTE

For details about the operating mode of a switch's fan, see the manual *Operation Command Reference*.

NOTE

The intake air temperature can be checked by using the `show system` or `show environment` command. For details about the commands, see the manual *Operation Command Reference*.

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 2-12 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 model to a grounded outlet. Not connecting the grounded outlet to the switch can cause electric shocks, as well as cause failures due to electrical noise.

(2) Distribution board

The branch circuit to supply power to the Switch requires circuit breakers or other devices. When selecting circuit breakers, make sure that they meet the following rating, considering the input current and inrush current/time.

- Breaker rating: 15 AT (single phase 100 V AC for a 15 A circuit) or less

For details about input current of the Switch, see *2.2.1 General installation conditions*, and for details about inrush current and time of the Switch, see *Table 2-13 Inrush current*.

Table 2-13 Inrush current

Series	model	Current (peak value)	Time
AX2430S	AX2430S-24T AX2430S-24T2X	20A	10 ms or less
	AX2430S-48T AX2430S-48T2X	30A	10 ms or less
AX3630S	AC model	20A	10 ms or less

Series	model	Current (peak value)	Time
	AC (PoE) model	40A	50 ms or less
	Redundant power model	20A	10 ms or less
AX3640S	AC model	20A	10 ms or less
	Redundant power model	20A	10 ms or less
AX3650S	Redundant power model	25A	10 ms or less
AX3830S	Redundant power model	25A	10 ms or less
External power unit (EPU)	EPU-A	30A	10 ms or less
	EPU-B	40A	50 ms or less

NOTE

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

⚠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 might cause a fire.

NOTE

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

In addition, if you power on the Switch, it has inrush current listed in *Table 2-13 Inrush current*. Consider measures to prevent voltage reduction of the power supply due to inrush current.

CAUTION

If you power on the Switch, it has inrush current. Consider measures to prevent voltage reduction of the power supply due to inrush current. If voltage reduction occurs, not only the Switch but also other devices connected to the same power supply are affected.

(4) 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.

2.3.2 Electrical power equipment for 200 V AC

(1) AC power cable

Use the power cable described below.

Table 2-14 Specifications of AC power cable

Item	connector on the Switch	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 model to a grounded outlet. Not connecting the grounded outlet to the switch can cause electric shocks, as well as cause failures due to electrical noise.

(3) Distribution board

The branch circuit to supply power to the Switch requires circuit breakers or other devices. When selecting circuit breakers, make sure that they meet the following rating, considering the input current and inrush current/time.

- Breaker rating: 10 AT (single phase 200 V AC for a 10 A circuit) or less

For details about input current of the Switch, see *2.2.1 General installation conditions*, and for details about inrush current and time of the Switch, see *Table 2-15 Inrush current*.

Table 2-15 Inrush current

Series	model	Current (peak value)	Time
AX2430S	AX2430S-24T AX2430S-24T2X	40A	10 ms or less
	AX2430S-48T AX2430S-48T2X	50A	10 ms or less
AX3630S	AC model[#1]	40A	10 ms or less
	Redundant power model	40A	10 ms or less
AX3640S	AC model	40A	10 ms or less

Series	model	Current (peak value)	Time
	Redundant power model	40A	10 ms or less
AX3650S	Redundant power model	25A	10 ms or less
AX3830S	Redundant power model	25A	10 ms or less

#1: Excluding AC (PoE) models.

NOTE

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

⚠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 might cause a fire.

NOTE

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

In addition, if you power on the Switch, it has inrush current listed in *Table 2-15 Inrush current*. Consider measures to prevent voltage reduction of the power supply due to inrush current.

CAUTION

If you power on the Switch, it has inrush current. Consider measures to prevent voltage reduction of the power supply due to inrush current. If voltage reduction occurs, not only the Switch but also other devices connected to the same power supply are affected.

(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.

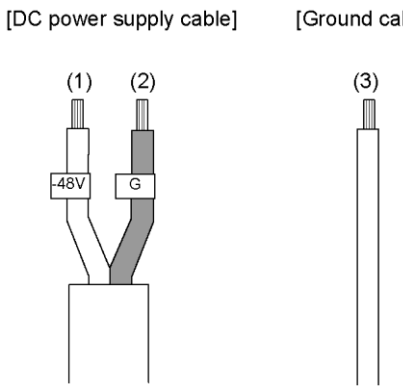
2.3.3 Electrical power equipment for −48 V DC (DC models)

(1) DC power cable

Make sure to use the accessory DC power cable.

The DC power cable shipped with the terminal for the electrical power equipment is not prepared. The specifications of the DC power cable for the electrical power equipment are shown in *Figure 2-3 Specifications of the DC power 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 cable (for electrical power equipment)



(1) −48 V (white)

(2) 0V (red)

(3) Ground (green/yellow)

Table 2-16 Specifications of −48 V DC power cable

Cable Type	Cable specifications	
	Number of core wires	**AWG No.**
DC power cable	2	16
Ground cable	1	14

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

⚠WARNING Prior to connecting or disconnecting the DC power 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 cable (on the electrical power equipment side) with an insulation jacket. Otherwise, an electric shock might result.

⚠WARNING For the DC models, make sure to connect the ground cable. Not connecting the grounded outlet to the switch can cause electric shocks, as well as cause failures due to electrical noise.

(2) Distribution board

The branch circuit to supply power to the Switch requires circuit breakers or other devices.

When selecting circuit breakers, make sure that they meet the following rating, considering the input current and inrush current/time.

- Breaker rating: 15 AT (for a 15 A circuit) or less

For details about input current of the Switch, see *2.2.1 General installation conditions*, and for details about inrush current and time of the Switch, see *Table 2-17 Inrush current*.

Table 2-17 Inrush current

Series	Model	Current (peak value)	Time
AX2430S	DC model	10A	10 ms or less
AX3630S	DC model	10A	10 ms or less

NOTE

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

⚠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 might cause a fire.

NOTE

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

In addition, if you power on the Switch, it has inrush current listed in *Table 2-17 Inrush current*. Consider measures to prevent voltage reduction of the power supply due to inrush current.

CAUTION

If you power on the Switch, it has inrush current. Consider measures to prevent voltage reduction of the power supply due to inrush current. If voltage reduction occurs, not only the Switch but also other devices connected to the same power supply are affected.

(4) Providing two power supply systems to the electrical power equipment

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

2.3.4 Electrical power equipment for −48 V DC (redundant power models (AX3630S and AX3640S))

(1) DC power cable

The redundant power models contain no accessory power cables. Use the power cable specified below to connect the Switch to −48 V DC.

Table 2-18 DC power cable specifications

Cable type	Cable specifications		
	Number of core wires	**AWG No.**	**Margin to peel the jacket (on the Switch side)**
DC power cable	2	16	8 to 10 mm

⚠WARNING

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

⚠WARNING

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

⚠WARNING

Peel the DC power 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.

(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 *Table 2-4 General installation conditions for AX3640S series switches (AC models)*. 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 2-19 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 switch can cause electric shocks, as well as cause failures due to electrical noise.

(3) Distribution board

The branch circuit to supply power to the Switch requires circuit breakers or other devices. When selecting circuit breakers, make sure that they meet the following rating, considering the input current and inrush current/time.

- Breaker rating: 15 AT (for a 15 A circuit) or less

For details about input current of the Switch, see *2.2.1 General installation conditions*, and for details about inrush current and time of the Switch, see *Table 2-20 Inrush current*.

Table 2-20 Inrush current

Series	Model	Current (peak value)	Time
AX3630S	Redundant power model	10A	10 ms or less
AX3640S	Redundant power model	10A	10 ms or less

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

⚠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 might cause a fire.

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

In addition, if you power on the Switch, it has inrush current listed in *Table 2-20 Inrush current*. Consider measures to prevent voltage reduction of the power supply due to inrush current.

CAUTION

If you power on the Switch, it has inrush current. Consider measures to prevent voltage reduction of the power supply due to inrush current. If voltage reduction occurs, not only the Switch but also other devices connected to the same power supply are affected.

(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 Switch 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 Switch.
- As for the devices and the instruments emitting electrical noise, embed a circuit to prevent noise generation.
- The cables connected to the Switch are roughly categorized into power 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 cables.

2.5 Leakage current

The Switch 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 the Switch. Do not install the 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

The Switch 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.

The 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

The Switch can be installed either on a table or a 19-inch cabinet rack.

(1) Table

Install the Switch on a level, stable and flat table. In addition, satisfy the requirements described in *Table 2-21 Conditions for installing the device on a table*.

Table 2-21 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 and possibly cause injury.

(2) 19-inch cabinet rack

When mounting the device on a rack, satisfy the rack requirements described in *Table 2-22 Rack requirements*. In addition, provide the items listed in *Table 2-23 Required items for mounting the device on a rack*.

Table 2-22 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 2-23 Required items for mounting the device on a rack

Item	Requirements
Screws supplied with the rack (AX2400S and AX3600S)	M5 screws x 4
Screws supplied with the rack (AX3800S)	M5 screws x 8

NOTE

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

2.8 Maintenance area

Ensure the proper amount of space for maintenance of the Switch 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 2-24 Front and rear maintenance space*.

Figure 2-5 Maintenance area for a Switch on a table

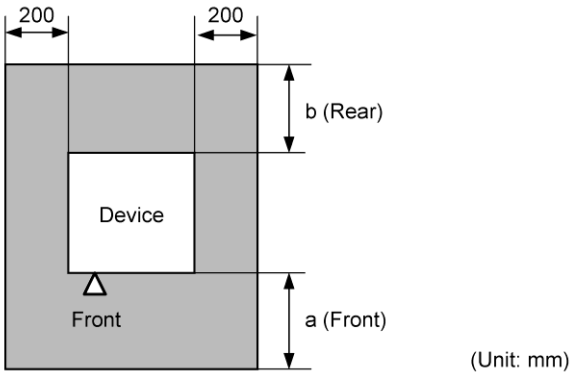


Table 2-24 Front and rear maintenance space

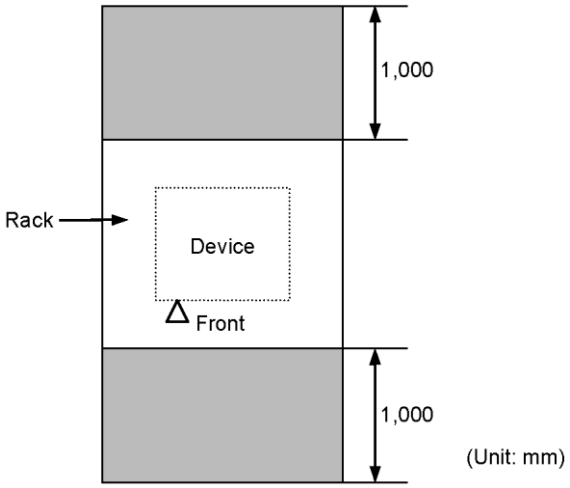
Device	a (front)	b (rear)
AC model AC (PoE) model DC model	200	200
Redundant power model (AX3630S, AX3640S)	200	300#1
Redundant power model (AX3650S, AX3830S)	200	400#1
External power unit (EPU)	400#2	200

#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



NOTE

AX3830S and AX3650S series switches require space to insert or take out devices above the memory card slot. When installing the Switch under another component, ensure an appropriate amount of space, taking into consideration the component's options and cables that stick out the front.

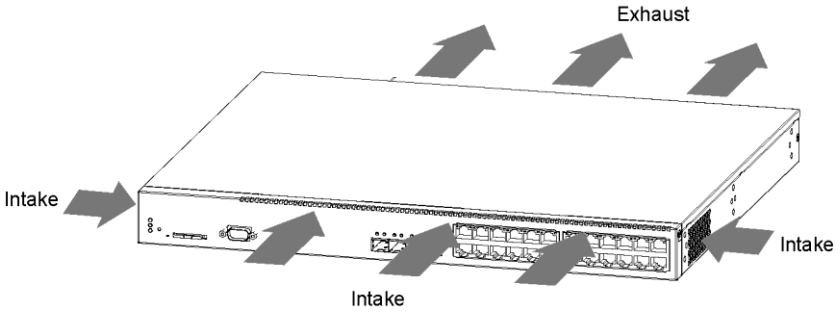
2.9 Cooling conditions

2.9.1 Air flow

(1) Main device

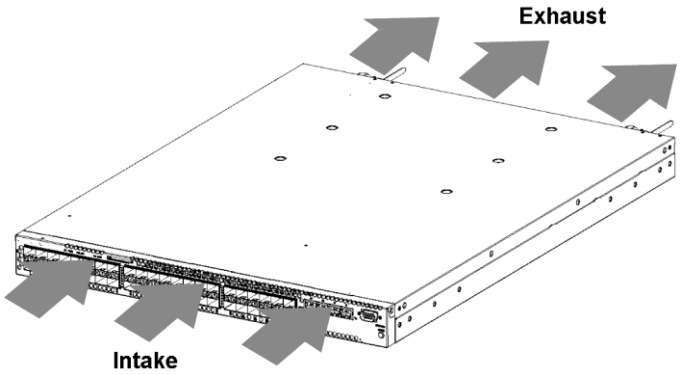
The air flow into and out of the AX2400S and AX3600S series switches is shown in *Figure 2-7 Air flow of AX2400S and AX3600S series switches*.

Figure 2-7 Air flow of AX2400S and AX3600S series switches



The air flow into and out of AX3800 series switches is shown in *Figure 2-8 Air flow into and out of AX3800S series switches (when fans and PSs that intake air in front and exhaust air in rear are implemented)*.

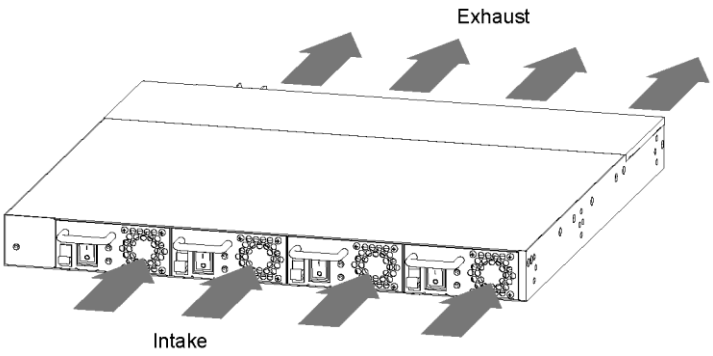
Figure 2-8 Air flow into and out of AX3800S series switches (when fans and PSs that intake air in front and exhaust air in rear are implemented)



(2) External power unit (EPU)

The air flow into and out of the EPU is shown in *Figure 2-9 Air flow into and out of external power units (EPUs)*.

Figure 2-9 Air flow into and out of external power units (EPUs)



2.9.2 Cooling conditions for the 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 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.

2.9.3 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

The 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:

- Install the Switch in a special machine room or a different room from the office. (AX3830S)
- Take the following into account when installing the Switch in the office:
  - 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 the Switch.

3.1 Connecting interface cables and terminals

The applicable interfaces for the Switch and the cables to connect to the interfaces 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+ slot	SFP-T SFP-T (T) (PoE not supported)	10BASE-T	UTP cable (Category 5 or higher)	
		100BASE-TX		
		1000BASE-T	UTP cable (Enhanced Category 5 or higher)	
SFP slot	SFP-FX SFP-FX (T)	100BASE-FX	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 slot SFP+ slot	SFP-SX SFP-SX (T)	1000BASE-SX	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 slot	SFP-SX2 SFP-SX2 (T)	1000BASE-SX2	Multiple-terminal mode optical fiber (core/cladding diameter = 50 μm/125 μm)	

Port/Slot	Transceiver	Interface	Cable	Connector
			Multiple-terminal mode optical fiber (core/cladding diameter = 62.5 μm/125 μm)	
SFP slot SFP+ slot	SFP-LX 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 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-LHB SFP-LHB (T)	1000BASE-LHB	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 SFP-BX1U (T)	1000BASE-BX10-U	Single-terminal mode optical fiber (core/cladding diameter = 10 μm/125 μm)	LC simplex connector
	SFP-BX1D SFP-BX1D (T)	1000BASE-BX10-D		
	SFP-BX4U SFP-BX4U (T)	1000BASE-BX40-U		
	SFP-BX4D SFP-BX4D (T)	1000BASE-BX40-D		
SFP+ slot	SFPP-SR	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	

Port/Slot	Transceiver	Interface	Cable	Connector
			μm)	
	SFPP-LR	10GBASE-LR	Single-terminal mode optical fiber (core/cladding diameter = 10 μm/125 μm)	
	SFPP-ER	10GBASE-ER		
	SFPP-CU1M	--	--	--
	SFPP-CU3M	--	--	--
	SFPP-CU5M	--	--	--
XFP slot	XFP-SR 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 XFP-LR (T)	10GBASE-LR	Single-terminal mode optical fiber (core/cladding diameter = 10 μm/125 μm)	
	XFP-ER XFP-ER (T)	10GBASE-ER		
	XFP-ZR XFP-ZR (T)	10GBASE-ZR		

#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 *B 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.

NOTE

This function is not supported in AX3830S series switches.

(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 unit to the AC (PoE) models, Alternative A defined in IEEE802.3af is used. Power supplies to the power receiver devices conforming to IEEE802.3af are supported.

For power supply pin assignments on the Switch, 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 100BASE-FX

(1) Mode setting on the port

Either of the following modes can be specified for the Ethernet 100BASE-FX port. The factory default setting is full-duplex (fixed).

- 100BASE-FX full duplex (fixed)
- 100BASE-FX half duplex (fixed)

NOTE

Auto-negotiation mode is not supported.

(2) Flow control functionality

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

3.2.3 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.

NOTE

This function is not supported in AX3830S series switches.

3.2.4 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.

NOTE

This function is not supported in AX3830S series switches.

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 mounting brackets to the device.

Phillips screwdriver no. 2:

Use this screwdriver to mount the device to the rack. Also, use this screwdriver to attach the ground cable to the DC model and the redundant power model (AX3630S and AX3640).

Antistatic wrist strap:

Protect the device from electrostatic discharge.

4.2 Precautions before starting an 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. Doing so might damage the switch, cause the switch to fall or cause a loss of balance, resulting in injury.
CAUTION	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.
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 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, 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 the redundant power model, do not hold the handle of the power supply unit or the fan unit. 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.

4.3.1 Table mount

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

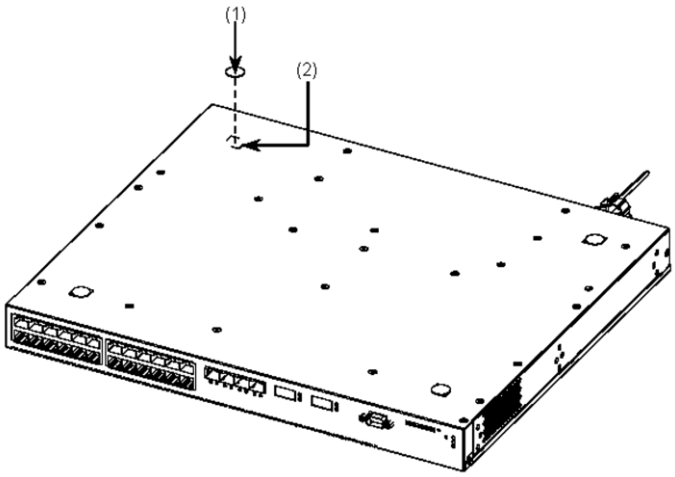
[Step 1]

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 4-1 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 EPU back over and mount 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 AX3830S and AX3650S series switches require space to insert or take out devices above the memory card slot. When installing the Switch under another component, ensure an appropriate amount of space, taking into consideration the component's options and cables that stick out the front.

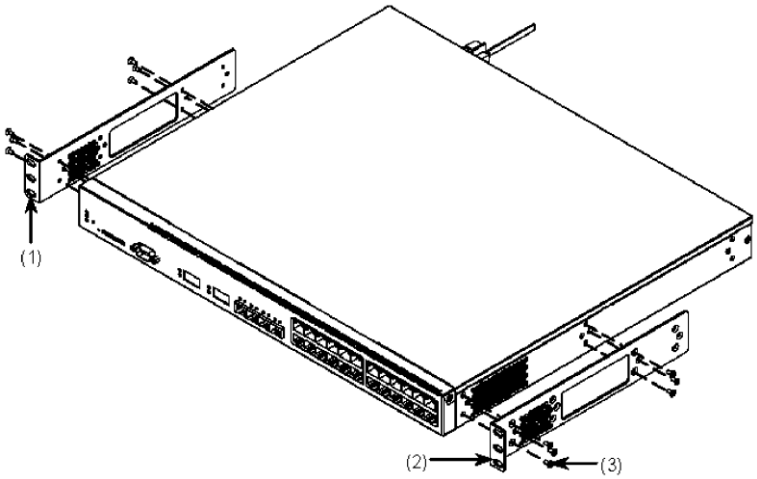
NOTE The accessory rack mounting brackets are compatible with M5 screws. Use a rack compatible with M5 screws.

NOTE For rack-mounting conditions, see *(2) 19-inch* cabinet rack.

[Step 1]

Attach the rack mounting brackets to the device.

Figure 4-2 Attaching the rack mounting brackets (AX2400S and AX3600S)



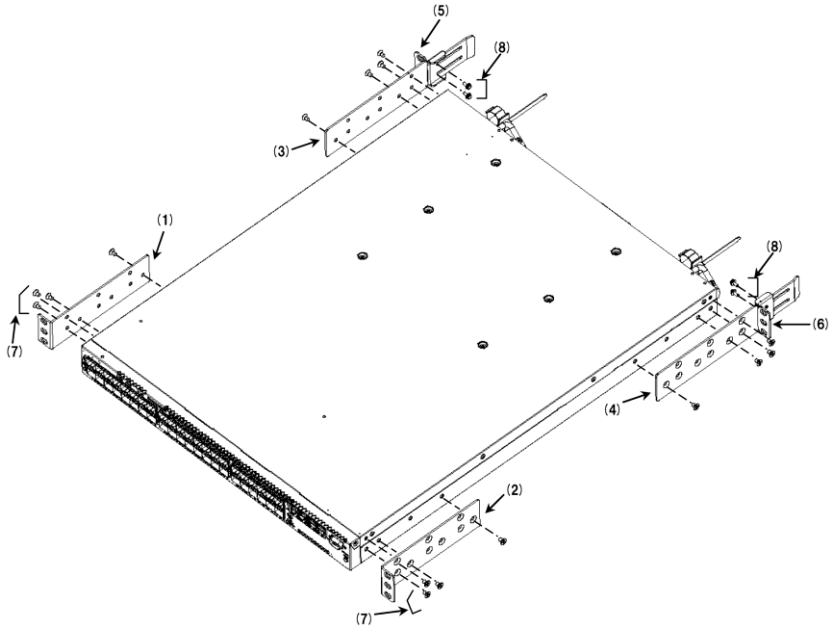
(1) Rack mounting bracket (L)

(2) Rack mounting bracket (R)

(3) M3 x 6 screws (12)

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

Figure 4-3 Attaching the rack mounting brackets (AX3800S)



(1) Rack mounting bracket – for the front surface (L)

(2) Rack mounting bracket – for the front surface (R)

(3) Rack mounting bracket – for the rear surface (L)

(4) Rack mounting bracket – for the rear surface (R)

(5) Rack mounting bracket – for attaching to the rear surface (L)

(6) Rack mounting bracket – for attaching to the rear surface (R)

(7) M4 x 6 screws (16)

(8) M3 x 8 screws (4)

NOTE

There are the following types of rack mounting brackets: for the front surface (L)/(R), for the rear surface (L)/(R), and for attaching to the rear surface (L)/(R). The left and right rack mounting brackets for the front surface are marked with "FL" and "FR", respectively, and those for the rear surface are marked with "RL" and "RR". The shapes of the right and left rack mounting brackets for attaching to the rear surface are the same, and they are not identified by any markings.

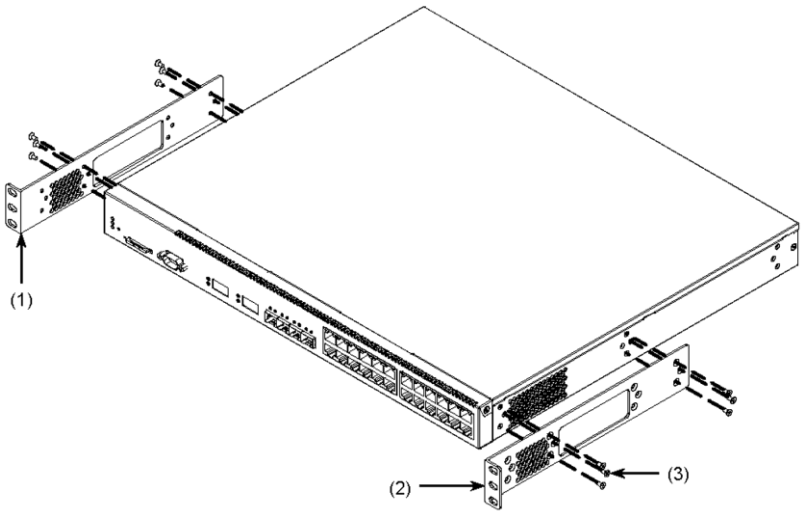
NOTE

AX3800S series switches support the spacing of the front and rear of a rack pillar in the range from 620 to 655, from 670 to 705, from 720 to 755, 770 to 805 and from 820 to 855 mm, by enabling to adjust the positions to which front and rear mounted brackets are attached.

NOTE

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

Figure 4-4 Attaching the rack mounting brackets (50 mm adjustment) (Example for AX2400S and AX3600S series switches)



(1) Rack mounting bracket (L)

(2) Rack mounting bracket (R)

(3) M3 x 6 screws (12)

NOTE

Use the accessory screws to attach the rack mounting brackets to the device.

NOTE

There are four types of rack mounting brackets:

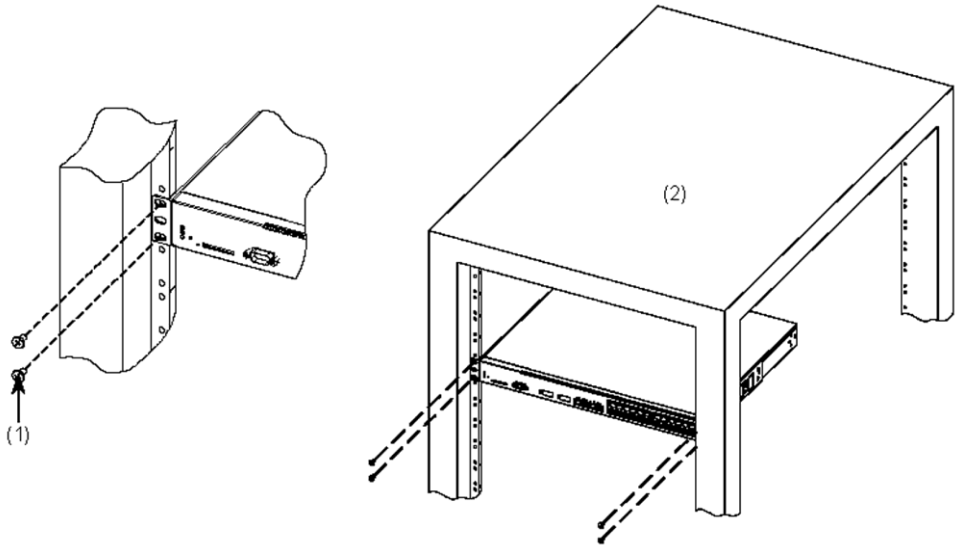
- For AC and DC models: 12 screw holes
- For AC power (PoE) and redundant power models (AX3630S and AX3640S), and EPU: 12 screw holes with label information "24P/EPU"
- For redundant power model (AX3650S): 10 screw holes
- For redundant power model (AX3830S): 20 screw holes

Confirm that the correct brackets have been selected before attaching the brackets to the device.

[Step 2]

Mount the EPU into the rack.

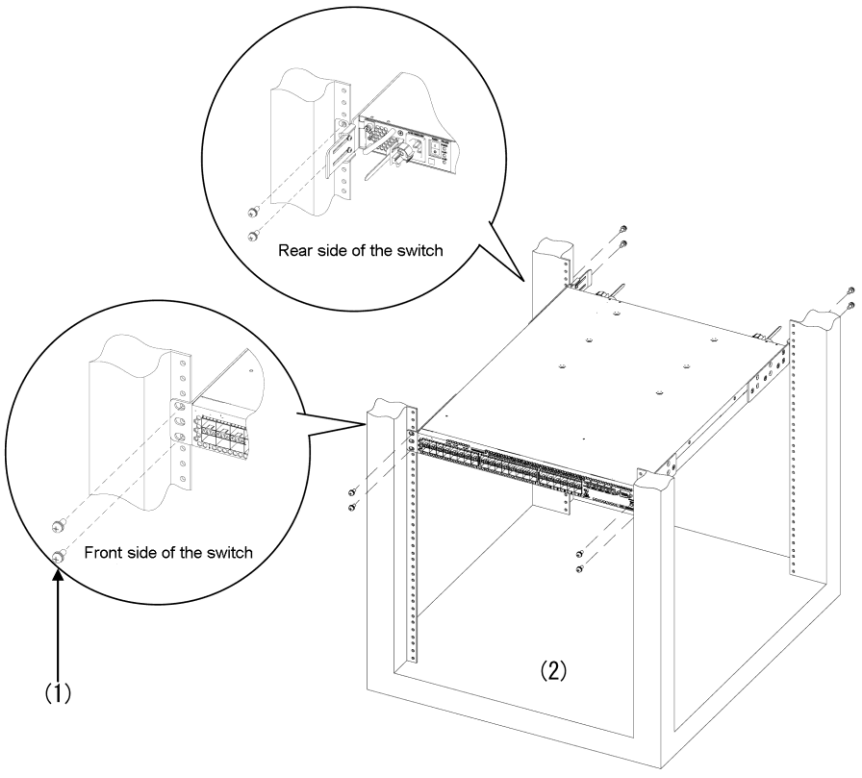
Figure 4-5 Mounting into the rack (AX2400S and AX3600S)



(1) M5 screws (4)

(2) 19-inch cabinet rack

Figure 4-6 Mounting into the rack (AX3800S)



(1) M5 screws (8)

(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 switch might fall or the rack might tip over, which could result in serious injury.

NOTE

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

NOTE

AX3800S series switches support the spacing of the front and rear of a rack pillar in the range from 620 to 655, from 670 to 705, from 720 to 755, and from 820 to 855, by enabling to adjust the positions to which front and rear mounted brackets are attached.

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 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.

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

4.4.1 Table mount

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

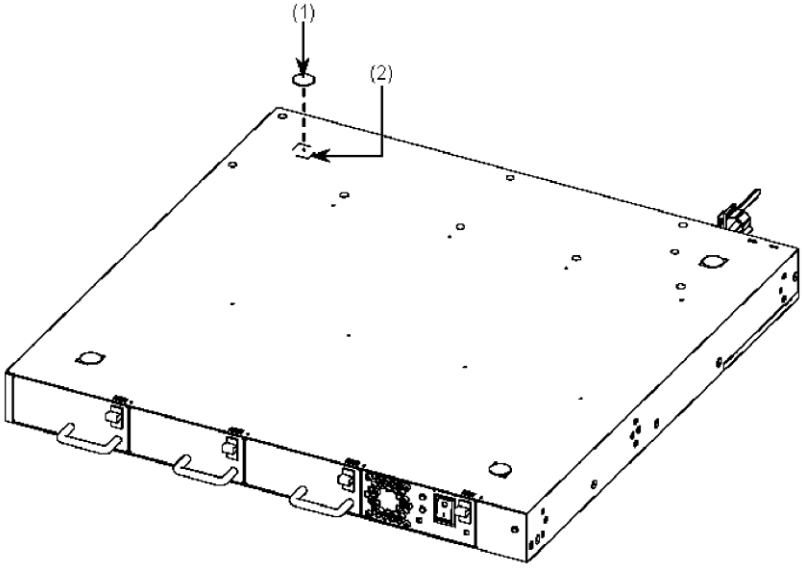
[Step 1]

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 4-7 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:

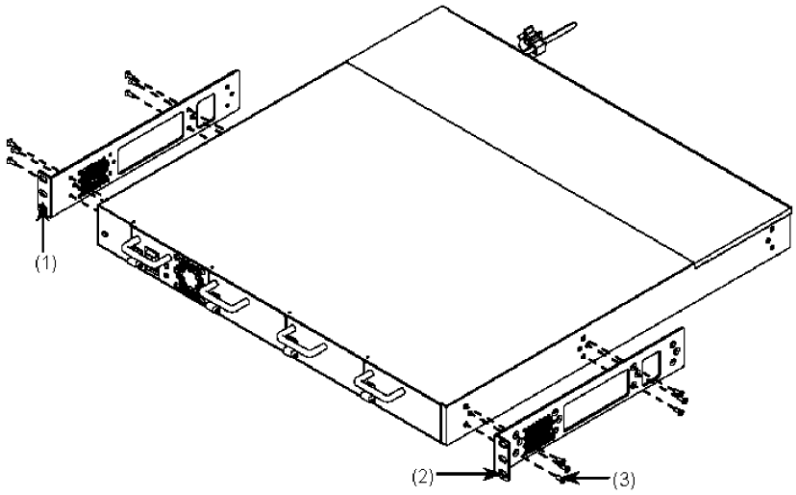
NOTE The accessory rack mounting brackets are compatible with M5 screws. Use a rack compatible with M5 screws.

NOTE For rack-mounting conditions, see *(2) 19-inch* cabinet rack.

[Step 1]

Attach the rack mounting brackets to the EPU.

Figure 4-8 Attaching the rack mounting brackets



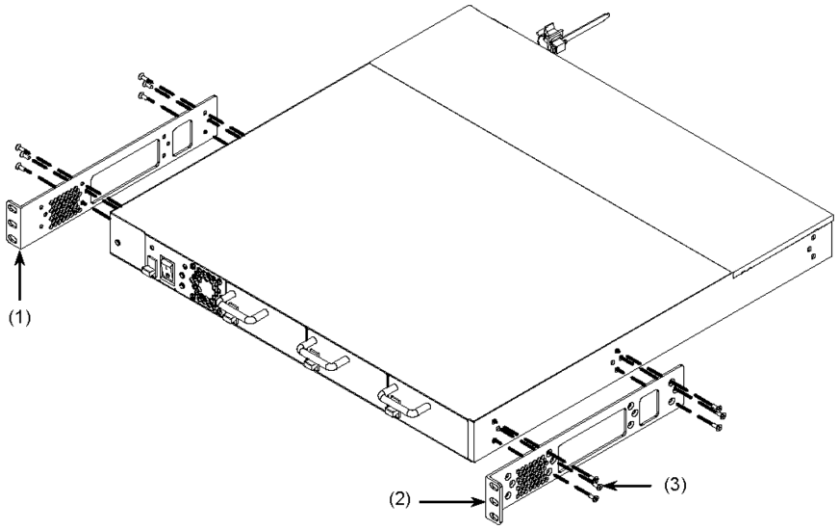
(1) Rack mounting bracket (L)

(2) Rack mounting bracket (R)

(3) M3 x 6 screws (12)

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

Figure 4-9 Attaching the rack mounting brackets (50 mm adjustment)



(1) Rack mounting bracket (L)

(2) Rack mounting bracket (R)

(3) M3 x 6 screws (12)

NOTE

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

NOTE

There are four types of rack mounting brackets:

- For AC and DC models: 12 screw holes
- For AC power (PoE) and redundant power models (AX3630S and AX3640S), and EPU: 12 screw holes with label information "24P/EPU"
- For redundant power model (AX3650S): 10 screw holes
- For redundant power model (AX3830S): 20 screw holes

Confirm that the correct brackets have been selected before attaching the brackets to the device.

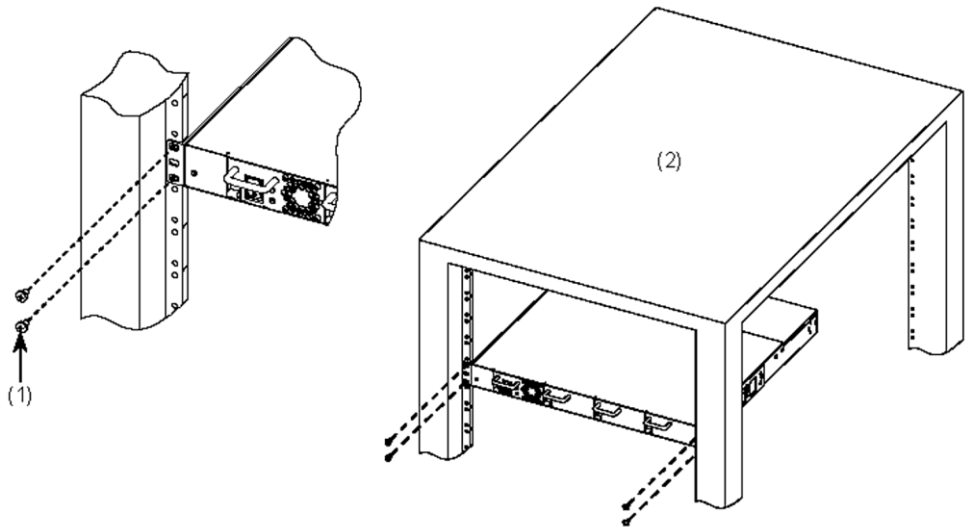
NOTE

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

[Step 2]

Mount the EPU into the rack.

Figure 4-10 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 switch might fall or the rack might tip over, which could result in serious 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

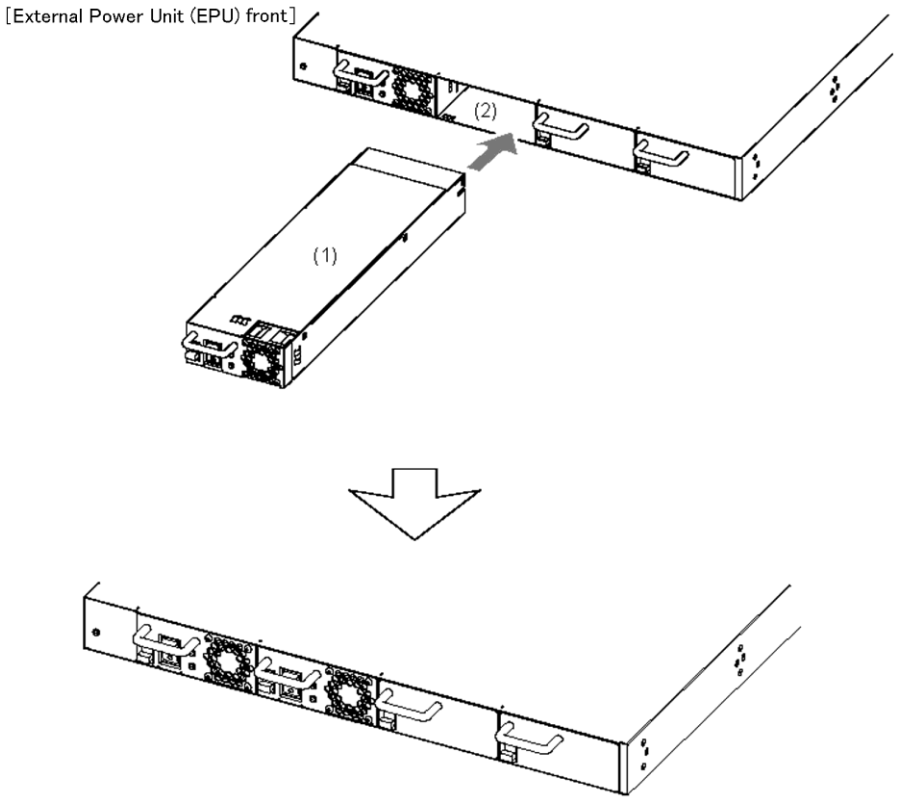
CAUTION Prior to mounting/dismounting the power supply module, turn off the switch of it.

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) Installing

Insert the power supply module until you hear a click.

Figure 4-11 Inserting the power supply module



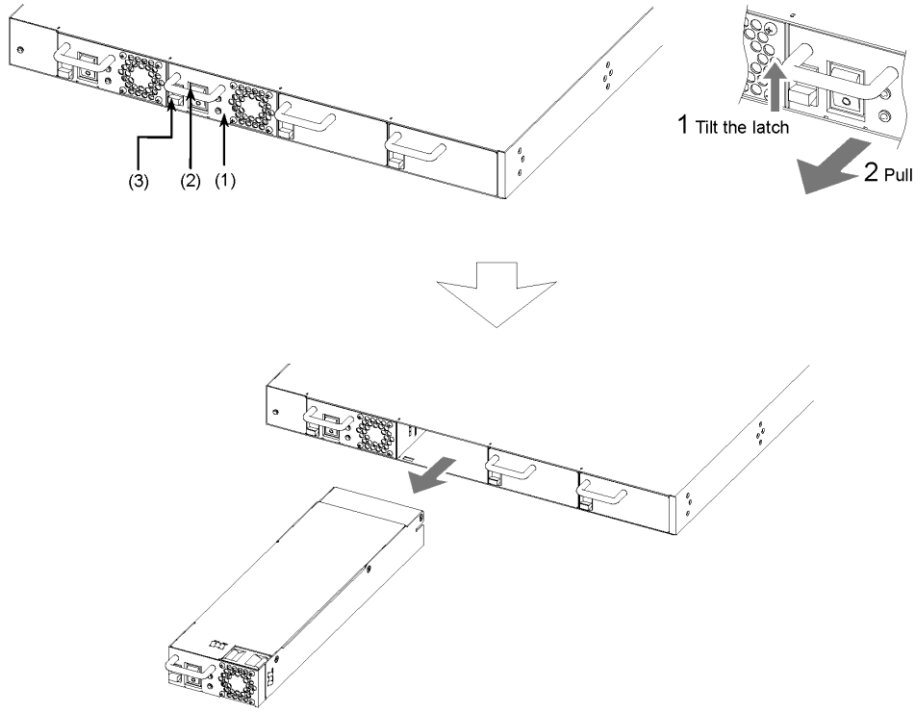
(1) Power supply module

(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 4-12 Removing the power supply module



(1) Power supply module

(2) Handle

(3) Latch

4.5 Connecting and disconnecting a power cable to and from the main device

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

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

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

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

4.5.1 AC power 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 switch can cause electric shocks, as well as cause failures due to electrical noise.

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

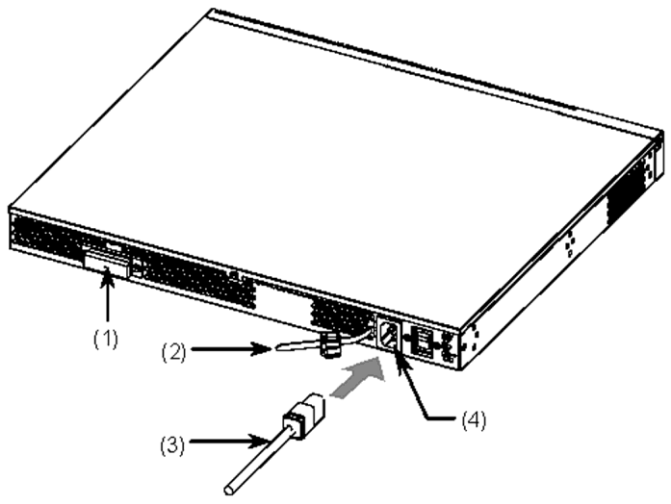
NOTE When the device is mounted in a rack, fasten the power cable with the cable holder of the rack in order to avoid stress on the cable connection part.

(1) Installing

[Step 1]

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

Figure 4-13 Attaching the power cable



(1) Standby power connector (with protective cap)

(2) Cable clamp

(3) AC power cable

(4) AC power connector

⚠WARNING Make sure to use the accessory power cable when the Switch is connected to 100 V AC. Other cable except the bundled one may cause a fire and/or an electric shock.
In addition, use the accessory cable only for the Switch. Otherwise, a fire and/or an electric shock may be the result.

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

⚠WARNING Keep the protective cap in place, except when attaching the cable. Otherwise, a fire or an electric shock might be caused.

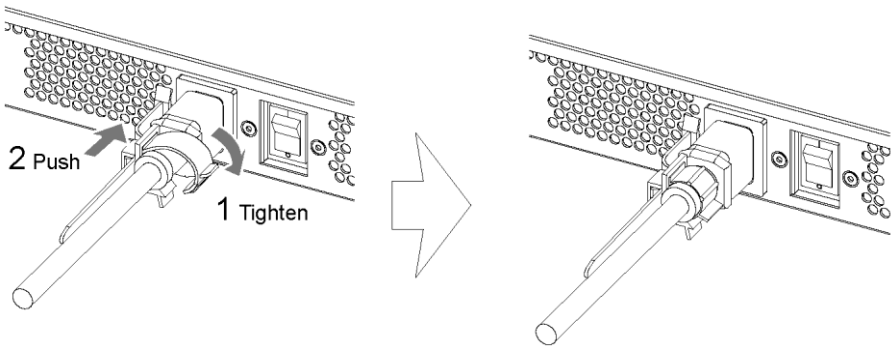
CAUTION Prior to connecting/disconnecting the power cable, turn off the switch of the Switch.

NOTE For required specifications of power cables, see *2.3.2 Electrical power equipment for 200 V AC*.

[Step 2]

Hold the power cable connector with the cable clamp.

Figure 4-14 Clamping the power cable



(2) Removing

Unfasten the cable clamp to detach the power cable.

CAUTION Prior to connecting/disconnecting the power cable, turn off the switch of the Switch.

4.5.2 AC power cable (redundant power models (AX3630S and AX3640S))

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

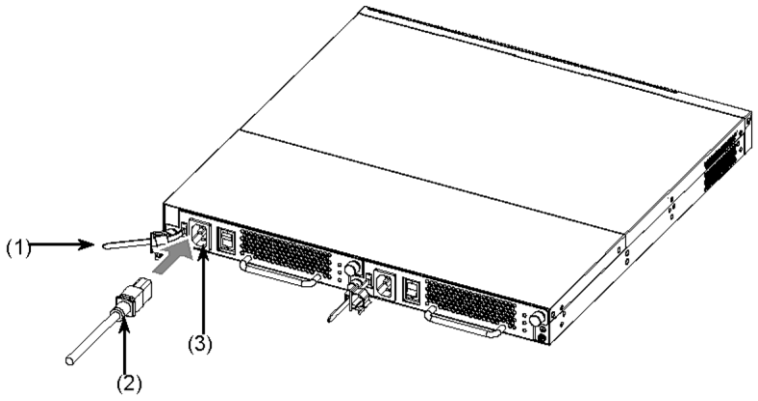
NOTE When the device is mounted in a rack, fasten the power cable with the cable holder of the rack in order to avoid stress on the cable connection part.

(1) Installing

[Step 1]

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

Figure 4-15 Attaching the power cable



(1) Cable clamp

(2) AC power cable

(3) AC power connector

⚠WARNING Make sure to use the accessory power cable when the Switch is connected to 100 V AC. Other cable except the bundled one may cause a fire and/or an electric shock.
In addition, use the accessory cable only for the Switch. Otherwise, a fire and/or an electric shock may be the result.

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

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

NOTE For required specifications of power cables, see *2.3.2 Electrical power equipment for 200 V AC*.

[Step 2]

Hold the power cable connector with the cable clamp.

Figure 4-16 Clamping the power cable

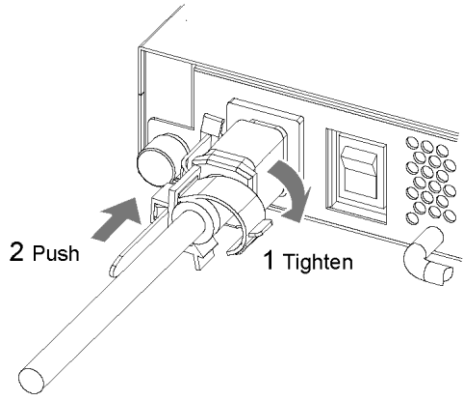
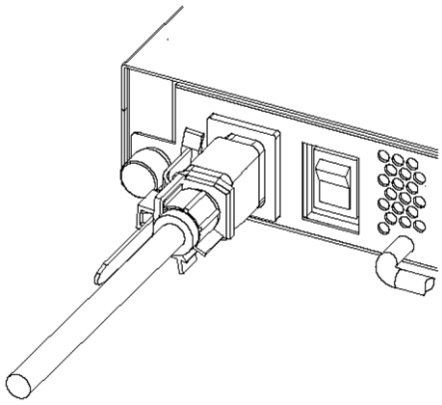


Figure 4-17 Clamped power cable



(2) Removing

Unfasten the cable clamp to detach the power cable.

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

4.5.3 AC power cable (redundant power models (AX3650S and AX3830S))

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

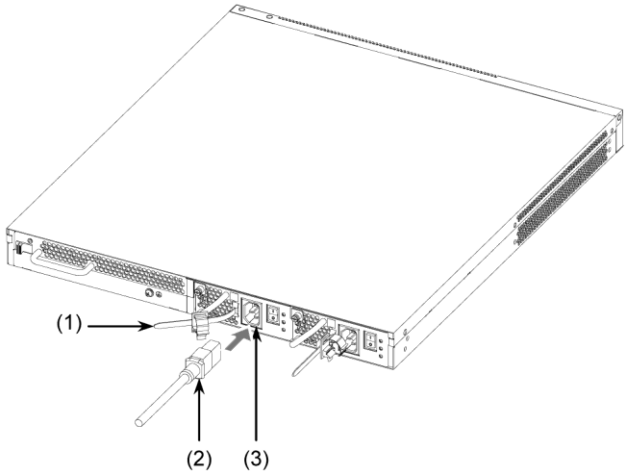
NOTE When the device is mounted in a rack, fasten the power cable with the cable holder of the rack in order to avoid stress on the cable connection part.

(1) Installing

[Step 1]

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

Figure 4-18 Attaching the power cable



(1) Cable clamp

(2) AC power cable

(3) AC power connector

⚠WARNING Make sure to use the accessory power cable when the Switch is connected to 100 V AC. Other cable except the bundled one may cause a fire and/or an electric shock.
In addition, use the accessory cable only for the Switch. Otherwise, a fire and/or an electric shock may be the result.

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

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

NOTE For required specifications of power cables, see *2.3.2 Electrical power equipment for 200 V AC*.

[Step 2]

Hold the power cable connector with the cable clamp.

Figure 4-19 Clamping the power cable

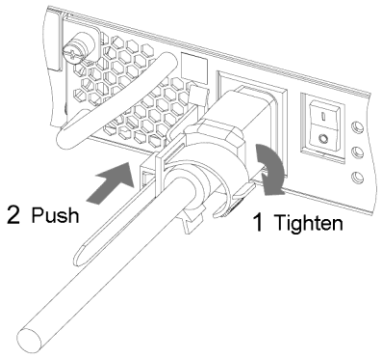
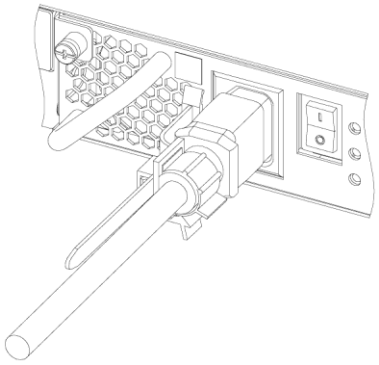


Figure 4-20 Clamped power cable



(2) Removing

Unfasten the cable clamp to detach the power cable.

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

4.5.4 DC power cable (DC models)

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

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

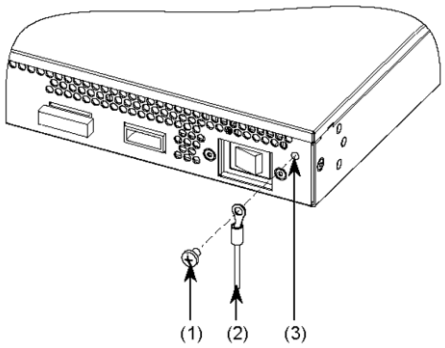
NOTE When the device is mounted in a rack, fasten the power cable with the cable holder of the rack in order to avoid stress on the cable connection part.

(1) Installing

[Step 1]

Attach the ground cable to the device.

Figure 4-21 Attaching the ground cable



(1) M4 x 8 screw

(2) Ground cable

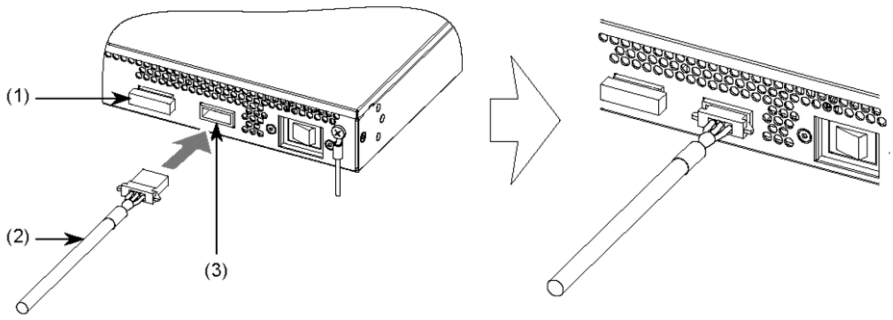
(3) Ground terminal

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

[Step 2]

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

Figure 4-22 Attaching the power cable



(1) DC power connector 2 (with protective cap)

(2) DC power cable

(3) DC power connector 1

⚠WARNING Keep the protective cap in place, except when attaching the cable. Otherwise, a fire or an electric shock might be caused.

NOTE

The optional DC power 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 cable. Store the removed cap securely.

NOTE

By adding a second power supply unit, a redundant supply of DC power can be provided to the Switch.

However, in such cases, shut off the electrical power equipment before attaching the redundant power cable.

(2) Removing

[Step 1]

Disconnect the DC power 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 attaching or detaching the power cable, shut off your electrical power equipment. Otherwise, a fire or an electric shock might result.

NOTE

By adding a second power supply unit, a redundant supply of DC power can be provided to the Switch.

However, in such cases, shut off the electrical power equipment before detaching the redundant power cable.

4.5.5 DC power cable (redundant power models (AX3630S, AX3640S))

⚠WARNING

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

⚠WARNING

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

The terminals of DC power cable are to be connected. Wrong handling of the DC power cable can cause a fire or an electric shock.

⚠WARNING

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

NOTE

For required specifications of power cables, see *2.3.4 Electrical power equipment for −48 V DC (redundant power models (AX3630S and AX3640S))*.

NOTE

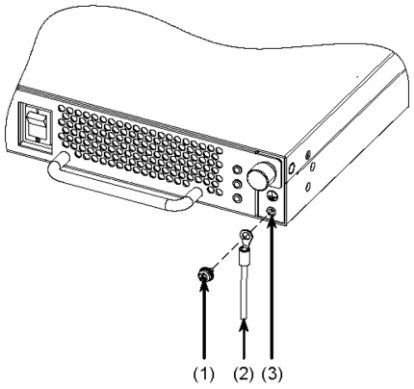
When the device is mounted in a rack, fasten the power cable with the cable holder of the rack in order to avoid stress on the cable connection part.

(1) Installing

[Step 1]

Attach the ground cable to the device.

Figure 4-23 Attaching the ground cable



(1) M4 x 8 screw

(2) Ground cable

(3) Ground terminal

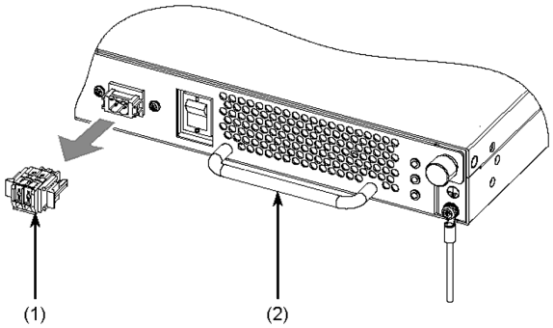
⚠WARNING

Make sure to connect the ground cable to the ground terminal. Not connecting the grounded outlet to the switch 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 4-24 Removing the cable connector



(1) Cable connector

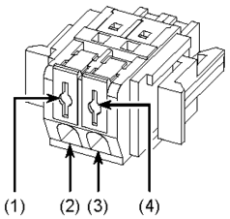
(2) Power supply unit

[Step 3]

Attach the DC power cable to the cable connector.

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

Figure 4-25 Attaching the power cable 1



(1) Button (white)

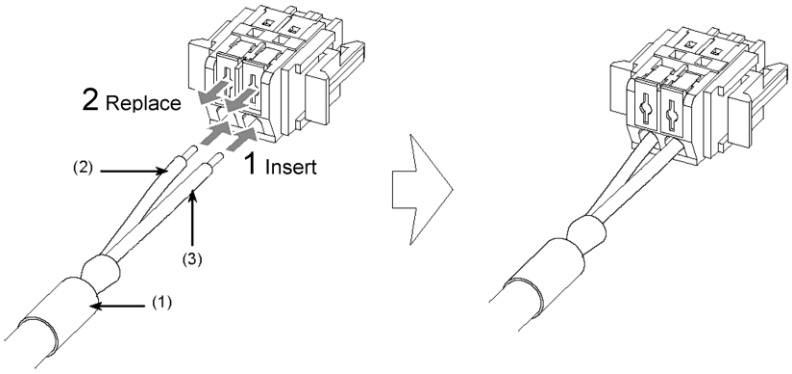
(2) −48 V

(3) 0V

(4) Button (red)

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

Figure 4-26 Attaching the power cable 2



(1) DC power cable

(2) −48 V

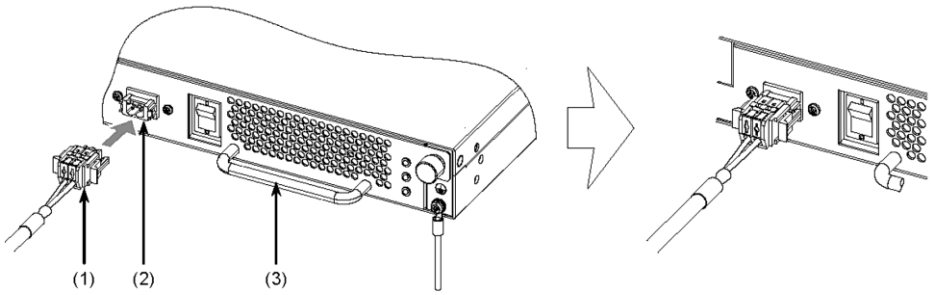
(3) 0V

⚠WARNING Peel the DC power 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.

[Step 4]

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

Figure 4-27 Attaching the cable connector



(1) Cable connector

(2) DC power connector

(3) Power supply unit

CAUTION

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

(2) Removing

[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 cable.

⚠WARNING

Prior to attaching or detaching the power 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 cable to and from a external power unit (EPU)

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

As for the EPU, connect the AC power cable as well as the standby power cable to output backup power to the main device.

To use the EPU, follow the procedures below to attach or detach the AC power cable and the standby power cable.

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

4.6.1 AC power cable

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

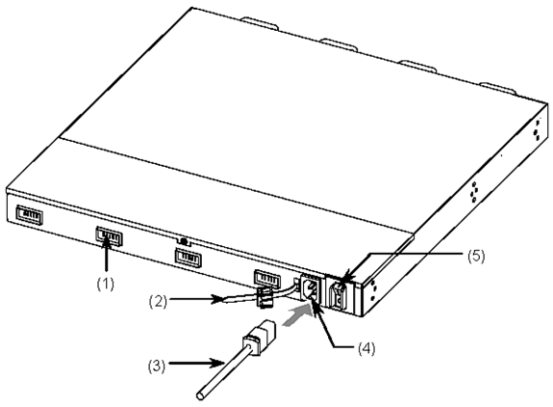
NOTE When the device is mounted in a rack, fasten the power cable with the cable holder of the rack in order to avoid stress on the cable connection part.

(1) Installing

[Step 1]

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

Figure 4-28 Attaching the power cable



(1) Standby power connector (with protective cap)

(2) Cable clamp

(3) AC power cable

(4) AC power connector

(5) Main power switch

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

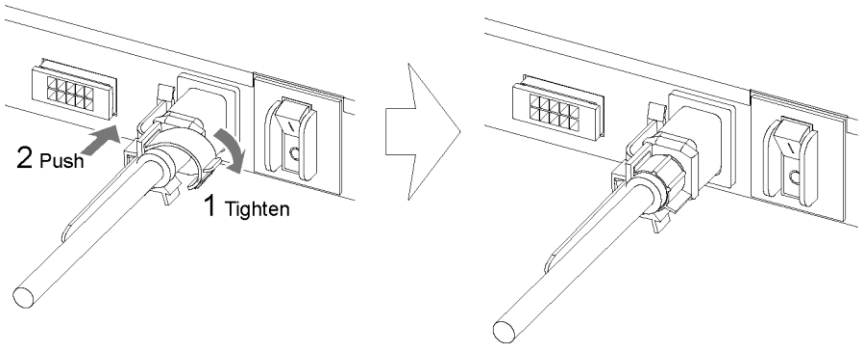
⚠WARNING Keep the protective cap in place, except when attaching the cable. Otherwise, a fire or an electric shock might be caused.

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

[Step 2]

Hold the power cable connector with the cable clamp.

Figure 4-29 Clamping the power cable



(2) Removing

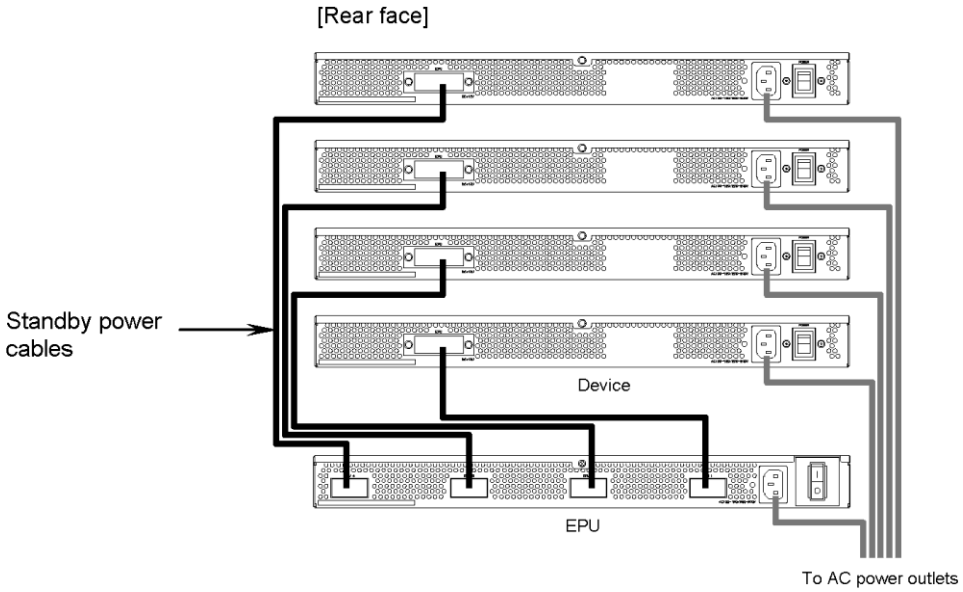
Unfasten the cable clamp to detach the power cable.

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

4.6.2 Standby power cable

Use the standby power cable to connect the EPU with the main device.

Figure 4-30 Connection schematic of the standby power cable



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

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

(1) Installing

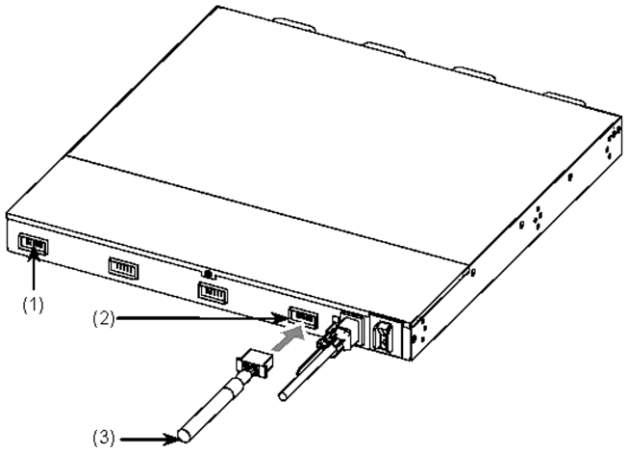
CAUTION Prior to attaching or detaching the standby power cable, turn off the power supply module in the relevant slot.

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 standby power cable to the standby power connector on the back face of the EPU. Insert the connecter until you hear a click.

Figure 4-31 Attaching the standby power cable to the EPU



(1) Standby power connector (with protective cap)

(2) Standby power connector

(3) Standby power cable

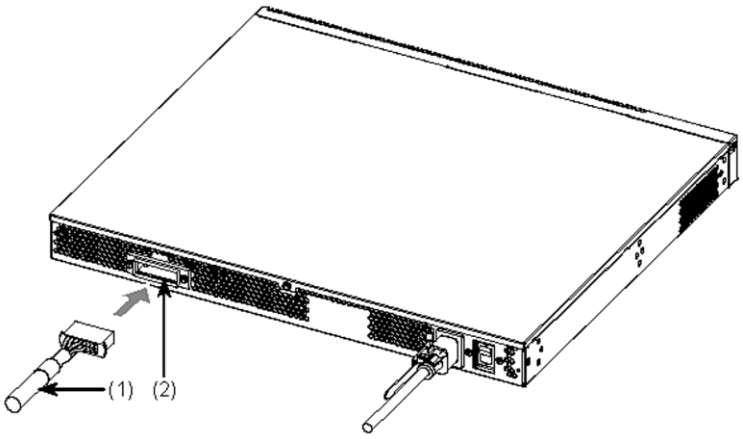
⚠WARNING Keep the protective cap in place, except when attaching the cable. Otherwise, a fire or an electric shock might be caused.

NOTE When one EPU supplies backup power to multiple devices, attach the standby power cables to standby power connectors 2 and 3 and so on. In such cases, remove each protective cap to connect the standby power cable. Store the removed cap securely.

[Step 2]

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

Figure 4-32 Attaching the standby power cable to the main unit



(1) Standby power cable

(2) Standby power connector (with protective cap)

⚠WARNING Keep the protective cap in place, except when attaching the cable. Otherwise, a fire or an electric shock might be caused.

NOTE The standby power connectors have protective caps. Remove each protective cap to connect the standby power cable. Store the removed cap securely.

(2) Removing

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

4.7 Inserting and removing memory cards and the dummy memory card

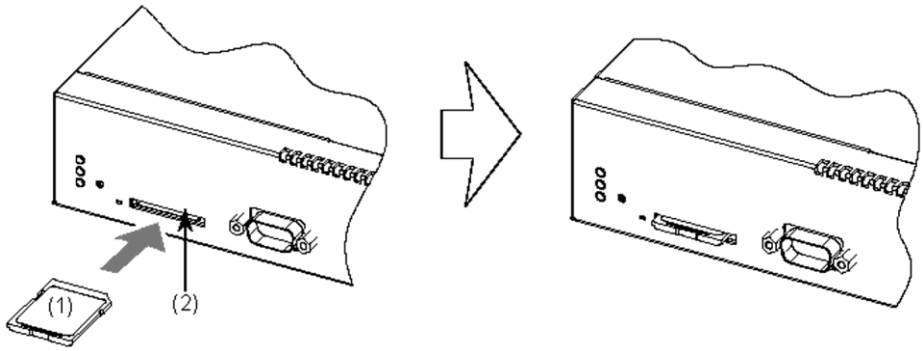
4.7.1 Inserting and removing memory cards

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) Installing

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 4-33 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.

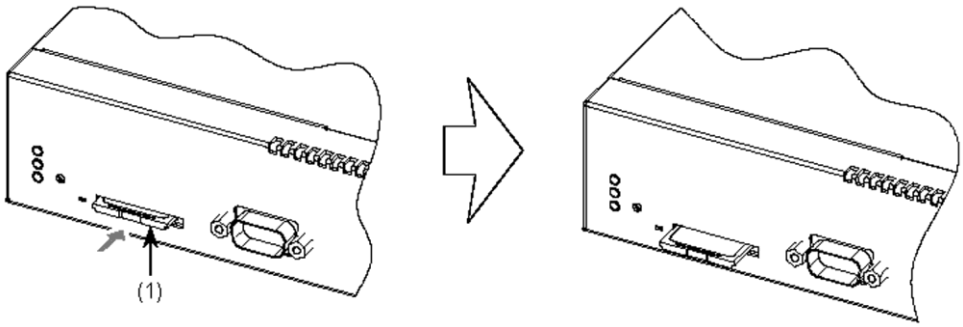
NOTE Clean the memory card slot with a dry cloth if it is dusty.

(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 4-34 Removing the memory card

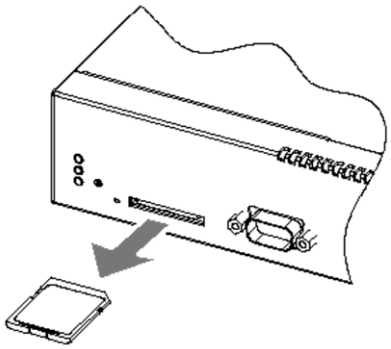


(1) Memory card

[Step 2]

Remove the memory card.

Figure 4-35 Removing the memory card



CAUTION

The device is accessing the memory card whenever the ACC LED is lit. 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 unit 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.

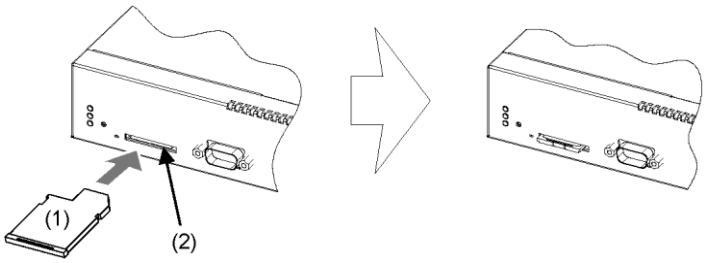
CAUTION

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) Installing

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 4-36 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

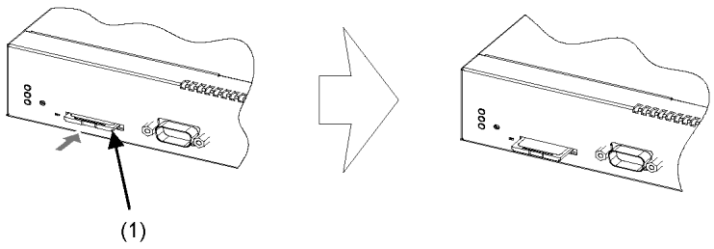
Clean the memory card slot with a dry cloth if it is dusty.

(2) Removing

[Step 1]

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

Figure 4-37 Removing the dummy card

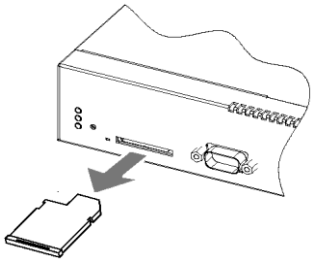


(1) Dummy Card

[Step 2]

Remove the dummy card.

Figure 4-38 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 SFPs (SFP-T and SFP-T (T))

⚠CAUTION

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

To remove an SFP-T or 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.

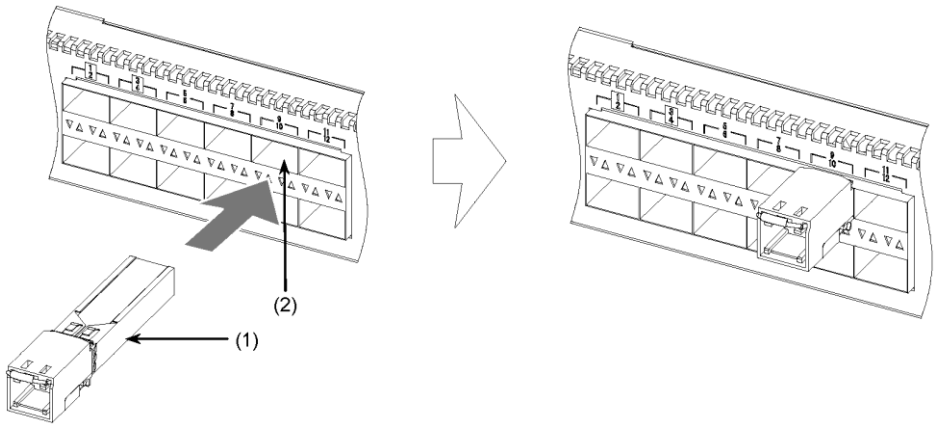
NOTE

To block the SFP slot, use the shutdown command. For details about the `shutdown` command, see the applicable *Software Manual Configuration Guide*.

(1) Installing

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

Figure 4-39 Inserting the SFP into an upper port



(1) SFP

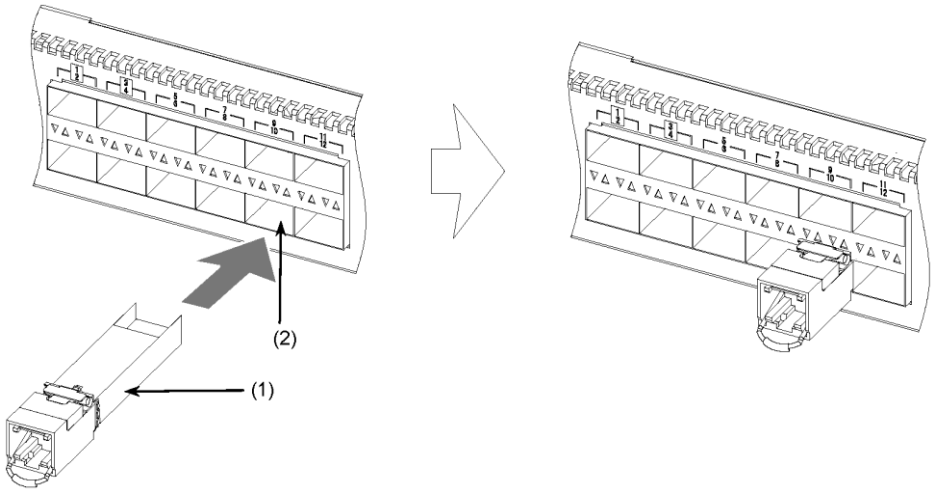
(2) SFP slot

NOTE

The figure above shows how to install an SFP into an upper SFP slot of a model that has two tiers of slots. As for the models that have one tier of 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 a model that has two tiers of slots, flip it around as shown in the figure below.

Figure 4-40 Installing an SFP into a lower port



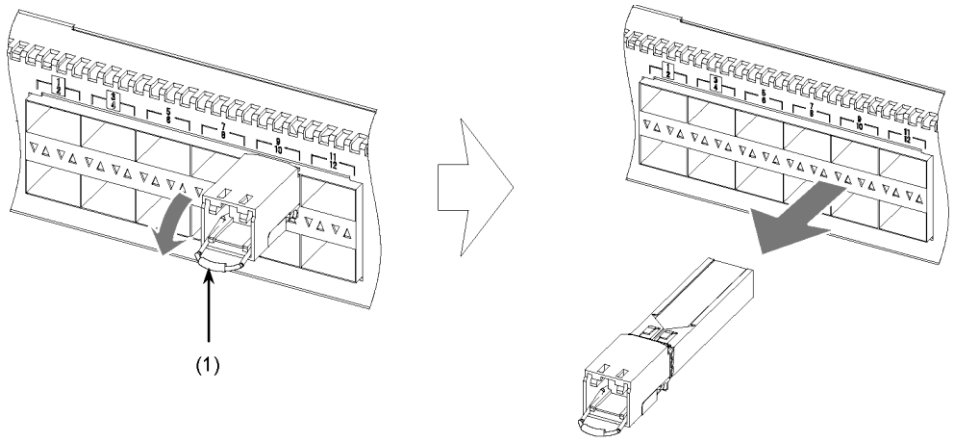
(1) SFP

(2) SFP slot

(2) Removing

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

Figure 4-41 Removing the SFP



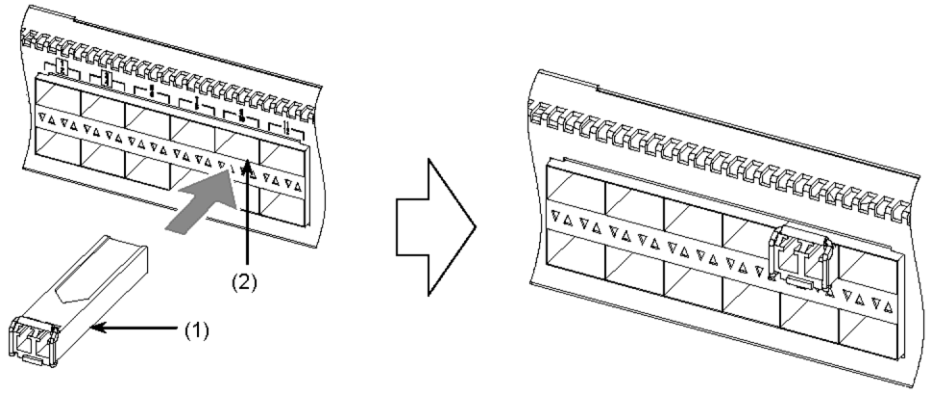
(1) Handle

4.8.2 Inserting and removing SFP (excluding SFP-T and SFP-T (T) transceivers) and SFP+ transceivers

(1) Installing

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

Figure 4-42 Inserting the SFP into an upper port



(1) SFP

(2) SFP slot

NOTE

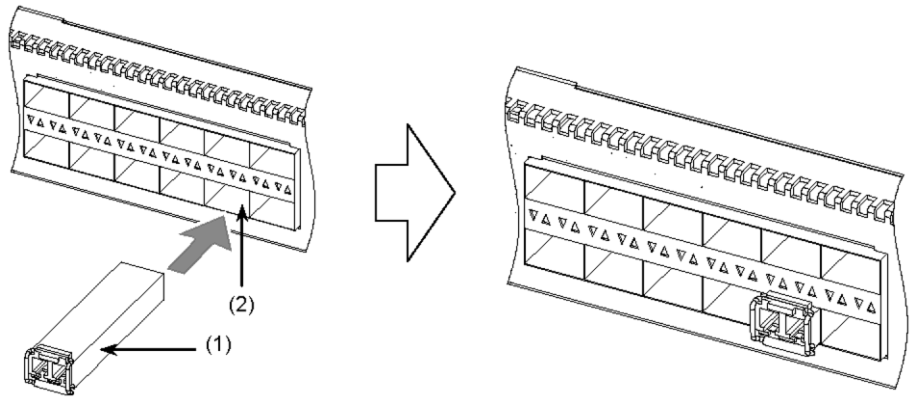
The figure above shows how to install an SFP into an upper SFP slot of a model that has two tiers of slots. As for the models that have one tier of SFP slots, install the SFP in the same way as shown in the figure above.

To install an SFP into a lower SFP slot of a model that has two tiers of slots, flip it around as shown in the figure below.

NOTE

The same procedures are applicable to SFP+.

Figure 4-43 Installing an SFP into a lower port



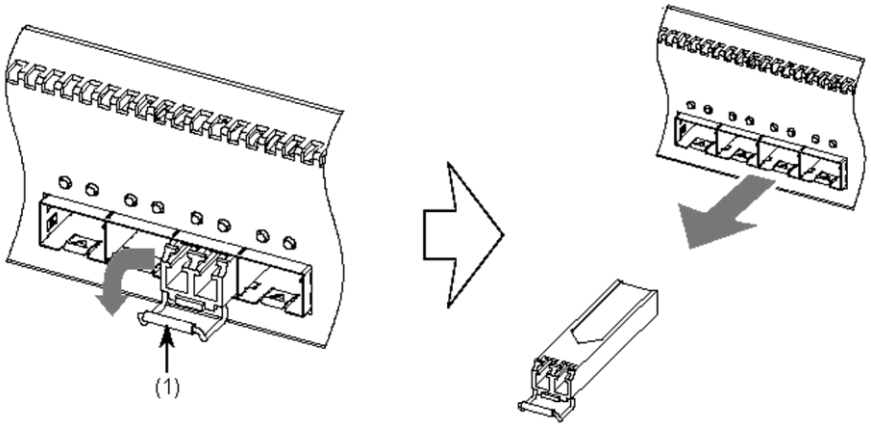
(1) SFP

(2) SFP slot

(2) Removing

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

Figure 4-44 Removing the SFP



(1) Handle

NOTE

The same procedures are applicable to SFP+.

4.9 Inserting and removing XFPs

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

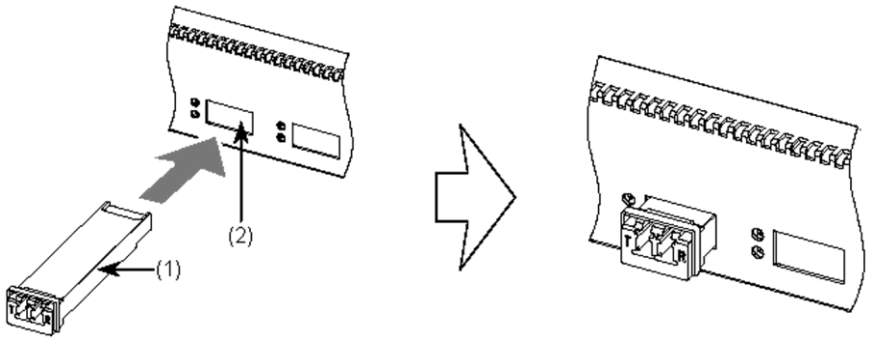
NOTE

The figures below show how to insert and remove an XFP to and from the module A type.
The same procedures are applicable to the module B type.

(1) Installing

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

Figure 4-45 Inserting the XFP



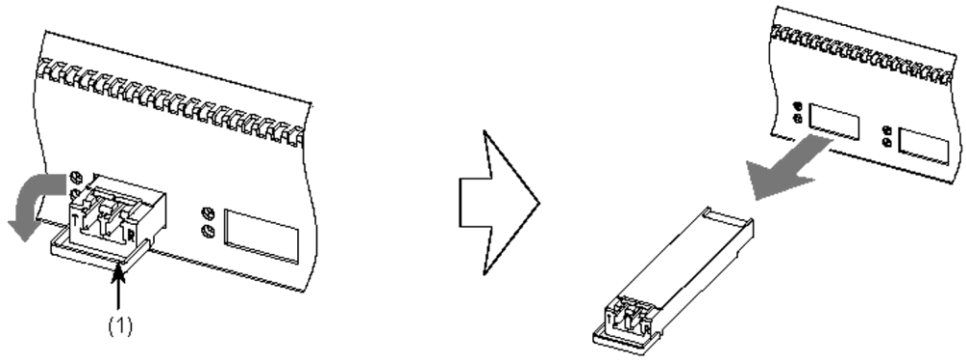
(1) XFP

(2) XFP slot

(2) Removing

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

Figure 4-46 Removing the XFP



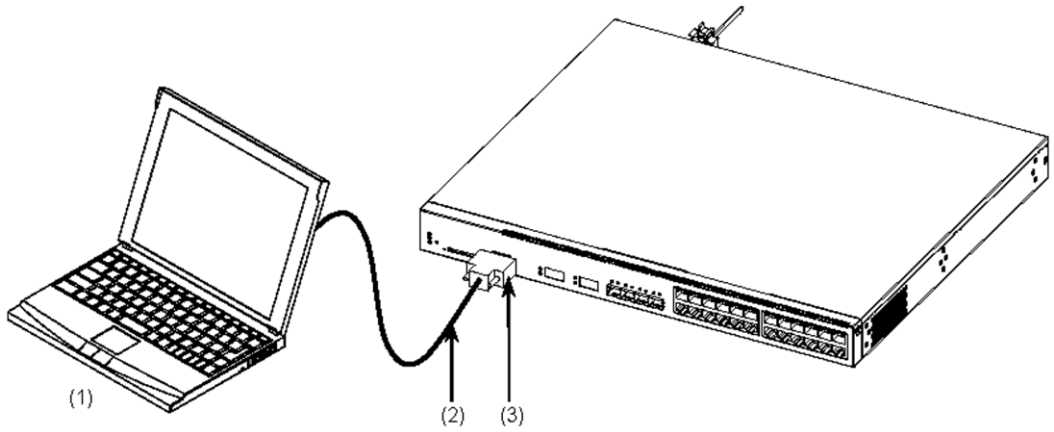
(1) Handle

4.10 Connecting a setup terminal

Connect a setup terminal to the CONSOLE port of the Switch.

For this connection, use an RS-232C crossover cable of the inch screw (#4-40) type with D-sub 9-pin female connectors on both ends.

Figure 4-47 Connection schematic of the setup terminal



(1) Setup terminal

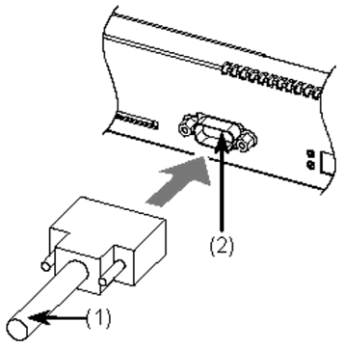
(2) RS-232C cable

(3) CONSOLE port

[Step 1]

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

Figure 4-48 Connecting the RS-232C cable



(1) RS-232C cable

(2) CONSOLE port

NOTE

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

[Step 2]

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

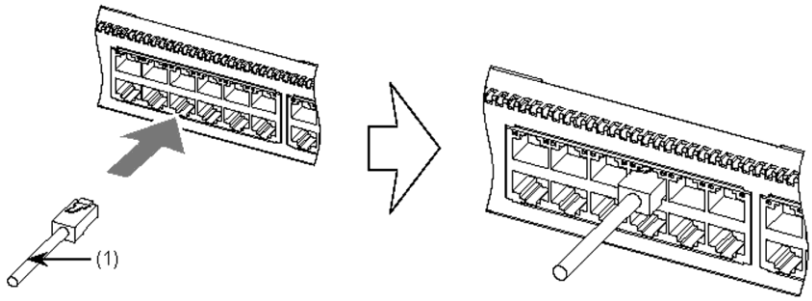
4.11 Connecting interface cables

4.11.1 UTP and optical fiber cables

(1) UTP cable

Insert the connector until you hear a click.

Figure 4-49 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 an SFP-T and SFP-T (T) in the same way.

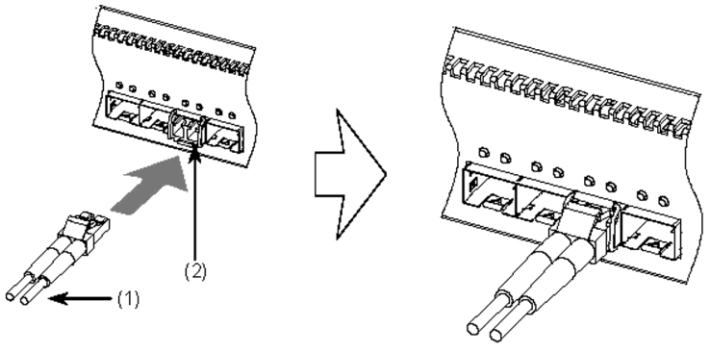
NOTE For detaching the cable, pull out the connector with the tab held down.

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 4-50 Optical fiber cable (LC duplex connector)



(1) Optical fiber cable (LC duplex connector)

(2) Transceiver

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

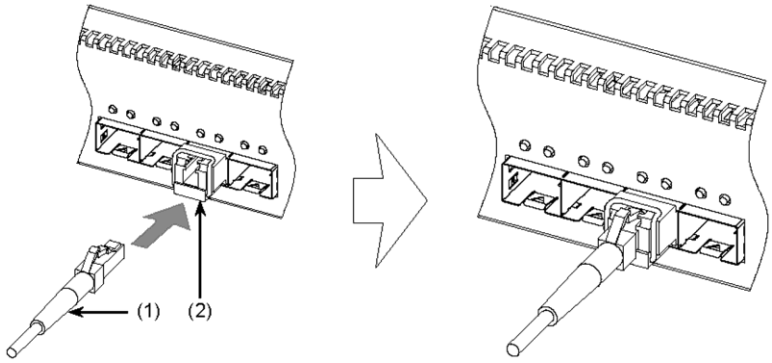
NOTE For detaching the cable, pull out the connector with the tab held down.

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 4-51 Optical fiber cable (LC simplex connector)



(1) Optical fiber cable (LC simplex connector)

(2) Transceiver

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

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

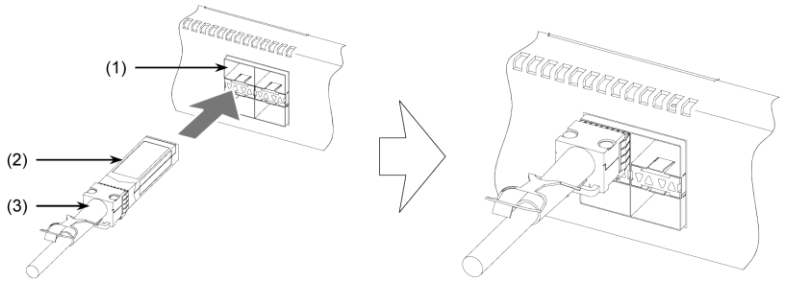
4.11.2 Direct attach cables

Direct attach cables can be attached and detached without turning off the switch.

(1) Installing

Hold the plug portion of the cable and push on the connector until you hear a click.

Figure 4-52 Connecting a direct attach cable (upper port)



(1) SFP+ slot

(2) Connector

(3) Plug portion of the cable

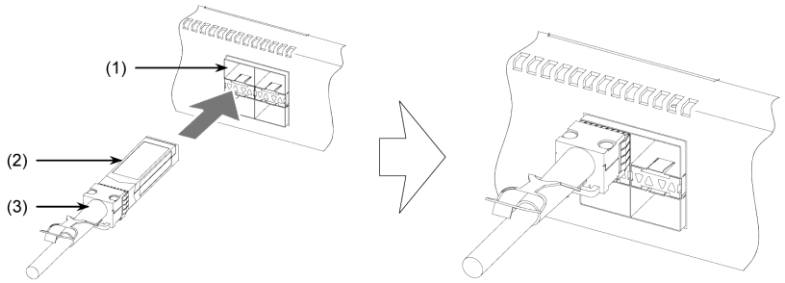
NOTE

The figure above shows how to connect the cable to an upper SFP+ slot of the AX3650S-48T4XW model.

Even when connecting the cable to an upper SFP+ slot of the AX3650S-24T6XW, AX3650S-20S6XW, and AX3830S models, connect the cable so that the direction of the connector is the same as shown in the figure above.

To connect the cable to a lower SFP+ slot of the AX3650S-48T4XW and AX3830S models, flip the connector around as shown in the figure below.

Figure 4-53 Connecting a direct attach cable (lower port)



(1) SFP+ slot

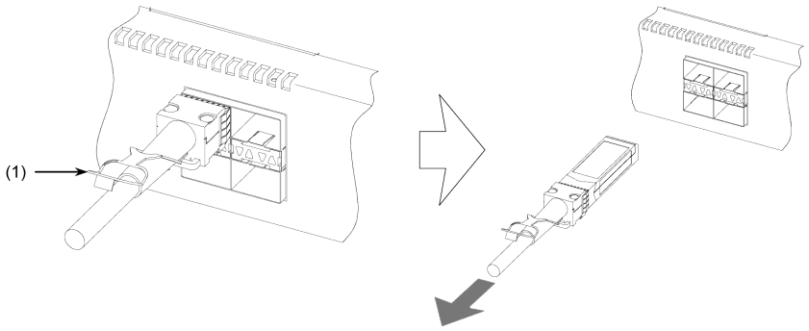
(2) Connector

(3) Plug portion of the cable

(2) Removing

Hold and pull the tab.

Figure 4-54 Disconnecting a direct attach cable



(1) Tab

4.12 Powering the main device on and off

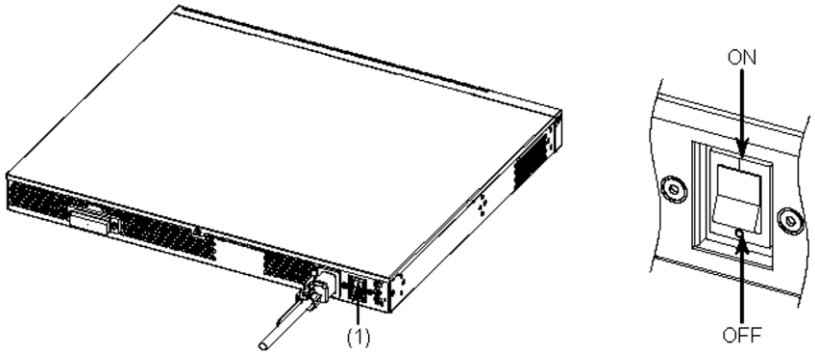
4.12.1 AC power and AC (PoE) models

NOTE The description below is about powering the AC 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 4-55 Power on (AC 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*.

NOTE If the switch has not been turned on for a long time (a month or more), the switch might not start up with the red ST1 LED staying on (for the first try only).
In this case, turn off the switch, and then turn it on again.

(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 whenever the ACC LED is lit. 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 unit 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:

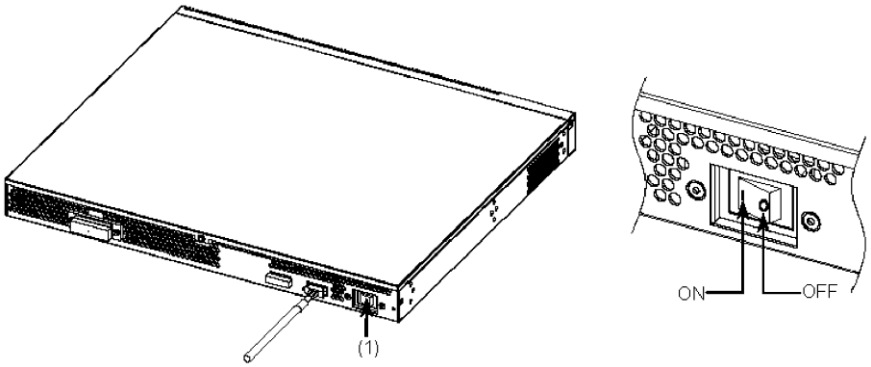
- Updating software

4.12.2 DC model

(1) Power on

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

Figure 4-56 Power on (DC model)



(1) Power switch

NOTE

If the switch has not been turned on for a long time (a month or more), the switch might not start up with the red ST1 LED staying on (for the first try only).
In this case, turn off the switch, and then turn it on again.

(2) Power off

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

CAUTION

The device is accessing the memory card whenever the ACC LED is lit. 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 unit 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

4.12.3 Redundant power model (AX3630S, AX3640S)

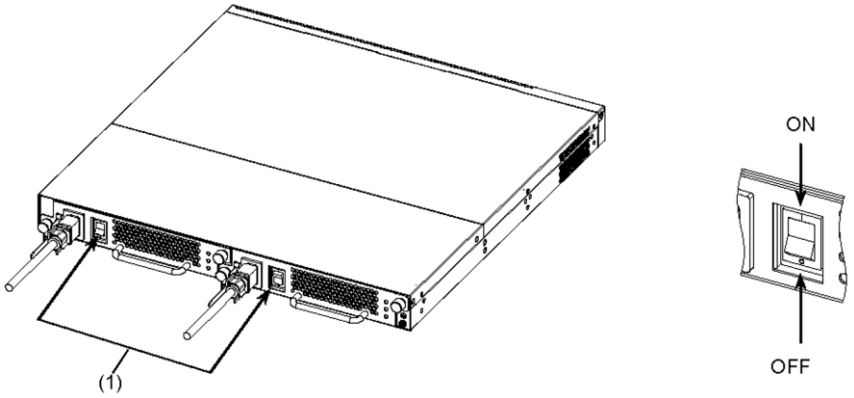
NOTE

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 4-57 Power on (redundant power model (AX3630S, AX3640S))



(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.

NOTE

If the switch has not been turned on for a long time (a month or more), the switch might not start up with the red ST1 LED staying on (for the first try only).
In this case, turn off the switch, and then turn it on again.

(2) Power off

Turn off all power switches on the back face of the device.

⚠WARNING

For Switches with redundant power supplies, turning off either power switch does not shut off the power to the Switches.
Turn off the switches of all power units mounted on the Switch to shut it off.

CAUTION

The device is accessing the memory card whenever the ACC LED is lit. 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 unit 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:

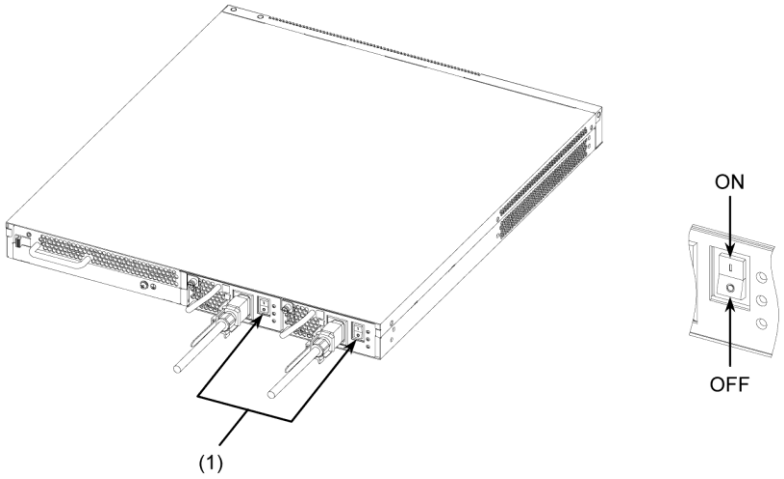
- Updating software

4.12.4 Redundant power model (AX3650S, AX3830S)

(1) Power on

Turn on all the power switches on the back face of the device.

Figure 4-58 Power on (redundant power model (AX3650S, AX3830S))



(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 Switches with redundant power supplies, turning off either power switch does not shut off the power to the Switches.
Turn off the switches of all power units mounted on the Switch to shut it off.

CAUTION

The device is accessing the memory card whenever the ACC LED is lit. 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 unit 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

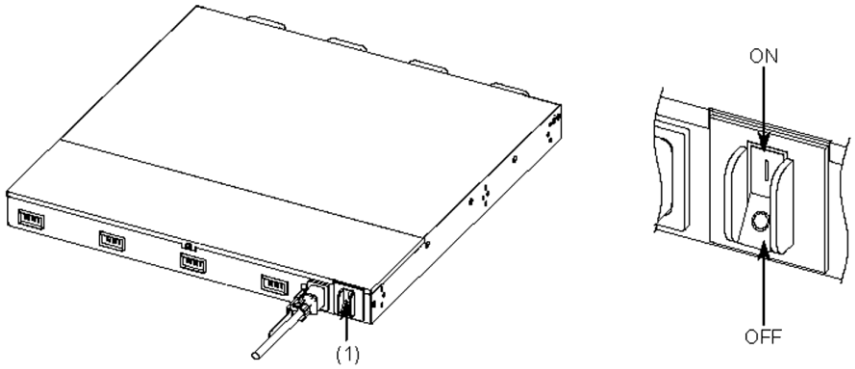
4.13.1 EPU-A

(1) Power on

[Step 1]

Turn on the main power switch on the back face of the EPU.

Figure 4-59 Power on (main body of the EPU)



(1) Main power switch

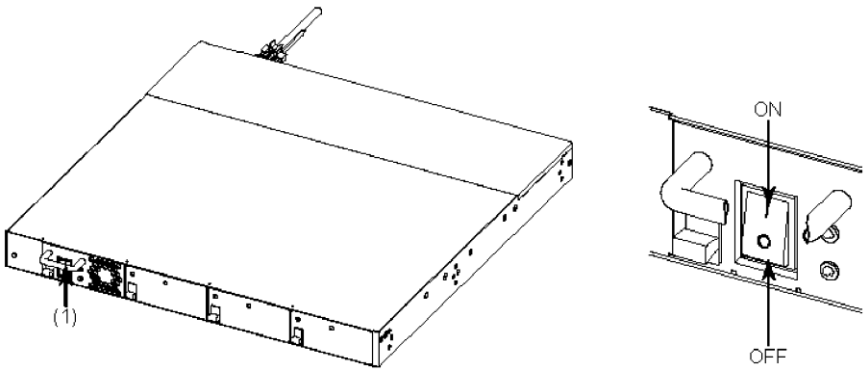
CAUTION

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

[Step 2]

Turn on the power supply modules.

Figure 4-60 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 units 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 units 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.

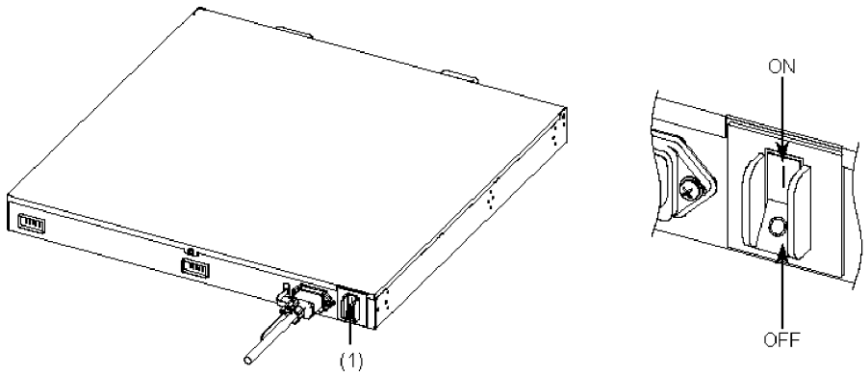
4.13.2 EPU-B

(1) Power on

[Step 1]

Turn on the main power switch on the back face of the EPU.

Figure 4-61 Power on (main body of the EPU)



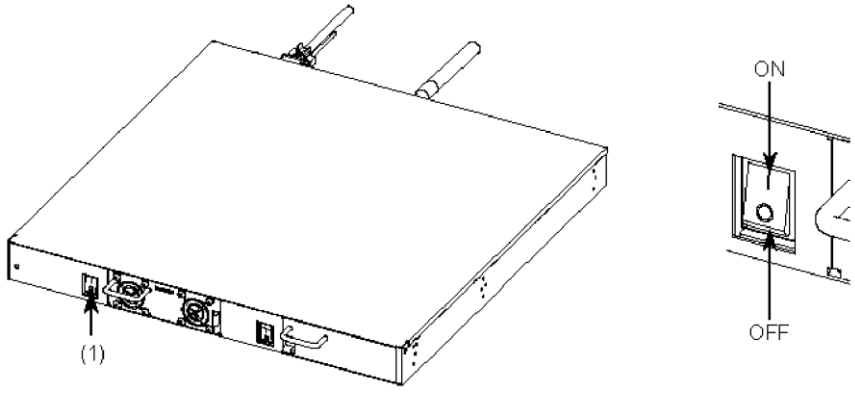
(1) Main power switch

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

[Step 2]

Turn on the power supply modules.

Figure 4-62 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 units 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*
AX3640S/AX3630S series	*AX3640S/AX3630S Software Manual Configuration Guide Vol. 1*
AX3800S/AX3650S series	*AX3800S/AX3650S Software Manual Configuration Guide Vol. 1*

NOTE

The time setting of the Switch 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*
AX3640S/AX3630S series	*AX3640S/AX3630S Software Manual Configuration Guide Vol. 1* *AX3640S/AX3630S Software Manual Configuration Guide Vol. 2* *AX3640S/AX3630S Software Manual Configuration Guide Vol. 3*
AX3800S/AX3650S series	*AX3800S/AX3650S Software Manual Configuration Guide Vol. 1* *AX3800S/AX3650S Software Manual Configuration Guide Vol. 2* *AX3800S/AX3650S Software Manual Configuration Guide Vol. 3*

Table 4-3 Manuals for detailed operation commands

Series	Manual
AX2400S series	*AX2400S Software Manual Operation Command Reference*
AX3640S/AX3630S series	*AX3640S/AX3630S Software Manual Operation Command Reference Vol. 1* *AX3640S/AX3630S Software Manual Operation Command Reference Vol. 2*
AX3800S/AX3650S series	*AX3800S/AX3650S Software Manual Operation Command Reference Vol. 1* *AX3800S/AX3650S 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*
AX3640S/AX3630S series	*AX3640S/AX3630S Software Manual Configuration Command Reference Vol. 1* *AX3640S/AX3630S Software Manual Configuration Command Reference Vol. 2*
AX3800S/AX3650S series	*AX3800S/AX3650S Software Manual Configuration Command Reference Vol. 1* *AX3800S/AX3650S 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/AX6600S/AX6300S/AX3800S/AS3600S/AX2400S Troubleshooting Guide*
AX3640S/AX3630S series	
AX3800S/AX3650S 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 mounting brackets to the device. Also, use this screwdriver to installing or removing a power supply unit and a fan unit to or from the redundant power model.

Phillips screwdriver no. 2:

Use this screwdriver to install or remove the device to or from the rack. Also, use this screwdriver to connect or disconnect the ground cable to or from the DC model and the redundant power model (AX3630S and AX3640).

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 might cause an injury.

⚠CAUTION

For the EPU, use blank panels to cover the slots that do not contain power supply modules. If you use the switch without attaching the blank panel, you might be injured by a moving part. In addition, if foreign objects fall into the switch, the switch might no longer work properly.

CAUTION

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

CAUTION

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.

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

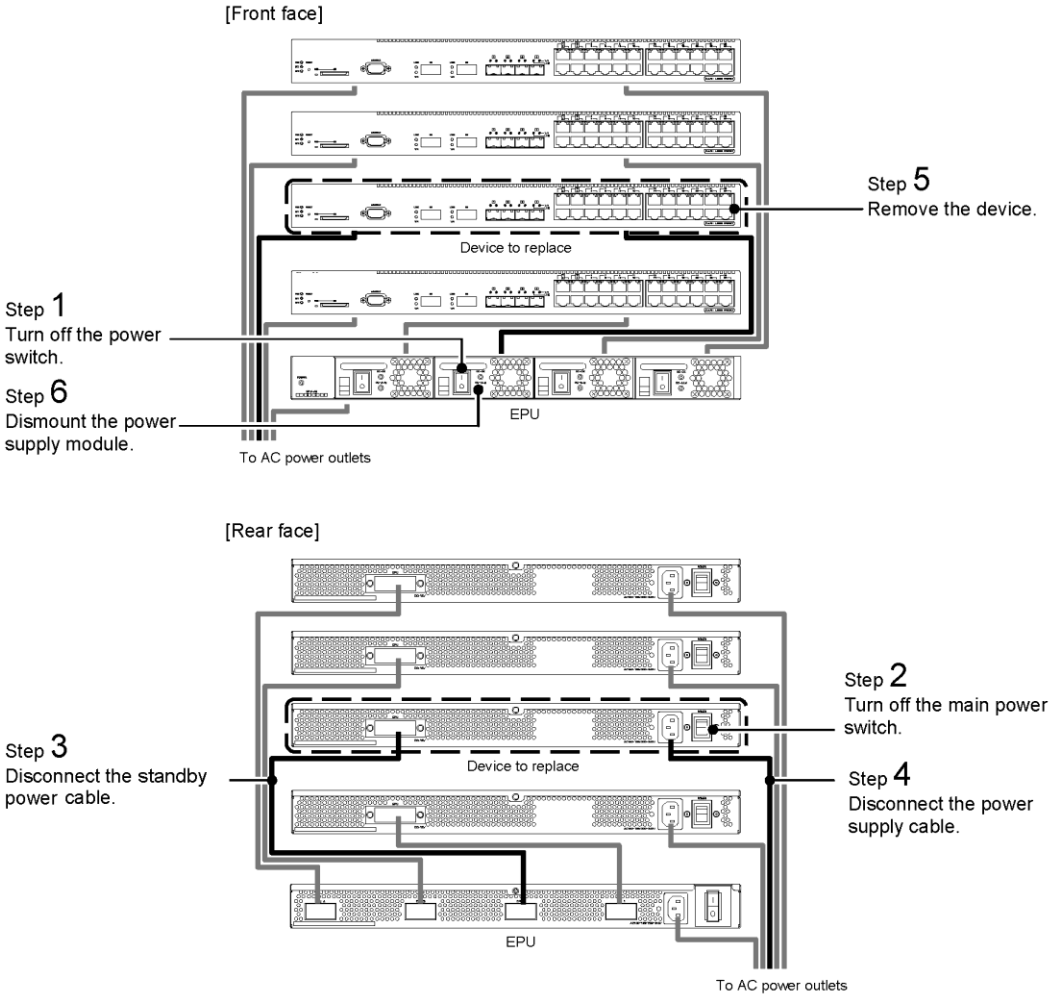
The figures below show the AC model with the external power unit (EPU). The same procedures are applicable to the AC (PoE) model with the EPUs.

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 redundant power models

Figure 5-1 Steps to uninstall the device



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

⚠CAUTION When moving the redundant power model, do not hold the handle of the power supply unit or the fan unit. 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 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]

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 standby power cable from the main device and the EPU.

[Step 4]

Disconnect the AC power 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 unit 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. If you use the switch without attaching the blank panel, you might be injured by a moving part. In addition, if foreign objects fall into the switch, the switch might no longer work properly.

(2) Installing

[Step 1]

Install the switch.

[Step 2]

Mount the power supply module to the EPU.

[Step 3]

Connect the AC power cable to the switch.

[Step 4]

Connect the standby power cable to the main device 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 the applicable *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 redundant power models.

Power supplies can be added, replaced, and removed while the switch is on.

5.4.1 Redundant power model (AX3630S, AX3640S)

⚠CAUTION

After a power supply unit is removed, mount a fan unit. Otherwise, the following problems might occur:

- An increase in the temperature inside the switch might cause a failure.
- The components might cause an injury.
- Foreign matter inside the switch might cause a failure.
- Waves emitted by the Switch might affect other devices, or waves emitted by other devices might affect the Switch and cause a malfunction.

CAUTION

When a power supply unit is replaced while the switch is still on, do not leave the switch on for more than three minutes without a power supply unit. Otherwise, a failure might occur due to increasing temperatures inside the device.

NOTE

When using only one power supply unit, insert the power supply unit into power supply unit slot 1 and the fan unit to power supply unit slot 2.

To install the fan unit, see *5.5 Replacement of a fan unit*.

NOTE

The figures below show the power supply unit for AC power supplies. The same procedures are applicable to the power supply unit for DC power supplies.

(1) Removing

[Step 1]

Turn off the power supply unit to be replaced.

[Step 2]

Disconnect the power cable from the power supply unit to be replaced.

⚠WARNING

For the extension or replacement of a power supply unit, disconnect the power cable from the power supply unit to be replaced. When the power 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 unit with the power cable connected can cause a fire or an electric shock.

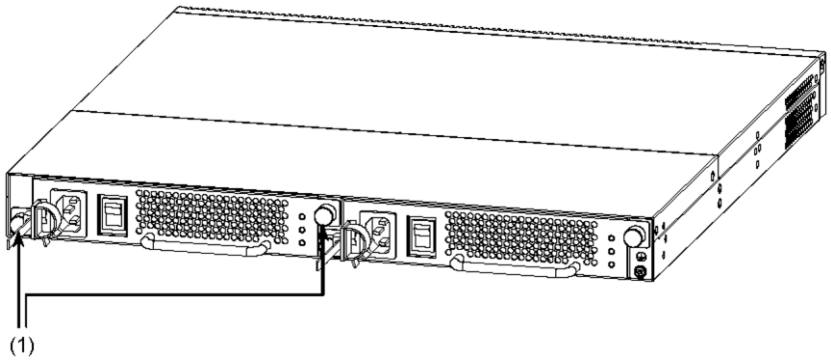
NOTE

To change the power supply unit from a DC power supply unit to an AC power supply unit, disconnect the power cable and then the ground cable. Store the removed ground cable securely.

[Step 3]

Loosen the screws of the power supply unit.

Figure 5-2 Removing the power supply unit 1

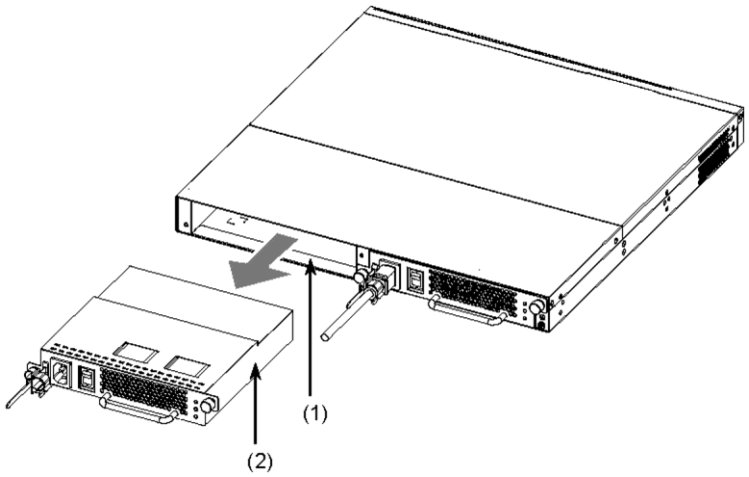


(1) Screws

[Step 4]

Hold the handle of the power supply unit and pull it a little. Supporting the bottom, pull out the power supply unit.

Figure 5-3 Removing the power supply unit 2



(1) Power supply unit slot

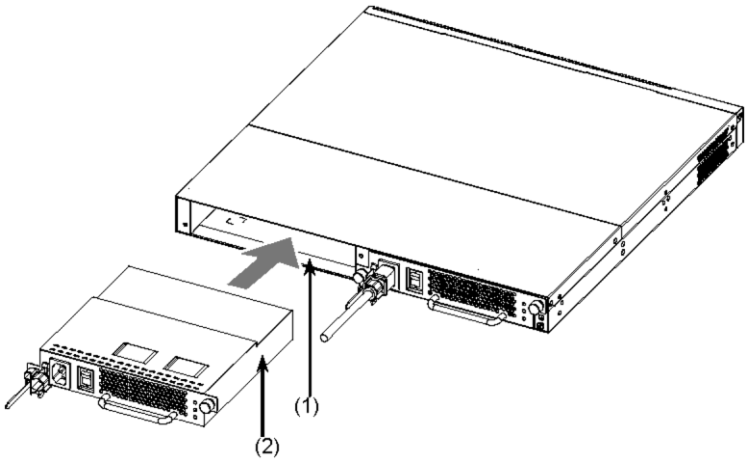
(2) Power supply unit

(2) Installing

[Step 1]

Insert the power supply unit into the power supply unit slot.

Figure 5-4 Connecting the power supply unit 1



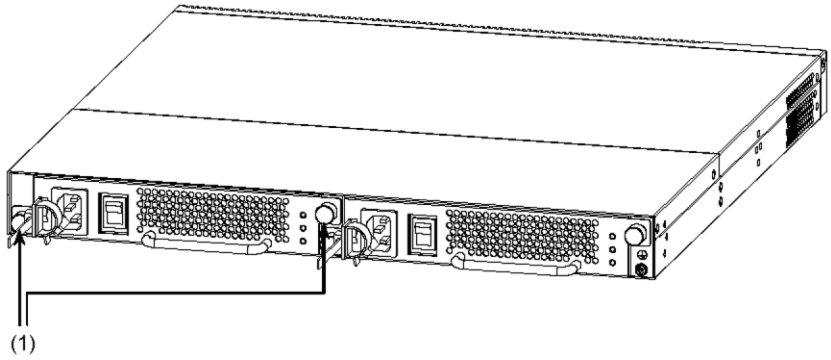
(1) Power supply unit slot

(2) Power supply unit

[Step 2]

Tighten the screws of the power supply unit.

Figure 5-5 Connecting the power supply unit 2



(1) Screws

[Step 3]

Connect the power cable to the power supply unit.

[Step 4]

Turn on the power supply unit.

5.4.2 Redundant power model (AX3650S, AX3830S)

⚠CAUTION

After a power supply unit is removed, insert a blank panel. Otherwise, the following problems might occur:

- An increase in the temperature inside the switch might cause a failure.
- The components might cause an injury.
- Foreign matter inside the switch might cause a failure.
- Waves emitted by the Switch might affect other devices, or waves emitted by other devices might affect the Switch and cause a malfunction.

NOTE

Remove the blank panel to extend the power supply module. Store the removed blank panel securely.

(1) Removing

[Step 1]

Turn off the power supply unit to be replaced.

[Step 2]

Disconnect the power cable from the power supply unit to be replaced.

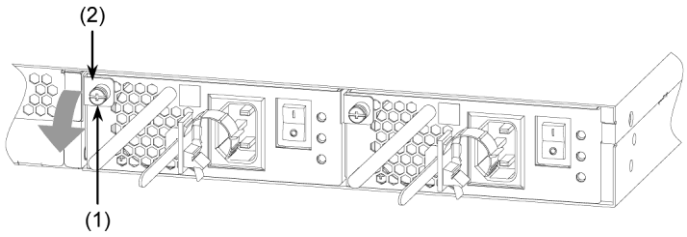
⚠WARNING

For the extension or replacement of a power supply unit, disconnect the power cable from the power supply unit to be replaced. When the power 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 unit with the power cable connected can cause a fire or an electric shock.

[Step 3]

Loosen the screws of the power supply unit, and move the handle in the direction of the arrow.

Figure 5-6 Removing the power supply unit 1



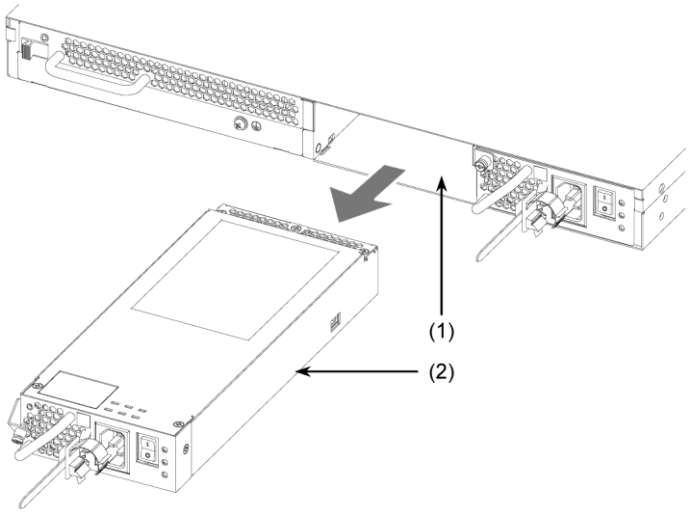
(1) Screw

(2) Handle

[Step 4]

Hold the handle of the power supply unit and pull it a little. Supporting the bottom, pull out the power supply unit.

Figure 5-7 Removing the power supply unit 2



(1) Power supply unit slot

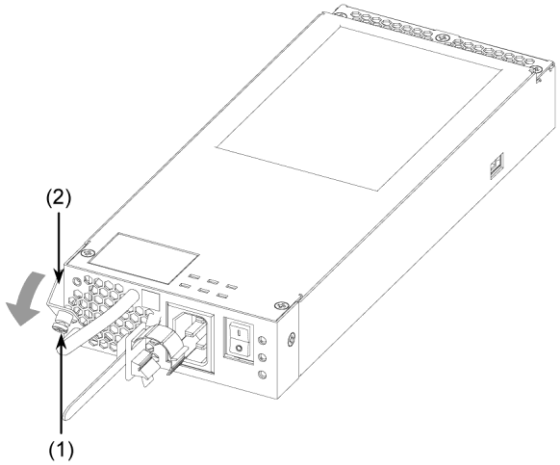
(2) Power supply unit

(2) Installing

[Step 1]

Loosen the screws of the power supply unit, and move down the handle.

Figure 5-8 Connecting the power supply unit 2



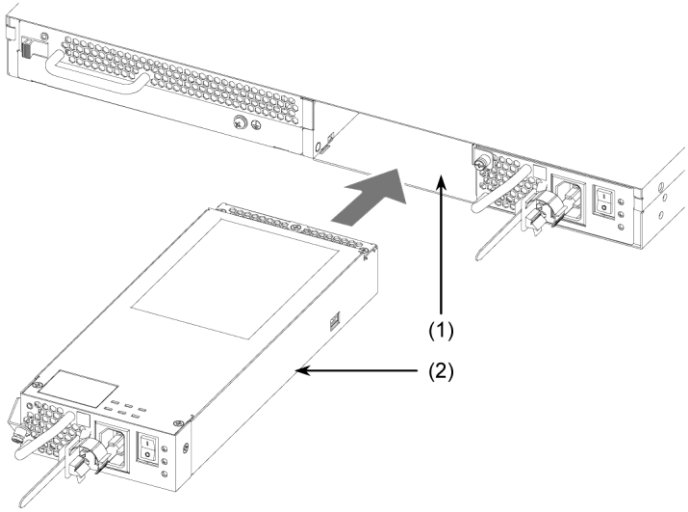
(1) Screw

(2) Handle

[Step 2]

Keep the handle down and insert the power supply unit into the power supply unit slot.

Figure 5-9 Connecting the power supply unit 2



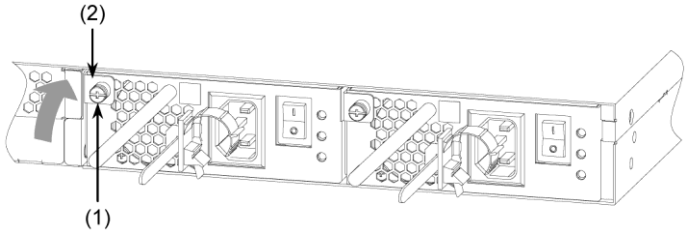
(1) Power supply unit slot

(2) Power supply unit

[Step 3]

Move the handle back in the direction of the arrow, and tighten the screws.

Figure 5-10 Connecting the power supply unit 2



(1) Screw

(2) Handle

[Step 4]

Connect the power cable to the power supply unit.

[Step 5]

Turn on the power supply unit.

5.5 Replacement of a fan unit

This section describes the procedures to replace the fan unit in the redundant power model.

The fan unit can be removed while the switch is on.

5.5.1 Redundant power model (AX3630S, AX3640S)

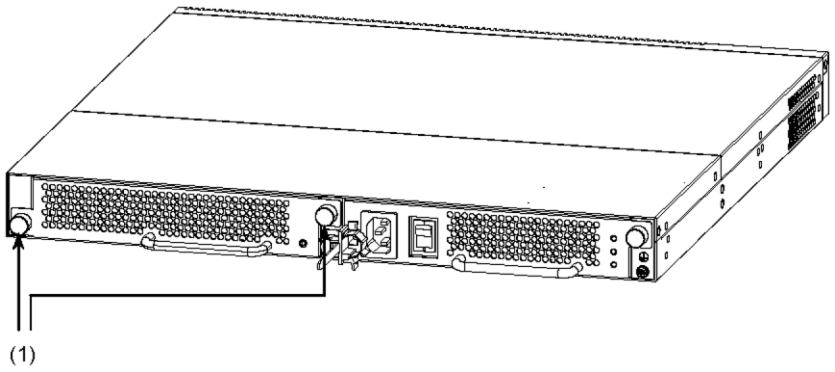
CAUTION When the fan unit is replaced while the switch is still on, do not leave the device for more than three minutes without a replacement fan unit. Otherwise, a failure might occur due to increasing temperatures inside the switch.

(1) Removing

[Step 1]

Loosen the screws of the fan unit.

Figure 5-11 Removing the fan unit 1

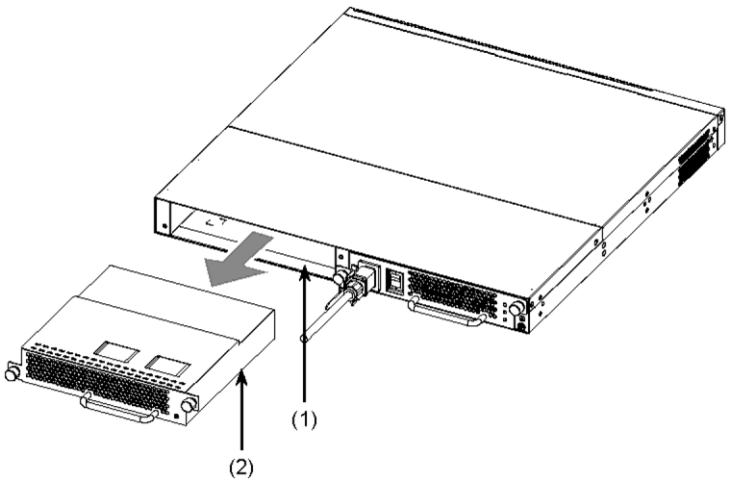


(1) Screws

[Step 2]

Hold the handle of the fan unit and pull it a little. Supporting the bottom, pull out the fan unit.

Figure 5-12 Removing the fan unit 2



(1) Power supply unit slot 2

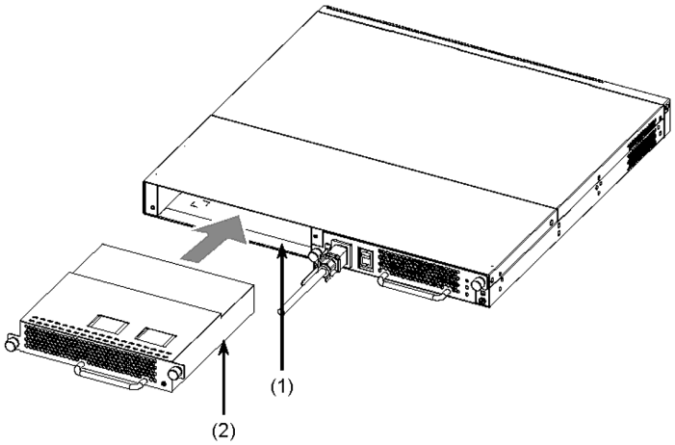
(2) Fan unit

(2) Installing

[Step 1]

Insert the fan unit into power supply unit slot 2.

Figure 5-13 Inserting the fan unit 1



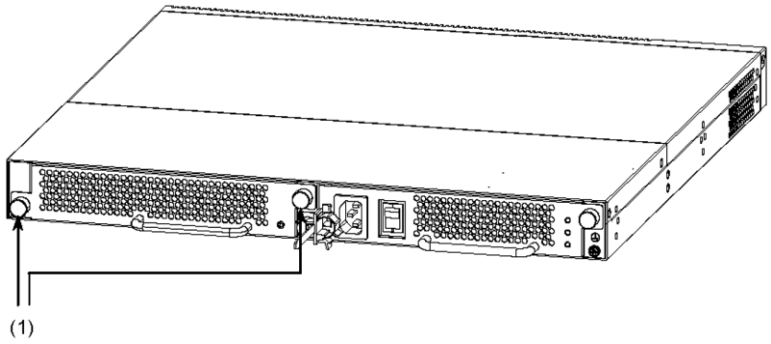
(1) Power supply unit slot 2

(2) Fan unit

[Step 2]

Tighten the screws of the fan unit.

Figure 5-14 Inserting the fan unit 2



(1) Screws

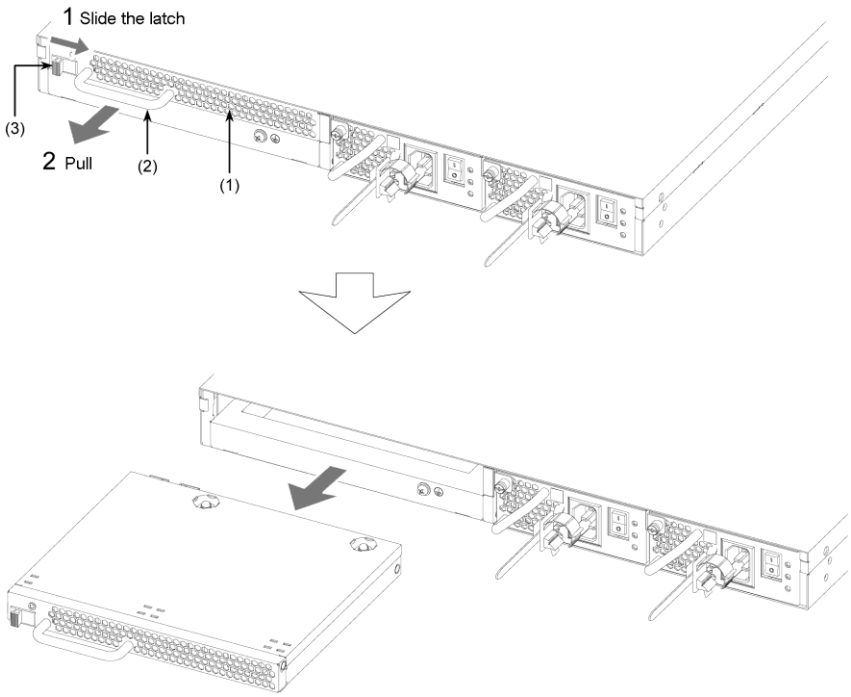
5.5.2 Redundant power model (AX3650S)

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

Slide the latch in the direction of the arrow, and then hold the handle of the fan unit and pull it.

Figure 5-15 Removing the fan unit



(1) Fan unit

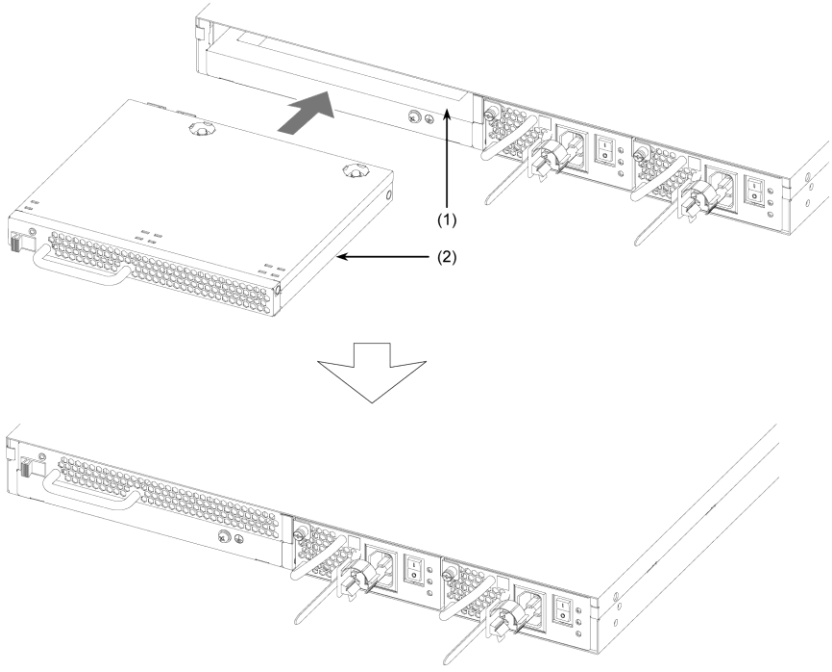
(2) Handle

(3) Latch

(2) Installing

Insert the fan unit until you hear a click.

Figure 5-16 Inserting the fan unit



(1) Fan unit slot

(2) Fan unit

5.5.3 Redundant power model (AX3830S)

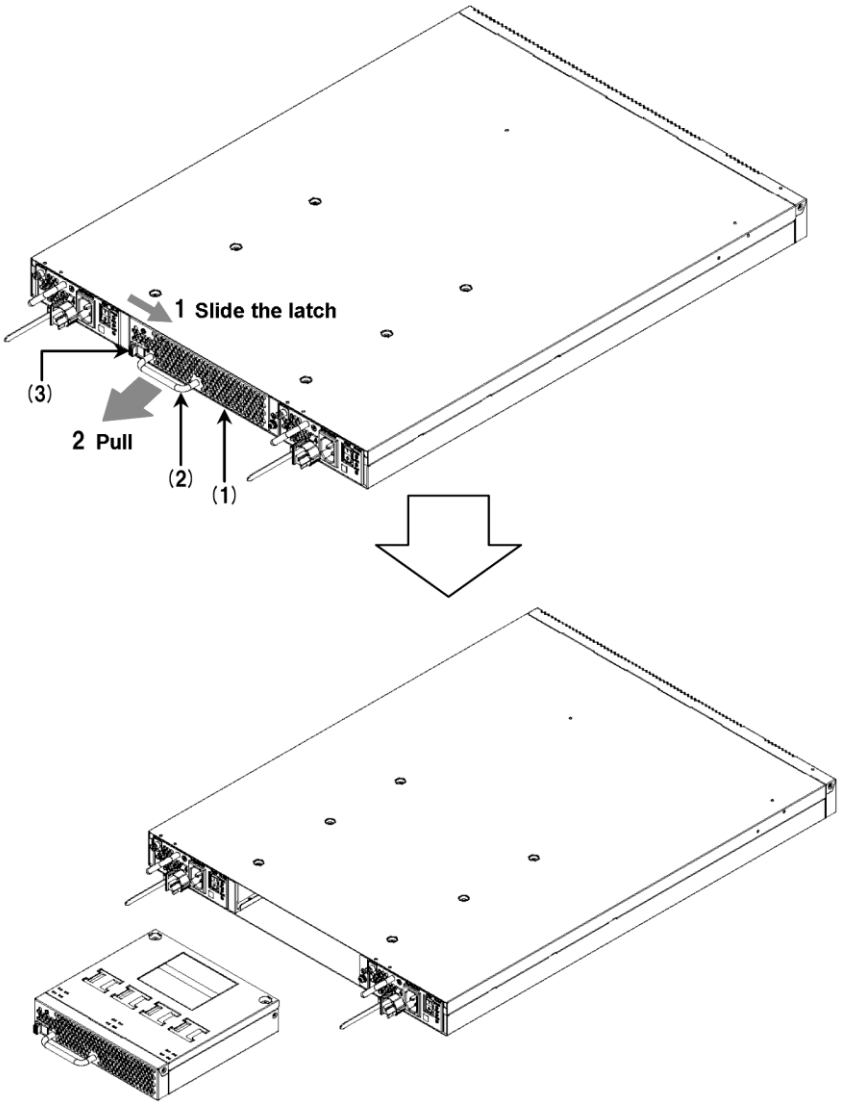
CAUTION

When the fan unit is replaced while the switch is still on, do not leave the switch for more than one minute without a replacement fan unit. Otherwise, a failure might occur due to increasing temperatures inside the switch.

(1) Removing

Slide the latch in the direction of the arrow, and then hold the handle of the fan unit and pull it.

Figure 5-17 Removing the fan unit



(1) Fan unit

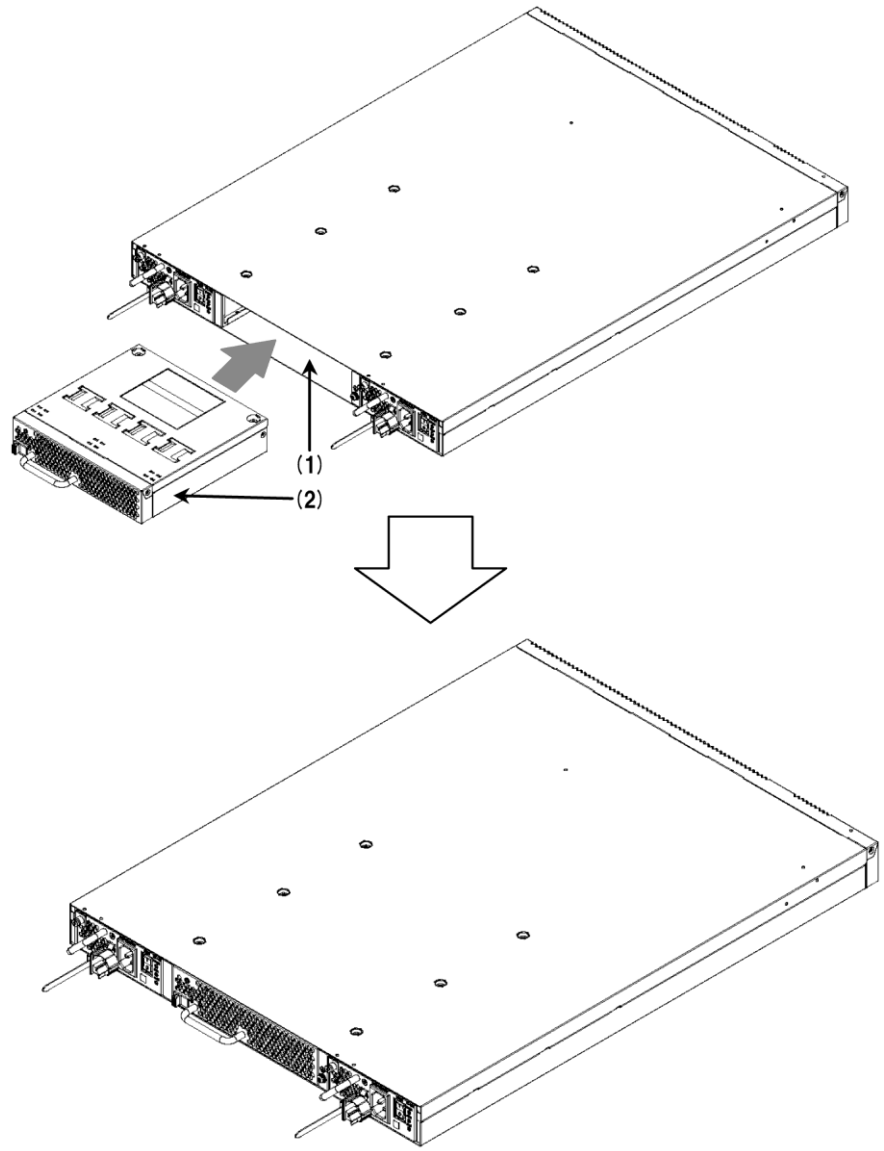
(2) Handle

(3) Latch

(2) Installing

Insert the fan unit until you hear a click.

Figure 5-18 Inserting the fan unit



(1) Fan unit slot

(2) Fan unit

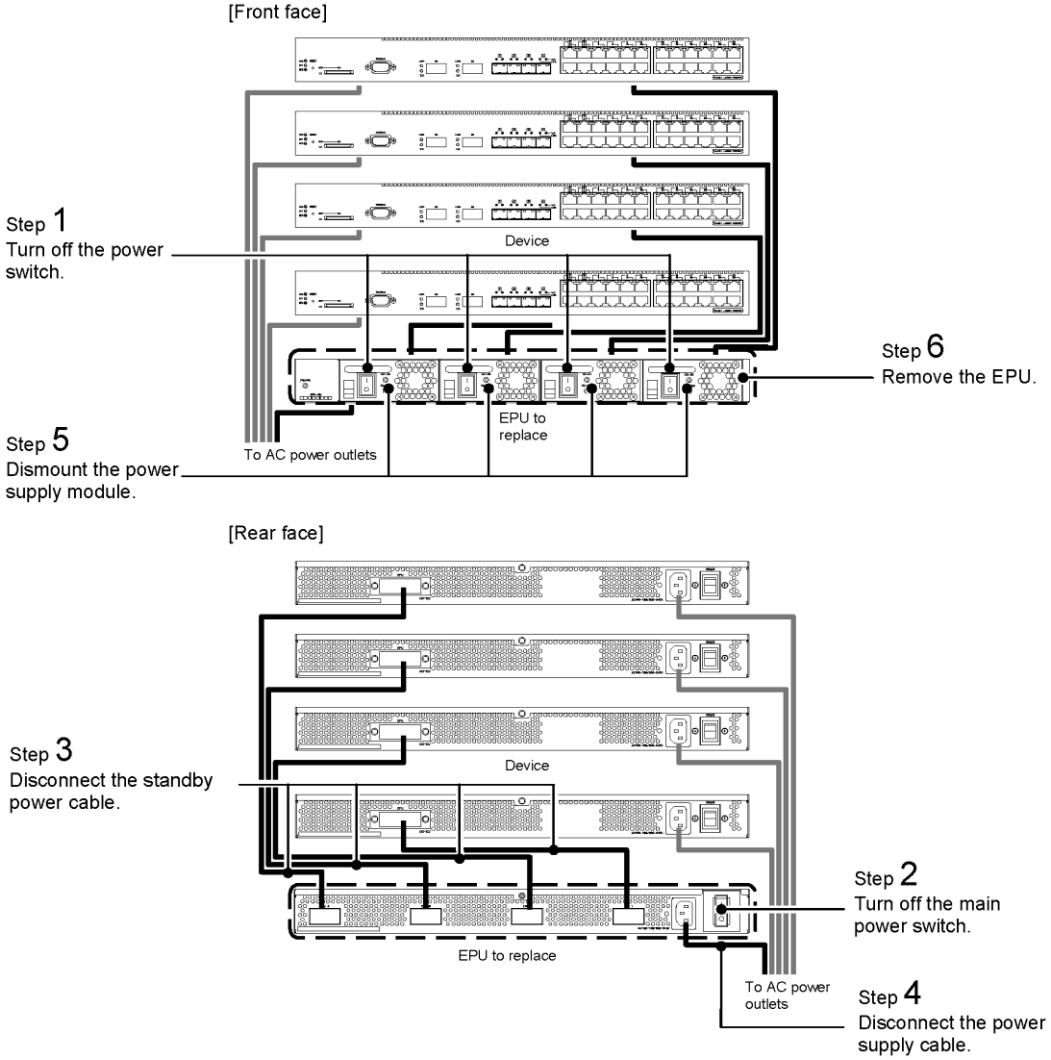
5.6 Expansion, replacement and removal of external power units (EPUs)

This section describes the procedures for installing or uninstalling the EPUs.

Follow the steps shown in *Figure 5-19 Steps to replace an EPU* to uninstall the EPU. For installations, perform the steps in reverse.

NOTE The figure below shows an EPU-A. The same procedures are applicable to an EPU-B.

Figure 5-19 Steps to replace an EPU



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

⚠CAUTION 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 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 standby power cables from the switch and the EPU.

[Step 4]

Disconnect the AC power 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 cable to the EPU.

[Step 4]

Connect the standby power 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.

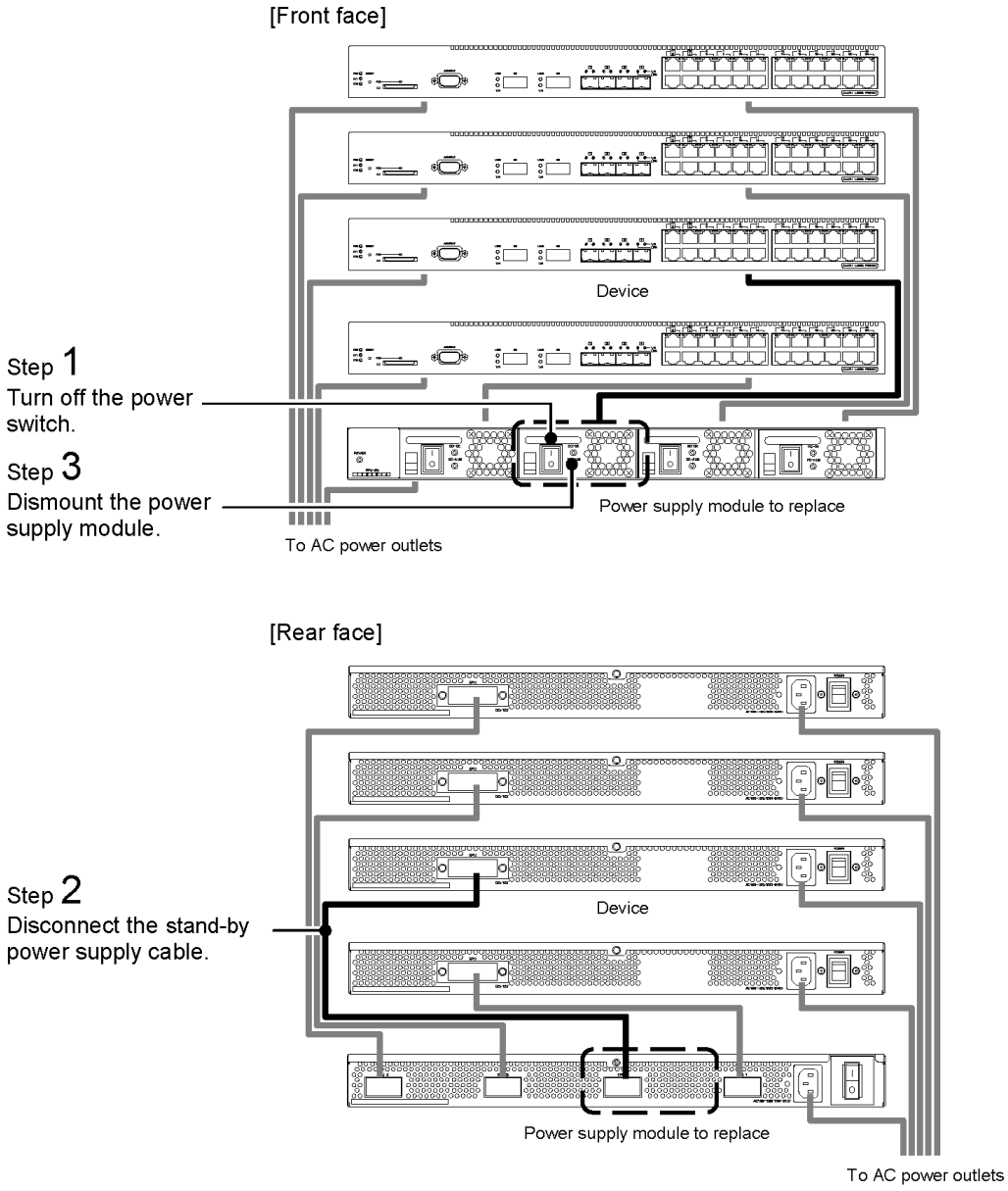
5.7 Expansion, replacement and removal of power supply modules

This section describes the procedures to install and remove the power supply modules while the EPU is on.

Follow the steps shown in *Figure 5-20 Replacement of the power supply modules* to remove the power supply module. For installations, perform the steps in reverse.

NOTE The figure below shows an EPU-AM. The same procedures are applicable to an EPU-BM.

Figure 5-20 Replacement of the power supply modules



⚠CAUTION Do not put your hands inside the device carelessly. The components might cause an 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 standby power 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. If you use the switch without attaching the blank panel, you might be injured by a moving part. In addition, if foreign objects fall into the switch, the switch might no longer work properly.

(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 standby power cable to the main device and the EPU.

[Step 3]

Turn on the power supply modules.

Appendixes

A. Cleaning Optical Connectors

A.1 Cleaning optical connectors of transceivers

Follow the procedures below to clean the optical connector of the transceiver.

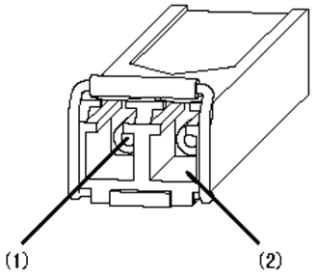
⚠CAUTION A laser beam, which is colorless and invisible, is used. Do not directly look into the optical transmitter/receiver part.

NOTE The figures below show the way to clean the optical connector of SFPs. The same procedures are applicable to SFP+ and XFP transceivers.

[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.

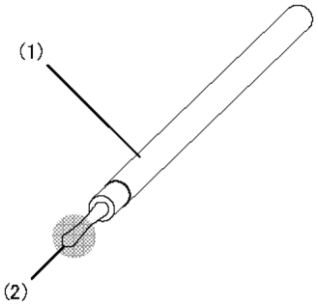
CAUTION Do not touch the air duster nozzle or the bottle to the ferrule end. Otherwise, a failure may be caused.

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

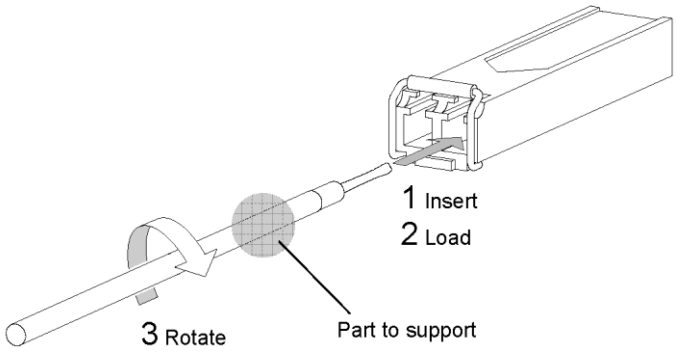
CAUTION Check the tip of the optical connector cleaner for torn surface fabric, stains and foreign substances before cleaning the connector.
The faulty tip might damage the ferrule end.

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.

A.2 Cleaning optical fiber cables

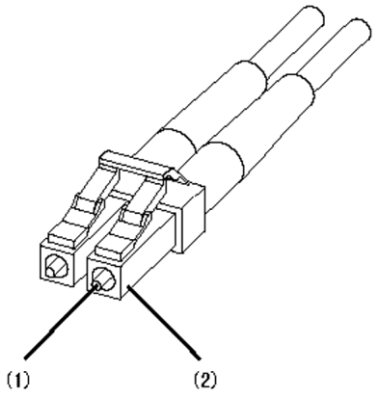
Follow the procedures below to clean the connector of the optical fiber cable.

⚠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.

B. Physical Specifications of Network Interfaces

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.)		100m	100m	100m

#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 and 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.)		100m	100m	100m

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)

RJ45 pin number	Physical specifications		
	10BASE-T	100BASE-TX	1000BASE-T
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.

B.2 Ethernet 100BASE-FX

Table B-4 Physical specifications of 100BASE-FX

Item		Physical specifications	
Cable Type		Multiple-terminal mode	
Core/cladding diameter		50 / 125μm	62.5 / 125μm
Transmission bandwidth		500 MHz·km	500 MHz·km
Laser center wavelength		1.270 to 1.380μm	
Optical transmission power (mean)		-23.0 to -14.0 dBm	-20.0 to -14.0 dBm
Optical reception power (mean)		-31.0 to -14.0 dBm	-31.0 to -14.0 dBm
Optical transmission loss (max.)		8.0 dBm	11.0 dBm
Transmission distance	During full-duplex communication	2 m to 2 km	
	During half-duplex communication	2 to 412m	

B.3 Ethernet 1000BASE-X interface

Table B-5 Physical specifications of 1000BASE-SX

Item	Physical specifications			
Cable Type	Multiple-terminal mode			
Core/cladding diameter	50 / 125μm		62.5 / 125μm	
Transmission bandwidth	400 MHz·km	500 MHz·km	160 MHz·km	200 MHz·km

Item	Physical specifications			
Laser center wavelength	0.770 to 0.860μm			
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 500m	2 to 550m	2 to 220m	2 to 275m

Table B-6 Physical specifications of 1000BASE-SX2

Item	Physical specifications	
Cable Type	Multiple-terminal mode	
Core/cladding diameter	50 / 125μm	62.5 / 125μm
Transmission bandwidth	500 MHz·km	500 MHz·km
Laser center wavelength	1.270 to 1.355μm	
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-7 Physical specifications of 1000BASE-LX

Item	Physical specifications			
Cable Type	Multiple-terminal mode #1			Single-terminal mode
Core/cladding diameter	50 / 125μm		62.5 / 125μm	10 / 125μm
Transmission bandwidth	400 MHz·km	500 MHz·km	500 MHz·km	--
Laser center wavelength	1.270 to 1.355μm			
Optical transmission power	-11.5 to -3.0 dBm			-11.0 to -3.0 dBm

Item	Physical specifications	
(mean)		
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: 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.

Table B-8 Physical specifications of 1000BASE-LH

Item	Physical specifications	
Cable Type	Single-terminal mode	Single-terminal mode (DSF)
Core/cladding diameter	10 / 125μm	8 / 125μm
Laser center wavelength	1.540 to 1.570μm	
Optical transmission power (mean)	0 to +5.0 dBm	
Optical reception power (mean)	-22.0 to 0 dBm	
Optical transmission loss (max.)	22dB#1	
Transmission distance	2 m to 70 km	

#1: When optical transmission loss is 5.0 dB or less, use an optical attenuator to adjust the loss.

Table B-9 Physical specifications of 1000BASE-LHB

Item	Physical specifications	
Cable Type	Single-terminal mode	Single-terminal mode (DSF)
Core/cladding diameter	10 / 125μm	8 / 125μm
Laser center wavelength	1.480 to 1.580μm	
Optical transmission power (mean)	+2.0 to +7.0 dBm	
Optical reception power (mean)	-34.0 to -9.0 dBm	
Optical transmission loss (max.)	36.0dB#1	

Item	Physical specifications	
Transmission distance	2m to 100km[#2]	2 m to 100 km

#1: When optical transmission loss is 16.0 dB or less, use an optical attenuator to adjust the loss.

#2: For transmissions at 100-km distances, you must use optical fiber cables whose dispersion characteristics are 20 ps/nm/km or less.

Table B-10 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 / 125μm			
Laser center wavelength	1.260 to 1.360μm	1.480 to 1.500μm	1.260 to 1.360μm	1.480 to 1.500μm
Receiving wavelength	1.480 to 1.500μm	1.260 to 1.360μm	1.480 to 1.500μm	1.260 to 1.360μm
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.

B.4 Ethernet 10GBASE-R interface

Table B-11 Physical specifications of 10GBASE-SR

Item	Physical specifications				
Cable Type	Multiple-terminal mode				
Core/cladding diameter	50 / 125μm			62.5 / 125μm	
Transmission bandwidth	400 MHz·km	500 MHz·km	2000 MHz·km	160 MHz·km	200 MHz·km
Laser center wavelength	0.840 to 0.860μm				

Item	Physical specifications				
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 66m	2 m to 82m	2 m to 300m	2 m to 26m	2 m to 33m

Table B-12 Physical specifications of 10GBASE-LR

Item	Physical specifications
Cable Type	Single-terminal mode
Core/cladding diameter	10 / 125μm
Laser center wavelength	1.260 to 1.355μm
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-13 Physical specifications of 10GBASE-ER

Item	Physical specifications
Cable Type	Single-terminal mode
Core/cladding diameter	10 / 125μm
Laser center wavelength	1.530 to 1.565μm
Optical transmission power (mean)	-4.7 to +4.0 dBm
Optical reception power (mean)	-15.8 to -1.0 dBm
Optical transmission loss (max.)	11.1dB[#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-14 Physical specifications of 10GBASE-ZR

Item	**Physical specifications**
Cable Type	Single-terminal mode
Core/cladding diameter	10 / 125μm
Laser center wavelength	1.530 to 1.565μm
Optical transmission power (mean)	+0.5 to +4.0 dBm
Optical reception power (mean)	-24.0 to -7.0 dBm
Optical transmission loss (max.)	24.5dB#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.

C. Specifications of Setup Terminal

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 Switch is 9,600 bit/s.

#2: It is used for installing the optional license.

C.2 Specifications of cable to connect setup terminal

The RS-232C crossover cable of inch screws (#4-40) 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