ALAXALA AX2340S

Hardware Instruction Manual

AX23S-H001-40

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, keep it in a convenient place for easy reference.

AlaxalA

■ Relevant products

This manual contains information on the AX2340S series.

■ Export restrictions

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■ 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, keep it in a convenient place for easy reference.

■ Note

Information in this document is subject to change without notice.

■ Notice

Please note in advance that we will not be responsible for any consequences resulting from operating this product without following the instructions in this manual.

That we are not responsible for the result of operating this product without complying with this manual.

■ Radio-frequency interference

This switch is a class A device. Using this Switch in a residential environment may cause radio-frequency interference.

In such case, the user may be required to take appropriate measures.

VCCI-A

■ Harmonic regulations

Harmonic current emission standard IEC 61000-3-2 compliant product

Compliant devices:

AX2340S-24P4X

AX2340S-24PH4X

AX2340S-48P4X

AX2340S-16P8MP2X

(AX2340S-16T4X, AX2340S-24T4X, AX2340S-24TH4X, and AX2340S-48T4X are excluded.)

■ Technical standards conformity certification number

No.	Model	Certification No.
1	AX2340S-16T4X	D23-0014001 L23-0003
2	AX2340S-24T4X AX2340S-24TH4X AX2340S-24P4X AX2340S-24PH4X	D21-0095001 L21-0007
3	AX2340S-48T4X AX2340S-48P4X	D21-0096001 L21-0008
4	AX2340S-16P8MP2X	D22-0015001 L22-0002

■ Editions history

April 2023 (Edition 5) AX23S-H001-40

■ Copyright

Preface

■ About this manual

This manual provides guidance on how to handle the hardware of the ALAXALA Gigabit Ethernet Layer 2 switch AX2340S series. Before you operate the equipment, carefully read the manual 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 technicians who are in charge of installing and handling the AX2340S series. Therefore, it is assumed that you have knowledge of electric circuits, wiring, and networks.

■ Structure of this manual

Safety Information

This chapter provides cautionary notes for ensuring safe use of the Switch. Be sure to read the manual before using the Switch.

Chapter 1 Overview of the Switch

This chapter describes an overview of each device that comprises the Switch.

Chapter 2 Preparation for Installation

This chapter describes the environmental conditions and preparation required to install the Switch.

Chapter 3 Preparation of Interface Cables and a Terminal

This chapter describes interface cables and a terminal to be used with the Switch.

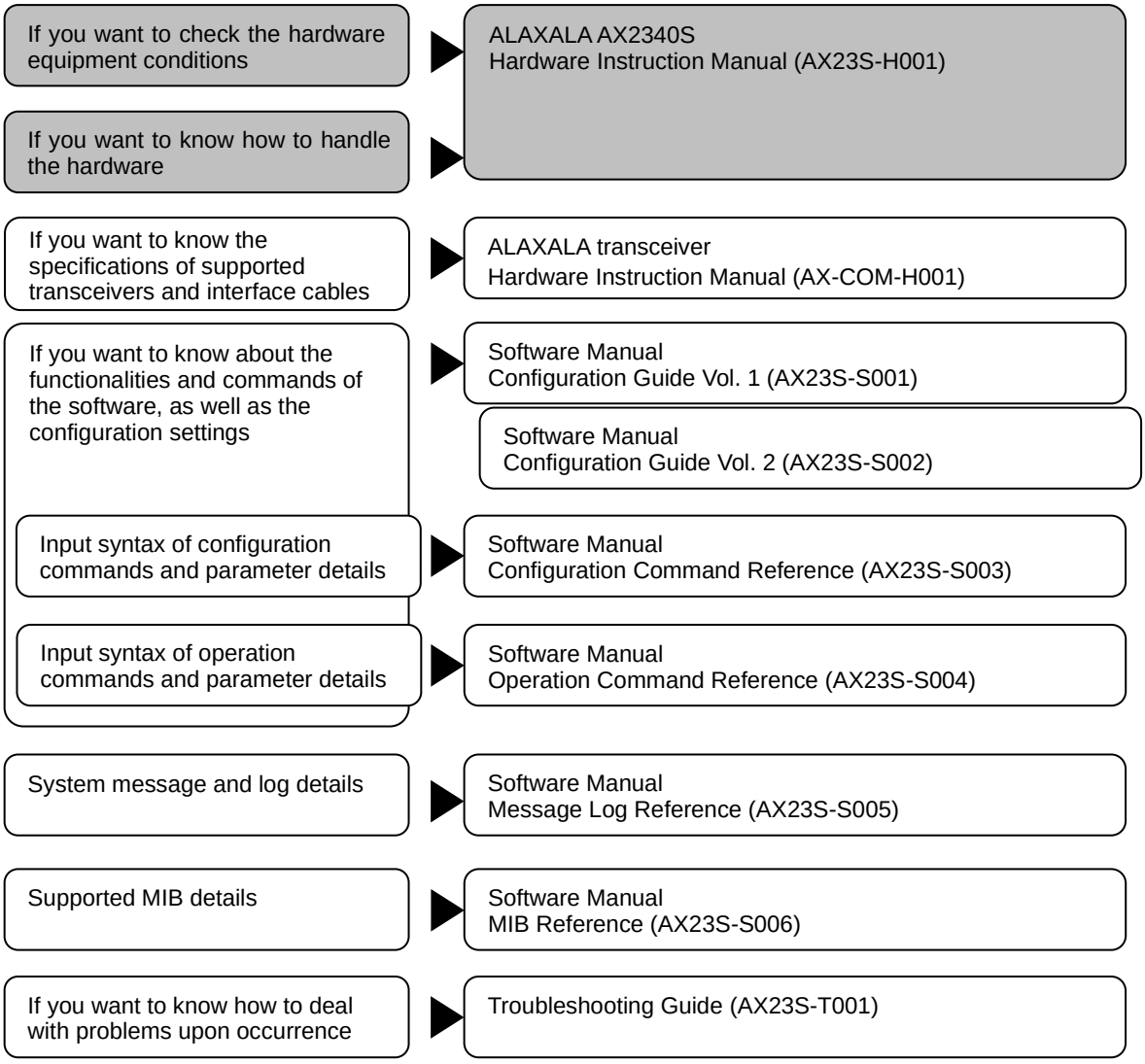
Chapter 4 Installation of the Switch

This chapter describes how to install the Switch.

Chapter 5 Operations Required for Initial Installation

This chapter describes how to set the administrator mode password, add and delete user accounts, and set the time, all of which are required for initial installation.

■ Manual reading procedure for the AX2340S series



■ Where to obtain the manual

For the AX2340S series manuals, access the following website:

https://www.alaxala.com/

■ Abbreviation

AWG	American Wire Gauge
CVCF	Constant Voltage Constant Frequency
DSF	Dispersion Shifted Fiber
EIA	Electronic Industries Alliance
ISO	International Organization for Standardization
JIS	Japanese Industrial Standards
LAN	Local Area Network
LED	Light Emitting Diode
MC	Memory Card
MDI	Medium Dependent Interface
MDI-X	Medium Dependent Interface Crossover
NEMA	National Electrical Manufacturers Association
PoE	Power over Ethernet
RJ-45	Registered Jack 45
RS-232C	Recommended Standard 232C
SD	Secure Digital
SFP	Small Form-factor Pluggable
SFP+	enhanced Small Form-factor Pluggable
T/R	Transmitter/Receiver
UPS	Uninterruptible Power System
USB	Universal Serial Bus
UTP	Unshielded Twisted Pair

Safety Information

Safety precautions are indicated by the headings shown below. These headings combine safety warning symbols with headings such as "Warning", "Caution", and "Notification".

⚠	This is a safety alert symbol. It is used to raise awareness of any potential dangers that may cause harm to individuals. Follow the safety message that follows this symbol to avoid possible injury or death.
⚠ **Warning**	It is used to indicate the presence of a potential hazard that could cause death or serious injury.
⚠ **Caution**	It is used to indicate the presence of a potential hazard that could cause minor or moderate injury.
Notification	It is used when there is a risk that may cause damage unrelated to personal injury.
NOTE	Information preceded by this indication is supplementary information that, if ignored, will not result in physical injury or serious damage to the Switch.

[Notation example 1] Electrical shock hazard

This graphic symbol (△) indicates the need for caution, with a picture depicted within the symbol (△) indicating what to be careful of such as the risk of electrical shock.

[Notation example 2] Disassembly prohibited

This graphic symbol (⃠) indicates what actions should not be performed, with a picture depicted within the symbol indicating what is prohibited such as disassembly.
The graphic symbol (⃠) without any illustration indicates a general prohibition.

[Notation example 3] Remove the power plug from the outlet

The graphic symbol (●) indicates what actions should be performed, with a picture within the symbol (●) indicating a mandatory action such as removing the power plug from the outlet.
⚠ indicates a generally recommended operation.

Common safety precautions

Carefully read the manual and make sure that you understand all safety precautions below.

- 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 on the Switch and in this manual.
  Failure to do so may result in personal injury or property damage, including damage to the Switch.

Unauthorized operations

Do not attempt to perform any operations that are not described in this manual.
In the event of a problem with the Switch, turn off the power, disconnect the power plug from the outlet, and then contact the maintenance personnel.

Using common sense

The warnings and cautions provided on the Switch and in this manual 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 following all 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 disconnect all power cables from the outlet and turn off the power of the Switch. Continuing operation could result in a fire or electric shock.

■ Install an outlet near the Switch.

Install an outlet near the Switch so that the power plug can be easily unplugged. Do not place any objects around the outlet.

■ Install the distribution board near the Switch.

Install the distribution board in the same room as the Switch or in a neighboring room to ensure easy access and operation.

■ Do not remove the Switch cover.

Do not remove the Switch cover. Doing so could result in an electric shock.

■ 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 a fire or electric shock.

■ Do not repair, modify, or disassemble the Switch.

Do not repair, modify, or disassemble the Switch. Doing so could result in electrical shock, fire, or burns. Due to the presence of many high-voltage components inside the power unit in particular, touching them can be extremely dangerous.

■ Do not subject the Switch to shocks.

Do not subject the Switch to excessive shocks such as dropping or hitting. In the event that the Switch is dropped or any of its components are damaged, disconnect all power cables from the outlet, turn off the power of the Switch, and contact the maintenance personnel. Using the Switch in that state could result in a fire or electric shock.

■ Do not place any objects 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 flowerpot, on the Switch. Liquid or metallic objects falling into the Switch could result in a fire or electric shock.
Do not place any optional modules or objects on the Switch. Optional modules or objects may slip, resulting in injury. Also, depending on the weight of an object placed on the Switch, it may cause the Switch to malfunction.

⚠ Warning

■ Use the Switch only with the indicated power supply.

Do not use the Switch at any voltage other than the indicated voltage. Depending on the voltage, the internal components may be damaged, overheated, or deteriorated, resulting in a fire or electric shock.
Also, use a power outlet that is compatible with the voltage and power cord you are using. Using any other outlet may result in an electric shock.

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

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

Always use a grounded power outlet. Using the Switch without grounding could result in an electric shock as well as failures due to electrical noise.

■ Use the Switch indoors.

Use the Switch indoors. Also, make sure that all interface cables to be connected to the Switch are indoor-wired. If an outdoor-wired cable is to be connected to the Switch, ensure that lightning protection measures have been taken before connection.

■ Handle the power cable carefully.

- Please use the designated power cable and pay attention to the following points when handling it. Improper handling may cause the copper wire to become exposed, resulting in overheating due to short circuit or partial breakage, and potentially leading to an electric shock or fire.

  - Do not place any object on the cable.
  - Do not pull the cable.
  - Do not press the cable.
  - Do not bend the cable.
  - Do not twist the cable.
  - Do not process the cable.
  - Do not use the cable near heating appliances.
  - Do not apply heat to the cable.
  - Do not bundle the cable.
  - Do not fix the cable with staples or the like.
  - Do not use the cable if damaged.
  - Do not expose the cable to continuous ultraviolet or strong visible light.
  - Avoid exposing the power cable to alkaline, acidic, oily, or humid substances.
  - Do not use the cable in a high temperature environment.
  - Do not use the cable beyond rated specifications.
  - Do not use the cable with other devices.
  - Do not plug or unplug the power cord by holding anything other than the power plug.
  - Do not touch the power plug with wet hands.

- Do not cover the power cable. If the power cable is covered by a carpet, it is easy to forget that the cable is there and to place something heavy on it.
- Do not place objects around an outlet so that the power plug can be easily unplugged.

⚠ Warning

■ **Be careful of poor contact and tracking of the power plug.**

If the power plug is not used as follows, it may overheat due to tracking or poor contact, resulting in a fire.

- Insert the power plug firmly all the way into an outlet.
- Make sure the power plug is free of dust or droplets before inserting the plug into an outlet. If dust or water droplets are attached to the power plug, wipe them off with a dry cloth before inserting it.
- Use an outlet without looseness when the power plug is inserted.
- Installation of outlets should be carried out by a technician with specialized knowledge.

■ **Do not overload the power outlet.**

Do not overload the outlet by connecting multiple power plugs to the same outlet. Overloading the outlet could cause a cord and outlet to overheat, resulting in a fire or a tripped circuit breaker in the distribution board due to excessive power used. This might affect other equipment.

■ **Do not use the power cable of the Switch for other equipment.**

The supplied power cable is dedicated to the Switch. It cannot be diverted for use in other equipment. Use the power cable that comes with the Switch or the one that we sell separately. Using another cable could result in a fire or electric shock.
In addition, do not use our supplied power cable with equipment other than the Switch. Doing so could be extremely dangerous as it could result in a fire or electric shock.

■ **Do not remove the power supply of AX2340S-24P4X, AX2340S-48P4X, and AX2340S-16P8MP2X.**

If the power cable is connected, power is supplied to the power supply. Because of this, if you remove the power supply with the power cable connected, a fire or electric shock could result. Do not remove the power supply.

■ **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.

■ **Storage of packaging plastic bags**

Keep the packaging bag for the Switch out of reach of small children. If small children put the packaging bag over their heads, there is a risk of suffocation.

⚠ Caution

■ Keep the Switch out of reach of children.

The Switch is not suitable for use where children may be present.

■ 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 a fire or electric shock.

■ Mount the Switch onto a rack with at least two people.

When mounting the Switch onto a rack, perform the task with at least two people. Lifting the Switch by yourself may cause it to fall over, which could result in injury.

■ Do not obstruct the ventilation slots.

The ventilation slots of the Switch are to prevent the internal temperature from rising. Avoid blocking the ventilation slots of the Switch by placing objects on or against it. Doing so causes heat to accumulate inside the Switch, potentially leading to smoke or failure. Maintain a space of at least 50 mm around the ventilation slots.
Also, periodically check and clean the ventilation slots to prevent dust accumulation.

■ Do not allow hair or objects near the ventilation slots.

Cooling fan units are mounted in AX2340S-48T4X, AX2340S-24P4X, AX2340S-48P4X, and AX2340S-16P8MP2X. Do not allow anything near the ventilation slots. Doing so causes heat to accumulate inside the Switch and could cause a failure. Do not allow hair or other objects near the ventilation slots. They might be sucked into the Switch, resulting in injury.

■ Do not place the Switch in an unstable location.

- When installing the Switch on a table, position the Switch horizontally on a worktable strong enough to bear the weight of the Switch. Placing the Switch in an unstable location, such as on an unsteady or tilting surface, might cause the Switch to fall, resulting in injury.
- When installing the Switch on a steel wall, do not install it in a location subject to vibration, shocks, or in an unstable location. If the Switch is installed in such a location, it may fall, resulting in injury as well as damage to the Switch.
- When installing the Switch on a steel wall, do not install it in a high place, on a wall with a tilt angle of 90 degrees or more, on a ceiling, or in a place where people can pass under the Switch. If the Switch is installed in such a location, it may fall, resulting in injury as well as damage to the Switch.
- When installing the Switch on a steel wall, make sure that the weight of the connected cables does not apply load to the Switch. If the weight applies to the Switch, it may fall, resulting in injury as well as damage to the Switch.
- When mounting the Switch in a rack, make sure that the Switch is stable. If the Switch is unstable, it might fall, resulting in injury.

⚠Caution

■ Do not place the Switch vertically or lean it against the wall.

Place the Switch horizontally when to be used on a table. The Switch may fall over if placed in a vertical position or leaned against a wall, resulting in injury or failure.

■ Do not stack Switches on top of one another.

Do not stack Switches on top of one another. Doing so might damage the Switch. Furthermore, the Switch might fall, or become unbalanced, resulting in injury.

■ Do not step on the Switch, lean against it, or place anything on it.

Do not step on the Switch, lean against it, or place anything on it. Doing so might damage the Switch. Furthermore, the Switch might fall, or become unbalanced, resulting in injury.

■ When moving the Switch, do not hold the handle on the rear of the Switch.

When moving the Switch, do not hold the handle on the rear of the Switch. The handle might come off, resulting in the device falling and possibly causing injury. Also, the power supply module might become deformed, resulting in a fire or electric shock.

■ When moving the Switch, unplug all cables.

Before moving the Switch, unplug all cables from the Switch. Failure to do so might cause the Switch or cable to become deformed, or might damage the Switch, resulting in a fire or electric shock.

■ 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. In addition, the components inside the Switch may become hot, which may cause burns.

■ Do not use the Switch immediately after moving it to a place different in temperature.

If there is a large temperature variation between places from and to which the Switch is moved, condensation may form on the surface of or inside the Switch. Discontinue using the Switch with condensation present to avoid the risk of a 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 turn on the power immediately but leave it for several hours in the place where it will be used until the room temperature and the internal temperature of the Switch become almost the same before using it.

■ Avoid looking directly at laser beams.

The Switch uses laser beams. Laser devices such as SFP and SFP+ have parts inside that generate laser light. Do not disassemble or modify the Switch. Never look into the laser devices. (Laser beams are colorless and transparent, and invisible.)

⚠ Caution

■ Do not touch the Switch during operation and just after operation stops.

Depending on the temperature of the installation environment, the surfaces of the Switch and transceivers may become hot. Do not touch them during operation and just after power-off. Doing so could result in burns.
Before touching the Switch or transceivers, turn off the power and make sure that their surfaces have cooled enough to touch them, or use heat-resistant gloves.

■ Do not touch the SFP and SFP+ during operation and just after operation stops.

The maximum temperature is 75°C during SFP or SFP+ operation (during link establishment). Do not touch them during operation and just after operation stops. Doing so could result in burns.
Before touching a transceiver, turn off the power and make sure that the surface has cooled enough to touch it, or use heat-resistant gloves.

■ Do not use the Switch or optional modules for unintended purposes.

Do not use the Switch or optional modules for any purpose other than as a switch, such as a stepping stool or bookend. It may break or fall over, resulting in injury or failure.

■ 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 metallic elements. Doing so might cause eczema or skin irritation.

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

Do not place the Switch in direct sunlight or near a heater or other heat-generating apparatus, which may adversely affect the components.

■ Do not turn off the Switch while the ST1 LED is blinking green.

In the following case, do not turn off the power until the ST1 LED on the front panel of the Switch changes from blinking green to solid green. Turning off the power could result in a switch fault.

- While the Switch is in a preparatory state (switch is starting up)
- While software is being updated

■ Cleaning

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

Notification

■ Do not block the heat dissipation of the Switch or stack Switches on top of one another.

Since the following models do not have a fan, they also dissipate heat from the top plate of the Switch. Do not stack another device on top of and under the Switch to block the heat dissipation of the Switch. Doing so could result in a malfunction.
Also, when mounting the Switch in a rack, leave a space of 1U or more between other equipment.

- AX2340S-16T4X
- AX2340S-24T4X
- AX2340S-24TH4X
- AX2340S-24PH4X

■ Check the usage environment of the Switch.

Installation conditions must be met for the usage environment of the Switch. For example, if the Switch is exposed to direct sunlight or near a heating appliance such as a stove, the internal temperature will rise and may cause the Switch to malfunction.

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

Turning on the Switch causes 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 power facility.

■ When carrying or packing the Switch, wear a wrist strap to protect against static electricity.

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

■ Do not touch connection terminals.

Do not short-circuit connection terminals such as connectors by touching them with your hands or a metal object, or by inserting a foreign object such as a wire. Doing so could result in smoke, or a malfunction due to poor contact.

■ Handle interface cables carefully.

- Route cables so that they will not catch your feet or be pulled. Such hazards may result in injury or a failure of connected devices.
- Do not put a heavy load on cables. Also, do not route cables near heating appliances. Doing so could result in a teared coating cable and a failure of connected devices.

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

When the memory card LED 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 memory card. Make sure that the memory card is no longer being accessed before removing the card or turning off the power.

Notification

■ **Handle USB memory carefully.**

- When inserting the USB memory or connecting an operation-verified USB extension cable, do not insert it at an angle or push it strongly. Also, when removing the USB memory or operation-verified USB extension cable, slowly pull it out straight. Failure to do so might damage the USB memory, operation-verified USB extension cables, or the connector of the memory card slot.
- When moving the Switch, remove USB memory and operation-verified USB extension cables from the Switch. If the USB memory or operation-verified USB extension cables are subjected to excessive force while the Switch is being moved, the USB memory, the operation-verified USB extension cables, or the connector of the memory card slot might be damaged.
- When using the operation-verified USB extension cable, do not place the USB memory on the Switch. In particular, the fanless models AX2340S-24T4X, AX2340S-24TH4X, and AX2340S-24PH4X radiate heat from the top plate of the Switch, which may cause the USB memory to malfunction due to heat. When the Switch is mounted in a rack, secure an operation-verified USB extension cable with a cable holder provided with the rack.
- Do not use an operation-verified USB extension cable with AX2340S-16T4X.
  Since the memory card slot of AX2340S-16T4X is vertical in orientation, the USB memory, operation-verified USB extension cables and the connector of the memory card slot may be damaged.

■ **Do not attach any labels to a transceiver.**

A label attached to the transceiver indicates that the transceiver is a standard product from ALAXALA or another manufacturer. However, such labels are attached where they do not interfere with heat dissipation from the transceiver or the mechanism that prevents the transceiver from coming loose from the cage.
Attaching a label to a location that interferes with those features could cause the transceiver to malfunction.

■ **Do not apply excessive force to pull the SFP or SFP+ levers.**

If it is difficult to remove SFP or SFP+, hold and push the body of a transceiver toward the Switch with the lever lowered, and check if the transceiver can be removed. Forcibly pulling the lever may damage the transceiver, resulting in failure.

■ **Do not forcibly pull the pull tab of a direct attach cable.**

When removing the direct attach cable, push and hold the back shell of the direct attach cable horizontally toward the Switch, and pull the pull tab slowly. Forcibly pulling the pull tab may break the pull tab and cause the direct attach cable to malfunction.

■ **Do not install or remove a transceiver more than necessary.**

Do not install or remove a transceiver more than necessary. Doing so could result in a shorter lifetime.

Notification

■ Keep the Switch away from strong magnetism.

Do not place objects that generate strong magnetism, such as magnets or speakers, near the Switch. Doing so could result in a Switch failure.

■ Keep magnetic storage media, displays, computers, watches, or other devices away from the magnet sheet.

Keep magnetic storage media, displays, computers, watches, or other devices away from the magnet sheet. The magnetism of the magnet sheet may damage or erase recorded contents or cause a Switch failure.

■ Do not connect anything other than the specified memory card to the memory card slot.

Do not connect any devices other than our standard USB memory (UM04G), operation-verified USB memory and extension cables to the memory card slot. Doing so could result in a Switch failure.

■ 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 a Switch where it will be exposed to hydrogen sulfide or salt.

Placing a Switch in an area where sulfides are present, such as a hot-springs area, or in an area with salty air, such as along a coast, could shorten the life of the Switch.

■ Protect a Switch when using a fuming liquid.

Before using a fuming liquid such as a pesticide, completely wrap the Switch with a plastic sheet or the like. If the fuming liquid enters inside the Switch, this may cause a Switch failure. Also, turn off the power to the Switch before using it.

■ 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.

■ 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.
- Do not apply excessive pressure when cleaning. Doing so might damage the ferrule tip.

Notification

■ When transporting the Switch

Always pack the Switch when transporting it. Also, pay attention to the top and bottom orientation of the Switch when packing it.
If the Switch is not packed or transported upside down, this may cause a Switch failure.

■ 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

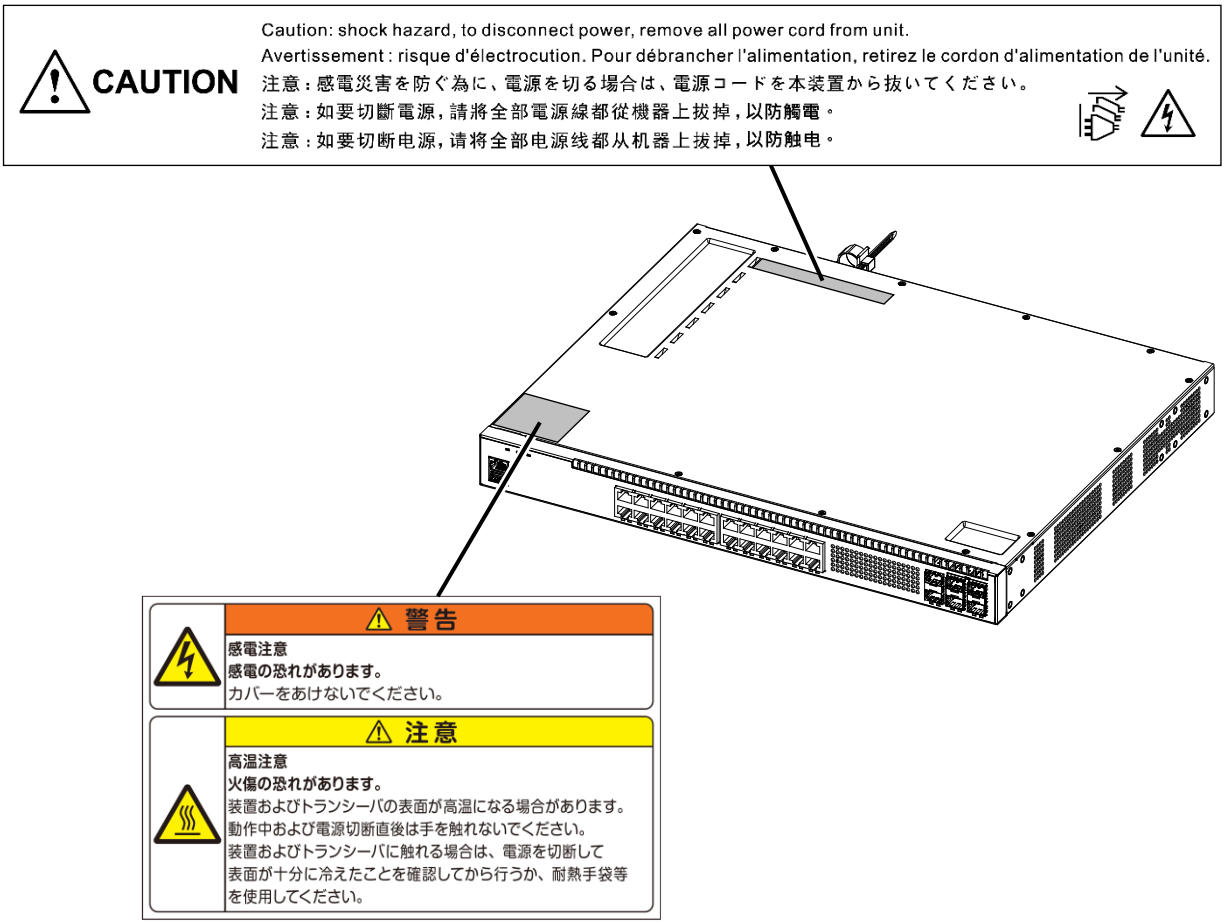
For safety reasons, unplug all the power cables from outlets and turn off the power of the Switch if it will not be used for a long time.

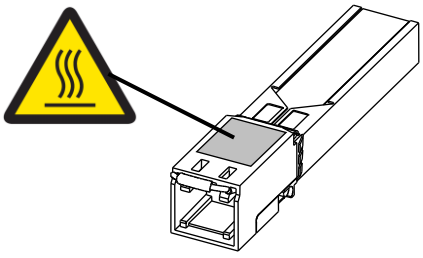
■ Disposal of a Switch

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

Warning labels

Warning labels are attached to the following locations on the Switch.
Check what each warning label indicates before handling the Switch.
Also, do not stain or remove the warning labels.





SFP-T

Table of Contents

1 Overview of the Switch

This chapter describes an overview of each device that comprises the Switch.

1.1 Switch

The AX2340S series is a layer 2 switch that supports Gigabit Ethernet and can be used as a floor switch or workgroup switch in a local area network.

The AX2340S series has the following models.

Table 1-1 AX2340S series model list

No.	Model name	LAN interface			
		10BASE-T /100BASE-TX /1000BASE-T port	100BASE-TX /1000BASE-T /2.5GBASE-T port	SFP slot (1G)	SFP+ slot (1G/10G)
1	AX2340S-16T4X	16	—	—	4*1
2	AX2340S-24T4X	24	—	2	4*1
3	AX2340S-24TH4X	24	—	2	4*1
4	AX2340S-48T4X	48	—	2	4*1
5	AX2340S-24P4X	24 (PoE)	—	2	4*1
6	AX2340S-24PH4X	24 (PoE)	—	2	4*1
7	AX2340S-48P4X	48 (PoE)	—	2	4*1
8	AX2340S-16P8MP2X	16 (PoE)	8 (PoE)	—	2

*1 10-Gigabit Ethernet is enabled by adding the uplink 10G optional license.

NOTE

For transceivers supported by the Switch, see "ALAXALA Transceiver Hardware Instruction Manual (AX-COM-H001)".

1.1.1 AX2340S-16T4X

AX2340S-16T4X has the following hardware specifications.

- Ethernet 10BASE-T/100BASE-TX/1000BASE-T port: 16 ports
- SFP+ slot (10GBASE-R or 1000BASE-X): 4 slots
- Console port (RJ-45): 1 port
- Memory card slot: 1 slot
- AC connector: 1 connector

NOTE

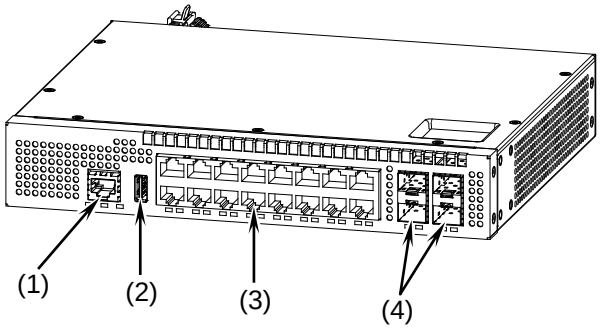
The uplink 10G optional license is required to use 10GBASE-R (SFP+) and direct attach cables for SFP+ slots. Only 1000BASE-X (SFP) is available if the uplink 10G optional license is not applied.

NOTE

For transceivers supported by the Switch, see "ALAXALA Transceiver Hardware Instruction Manual (AX-COM-H001)".

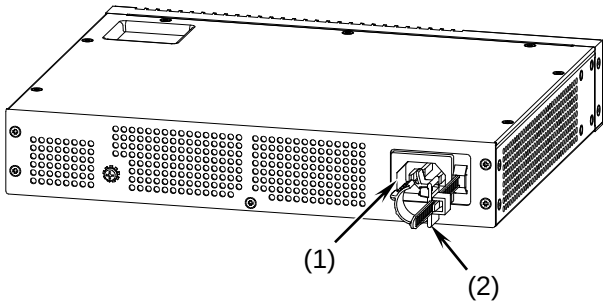
(1) External view

Figure 1-1 Front view



(1) Console port: 1 port (RJ-45)
(2) Memory card slot: 1 slot
(3) Ethernet 10BASE-T/100BASE-TX/1000BASE-T port: 16 ports
(4) SFP+ slot (10GBASE-R or 1000BASE-X): 4 slots

Figure 1-2 Rear view

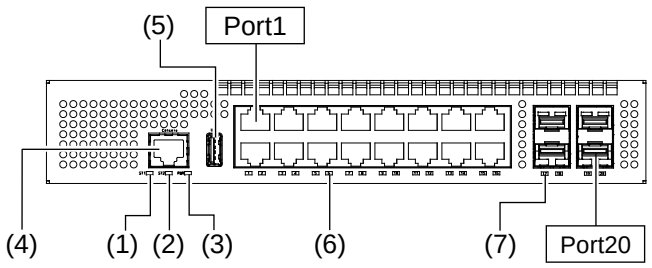


(1) AC connector
(2) Cable clamp

(2) Front panel

The layout of the front panel is shown below. The numbers in the figure correspond to those in "Table 1-2 LED indications and connectors".

Figure 1-3 Front panel layout



NOTE

Direct attach cables can be used only for Port 19 and Port 20.

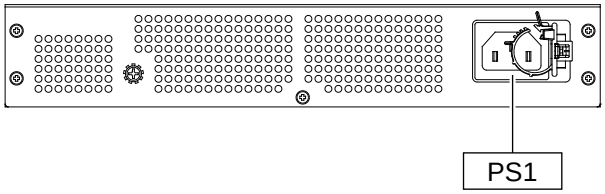
Table 1-2 LED indications and connectors

No.	Name	Type	Status		Description
(1)	ST1	LED: Green or orange	Indicates the status of the Switch.	Green	Available for operation
				Blinking green	Preparatory state (switch is starting up)
				Blinking orange	Partial fault in the device
				Orange	Fatal fault in the device (operation cannot continue or login fails)
				Off	Power is off or the power supply failed.
(2)	ST2	LED: Green or orange	Indicates the status of the Switch in MC operation mode.	Green	Software and device information are being saved. (Do not remove the memory card.)
				Orange	While software and device information were being saved, a failure was detected, and the saving operation has stopped.
				Off	The memory card can be inserted or removed.
(3)	PWR	LED: Green	Indicates the power supply status.	Green	Power is on.
				Off	Power is off or the power supply failed.
(4)	Console	Connector	Console port	—	RS-232C port to connect a console terminal
(5)	USB	Connector	Memory card slot	—	USB memory card slot
(6)	1-16 (UTP)	LED: Green or orange	Indicates the operating status of 10BASE-T/100BASE-TX /1000BASE-T ports.	Green	A link has been established.
				Blinking green	A link is established and frames are being sent or received.
				Orange	Line failure detection
				Off	Link failure or block when the ST1 LED lights green
(7)	17-20 (SFP+)	LED: Green or orange	Indicates the operating status of SFP and SFP+ slots.	Green	A link has been established.
				Blinking green	A link is established and frames are being sent or received.
				Orange	Line failure detection
				Off	Link failure or block when the ST1 LED lights green

(3) Rear panel

The rear panel layout is shown below.

Figure 1-4 Rear panel layout



1.1.2 AX2340S-24T4X, AX2340S-24TH4X, and AX2340S-24PH4X

AX2340S-24T4X, AX2340S-24TH4X, and AX2340S-24PH4X have the following hardware specifications.

- Ethernet 10BASE-T/100BASE-TX/1000BASE-T port: 24 ports
  (PoE is supported for AX2340S-24PH4X.)
- SFP slot (1000BASE-X): 2 slots
- SFP+ slot (10GBASE-R or 1000BASE-X): 4 slots
- Console port (RJ-45): 1 port
- Memory card slot: 1 slot
- AC connector: 1 connector

NOTE

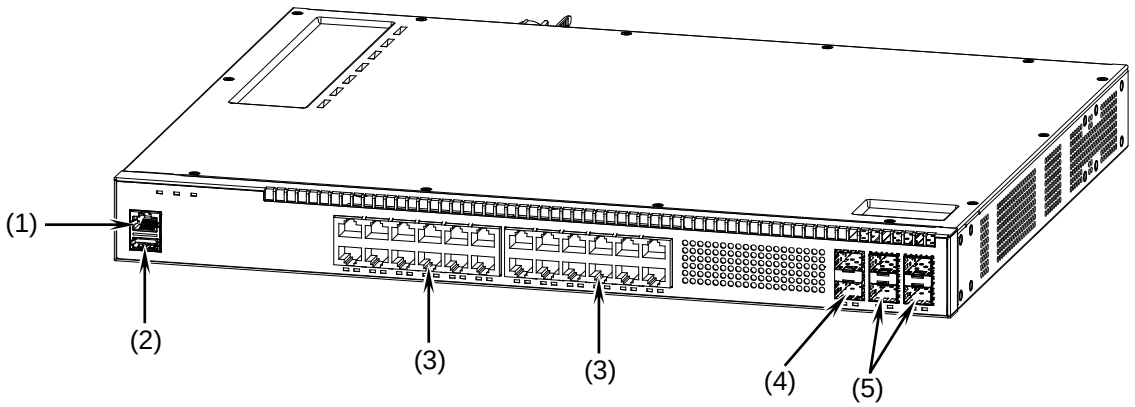
The uplink 10G optional license is required to use 10GBASE-R (SFP+) and direct attach cables for SFP+ slots. Only 1000BASE-X (SFP) is available if the uplink 10G optional license is not applied.

NOTE

For transceivers supported by the Switch, see "ALAXALA Transceiver Hardware Instruction Manual (AX-COM-H001)".

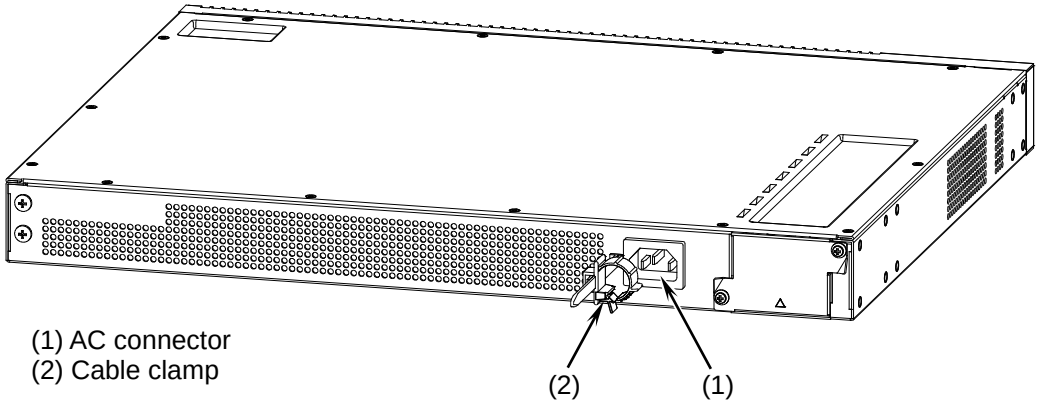
(1) External view

Figure 1-5 Front view



(1) Console port: 1 port (RJ-45)
(2) Memory card slot: 1 slot
(3) Ethernet 10BASE-T/100BASE-TX/1000BASE-T port: 24 ports
(PoE is supported for AX2340S-24PH4X.)
(4) SFP slot: 2 slots
(5) SFP+ slot (10GBASE-R or 1000BASE-X): 4 slots

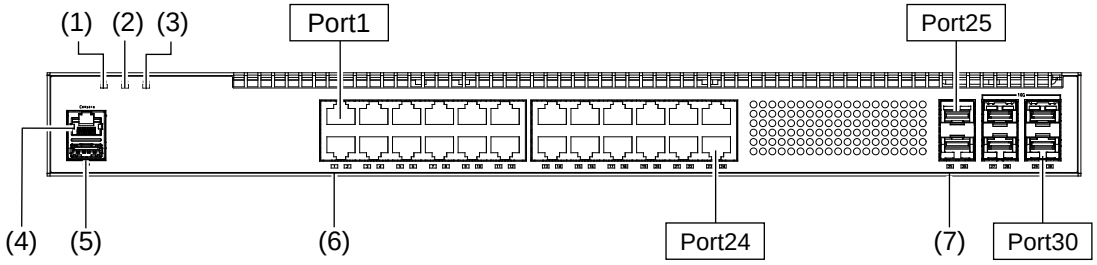
Figure 1-6 Rear view



(2) Front panel

The layout of the front panel is shown below. The numbers in the figure correspond to those in "Table 1-2 LED indications and connectors".

Figure 1-7 Front panel layout



NOTE

Direct attach cables can be used only for Port 29 and Port 30.

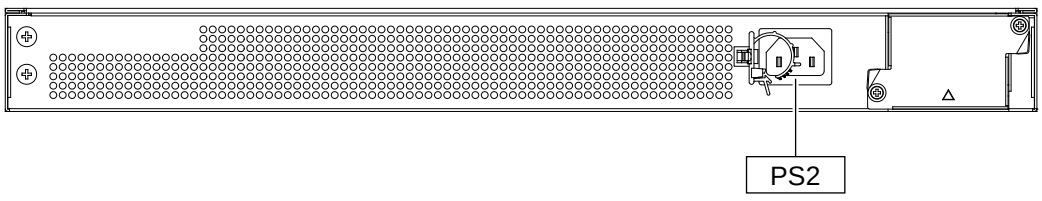
Table 1-3 LED indications and connectors

No.	Name	Type	Status		Description
(1)	ST1	LED: Green or orange	Indicates the status of the Switch.	Green	Available for operation
				Blinking green	Preparatory state (switch is starting up)
				Blinking orange	Partial fault in the device
				Orange	Fatal fault in the device (operation cannot continue or login fails)
				Off	Power is off or the power supply failed.
(2)	ST2	LED: Green or orange	Indicates the status of the Switch in MC operation mode.	Green	Software and device information are being saved. (Do not remove the memory card.)
				Orange	While software and device information were being saved, a failure was detected, and the saving operation has stopped.
				Off	The memory card can be inserted or removed.
(3)	PWR	LED: Green	Indicates the power supply status.	Green	Power is on.
				Off	Power is off or the power supply failed.
(4)	Console	Connector	Console port	—	RS-232C port to connect a console terminal
(5)	USB	Connector	Memory card slot	—	USB memory card slot
(6)	1-24 (UTP)	LED: Green or orange	Indicates the operating status of 10BASE-T/100BASE-TX /1000BASE-T ports.	Green	A link has been established.
				Blinking green	A link is established and frames are being sent or received.
				Orange	Line failure detection
				Off	Link failure or block when the ST1 LED lights green
(7)	25-26 (SFP) 27-30 (SFP+)	LED: Green or orange	Indicates the operating status of SFP and SFP+ slots.	Green	A link has been established.
				Blinking green	A link is established and frames are being sent or received.
				Orange	Line failure detection
				Off	Link failure or block when the ST1 LED lights green

(3) Rear panel

The rear panel layout is shown below.

Figure 1-8 Rear panel layout



1.1.3 AX2340S-48T4X

AX2340S-48T4X has the following hardware specifications.

- Ethernet 10BASE-T/100BASE-TX/1000BASE-T port: 48 ports
- SFP slot (1000BASE-X): 2 slots
- SFP+ slot (10GBASE-R or 1000BASE-X): 4 slots
- Console port (RJ-45): 1 port
- Memory card slot: 1 slot
- AC connector: 1 connector

NOTE

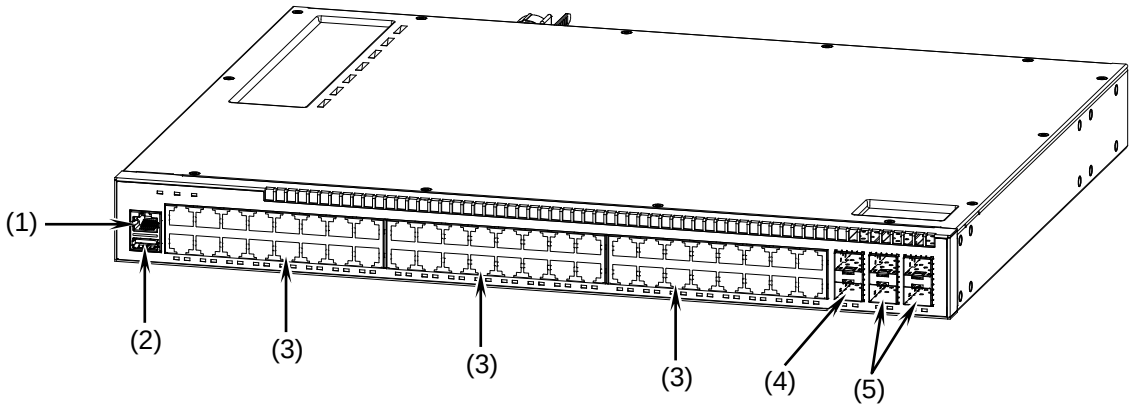
The uplink 10G optional license is required to use 10GBASE-R (SFP+) and direct attach cables for SFP+ slots. Only 1000BASE-X (SFP) is available if the uplink 10G optional license is not applied.

NOTE

For transceivers supported by the Switch, see "ALAXALA Transceiver Hardware Instruction Manual (AX-COM-H001)".

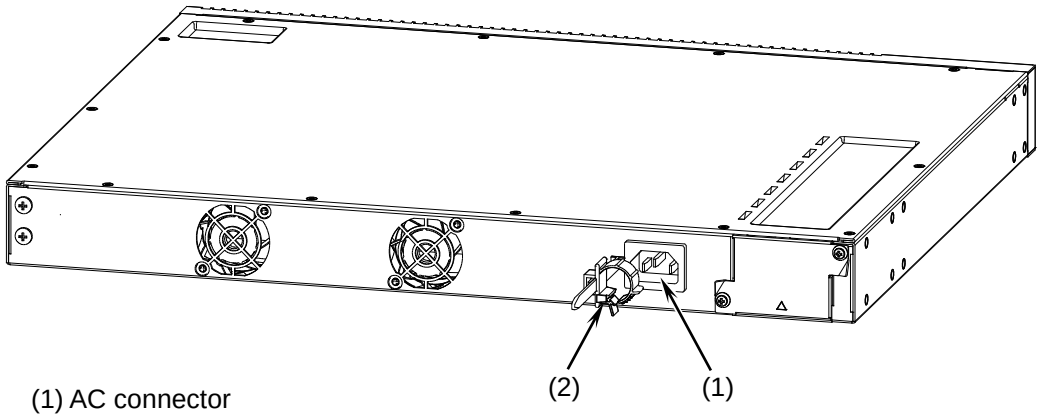
(1) External view

Figure 1-9 Front view



(1) Console port: 1 port (RJ-45)
(2) Memory card slot: 1 slot
(3) Ethernet 10BASE-T/100BASE-TX/1000BASE-T port: 48 ports
(4) SFP slot: 2 slots
(5) SFP+ slot (10GBASE-R or 1000BASE-X): 4 slots

Figure 1-10 Rear view

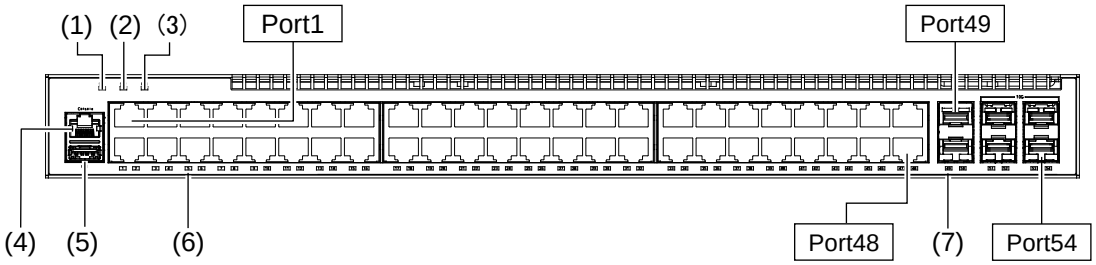


(1) AC connector
(2) Cable clamp

(2) Front panel

The layout of the front panel is shown below. The numbers in the figure correspond to those in "Table 1-3 LED indications and connectors".

Figure 1-11 Front panel layout



NOTE

Direct attach cables can be used only for Port 53 and Port 54.

Table 1-4 LED indications and connectors

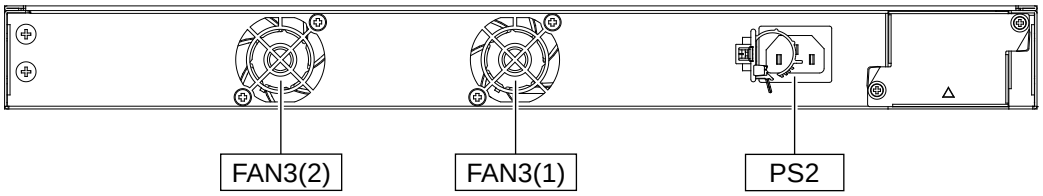
No.	Name	Type	Status		Description
(1)	ST1	LED: Green or orange	Indicates the status of the Switch.	Green	Available for operation
				Blinking green	Preparatory state (switch is starting up)
				Blinking orange	Partial fault in the device
				Orange	Fatal fault in the device (operation cannot continue or login fails)
				Off	Power is off or the power supply failed.

(2)	ST2	LED: Green or orange	Indicates the status of the Switch in MC operation mode.	Green	Software and device information are being saved. (Do not remove the memory card.)
				Orange	While software and device information were being saved, a failure was detected, and the saving operation has stopped.
				Off	The memory card can be inserted or removed.
(3)	PWR	LED: Green	Indicates the power supply status.	Green	Power is on.
				Off	Power is off or the power supply failed.
(4)	Console	Connector	Console port	—	RS-232C port to connect a console terminal
(5)	USB	Connector	Memory card slot	—	USB memory card slot
(6)	1-48 (UTP)	LED: Green or orange	Indicates the operating status of 10BASE-T/100BASE-TX /1000BASE-T ports.	Green	A link has been established.
				Blinking green	A link is established and frames are being sent or received.
				Orange	Line failure detection
				Off	Link failure or block when the ST1 LED lights green
(7)	49-50 (SFP) 51-54 (SFP+)	LED: Green or orange	Indicates the operating status of SFP and SFP+ slots.	Green	A link has been established.
				Blinking green	A link is established and frames are being sent or received.
				Orange	Line failure detection
				Off	Link failure or block when the ST1 LED lights green

(3) Rear panel

The rear panel layout is shown below.

Figure 1-12 Rear panel layout



1.1.4 AX2340S-24P4X

AX2340S-24P4X has the following hardware specifications.

- Ethernet 10BASE-T/100BASE-TX/1000BASE-T port (PoE support): 24 ports
- SFP slot (1000BASE-X): 2 slots
- SFP+ slot (10GBASE-R or 1000BASE-X): 4 slots
- Console port (RJ-45): 1 port
- Memory card slot: 1 slot
- AC connector: 1 connector

NOTE

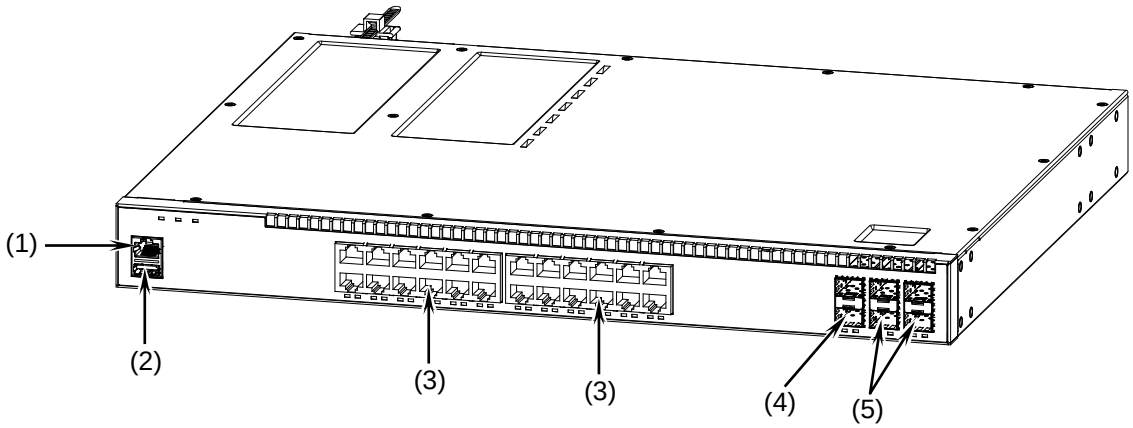
The uplink 10G optional license is required to use 10GBASE-R (SFP+) and direct attach cables for SFP+ slots. Only 1000BASE-X (SFP) is available if the uplink 10G optional license is not applied.

NOTE

For transceivers supported by the Switch, see "ALAXALA Transceiver Hardware Instruction Manual (AX-COM-H001)".

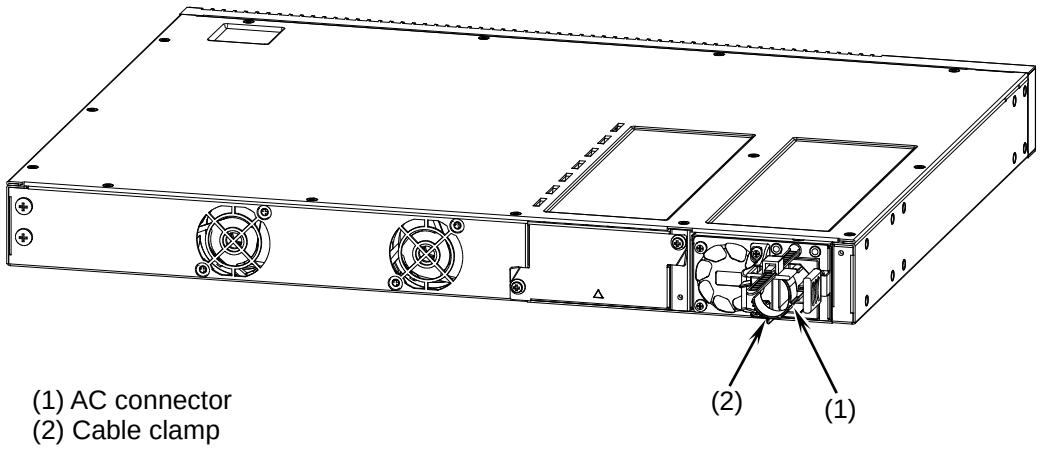
(1) External view

Figure 1-13 Front view



(1) Console port: 1 port (RJ-45)
(2) Memory card slot: 1 slot
(3) Ethernet 10BASE-T/100BASE-TX/1000BASE-T port (PoE): 24 ports
(4) SFP slot: 2 slots
(5) SFP+ slot (10GBASE-R or 1000BASE-X): 4 slots

Figure 1-14 Rear view

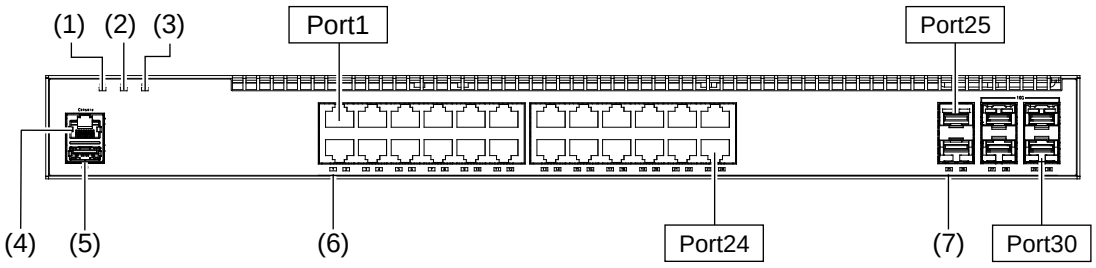


(1) AC connector
(2) Cable clamp

(2) Front panel

The layout of the front panel is shown below. The numbers in the figure correspond to those in "Table 1-4 LED indications and connectors".

Figure 1-15 Front panel layout



NOTE

Direct attach cables can be used only for Port 29 and Port 30.

Table 1-5 LED indications and connectors

No.	Name	Type	Status		Description
(1)	ST1	LED: Green or orange	Indicates the status of the Switch.	Green	Available for operation
				Blinking green	Preparatory state (switch is starting up)
				Blinking orange	Partial fault in the device
				Orange	Fatal fault in the device (operation cannot continue or login fails)
				Off	Power is off or the power supply failed.
(2)	ST2	LED: Green or orange	Indicates the status of the Switch in MC operation mode.	Green	Software and device information are being saved. (Do not remove the memory card.)
				Orange	While software and device information were being saved, a failure was detected, and the saving operation has stopped.
				Off	The memory card can be inserted or removed.
(3)	PWR	LED: Green	Indicates the power supply status.	Green	Power is on.
				Off	Power is off or the power supply failed.
(4)	Console	Connector	Console port	—	RS-232C port to connect a console terminal
(5)	USB	Connector	Memory card slot	—	USB memory card slot
(6)	1-24 (UTP)	LED: Green or orange	Indicates the operating status of 10BASE-T/100BASE-TX /1000BASE-T ports.	Green	A link has been established.
				Blinking green	A link is established and frames are being sent or received.
				Orange	Line failure detection
				Off	Link failure or block when the ST1 LED lights green

(7)	25-26 (SFP) 27-30 (SFP+)	LED: Green or orange	Indicates the operating status of SFP and SFP+ slots.	Green	A link has been established.
				Blinking green	A link is established and frames are being sent or received.
				Orange	Line failure detection
				Off	Link failure or block when the ST1 LED lights green

(3) Rear panel

The rear panel layout is shown below. The numbers in the figure correspond to those in "Table 1-5 LED indications".

Figure 1-16 Rear panel layout

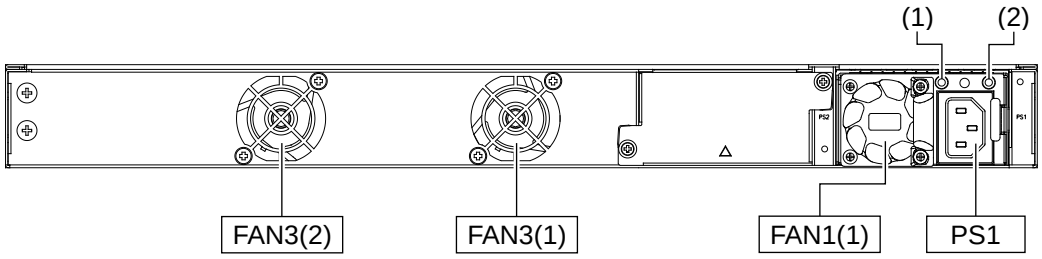


Table 1-6 LED indications

No.	Name	Type	Status		Description
(1)	DC OK	LED: Green or red	Indicates the status of PS1 output. *1	Green	Normal operating state
				Red	Failure detection
				Off	Output is off.
(2)	AC OK	LED: Green or red	Indicates the status of AC power input. *1	Green	Normal AC power input
				Red	Failure detection
				Off	No AC power input or abnormal input

*1 The LED may not light up depending on the type of a power failure.

NOTE

The power supply (PS1) of the Switch cannot be replaced. Do not remove the power supply (PS1).

NOTE

DC OK and AC OK LEDs blink red after the Switch is powered off. This blinking does not indicate a failure.

1.1.5 AX2340S-48P4X

AX2340S-48P4X has the following hardware specifications.

- Ethernet 10BASE-T/100BASE-TX/1000BASE-T port (PoE support): 48 ports
- SFP slot (1000BASE-X): 2 slots
- SFP+ slot (10GBASE-R or 1000BASE-X): 4 slots
- Console port (RJ-45): 1 port
- Memory card slot: 1 slot
- AC connector: 1 connector

NOTE

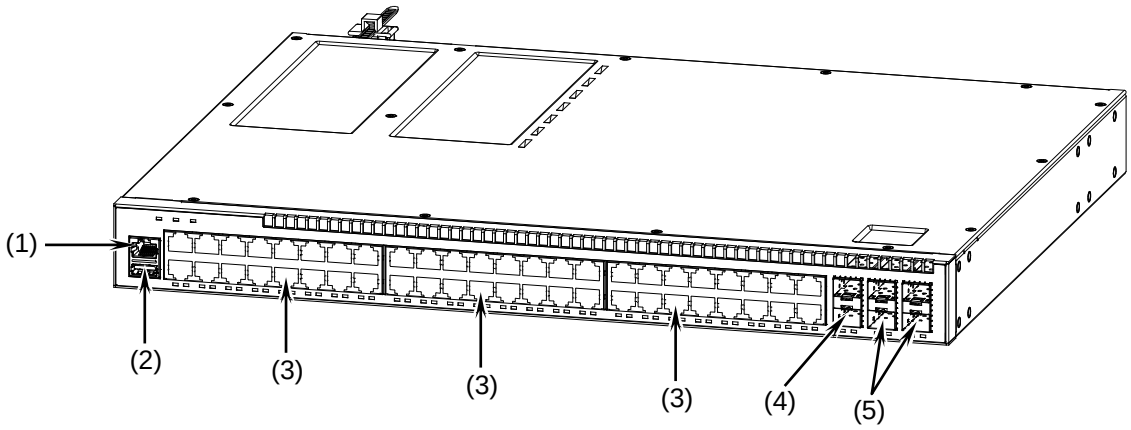
The uplink 10G optional license is required to use 10GBASE-R (SFP+) and direct attach cables for SFP+ slots. Only 1000BASE-X (SFP) is available if the uplink 10G optional license is not applied.

NOTE

For transceivers supported by the Switch, see "ALAXALA Transceiver Hardware Instruction Manual (AX-COM-H001)".

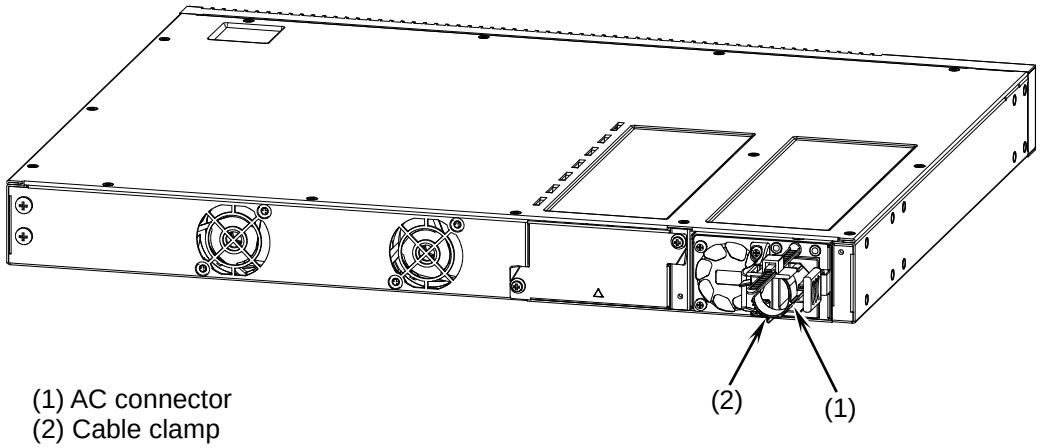
(1) External view

Figure 1-17 Front view



(1) Console port: 1 port (RJ-45)
(2) Memory card slot: 1 slot
(3) Ethernet 10BASE-T/100BASE-TX/1000BASE-T port (PoE): 48 ports
(4) SFP slot: 2 slots
(5) SFP+ slot (10GBASE-R or 1000BASE-X): 4 slots

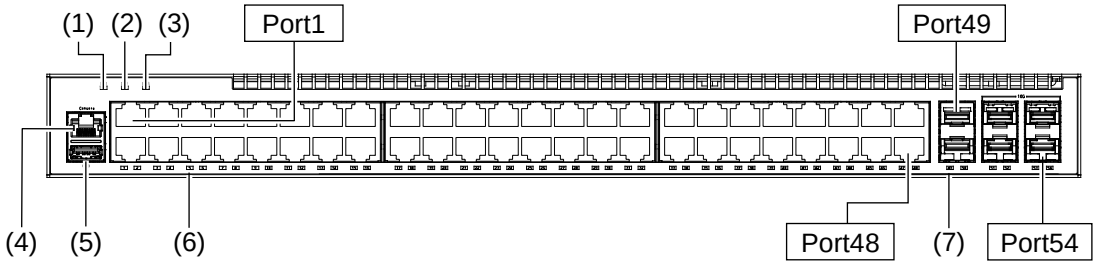
Figure 1-18 Rear view



(2) Front panel

The layout of the front panel is shown below. The numbers in the figure correspond to those in "Table 1-6 LED indications and connectors".

Figure 1-19 Front panel layout



NOTE

Direct attach cables can be used only for Port 53 and Port 54.

Table 1-7 LED indications and connectors

No.	Name	Type	Status		Description
(1)	ST1	LED: Green or orange	Indicates the status of the Switch.	Green	Available for operation
				Blinking green	Preparatory state (switch is starting up)
				Blinking orange	Partial fault in the device
				Orange	Fatal fault in the device (operation cannot continue or login fails)
				Off	Power is off or the power supply failed.

No.	Name	Type	Status		Description
(2)	ST2	LED: Green or orange	Indicates the status of the Switch in MC operation mode.	Green	Software and device information are being saved. (Do not remove the memory card.)
				Orange	While software and device information were being saved, a failure was detected, and the saving operation has stopped.
				Off	The memory card can be inserted or removed.
(3)	PWR	LED: Green	Indicates the power supply status.	Green	Power is on.
				Off	Power is off or the power supply failed.
(4)	Console	Connector	Console port	—	RS-232C port to connect a console terminal
(5)	USB	Connector	Memory card slot	—	USB memory card slot
(6)	1-48 (UTP)	LED: Green or orange	Indicates the operating status of 10BASE-T/100BASE-TX /1000BASE-T ports.	Green	A link has been established.
				Blinking green	A link is established and frames are being sent or received.
				Orange	Line failure detection
				Off	Link failure or block when the ST1 LED lights green
(7)	49-50 (SFP) 51-54 (SFP+)	LED: Green or orange	Indicates the operating status of SFP and SFP+ slots.	Green	A link has been established.
				Blinking green	A link is established and frames are being sent or received.
				Orange	Line failure detection
				Off	Link failure or block when the ST1 LED lights green

(3) Rear panel

The rear panel layout is shown below. The numbers in the figure correspond to those in "Table 1-7 LED indications".

Figure 1-20 Rear panel layout

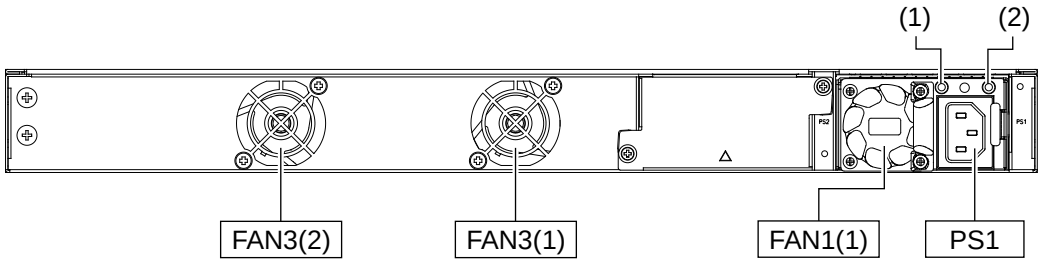


Table 1-8 LED indications

No.	Name	Type	Status		Description
(1)	DC OK	LED: Green or red	Indicates the status of PS1 output. *1	Green	Normal operating state
				Red	Failure detection
				Off	Output is off.

No.	Name	Type	Status		Description
(2)	AC OK	LED: Green or red	Indicates the status of AC power input. *1	Green	Normal AC power input
				Red	Failure detection
				Off	No AC power input or abnormal input

*1 The LED may not light up depending on the type of a power failure.

NOTE

The power supply (PS1) of the Switch cannot be replaced. Do not remove the power supply (PS1).

NOTE

DC OK and AC OK LEDs blink red after the Switch is powered off. This blinking does not indicate a failure.

1.1.6 AX2340S-16P8MP2X

AX2340S-16P8MP2X has the following hardware specifications.

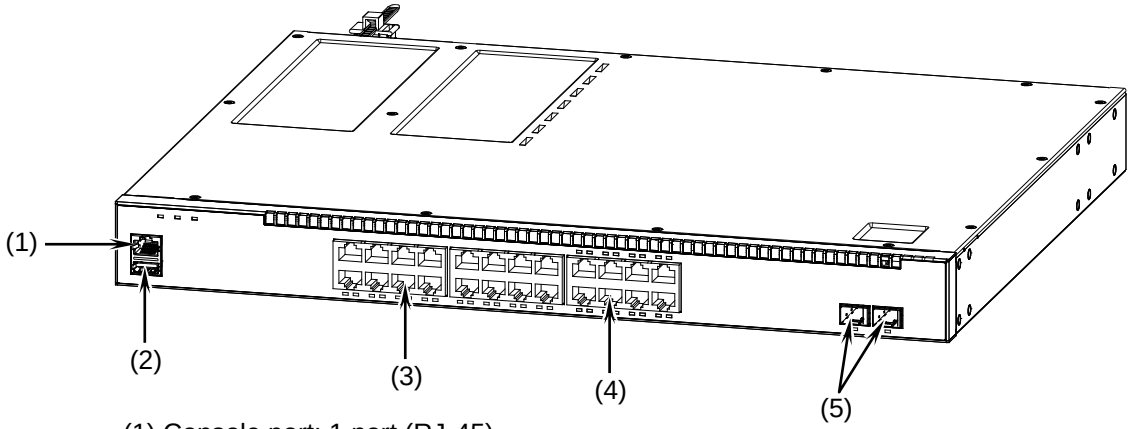
- Ethernet 10BASE-T/100BASE-TX/1000BASE-T port (PoE support): 16 ports
- Ethernet 100BASE-TX/1000BASE-T/2.5GBASE-T port (PoE support): 8 ports
- SFP+ slot (10GBASE-R or 1000BASE-X): 2 slots
- Console port (RJ-45): 1 port
- Memory card slot: 1 slot
- AC connector: 1 connector

NOTE

For transceivers supported by the Switch, see "ALAXALA Transceiver Hardware Instruction Manual (AX-COM-H001)".

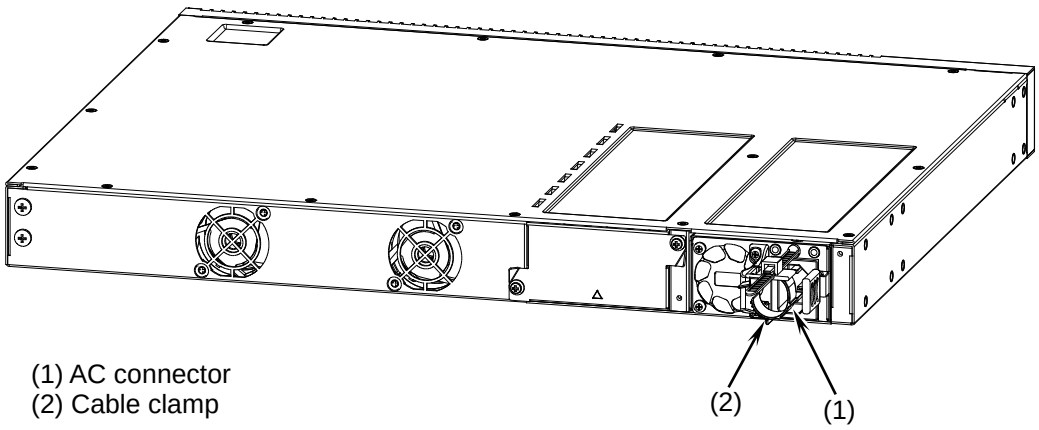
(1) External view

Figure 1-21 Front view



(1) Console port: 1 port (RJ-45)
(2) Memory card slot: 1 slot
(3) Ethernet 10BASE-T/100BASE-TX/1000BASE-T port (PoE): 16 ports
(4) Ethernet 100BASE-TX/1000BASE-T/2.5GBASE-T port (PoE): 8 ports
(5) SFP+ slot (10GBASE-R or 1000BASE-X): 2 slots

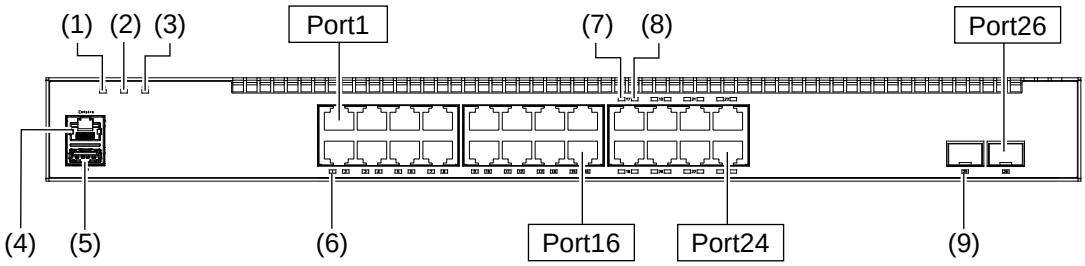
Figure 1-22 Rear view



(2) Front panel

The layout of the front panel is shown below. The numbers in the figure correspond to those in "Table 1-8 LED indications and connectors".

Figure 1-23 Front panel layout



NOTE

Direct attach cables can be used only for Port 25 and Port 26.

Table 1-9 LED indications and connectors

No.	Name	Type	Status		Description
(1)	ST1	LED: Green or orange	Indicates the status of the Switch.	Green	Available for operation
				Blinking green	Preparatory state (switch is starting up)
				Blinking orange	Partial fault in the device
				Orange	Fatal fault in the device (operation cannot continue or login fails)
				Off	Power is off or the power supply failed.

No.	Name	Type	Status		Description
(2)	ST2	LED: Green or orange	Indicates the status of the Switch in MC operation mode.	Green	Software and device information are being saved. (Do not remove the memory card.)
				Orange	While software and device information were being saved, a failure was detected, and the saving operation has stopped.
				Off	The memory card can be inserted or removed.
(3)	PWR	LED: Green	Indicates the power supply status.	Green	Power is on.
				Off	Power is off or the power supply failed.
(4)	Console	Connector	Console port	—	RS-232C port to connect a console terminal
(5)	USB	Connector	Memory card slot	—	USB memory card slot
(6)	1-16 (UTP)	LED: Green or orange	Indicates the operating status of 10BASE-T/100BASE-TX /1000BASE-T ports.	Green	A link has been established.
				Blinking green	A link is established and frames are being sent or received.
				Orange	Line failure detection
				Off	Link failure or block when the ST1 LED lights green
(7)	17-24 (LINK)	LED: Green or orange	Indicates the operating status of 100BASE-TX/1000BASE-T/2.5GBASE-T ports.	Green	A link has been established.
				Orange	Line failure detection
				Off	Link failure or block when the ST1 LED lights green
(8)	17-24 (T/R)	LED: Green		Blinking green	A frame is being sent or received
(9)	25-26 (SFP+)	LED: Green or orange	Indicates the operating status of SFP+ slots.	Green	A link has been established.
				Blinking green	A link is established and frames are being sent or received.
				Orange	Line failure detection
				Off	Link failure or block when the ST1 LED lights green

(3) Rear panel

The rear panel layout is shown below. The numbers in the figure correspond to those in "Table 1-9 LED indications".

Figure 1-24 Rear panel layout

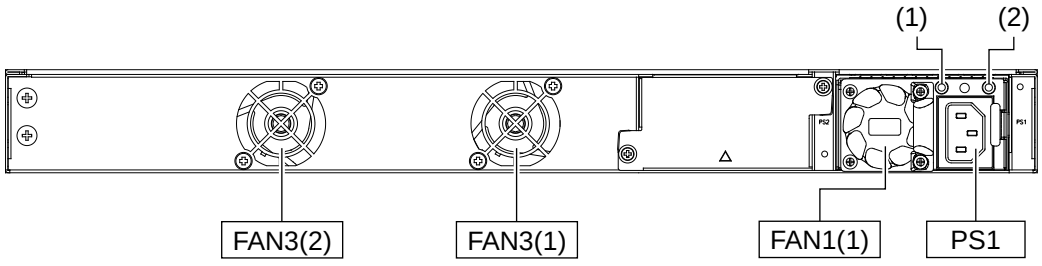


Table 1-10 LED indications

No.	Name	Type	Status		Description
(1)	DC OK	LED: Green or red	Indicates the status of PS1 output. *1	Green	Normal operating state
				Red	Failure detection
				Off	Output is off.
(2)	AC OK	LED: Green or red	Indicates the status of AC power input. *1	Green	Normal AC power input
				Red	Failure detection
				Off	No AC power input or abnormal input

*1 The LED may not light up depending on the type of a power failure.

NOTE

The power supply (PS1) of the Switch cannot be replaced. Do not remove the power supply (PS1).

NOTE

DC OK and AC OK LEDs blink red after the Switch is powered off. This blinking does not indicate a failure.

1.1.7 Accessories

The following items are included as accessories with the Switch shipped from the factory.

Table 1-11 Switch accessories

No.	Item name	Quantity	Remarks
1	Before using the "device"	1	A series name is replaced with the "device".
2	Safety Information	1	
3	Software license agreement	1	
4	Rack mounting bracket	2	
5	Screw	8	M4x6 countersunk screw
6	Rubber feet	4	
7	Power cable	1	2.5m

(1) Before using the "device"

Items that are included with the Switch when shipped from the factory are listed.

(2) Safety Information

This guide provides important information for ensuring safe use of the Switch.
Please read this guide completely before using the Switch.

(3) Software license agreement

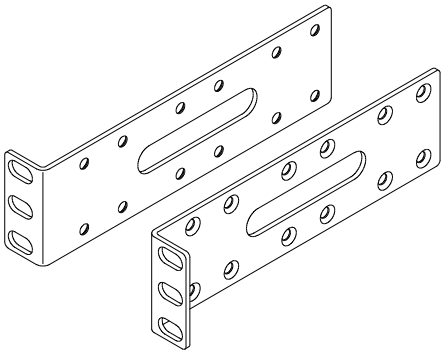
This agreement specifies the terms and conditions regarding the use of the software installed in the Switch.
Please read this agreement carefully and completely before using the Switch.

(4) Rack mounting brackets

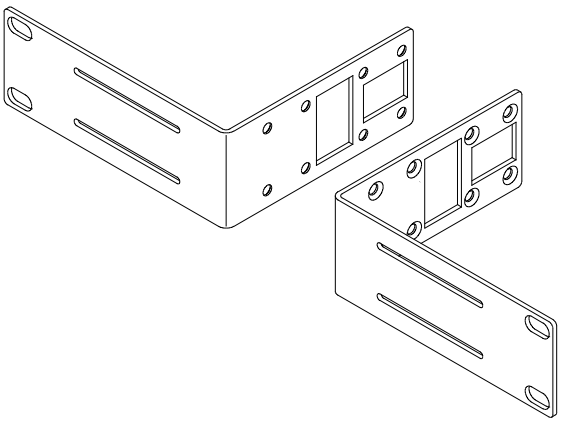
The brackets are used when mounting the Switch in a 19-inch cabinet rack.

Figure 1-25 Rack mounting brackets

- For AX2340S switches other than AX2340S-16T4X



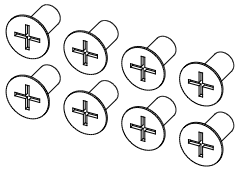
- For AX2340S-16T4X



(5) Screws

The screws are used to attach rack mounting brackets to the Switch.

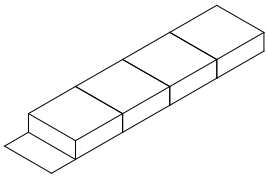
Figure 1-26 Screws



(6) Rubber feet

The rubber feet are used when installing the Switch on a table.

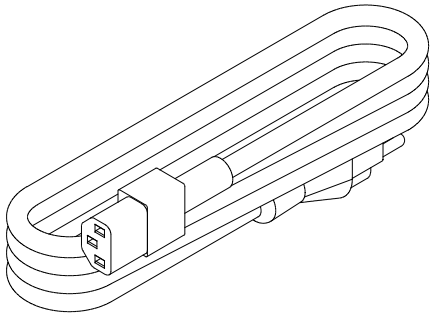
Figure 1-27 Rubber feet



(7) Power cable

100-V AC power cable (2.5 m in length).

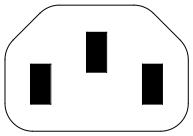
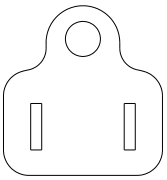
Figure 1-28 Power cable



⚠Warning

When using the Switch at 100 V AC, use the power cable that comes with the Switch or the one that we sell separately. Using another cable could result in a fire or electric shock. In addition, do not use our supplied power cable with equipment other than the Switch. Doing so could result in a fire or electric shock.

Table 1-12 Power cable (100 V AC) specifications

Item	Connector (on the Switch)	Cable	Plug (on an outlet)
Shape		3-core twisted	 Shape: JIS C 8303 and NEMA 5-15P

⚠Warning

When using the Switch at 200 V AC, use the power cable that we sell separately or the one with specifications defined by ALAXALA. Using another cable could result in a fire or electric shock. In addition, do not use our supplied power cable with equipment other than the Switch. Doing so could result in a fire or electric shock.

NOTE

For the power cable with specifications defined by ALAXALA, see "2.3.2 200 V AC power facility".

1.2 Memory card (MC)

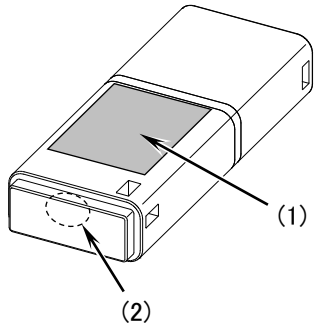
The memory card is used by inserting it into the memory card slot of the Switch.
Use the memory card to:

- Use the Switch in MC operation mode.
- Save failure information when a failure occurs.
- Update the software of the Switch.

(1) UM04G

It is a 4-GB USB memory.

Figure 1-29 External view



(1) Label indication: AlaxalA UM04G
(2) LED

Table 1-13 LED indications

No.	Name	Type	Status		Description
(2)	—	LED: Blue	Indicates the operating status of the memory card.	Blinking blue	The memory card is being accessed. (Do not remove the memory card.)
				Off	The memory card is idle. (The memory card can be inserted or removed.)

NOTE

We recommend using our standard product (with the label shown in the figure). Operation is not guaranteed if non-standard products are used.

NOTE

The upper limit of the number of writings of UM04G is about 50,000 times.

1.3 Transceiver

For transceivers supported by the Switch, see "ALAXALA Transceiver Hardware Instruction Manual (AX-COM-H001)".

1.4 Direct attach cable

The direct attach cable is an interface cable with transceiver-shaped ends.
Different types of direct attach cables can be distinguished by their label indications. If a direct attach cable is attached to the Switch, you can also use the show port command to identify it.

The direct attach cables supported for the Switch are as follows.

Table 1-14 Direct attach cable list for SFP+ slots

No.	Name	Length *1	AWG No	Minimum bending radius single bend *2	LED indication	Supported models *3
1	SFPP-CU30C	30cm	30	20.5mm	AlaxalA SFPP-CU30C	AX2340S AX2630S
2	SFPP-CU1M	1m	30	20.5mm	AlaxalA SFPP-CU1M	AX2340S AX2630S
3	SFPP-CU3M	3m	30	20.5mm	AlaxalA SFPP-CU3M	AX2340S AX2630S
4	SFPP-CU5M	5m	24	30.0mm	AlaxalA SFPP-CU5M	AX2340S AX2630S

*1 Includes connector dimensions (approximately 60 mm on one side and approximately 120 mm on both sides). The length of the cable is the one minus the connector dimension.
Example) SFPP-CU30C cable length = 300 mm - (approximately 60 mm x 2) = approximately 180 mm

*2 The single bend indicates the bending radius when the cable is bent at one point.

*3 The direct attach cable is used to connect a Switch shown in "Supported models". Operation is not guaranteed when the cable is connected to a Switch that is not a supported model.

Notification

Do not attach any labels to connectors.
Attaching a label to a location that interferes with heat dissipation or cable latch mechanism could cause a malfunction of the direct attach cable or cause damage to the Switch.

NOTE

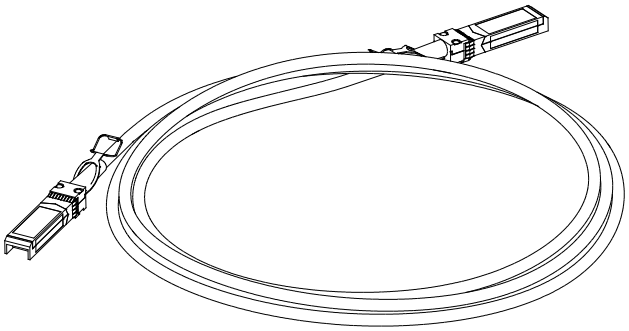
Use our standard product (those labeled as shown in the figure). Operation is not guaranteed if non-standard products are used.

NOTE

To prevent the cable from bending over time, fix a direct attach cable with a cable holder provided with a rack so that no load is applied to the root of the cable.

(1) SFPP-CU30C, SFPP-CU1M, SFPP-CU3M, SFPP-CU5M

Figure 1-30 External view



NOTE

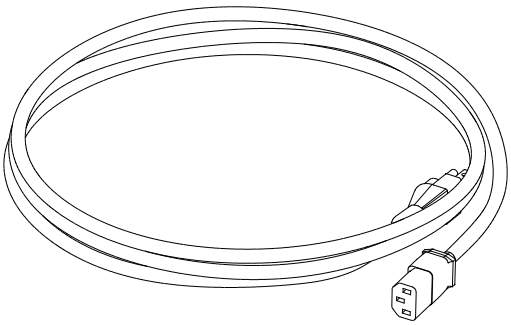
The direct attach cable is used to connect switches of the AX2340S series and AX2630S series. Operation is not guaranteed if the cable is connected to other devices.

1.5 Power cable

(1) CBLACA

100 V AC power cable (sold separately, 3.0 m in length).
It can be used when the Switch is used at 100 V AC.

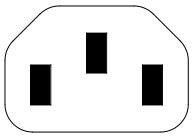
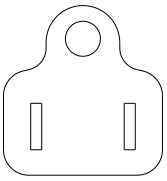
Figure 1-31 External view



⚠Warning

When using the Switch at 100 V AC, use the power cable that comes with the Switch or the one that we sell separately. Using another cable could result in a fire or electric shock. In addition, do not use our supplied power cable with equipment other than the Switch. Doing so could result in a fire or electric shock.

Table 1-15 Specifications of the separately sold power cable (100 V AC)

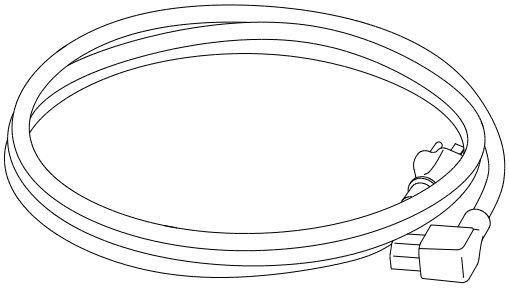
Item	Connector (on the Switch)	Cable	Plug (on an outlet)
Shape		3-core twisted	 Shape: JIS C 8303 and NEMA 5-15P

(2) CBL-A05

100 V AC power cable, right angle standard type for AX2340S-16T4X, AX2340S-24T4X, AX2340S-24TH4X, AX2340S-24PH4X, and AX2340S-48T4X (sold separately, 2.5 m in length).

You can use AX2340S-16T4X, AX2340S-24T4X, AX2340S-24TH4X, AX2340S-24PH4X, and AX2340S-48T4X at 100 V AC to reduce the installation space behind the Switch.

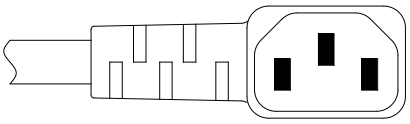
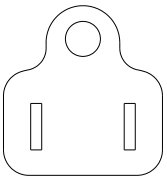
Figure 1-32 External view



⚠Warning

When using the Switch at 100 V AC, use the power cable that comes with the Switch or the one that we sell separately. Using another cable could result in a fire or electric shock. In addition, do not use our supplied power cable with equipment other than the Switch. Doing so could result in a fire or electric shock.

Table 1-16 Specifications of the separately sold power cable (100 V AC, right angle standard type)

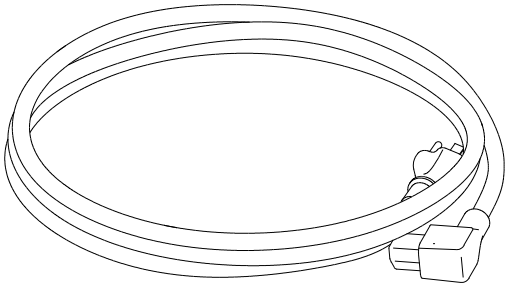
Item	Connector (on the Switch)	Cable	Plug (on an outlet)
Shape		3-core twisted	 Shape: JIS C 8303 and NEMA 5-15P

(3) CBL-A05R

100 V AC power cable, right angle reverse type for AX2340S-16T4X, AX2340S-24T4X, AX2340S-24TH4X, AX2340S-24PH4X, and AX2340S-48T4X (sold separately, 2.5 m in length).

You can use AX2340S-16T4X, AX2340S-24T4X, AX2340S-24TH4X, AX2340S-24PH4X, and AX2340S-48T4X at 100 V AC to reduce the installation space behind the Switch.

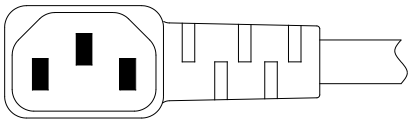
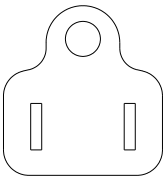
Figure 1-33 External view



⚠Warning

When using the Switch at 100 V AC, use the power cable that comes with the Switch or the one that we sell separately. Using another cable could result in a fire or electric shock. In addition, do not use our supplied power cable with equipment other than the Switch. Doing so could result in a fire or electric shock.

Table 1-17 Specifications of a separately sold power cable (100 V AC, right angle reverse type)

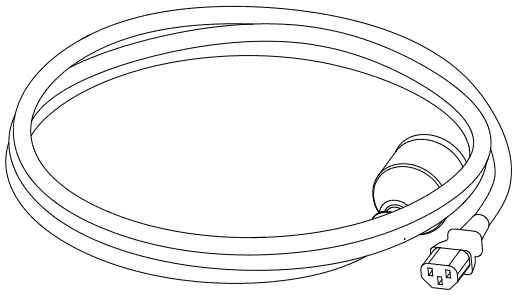
Item	Connector (on the Switch)	Cable	Plug (on an outlet)
Shape		3-core twisted	 Shape: JIS C 8303 and NEMA 5-15P

(4) CBL-A12

200 V AC power cable (sold separately, 2.5 m in length).
It can be used when the Switch is used at 200 V AC.

Note that the cable latch that comes with CBL-A12 is for AX6300S/AX6600S/AX6700S only. The Switch has a cable clamp on it to fix the cable, so that it is not necessary to use a cable latch.

Figure 1-34 External view



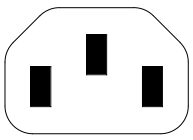
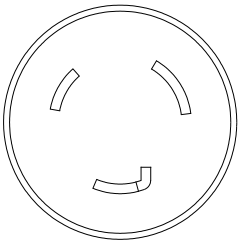
⚠Warning

When using the Switch with 200 V AC, use the power cable that comes with it or one that we sell separately. Using another cable could result in a fire or electric shock. In addition, do not use our supplied power cable with equipment other than the Switch. Doing so could result in a fire or electric shock.

NOTE

If our separately sold product does not match your power facility, please prepare a power cable with specifications defined by ALAXALA. For the power cable specified by ALAXALA, see "2.3.2 200 V AC power facility".

Table 1-18 Specifications of a separately sold power cable (200 V AC)

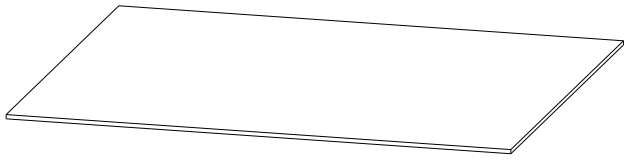
Item	Connector (on the Switch)	Cable	Plug (on an outlet)
Shape		3-core twisted	 Shape: JIS C 8303 and NEMA L6-20P

1.6 Magnet sheet

(1) MGST-02

It is a magnet sheet (sold separately) for AX2340S-16T4X.
It is used when installing AX2340S-16T4X on a steel wall.

Figure 1-35 Magnet sheet



2 Preparation for Installation

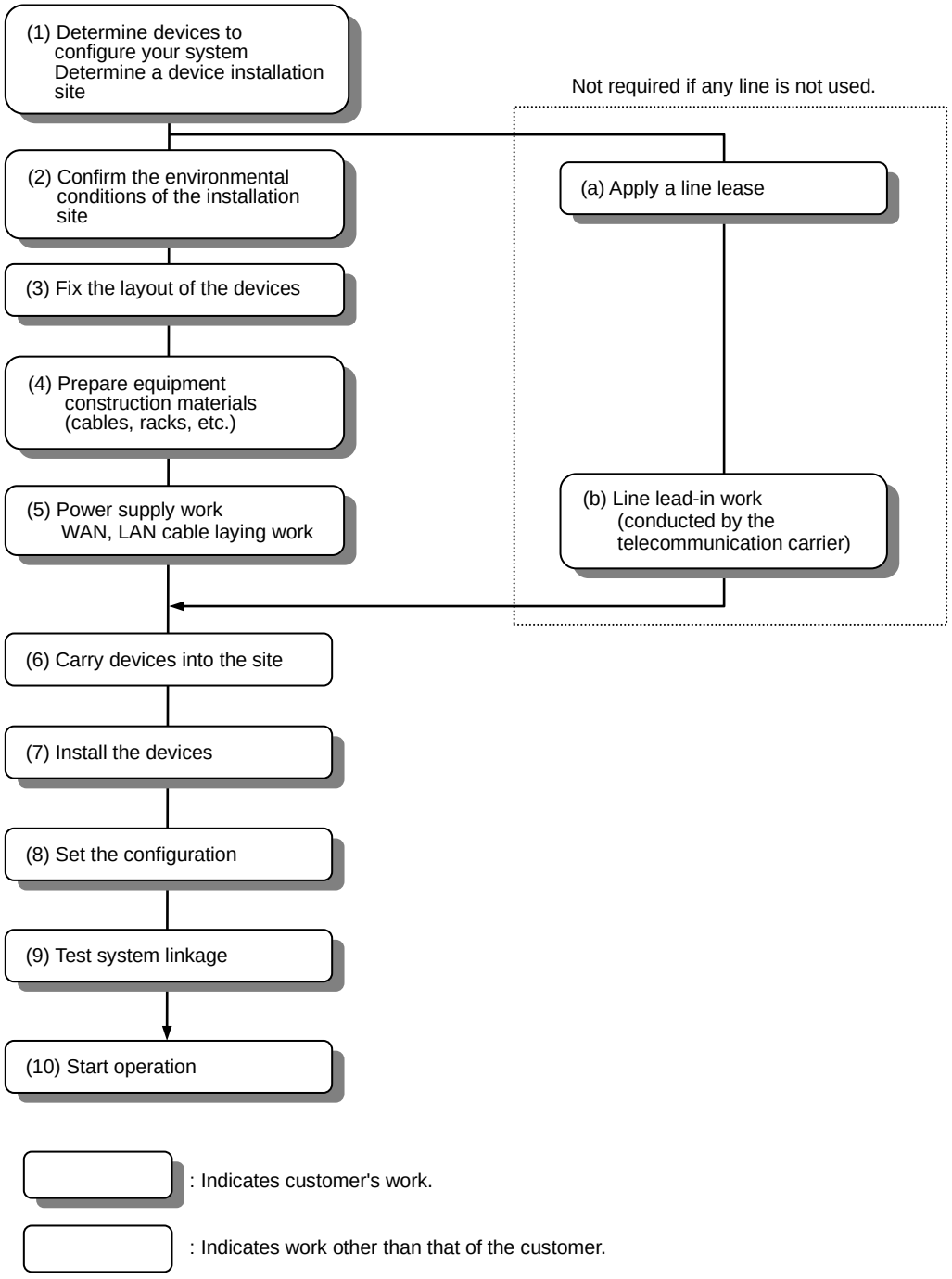
This chapter describes the environmental conditions and preparation required to install the Switch. Before you begin preparation for Switch installation, carefully read this chapter and make sure that you understand all instructions and cautionary notes.

2.1 Flow of preparation

The flow of preparation for installation is shown in "Figure 2-1 Flow of preparation for installation".

Please take enough time to allow planning to complete the power supply and communication equipment work and the LAN cable laying work before device carry-in.

Figure 2-1 Flow of preparation for installation



2.2 Installation conditions

Installation conditions for the Switch are as follows: An installation environment must satisfy these conditions.

Table 2-1 General installation conditions for the Switch (1/2)

Item			Model name			
			AX2340S-16T4X	AX2340S-24T4X	AX2340S-24TH4X	AX2340S-48T4X
Dimensions (W x D x H) *1			250 x 205 x 44 mm	440 x 350 x 44 mm		
Weight *2			2.1 kg	4.0 kg	4.2 kg	4.5 kg
Input voltage	Rated		Single-phase 100 to 120 V AC, 200 to 240 V AC *3			
	Fluctuation range		90 to 132 V AC, 180 to 264 V AC			
Frequency			50/60±3 Hz			
Maximum input current			0.6 A@100 V AC 0.4 A@200 V AC	0.8 A@100 V AC 0.4 A@200 V AC	0.8 A@100 V AC 0.4 A@200 V AC	0.9 A@100 V AC 0.5 A@200 V AC
Maximum apparent power			60 VA	80 VA	80 VA	90 VA
Maximum power consumption			30 W	45 W	45 W	80 W
Maximum PoE power supply capacity			—	—	—	—
Maximum calorific power			108 kJ/h	162 kJ/h	162 kJ/h	288 kJ/h
Noise *4			—	—	—	No more than 51 dB
Vibration			No more than 2.45 m/s^2			
Dust *5			No more than 0.15 mg/m^3			
Temperature	Operating	Ambient	0 to 45°C *6 (recommended value 23 to 28°C)	0 to 45°C *6 (recommended value 23 to 28°C)	-10 to 50°C *6*7*8 (recommended value 23 to 28°C)	0 to 50°C (recommended value 23 to 28°C)
		Inside the Switch *9	5 to 75°C			
	Non-operating		-10 to 50°C			
	During storage and transportation		-25 to 65°C			
Humidity *10	Operating		10 to 90% (recommended value 45 to 55%)			
	Non-operating		8 to 90%			
	During storage and transportation		5 to 90%			

*1 Dimensions of connectors, handles, etc. are not included.

*2 Weights of cables, rack mounting brackets, the memory card, and transceivers are not included.

*3 The supplied power cable is compatible with 100 V AC only.

*4 The value is measured according to ISO7779.

*5 According to General Requirements for Measuring Methods for Suspended Particulate Matter Concentration in Air (JIS Z 8813)

*6 The upper limit is 40°C when using SFPP-ER.

*7 The upper limit is 45°C when using SFPP-SR/LR/BR.

*8 The temperature is 0 to 50°C at startup.

*9 The internal temperature is the one displayed by the show system and show environment operation commands.

*10 Non-condensing

Table 2-2 General installation conditions for the Switch (2/2)

Item			Model name			
			AX2340S-24P4X	AX2340S-24PH4X	AX2340S-48P4X	AX2340S-16P8MP2X
Dimensions (W x D x H) *1			440 x 350 x 44 mm			
Weight *2			5.0 kg	5.3 kg	5.6 kg	5.2 kg
Input voltage	Rated		Single-phase 100 to 120 V AC, 200 to 240 V AC *3			
	Fluctuation range		90 to 132 V AC, 180 to 264 V AC			
Frequency			50/60±3 Hz			
Maximum input current			8.5 A@100 V AC 4.3 A@200 V AC	4.2 A@100 V AC 2.1 A@200 V AC	12 A@100 V AC 6.5 A@200 V AC	12 A@100 V AC 6.5 A@200 V AC
Maximum apparent power			850 VA	420 VA	1250 VA	1250 VA
Maximum power consumption			700 W	360 W	1100 W	1100 W
Maximum PoE power supply capacity			535 W*4	250 W*5	785 W*4	815 W*6
Maximum calorific power *7			594 kJ/h	396 kJ/h	1134 kJ/h	1026 kJ/h
Noise *8			38 to 70 dB or less *9	—	49 to 71 dB or less *9	50 to 72 dB or less *9
Vibration			No more than 2.45 m/s^2			
Dust *10			No more than 0.15 mg/m^3			
Temperature	Operating	Ambient	0 to 50°C (recommended value 23 to 28°C)	-10 to 50°C *11*12*13 (recommended value 23 to 28°C)	0 to 50°C (recommended value 23 to 28°C)	
		Inside the Switch *14	5 to 75°C			
	Non-operating		-10 to 50°C			
	During storage and transportation		-25 to 65°C			
Humidity *15	Operating		10 to 90% (recommended value 45 to 55%)			
	Non-operating		8 to 90%			
	During storage and transportation		5 to 90%			

*1 Dimensions of connectors, handles, etc. are not included.

*2 Weights of cables, rack mounting brackets, the memory card, and transceivers are not included.

*3 The supplied power cable is compatible with 100 V AC only.

*4 If the power class of the powered device is Class 4 (30.0 W), the number of ports available for power supply in the entire Switch is as follows. Class 5 (45.0 W) and above is not supported.

AX2340S-24P4X: Up to 17 ports

AX2340S-48P4X: Up to 26 ports

*5 If the power class of powered devices is Class 3 (15.4 W), the maximum number of ports available for simultaneous power supply is 16, and if it is Class 4 (30.0 W), the maximum number of ports is 8.

*6 The power supply class enabled for each port is as follows.

Ports 1 to 16: Class 4 (30.0 W) or less

Ports 17 to 24: Class 6 (60.0 W) or less

*7 The value is the amount of heat generated by Switch only. The amount of heat generated by PDs (powered devices) is not included.

*8 The value is measured according to ISO7779.

*9 The fan rotational speed is controlled by the PoE power supply value and the Switch environment temperature.

Therefore, the noise value changes.

Reference value: If PoE power supply is not used and the Switch environment temperature is 30°C

- AX2340S-24P4X: 40 dB or less
- AX2340S-48P4X: 50 dB or less
- AX2340S-16P8MP2X: 52 dB or less

*10 According to General Requirements for Measuring Methods for Suspended Particulate Matter Concentration in Air (JIS Z 8813)

*11 The upper limit is 40°C when using SFPP-ER.

*12 The upper limit is 45°C when using SFPP-SR/LR/BR.

*13 The temperature is 0 to 50°C at startup.

*14 The internal temperature is the one displayed by the show system and show environment operation commands.

*15 Non-condensing

2.3 Power facility

2.3.1 100 V AC power facility

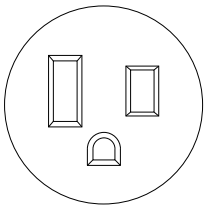
(1) Outlet

Use the following outlet that complies with JIS standard or NEMA standard. This outlet is available at most electrical installation stores.

Table 2-3 Outlet standard

Standards		Specifications
JIS	C-8303	15 A 125 V, grounded two-prong outlet
NEMA	5-15R	

Figure 2-2 Grounded two-prong outlet (15 A 125 V)



⚠Warning Install an outlet near the Switch so that the power plug can be easily unplugged. Do not place any objects around the outlet.

⚠Warning When the Switch is used at 100 V AC, always use a grounded outlet. Using the Switch without grounding could result in an electric shock as well as failures due to electrical noise.

(2) Distribution board

Install a breaker on the branch circuit of the distribution board that supplies power to the Switch.

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

⚠Warning Install the distribution board in the same room as the Switch or in a neighboring room to ensure easy access and operation.

(3) Conditions for supplying power to the distribution board

Ensure that the capacity for incoming current to the distribution board is greater than the operating current of the circuit breaker shown in "(2) Distribution board".

⚠Warning

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

NOTE

In general, the operating current of breakers is greater than the rated current. Check the specifications of a breaker to be used.

Turning on the Switch causes inrush current shown below. Ensure that voltage drop does not occur in the power facility due to the inrush current. When using a UPS or CVCF, please take the above into consideration.

Table 2-4 Inrush current

Model	Current (peak value)	Time
AX2340S-16T4X	30 A	No more than 10 ms
AX2340S-24T4X	100 A	
AX2340S-24TH4X	100 A	
AX2340S-48T4X	75 A	
AX2340S-24P4X	30 A	
AX2340S-24PH4X	30 A	
AX2340S-48P4X	30 A	
AX2340S-16P8MP2X	30 A	

Notification

Turning on the Switch causes 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 power facility.

2.3.2 200 V AC power facility

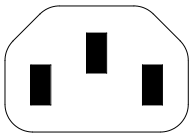
(1) Power cable

ALAXALA provide the 200 V AC power cable (sold separately) so that you can use the Switch at 200 V AC. For the 200 V AC power cable, see "1.5 Power cable".

NOTE

If our separately sold product does not match your power facility, please prepare a power cable with the following specifications specified by ALAXALA.

Table 2-5 Power cable specifications

Item	Connector (on the Switch)	Cable	Plug (on an outlet)
Rated	250 V 10 A or more Electrical Appliance and Material Safety Act certified product	250 V 10 A or more Electrical Appliance and Material Safety Act certified product	250 V 10 A or more Electrical Appliance and Material Safety Act certified product
Shape		3-core twisted	Prepare a plug that matches the shape of the outlet.

⚠Warning

When using the Switch at 200 V AC, use the power cable that we sell separately or the one with specifications defined by ALAXALA. Using another cable could result in a fire or electric shock. In addition, do not use the separately sold power cable with devices other than the Switch. Doing so could result in a fire or electric shock.

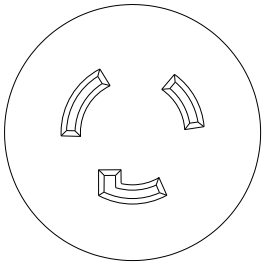
(2) Outlet

Use the following outlet that complies with JIS standard or NEMA standard. This outlet is available at most electrical installation stores.

Table 2-6 Outlet standard

Standards		Specifications
JIS	C-8303	20 A 250 V, grounded two-prong locking outlet
NEMA	L6-20R	

Figure 2-3 Grounded two-prong outlet (20 A 250 V)



If you do not use the 200 V AC power cable that we sell separately, use the outlet below. The outlet is available at most electrical installation stores.

- Grounded two-prong outlet: 250 V 10 A or more

⚠Warning Install an outlet near the Switch so that the power plug can be easily unplugged. Do not place any objects around the outlet.

⚠Warning When the Switch is used at 200 V AC, always use a grounded outlet. Using the Switch without grounding could result in an electric shock as well as failures due to electrical noise.

(3) Distribution board

Install a breaker on the branch circuit of the distribution board that supplies power to the Switch.

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

⚠Warning Install the distribution board in the same room as the Switch or in a neighboring room to ensure easy access and operation.

(4) Conditions for supplying power to the distribution board

Ensure that the capacity for incoming current to the distribution board is greater than the operating current of the circuit breaker shown in "(3) Distribution board".

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

NOTE In general, the operating current of breakers is greater than the rated current. Check the specifications of a breaker to be used.

Turning on the Switch causes inrush current shown below. Ensure that voltage drop does not occur in the power facility due to the inrush current. When using a UPS or CVCF, please take the above into consideration.

Table 2-7 Inrush current

Model	Current (peak value)	Time
AX2340S-16T4X	60 A	No more than 10 ms
AX2340S-24T4X	200 A	
AX2340S-24TH4X	200 A	
AX2340S-48T4X	150 A	
AX2340S-24P4X	60 A	
AX2340S-24PH4X	60 A	
AX2340S-48P4X	60 A	
AX2340S-16P8MP2X	60 A	

Notification

Turning on the Switch causes 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 power facility.

2.4 Consideration for electrical noise

Electrical noise generated by other equipment may cause a Switch failure.

Please develop the power facility plan to observe the following points.

- Do not connect a device (such as an air conditioner) whose power is repeatedly turned on and off by a relay, micro-switch, etc., to the branch circuit of the power supply used for the Switch.
- The maintenance ground wire (class D grounding) for the Switch should be connected directly to a ground plate, or should be dedicated for the Switch as much as possible.
- Consider installing a noise prevention circuit in equipment that generates electrical noise.
- Cables connected to the Switch are broadly classified into power cables and signal cables, but they differ in basic electrical characteristics. When laying cables, do not tie them with bands or twist them together. Such a construction method should be avoided.
- During a line lead-in work, do not lay lines along the power cable.

2.5 Leakage current

The Switch is equipped with a noise filter to prevent failure caused by electrical noise. As a result, leakage current flows through the safety ground wire (class D grounding).

A maximum leakage current of 1 mA flows per device, so if you are required to install an earth leakage breaker under the Fire Services Act and other laws, take this into consideration.

2.6 Environmental requirements

(1) Dust

The Switch has cooling fan units, so do not install it in a humid or dusty place. The dust conditions for the Switch are as follows.

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

NOTE

Do not install the Switch in a location near the printer or in a location with a lot of foot traffic, as there is usually a lot of toner and dust.

(2) Corrosive gas and flammable gas

Install the Switch in a place free from corrosive or flammable gas. If installed in a such place, the Switch will corrode and significantly reduce its reliability.

(3) Floor surface material

Although the Switch can be installed in a common office space, it is recommended that the surface material of the floor has the following properties.

- Fire resistant
- Dust free

(4) Direct sunlight

Keep the Switch out of direct sunlight.

(5) Water

When cleaning the floor, etc., do not allow the Switch to get wet.

(6) Electromagnetic interference

Please note that using high-frequency equipment in the surrounding area of the Switch may cause the Switch to malfunction due to the electromagnetic interference generated by the equipment.

The Switch also generates a weak but high frequency, which may affect televisions, radios, or transceivers using indoor antennas within 30 m of the Switch.

(7) Cable protection

Pass cables through ducts or protect them with cable covers.

If cables are not protected, the cables may be cut by an animal such as a mouse.

In particular, optical fiber cables should be protected by metal covers, etc., with the bending radius of at least 100 mm in the major axis direction and at least 50 mm in the minor axis direction.

In addition, the optical fiber cable that accommodates the required number of optical fiber cores must have a structure that can protect the cable itself from mechanical stress such as repeated bending, tensile tension, compression, and ironing during installation, and stress from the installation environment.

(8) Spray

When spraying insecticides or disinfecting in the room where devices are installed, consider covering the devices with a sheet, etc. to avoid direct contact with the chemical.

(9) Earthquake measure

An earthquake can cause devices to move, topple over, or jump out of a window, which may lead to an injury accident. Take sufficient measures to prevent movement and toppling over.

NOTE

The actual vibration applied to devices is amplified by the response factor determined by the structure of the building and the floor on which the devices are installed, unlike the ground surface. In general, it is said that a medium-rise building of approximately nine floors will typically experience two to three times more shaking on the fifth floor and above than on the ground level.

Examples of past earthquakes

- A device moved 10 to 30 cm.
- A rack fell over.
- An object placed on furniture in a room fell onto a device.

2.7 Installation location

⚠Warning

Use the Switch indoors. Also, make sure that all interface cables to be connected to the Switch are indoor-wired. If an outdoor-wired cable is to be connected to the Switch, ensure that lightning protection measures have been taken before connection.

The Switch can be used installed on a table or mounted in a 19-inch cabinet rack.

(1) On a table

When installing the Switch on a table, install it on a horizontal and stable surface. In this case, consider the conditions shown in the table below.

Table 2-8 Conditions required for installation on a table

Item	Conditions
Space for ventilation	A space of at least 50 mm from the ventilation slots of the Switch should be reserved.
Space for cable extraction	A space of 100 mm each in front and rear of the Switch should be reserved for cable extraction.
Device noise	For details on noise, see "2.10 Device noise".

⚠Caution

When installing the Switch on a table, position the Switch horizontally on a worktable strong enough to bear the weight of the Switch. Placing the Switch in an unstable location, such as on an unsteady or tilting surface, might cause the Switch to fall, resulting in injury.

Notification

Since the following models do not have a fan, they also dissipate heat from the top plate of the Switch. Do not stack another device on top of and under the Switch to block the heat dissipation of the Switch. Doing so could result in a malfunction.
Also, when mounting the Switch in a rack, leave a space of 1U or more between other equipment.

- AX2340S-16T4X
- AX2340S-24T4X
- AX2340S-24TH4X
- AX2340S-24PH4X

(2) Steel wall (AX2340S-16T4X)

When installing the Switch on a steel wall, install it on a stable and smooth wall that is free from vibration and shocks. When installing the Switch on a wall, consider the conditions shown in the table below.

Table 2-9 Conditions required for installation on a wall

Item	Conditions
Space for ventilation	A space of at least 50 mm from the ventilation slots of the Switch should be reserved.
Space for cable extraction	A space of 100 mm each in front and rear of the Switch should be reserved for cable extraction.
Device noise	For details on noise, see "2.10 Device noise".

⚠Caution When installing the Switch on a steel wall, do not install it in a location subject to vibration, shocks, or in an unstable location. If the Switch is installed in such a location, it may fall, resulting in injury as well as damage to the Switch.

⚠Caution When installing the Switch on a steel wall, do not install it in a high place, on a wall with a tilt angle of 90 degrees or more, on a ceiling, or in a place where people can pass under the Switch. If the Switch is installed in such a location, it may fall, resulting in injury as well as damage to the Switch.

⚠Caution When installing the Switch on a steel wall, make sure that the weight of the connected cables does not apply load to the Switch. If the weight applies to the Switch, it may fall, resulting in injury as well as damage to the Switch.

(3) 19-inch cabinet rack

When mounting the Switch in a rack, use the rack that satisfies the conditions in the table below.

Table 2-10 Rack conditions

Item	Conditions
Rack standard	EIA standard compliant 19-inch cabinet rack
Space for ventilation	For ventilation, the cabinet rack should secure a space of at least 50 mm between rack structures such as rack posts, side plates and the ventilation slots of the Switch.
Space for cable extraction	A space of 100 mm each in front and rear of the Switch should be reserved for cable extraction.

In addition, prepare the following items required for rack mounting.

- Screws supplied with the rack (M5 or M6 screws x 4)

Notification

Since the following models do not have a fan, they also dissipate heat from the top plate of the Switch. Do not stack another device on top of and under the Switch to block the heat dissipation of the Switch. Doing so could result in a malfunction.
Also, when mounting the Switch in a rack, leave a space of 1U or more between other equipment.

- AX2340S-16T4X
- AX2340S-24T4X
- AX2340S-24TH4X
- AX2340S-24PH4X

NOTE

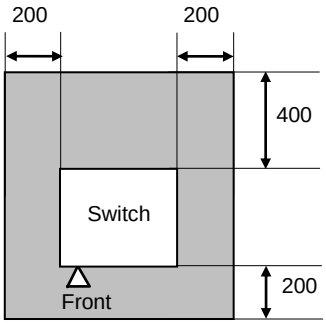
The supplied rack mounting brackets are compatible with M5 and M6 screws. Prepare a rack that supports M5 or M6 screws.

2.8 Maintenance area

Secure the following space as the maintenance area for the Switch.

(1) Maintenance area for installation on a table or wall

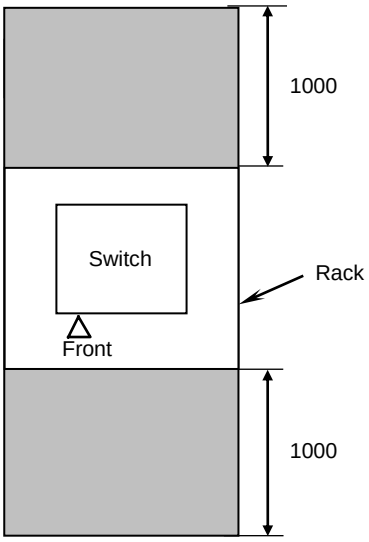
Figure 2-4 Maintenance area for installation on a table or wall



(in mm)

(2) Maintenance area for rack mounting

Figure 2-5 Maintenance area for rack mounting



(in mm)

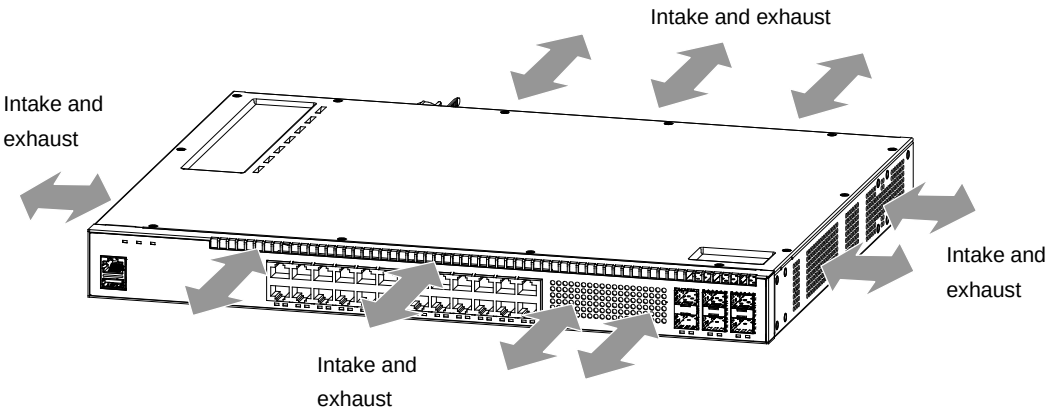
2.9 Cooling conditions

2.9.1 Airflow

The airflow of the Switch is as follows.

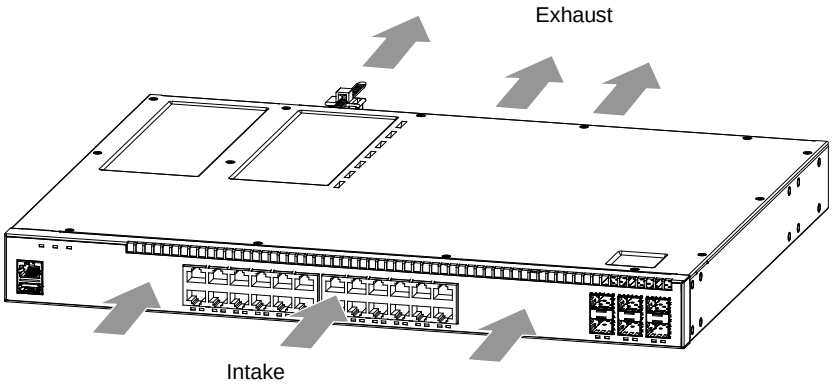
(1) AX2340S-16T4X, AX2340S-24T4X, AX2340S-24TH4X, and AX2340S-24PH4X

Figure 2-6 Airflow of AX2340S-16T4X, AX2340S-24T4X, AX2340S-24TH4X, and AX2340S-24PH4X



(2) AX2340S-48T4X, AX2340S-24P4X, AX2340S-48P4X, and AX2340S-16P8MP2X

Figure 2-7 Airflow of AX2340S-48T4X, AX2340S-24P4X, AX2340S-48P4X, and AX2340S-16P8MP2X



2.9.2 Cooling conditions

Secure a space of at least 50 mm from each side of the Switch to ensure air flow.

⚠Caution Do not obstruct the ventilation slots of the Switch. Doing so causes heat to accumulate inside the Switch, and could result in a fire. Maintain a space of at least 50 mm around the ventilation slots.

NOTE Ensure that the intake air temperature of the Switch is within the operating temperature range of the Switch. If the intake air temperature does not meet Switch installation conditions, this may cause malfunction or failure.

NOTE When installing other equipment with a forced air-cooling system such as fan units, around the Switch, if the airflows of multiple equipment interfere with each other, the cooling of the Switch will be adversely affected as shown below, resulting in malfunction.

- Exhaust air from peripheral devices may enter the intake air to the Switch, causing the temperature of the air entering the Switch to exceed the environmental specifications of the Switch.
- If the intake or exhaust air from the peripheral devices is too strong, air pressure will be applied in the opposite direction to the airflow of the Switch, reducing the cooling capacity inside the Switch.

Secure a sufficient space between peripheral devices so that the airflows of the devices do not interfere with each other, or install partitions between the devices to prevent airflow interference. When installing partitions, leave a space of at least 50 mm from each side plate of the Switch.

2.9.3 Cooling conditions for rack mounting

To ensure airflow, secure a space of at least 50 mm between the Switch and rack structures such as rack side plates, posts, guide rails, front and rear doors.

⚠Caution Do not obstruct the ventilation slots of the Switch. Doing so causes heat to accumulate inside the Switch, and could result in a fire. Maintain a space of at least 50 mm around the ventilation slots.

NOTE Ensure that the temperature inside the rack is within the operating temperature range of the Switch. If the temperature inside the tack does not meet Switch installation conditions, this may cause malfunction or failure.

NOTE When mounting other equipment with a forced air-cooling system, such as fan units, above and below the Switch, if airflows of multiple equipment interfere with each other, the cooling of the Switch will be adversely affected as shown below, resulting in malfunction or failure.

- Exhaust air from peripheral devices may enter the intake air to the Switch, causing the temperature of the air entering the Switch to exceed the environmental specifications of the Switch.
- If the intake or exhaust air from the peripheral devices is too strong, air pressure will be applied in the opposite direction to the airflow of the Switch, reducing the cooling capacity inside the Switch.

Make sure that there is a sufficient space between mounted devices in the rack to prevent airflow interference with the Switch.

2.10 Device noise

The models shown below have built-in cooling fan units, which generate noise. Before installing the Switch, consider such noise to plan your layout.

- AX2340S-48T4X
- AX2340S-24P4X
- AX2340S-48P4X
- AX2340S-16P8MP2X

For device noise, see "2.2 Installation conditions".

NOTE

The following are some examples of a layout that reflects considerations specific to noise.

- Use screens or shelves to prevent direct sound from being heard.
- Do not install the Switch near places that are frequently used by people (offices, meeting rooms, desks, etc.)
- Place the Switch in the corner of an office space.
- House the Switch in a rack.
- Avoid installing near sound-reflecting objects such as glass windows.

3 Preparation of Interface Cables and a Terminal

This chapter describes interface cables and a terminal to be used with the Switch.

3.1 Interface cable list

Interface cable connections with the Switch are listed below.

The following cables must be prepared by the customer.

For interface cables to be used for the transceiver, see "ALAXALA Transceiver Hardware Instruction Manual (AX-COM-H001)".

Table 3-1 Interface cables

Port	Transceiver	Interface	Cable	Connector
10BASE-T/ 100BASE-TX/ 1000BASE-T port (PoE is not supported.)	—	10BASE-T	UTP cable (category 3 and higher)	RJ-45 Connector
	—	100BASE-TX	UTP cable (category 5 and higher)	
	—	1000BASE-T	UTP cable (Enhanced category 5 and higher)	
10BASE-T/ 100BASE-TX/ 1000BASE-T port (PoE support)	—	10BASE-T	UTP cable (category 5 and higher) *1	
	—	100BASE-TX	UTP cable (category 5 and higher)	
	—	1000BASE-T	UTP cable (Enhanced category 5 and higher)	
100BASE-TX/ 1000BASE-T/ 2.5GBASE-T port (PoE support)	—	100BASE-TX	UTP cable (category 5 and higher)	
	—	1000BASE-T	UTP cable (Enhanced category 5 and higher)	
	—	2.5GBASE-T		
Console port	—	RS-232C	RS-232C crossover cable	RJ-45 Connector

*1 When connecting devices with PoE, it is recommended to use UTP cables of category 5 and higher.

NOTE

For interface cables and a terminal to be connected to the Console port, see "3.3 Terminal and connection cables".

3.2 Network Interface specifications

3.2.1 Ethernet 10BASE-T/100BASE-TX/1000BASE-T

(1) Mode setting for ports

For Ethernet 10BASE-T/100BASE-TX/1000BASE-T ports, the mode can be specified from the following. When shipped from the factory, the Switch is set to 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

On Ethernet 10BASE-T/100BASE-TX/1000BASE-T ports, auto-negotiation is enabled for the following modes:

- 1000BASE-T full duplex
- 100BASE-TX full duplex
- 100BASE-TX half duplex
- 10BASE-T full duplex
- 10BASE-T half duplex

NOTE

Fixed settings and half-duplex communication are not supported for 1000BASE-T.

(2) Flow control functionality

This functionality is valid during full-duplex communication.

(3) Auto MDI/MDI-X functionality

The auto MDI/MDI-X function is enabled during auto-negotiation.

When using a fixed setting, the port type is identified as MDI-X.

(4) Physical specifications

Table 3-2 10BASE-T/100BASE-TX/1000BASE-T physical specifications

Item	Physical specifications		
	10BASE-T	100BASE-TX	1000BASE-T
UTP cable	Category 3 and higher	Category 5 and higher	Enhanced category 5 and higher
Transmission distance (maximum)	100m	100m	100m

Table 3-3 10BASE-T/100BASE-TX/1000BASE-T pin configuration

RJ-45 Pin No.	Physical specifications	
	10BASE-T 100BASE-TX	1000BASE-T
1	Receive (+) (A)	Send/Receive A (+) (A)
2	Receive (-) (a)	Send/Receive A (-) (a)
3	Send (+) (B)	Send/Receive B (+) (B)
4	Not used*1 (C)	Send/Receive C (+) (C)
5	Not used*1 (c)	Send/Receive C (-) (c)
6	Send (-) (b)	Send/Receive B (-) (b)
7	Not used*1 (D)	Send/Receive D (+) (D)
8	Not used*1 (d)	Send/Receive D (-) (d)

*1 When using a 4-pair, 8-core twisted cable, use the pin to connect the cable.

*2 Since it is a twisted pair wire, pair (A) and (a), (B) and (b), (C) and (c), (D) and (d) for 4-pair, 8-core wires, (A) and (a), (B) and (b) for 2-pair, 4-core wires.

3.2.2 Ethernet 10BASE-T/100BASE-TX/1000BASE-T (PoE)

(1) Mode setting for ports

For Ethernet 10BASE-T/100BASE-TX/1000BASE-T ports (PoE), the mode can be specified from the following. When shipped from the factory, the Switch is set to 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

On Ethernet 10BASE-T/100BASE-TX/1000BASE-T ports, auto-negotiation is enabled for the following modes:

- 1000BASE-T full duplex
- 100BASE-TX full duplex
- 100BASE-TX half duplex
- 10BASE-T full duplex
- 10BASE-T half duplex

NOTE

Fixed settings and half-duplex communication are not supported for 1000BASE-T.

(2) Flow control functionality

This functionality is valid during full-duplex communication.

(3) Auto MDI/MDI-X functionality

The auto MDI/MDI-X function is enabled during auto-negotiation.
When using a fixed setting, the port type is identified as MDI-X.

(4) PoE power supply method

Ports 1 to 16 of AX2340S-24P4X, AX2340S-48P4X, AX2340S-24PH4X, and AX2340S-16P8MP2X support power supply to IEEE 802.3af and IEEE 802.3at compliant devices (powered devices).

For PoE power supply pin assignment, the method, Alternative A is adopted, which is a 2-pair power supply method specified by IEEE 802.3af and IEEE 802.3at.

The power supply pin assignment of the Switch is shown below.

Table 3-4 Power supply pin assignment

RJ45 pin number	Pair	Signal name
1	A	Negative Vport
2	A	Negative Vport
3	B	Positive Vport
4	C	-
5	C	-
6	B	Positive Vport
7	D	-
8	D	-

(5) Physical specifications

Table 3-5 10BASE-T/100BASE-TX/1000BASE-T physical specifications

Item	Physical specifications		
	10BASE-T	100BASE-TX	1000BASE-T
UTP cable	Category 5 and higher	Category 5 and higher	Enhanced category 5 and higher
Transmission distance (maximum)	100m	100m	100m

Table 3-6 10BASE-T/100BASE-TX/1000BASE-T pin configuration

RJ-45 Pin No.	Physical specifications	
	10BASE-T 100BASE-TX	1000BASE-T
1	Receive (+) (A)	Send/Receive A (+) (A)
2	Receive (-) (a)	Send/Receive A (-) (a)
3	Send (+) (B)	Send/Receive B (+) (B)
4	Not used*1 (C)	Send/Receive C (+) (C)
5	Not used*1 (c)	Send/Receive C (-) (c)
6	Send (-) (b)	Send/Receive B (-) (b)
7	Not used*1 (D)	Send/Receive D (+) (D)
8	Not used*1 (d)	Send/Receive D (-) (d)

*1 When using a 4-pair, 8-core twisted cable, use the pin to connect the cable.

*2 Since it is a twisted pair wire, pair (A) and (a), (B) and (b), (C) and (c), (D) and (d) for 4-pair, 8-core wires, (A) and (a), (B) and (b) for 2-pair, 4-core wires.

3.2.3 Ethernet 100BASE-TX/1000BASE-T/2.5GBASE-T (PoE)

(1) Mode setting for ports

For Ethernet 100BASE-TX/1000BASE-T/2.5GBASE-T ports (PoE), the mode can be specified from the following. When shipped from the factory, the Switch is set to auto-negotiation.

- Auto-negotiation (default)
- 100BASE-TX full duplex (fixed)
- 100BASE-TX half duplex (fixed)

NOTE

On Ethernet 100BASE-TX/1000BASE-T/2.5GBASE-T ports, auto-negotiation is enabled for the following modes:

- 2.5GBASE-T full duplex
- 1000BASE-T full duplex
- 100BASE-TX full duplex
- 100BASE-TX half duplex

NOTE

Fixed settings and half-duplex communication are not supported for 1000BASE-T and 2.5GBASE-T.

(2) Flow control functionality

This functionality is valid during full-duplex communication.

(3) Auto MDI/MDI-X functionality

The auto MDI/MDI-X function is enabled during auto-negotiation.

When using a fixed setting, the port type is identified as MDI-X.

(4) PoE power supply method

Ports 17 to 24 of the AX2340S-16P8MP2X support power supply to IEEE 802.3af, IEEE 802.3at, and IEEE 802.3bt compliant devices (powered devices).

For PoE power supply pin assignment, the following methods are adopted: Alternative A which is a 2-pair power supply method specified by IEEE 802.3af/at, and Alternative A + Alternative B which is a 4-pair power supply method specified by IEEE 802.3bt.

The power supply pin assignment of the Switch is shown below.

Table 3-7 Power supply pin assignment (Alternative A method)

RJ45 pin number	Pair	Signal name
1	A	Negative Vport
2	A	Negative Vport
3	B	Positive Vport
4	C	-
5	C	-
6	B	Positive Vport
7	D	-
8	D	-

Table 3-8 Power supply pin assignment (Alternative A/B method)

RJ45 pin number	Pair	Signal name
1	A	Negative Vport (A)
2	A	Negative Vport (A)
3	B	Positive Vport (A)
4	C	Positive Vport (B)
5	C	Positive Vport (B)
6	B	Positive Vport (A)
7	D	Negative Vport (B)
8	D	Negative Vport (B)

(5) Physical specifications

Table 3-9 100BASE-TX/1000BASE-T/2.5GBASE-T physical specifications

Item		Physical specifications		
		100BASE-TX	1000BASE-T	2.5GBASE-T
UTP cable	Non-PoE	category 5 and higher	Enhanced category 5 and higher	Enhanced category 5 and higher
	PoE			
Transmission distance (maximum)		100m	100m	100m

Table 3-10 100BASE-TX/1000BASE-T/2.5GBASE-T pin configuration

RJ-45 Pin No.	Physical specifications *2	
	100BASE-TX	1000BASE-T 2.5GBASE-T
1	Receive (+) (A)	Send/Receive A (+) (A)
2	Receive (-) (a)	Send/Receive A (-) (a)
3	Send (+) (B)	Send/Receive B (+) (B)
4	Not used*1 (C)	Send/Receive C (+) (C)
5	Not used*1 (c)	Send/Receive C (-) (c)
6	Send (-) (b)	Send/Receive B (-) (b)
7	Not used*1 (D)	Send/Receive D (+) (D)
8	Not used*1 (d)	Send/Receive D (-) (d)

*1 When using a 4-pair, 8-core twisted cable, use the pin to connect the cable.

*2 Since it is a twisted pair wire, pair (A) and (a), (B) and (b), (C) and (c), (D) and (d) for 4-pair, 8-core wires, (A) and (a), (B) and (b) for 2-pair, 4-core wires.

3.2.4 Ethernet 1000BASE-X

(1) Mode setting for ports

For Ethernet 1000BASE-X ports, the mode can be specified from the following. When shipped from the factory, the Switch is set to auto-negotiation.

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

NOTE

Half-duplex communication is not supported.

(2) Flow control functionality

This functionality is valid during full-duplex communication.

(3) Physical specifications

For the optical fiber cable used for each transceiver, see "ALAXALA Transceiver Hardware Instruction Manual (AX-COM-H001)".

3.2.5 Ethernet 10GBASE-R

(1) Mode setting for ports

The full-duplex (fixed) setting is only available for the mode setting of Ethernet 10GBASE-R.

NOTE

Auto-negotiation or half-duplex communication is not supported.

(2) Flow control functionality

This functionality is valid during full-duplex communication.

(3) Physical specifications

For the optical fiber cable used for each transceiver, see "ALAXALA Transceiver Hardware Instruction Manual (AX-COM-H001)".

3.3 Terminal and connection cables

3.3.1 When connecting an operation terminal to the Console port

(1) Operation terminal

When connecting an operation terminal to the Console port of the Switch, prepare a personal computer or workstation that supports the following functionalities.

Table 3-11 Operation terminal (when connecting to the Console port)

Item		Specifications
Communication port		RS-232C port
Communication software		Communication software that satisfies the following "Communication settings"
Communication settings	Communication parameters	8 bits, 1 stop bit, no parity bit
	Communication speed *1	115200 bit/s, 19200 bit/s, 9600 bit/s, 4800 bit/s, 2400 bit/s

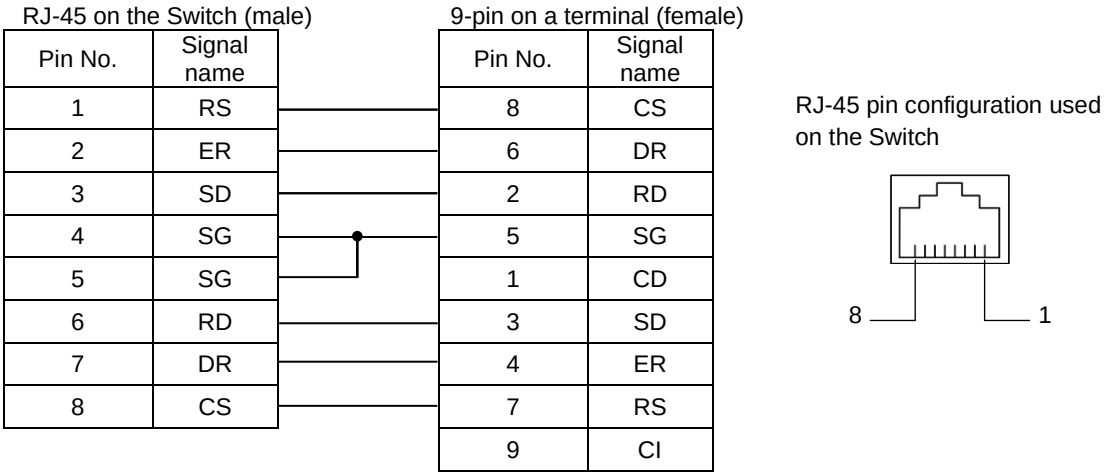
*1 The communication speed of the Switch is set to 115200 bit/s when shipped from the factory.

(2) RS-232C crossover cable

Use an RS-232C crossover cable (RJ-45 (male) - D-Sub 9-pin (female)) to connect an operation terminal to the Console port of the Switch.

Pin configuration of the RS-232C crossover cable is shown below.

Figure 3-1 Connection cable for an operation terminal



NOTE

You can use an RS-232C cable that conforms to Cisco Systems' specifications, but please check the signal line specifications for both the RS-232C cable and an operation terminal in advance.

4 Installation of the Switch

This chapter describes how to install the Switch.

4.1 Necessary tools and equipment

The following tools and equipment are required to install the Switch.

#2 Phillips screwdriver:

Used to attach rack mounting brackets to the Switch or to attach or remove the Switch to or from a rack using M5 screws.

#3 Phillips screwdriver:

Used to attach or remove the Switch to or from a rack using M6 screws.

Anti-static wrist strap:

Used to protect the Switch from static electricity.

NOTE

Use the above screwdriver sizes as a guide, and check whether your actual screwdriver matches the groove size of screws before using the screwdriver. Using a wrong size screwdriver may damage screw grooves.

4.2 Read the following before you begin

⚠**Caution**	Keep the Switch out of reach of children. The Switch is not suitable for use where children may be present.
⚠**Caution**	Place the Switch horizontally when to be used on a table. The Switch may fall over if placed in a vertical position or leaned against a wall, resulting in injury or failure.
⚠**Caution**	When installing the Switch on a table, install it on a horizontal and stable surface, not on an unstable surface such as a wobbly or inclined table. Failure to do so may cause the Switch to fall over, resulting in injury.
⚠**Caution**	When mounting the Switch onto a rack, perform the task with at least two people. Lifting the Switch by yourself may cause it to fall over, which could result in injury.
⚠**Caution**	Do not place any objects on the Switch. Doing so might damage the Switch. Furthermore, the Switch might fall, or become unbalanced, resulting in injury.
⚠**Caution**	The ventilation slots of the Switch are to prevent the internal temperature from rising. Avoid blocking the ventilation slots of the Switch by placing objects on or against it. Doing so causes heat to accumulate inside the Switch, potentially leading to smoke or failure. Maintain a space of at least 50 mm around the ventilation slots. Also, periodically check and clean the ventilation slots to prevent dust accumulation.
Notification	Be sure to wear an anti-static wrist strap. If you handle the Switch without wearing an anti-static wrist strap, the Switch might be damaged by static electricity.
NOTE	Install the Switch in a position where the status of LEDs can be easily checked.
NOTE	Pass cables through ducts or protect them with cable covers. In particular, optical fiber cables should be protected by metal covers, etc., with the bending radius of at least 100 mm in the major axis direction and at least 50 mm in the minor axis direction.
NOTE	When preparing an optical fiber cable, consider in advance the length (3 m) required for maintenance of the Switch, and leave the extra length of the cable bundled and wound near the Switch. Also, if optical fiber cables and other interface cables are used together, do not apply excessive force to the optical fiber cables.

4.3 Installing the Switch

This section describes how to install the Switch on a desk, on a table and in a rack. Please follow the steps below.

⚠Caution When moving the Switch, do not hold the handle on the rear of the Switch. The handle might come off, resulting in the device falling and possibly causing injury. Also, the power supply module might become deformed, resulting in a fire or electric shock.

4.3.1 Installing the Switch on a table

The Switch can be installed on a horizontal and stable flat surface. Follow the following steps to install the Switch.

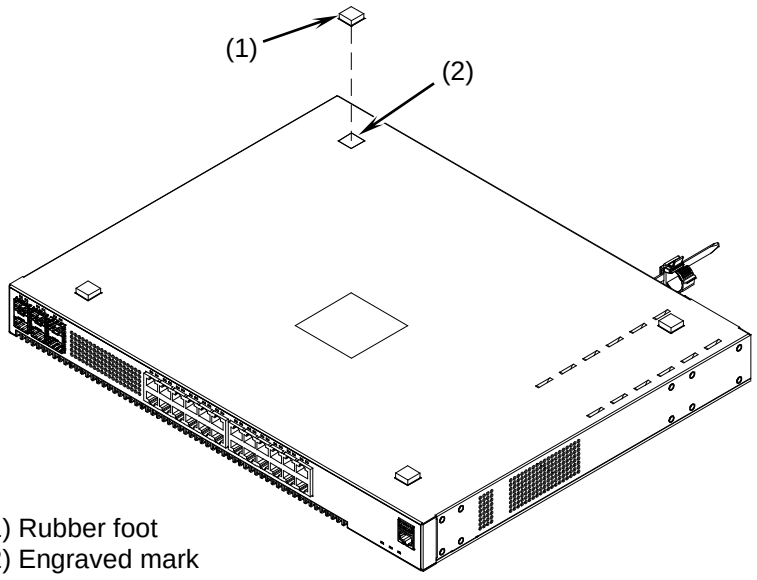
[Step 1]

Place the Switch upside down on a flat surface.

[Step 2]

Attach the rubber feet (4 pieces) to the Switch (attach the rubber feet to fit inside engraved marks on the back of the Switch).

Figure 4-1 Attaching rubber feet



(1) Rubber foot
(2) Engraved mark

NOTE Make sure that there is no dirt on the positions where rubber feet are attached. If it is dirty, wipe it off with a dry cloth before attaching the rubber feet.

[Step 3]

Turn over the Switch into its original orientation and place it on a table.

4.3.2 Installing the Switch on a wall (AX2340S-16T4X)

AX2340S-16T4X can be installed on a steel wall by attaching the magnetic sheet to the Switch.

The front of the Switch can be placed in any direction.

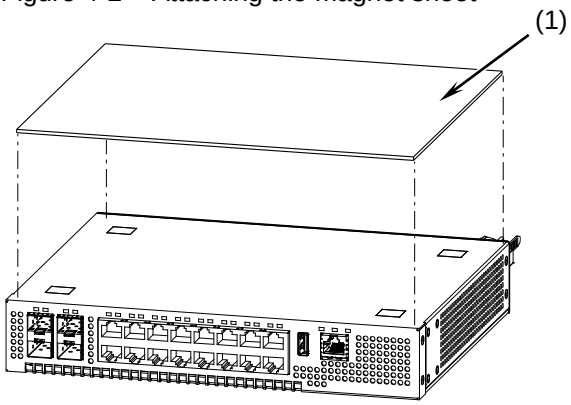
[Step 1]

Place the Switch upside down on a flat surface.

[Step 2]

Attach the magnet sheet to the Switch.

Figure 4-2 Attaching the magnet sheet



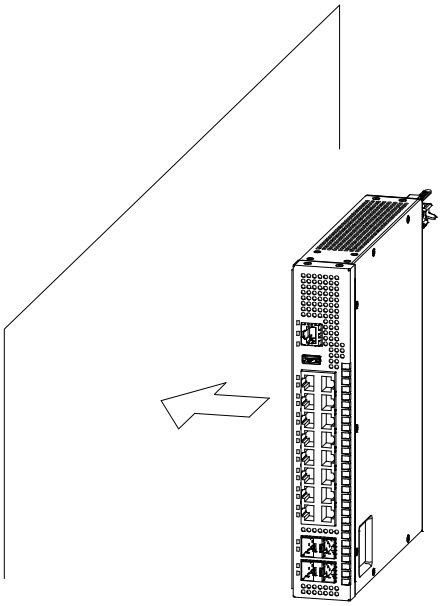
(1) Magnet sheet

NOTE

Make sure that there is no dirt on the back of the Switch. If it is dirty, wipe it off with a dry cloth before attaching the magnetic sheet.

[Step 3]

Install the Switch on a steel wall.



⚠Caution

When installing the Switch on a steel wall, do not install it in a location subject to vibration, shocks, or in an unstable location. If the Switch is installed in such a location, it may fall, resulting in injury as well as damage to the Switch.

⚠Caution

When installing the Switch on a steel wall, do not install it in a high place, on a wall with a tilt angle of 90 degrees or more, on a ceiling, or in a place where people can pass under the Switch. If the Switch is installed in such a location, it may fall, resulting in injury as well as damage to the Switch.

⚠Caution

When installing the Switch on a steel wall, make sure that the weight of the connected cables does not apply load to the Switch. If the weight applies to the Switch, it may fall, resulting in injury as well as damage to the Switch.

⚠Caution

When installing the Switch on a steel wall, be careful not to get your fingers pinched between the Switch and the wall. If fingers get pinched, this may cause injury. It may also cause the Switch to fall over, resulting in injury as well as damage to the Switch.

Notification

Keep magnetic storage media, displays, computers, watches, or other devices away from the magnet sheet. The magnetism of the magnet sheet may damage or erase recorded contents or cause a Switch failure.

NOTE

Attach the magnet sheet to the back of the Switch. Attaching it to the top of the Switch will reduce the cooling capacity inside the Switch and cause malfunction.

4.3.3 Mounting the Switch in a rack

The Switch can be mounted in a 19-inch cabinet rack conforming to EIA standard. Follow the following steps to mount the Switch in a rack.

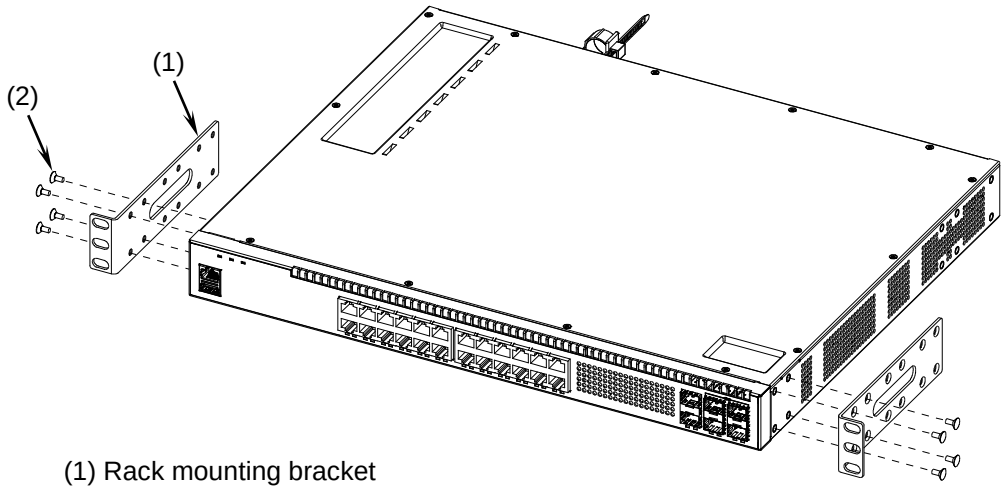
[Step 1]

Attach rack mounting brackets to the Switch.

NOTE

Use the supplied screws to attach the rack mounting brackets to the Switch.

Figure 4-3 Attaching the rack mounting brackets

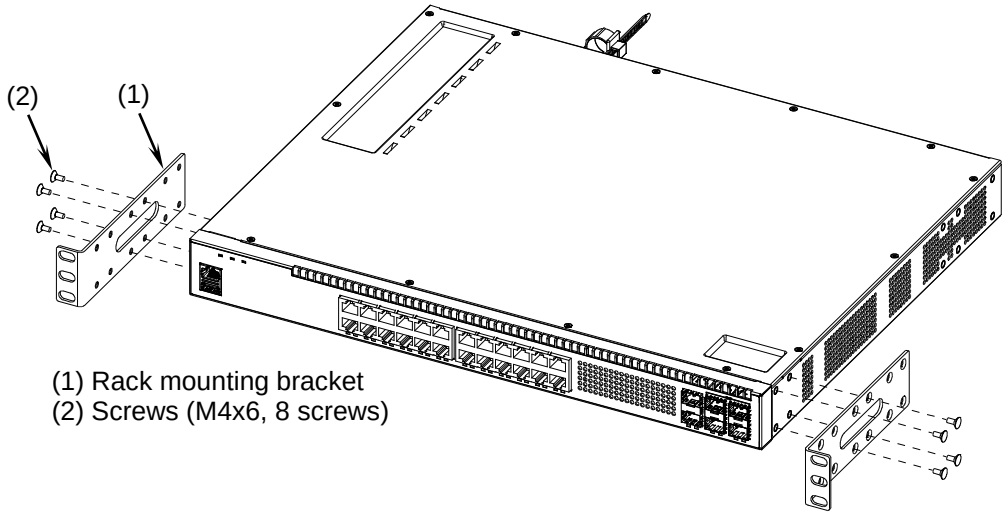


(1) Rack mounting bracket
(2) Screws (M4x6, 8 screws)

NOTE

When mounting the Switch in a rack, if it is not possible to secure a space (for pulling out cables) in front of the Switch, attach the rack mounting brackets to protrude 50 mm from the front side as shown in the figure below. For the space required in front of the Switch (for pulling out cables), see "Table 2-10 Rack conditions".

Figure 4-4 Attaching the rack mounting brackets (when adjusting the front position of the Switch 50 mm deeper)



(1) Rack mounting bracket
(2) Screws (M4x6, 8 screws)

[Step 2]

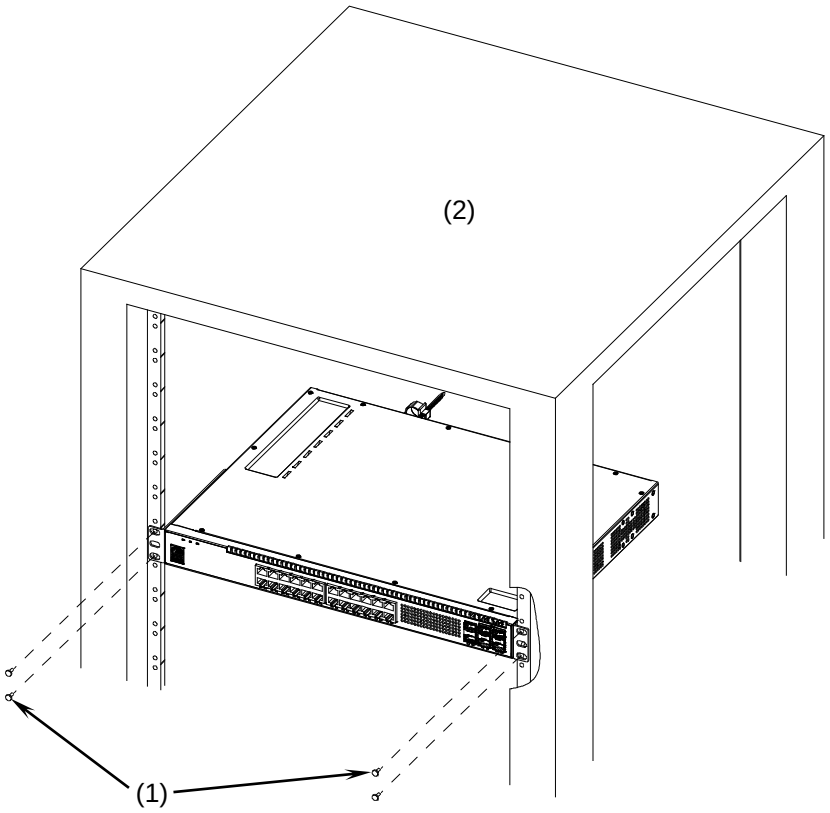
Mount the Switch in a rack.

⚠Caution When mounting the Switch onto a rack, perform the task with at least two people. Lifting the Switch by yourself may cause it to fall over, which could result in injury.

⚠Caution When mounting the Switch in a rack, make sure that the Switch is stable. If the Switch is unstable, it might fall, resulting in injury.

NOTE Use M5 or M6 screws provided with the rack when mounting the Switch in the rack.

Figure 4-5 Mounting the Switch in the rack



(1) Screw (M5 or M6, 4 screws)
(2) 19-inch cabinet rack

4.4 Connecting and disconnecting the power cable.

This section describes steps for connecting/disconnecting the power cable to/from the Switch.

Follow the steps below to connect/disconnect the power cable.

⚠Warning	Use the supplied or a designated power cable. Using another cable could result in fire or electric shock. In addition, do not use our supplied power cable with equipment other than the Switch. Doing so could result in a fire or electric shock.

⚠Warning	Always use a grounded power outlet. Using the Switch without grounding could result in an electric shock as well as failures due to electrical noise.

NOTE	When the Switch is mounted in a rack, fix a cable with a cable holder provided with a rack so that the power connector and clamp are not subjected to a load.

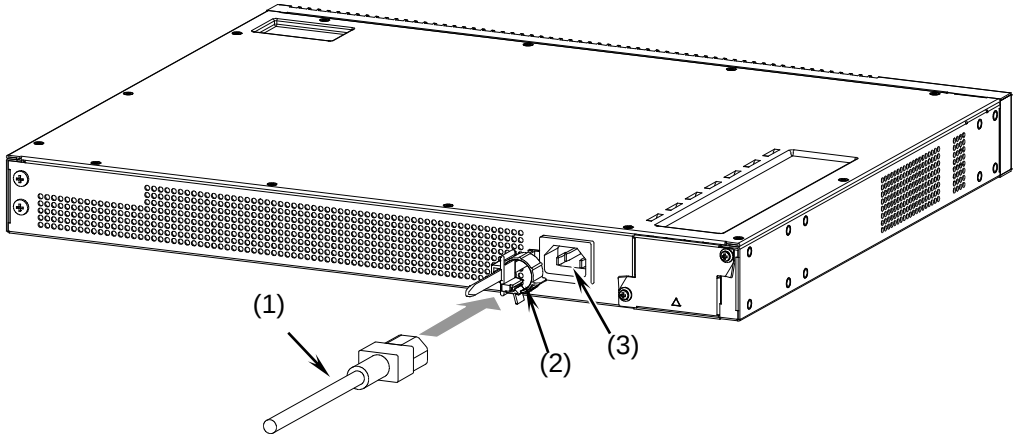
NOTE	When using the separately-sold right-angle type CBL-A05 and CBL-A05R, do not use a cable clamp for the Switch or power supply unit.

(1) How to connect the cable

[Step 1]

Connect the supplied power cable to the AC power connector on the rear of the Switch.

Figure 4-6 Connecting the power cable



(1) Power cable
(2) Cable clamp
(3) AC connector

⚠Warning For AX2340S-24P4X, AX2340S-48P4X, and AX2340S-16P8MP2X, connect the power cable to the Switch with the power supply installed. If the power cable is connected, power is supplied to the power supply. Because of this, if you remove the power supply with the power cable connected, a fire or electric shock could result. Do not remove the power supply.

⚠Warning When using the Switch at 200 V AC, use the power cable that we sell separately or the one with specifications defined by ALAXALA. Using another cable could result in a fire or electric shock.
In addition, do not use our supplied power cable with equipment other than the Switch. Doing so could result in a fire or electric shock.

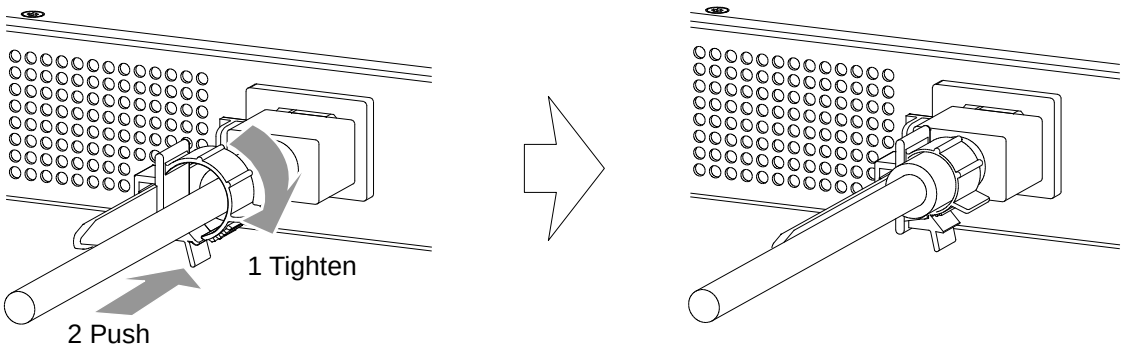
NOTE For the power cable with specifications defined by ALAXALA, see "2.3.2 200 V AC power facility".

NOTE The Switch does not have a power switch. Connecting the power cable starts suppling power to the Switch.

[Step 2]

Clamp the connector of the power cable with the cable clamp.

Figure 4-7 Clamping the power cable



Notification Securely fix the power cable with the supplied cable clamp.

NOTE When using the separately-sold right-angle type CBL-A05 and CBL-A05R, do not use a cable clamp for the Switch or power supply unit.

NOTE The figure above is an example of AX2340S-24T4X. Follow the same steps for other models.

(2) How to disconnect the cable

Remove the cable clamp and disconnect the power cable.

⚠Warning

For AX2340S-24P4X, AX2340S-48P4X, and AX2340S-16P8MP2X, connect the power cable to the Switch with the power supply installed. If the power cable is connected, power is supplied to the power supply. Because of this, if you remove the power supply with the power cable connected, a fire or electric shock could result. Do not remove the power supply.

⚠Caution

Depending on the temperature of the installation environment, the surfaces of the Switch and transceivers may become hot. Do not touch them during operation and just after power-off. Doing so could result in burns.
Before touching the Switch or transceivers, turn off the power and make sure that their surfaces have cooled enough to touch them, or use heat-resistant gloves.

4.5 Inserting and removing the memory card

The memory card can be inserted and removed while the Switch is powered on.

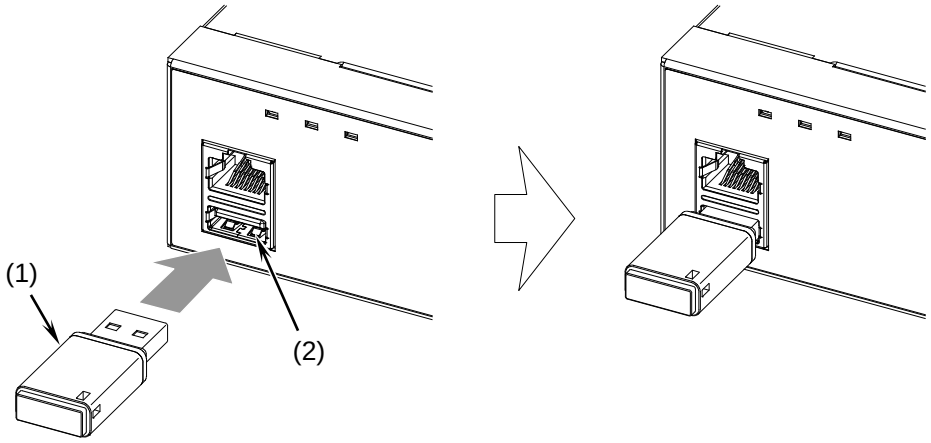
Notification

When moving the Switch, remove USB memory and operation-verified USB extension cables from the Switch. If the USB memory or operation-verified USB extension cables are subjected to excessive force while the Switch is being moved, the USB memory, the operation-verified USB extension cables, or the connector of the memory card slot might be damaged.

(1) How to insert the memory card

Insert the memory card all the way into the memory card slot.

Figure 4-8 Inserting the memory card



(1) Memory card (UM04G)
(2) Memory card slot

Notification

When inserting USB memory or connecting an operation-verified USB extension cable, do not insert or connect it at an angle or push it strongly. Doing so might damage the USB memory, operation-verified USB extension cables, or the connector of the memory card slot.

Notification

When using an operation-verified USB extension cable, do not place USB memory on the Switch. In particular, the fanless models AX2340S-24T4X, AX2340S-24TH4X, and AX2340S-24PH4X radiate heat from the top plate of the Switch, which may cause the USB memory to malfunction due to heat. When the Switch is mounted in a rack, secure an operation-verified USB extension cable with a cable holder provided with the rack.

Notification

Do not use an operation-verified USB extension cable with the AX2340S-16T4X. Since the memory card slot of AX2340S-16T4X is vertical in orientation, the USB memory, operation-verified USB extension cables and the connector of the memory card slot may be damaged.

NOTE

If there is dust in the memory card slot, wipe it off with a dry cloth before inserting the memory card.

NOTE

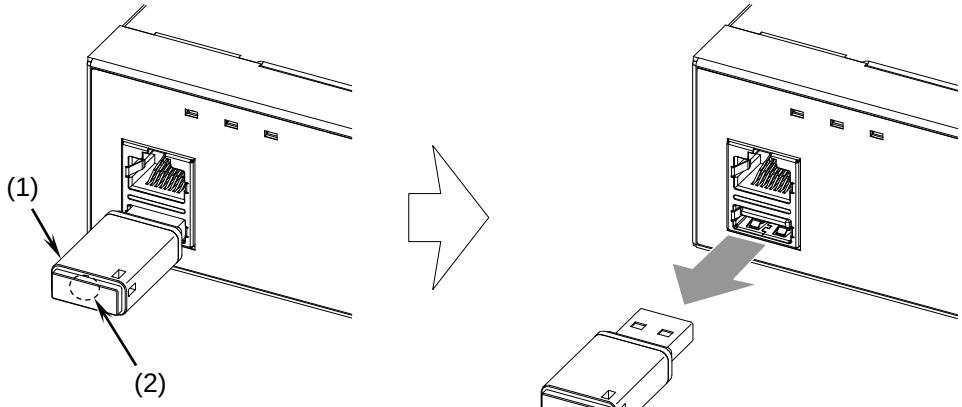
The figure above is an example of our standard USB memory (UM04G). Follow the same steps for operation-verified USB memory and extension cables.

(2) How to remove the memory card

[Step 1]

After confirming that the UM04G LED is off, slowly pull out the memory card straight.

Figure 4-9 Removing UM04G



(1) Memory card (UM04G)
(2) Memory card LED

Notification

When the memory card LED is lit, the memory card is being accessed. When the 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.

Notification

When removing the memory card, slowly pull it out straight. Failure to do so might damage the USB memory, operation-verified USB extension cables, or the connector of the memory card slot.

NOTE

The figure above is an example of our standard USB memory (UM04G). Follow the same steps for operation-verified USB memory and extension cables.

4.6 Connecting and disconnecting the transceiver.

For information on connecting and disconnecting transceivers supported by the Switch, see "ALAXALA Transceiver Hardware Instruction Manual (AX-COM-H001)".

4.7 Connecting an operation terminal

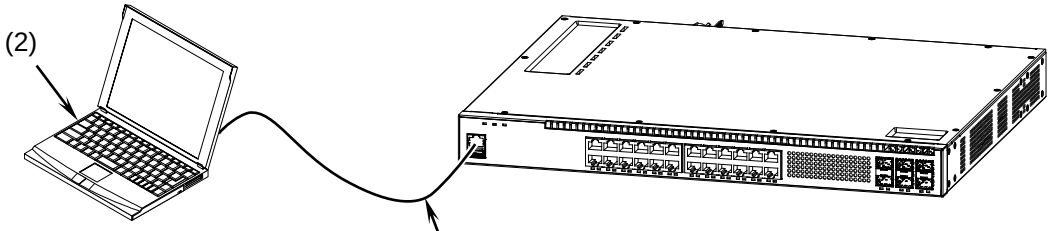
An operation terminal is connected to the Console port of the Switch.

To connect an operation terminal, use an RS-232C crossover cable (RJ-45 (male) - D-Sub 9-pin (female)).

[Step 1]

Insert the connector of an RS-232C cable into the Console port of the Switch until it clicks.

Figure 4-10 Connecting an RS-232C cable



(1) RS-232C cable
(2) Operation terminal

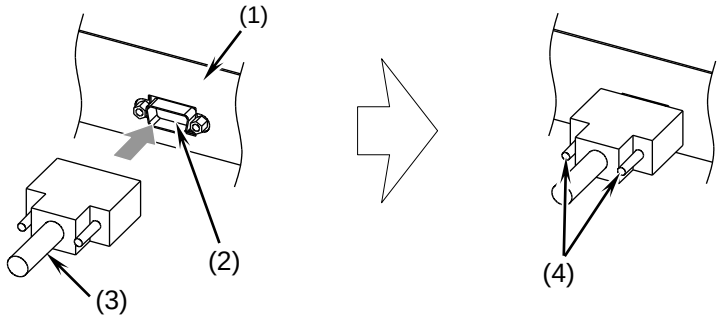
Notification

When connecting the RS-232C cable, make sure that the USB memory and operation-verified USB extension cables are not subjected to a load. Failure to do so might damage the USB memory, operation-verified USB extension cables, or the connector of the memory card slot.

[Step 2]

Connect the RS-232C cable to the operation terminal.

Figure 4-11 Connecting an RS-232C cable



(1) Operation terminal
(2) D-Sub 9-pin connector
(3) RS-232C cable
(4) Screws

NOTE

Connecting the cable and then tighten the screws. Also, make sure that the cable has been secured firmly.

4.8 Connecting an interface cable

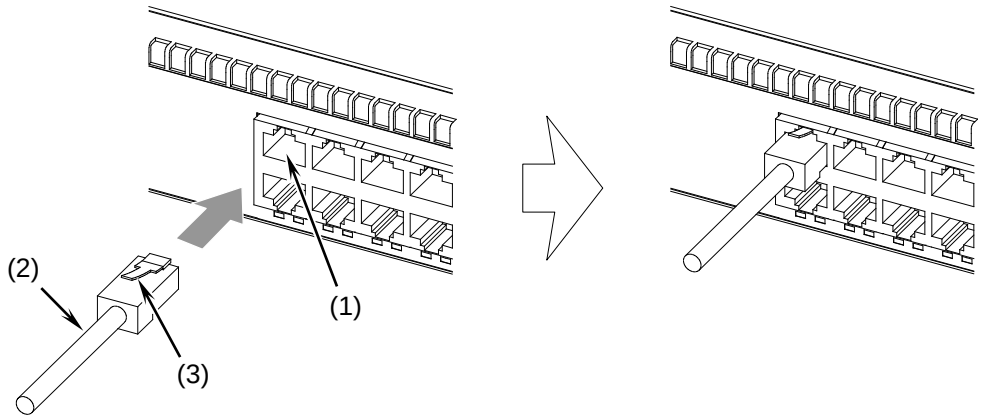
NOTE

For information on connecting and disconnecting interface cables for transceivers, see "ALAXALA Transceiver Hardware Instruction Manual (AX-COM-H001)".

(1) UTP cable

UTP cables can be connected and disconnected while the Switch is powered on. Insert the connector until it clicks.

Figure 4-12 Connecting a UTP cable



(1) 10/100/1000BASE-T port
(2) UTP cable
(3) Claw

Notification

When using a PoE port, if you disconnect and connect a UTP cable within 2 seconds after its previous connection, the power class of a powered device may not be recognized correctly. Also, doing so could cause the powered device to malfunction.
Leave an interval of at least 2 seconds between disconnecting and reconnecting the cable.

NOTE

The figure above is an example of connecting the cable to an Ethernet 10BASE-T/100BASE-TX/1000BASE-T port of the Switch.
Follow the same steps when connecting the cable to a 100BASE-TX/1000BASE-T/2.5GBASE-T port.

NOTE

To disconnect the cable, pull it out while pressing the claw.

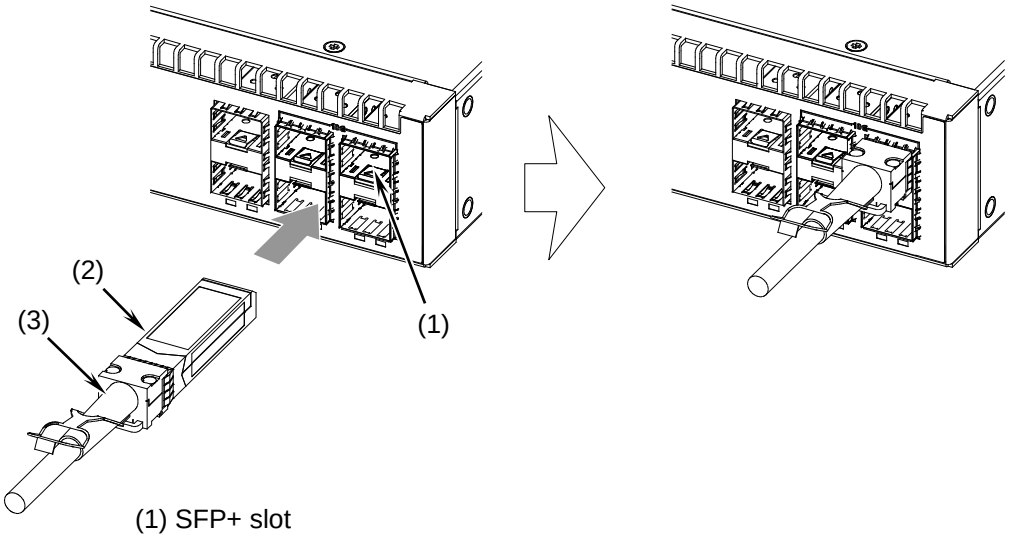
(2) Direct attach cable

Direct attach cables can be connected and disconnected while the Switch is powered on.

[How to connect the cable]

Hold the root of the cable and insert the connector until it clicks.

Figure 4-13 Connecting a direct attach cable



(1) SFP+ slot
(2) Connector
(3) Cable root

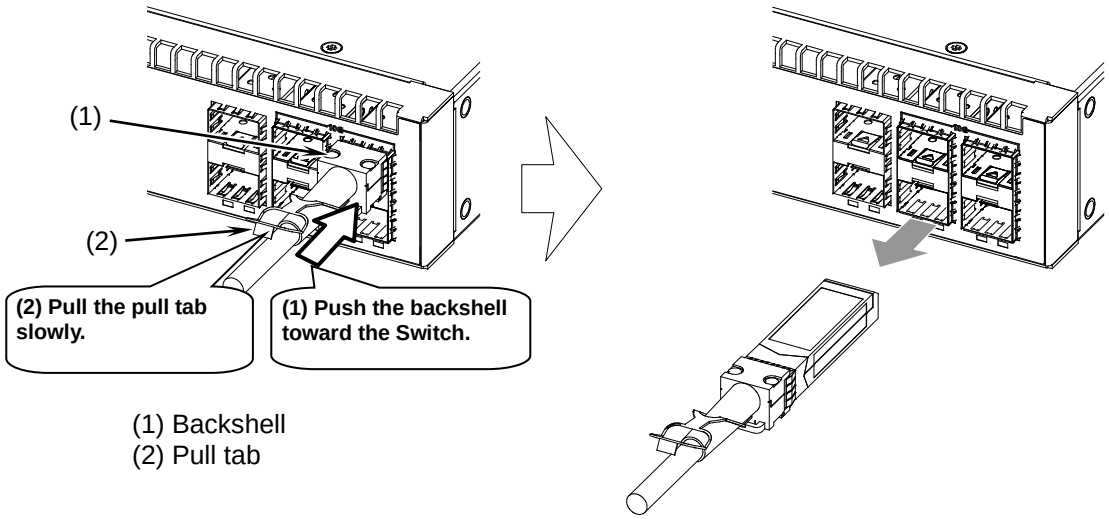
⚠Caution To prevent the cable from bending over time, fix a direct attach cable with a cable holder provided with a rack so that no load is applied to the root of the cable.

NOTE The figure above is an example of connecting the cable to an upper SFP+ slot. When connecting the cable to a lower slot, insert the connector upside down.

[How to disconnect the cable]

When removing the direct attach cable, push and hold the back shell of the direct attach cable horizontally toward the Switch ((1) in the figure below), and pull the pull tab slowly ((2) in the figure below). After the lock is released, pull out the cable.

Figure 4-14 Disconnecting a direct attach cable



(1) Backshell
(2) Pull tab

Notification

When removing the direct attach cable, push and hold the back shell of the direct attach cable horizontally toward the Switch, and pull the pull tab slowly. Forcibly pulling the pull tab may break the pull tab and cause the direct attach cable to malfunction.

4.9 Turning the power on and off

NOTE

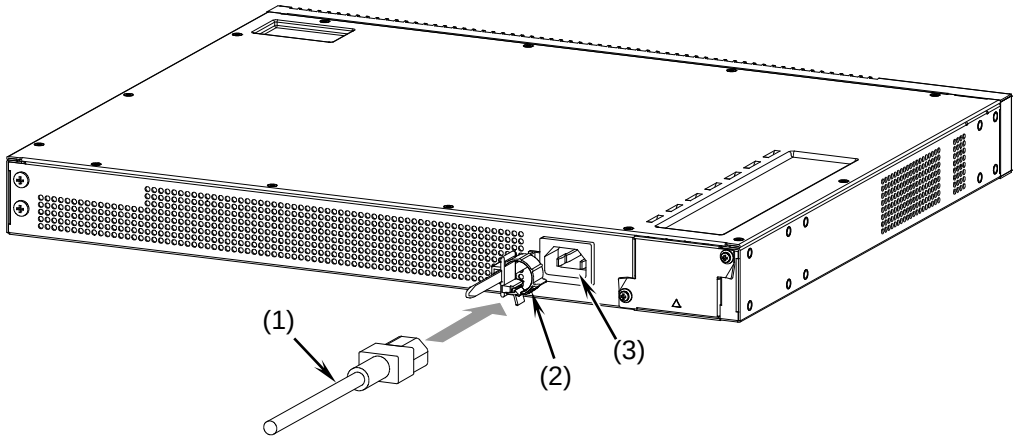
The Switch does not have a power switch. The power is turned on and off as soon as the power cable is connected or disconnected.

(1) Turning the power on

[Step 1]

Connect the power cable to the power connector on the rear of the Switch.
For information on connecting the power cable, see "4.4 Connecting and disconnecting the power cable.".

Figure 4-15 Turning the power on



(1) Power cable
(2) Cable clamp
(3) AC connector

⚠Warning

For AX2340S-24P4X, AX2340S-48P4X, and AX2340S-16P8MP2X, connect the power cable to the Switch with the power supply installed. If the power cable is connected, power is supplied to the power supply. Because of this, if you remove the power supply with the power cable connected, a fire or electric shock could result. Do not remove the power supply.

[Step 2]

Insert the power plug into an outlet.

(2) Turning the power off

Disconnect the power cable from the rear of the Switch.

⚠Warning

For AX2340S-24P4X, AX2340S-48P4X, and AX2340S-16P8MP2X, connect the power cable to the Switch with the power supply installed. If the power cable is connected, power is supplied to the power supply. Because of this, if you remove the power supply with the power cable connected, a fire or electric shock could result. Do not remove the power supply.

⚠Caution

In the following case, do not turn off the power until the ST1 LED changes from blinking green to solid green. Turning off the power could result in a switch fault.

- While the Switch is in a preparatory state (switch is starting up)
- While software is being updated

Notification

When the memory card LED is lit, the memory card is being accessed. When the 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.

NOTE

Leave an interval of at least 15 seconds between turning off and then turning on the power again.

5 Operations Required for Initial Installation

This chapter describes how to set the administrator mode password, add and delete user accounts, and set the time, all of which are required for initial installation.

5.1 Points to be checked before initial installation

The following are the points that you must check before initial installation.

(1) Confirm the progress until the device starts up

The process from turning on the power to starting up the Switch is described below.

- After the power is turned on, the ST1 LED on the front panel of the Switch blinks green, and the startup process begins.
- When the Switch starts up successfully, the ST1 LED lights green.

(2) Remove the memory card and boot up the Switch

The memory card is used in the following cases:

- To use the Switch in MC operation mode.
- To save failure information when failure occurs
- To update software

For information on inserting and removing the memory card, see "4.5 Inserting and removing the memory card".

5.2 Operations Required for Initial Installation

The operations required for initial installation are described below.

5.2.1 Overview of command input modes

The command input mode for the Switch command line interface (CLI) includes user mode, administrator mode, and configuration command mode.

To set and change the configuration or check the status of the Switch, you must enter an appropriate command input mode, and then type a configuration command or operation command.

The features of each command input mode are as follows.

The table below shows commands for mode transition and mode exit for each command input mode.

Table 5-1 Command input modes

Command input mode	Mode transition command	Prompt	Exit command	Description
User mode	login: <User name>	>	> logout	Operation commands can be used, except some commands, for example, the configure command.
Administrator mode	> enable	#	# disable	All operation commands can be used.
Configuration command mode	# configure	(config)#	(config)# exit	All configuration commands can be used.

● User mode

When you log in to the Switch, you are in user mode.

In user mode, operation commands can be used, except some commands.

The configure command, which newly registers or deletes a user account and switches to configuration command mode, cannot be executed in user mode. The command must be executed in administrator mode.

● Administrator mode

When you type the enable command in user mode, you are in administrator mode.

In administrator mode, all operation commands can be used.

During initial installation, no password is set for the enable command. To ensure security, we recommend that you set a password for the enable command and limit the users who can execute the command to enter administrator mode.

● Configuration command mode

When you type the configure command in administrator mode, you are in configuration command mode.

By using configuration commands in configuration command mode, the configuration of the Switch can be set and changed.

NOTE

Each command input mode in which operation commands can be executed is described in the "Software Manual Operation Command Reference".
Each command input mode in which configuration commands can be executed is described in the "Software Manual Configuration Command Reference".

5.2.2 Overview of initial installation operations

This section describes an overview of the operations required during initial installation.

The details of each operation can be found in the following sections.

NOTE

The following are the minimum required operations during initial installation. For subsequent operations, see the manual listed in "5.3 Subsequent operations".

(1) Login

Log in to the Switch. Use the user ID "operator" provided during initial installation. (Since no password is set for "operator", you can log in without authentication.)

(2) Set a password for administrator mode

Set a password to be required when using the enable command to enter administrator mode. During initial installation, the password is not set. To ensure security, set the password for administrator mode.

(3) Add a user account and remove "operator" user account

Add a new user account.
If you do not intend to use the pre-defined "operator" login user account, to prevent any security risk, ALAXALA Networks Corporation recommends that you delete the "operator" user account by executing the rmuser command after you create the new user account.

(4) Set the time

Set the time zone and the time. During initial installation, the correct time is not set. The time is important information for collecting failure information, so set the exact time.

5.2.3 Login

The "login" prompt appears when the Switch has started up. Enter your user ID after the "login" prompt to log in to the Switch.

```
login: operator                                  …Type the user name "operator".
Password:                                        …Press the [Enter] key.
No password is set. Please set password!         …A banner appears.

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```

5.2.4 Set a password for the device administrator

Set a password for the device administrator.

```
> enable                                         …Enter administrator mode.
# password enable-mode                           …Enable password setting for administrator mode.
Changing local password for admin
New password: ********                           …Type a password for administrator mode.
                                                   (The actual characters are not shown).
Retype new password: ********                    …Re-type the password for confirmation.
                                                   (The actual characters are not shown).
#
```

NOTE

We recommend that you use at least 6 characters for a password. If fewer than six characters are entered, an error is displayed. Note, however, that if you re-enter the same password, it will be accepted. Also, the maximum number of characters that can be used for a password is 128. If you enter 129 or more characters, only the first 128 characters are registered for the password. We recommend that you use upper-case alphabetic characters, numbers, and symbols in addition to lower-case alphabetic characters. If a password consists of only lower-case alphabetic characters, an error is displayed. Note, however, that if you re-enter the same password, it will be accepted.

5.2.5 Add a user account and remove "operator" user account

[Step 1] Create a user account and set a login password

Create a new user account and set a login password.
The following example shows how to create a new user name "newuser" and set a login password.

```
# adduser newuser                    …Set a new user name "newuser".
User(empty password) add done. Please setting password.
Changing local password for newuser.
New password: ********                …Set a login password for the user name "newuser".
                                        (The actual characters are not shown).
Retype new password: ********         …Re-type the password for confirmation.
                                        (The actual characters are not shown).
# disable                            …Return to user mode.
> logout                             …Log out of the Switch.
```

NOTE

We recommend that you use at least 6 characters for a password. If fewer than six characters are entered, an error is displayed. Note, however, that if you re-enter the same password, it will be accepted. Also, the maximum number of characters that can be used for a password is 128. If you enter 129 or more characters, only the first 128 characters are registered for the password. We recommend that you use upper-case alphabetic characters, numbers, and symbols in addition to lower-case alphabetic characters. If a password consists of only lower-case alphabetic characters, an error is displayed. Note, however, that if you re-enter the same password, it will be accepted.

[Step 2] Delete the user account "operator"

Delete the user account "operator" provided during initial installation.

```
login: newuser                        …Log in the Switch with the newly created user name "newuser".
Password: ********                    …Type the login password (specified in Step 1).

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> enable                              …Enter administrator mode.
Password: ********                    …Type a password for administrator mode.
# rmuser operator                     …Delete the user name "operator" provided during initial installation.
Delete user 'operator'? (y/n): y
#
```

5.2.6 Set the time

The following example shows the steps for setting the time to "August 6, 2021, 15:30" in Japan time.

# ***configure***	…Switch to configuration command mode.
(config)# ***clock timezone JST +9***	…Set the time zone to JST and the offset from UTC to +9.
!(config)# ***save***	…Save the time zone setting.
(config)# ***exit***	…Return to administrator mode.
# ***set clock 2108061530***	…Enter the date and time (year, month, day, hour, minute), each with 2 digits.
Fri Aug 6 15:30:00 JST 2021	…The set time is displayed.
# ***disable***	…Return to user mode.
> ***logout***	…Log out of the Switch.

NOTE

Once the configuration is changed, a "!" symbol is displayed at the beginning of the prompt. When the configuration is saved, the "!" symbol disappears.

You have completed the required settings of the time, administrator mode password, user account addition and deletion during initial installation.

NOTE

For operation management and configuration settings after performing the above operations, see the manual listed in "5.3 Subsequent operations".

5.3 Subsequent operations

(1) Operation management and configuration setting

For details on operation management and configuration setting, see the following manuals. (The number in parentheses indicates the manual number.)

- Manuals to be referenced during operation management and configuration setting
  - Software Manual Configuration Guide Vol. 1 (AX23S-S001)
  - Software Manual Configuration Guide Vol. 2 (AX23S-S002)

- Manuals to be referenced for details of configuration commands
  - Software Manual Configuration Command Reference (AX23S-S003)

- Manuals to be referenced for details of operation commands
  - Software Manual Operation Command Reference (AX23S-S004)

NOTE

After setting the configuration, back up the operating information. If you make a backup, you can easily restore the operating information after replacing the Switch due to a failure.
For information on backup, see "Software Manual Configuration Guide Vol. 1".

(2) System linkage test

Test whether the set configuration is correct before actually operating the system.

(3) Troubleshooting

For troubleshooting when any problem occurs, see the following manual.

- Troubleshooting Guide (AX23S-T001)

Appendix

Appendix 5-1 Cleaning the optical connector

For information on cleaning optical connectors, see "ALAXALA Transceiver Hardware Instruction Manual (AX-COM-H001)".

Appendix 5-2 Physical specifications for the network Interface

For physical specifications for the network interface of transceivers supported by the Switch, see "ALAXALA Transceiver Hardware Instruction Manual (AX-COM-H001)".