ALAXALA AX3660S

Hardware Instruction Manual

AX36S-H002-90

Reading and storing this manual:

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

AlaxalA

■ Relevant products

This manual applies to the models in AX3660S series.

■ Export Restrictions

Before exporting the product, confirm all relevant restrictions, such as the Foreign Exchange and Foreign Trade Law of Japan, and the export control laws and regulations of the United States, and carry out all required procedures. If you require more information, please contact your ALAXALA sales representative.

■ Trademarks

Ethernet is a registered trademark of FUJIFILM Business Innovation Corp.
Other product and company names mentioned in this document are the trademarks of their respective owners.

■ Please carefully read this manual and store it.

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

■ Notes

The information in this manual is subject to change without notice.

■ Notice

Note that the Company is unable to take responsibility for use of the product in a manner inconsistent with the information presented in the manual.

■ Radio Interference

Applicable products:

AX3660S-24T4X

AX3660S-24T4XW

AX3660S-48T4XW

AX3660S-48XT4QW

AX3660S-24X4QW

AX3660S-48X4QW

This is a Class A product. In a domestic environment, this product might cause radio interference, in which case the user may be required to take adequate measures.

VCCI-A

Applicable products:

AX3660S-16S4XW

AX3660S-24S8XW

This is a Class A product. In a domestic environment, this product might cause radio interference, in which case the user may be required to take adequate measures.

VCCI-A

■ Harmonic regulations

Products to which the harmonic current emissions standard JIS C 61000-3-2 applies

Applicable products:

AX3660S-24T4X

AX3660S-24T4XW

AX3660S-48T4XW

AX3660S-16S4XW

AX3660S-24S8XW

AX3660S-48XT4QW

AX3660S-24X4QW

AX3660S-48X4QW

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■ Copyright

Preface

■ About this Manual

This manual describes the hardware instructions for ALAXALA compact gigabit Layer 3 switches AX3660S series. Before you operate the equipment, read this manual carefully and make sure that you understand all instructions and cautionary notes. After reading the manual, keep it in a convenient place for easy reference.

■ Intended readers

This manual is intended for engineers who install and handle AX3660S series. It is therefore assumed that they are familiar with electrical circuits, wiring and networks.

■ Structure of manual

Safety Information

This guide provides important information for safely handling the Unit. Make sure that you read this guide before using the Unit.

Chapter 1 Components Overview

An overview of the components of the Unit is provided.

Chapter 2 Preparing for Setup

This chapter describes environmental conditions and required preparation for installation of the Unit.

Chapter 3 Getting the Interface Cable and Terminal Ready

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

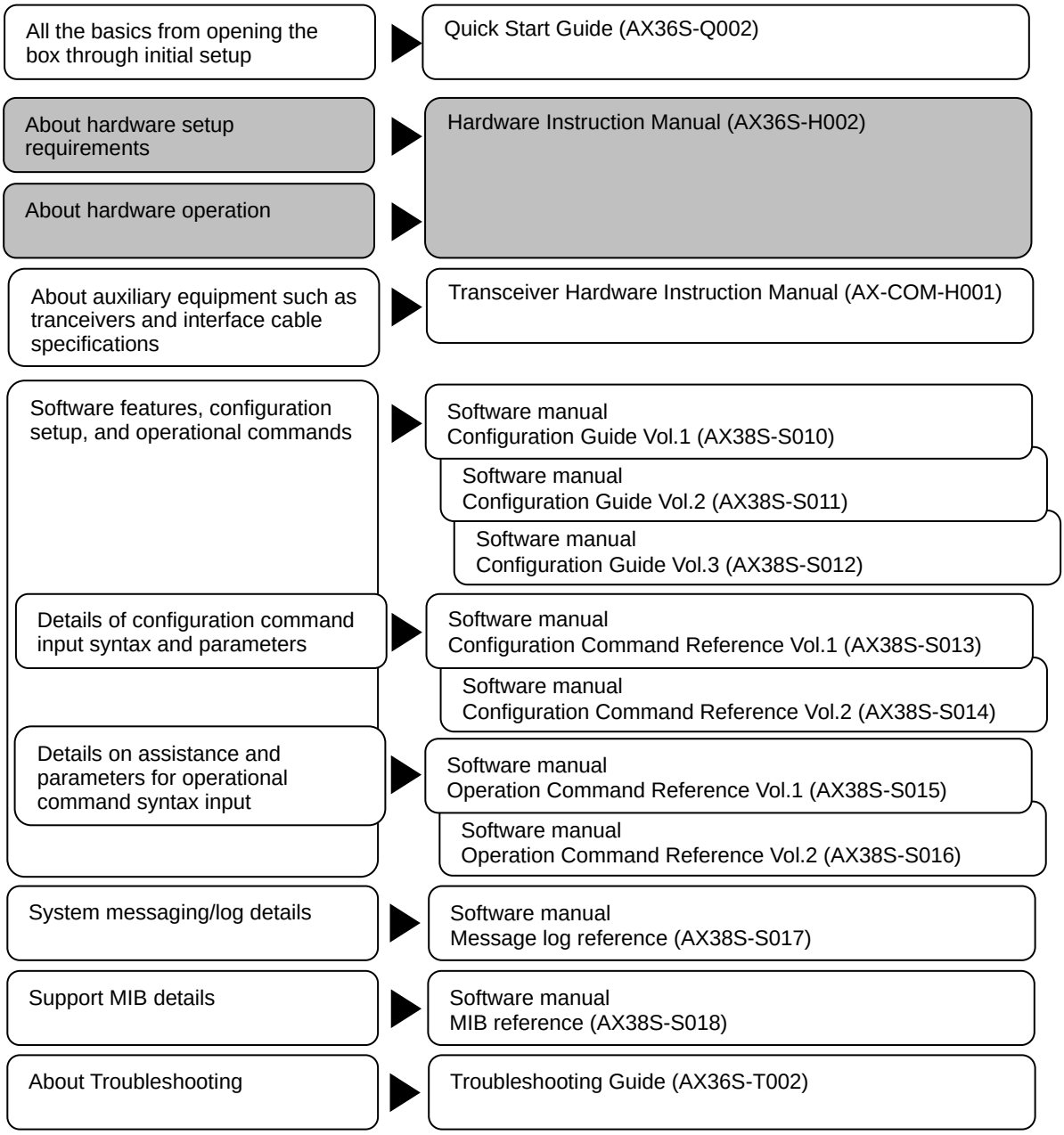
Chapter 4 Equipment Setup

The procedures followed to install the Unit are described.

Chapter 5 Adding and Replacing Options

This chapter offers an overview of how to install and disconnect fan units and power equipment.

■ Find description from the AX3660S series manuals



■ How to obtain this manual

For AX3660S series manuals, see the following Preface website:
https://www.alaxala.com/

■ Acronyms

AWG	American Wire Gauge
DSF	Dispersion Shifted Fiber
EIA	Electronic Industries Alliance
FG	Frame Ground
G	Ground
IEEE	Institute of Electrical and Electronics Engineers, Inc.
ISO	International Organization for Standardization
JIS	Japanese Industrial Standards
LAN	Local Area Network
LED	Light Emitting Diode
MDI	Medium Dependent Interface
MDI-X	Medium Dependent Interface crossover
NEMA	National Electrical Manufacturers Association
OMA	Optical Modulation Amplitude
PoE	Power over Ethernet
PS	Power Supply
QSFP+	Quad Small Form factor Pluggable Plus
QSFP28	28Gbps Quad Small Form factor Pluggable
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
URL	Uniform Resource Locator
UTP	Unshielded Twisted Pair

Safety Information

Warnings concerning safety are indicated in the headlines. Specifically, this means symbols used for safety precautions, together with the words “Warning,” “Caution,” or “Notice.”

⚠	These are special characters used for Warnings regarding safety. They are chosen to warn of latent dangers that can cause harm to people. Pay attention to any messages following these symbols in order to avoid potential injury or death.
⚠ WARNING	Ignoring instructions preceded by this indication and using the Unit incorrectly could result in death or serious injury to yourself and others.
⚠ CAUTION	Ignoring instructions preceded by this indication and using the Unit incorrectly could result in serious injury to yourself and others.
NOTICE	Ignoring instructions preceded by this indication and using the Unit incorrectly could result in serious damage to the Unit or nearby property.
NOTE	Information preceded by this indication is supplementary information that, if ignored, will not result in physical injury or serious damage to the Unit.

【Example of Notation 1】Caution: Risk of Electric Shock

△ indicates the need for caution. You will see an illustration inside the triangle, such as “Caution: Electric Shock.”

【Example of Notation 2】Do Not Disassemble

⃠ indicates an action that should be avoided. You will see an illustration inside the circle, such as “Do Not Disassemble.”
If there is no illustration inside the circle, it indicates generally prohibited actions.

【Example of Notation 3】Unplug the plug from the socket.

● indicates recommended actions. You will see an illustration noting a requirement, such as “Unplug the Plug from the Socket.” In general, the black circle indicates actions the user should take.

Universal Precautions on safety

Read the following safety information carefully to ensure that you understand it fully.

- Keep this manual handy after reading it, so that it is available for later reference.
- Operate the Unit according to the instructions and procedures provided in this manual.
- Heed all warnings and cautions for the Unit in this guide.
  Failure to do so could result in injury or damage to the Unit.

Unauthorized operations

Do not attempt to perform any operations that are not described in this guide.
In the event of a Unit problem, turn off the power, unplug the power cable, and contact maintenance personnel.

Using common sense

The warnings and cautions provided on the Unit and in this guide have been selected after careful consideration. Nevertheless, there is always the possibility of the unexpected occurring. Therefore, while using Unit, stay alert and use common sense in addition to all following instructions.

⚠ WARNING

■ **If anything seems wrong, immediately turn off the power.**

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

- For Units with AC non-detached power cords or embedded with AC power cords, unplug all power cables.
- For Units embedded with DC electric power sources, turn off all circuit board breakers powering the Unit.

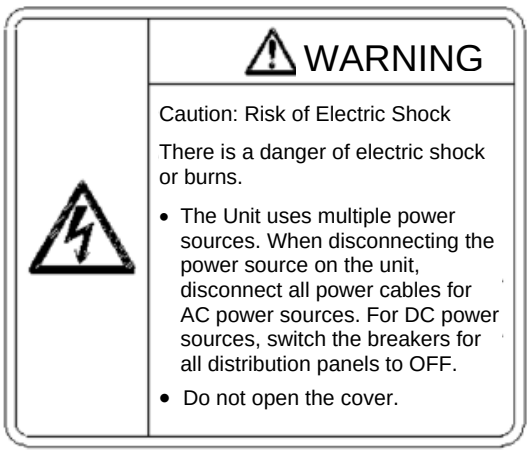
■ **Do not allow any foreign objects to get into the Unit.**

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

■ **If you wish to turn off the power source of the Unit, cut all power.**

The Unit is supplied by multiple input power sources. Disconnect the power source as follows. The following labels are affixed to the Unit.

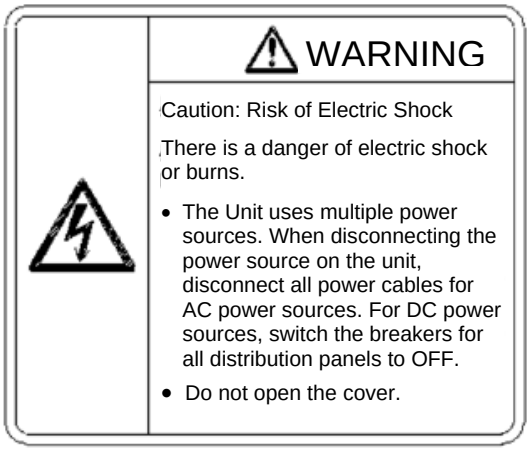
- For Units with AC non-detached power cords or embedded with AC power cords, unplug all power cables.
- For Units embedded with DC electric power sources, turn off all circuit board breakers powering the Unit.



⚠ WARNING

■ **Remove the cover from the Unit.**

Do not remove the cover from the Unit as this can cause electric shock. The following labels are attached to the device.



■ **Do not allow any foreign objects to get into the Unit.**

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

■ **Do not attempt to repair, alter, or disassemble the Unit.**

Do not attempt to repair, alter, or disassemble the Unit, as these actions may cause electric shock, fire, or burns. Note that the internal components of the power source have multiple high-voltage parts, which in rare cases may be dangerous if touched.

■ **Avoid impact on the Unit.**

Avoid significant impact on the Unit, such as dropping or hitting it. In the event that the Unit is dropped and internal parts damaged, disconnect Unit power sources and call a maintenance person. Using a damaged unit could result in fire or electric shock.

- For Units with AC non-detached power cords or embedded with AC power cords, unplug all power cables.
- For Units embedded with DC electric power sources, turn off all distribution board breakers powering the Unit.

⚠ WARNING

■ **Do not place anything on the Unit.**

Do not place any metallic object such as a small pin or a paper clip, or any container with a liquid such as a vase or a flower pot, on the Unit. Liquid or metallic objects falling into the Unit could result in a fire or electric shock.

Do not place optional devices or objects on the Unit. They may slip and cause injury. Also, it may cause the device to malfunction, by the weight of the object placed on it.

■ **Use the Unit only with the indicated power supply setting.**

Do not use the Unit at any voltage other than the indicated voltage. Doing so could result in a fire or electric shock.

In addition, make sure the power outlet is compatible with your voltage and power cords. Note that using other outlets carries a risk of electric shock.

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

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

■ **Ground the Unit.**

- When using an AC (PoE) model, redundant power model (with an AC power supply module installed), and an EPU, use only a grounded power outlet. Failure to do so might not only result in electric shock, but it might also introduce unwanted electrical noise that could cause a Unit failure.
- When using a DC model and a redundant power model (with a DC power supply module installed), connect a ground cable to ground the Unit. Failure to do so might not only result in electric shock, but it might also introduce unwanted electrical noise that could cause a Unit failure.

■ **For DC electric power equipment, use upstream and downstream-insulated items.**

With DC power sources, use upstream and downstream-insulated items that carry no risk of electric shock. Uninsulated electric power equipment may carry the risk of electric shock.

■ **Mounting and removing the DC power cable must be done by a trained technician or maintenance personnel.**

Mounting and removing the DC power cable must be done by a trained technician or maintenance personnel. Terminal connections are required for connection of the DC power cable to the power facility. For this reason, incorrect handling of the DC power cable could result in fire or electric shock.

⚠ WARNING

■ **Make sure the power supply circuit breaker is set to OFF before connecting or disconnecting a −48 V DC power cable.**

Make sure the power supply circuit breaker is set to OFF before connecting or disconnecting a −48 V DC power cable. Connecting or disconnecting the cable with the circuit breaker set to ON could result in a fire or electric shock.

■ **Observe the specified stripping length of the sheath for the power cable.**

Do not use the Unit indoors. For all interface cables, connect with indoor wiring. To connect with outdoor-wired cables, ensure protection against lightning and install accordingly.

■ **Do not use the Unit indoors.**

Do not use the Unit indoors. For all interface cables, connect with indoor wiring. To connect with outdoor-wired cables, ensure protection against lightning and install accordingly.

■ **Handle power cables carefully.**

● Use the specified electric power cable. Note the following points of caution. Mishandling may cause exposure of copper wires in electric power cords, or overheating caused by shorts or intermittent disconnection, which can result in electric shock or fire.

- Do not place items on top of the Unit
- Do not pull
- Do not push
- Do not bend
- Do not twist
- Do not alter
- Do no use near heated appliances
- Do not heat
- Do not bundle up
- Do not fix in place with staples or otherwise
- Do not use if either the plug or cord is damaged
- Do not expose to UV rays or intense sunlight for long periods
- Do not expose to alkaline substances, acids, oils, or humidity
- Do not use in a high-temperature environment
- Do not use at higher than the specified rating
- Do not use with other devices
- Always grasp the power plug when you plug or unplug the unit
- Do not touch the power plug with wet hands

● Doing so could damage the cable, resulting in a fire or electric shock. 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.

● To ensure that you can unplug power cords at any time, remove any items from around the plug.

⚠ WARNING

■ **Be cautious with regard to poor connection of power plugs or tracking.**

Take the following steps to avoid overheating due to tracking or poor connection, which can cause fire.

- Push the plug all the way into the outlet.
- Check that no dust or water droplets have accumulated around the power plug, and push it in. If there are any drops or dust, wipe down the surface with a dry cloth, and plug in.
- Make sure that the outlet is not loose when the unit is plugged in.
- Any work on outlets should be done only by a qualified technician.

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

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

■ **Do not use the power cable with any other device.**

The power cable that comes with the Unit is a dedicated cable exclusively for use with the Unit. As such it cannot be used with other devices. Use either the cable that comes with the unit or an item sold by our company. Using other equipment may cause fire or electric shock.

Do not use the power cable with devices other than the Unit. Doing so is extremely dangerous and may result in fire or electric shock.

■ **Any additions or replacements must be performed by a trained technician.**

Addition of optional equipment, or replacement of said equipment, must be done by a trained technician or maintenance personnel.
Replacement of electric power sources requires installation and disconnection of power cables. Untrained personnel may make mistakes that could result in fire, electric shock, or Unit malfunction. Mishandling of optional equipment could also result in injury or malfunction of the Unit.

■ **When using the RESET (RST) switch, avoid inserting any small items that can bend easily, as well as pins, clips, etc., which could potentially slip inside and be difficult to remove.**

When using the RESET (RST) switch, avoid inserting any small items that can bend easily, as well as pins, clips, etc., which could potentially slip inside and be difficult to remove. Inserting these items in the switch could cause fire or electric shock.

■ **Remove the power cable when installing or removing a power supply unit.**

When installing or removing a power supply unit, remove the power cable from the power supply unit. If the power cable is connected and the power switch is turned off, power is still supplied to some circuits. Because of this, if you install or remove a power supply unit with the power cable connected, a fire or electric shock could result.

⚠ WARNING

■ Do not use an air duster near a flame.

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

■ **Storing plastic bags for packing purposes**

Keep plastic bags used for storing the Unit out of reach of small children. A child may suffocate if bags are placed over the head.

⚠ WARNING

■ **Do not install the Unit in a dusty or humid location.**

Do not install the Unit in a dusty or humid location. Doing so could result in fire or electric shock.

■ **Do not block the ventilation slots.**

Do not cover the ventilation slots of the Unit. Doing so causes heat to accumulate inside the Unit and could result in a fire. Leave at least 50 mm of space in front of ventilation slots.
In addition, in order to ensure that dust does not enter into inlet/outlet holes, check and clean them regularly.

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

Because cooling fan units are mounted in the Unit, do not allow anything near the ventilation slot. Doing so causes heat to accumulate inside the Unit and could cause a failure. Do not allow hair or other objects near the ventilation slots because they might be sucked into the Unit, resulting in injury.

■ **Do not place the Unit in a place where it is unstable.**

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

■ **Do not situate the unit vertically or stand it up against a wall.**

Where the Unit is set up on a table, it should be utilized horizontally. If placed vertically or against a wall, it may topple and potentially cause injury or malfunction of the Unit.

■ **Do not stack Units.**

Do not stack the Unit as it may break. In addition, the Unit may topple if unbalanced, potentially causing injury.

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

Do not step on the Unit, lean against it, or place anything on it. Doing so might damage the Unit. Furthermore, the Unit might fall or lose its balance, resulting in injury.

⚠CAUTION

■ **When moving the Unit, do not hold the handle of the power supply unit, fan unit, or power supply module.**

When moving an EPU, do not hold the handle of the power supply module. The handle might come off, resulting in the Unit falling and possibly causing injury. In addition, the module might become damaged, resulting in a fire or electric shock.

■ **When moving the Unit, you must all cables.**

Before moving the Unit, you must turn it off and unplug all cables. Failure to do so might cause the Unit or cable to become damaged, resulting in a fire or electric shock.

■ **Do not drop optional equipment.**

- Properly handle optional equipment so that it will not be dropped. Dropping the equipment could result in injury.
- When removing optional equipment from the Unit, securely hold the handle of said equipment. If you are not careful when you pull the equipment out, you may drop it, potentially resulting in injury.

■ **When replacing the fan unit with the power on, observe the conditions of the environment and time limits noted below.**

To replace the fan unit with the Unit powered on, do so in an environment of 40°C inlet air temperature or cooler, and stay within a time frame of one minute or less to complete the process. Replacing the fan unit in an environment of 40°C or higher temperature, or if the time frame of one minute is exceeded, causes increased internal temperatures, which can cause the Unit to malfunction.

■ **Do not touch the inside of the Unit with your hands.**

Do not carelessly put your hands inside the Unit. The frame and components might cause injury. The internal parts may become excessively hot, also potentially causing injury.

■ **If you move to a location where there is a difference in ambient temperature, do not use the Unit immediately.**

If there is a significant discrepancy in temperature between the different places the Unit is used, there is a possibility of condensation on the surface or internal components. If the Unit is used with condensation present, there is a risk of fire or electric school. Wait a few hours before using the Unit. Instead of powering on the device immediately, let it sit for a few hours in the location where it will be used. Once the ambient temperature and the Unit internal temperature have stabilized to about the same temperature, the Unit can be safety used.

⚠ CAUTION

■ **Do not touch the SFP-T, SFPP-ZR, or QSFP28 units when they are in motion, or immediately after they have been powered down.**

The ambient temperature during operation of SFP-T, SFPP-ZR, or QSFP28 models could should be no higher than 65°C Do not touch the Unit while it is operating or immediately after it stops. This could cause burns.

Observe the following to disconnect the SFP-T, SFPP-ZR, or QSFP28 models. Failure to do so could result in burns.

- If you unplug the power on your device with the Unit plugged in, first implement the "Inactivate" command and wait five minutes.
- To cut power to the device and disconnect it, wait five minutes after disconnecting to use it.

The SFP-T, SFPP-ZR, and QSFP28 models are affixed with labels showing the following notations.

■ **Do not use the SFPP-ZR or QSFP28-4WDM-40 in an environment of 40°C or hotter. Doing say could subject the unit to malfunction.**

Using the system temperature-warning-level command, you can generate an operational message when the inlet air temperature rises above a certain level. For command details, see the Configuration Command Reference.

■ **Do not use the PS-D06 model for long periods of time at temperatures of 45°C or higher.**

Using the system temperature-warning-level command, you can generate an operational message when the inlet air temperature rises above a certain level. For command details, see the Configuration Command Reference.

⚠CAUTION

■ **Avoid Laser Lights**

The Unit is a Class 1M laser product. The SFP, SFP+, QSFP+, and QSFP28 models have laser device internal components that emit laser light. Do not disassemble or alter these products. Also, avoid looking at the internal components or through the optical equipment. Laser light can damage eyesight or cause blindness (in some cases laser light cannot be observed with the naked eye).

■ **Do not use the unit for other than its intended purpose.**

Do not use the Unit or optional equipment for anything else but as a switch, including as a stool or as bookends. The Unit may topple or break, resulting in injury or malfunction.

■ **Individuals with metal allergies should not touch the Unit directly.**

The Unit is coated with zinc, nickel. Gold, etc. Individuals allergic to these metals should not touch the equipment directly. Touching the equipment may lead to eczema, rash, etc.

■ **Cleaning**

The Unit is coated with zinc, nickel. Gold, etc. Individuals allergic to these metals should not touch the equipment directly. Touching the equipment may lead to eczema, rash, etc.

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

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

■ **If the T1 LED light is blinking green (on 0.5 second, off 0.5 seconds), do not disconnect the Unit power source.**

In the following instances, do not disconnect the power if the front panel of the ST1 LED unit is flashing green (flashing for 0.5 seconds, off for 0.5 seconds) until it is solid green. Disconnecting when the light is flashing could cause malfunction.

・Software updating

NOTICE

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

When the ACC LED on the front panel of the Unit is lit, the memory card is being accessed. When a memory card is being accessed, do not remove the memory card or turn off the power. Doing so might damage the memory card.
In addition, some commands require a certain amount of time after being entered to finish accessing the card. Make sure that the memory card is no longer being accessed before removing the card or turning off the power.

■ **Handle memory cards and dummy memory cards carefully.**

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

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

A label attached to the transceiver or direct attach cable connector indicates that the transceiver or direct attach cable connector is a standard product from ALAXALA or another manufacturer. However, such labels are attached where they do not interfere with heat dissipation from the transceiver or from the direct attach cable connector or interfere with the mechanism that prevents the transceiver or the direct attach cable connector from coming loose from the cage.
Attaching a label to a location that interferes with these functions could cause a malfunction in the transceiver or a direct attach cable connector, or cause damage to the Unit.

■ **Do not touch the connecting terminal.**

Do not touch the connecting port, such as connector cords, with your hand or with any metal. Do not induce a short by inserting foreign objects such as needles into the Unit. This may result in smoke or poor electrical contact.

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

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

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

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

NOTICE

■ **Install a blank panel when disconnecting the electric power source**

Install a blank panel where there is no embedded power source slot. Using the unit without a blank panel may block air flow inside the Unit. Blocked air flow can cause the internal temperature of the Unit to rise. Also, interference generated by the Unit may impact other devices, while at the same time interference generated by other devices may impact the Unit, which can cause misoperation.

■ **When carrying and packing optional modules, handle them carefully.**

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

■ **When carrying and packing optional modules, handle them carefully.**

- Lay the wiring so that people do not trip over wires or pull on them. Tripping over wires or pulling on them can cause injury or malfunction of the connectivity device.
- Do not place heavy objects on top of the cable. In addition, do not place wiring nearby hot equipment. This could case cables to break, as well as malfunction of connected equipment.

■ **Do not pull hard on pull tabs of directly-attached cables.**

To remove a directly-attached cable, press the directly-attached cable back shell toward the Unit horizontally with your fingers. Pull on the pull tab as you slowly add pressure. Do not pull excessively hard. If you do, you may pull off the tab and damage the directly-attached cable.

■ **Do not pull hard on the SFP or SFP+ levers.**

If you are having trouble disconnecting the SPF or SFP+, lower the lever, press on the Unit in the direction of the transceiver, and check that the transceiver cannot be uninstalled. Pulling on the lever with excessive force can cause transceiver malfunction.

■ **Do not pull hard on the QSFP+ or QSFP28 lever or pull tab.**

If you are having trouble disconnecting the QSFP+ and QSF28, press on the transceiver un the direction of the Unit, slowly adding pressure as you do so, and pull the lever or pull tab. Pulling too hard on the lever or pull tag could result in damage to the transceiver such as malfunction of the lever or pull tag.

■ **Do not install or disconnect the transceiver more often than necessary.**

Do not install or disconnect the transceiver more often than necessary, as this nay shorten the life of the product.

NOTICE

■ **Do not bring the Unit close to strong magnetism.**

Do not place the Unit near items emitting strong magnetism such as magnets, speakers, etc. This may cause malfunction.

■ **Do not use a TV or a radio near the Unit.**

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

- Place the Unit as far away as possible from the TV or radio.
- Adjust the orientation of the TV or radio antenna.
- Use separate outlets.

■ **Do not place the Unit where it may be exposed to hydrogen sulfide or salts.**

The life of the Unit may by compromised if it is utilized in a location where hydrogen sulfide is emitted, such as a hot spring area, or where there are significant salts, such as by the ocean.

■ **To use the Unit with smoky liquid, be sure to protect it.**

When using the Unit near hazy pesticide, first wrap it well in a vinyl sheet or similar. Such substances can cause Unit malfunction if they get inside. Disconnect the Unit at this time.

■ **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.
- Before cleaning, make sure that the tip of the optical connector cleaner is clean and free of defects, such as lint, dirt, or other foreign substances. Using a cleaner with a defective tip might damage the ferrule tip.

■ **Transporting the Unit**

When transporting the Unit, always be sure to package it first. In addition, when packaging the unit pay attention to which way the top and bottom are facing. If you fail to package the unit or transport it upside down, it may cause malfunction.

NOTICE

■ Maintenance

Clean any dirty areas on the exterior of the Unit 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 Unit.

■ If the Unit will not be used for a long time

For safety reasons, unplug the power cable from the outlet if the Unit will not be used for a long time.

- For devices embedded with AC electric power sources, unplug all power cables from plugs.
- If you are using a DC power supply, turn off the circuit breaker at the supply of power.

■ Disposing of the Unit

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

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1 Equipment Overview

This Chapter provides an overview of the pieces of equipment comprising the Unit.

1.1 Main Unit

1.2 Power System (PS)

1.3 Fan Units (FAN)

1.4 Memory Cards (MC)

1.5 Tranceiver

1.6 Directly-Attached Cables

1.7 Power Cables

1.1 Main Unit

The AX3660S Series offers three levels of gigabit switches optimal for a wide variety of scenarios. These include network switches for large-scale facilities—developed to achieve guaranteed networks—which bring the reliability and performance of basic router switches to a compact format; network core switches for small and medium-sized facilities; customer edge switches; server-accommodating switches, and more.

The AX3660S is comprised of the following models:

Table 1-1 AX3660S Series Model List

No.	Model	Model	LAN Interface					
			10BASE-T /100BASE-TX /1000BASE-T Port	100BASE-TX /1000BASE-T /10GBASE-T Port	SFP Slot (1G)	SFP+ Slot (1G/10G)	QSFP+ Slot (Stackable only) (40G)	QSFP28 Slot (40G/100G)
1	AX3660S-24T4X	Non-detached power cord models	24*1	—	—	4*2	2*3	—
2	AX3660S-24T4XW	Replaceable power supply models	24*1	—	—	4*2	2*3	—
3	AX3660S-48T4XW		48*1	—	—	4*2	2*3	—
4	AX3660S-16S4XW		12*1	—	16*5	4*4*5	2	—
5	AX3660S-24S8XW		12*1	—	24	8*4	2	—
6	AX3660S-48XT4QW		—	44*1	—	4	—	4
7	AX3660S-24X4QW		—	—	—	24*6	—	4
8	AX3660S-48X4QW		—	—	—	48	—	4

*1 Half-duplex not supported

*2 By adding the uplinked 10G option license (including software license), 10-gigabit Ethernet is activated.

*3 By adding the stackable port feature option license (includes software license), the user can activate stackable features and 40 gigabit Ethernet (stackable only).

*4 One gigabit Ethernet (1000BASE-X） is not supported.

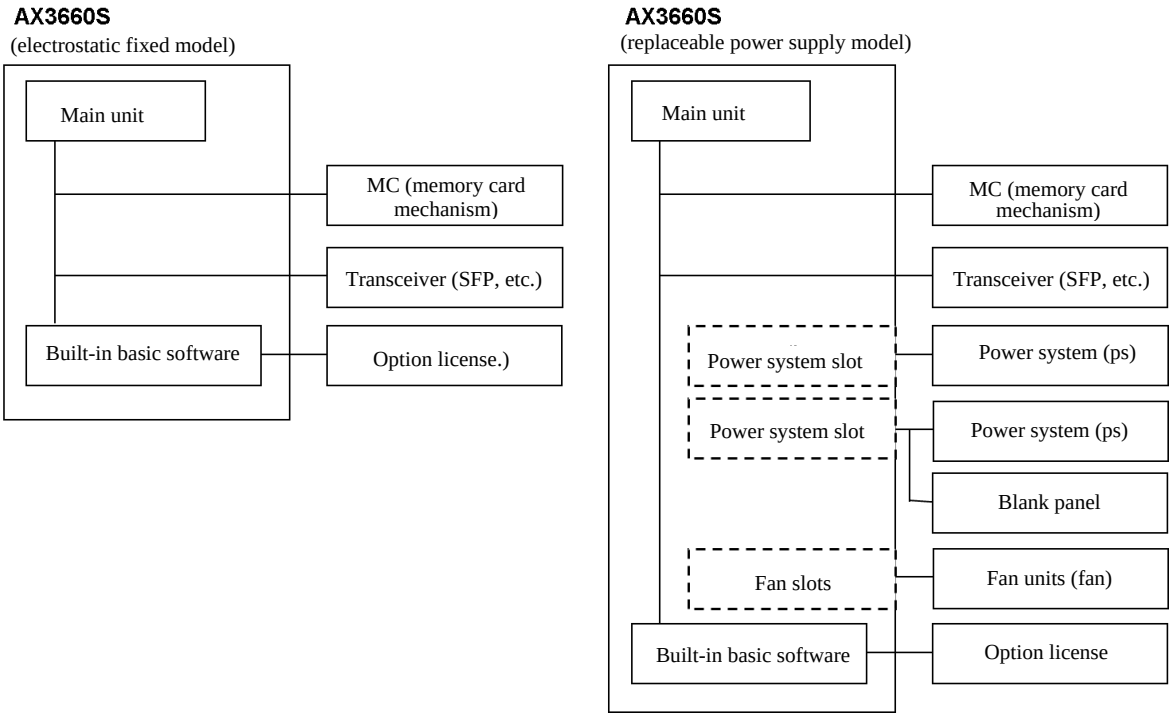
*5 Ports 17-24 (SFP+ slot) and 41-44 (SFP+ slot) cannot be used in preparing the Unit. By adding the port expansion option license, the user can expand on the number of ports available for use.

*6 Ports 25-98 (SFP+ slot) cannot be used in preparing the Unit. By adding the port expansion option license, the user can expand on the number of ports available for use.

NOTE For information on main Unit support for the transceiver, refer to the “ALAXALA Transceiver Hardware User Manual (AX-COM-H001).”

The following chart shows structures of the AX3660S Series models.

Fig.1-1 Unit Structure



1.1.1 AX3660S-24T4X

Hardware specifications for the AX3660S-24T4X are as follows:

- Ethernet 10BASE-T/100BASE-TX/1000BASE-T ports: 24
- SFP+ slot (10GBASE-R or 1000BASE-X): 4
- QSFP+ slots (stackable only): 2
- CONSOLE ports (RJ-45): 1
- Management port (10BASE-T/100BASE-TX): 1
- Memory card slot: 1
- AC power connectors: 2

NOTE

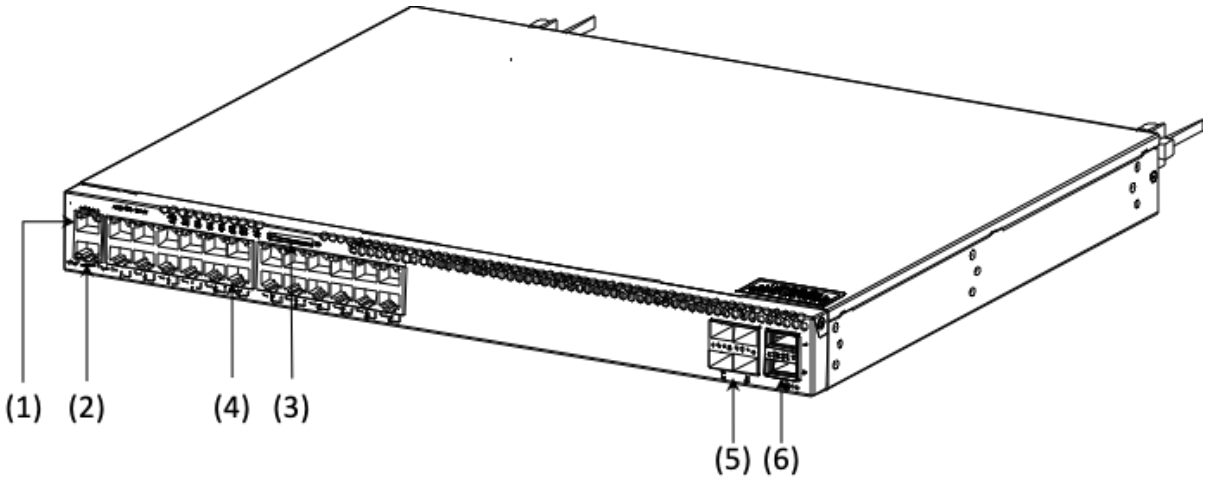
To use the SFP+slot 10GBASE-R(SFP+) in the SFP+ slot, the uplinked 10G option license is required. Where the uplinked 10G option license does not apply, use only the 1000BASE-X(SFP).

NOTE

To use the QSFP+ slot (stackable only, a stackable option license is required. The QSFP+ slot (stackable only) cannot be used other than the stacked port.

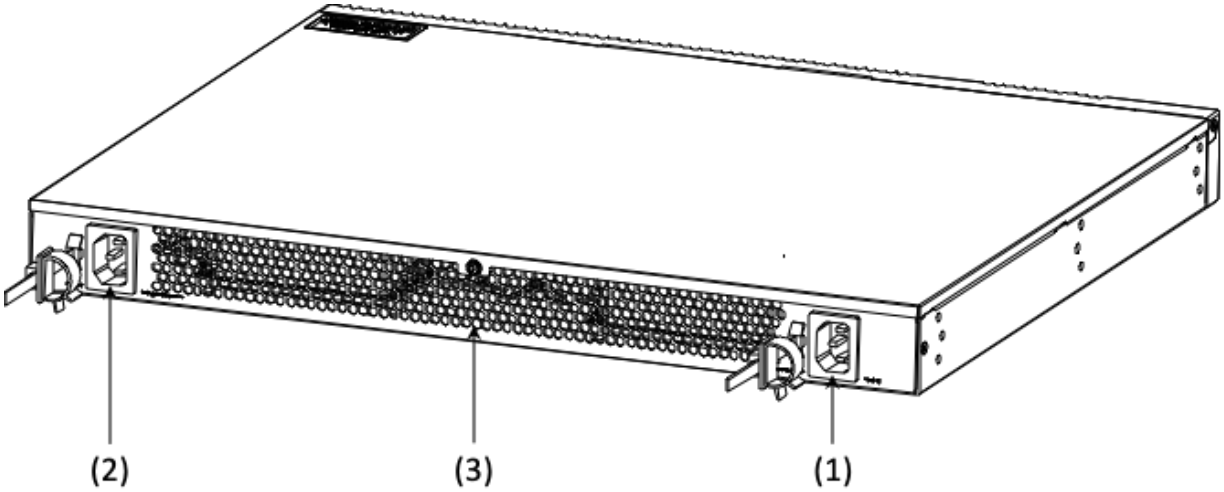
(1) Exterior

Fig.1-2 Front exterior



(1) CONSOLE Port: 1 Port (RJ-45)
(2) MANAGEMENT port (10BASE-T/100BASE-TX): 1 port
(3) Memory card slot: 1 slot
(4) Ethernet 10 BASE-T/100BASE-TX/1000BASE-T Port: 24 port
(5) SFP+ slot: 4 slots
(6) QSFP+ slots (stacked only): 2 slots

Fig. 1-3 Back exterior



(1) AC power connector (Power1)
(2) AC power connector (Power2)
(3) Fan exhaust ventilation slot

NOTE

The non-detached power cord models have four fans, such that if one breaks the Unit will no malfunction and continue to cool the Unit. However, if one of the fans does break, replace it promptly.

(2) Front Panel

The following chart illustrates the front panel layout. The AX3660S-24T4X supports LED brightness control function (power saving reduced brightness mode, lights off mode).

Fig.1-4 Front panel layout

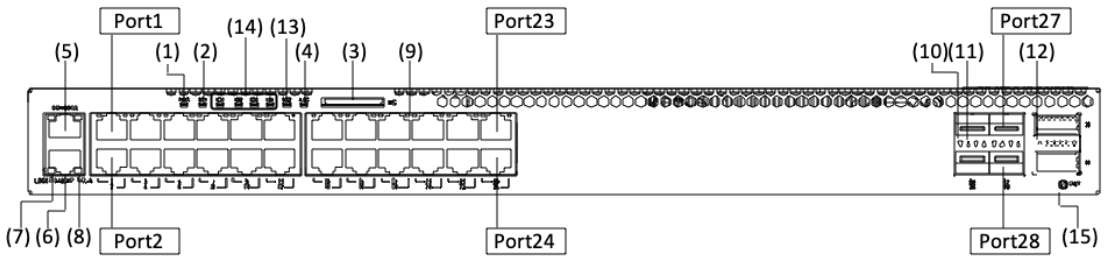


Table 1-2 LED Displays, Switches, and Connectors

No.	Name	Category	Status		LED brightness	Description
(1)	PWR	LED: Green	Indicates power status	Green light on	Ready	Power ON
				Lights off	—	Power OFF or power failure
(2)	ST1		LED: Green/ red	Indicates Unit status	Green light on	Ready
				Green light flashing	Ready	Operatable
				Red light flashing	Ready	Partial failure of Unit
				Red light on	Ready	Critical failure of Unit
				Lights off	—	Power OFF or power failure
(3)	MC		Connector	Memory card slot	—	—
(4)	ACC		LED: Green	Indicates memory card status.	Green light on	Ready
				Lights off	—	Memory card idling (card may be installed or disconnected at this time).
(5)	CONSOLE	Connector	CONSOLE port	—	—	RS-232C port (no LED light on) for connecting console terminals
(6)	MANAGEMENT	Connector	MANAGEMENT port	—	—	10BASE-T /100BASE-TX ports used for remote connections
(7)	LINK (MNG)	LED: Green	Indicates mode status.	Green light on	Ready	Link established
				Lights off	—	Where the ST1 LED is flashing green, there is a problem with the link or an accessibility issue.*2
(8)	T/R (MNG)	LED: Green		Green light flashing	Ready	Frame send/receive
(9)	1-24 (UTP)	LED: Green/ orange/ red	Indicates operating status of 10BASE-T/100BASE-TX/1000BASE-T port.	Green light on	Ready	Link established
					Low*1	
				Green light flashing	Ready	Establish link and frame send/receive
					Low*1	
				Orange or red light on	Ready	Line disturbance
					Low*1	
				Lights off	—	Where the ST1 LED is flashing green, there is a problem with the link or an accessibility issue.*2
(10)	LINK (SFP+)	LED: Green/orange /red	Indicates SFP+ slot operating status.	Green light on	Ready	Link established
					Low *2	
				Orange or red light on	Ready	Line disturbance
					Low*1	
				Lights off	—	Where the ST1 LED is flashing green, there is a problem with the link or an accessibility issue.*2
(11)	T/R (SFP+)	LED: Green		Green light flashing	Ready	Send/receive frame

No.	Name	Category	Status		LED brightness	Description
(12)	QSFP+	LED: Green/ orange/ red	Indicates QSFP+ slot （stacked only） operational status	Green light on	Ready	Link established
					Low*1	
				Green light flashing	Ready	Establish link and frame send/receive
					Low*1	
				Orange or red light on	Ready	Line disturbance
					Low*1	
				Lights off	—	Where the ST1 LED is flashing green, there is a problem with the link or an accessibility issue.*2
(13)	ST2	LED: Green	Indicates stackable switch status	Green light on	Ready	Operates as master switch
				Light off	—	Operates on stand-alone status, initial status, or backup switch.
(14)	ID1-ID4	LED: Green	Indicates stackable switch no.	ID1 Green light on	Ready	Switch No.=1
				ID2 Green light on	Ready	Switch No.=2
				Light off	—	Stand-alone status
(15)	RST (RESET)	Switch (non-locking)	Unit reset switch *3	—	—	Re-start Unit

*1 Energy-saving low brightness mode（economy）ON

*2 When in lights out mode, the Unit may be establishing a link, sending/receiving frames, or there may be a disturbance with the line.

*3 The switch is located further back than the front panel. Use a thin screwdriver or similar to push it in.

⚠WARNING

When pushing the void inserting any small items that can bend easily, as well as pins, clips, etc., which could potentially slip inside and be difficult to remove. Inserting these items in the switch could cause fire or electric shock.

NOTE

For information on main Unit support for the transceiver, refer to the “ALAXALA Transceiver Hardware User Manual (AX-COM-H001).

1.1.2 AX3660S-24T4XW

Hardware specifications for the AX3660S-24T4X are as follows:

- Ethernet 10BASE-T/100BASE-TX/1000BASE-T ports: 24
- SFP+ slot（10GBASE-R or 1000BASE-X): 4
- QSFP+ slots (stackable only): 2
- CONSOLE ports (RJ-45): 1
- Management port (10BASE-T/100BASE-TX): 1
- Memory card slot: 1
- Power system slots: 2
- Fan unit slots: 1

NOTE

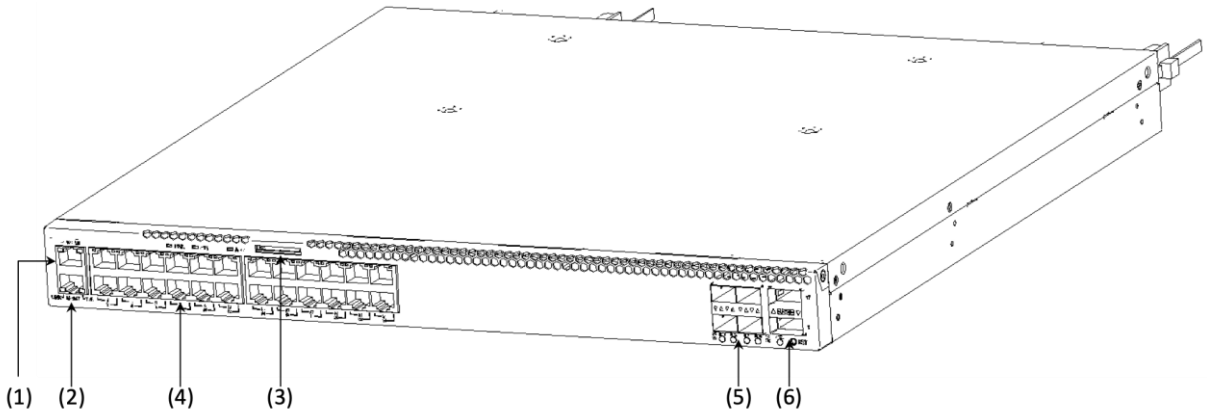
To use the SFP+slot 10GBASE-R(SFP+) in the SFP+ slot, the uplinked 10G option license is required. Where the uplinked 10G option license does not apply, use only the 1000BASE-X(SFP).

NOTE

To use the QSFP+ slot (stackable only, you need the stackable option license. The QSFP+ slot (stackable only) cannot be used other than with stacked ports.

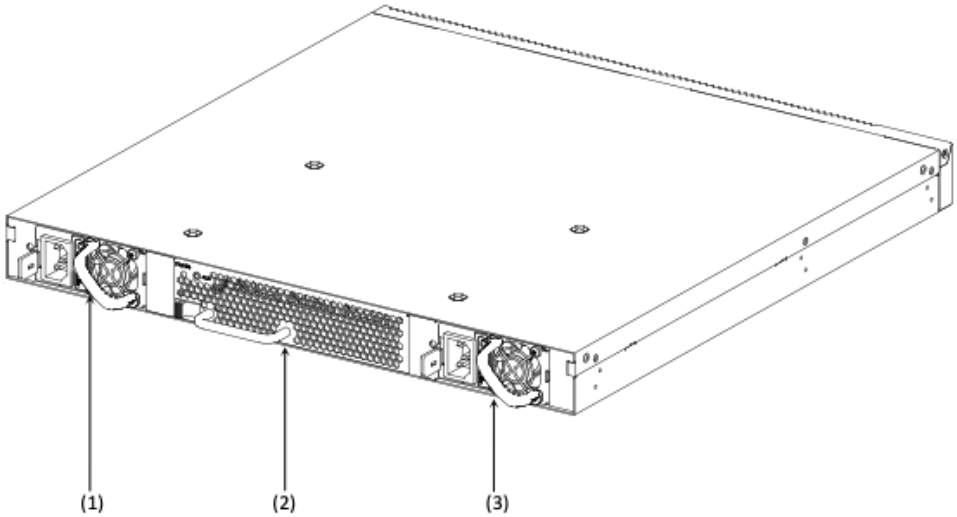
(1) Exterior

Fig.1-5 Front exterior



(1) CONSOLE Port: 1 Port (RJ-45)
(2) MANAGEMENT port（10BASE-T/100BASE-TX）ports: 1
(3) Memory card slot: 1
(4) Ethernet 10 BASE-T/100BASE-TX/1000BASE-T ports: 24
(5) SFP+ slots: 4
(6) QSFP+ slots (stacked only): 2

Fig.1-6 Back exterior



(1) Power system slot 2
(2) Fan unit (FAN) slot
(3) Power system slot 1

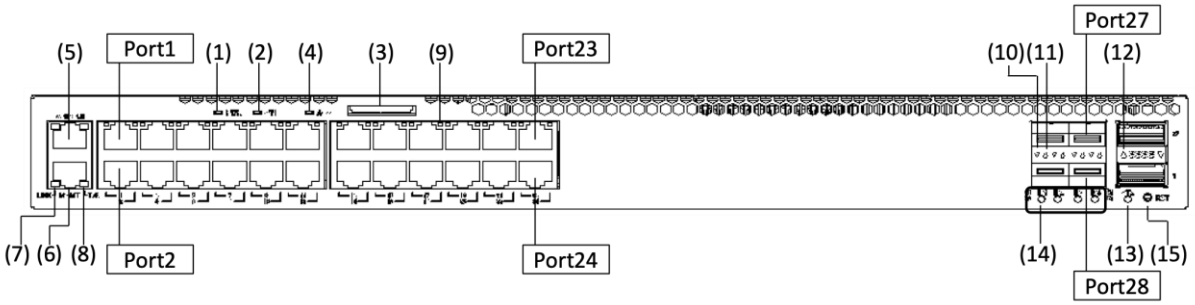
(2) Front panel

The following is the layout for the front panel. The front panel layout is comprised of two types (Device A and Device B), but there are no functional differences between them.

The AX3660S-24T4XW supports LED brightness dimming features (energy-saving dimming mode, lights off mode) for energy-saving purposes.

Fig.1-7 Front panel layout

● Type A Unit



● Type B Unit

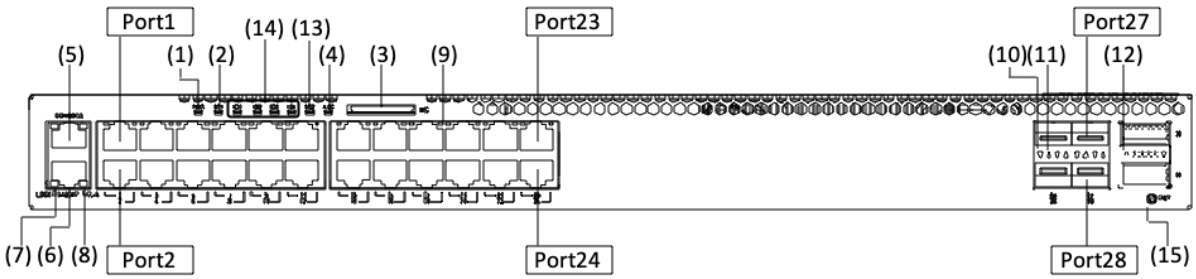


Table 1-3 LED Displays, Switches, and Connectors

No.	Name	Category	Status		LED Brightness	Description
(1)	PWR	LED: Green	Indicates power status	Green light on	Ready	Power ON
				Light off	—	Power OFF or power failure
(2)	ST1	LED: Green/ red	Indicates Unit status	Green light on	Ready	Operatable
				Green light flashing	Ready	Operatable
				Red light flashing	Ready	Partial failure of Unit
				Red light on	Ready	Critical failure of Unit
				Light off	—	Power OFF or power failure
(3)	MC	Connector	Memory card slot	—	—	Memory card slot
(4)	ACC	LED: green	Indicates memory card status.	Green light on	Ready	Accessing memory card (do not remove memory card at this time).
				Light off	—	Memory card idling (card may be installed or disconnected at this time).
(5)	CONSOLE	Connector	CONSOLE port	—	—	RS-232C port (no LED light on) for connecting console terminals
(6)	MANAGEMENT	Connector	MANAGEMENT port	—	—	10BASE-T /100BASE-TX ports used for remote connections
(7)	LINK (MNG)	LED: Green	Indicates mode status.	Green light on	Ready	Establish link
				Light off	—	Where the ST1 LED is lit green, and there is a problem with the line or accessibility issue. *2
(8)	T/R (MNG)	LED: Green		Green light flashing	Ready	Frame send/receive
(9)	1-24 (UTP)	LED: Green/ orange/ red	Indicates operating status of 10BASE-T/100BASE-TX/1000BASE-T port.	Green light on	Ready	Establish link and frame send/receive
					Low*1	
				Green light flashing	Ready	Establish link and frame send/receive
					Low*1	
				Orange light on or red light on	Ready	Line failure detected
					Low*1	
				Light off	—	Where the ST1 LED is lit green, and there is a problem with the line or accessibility issue. *2
(10)	LINK (SFP+)	LED: Green/ orange/ red	Indicates SFP+ slot operating status.	Green light on	Ready	Establish link
					Low *1	
				Orange light on or red light on	Ready	Line failure detected
					Low *1	
				Light off	—	Where the ST1 LED is green and there is an issue with the link or an accessibility issue.*2
(11)	T/R (SFP+)	LED: Green		Green light flashing	Ready	Send/receive frame
					Low*1	

No.	Name	Category	Status		LED Brightness	Description
(12)	QSFP+	LED: Green/ orange/ red	Indicates QSFP+ slot (stackable only) operating status	Green light on	Ready	Link established
					Low*1	
				Green light flashing	Ready	Establish link and send/receive frame send/receive
					Low*1	
				Orange or red light on	Ready	Failed line detected
					Low*1	
				Light off	—	Where the ST1 LED is green, and there is a problem with the link or and accessibility issue.*2
(13)	ST2	LED: Green	Indicates stack switch status.	Green light on	Ready	Operates as master switch
				Light off	—	Operates on stand-alone status, initial status, or as a backup switch
(14)	ID1-ID4	LED: Green	Indicates stack switch number.	ID1 Green light on	Ready	Switch no.=2
				ID2 Green light on	Ready	Switch no.=2
				Light off	—	Stand alone status
(15)	RST (RESET)	Non-locking switch	Unit reset switch *3	—	—	Re-start Unit.

*1 Operating in energy-saving low brightness mode (economy)

*2 When in lights out mode, the Unit may be establishing a link, sending/receiving frames, or there may be a line disturbance.

*3 The switch is located further back than the front panel. Use a thin screwdriver or similar to push it in.

⚠WARNING

When pushing the void inserting any small items that can bend easily, as well as pins, clips, etc., which could potentially slip inside and be difficult to remove. Inserting these items in the switch could cause fire or electric shock.

NOTE

For information on main Unit support for the transceiver, refer to the “ALAXALA Transceiver Hardware User Manual (AX-COM-H001).”

1.1.3 AX3660S-48T4XW

Hardware specifications for the AX3660S-48T4XW are :

- Ethernet 10BASE-T/100BASE-TX/1000BASE-T ports: 48
- SFP+ slots（10GBASE-R or 1000BASE-X): 4
- QSFP+ slots (stackable only): 2
- Console port: (RJ-45): 1
- Management ports（10BASE-T/100BASE-TX): 1
- Memory card slot: 1
- Power system slots: 2
- Fan unit slots: 1

NOTE

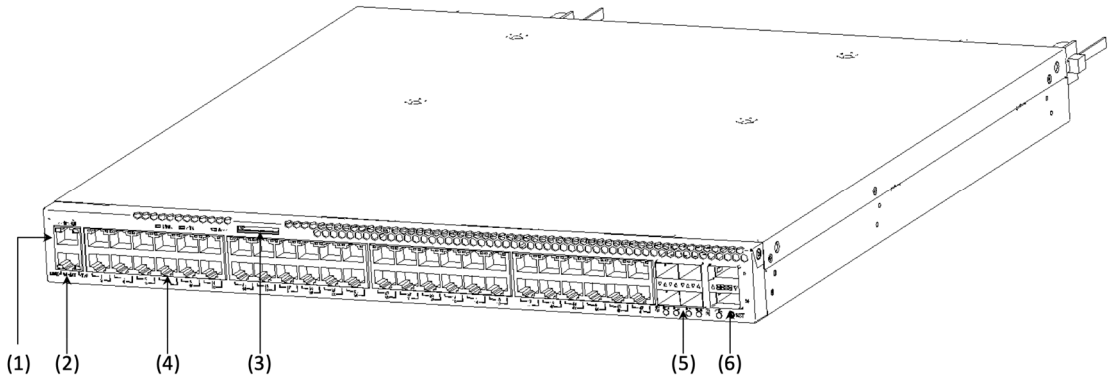
To use the SFP+slot 10GBASE-R(SFP+) in the SFP+ slot, the uplinked 10G option license is required. Where the uplinked 10G option license does not apply, use only the 1000BASE-X(SFP).

NOTE

To use the QSFP+ slot (stackable only, the stackable option license is required. The QSFP+ slot (stackable only) cannot be used other than with the stacked port.

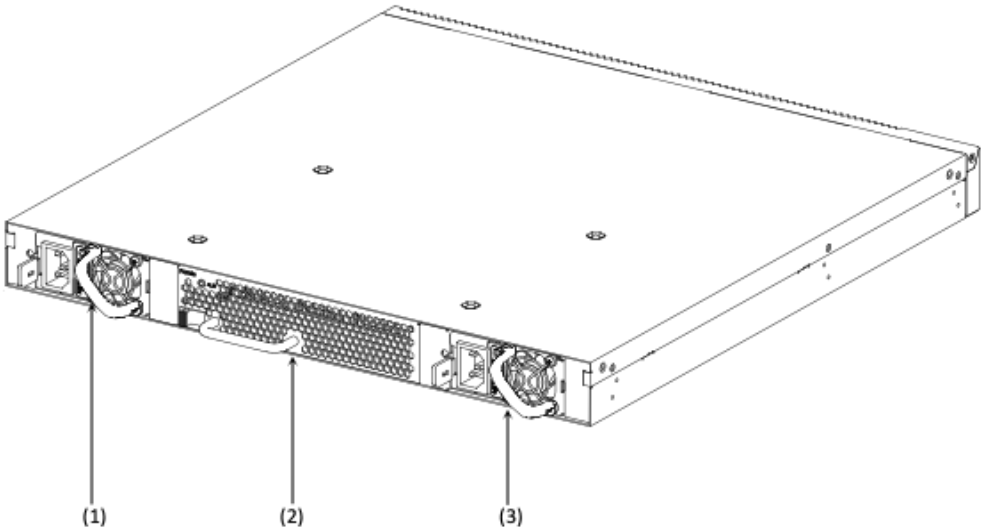
(1) Exterior

Fig.1-8 Front exterior



(1) CONSOLE Port: 1 Port (RJ-45)
(2) MANAGEMENT port（10BASE-T/100BASE-TX): 1
(3) Memory card slot: 1
(4) Ethernet 10 BASE-T/100BASE-TX/1000BASE-T ports: 48
(5) SFP+ slot: 4
(6) QSFP+ slots (stackable only): 2

Fig.1-9 Back exterior



(1) Power system slots: 2
(2) Fan unit (FAN) slot
(3) Electrical system slot: 1

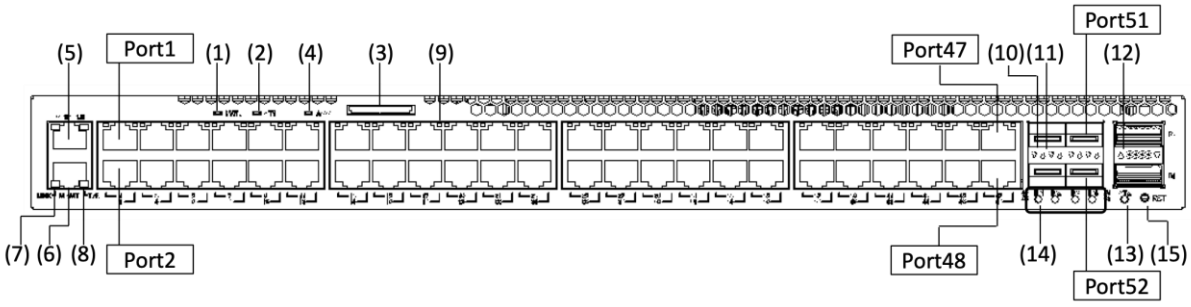
(2) Front panel

The following is the layout for the front panel. The front panel layout is comprised of two types (Device A and Device B), but there are no functional differences between them.

The AX3660S-48T4XW supports LED brightness dimming features (energy-saving dimming mode, lights off mode) for energy-saving purposes.

Fig.1-10 Front panel layout

● Unit Type A



● Unit Type B

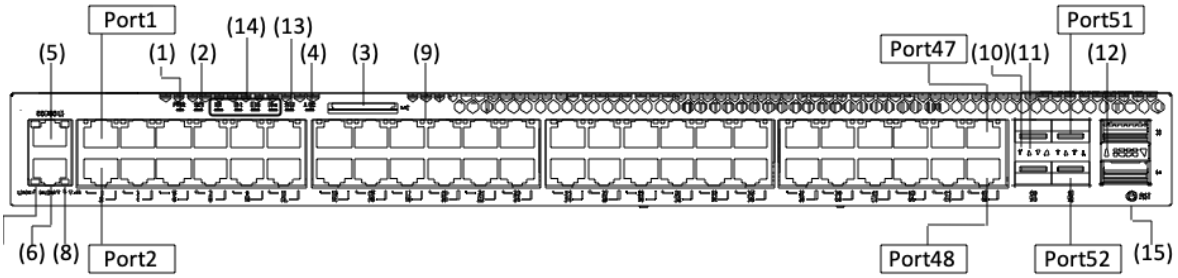


Table 1-4 LED Displays, Switches, and Connectors

No.	Name	Type	Status		LED brightness	Description
(1)	PWR	LED: Green	Indicates power status.	Green light on	Ready	Power ON
				Light off	—	Power OFF or power failure
(2)	ST1	LED: Green/red	Indicates Unit status.	Green light on	Ready	Ready
				Green light flashing	Ready	Getting ready（launching）
				Red light flashing	Ready	Unit error
				Red light on	Ready	Critical Unit error (Unit cannot continue to operate)
				Light off	—	Power OFF or power failure
(3)	MC	Connector	Memory card slot	—	—	Memory card slot
(4)	ACC	LED: Green	Indicates memory card status	Green light on	Ready	Accessing memory card (do not remove memory card at this time)
				Lights off	—	Memory card idling (card may be installed or disconnected at this time).
(5)	CONSOLE	Connector	CONSOLE port	_	_	RS-232C for connecting to console (LED light does not light up)
(6)	MANAGEMENT	Connector	MANAGEMENT port	_	_	10BASE-T /100BASE-TX port for remote connection
(7)	LINK (MNG)	LED: Green	MANAGEMENT port operational status.	Green light on	Ready	Link established
				Light off	—	Where the ST1 LED light is lit green, and a link is being established or there is an accessibility issue. *2
(8)	T/R (MNG)	LED: Green		Green light flashing	Ready	Frame send/receive
(9)	1-48 (UTP)	LED: Green/ orange/ red	10BASE-T/100BASE-TX/1000BASE-T por operational status.	Green light on	Ready	Link established
					Low*1	
				Green light flashing	Ready	Link established and frame send/receive
					Low*1	
				Orange or red light flashing	Ready	Line disturbance detected
					Low*1	
				Light off	—	Where the ST1 LED is flashing green, there is a problem with the link or an accessibility issue.*2
(10)	LINK (SFP+)	LED: Green/ orange/ red	SFP+ slot operational status	Green light on	Ready	Link established
					Low*1	
				Orange light on or red light on	Ready	Line failure detected
					Low*1	
				Light off	—	Where the ST1 LED light is lit green, and a link is being established or there is an accessibility issue. *2
(11)	T/R (SFP+)	LED: Green		Green light flashing	Ready	Frame send/receive
					Low*1	

No.	Name	Type	Status		LED brightness	Description
(12)	QSFP+	LED: Green/Orange/ Red	Indicates QSFP+ slot (stacked only) operational status	Green light on	Ready	Establish link
					Low*1	
				Green light flashing	Ready	Link established and frame send/receive
					Low*1	
				Orange or red light on	Ready	Disabled line detected
					Low*1	
				Light off	—	Where the ST1 LED is flashing green, there is a problem with the link or an accessibility issue.*2
(13)	ST2	LED: Green	Indicates stacked switch numbers.	Green light on	Ready	Operating on master switch
				Light off	—	Operates in stand-alone status, initial status, or as a backup switch.
(14)	ID1-ID4	LED: Green	Indicates stacked switch numbers.	ID1 Green light on	Ready	Switch number=1
				ID2 Green light on	Ready	Switch number=2
				Light off	—	Stand alone status
(15)	RST (RESET)	Switch (non-locking)	Unit reset switch*3	—	—	Re-start Unit

*1 Operating in energy-saving low brightness mode (economy)

*2 When in lights out mode, the Unit may be establishing a link, sending/receiving frames, or there may be a line disturbance.

*3 The switch is located further back than the front panel. Use a thin screwdriver or similar to push it in.

⚠WARNING

When pushing on the switch, avoid inserting any small items that can bend easily, as well as pins, clips, etc., which could potentially slip inside and be difficult to remove. Inserting these items in the switch could cause fire or electric shock.

NOTE

For information on main Unit support for the transceiver, refer to the “ALAXALA Transceiver Hardware User Manual (AX-COM-H001).”

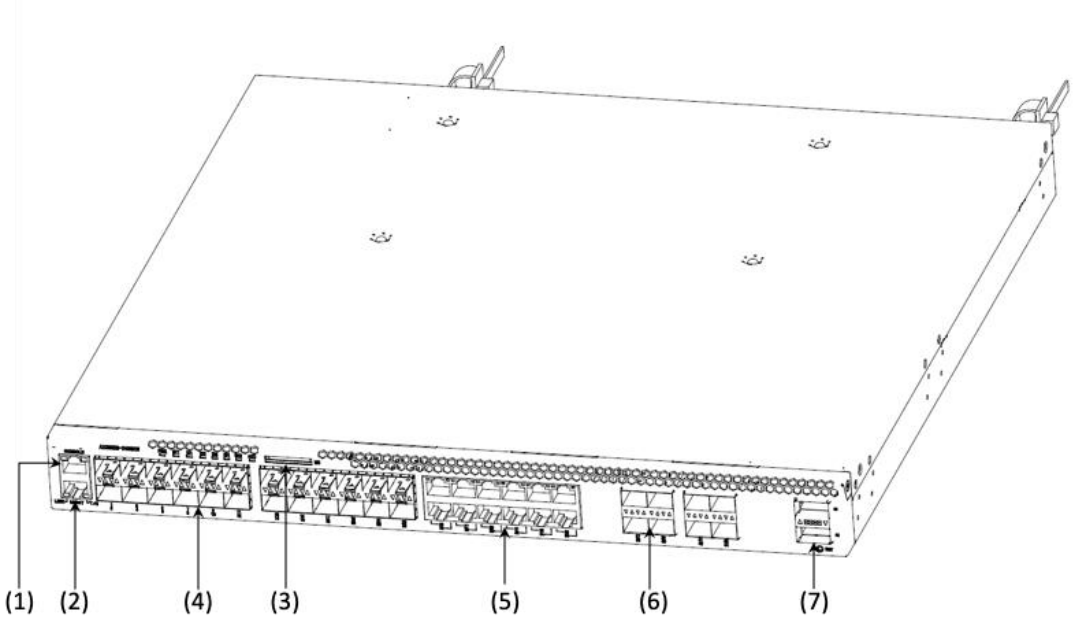
1.1.4 AX3660S-16S4XW

Hardware specifications for the AX3660S-16S4XW are as follows:

- SFP slot (1000BASE-X): 16
- Ethernet 10BASE-T/100BASE-TX/1000BASE-T ports: 12
- SFP+ slot (10GBASE-R or 1000BASE-X): 4
- QSFP+ slots (stackable only): 2
- Console ports: 1 (RJ-45)
- Management ports (10BASE-T/100BASE-TX): 1
- Memory card slots: 1
- Power system slots: 2
- Fan unit slots: 1

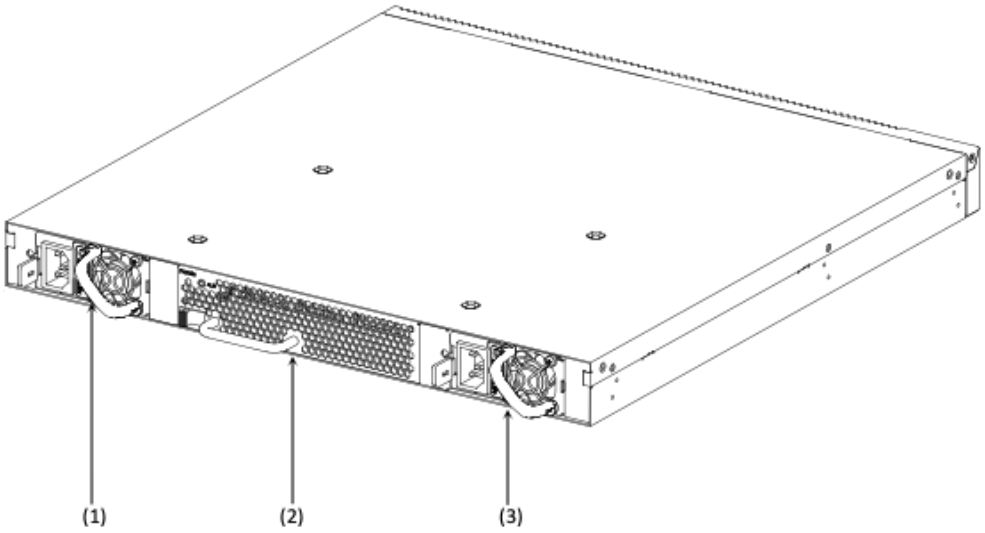
(1) Exterior

Fig.1-11 Front exterior



(1) CONSOLE Port: 1 Port (RJ-45)
(2) MANAGEMENT port (10BASE-T/100BASE-TX): 1 port
(3) Memory card slot: 1 slot
(4) SFP slot（1000BASE-X): 16 slots（Port1-16）
(5) Ethernet 10 BASE-T/100BASE-TX/1000BASE-T Port: 12 port
(6) SFP+ slot (10 GBASE-R): 4 slots
(7) QSFP+ slots (stacked only): 2 slots

Fig.1-12 Back exterior

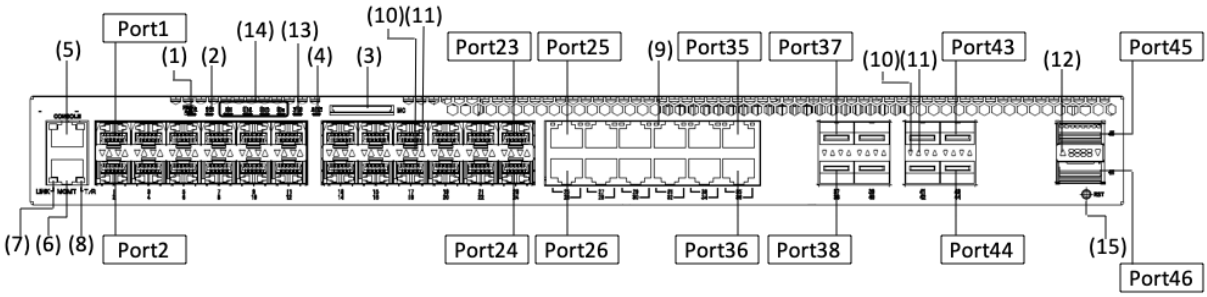


(1) Power system slots: 2
(2) Fan Unit (FAN) slot
(3) Power system slot: 1

(2) Front panel

The following chart illustrates the front panel layout. The AX3660S-16S4XW supports LED brightness control function (power saving reduced brightness mode, lights off mode) for energy-saving purposes.

Fig.1-13 Front panel layout



NOTE

Ports 17-24 (SPF slots) and Ports 41-44 (SPF+ slots) are not standard features. By adding the extended port option license, you can increase the number of ports available to you.

Table 1-5 LED Displays, Switches, and Connectors

	Name	Type	Status		LED brightness	Descriotion
(1)	PWR	LED: Green	Indicates power status	Green light on	Ready	Power ON
				Light off	—	Power OFF or power failure
(2)	ST1	LED: Green/red	Indicates Unit status	Green light on	Ready	Operatable
				Green light on	Ready	Getting ready (launching)
				Red light flashing	Ready	Unit malfunction
				Red light on	Ready	Critical Unit error (Unit cannot continue to operate)
				Light off	—	Power OFF or power failure
(3)	MC	Connector	Memory card slot	—	—	Memory card slot
(4)	ACC	LED: Green	Indicates memory card status.	Green light on	Ready	Accessing memory card (do not remove memory card at this time).
				Light off	—	Memory card idling (card may be installed or disconnected at this time).
(5)	CONSOLE	Connector	CONSOLE port	—	—	RS-232C port for connecting to console (LED light does not light up)
(6)	MANAGE MENT	Connector	MANAGEMENT port	—	—	10BASE-T /100BASE-TX ports used for remote connections
(7)	LINK (MNG)	LED: Green	Indicates MANAGEMENT port status.	Green light on	Ready	Link established
				Light off	—	Where the ST1 LED is flashing green, there is a problem with the link or an accessibility issue.[*2]
(8)	T/R (MNG)	LED: Green		Green light flashing		Frame send/receive
(9)	25-36 (UTP)	LED: Green/ orange/ red	Indicates 100BASE-TX/1000BASE-T/10GBASE-T status.	Green light on	REady	Link established
					Low[*1]	
				Green light flashing	Ready	Link established and frame send/receive
					Low[*1]	
				Orange light on or red light on	Ready	Disabled line detected
					Low[*1]	
				Lights off	—	Where the ST1 LED is flashing green, there is a problem with the link or an accessibility issue.[*2]
(10)	LINK (SFP/SFP+)	LED: Green/ orange/ red	Indicates SFP/SFP+ slot status.	Green light on	Ready	Link established
					Low[*1]	
				Orange or red light on	REady	Disabled line detected
					Low[*1]	
				Lights off	—	Where the ST1 LED is flashing green, there is a problem with the link or an accessibility issue.[*2]
(11)	T/R (SFP/SFP+)	LED: Green		Green light flashing	Ready	Frame send/receive
					Low[*1]	

No.	Name	Category	Status		LED brightness	Description
(12)	QSFP+	LED: Green/ orange/ red	Indicates SFP+ slot status.	Green light on	Ready	Link established
					Low*1	
				Green light flashing	Ready	Link established and frame send/receive.
					Low*1	
				Orange or red light on	Ready	Disabled line detected
					Low*1	
				Lights off	—	Where the ST1 LED is flashing green, there is a problem with the link or an accessibility issue.*2
(13)	ST2	LED: Green	Indicates stackable switch status.	Green light on	Ready	Operates as master switch
				Lights off	—	Operates as stand-alone status, initial status, or backup switch.
(14)	ID1-ID4	LED: Green	Indicates stackable switch numbers.	ID1 Green light on	Ready	Switch no.=1
				ID2 Green light on	Ready	Switch no.=2
				Light off	—	Stand-alone status
(15)	RST (RESET)	Switch (non-locking)	Unit reset switch*3	—	—	Re-start Unit

*1 Operating in energy-saving low brightness mode (economy)

*2 When in lights out mode, the Unit may be establishing a link, sending/receiving frames, or there may be a line disturbance.

*3 The switch is located further back than the front panel. Use a thin screwdriver or similar to push it in.

⚠WARNING

When pushing on the switch, avoid inserting any small items that can bend easily, as well as pins, clips, etc., which could potentially slip inside and be difficult to remove. Inserting these items in the switch could cause fire or electric shock.

NOTE

For information on main Unit support for the transceiver, refer to the “ALAXALA Transceiver Hardware User Manual (AX-COM-H001)."

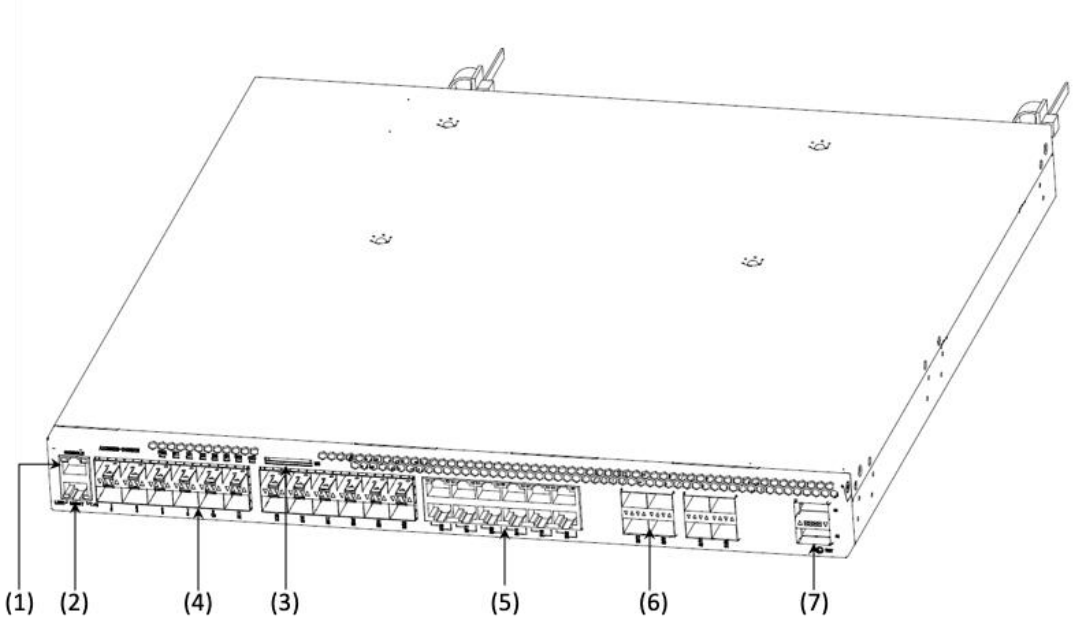
1.1.5 AX3660S-24S8XW

Hardware specifications for the AX3660S-24S8XW are as follows:

- SFP slots（1000BASE-X）：24
- Ethernet 10BASE-T/100BASE-TX/1000BASE-T ports: 12
- SFP slot（10BASE-X）：8
- QSFP+ slots (stackable only): 2
- Console ports: 1 (RJ-45)
- Management ports（10BASE-T/100BASE-TX): 1
- Memory card slots: 1
- Power system slots: 2
- Fan unit slots: 1

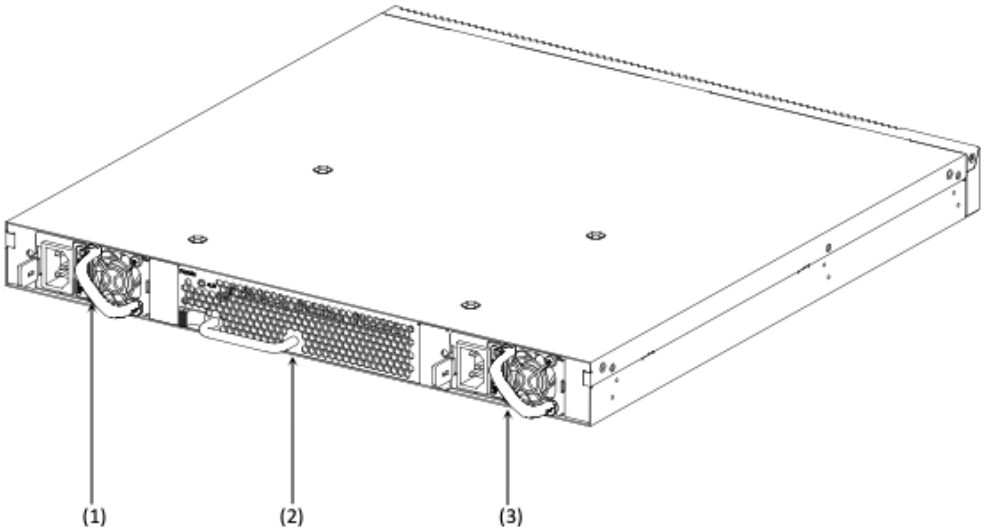
(1) Exterior

Fig.1-14 Front exterior



(1) CONSOLE Port: 1 Port (RJ-45)
(2) MANAGEMENT port（10BASE-T/100BASE-TX）ports: 1
(3) Memory card slot: 1
(4) SFP slot（1000BASE-X): 24
(5) Ethernet 10 BASE-T/100BASE-TX/1000BASE-T ports: 12
(6) SFP+ slot（10GBASE-R) slots: 8
(7) QSFP+ slots (stackable only): 2

Fig.1-15 Back Exterior



(1) Power system slots: 2
(2) Fan Unit (FAN) slot
(3) Power system slot: 1

(2) Front panel

The following chart illustrates the front panel layout. TheAX3660S-24S8XW supports LED brightness control function (power saving reduced brightness mode, lights off mode).

Fig.1-16 Front panel layout

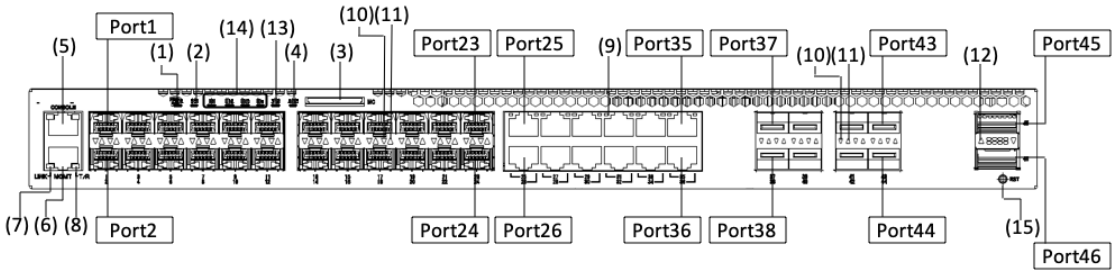


Table 1-6 LED Displays, Switches, and Connectors

	Name	Category	Status		LED brightness	Description
(1)	PWR	LED: Green	Indicates power status.	Green light on	Ready	Power ON
				Lights off	—	Power OFF or power failure
(2)	ST1	LED: Green/red	Indicates Unit status	Green light on	REady	Operatable
				Green light flashing	REady	Getting ready (launching)
				Red light flashing	Ready	Unit error
				Red light on	Ready	Critical Unit error (Unit cannot continue to operate)
				Lights off	—	Power OFF or power failure
(3)	MC	Connector	Memory card slot	—	—	Memory card slot
(4)	ACC	LED: Green	Indicates memory status	Green light on	Ready	Accessing memory card (do not remove memory card)
				Lights off	—	Memory card idling (card may be installed or disconnected at this time).
(5)	CONSOLE	Connector	Console port	_	_	RS-232C for connecting to console (LED light does not light up)
(6)	MANAGEMENT	Connector	Management port	_	_	10BASE-T /100BASE-TX port for remote connection
(7)	LINK (MNG)	LED: Green	Indicates management port status	Green light on	Ready	Link established
				Lights off	—	Where the ST1 LED is flashing green, there is a problem with the link or an accessibility issue.*2
(8)	T/R (MNG)	LED : Green		Green light flashing	Ready	Frame send/receive
(9)	25-36 (UTP)	LED: Green/ orange/ red	Indicates 100BASE-TX/1000BASE-T/10GBASE-T status.	Green light on	Ready	Link established
					Low*1	
				Green light flashing	Ready	Link established and send/receive frames
					Low *1	
				Orange light on or red light on		Disabled line detected
					Low*1	
				Lights off	—	Where the ST1 LED is flashing green, there is a problem with the link or an accessibility issue.*2
(10)	LINK (SFP/SFP+)	LED: Green/orange/red	Indicates SFP/SFP+ slot status.	Green light on	Ready	Link established
					Low*1	
				Orange or red light on	Ready	Disabled line detected
					Low *1	
				Lights off	—	Where the ST1 LED is flashing green, there is a problem with the link or an accessibility issue.*2
(11)	T/R (SFP/SFP+)	LED: Green		Green light flashing	Ready	Frame send/receive.
					Low*1	

No.	Name	Category	Status		LED brightness	Description
(12)	QSFP+	LED: Green/ orange/ red	Indicates QSFP+ slot status.	Green light on	REady	Establish link
					Low[*1]	
				Green light flashing	Ready	Establish link and frame send/receive
					Low [*1]	
				Green light flashing or red light flashing	REady	Disabled line detected
					Low[*1]	
				Lights out	—	Where the ST1 LED is flashing green, there is a problem with the link or an accessibility issue.[*2]
(13)	ST2	LED: Green	Indicates stackable switch status.	Green light on	Ready	Operates as master switch
				Lights out	—	Operates as stand-alone status, initial status, or as a backup switch.
(14)	ID1-ID4	LED: Green	Indicates stackable switch number.	ID1 Green light on	REady	Switch number=1.
				ID2 Green light on	REady	Switch number=2.
				Lights out	—	Stand-alone status
(15)	RST (RESET)	Switch (non-lock)	Unit reset switch[*3]	—	—	Restart Unit

*1 Operating in energy-saving low brightness mode (economy)

*2 When in lights out mode, the Unit may be establishing a link, sending/receiving frames, or there may be a line disturbance.

*3 The switch is located further back than the front panel. Use a thin screwdriver or similar to push it in.

⚠WARNING

When pushing on the switch, avoid inserting any small items that can bend easily, as well as pins, clips, etc., which could potentially slip inside and be difficult to remove. Inserting these items in the switch could cause fire or electric shock.

NOTE

For information on main Unit support for the transceiver, refer to the “ALAXALA Transceiver Hardware User Manual (AX-COM-H001)."

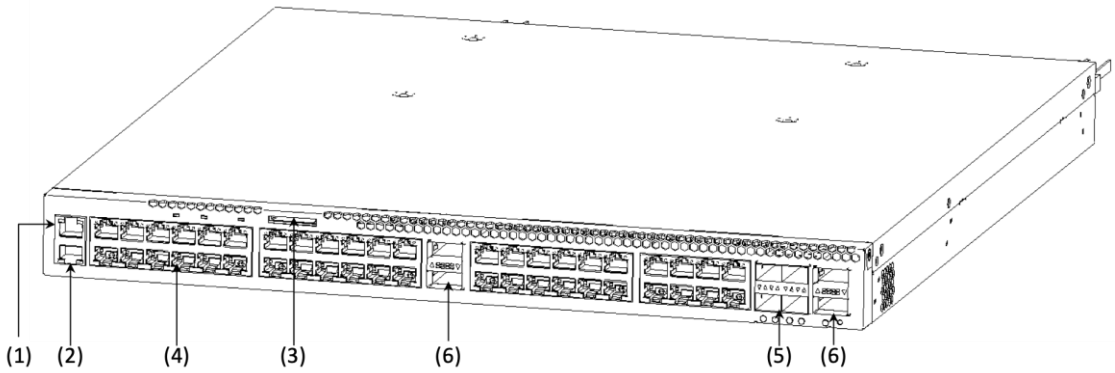
1.1.6 AX3660S-48XT4QW

Hardware specifications for the AX3660S-48XT4QW are as follows:

- Ethernet 100BASE-TX/1000BASE-T/10GBASE-T ports: 44
- SFP+ slots: 4
- QSFP+ slots: 4
- CONSOLE ports (RJ-45): 1
- Management port (10BASE-T/100BASE-TX): 1
- Memory card slot: 1
- Power system slots: 2
- Fan unit slot: 1

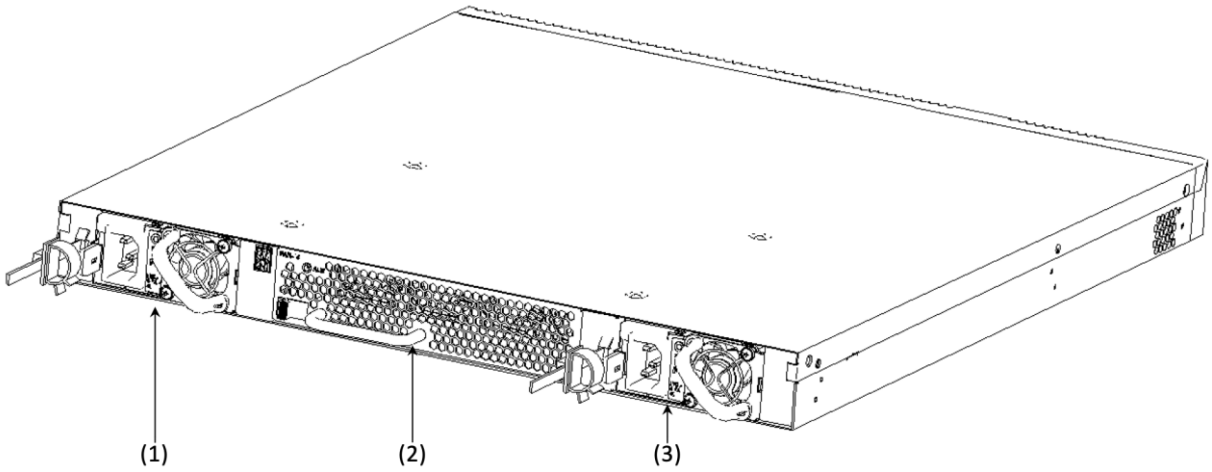
(1) Exterior

Fig.1-17 Front exterior



- (1) Console ports: 1 (RJ-45)
- (2) Management ports（10BASE-T/100BASE-TX): 1
- (3) Memory card slots: 1
- (4) Ethernet 10BASE-T/100BASE-TX/1000BASE-T ports: 44
- (5) SFP+ slots: 4
- (6) QSFP28 slots: 4

Fig.1-18 Back Exterior



(1) Power system slots: 2
(2) Fan unit (FAN) slot
(3) Power system slot: 1

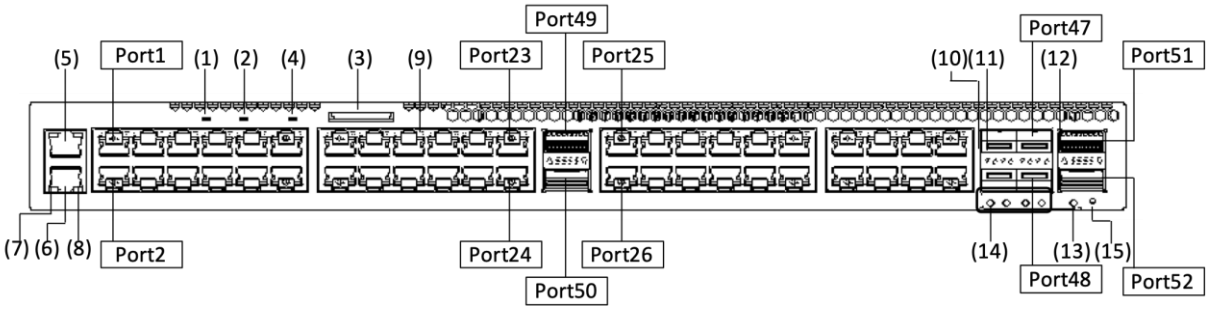
(2) Front Panel

The following is the layout for the front panel. The front panel layout is comprised of two types (Device A and Device B), but there are no functional differences between them.

The AX3660S-48XT4QW supports LED brightness dimming features (energy-saving dimming mode, lights off mode) for energy-saving purposes.

Fig.1-19 Front panel layout

● Unit Type A



● Unit Type B

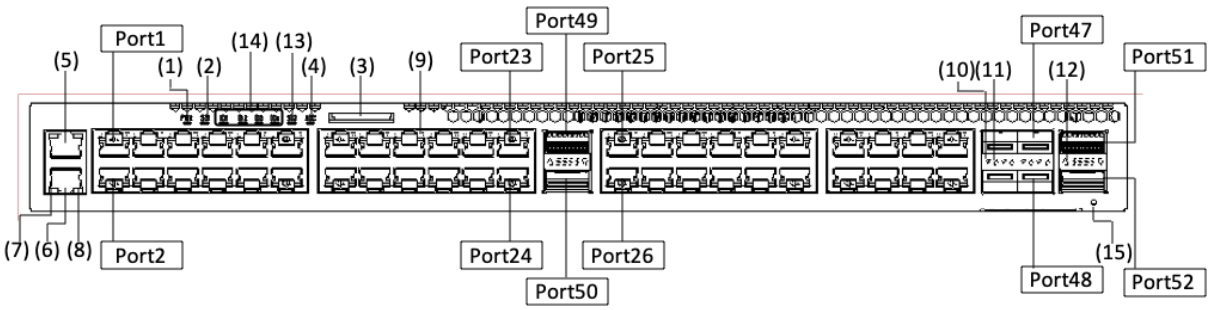


Table 1-7 LED Displays, Switches, and Connectors

No.	Name	Category	Status		LED Brightness	Description
(1)	PWR	LED: Green	Indicates power on/off status.	Green light on	Ready	Power ON
				Lights off	—	Power OFF or power failure
(2)	ST1	LED: Green/red	Indicates Unit status.	Green light on	Ready	Operatable
				Green light flashing	Ready	Getting ready (launching)
				Red light flashing	Ready	Unit error
				Red light on	Ready	Critical Unit error (Unit cannot continue to operate)
				Light out	—	Power OFF or power failure
(3)	MC	Connector	Memory card slot	—	—	Memory card slot
(4)	ACC	LED: Green	Indicates memory card status	Green light on	Ready	Accessing memory card (do not remove memory card at this time)
				Light out	—	Memory card idling (card may be installed or disconnected at this time).
(5)	CONSOLE	Connector	CONSOLE port	—	—	RS-232C port (no LED light on) for connecting console terminals
(6)	MANAGEMENT	Connector	MANAGEMENT port	—	—	10BASE-T /100BASE-TX ports used for remote connections
(7)	LINK (MNG)	LED: Green	MANAGEMENT port status.	Green light on	Ready	X
				Light off	—	Where the ST1 LED is flashing green, there is a problem with the link or an accessibility issue.[*2]
(8)	T/R (MNG)	LED : Green		Green light flashing	Ready	Frame send/receive
(9)	1-44 (UTP)	LED: Green/ orange/ red	Indicates 100BASE-TX/1000BASE-T/10GBASE-T status.	Green light on	Ready	Link established.
					Low[*1]	
				Green light flashing	Ready	Link established. Send/receive frames.
					Low[*1]	
				Orange light on Or red light on	Ready	Disabled line detected
					Low[*1]	
				Lights off	—	Where the ST1 LED is flashing green, there is a problem with the link or an accessibility issue.[*2]
(10)	LINK (SFP+)	LED: Green/ orange/ red	Indicates SFP+ slot status.	Green light on	Ready	Establish link
					Low[*1]	
				Orange light on or red light on	Ready	Disabled line detected
					Low[*1]	
				Lights off	—	Where the ST1 LED is flashing green, there is a problem with the link or an accessibility issue.[*2]
(11)	T/R (SFP+)	LED: Green		Green light flashing	Ready	Frame send/receive
					Low[*1]	

No.	Name	Category	Status		LED brightness	Description
(12)	QSFP28	LED: Green/ orange/ red	QSFP28 slot status.	Green light on	REady	Link established
					Low*1	
				Green light flashing	Ready	Link established and frame send/receive
					Low*1	
				Orange and red light on	Ready	Disabled line detected
					Low*1	
				Lights off	—	Where the ST1 LED is flashing green, there is a problem with the link or an accessibility issue.*2
(13)	ST2	LED: Green	Indicates stackable switch status.	Green light on	Ready	Operates as master switch
				Lights off	—	Operates as stand alone status, initial status, or as a backup switch.
(14)	ID1-ID4	LED: Green	Indicates stack switch number.	ID1 Green light on	Ready	Switch number=1
				ID2 Green light on	Ready	Switch number=2.
				Light off	—	Stand-alone status
(15)	RST (RESET)	Switch (non-locking)	Unit reset switch *3	—	—	Restart Unit

*1 Operating in energy-saving low brightness mode (economy)

*2 When in lights out mode, the Unit may be establishing a link, sending/receiving frames, or there may be a line disturbance.

*3 The switch is located further back than the front panel. Use a thin screwdriver or similar to push it in.

⚠WARNING

When pushing on the switch, avoid inserting any small items that can bend easily, as well as pins, clips, etc., which could potentially slip inside and be difficult to remove. Inserting these items in the switch could cause fire or electric shock.

NOTE

For information on main Unit support for the transceiver, refer to the “ALAXALA Transceiver Hardware User Manual (AX-COM-H001)."

1.1.7 AX3660S-24X4QW

Hardware specifications for the AX3660S-24X4QW are as follows:

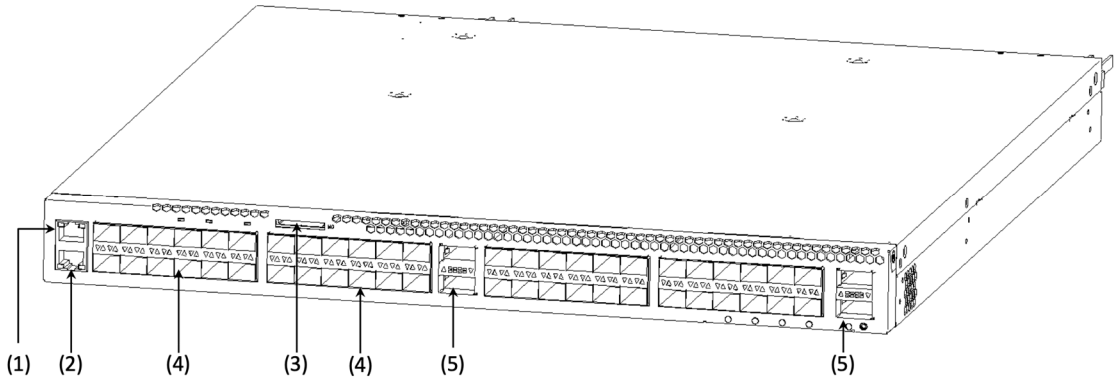
- SFP slots: 24
- QSFP28 slots: 4
- Console ports: 1 (RJ-45)
- Management ports（10BASE-T/100BASE-TX): 1
- Memory card slots: 1
- Power system slots: 2
- Fan unit slots: 1
- Synchronous Ethernet structure: Internal

NOTE

To utilize the Synchronous Ethernet feature, the Sync-E feature option license is required. The feature is not useable for models other than the AX3660S-24X4QW and AX3660S-48X4QW because the system is not installed in these models.

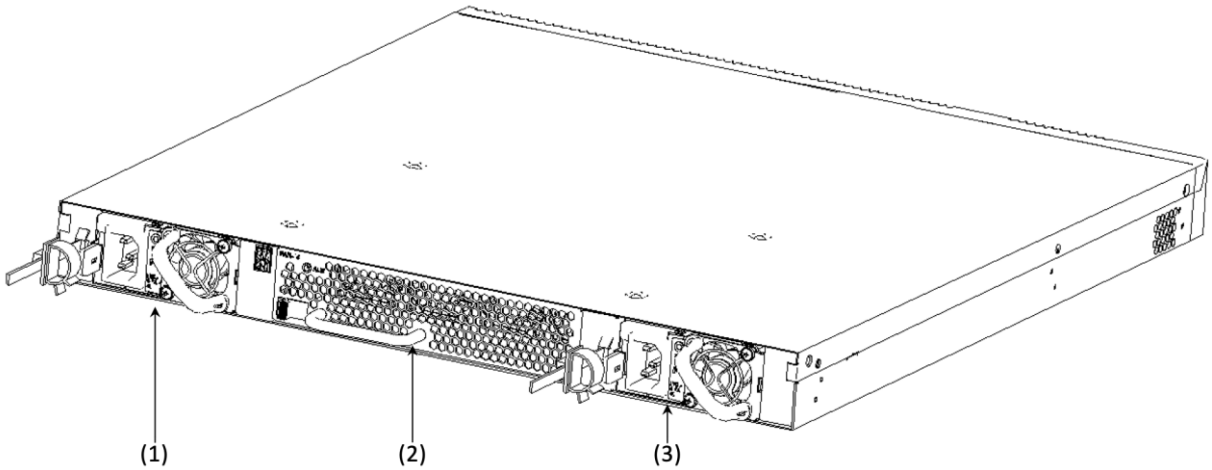
(1) Exterior

Fig.1-20 Front exterior



(1) CONSOLE Port: 1 Port (RJ-45)
(2) MANAGEMENT (10BASE-T/100BASE-TX）ports: 1
(3) Memory card slot: 1
(4) SFP+ slots: 24 (Ports 1-24)
(5) QSFP28+ slots: 4

Fig.1-21 Back exterior

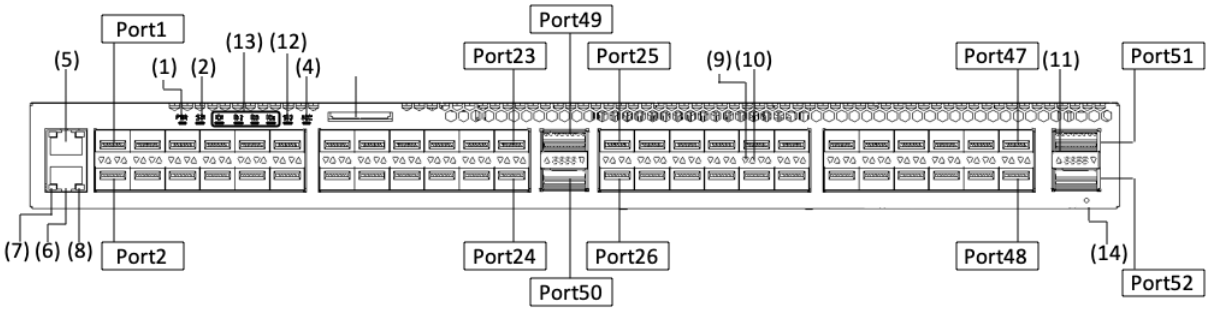


(1) Power source slot: 2
(2) Fan unit (FAN) slot
(3) Power system slot: 1

(2) Front Panel

The following chart illustrates the front panel layout. The AX3660S-24X4QW supports LED brightness control function (power saving reduced brightness mode, lights off mode) for energy-saving purposes.

Fig.1-22 Front Panel Layout



NOTE

Ports 25-48 (SPF+ slots) are not standard features. By adding the extended port option license, the user can increase the number of ports available to you.

Table 1-8 LED Displays, Switches, and Connectors

No.	Name	Category	Status		LED brightness	Description
(1)	PWR	LED: Green	Indicates power status.	Green light on	Ready	Power ON
				Light out	—	Power OFF or power failure
(2)	ST1	LED: Green/ red	Indicates Unit status.	Green light on	Ready	Operatable
				Green light flashing	Ready	Getting ready（launching）
				Red light flashing	Ready	Unit error
				Red light flashing	Ready	Critical Unit error (Unit cannot continue to operate)
				Lights off	—	Power OFF or power failure
(3)	MC	Connector	Memory card slot	—	—	Memory card slot
(4)	ACC	LED: Green	Indicates memory card status	Green light on	Regular	Accessing memory card (do not remove memory card at this time).
				Lights off	—	Memory card idling (card may be installed or disconnected at this time).
(5)	CONSOLE	Connector	CONSOLE port	—	—	RS-232C port (no LED light on) for connecting console terminals
(6)	MANAGE MENT	Connector	MANAGEMENT port	—	—	10BASE-T /100BASE-TX port for remote connections
(7)	LINK (MNG)	LED: Green	MANAGEMENT port status.	Green light on	Regular	Establish link
				Lights off	—	Where the ST1 LED is flashing green, there is a problem with the link or an accessibility issue.*2
(8)	T/R (MNG)	LED: Green		Green light flashing	Regular	Frame send/receive
(9)	LINK (SFP+)	LED: Green/ orange/ red	Indicates SFP+ slot status.	Green light on	Regular	Establish link
					Low*1	
				Orange or red light on	Regular	Disabled line detected
					Low*1	
				Lights off	—	Where the ST1 LED is flashing green, there is a problem with the link or an accessibility issue.*2
(10)	T/R (SFP+)	LED: Green		Green light flashing	Regulat	Frame send/receive
					Low*1	

No.	Name	Category	Status		LED brightness	Description
(11)	QSFP28	LED: Green/ orange/ red	Indicates status of QSFP28 slot	Green light on	Ready	Establish link
					Low*1	
				Green light flashing	Ready	Establish link and send/receive frames
					Low*1	
				Orange light on or red light on	Ready	Disabled line detected
					Low*1	
				Lights off	—	Where the ST1 LED is flashing green, there is a problem with the link or an accessibility issue.*2
(12)	ST2	LED: Green	Indicates stackable switch status or Sync-E status.	Green light on	Ready	・Stacking activated: operates as master switch Stacking not activated: Sync-E activated and synched with external clock Sync-E
				Light off	—	・Stacking activated: Switch is on initial status or operating as backup switch Stacking not activated: Sync-E activated and synched with internal clock, or Sync-E not activated.
(13)	ID1-ID4	LED: Green	Indicates Stackable switch number.	ID1 Green light on	Ready	Switch number=1
				ID2 Green light on	Ready	Switch number=2
				Light off	—	Stand-alone status
(14)	RST (RESET)	Switch (non-locking)	Unit reset switch*3	—	—	Restart Unit

*1 Energy-saving low brightness mode（economy）ON

*2 When in lights out mode, the Unit may be be establishing a link, sending/receiving frames, or there may be a line disturbance.

*3 The switch is located further back than the front panel. Use a thin screwdriver or similar to push it in.

⚠WARNING

When pushing on the switch, avoid inserting any small items that can bend easily, as well as pins, clips, etc., which could potentially slip inside and be difficult to remove. Inserting these items in the switch could cause fire or electric shock.

NOTE

For information on main Unit support for the transceiver, refer to the “ALAXALA Transceiver Hardware User Manual (AX-COM-H001)."

1.1.8 AX3660S-48X4QW

Hardware specifications for the AX3660S-48X4QW are as follows:

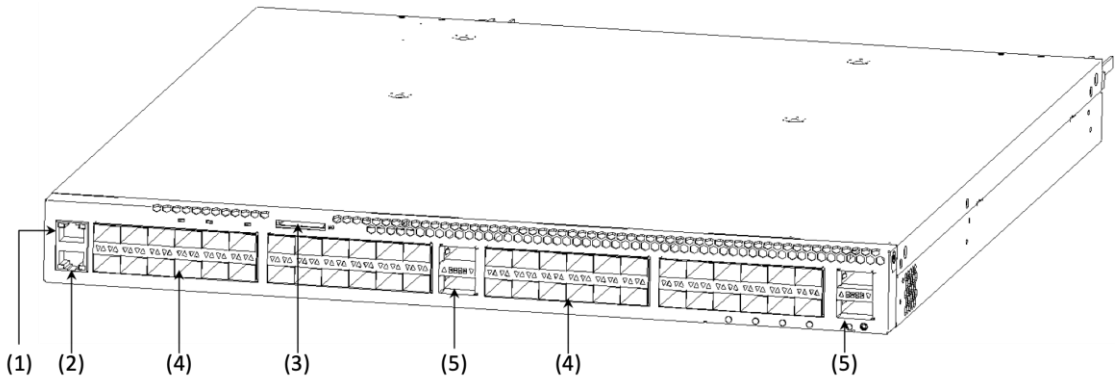
- SFP+ slots: 48
- QSFP28 slots: 4
- Console ports: 1 (RJ-45)
- Management ports（10BASE-T/100BASE-TX): 1
- Memory card slots: 1
- Power system slots: 2
- Fan unit slots: 1
- Synchronous Ethernet structure: Internal

NOTE

To utilize the Synchronous Ethernet feature, the Sync-E feature option license is required. The feature is not useable for models other than the AX3660S-24X4QW and AX3660S-48X4QW because the system is not installed in these models.

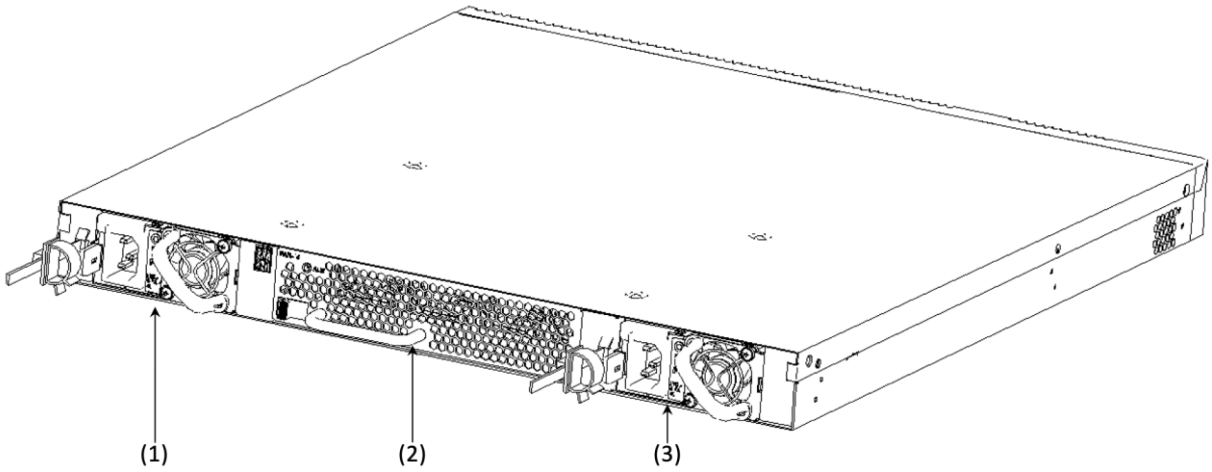
(1) Exterior

Fig.1-23 Front exterior



(1) CONSOLE Port: 1 Port (RJ-45)
(2) MANAGEMENT port（10BASE-T/100BASE-TX）ports: 1
(3) Memory card slots: 1
(4) SFP+ slots: 48
(5) QSFP28+ slots: 4

Fig.1-24 Back exterior



(1) Power system slots: 2
(2) Fan unit (FAN) slot
(3) Power system slots: 1

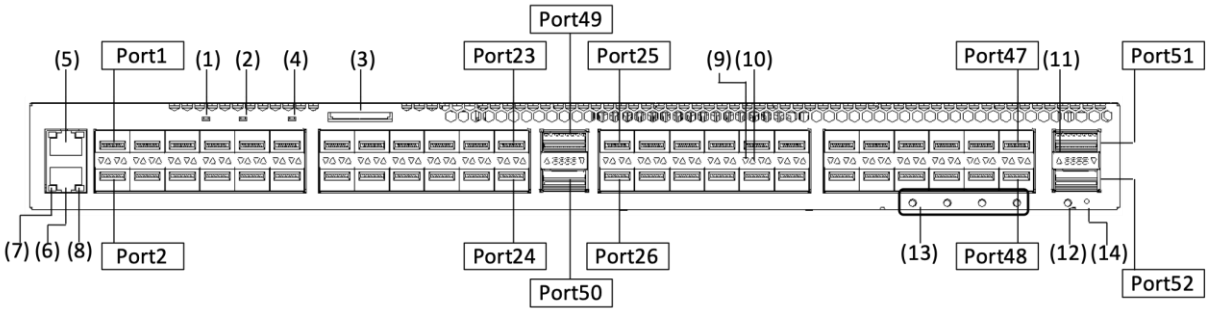
(2) Front panel

The following is the layout for the front panel. The front panel layout is comprised of two types (Device A and Device B), but there are no functional differences between them.

The AX3660S-48XT4QW supports LED brightness dimming features (energy-saving dimming mode, lights off mode) for energy-saving purposes.

Fig.1-25 Front panel layout

● Unit Type A



● Unit Type B

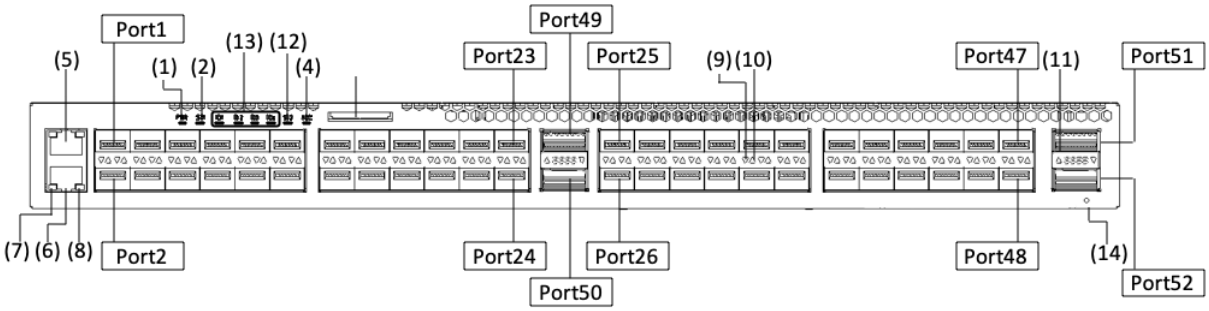


Table 1-9 LED Displays, Switches, and Connectors

No.	Name	Category	Status		LED brightness	Description
(1)	PWR	LED: Green	Indicates power status.	Green light on	Ready	Power ON
				Lights off	—	Power OFF or power failure
(2)	ST1	LED: Green/ red	Indicates Unit status.	Green light on	Ready	Operatable
				Green light flashing	Ready	Getting ready（launching）
				Red light flashing	Ready	Unit error
				Red light on	Ready	Critical Unit error (Unit cannot continue to operate)
				Lights off	—	Power OFF or power failure
(3)	MC	Connector	Memory card slot	—	—	Memory card slot
(4)	ACC	LED: Green	Indicates memory card status	Green light on	Ready	Accessing memory card (do not remove memory card at this time).
				Light off	—	Memory card idling (card may be installed or disconnected at this time).
(5)	CONSOLE	Connector	CONSOLE ports	—	—	RS-232C port (no LED light on) for connecting console terminals
(6)	MANAGE MENT	Connector	MANAGEMENT ports	—	—	10BASE-T /100BASE-TX port for remote connections
(7)	LINK (MNG)	LED: Green	MANAGEMENT port status	Green light on	Ready	Establish link
				Light off	—	Where the ST1 LED is flashing green, there is a problem with the link or an accessibility issue.*2
(8)	T/R (MNG)	LED: Green		Green light flashing	Ready	Frame send/receive
(9)	LINK (SFP+)	LED: Green/ orange/ red	Indicates SFP+ slot status	Green light on	Ready	Establish link and send/receive frames
					Low*1	
				Orange or red light on	Ready	Disabled line detected
					Low*1	
				Light off	—	*2Where the ST1 LED is flashing green, there is a problem with the link or an accessibility issue.*2
(10)	T/R (SFP+)	LED: Green		Green light flashing	Ready	Frame send/receive
					Low*1	

No.	Name	Category	Status		LED brightness	Description
(11)	QSFP28	LED: Green/ orange/ red	Indicates status of QSFP28 slot	Green light on	Ready	Link established
					Low*1	
				Green light flashing	Ready	Link established and send/receive frame
					Low*1	
				Orange or red light on	Ready	Disabled line detected
					Low*1	
				Light off	—	Where the ST1 LED is flashing green, there is a problem with the link or an accessibility issue.*2
(12)	ST2	LED: Green	Indicates stackable switch status or Sync-E status.	Green light on	Ready	・Stacking activated: Operates as master switch Stacking not activated: Sync-E activated and synched with external clock Sync-E
				Light off	—	・Stacking activated: Switch is on initial status or operating as backup switch Stacking not activated: Sync-E activated and synched with internal clock, or Sync-E not activated.
(13)	ID1～ID4	LED: Green	Indicates stackable switch number.	ID1 Green light on	Ready	Switch number=1
				ID2 Green light on	Ready	Switch number=2
				Light off	—	Stand-alone status
(14)	RST (RESET)	Switch (non-locking)	Unit reset switch*3	—	—	Restart Unit

*1 Operating in energy-saving low brightness mode (economy)

*2 When in lights-out mode, the Unit may be establishing a link, sending/receiving frames, or there may be a line disturbance.

*3 The switch is located further back than the front panel. Use a thin screwdriver or similar to push it in.

⚠WARNING

When pushing on the switch, avoid inserting any small items that can bend easily, as well as pins, clips, etc., which could potentially slip inside and be difficult to remove. Inserting these items in the switch could cause fire or electric shock.

NOTE

For information on main Unit support for the transceiver, refer to the “ALAXALA Transceiver Hardware User Manual (AX-COM-H001).”

1.1.9 Accessories

See the following for items included in the box together with the Unit when the Unit is shipped from the factory.

Table 1-10 Accessories that come with the main Unit

No.	Product Name	Model		Quantity	Notes
		Models with AC non-detached power cords	Replaceable battery models		
1	Prior to using the Unit	○	○	1	Series name noted on Unit.
2	Using the Unit safely	○	○	1	
3	Software license agreement and license sheet	○	○	1	
4	Using the dummy memory card: points to remember	○	○	1	
5	Rack mounting (R)	○	○	1	
6	Rack mounting bracket (L)	○	○	1	
7	Screws	○	○	12	M3×6 countersunk screws
8	Rubber feet	○	○	4	
9	Cable clamp	○	○	2	Install for use with AC power supply.
10	Dummy memory cards	○	○	1	Utilize when memory card not in use.
11	AC power source cable	○	-	2	3m

(1) Before using the Unit

See the following for items included in the box together with the Unit when the Unit is shipped from the factory.

(2) Safe handling

Precautions to take for safety purposes are noted as follows. Read to the end before using the product.

(3) Software contract agreement and license sheet

The following contains information on contract terms and licensing options pertaining to use of the software that comes with the Unit.
Read through to the end.

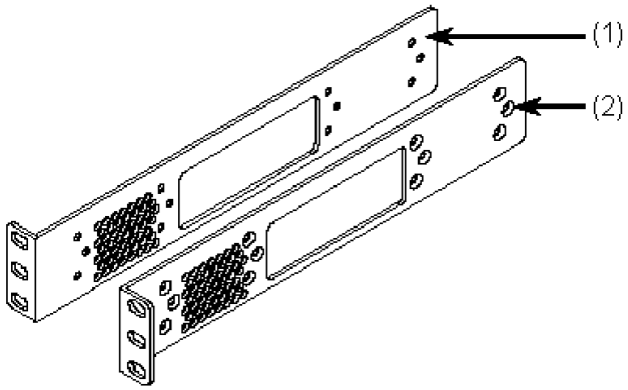
(4) Using the dummy memory card

Note the following precautions on handling and use of the dummy memory card.

(5) Rack mounting bracket

Use when attaching the Unit to a Type 19 cabinet rack.

Fig1-26 Rack mounting bracket

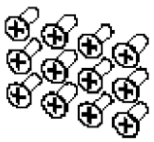


(1) Rack mounting bracket (L)
(2) Rack mounting bracket（R）

(6) Screws

Use when attaching the rack mounting bracket to the Unit.

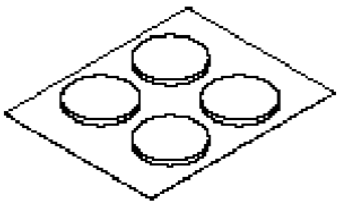
Fig.1-27 Screws



(7) Rubber feet

Use when installing the Unit on a desktop.

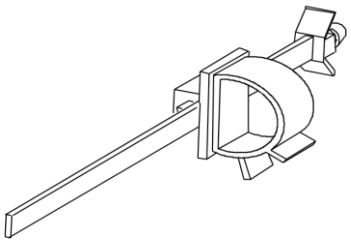
Fig.1-28 Rubber feet



(8) Cable Clamps

Used to prevent the AC power cables from coming out during use of AC power systems.

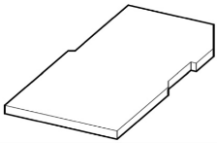
Fig.1-29 Cable clamps



(9) Dummy memory cards

When you are not using the memory cards, place a dummy card in the Unit's memory card slot in place of the memory card. It can be left in the slot.

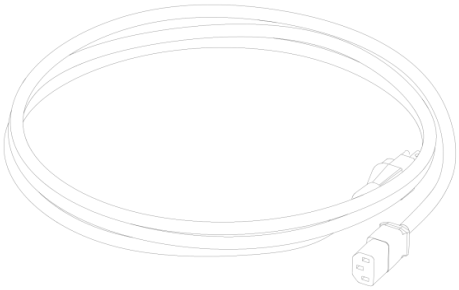
Fig.1-30 Dummy memory card



(10) AC Power Cable

The AC100V power cable is three meters long. It is used to connect attached-cable models with power source equipment. This cable is included in the box with your attached-cable model.

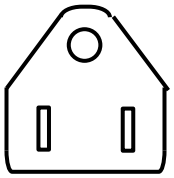
Fig.1-31 AC power cable



⚠WARNING

To power detached-cable models with AC100V, use the power cable that comes with the unit or equipment separately sold by our company. Note that using other equipment could cause fire or electric shock. Do not use our company's power cables with equipment other than the unit. Using the cables with equipment other than the unit could cause fire or electric shock.

Table 1-11 AC power cable specifications (100V)

Category	Connector (Unit)	Cable	Plug (Outlet)
Shape		Adjustments made for three cores or greater	 Shape: JIS C 8303 and NEMA 5-15P

⚠WARNING

To power detached-cable units with AC200V, use the power cable that comes with the unit or equipment separately sold by our company. Note that using other equipment could cause fire or electric shock. Do not use our company's power cables with equipment other than the unit. Using the cables with equipment other than the unit could cause fire or electric shock.

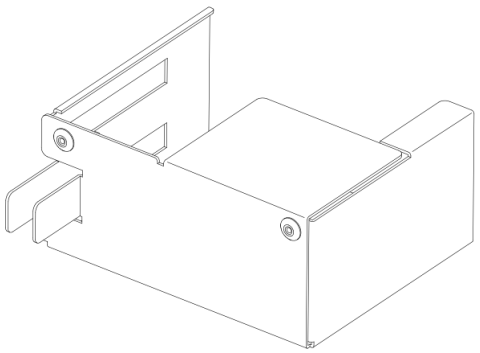
NOTE

For information on our company's specifications, refer to "2.3.2 AC200V Power Equipment.

(11) Blank panel

Where only one power system is used in a power source-replaceable model, the blank panel is used instead of a power system.

Fig.1-32 Blank panel



NOTE

The blank panel is shipped attached to the Unit. Note that the half-duplex power set is not included. Attached-cable models are not fitted with blank panels.

1.2 Power System

This power system supplies power to power-source replaceable models. It includes power source system slots for use with the Unit. Note the following regarding compatibility between the main Unit and the power system.

Table 1-12 Compatibility of Main Unit and Power Source

Series Name	Model Name	Compatibility of power systems	
		AC100V, 200V	DC-48V
AX3660S	AX3660S-24T4XW AX3660S-48T4XW AX3660S-16S4XW AX3660S-24S8XW AX3660S-24X4QW AX3660S-48X4QW	PS-A06*1, PS-A06R	PS-D06*1
	AX3660S-48XT4QW	PS-A06*1	PS-D06*1

*1 For power supply redundancy, PS-A06 and PS-D06 can be used in combination.

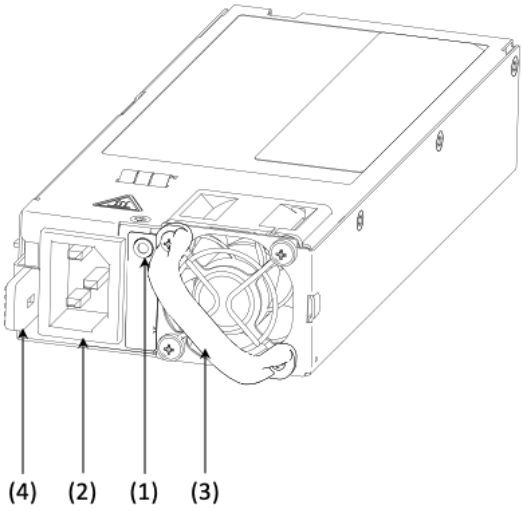
⚠ CAUTION

Ensure that the power source system and fan unit air flows are the same. Incorrect combinations can impeded cooling, potentially resulting in malfunction, breakage, or fire.

1.2.1 PS-A06 / PS-A06R

PS-A06 and PS-A06R are part of power systems used in power source-replaceable models.
They accommodate both AC100V and AC200V.
The PS-A06 feature front intake and back vent airflow, while the PS-A06R accommodates back intake and front vent airflow. AX3660S-48XT4QW can be utilized only with PS-A06. For other power source-replaceable models, the user may select the S-A06 or PS-A06R.

Fig.1-33 Exterior



(1) LED
(2) AC power connector
(3) Handle color: PS-A06=red, PS-A06R=blue
(4) Lever

Table 1-13 LED Displays

No.	Name	Category	Status	Description
(1)	PS OK	LED: Green/ orange	Indicates power system status (on/off), as well as internal power source system (including internal fans) failures.*1	Green light on: Power ON Green light flashing: Input power source issue Orange light on: Failure detected Light off: Power OFF

*1 Note that depending on the type of failure, the PS_OK LED may not come on.

NOTE The life of the power source may be extended by combining the PS-A06 and PS-D06.

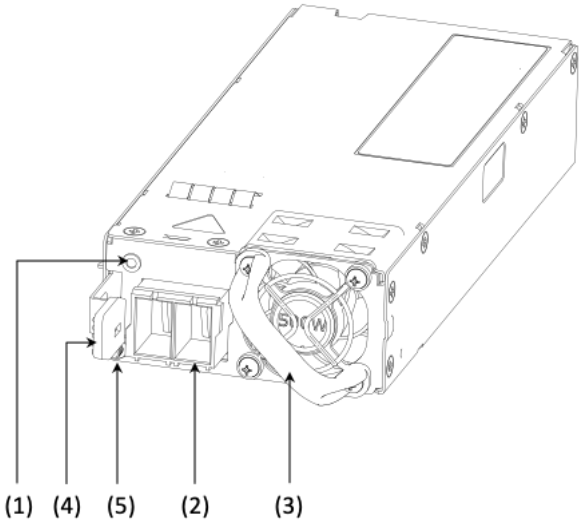
1.2.2 PS-D06

PPS-D06 is a power source structure used in power source replaceable models.

Compatible with DC-48 V.

PS-D06 accommodates front intake and back rear vent air flows.

Fig.1-34 Exterior



(1) LED
(2) DC power source connector
(3) PS-D06 handle color: red
(4) Lever
(5) Grounding terminal

Table 1-14 LED Displays

No.	Name	Category	Status	Description
(1)	PS OK	LED : Green/ orange	Indicates power system status (on/off), as well as internal power source system (including internal fans) failures.*1	Green light on: power ON Green light flashing: Input power source irregularity Orange light on: Disabled line detected Lights off: Power OFF

*1 The PS_OK LED may not light up, depending on the type of failure.

NOTE The life of the power source may be extended by combining the PS-A06 and PS-D06.

1.2.3 Accessory items for power systems

The following items are enclosed together in the same box with factory-shipped power systems.

Table 1-15 Accessory items for power systems

No.	Item Name	Quantity	Description
1	Checklist of items in box	1	
2	Safe handling	1	
3	AC power cable	1	Comes with PS-A06 and PS-A06R, length=3m
4	Grounding cable	1	Included with PS-D0, length: 3m
5	DC power connector	1	Comes with PS-D06
6	DC power connector extraction tool	1	Comes with PS-D06
7	Using the DC power connector extraction tool	1	Comes with PS-D06

(1) Checklist of items contained in box

See the following for items included in the box together with the Unit when the Unit is shipped from the factory.

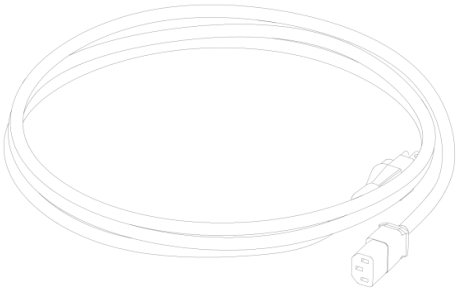
(2) Safe handling

Precautions to take for safety purposes are noted as follows. Read to the end before using the product.

(3) AC Power cable

The power cable for AC100V is three meters long. It is used to connect PS-A06 and PS-A06R and power source equipment. This power cable comes in the same box with PS-A06 and PS-A06R.

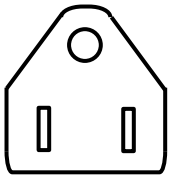
Fig.1-35 AC power cable



⚠WARNING

To use the power system with AC100V, use the power cable that comes with the unit or equipment separately sold by our company. Note that using other equipment could cause fire or electric shock. Do not use our company's power cables with equipment other than the unit. Using the cables with equipment other than the unit could cause fire or electric shock.

Table 1-16 AC power cable specifications (100V)

Category	Connector (Unit)	Cable	Plug (outlet)
Shape		Adjustments made for three cores or greater	 Shape: JIS C 8303 and NEMA 5-15P

⚠WARNING

To use the power system with AC200V, use the power cable that comes with the unit or equipment separately sold by our company. Note that using other equipment could cause fire or electric shock. Do not use our company's power cables with equipment other than the unit. Using the cables with equipment other than the unit could cause fire or electric shock.

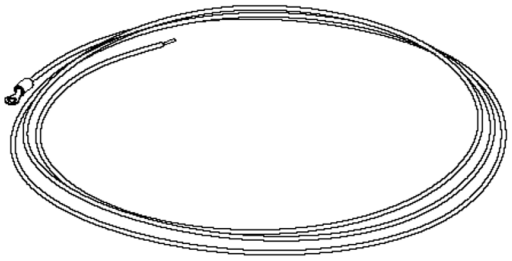
NOTE

For information on our company's specifications, refer to "2.3.2 AC200V Power Equipment."

(4) Grounding cable

This grounding cable is three meters in length. It is used together with PS-D06. It is included with PS-D06.

Fig.1-36 Grounding cable



⚠WARNING

The PD-D06 is not included with the power cable. To use the PS-D06, use a power cable of specifications recommended by our company. Using items of other specifications could lead to fire or electric shock.

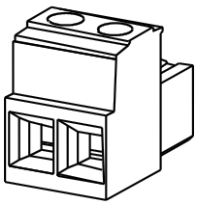
NOTE

For information on power cable specifications provided by our company, refer to "2.3.3 DC-48V Power Equipment."

(5) DC Power connector

Dedicated DC power connector specifically for PS-D06. This connector is included in the box with the PS-D06.

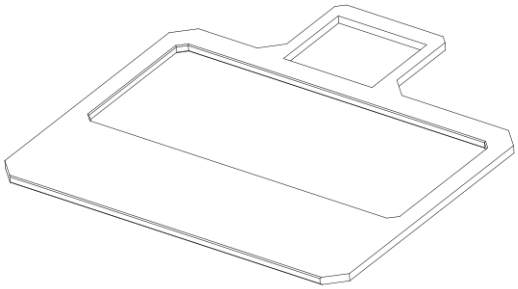
Fig.1-37 DC power connector



(6) DC power connector extraction tool

This is a DC power connector extraction tool, used to remove the DC power connector from the PS-D06 power connector.

Fig.1-38 DC power connector extraction tool



(7) Using the DC power connector extraction tool

Note the following precautions in handling the DC power connector extraction tool.

1.3 Fan Unit（FAN）

The fan unit is a system designed to cool the interior of power-replaceable models. Note the following regarding compatibility between the main Unit and the fan.

Table 1-17 Compatibility of Main Unit and Fan Unit

Series	Model Name	Corresponding fan units
AX3660S	AX3660S-24T4XW AX3660S-48T4XW AX3660S-16S4XW AX3660S-24S8XW AX3660S-24X4QW AX3660S-48X4QW	FAN-04, FAN-04R
	AX3660S-48XT4QW	FAN-04

⚠CAUTION Ensure that the power source system and fan unit air flows are the same. Incorrect combinations can impeded cooling, potentially resulting in malfunction, breakage, or fire.

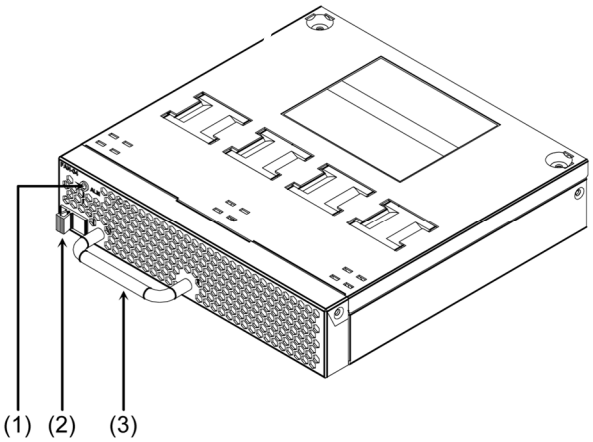
1.3.1 FAN-04 / FAN-04R

The FAN-04 features front intake and back vent airflow, while the FAN-04R accommodates back intake and front vent airflow. AX3660S-48XT4QW can be utilized only with FAN-04. For other power source-replaceable models, the user may select between FAN-04 and FAN-04R.

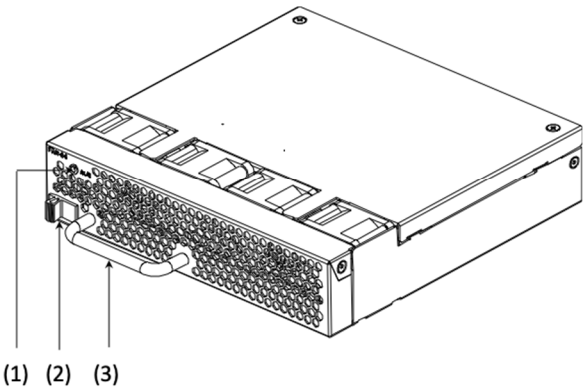
The fans are used with the fan unit slots on the Unit regardless of the number of power systems. The FAN-04 and FAN-04R have two types of exterior (Type A Fan and Type B Fan). There is no difference between them in terms of performance.

Fig.1-39 Exterior

● Type A Fan



● Type B Fan



(1) ALM LED
(2) Latch
(3) Handle

Table 1-18 LED Displays

No.	Name	Category	Status	Description
(1)	ALM	LED: Red	Indicates fan failure	Red light on: Failure detected Lights off: No fault

NOTE

There are a total of four fans in the fan unit. If one breaks, it will still serve to cool the Unit. Replace broken fan units promptly.
For information on replacing the fan unit, refer to “5.4 Replacing the Fan Unit."

1.3.2 Fan Unit Accessory Items

When shipped from the factory, the following accessory items come packed together with the fan unit.

Table 1-19 Fan unit accessory items

No.	Item Name	Quantity	Description
1	Checklist of items included in box	1	
2	For safe handling	1	

(1) Checklist of items included in box

This is a list of items included together with the fan unit when shipped from the factory.

(2) Safe handling

Precautions to take for safety purposes are noted as follows. Read to the end before using the product.

1.4 Memory Cards

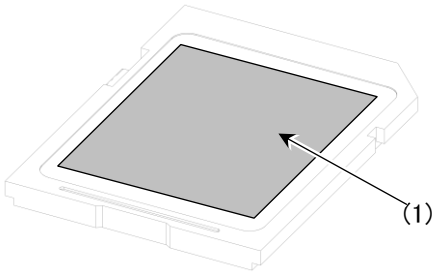
Memory cards are inserted into the Unit memory card slot.
Memory cards are used in the following situations:

- Backing up information on operations
- Saving information on system failures including timing
- Updating the Unit's software

(1) SD1G

1GB SD memory card

Fig.1-40 Exterior



Labelling : AlaxalA SD1G

NOTE Use only our company's standard items (marked with labels on the charts shown). We cannot guarantee performance where other items are used instead.

NOTE The memory card can be written on a maximum of approximately 10,000 times.

1.5 Transceivers

For information on main Unit support for the transceiver, refer to the “ALAXALA Transceiver Hardware User Manual (AX-COM-H001).

1.6 Directly-Attached Cables

The directly-attached cable is an interface cable with transceivers at both ends.

The differences between types of directly-attached cables can be observed in labelling differences. Where a directly-attached cable is installed on the Unit, use the “show port” command to tell the difference.

The following are directly-attached cables supported by the Unit.

Table 1-20 List of directly-attached cables for the QSFP+ slot

No.	Name	Length*1	AWG No	Minimum bending radius Single bend*2	Labelling	Models Supported
1	SFPP-CU30C	30cm	30	20.5mm	AlaxalA SFPP-CU30C	AX3660S
2	SFPP-CU1M	1m	30	20.5mm	AlaxalA SFPP-CU1M	AX3660S
3	SFPP-CU3M	3m	30	20.5mm	AlaxalA SFPP-CU3M	AX3660S
4	SFPP-CU5M	5m	24	30.0mm	AlaxalA SFPP-CU5M	AX3660S

*1 Includes connector dimensions (approximately 60 mm for one side, 120 mm for both). The cable length does not include the connector part.
Example: Length of SFPP-CU30C cable ＝ 300mm － (approximately 60mm×2＝approximately 180 mm

*2 “Single bend” refers to cables bent in one spot.

Table 1-21 List of directly-attached cables for the QSFP+ slot

No.	Name	Length*1	AWG No	Minimum Bending radius Single bend*2	Labelling	Models supported
1	QSFP-CU35C	35cm	30	32.35mm*3	AlaxalA QSFP-CU35C	AX3660S
2	QSFP-CU1M	1m	30	32.35mm	AlaxalA QSFP-CU1M	AX3660S
3	QSFP-CU3M	3m	30	32.35mm	AlaxalA QSFP-CU3M	AX3660S
4	QSFP-CU5M	5m	26	50.8mm	AlaxalA QSFP-CU5M	AX3660S

*1 Length of the connector is included (side=approximately 70 mm, both sides=approximately 140 mm). The cable length does not include the connector part.
Example: Length of QSFP28-C35 cable＝ 350 mm － (approximately 70 mm × 2＝approximately 210 mm)

*2 “Single bend” refers to cables bent in one spot.

*3 The minimum bending radius of cable within 50mm of point where connector and cable meet. Only the QSFP-CU35C has a minimum bending radius of 21 meters for cable other than that which sits at greater than 50 mm from the point where connector and cable meet. In this case, the bending angle is a maximum of 180 degrees, with number of bends at just one.

Table 1-22 List of directly-attached cables for the QSFP28

No.	Name	Length*1	AWG No	Minimum bending radius Single bend*2	Labelling	Models supported
1	QSFP28-C35	35cm	30	45.0mm*3	AlaxalA QSFP28-C35	AX3660S
2	QSFP28-C1M	1m	30	45.0mm	AlaxalA QSFP28-C1M	AX3660S

*1 Includes connector dimensions (approximately 72 mm for one side, 144 mm for both). The cable length does not include the connector part.
Example: Length of QSFP28-C35 cable＝ 350 mm － (approximately 72 mm×2) ＝approximately 206 mm

*2 “Single bend” refers to cables bent in one spot.

*3 The minimum bending radius of cable within 50mm of point where connector and cable meet. Only the QSFP-CU35C has a minimum bending radius of 21 meters for cable other than that which sits at greater than 50 mm from the point where connector and cable meet. In this case, the bending angle is a maximum of 180 degrees, with number of bends at just one.

NOTE

Use our company’s standard products (with labels as show in charts). Our company cannot guarantee that the Unit will run properly with anything other than standard products.

NOTE

Perform an operations check test prior to connecting any device other than our company’s Unit with the directly-attached cable.

NOTE

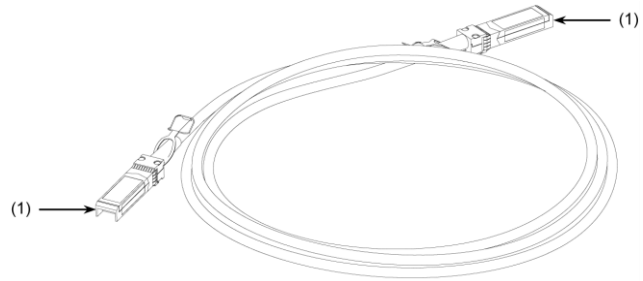
To keep the cable from bending over time, attach the cable using a cable holder on a rack mount. Ensure that no weight is placed on the cable ends.

NOTICE

Do not affix labels to transceivers. Attaching labels to parts of the transceiver where heat is released or that hold it in place could cause the transceiver to break or malfunction.

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

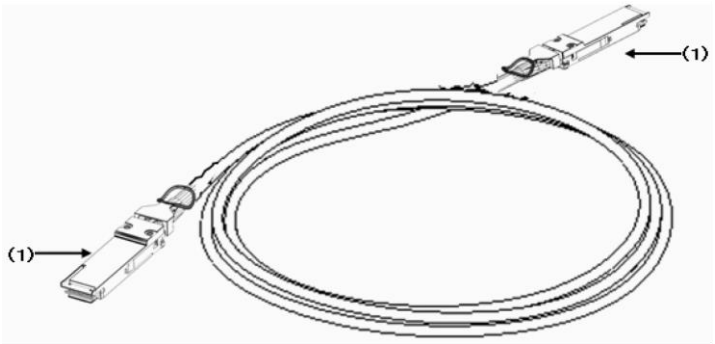
Fig.1-41 Exterior



(1) Connector

(2) QSFP-CU35C, QSFP-CU1M, QSFP-CU3M, QSFP-CU5M

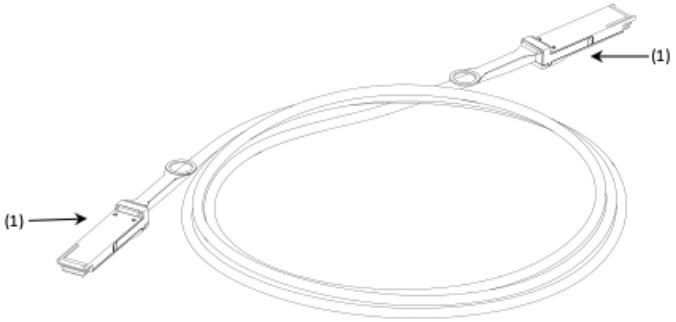
Fig.1-42 Exterior



(1) Connectors

(3) QSFP28-C35, QSFP28-C1M

Fig.1-43 Exterior



(1) Connectors

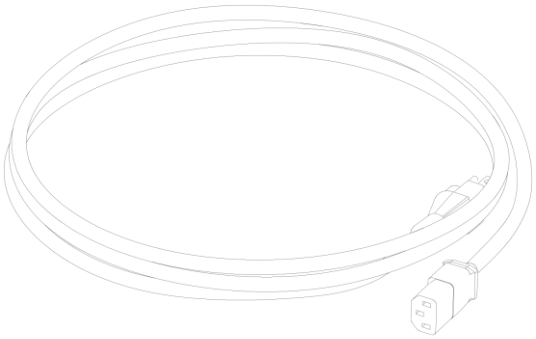
1.7 Power Cables

(1) CBLACA

The AC100V power cable (sold separately, length=3.0 meters)

This cable can be utilized when powering the Unit with AC100V.

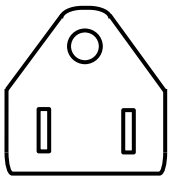
Fig.1-44 Exterior



⚠WARNING

To use the Unit with AC100V, use the power cable that comes with the unit or equipment separately sold by our company. Note that using other equipment could cause fire or electric shock. Do not use our company's power cables with equipment other than the unit. Using the cables with equipment other than the unit could cause fire or electric shock.

Table 1-23 Specifications on separately-sold AC power cables (100V)

Category	Connector (Unit)	Cable	Plug (Outlet)
Shape		Adjustments made for three cores or greater	 Shape: JIS C 8303 and NEMA 5-15P

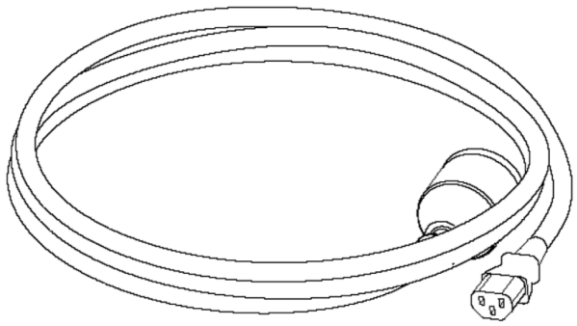
(2) CBL-A12

AC 200V power cable (separately sold, length=2.5 m)

This cable is used where the Unit is powered by AC200V.

Items AX6300S/AX6600S/AX6700S, which come with CBL-A12, are used exclusively to prevent the cable from slipping. The Unit features a cable clamp for fixing the cable in place on the Unit, which eliminate the need for fixtures to keep the cable from slipping.

Fig.1-45 Exterior



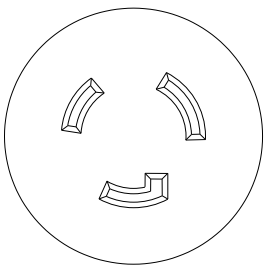
⚠WARNING

To power the Unit with AC200V, use the power cable that comes with the unit or equipment separately sold by our company. Note that using other equipment could cause fire or electric shock. Do not use our company's power cables with equipment other than the unit. Using the cables with equipment other than the unit could cause fire or electric shock.

NOTE

Where our company's separately-sold items are not compatible with power equipment, use a power cable that conforms to our company's specifications for this equipment. Refer to "2.3.2 AC 200V Power Supply Equipment" for our company's recommendations on power cables.

Table 1-24 Specifications of separately-sold AC power cable (200V)

Category	Connector (on Unit)	Cable	Plug (outlet)
Shape		Adjustments made for three cores or greater	 Shape：JIS C 8303 and NEMA L6-20P

2 Preparing for Setup

The following chapter details the environmental conditions for equipment setup. Read this chapter well prior to preparing for Unit setup and ensure that you understand the instructions and precautions to be taken.

2.1 Preparation Steps

2.2 Setup Requirements

2.3 Power Supply Setup

2.4 Taking Steps to Address Electrical Noise

2.5 Leakage Current

2.6 Environmental Requirements

2.7 Setup Location

2.8 Maintenance Area

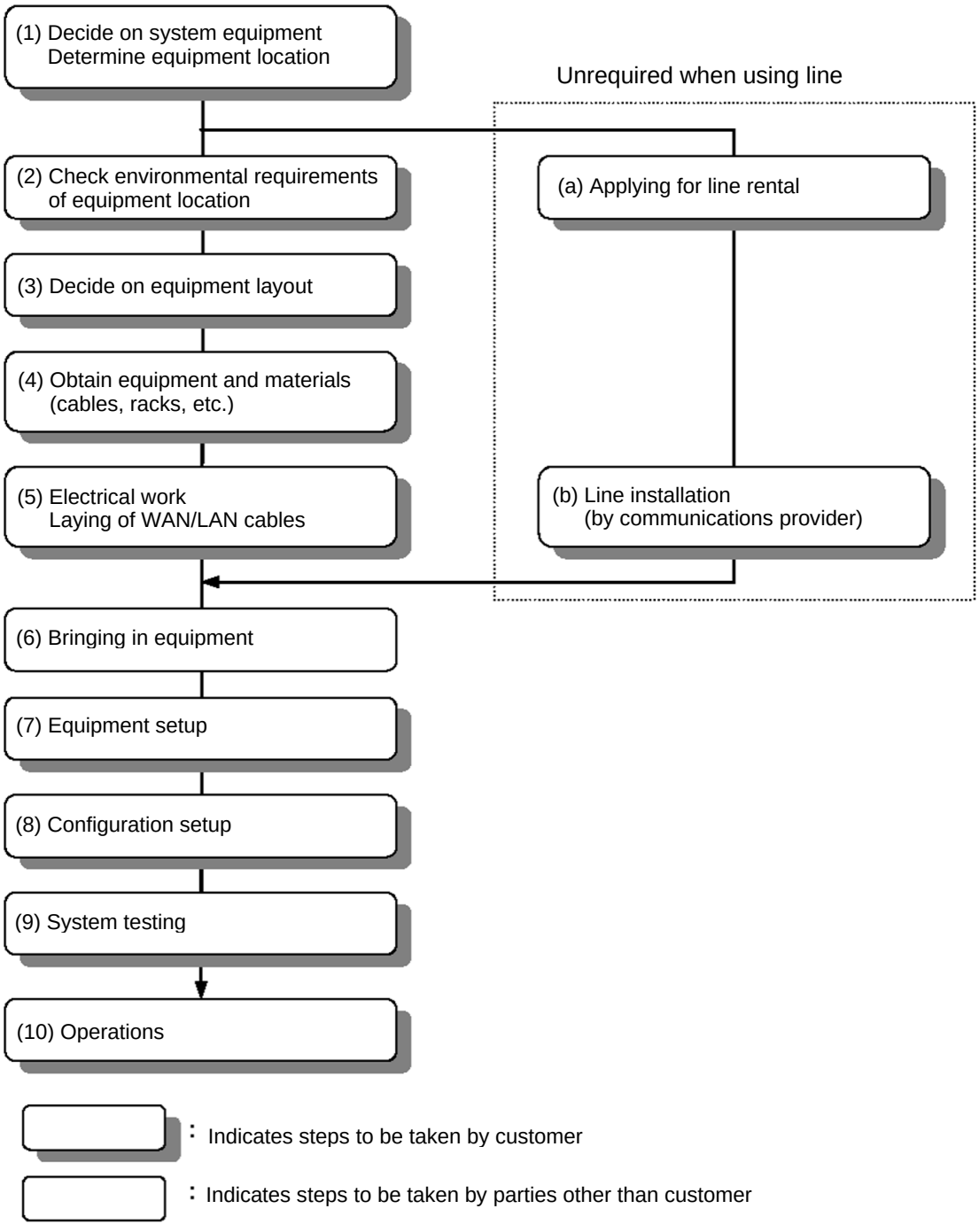
2.9 Cooling Requirements

2.10 About Noise Generated by the Unit

2.1 Preparation Steps

For order of preparations, refer to “Chart 2-1 Order of Setup Preparations.” Plan such that power and communications setup as well as the laying of LAN cables is completed prior to bringing in the equipment.

Fig.2-1 Setup Preparations



2.2 Setup Requirements

The following are setup requirements for the Unit. The setup environment must meet the following conditions.

Table 2-1 AX3660S Series Unit Setup Requirements (1/5)

Category		Model
		AX3660S-24T4X
Dimensions (W×D×H) *1		445×380×43mm
Weight *2		6.0 kg or less
Input voltage	Power rating	Single phase AC 100-120V, 200-240V*3
	Variation range	AC 90V-127.2V, 180-254.4V
Frequency		50/60±3Hz
Maximum input current		1.1 A@AC100V
		0.6 A@AC200V
Maximum apparent power		110 VA
Maximum power consumption		110 W
Maximum heat generation		396 kJ/h
Noise*4	Up to 35°C	41 dB
	36-50°C	50 dB
Vibration		2.45m/s2 or less
Dust *5		0.15mg/m3 or less
Temperature	During operation	-10-50℃ *6, *7, *8
	Not during operation	-10-50°C
	During storage/transport	-25-65°C
Humidity	During operation	10-90% (no condensation) (recommended value: 45-55%)
	Not during operation	10-90%
	During storage/transport	10-90%

*1 Does not include connectors, handles, etc.

*2 Does not include weight of cables, rack installation equipment, memory cards, transceivers, etc.

*3 The included power cables run only on AC100V.

*4 Actual value according to ISO7779.

*5 According to general suspended dust concentration measurements (JIS Z 8813)

*6 0°C -maximum temperature at device startup

*7 Requirements under 0°C: 72 continuous hours/15 days or less annually

*8 Maximum temperature for SFPP-ZR is 40°C.

Table 2-2 Setup requirements for AX3660S Series Units（2/5）

Category		Model			
		AX3660S-24T4XW		AX3660S-48T4XW	
		PS-A06/PS-A06R Installed	PS-D06 Installed	PS-A06/PS-A06R Installed	PS-D06 Installed
Dimensions (W×D×H) *1		445×450×43mm		445×450×43mm	
Weight *2		10.0 kg or less		10.0 kg or less	
Input voltage	Power rating	Single phase AC 100-120V, 200-240V*3	DC-48V	Single phase AC 100-120V, 200-240V*3	DC-48V
	Variation range	AC 90V-127.2V, 180-254.4V	DC -40 –57V	AC 90V-127.2V, 180-254.4V	DC -40 to –57V
Frequency		50/60±3Hz	—	50/60±3Hz	—
Maximum input current		1.3 A @AC100V	3.1 A @DC-48V	1.4 A @AC100V	3.3 A @DC-48V
		0.7 A @AC200V	-	0.7 A @AC200V	-
Maximum apparent power		130 VA	-	140 VA	-
Maximum power consumption		130 W	145 W	140 W	155 W
Maximum heat generation		468 kJ/h	522 kJ/h	504 kJ/h	558 kJ/h
Noise *4	Up to 28°C	48 dB (front intake/back exhaust), 57dB (front intake/back exhaust)			
	29-35°C	52 dB (front intake/back exhaust), 59dB (front intake/back exhaust)			
	36-50°C *10	57 dB (front intake/back exhaust), 63dB (front intake/back exhaust)			
Vibration		2.45m/s2 or less			
Dust*5		0.15mg/m3 or less			
Temperature	During operation	-10-50°C (front intake/back exhaust) *6, *7, *8, *9 -10-40°C (front intake/back exhaust) *6, *7			
	Not during operation	-10-50°C			
	During storage/transport	-25-65°C			
Humidity	During operations	AC power source: 10-90% (no condensation) (recommended value: 45-55%) DC power source: 10-80% (no condensation) (recommended value: 45-55%)			
	Not during operations	10-90%		10-90%	
	During storage/transport	10-90%		10-90%	

*1 Does not include dimensions of connectors, handles, etc.
*2 Weight shown includes two power sources and one installed fan unit. It does not include cables, rack installation fixtures, memory cards, or transceivers.
*3 Electric cables included with PS-A06/PS-A06R are compatible only with AC100V.
*4 Actual value according to ISO7779
*5 According to general suspended dust concentration measurements (JIS Z 8813)
*6 0°C -maximum temperature at device startup
*7 Requirements under 0°C: 72 continuous hours/15 days or less annually
*8 Requirements above 45°C: 72 continuous hours/15 days or less annually (with DC power source only)
*9 Maximum temperature for SFPP-ZR is 40°C.
*10 Maximum temperature for front intake/back exhaust is 40°C.

Table 2-3 AX3660S Series Unit Setup Requirements (3/5)

Category		Model			
		AX3660S-16S4XW		AX3660S-24S8XW	
		PS-A06/PS-A06R Installed	PS-D06 Installed	PS-A06/PS-A06R Installed	PS-D06 Installed
Dimensions (W×D×H) *1		445×450×43mm		445×450×43mm	
Weight*2		10.0 kg or less		10.0 kg or less	
Input voltage	Rating	Single-phase AC 100-120V, 200-240V*3	DC-48V	Single-phase AC 100-120V, 200-240V*3	DC-48V
	Variation range	AC 90V-127.2V, 180-254.4V	DC -40 to -57V	AC 90V-127.2V, 180-254.4V	DC -40 to -57V
Frequency		50/60±3Hz	—	50/60±3Hz	—
Maximum input current		1.4 A *10 @AC100V	3.2 A *10 @DC-48V	1.6 A @AC100V	3.5 A @DC-48V
		0.7 A *10 @AC200V	-	0.8 A @AC200V	-
Maximum apparent power		135 VA	-	155 VA	-
Maximum consumption		135 W *10	150 W *10	155 W	165 W
Maximum heat generation		486 kJ/h *10	540 kJ/h *10	558 kJ/h	594 kJ/h
Noise*4	Up to 28°C	48 dB (front intake/back exhaust), 57dB (front intake/back exhaust)			
	29-35°C	52 dB(front intake/back exhaust), 59dB (front intake/back exhaust)			
	36-50°C *11	57 (front intake/back exhaust), 63dB (front intake/back exhaust)			
Vibration		2.45m/s2 or less			
Dust *5		0.15mg/m3 or less			
Tempera-ture	During operation	-10-50°C (front intake/back exhaust) *6, *7, *8, *9 -10-40°C (front intake/back exhaust) *6, *7			
	Not during operation	-10-50°C			
	During storage/transport	-25-65°C			
Humidity	During operation	AC power source: 10-90% (no condensation) (recommended value: 45-55%) DC power source: 10-80% (no condensation) (recommended value: 45-55%)			
	Not during operation	10-90%		10-90%	
	During storage/transport	10-90%		10-90%	

*1 Does not include dimensions of connectors, handles, etc.

*2 Weight shown includes two power sources and one installed fan unit. It does not include cables, rack installation fixtures, memory cards, or transceivers.

*3 Electric cables included with PS-A06/PS-A06R are compatible only with AC100V.

*4 Actual value according to ISO7779

*5 According to general suspended dust concentration measurements (JIS Z 8813)

*6 0°C -maximum temperature at device startup

*7 Requirements under 0°C: 72 continuous hours/15 days or less annually

*8 Requirements above 45°C: 72 continuous hours/15 days or less annually (with DC power source only)

*9 Maximum temperature for SFPP-ZR is 40°C.

*10 Where port extension option license (OP-PORT) for AX3660S-16S4XW/AX3660S-24X4QW models is applied, values are the same as for AX3660S-24S8XW.

*11 Maximum temperature for front intake/back exhaust is 40°C.

Table 2-4 AX3660S series unit setup requirements (4/5)

Category		Model	
		AX3660S-48XT4QW	
		PS-A06 installed	PS-D06 installed
Dimensions (W×D×H) *1		445×480×43mm	
Weight *2		11.0 kg or less	
Input voltage	Rating	Single-phase AC 100-120V, 200-240V*3	DC-48V
	Variation range	AC 90V-127.2V, 180-254.4V	DC -40 to -57V
Frequency		50/60±3Hz	—
Maximum input current		2.5 A@AC100V	5.7 A@DC-48V
		1.3 A@AC200V	-
Maximum apparent power		250 VA	-
Maximum consumption		250 W	270 W
Maximum heat generation		900 kJ/h	972 kJ/h
Noise*4	Up to 28°C	48 dB (front intake/back exhaust)	
	29-35°C	52 dB (front intake/back exhaust)	
	36-50°C	57 dB (front intake/back exhaust)	
Vibration		2.45m/s2 or less	
Dust*5		0.15mg/m3 or less	
Tempera-ture	During operation	-10～50°C (front intake/back exhaust) *6, *7, *8, *9	
	Not during operation	-10-50°C	
	During storage/transport	-25-65°C	
Humidity	During operation	AC power: 10-90% (no condensation) (recommended value: 45-55%) DC power: 10-80% (no condensation) (recommended value: 45-55%)	
	Not during operation	10-90%	
	During storage/transport	10-90%	

*1 Dimensions do not include connectors, handles, etc.

*2 Weight shown includes two power sources and one installed fan unit. It does not include cables, rack installation fixtures, memory cards, or transceivers.

*3 Electric cables included with PS-A06 are compatible only with AC100V.

*4 Actual value according to ISO7779

*5 According to general suspended dust concentration measurements (JIS Z 8813)

*6 0°C to maximum temperature at device startup

*7 Requirements below 0°C: 72 continuous hours/15 days or less annually

*8 Requirements above 45°C: 72 continuous hours/15 days or less annually (DC power source only)

*9 Maximum temperature for SFPP-ZR, QSFP28-4WDM-40 is 40°C.

*10 SFPP-ER and SFPP-ZR not installed (left)/installed (right)

Table 2-5 AX3660S series unit setup recommendations (5/5)

Category		Model			
		AX3660S-24X4QW		AX3660S-48X4QW	
		PS-A06/PS-A06R Installed	PS-D06 Installed	PS-A06/PS-A06R Installed	PS-D06 Installed
Dimensions (W×D×H) *1		445×480×43mm		445×480×43mm	
Weight *2		11.0 kg or less		11.0 kg or less	
Input voltage	Rating	Single-phase AC 100-120V, 200-240V*3	DC-48V	Single-phase AC 100-120V, 200-240V*3	DC-48V
	Variation range	AC 90V-127.2V, 180-254.4V	DC -40 to -57V	AC 90V-127.2V, 180-254.4V	DC -40 to -57V
Frequency		50/60±3Hz	—	50/60±3Hz	—
Maximum input current *10		1.8/1.9A @AC100V*11	4.0/4.2 A @DC-48V*11	2.0/2.3A @AC100V	4.5A/5.0A @DC-48V
		0.9/1.0A @AC200V*11	-	1.0/1.2A @AC200V	-
Maximum apparent power*10		175/190 VA	-	200/230 VA	-
Maximum consumption *10		175/190W*11	190/200W*11	200/230W	215/240W
Maximum heat generation*10		630/684kJ/h*11	684/720kJ/h*11	720/828 kJ/h	774/864 kJ/h
Noise *4	Up to 28°C	48 dB (front intake/back exhaust), 57dB (front intake/back exhaust)			
	29-35°C	52 dB (front intake/back exhaust), 59dB (front intake/back exhaust)			
	36-50°C *12	57 dB (front intake/back exhaust), 63dB (front intake/back exhaust)			
Vibration		2.45m/s2 or less			
Dust *5		0.15mg/m3 or less			
Tempera-ture	During operation	-10-50°C (front intake/back exhaust) *6, *7, *8, *9 -10-40°C (front intake/back exhaust) *6, *7			
	Not during operation	-10-50°C			
	During storage/transport	-25-65°C			
Tempera-ture	During operation	AC power: 10-90% (no condensation) (recommended value: 45-55%) DC power: 10-80% (no condensation) (recommended value: 45-55%)			
	Not during operation	10-90%			
	During storage/transport	10-90%			

*1 Dimensions do not include connectors, handles, etc.

*2 Weight shown includes two power sources and one installed fan unit. It does not include cables, rack installation fixtures, memory cards, or transceivers.

*3 Electric cables included with PS-A06/PS-A06R are compatible only with AC100V.

*4 Actual value according to ISO7779

*5 According to general suspended dust concentration measurements (JIS Z 8813)

*6 0°C to maximum temperature at device startup

*7 Requirements below 0°C: 72 continuous hours/15 days or less annually

*8 Requirements above 45°C: 72 continuous hours/15 days or less annually (DC power source only)

*9 Maximum temperature for SFPP-ZR/QSFP28-4WDM-40 is 40°C.

*10 SFPP-ER and SFPP-ZR not installed (left)/installed (right)

*11 Where port extension option license (OP-PORT) for AX3660S-16S4XW/AX3660S-24X4QW models, values are the same as for AX3660S-48X4QW.

*12 Maximum temperature for front intake/back exhaust is 40°C.

2.3 Power Supply Setup

2.3.1 AC100V power source

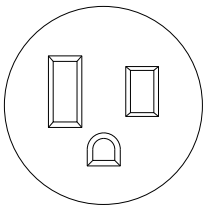
(1) Outlet

Use the following outlets compatible with JIS standards or NEMA standards. These outlets are sold at regular electrical equipment stores.

Table 2-6 Outlet rating

Rating		Specification
JIS	C-8303	15A 125V Grounded bipolar plug outlet
NEMA	5-15R	

Fig.2-2 Grounded bipolar plug outlet (15A 125V)



⚠WARNING To ensure that the power plug can be promptly removed, place Unit near the outlet. Do not place objects near the outlet.

⚠WARNING Using the Unit with AC100V, be sure to use a grounded outlet. If the outlet is not grounded, it can potentially cause electric shock. It can also engender electrical noise, which can in turn cause malfunction.

(2) Distribution board

The branch circuit supplying power to the Unit requires a breaker. To select your breaker, choose from the following ratings or lower, considering the factors of Unit input current and inrush current/time.

- Breaker rating: 15AT (single phase AC100V/15A circuit) or lower

For information on Unit inrush current, refer to the following chart for Unit inrush current/time "2.2 Setup Requirements."

Table 2-7 Inrush current

Model	Current (peak value)	Time
AX3660S-24T4X	50A	10 ms or less
AX3660S-24T4XW AX3660S-48T4XW AX3660S-16S4XW AX3660S-24S8XW AX3660S-48XT4QW AX3660S-24X4QW AX3660S-48X4QW	25 A	

⚠WARNING

To ensure smooth operations, set up the distribution board in the same room as the Unit or in a nearby room.

(3) Requirements for supplying power to the distribution board

The capacity of current supplied to the distribution board is greater than breaker operating current.

⚠WARNING

Ensure that the current capacity supplied to the distribution board is greater than the distribution board breaker operating current. If the current capacity supplied to the distribution board is less than the breaker operating current, it could cause the breaker to stop functioning at times, which also carries the risk of fire.

NOTICE

When inrush power is supplied to the Unit, the current begins to flow. Ensure that voltage to the power source does not drop. If voltage drops, it impacts not only the Unit itself but also other equipment powered by the same power source.

NOTE

In general, the breaker operating current is greater than the rated current. Check the specifications on your breaker.

(4) Dual systemization of power source

When using multiple power sources, you can utilize a dual power source system by routing power from different sources.

2.3.2 AC200V Power Source

(1) AC power cable

To ensure that the Unit can be used with AC200V, our company offers an AC200V power cable (sold separately). Refer to “1.7 Power Cables” for information on AC200V power cables.

NOTE

Where equipment separately sold by our company is not compatible with the customer’s power source, utilize a power cable compatible with the following specifications.

Table 2-8 AC power cable specifications

Category	Connector (Unit)	Cable	Outlet (Outlet side)
Rating	250V 10A or greater Electrical Appliances and Materials Safety Act certified products	250V 10A or greater Electrical Appliances and Materials Safety Act certified product	250V 10A or greater Electrical Appliances and Materials Safety Act certified product
Shape		Joined for three cores or greater	Obtain parts that fit your outlet shape.

⚠WARNING

In using the Unit with A200V, use only power cables sold separately by our company or designated by our company. Using other cables could cause fire or electric shock. Also, do not use our company’s power cables with equipment other than the Unit. Doing so could result in fire or electric shock.

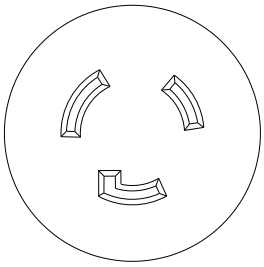
(2) Outlet

Use the standards below that conform to JIS standards or NEMA standards. These outlets are sold at regular electrical equipment shops.

Table 2-9 Outlet standards

Rating		Specification
JIS	C-8303	20A 250V bipolar hook-type outlet
NEMA	L6-20R	

Fig.2-3 Grounded bipolar plug outlet (20A 250V)



If you choose not to use the AC200V power cable (sold separately by our company), use one of the following outlets. These outlets are sold at regular electrical equipment shops.

➢ Grounded bipolar outlet: 250V 10A or higher

⚠WARNING To ensure that the power plug can be promptly removed, place Unit near the outlet. Do not place objects near the outlet.

⚠WARNING Using the Unit with AC200V, be sure to use a grounded outlet. If the outlet is not grounded, it can potentially cause electric shock. It can also engender electrical noise, which can in turn cause malfunction.

(3) Distribution board

Attach the breaker to the branch circuit supplying the Unit. When choosing the breaker, consider factors such as Unit input current and inrush current/timing. Select from the following ratings.

➢ Breaker rating 10AT (single-phase AC200V for 10A circuit) or less

Regarding Unit input current, refer to "2.2 Setup Requirements" and the following chart regarding Unit inrush current/time.

Table 2-10 Inrush current

Model	Current (peak value)	Time
AX3660S-24T4X	50 A	10 ms or less
AX3660S-24T4XW AX3660S-48T4XW AX3660S-16S4XW AX3660S-24S8XW AX3660S-48XT4QW AX3660S-24X4QW AX3660S-48X4QW	25 A	

⚠WARNING To ensure smooth operations, set up the distribution board in the same room as the Unit or in a nearby room.

(4) Requirements for supplying power to the distribution board

Current capacity supplied to the distribution board should be larger than the breaker operating current.

⚠WARNING

Ensure that the current capacity supplied to the distribution board is larger than the distribution board breaker operating current. If the current capacity supplied to the distribution board is less than the breaker operating current, it could cause the breaker to stop functioning at times, which also carries the risk of fire.

NOTICE

When power is supplied to the Unit, the inrush current begins to flow. Ensure that voltage to the power source does not drop. If voltage drops, it impacts not only the Unit itself but also other equipment powered by the same power source.

NOTE

In general, the breaker operating current is greater than the rated current. Check the specifications on your breaker.

(5) Dual systemization of electrical equipment

When using multiple power sources, you can utilize a dual power source system by routing power from different sources.

2.3.3 DC-48V power sources

⚠WARNING

With DC power sources, use upstream and downstream-insulated items that carry no risk of electric shock. Uninsulated electric power equipment may carry the risk of electric shock.

(1) DC power cables

Power cables are not included with the Unit. To use the Unit with DC-48V, obtain the following power cables.

Take 2-11 DC power cable specifications

Series	Cable specifications		
	No. of core wires	AWG No	Sheath baring (unit)
AX3660S	2	12-14	8-9mm

⚠WARNING

Mounting and removing the DC power cable must be done by a trained technician or maintenance personnel. DC power cables are connected to the terminal. For this reason, incorrect handling of the DC power cable could result in fire or electric shock.

⚠WARNING

Turn the power source breaker OFF when installing or disconnecting the DC power cable. If the power source breaker remains ON, it may result in electric shock.

⚠WARNING

Observe the specified lengths as pertains to sheath baring of the DC power cable. If the length of sheath baring is too short, it may result in poor connection and the cable potentially falling out. If the sheath baring is too long, core wires may be exposed, which could potentially lead to fire or electric shock.

(2) Grounding cable

Use the grounding cables that come with the Unit.

The cables are supplied unfinished with regard to terminal setup of the power equipment. The cable power supply specifications are noted in the following chart. To attach to the cable power source, set up the terminal as appropriate, including selection of the correct power source for the customer.

Fig.2-4 Grounding cable specifications (electrical equipment)

(1) Grounding (green/yellow)

Table 2-12 Grounding cable specifications

Series	Cable specifications	
	No. of core wires	AWG No
AX3660S	1	12

⚠WARNING Be sure to use a grounding cable. Failure to do so can potentially cause electric shock. It can also engender electrical noise, which can in turn cause malfunction.

(3) Distribution board

Attach the breaker to the branch circuit supplying the Unit. When choosing the breaker, consider factors such as Unit input current and inrush current/timing. Select from the following ratings.

Table 2-13 Breaker ratings

Series	Breaker rating
AX3660S	20AT (for 20A circuits) or less

The branch circuit supplying power to the Unit requires a breaker. To select your breaker, choose from the following ratings or lower, considering the factors of Unit input current and inrush current/time.

Table 2-14 Inrush current

Model	Current (peak value)	Time
AX3660S-24T4XW	40 A	10 ms or less
AX3660S-48T4XW		
AX3660S-16S4XW		
AX3660S-24S8XW		
AX3660S-48XT4QW		
AX3660S-24X4QW		
AX3660S-48X4QW		

⚠WARNING To ensure smooth operations, set up the distribution board in the same room as the Unit or in a nearby room.

(4) Requirements for power suppled to the distribution board

The volume of electricity supplied to the distribution board must be greater than the breaker operating current shown in "(3) Distribution Board."

⚠WARNING Ensure that the current capacity supplied to the distribution board is greater than the distribution board breaker operating current. If the current capacity supplied to the distribution board is smaller than the breaker operating current, it could cause the breaker to stop functioning at times, which also carries the risk of fire.

NOTE In general, the breaker operating current is greater than the rated current. Check the specifications on your breaker.

NOTICE When power is supplied to the Unit, the inrush current begins to flow. Ensure that voltage to the power source does not drop. If voltage drops, it impacts not only the Unit itself but also other equipment powered by the same power source.

(5) Dual power source system

When using multiple power sources, you can utilize a dual power source system by routing power from different sources.

2.4 Taking Steps to Address Electrical Noise

Electrical noise generated by other equipment may cause malfunction. Observe the following in the process of setting up power supply equipment.

- Do not attach equipment that repeatedly turns power ON and OFF (such as heating and air conditioning units) using relays and micro switches to the power supply branch circuits for the Unit.
- Grounding for Unit maintenance purposes (D connector) should be connected directly to the grounding board or a dedicated grounding for the Unit as far as possible.
- Install interference prevention circuits with equipment emitting electrical noise.
- In general, there are two kinds of cables that can be connected with the Unit: power cables and signal cables. They differ in their basic electrical properties. When laying the cable, do not tie cables together with bands or otherwise put them together.
- Do not run the power cable along the circuit where the latter is pulled in.

2.5 Leakage Current

The Unit features a noise filter to prevent damage caused by electrical noise. For this reason, leakage current flows to the grounding cable (D type).

There is a maximum 1 mA leakage current per piece of equipment. Keep this in mind in cases where leakage current breaker setup is required by the Fire Services Act.

2.6 Environmental Requirements

(1) Dust

The Unit utilizes a cooling fan. Do not place it in humid or dusty locations. Dust regulations pertaining to the Unit are as follows. Requirements pertaining to dust are as follows.

➢ Airborne dust concentration: 0.15mg/m^3 (Floating dust concentration assessment methodology JIS Z 8813)

NOTE

Do not place the Unit near a printer or where many people are moving back and forth, as there tends to be toner in such areas as well as significant dust.

(2) Corrosive and Flammable Gasses

Place the Unit in a location where it is not exposed to corrosive or flammable gasses. Placing the Unit near corrosive gasses could cause corrosion of the equipment and severely compromise reliability of the product.

(3) Floor surface material

Though the Unit can be installed in regular office space, we recommend that it your space has the following attributes:

➢ Fire resistance

➢ No dust accumulation

(4) Direct Sunlight

Do not expose the Unit to direct sunlight.

(5) Water damage

Ensure that water does not get on the equipment such as when cleaning the floor.

(6) Electromagnetic interference

Using high-frequency equipment in close proximity to the Unit can cause the Unit to malfunction due to the interference generated by the high-frequency equipment.
The Unit itself generates weak high-frequency radio waves, which may impact television, radio, and transceivers utilizing indoor antennas within 30 meters of the Unit.

(7) Protecting the cables

Cables should be protected by ducts. Cables may be subject to damage by animals such as mice if not properly protected.

Optical fibers in particular should be protected by metal moldings for cable bend radius of 100mm or greater for the diameter and 50 mm or greater for the radius.

Optical fiber cables containing the required number of core wire optical fibers should be structurally protected from stress caused by preparation of the environment for the cables, as well as mechanical stress caused by repeated bending, pulling, shrinking, compression, straining, etc.

(8) Spreading chemicals

When spreading insecticide, disinfectant, etc., indoors where the Unit is set up, avoid direct exposure to said chemicals by placing a cover on the equipment, etc.

(9) Limiting damage caused by earthquakes

Earthquakes make cause equipment to move or topple, or to fly out or windows, which can cause injury to people. Be sure to secure equipment to prevent it from moving or toppling.

NOTE

The vibration impacting equipment may be amplified compared to objects on ground level due to factors such as building structure, which floor the Unit is placed on, etc. In general, medium-sized buildings of approximately nine floors shake 2-3 times more than ground level on the fifth floor and higher.

Past examples of earthquakes

- Equipment moved 10-30 cm
- Racks toppled
- Objects placed on top of indoor fixtures fell on top of equipment.

2.7 Setup Location

⚠WARNING Only use the Unit indoors. All interface cables should be wired indoors. To lay cables outdoors, be sure to establish steps to deal with lightning ahead of time.

The Unit should be installed on a desktop or on a Type 19 cabinet rack.

(1) Desktop

To install the Unit on a desktop, do so horizontally in a stable position. Refer to the following chart for requirements.

Table 2-15 Requirements for desktop setup

Category	Requirements
Space for intake and exhaust	Secure space of 50 mm or greater for Unit ventilation slots.
Space to pull out cables	Secure space of 100 mm in front and back of Unit to pull out cables. Note: Where connecting QSFP-CU35C and QSFP28-C35 models vertically, space of 120mm is required.
Unit noise	Regarding noise generated by the Unit, refer to “2.10 Noise Generated by Unit.”

⚠CAUTION To install the Unit on a desktop, place it horizontally atop a workbench or similar that can support the Unit center of gravity. If the Unit is placed in an unstable position such as on a wobbly or titled table, it may fall or topple, potentially causing injury.

(2) Type 10 cabinet rack

To install the Unit in the rack, choose a rack that meets the following requirements.

Table 2-16 Rack Requirements

Category	Requirements
Rack specifications	Type 19 cabinet rack meeting EIA specifications
Space for ventilation holes	For ventilation purposes, select an item that allows for 50mm of space or greater between the rack columns/side plates and Unit ventilation slots.
Space for pulling out cables	Secure space of 100 mm in front and back of Unit to pull out cables. Note: Where connecting QSFP-CU35C and QSFP28-C35 models vertically, space of 120mm is required.

Obtain the following for installing racks.

- ➢ Screws accompanying the rack (four M5 screws)

NOTE

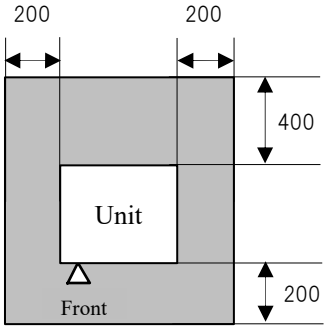
Use M5 screws to fix the rack mounting bracket in place. Obtain a rack compatible with M5 screws.

2.8 Maintenance Area

Secure the following space for maintenance of the Unit.

(1) Maintenance area for desktop installation

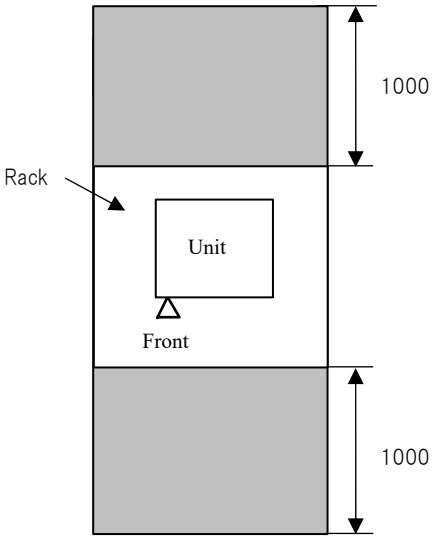
Fig.2-5 Maintenance area for desktop installation



(Unit: mm)

(2) Maintenance area for rack installation

Fig.2-6 Maintenance area for rack installation



(Unit: mm)

NOTE

A certain amount of space to install and remove the memory card above the slot. To set up the Unit below other equipment, secure space around for protruding items such as equipment options, cables, etc.

2.9 Cooling Requirements

2.9.1 Air flow

Unit air flow is as follows:

(1) AX3660S

AX3660S air flow is as shown in the following chart:

Fig.2-7 AX3660S-24T4X, AX3660S-24T4XW, AX3660S-48T4XW, AX3660S-16S4XW, AX3660S-24S8XW air flow (front intake/back exhaust)

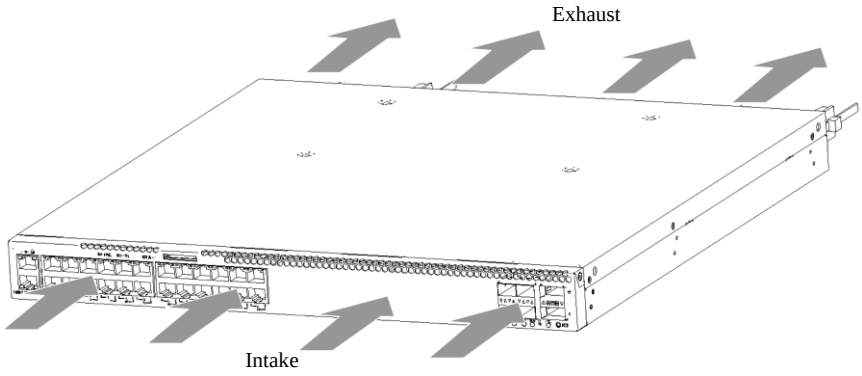


Fig. 2-8 AX3660S-24T4XW, AX3660S-48T4XW, AX3660S-16S4XW, AX3660S-24S8XW air flow (front intake/back exhaust)

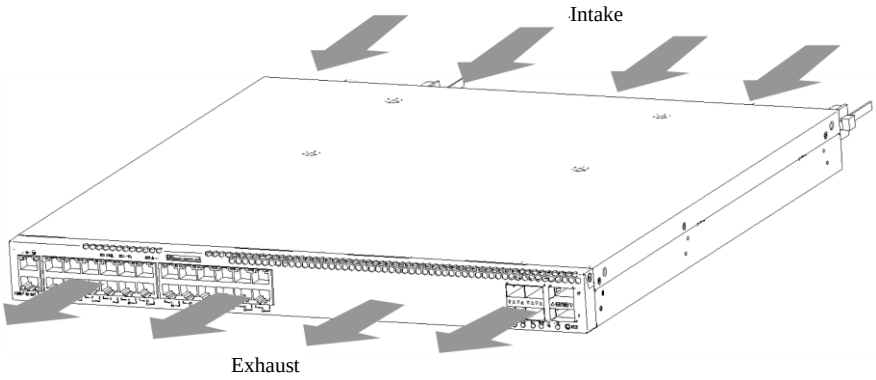


Fig.2-9 AX3660S-48XT4QW/AX3660S-24X4QW/AX3660S-48X4QW air flow (front intake/back exhaust)

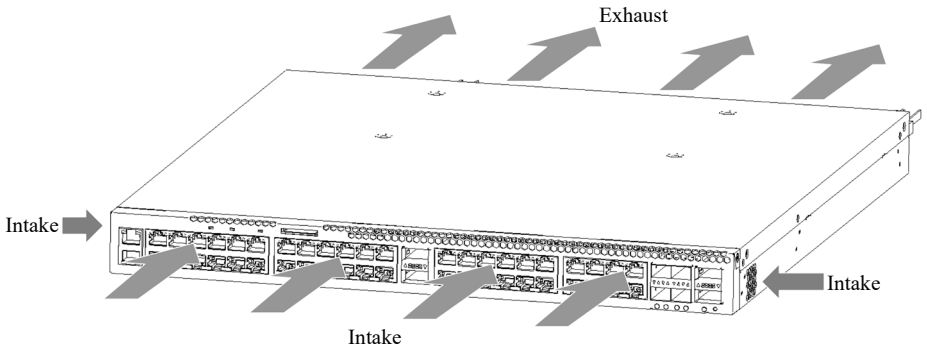
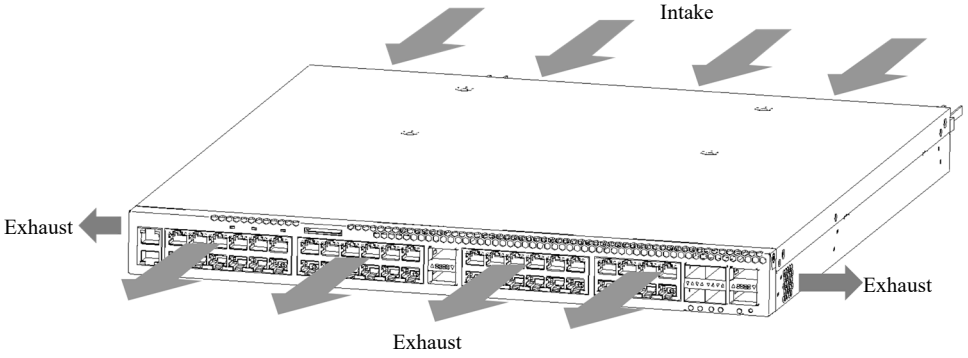


Fig.2-10 AX3660S-24X4QW/AX3660S-48X4QW air flow (front intake/back exhaust)



2.9.2 Cooling requirements for desktop setup

To ensure proper air flow, secure 50 mm or greater from the sides of the equipment.

⚠CAUTION Do not block the Unit ventilation holes. Blocking the holes can trap heat inside the Unit, which could lead to fire. Ensure 50 mm or greater of space from the ventilation holes.

NOTE Ensure that the Unit intake temperature is the same or less than the operating temperature. If the intake temperature does not meet requirements, it could lead to misoperation or malfunction of the Unit.

NOTE If you have set up other devices with mandatory cooling system such as fans in the equipment area, the airflow of multiple devices could interfere with each other, engendering a negative impact on the cooling function as follows. Sufficiently separate equipment such that airflows of devices in the same area do not interfere with each other, or set up partitions between equipment to present mutual interference. When using partitions, allow for 50mm of space from equipment end boards.

2.9.3 Cooling requirements for rack installation

To ensure proper air flow, secure 50mm or greater of space between structures on the rack side plate, columns, guide rails, and in front/behind the door, etc.

⚠CAUTION Do not block the Unit ventilation slots. Blocking the slots can lead to internal heat accumulation, which in turn can potentially cause fire. Leave 50 mm of space from the ventilation slots.

NOTE Make sure that the internal rack temperature is equal to or less than the Unit working temperature. If the rack internal temperature is not less than or equal to the internal rack temperature, it may cause misoperation or malfunction.

NOTE If you are installing other equipment such as that with mandatory cooling systems including fans above and below the Unit, it could cause interference between air flows and engender a negative impact on cooling as below. This could lead to misoperation or malfunction.

2.10 About Noise Generated by the Unit

The Unit is equipped with an internal fan for cooling purposes. This fan generates noise. Consider this noise when designing space layout and deciding where to place the Unit.

Refer to “2.2 Setup Requirements” regarding noise made by the Unit.

NOTE

The following are some examples of how to handle the noise generated by the Unit.

- Set up screens, shelves, etc., such that sound is diffused.
- Do not place the Unit in places used by many people (offices, meeting rooms, desks, etc.).
- Set up Unit in a corner of the office.
- Store Unit in rack.
- Avoid placing Unit where sound is easily reflected, such as near a glass windowpane.

3 Getting the Interface Cable and Terminal Ready

This Chapter provides an overview of the interface cables and terminals used with the Unit.

3.1 Overview of Interface Cables

3.2 Network Interface Specifications

3.3 Terminals and Connector Cables

3.1 Overview of Interface Cables

See the following to connect the Unit to the Interface cable.

The cables noted below are not included in the package.

Regarding the interface cables used in the transceivers, refer to "ALAXALA Transceiver Hardware Operating Instructions (AX-COM-H001)."

Table 3-1 Interface Cables

Port	Interface	Cable	Connector
10BASE-T/ 100BASE-TX/ 1000BASE-T port	10BASE-T	UTP Cable (Category 3 & up)	RJ-45 Connector
	100BASE-TX	UTP Cable (Category 5 & up)	
	1000BASE-T	UTP Cable (Enhanced category 5 & up)	
100BASE-TX/ 1000BASE-T/ 10GBASE-T port	100BASE-TX	UTP Cable (Category 5 & up)	
	1000BASE-T	UTP Cable (Enhanced category 5 & up)	
	10GBASE-T	UTP Cable (Category 6 & up)	
CONSOLE port	RS-232C	RS-232C cross cable	
MANAGEMENT port	10BASE-T	UTP cable (Category 3 & up)	
	100BASE-TX	UTP cable (Category 3 & up)	

NOTE

Regarding terminals connected with the CONSOLE port and MANAGEMENT port and interface cables, refer to Section 3.3 "Terminals and Connector Cables."

3.2 Network Interface Specifications

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

(1) Port Mode Settings

Ethernet 10BASE-T/100BASE-TX/1000BASE-T ports can operate on the following modes. Factory settings are configured as auto-negotiation.

- ➢ Auto-negotiation (Default)
- ➢ 100BASE-TX All dual fixation
- ➢ 10BASE-T All dual fixation

NOTE No support is available for half-duplex transmission.

NOTE Fixed settings are not supported under 1000BASE-T or 10GBASE-T.

(2) Flow Control

Goes into effect with full dual transmission.

(3) Auto MDI/MDI-X Feature

Goes into effect with auto-negotiation.

MDI-X is activated when fixed settings are applied.

(4) PoE Power Supply System

PoE is not supported with the Unit.

(5) Physical Specifications

Table 3-2 10BASE-T / 100BASE-TX / 1000BASE-T Physical Specifications

Category	Physical Specifications		
	10BASE-T	100BASE-TX	1000BASE-T
Cable	Category 3 & up	Category 5 & up	Enhancement category 5 & up
Transmission range (maximum)	100m	100m	100m

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

RJ-45 Pin Number	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	Unutilized*1 (C)	Send & receive C (+) (C)
5	Unutilized*1 (c)	Send & receive C (-) (c)
6	Send (-) (b)	Send & receive B (-) (b)
7	Unutilized*1 (D)	Send & receive D (+) (D)
8	Unutilized*1 (d)	Send & receive D (-) (d)

*1 Connect using Category 8 (4 pair twisted) cable.

*2 Because the cables are twisted pairs, use (A) with (a), (B) with (b), and (C) with (c) for Category 8 (4 pair twisted). Pair (A) and (a) and (B) and (b) for Category 2 (4 pair twisted).

3.2.2 Ethernet 100BASE-TX/1000BASE-T/10GBASE-T

(1) Port Mode Settings

The Ethernet 100BASE-TX/1000BASE-T/10GBASE-T port can be utilized with the following modes.

Factory settings are configured as auto-negotiation.

➢ Auto-negotiation (default)

➢ 100BASE-TX All dual fixation

NOTE No support is available for half-duplex transmission.

NOTE Fixed settings are not supported with 1000BASE-T and 10GBASE-T.

(2) Flow Control Feature

Goes into effect with full dual transmission.

(3) Auto MDI/MDI-X Feature

Goes into effect with auto-negotiation.

MDI-X is activated when fixed settings are applied.

(4) PoE Power Supply System

PoE is not supported with the Unit.

(5) Physical Specifications

Table 3-4 100BASE-TX / 1000BASE-T / 10GBASE-T physical specifications

Category	Physical Specifications			
	100BASE-TX	1000BASE-T	10GBASE-T	
Cable	Category 5 & up	Enhanced category 5 & up	Category 6 & up	Category 6A & up
Transmission range (maximum)	100m	100m	37m～55m *1 *2	100m *2

*1 Where the environment is characterized by alien crosstalk, the maximum is 37 meters. Where there is no alien crosstalk, the maximum is 55 meters. Maximum of 27 meters-55 meters depends on whether or not there is alien crosstalk.

*2 Regarding cables of Category 6 or higher, transmission range may be limited depending in results of independent testing by cable manufacturers. Contact the manufacturer for details.

Table 3-5 100BASE-TX/1000BASE-T/10GBASE-T Pin Configuration

RJ-45 Pin No.	Physical Specifications	
	100BASE-TX	1000BASE-T 10GBASE-T
1	Receive (+) (A)	Send & receive A(+) (A)
2	Receive (-) (a)	Send & receive A (-) (a)
3	Send (+) (B)	Send & receive B (+) (B)
4	Unutilized *1 (C)	Send & receive C (+) (C)
5	Unutilized *1 (c)	Send & receive C (-) (c)
6	Send (-) (b)	Send & receive B (-) (b)
7	Unutilized *1 (D)	Send & receive D (+) (D)
8	Unutilized *1 (d)	Send & receive D (-) (d)

*1 Connect using Category 8 (4 pair twisted) cable.

*2 Because the cables are twisted pairs, use (A) with (a), (B) with (b), and (C) with (c) for Category 8 (4 pair twisted). Pair (A) and (a) and (B) and (b) for Category 2 (4 pair twisted).

3.2.3 Ethernet 1000BASE-X

(1) Port Mode Settings

Ethernet 1000BASE-X port can operate on the following modes. Factory settings are configured as auto-negotiation.

- ➢ Auto-negotiation (default)
- ➢ 1000BASE-X Full double fixation

NOTE Support is not available for half-duplex transmission.

(2) Flow Control Feature

Goes into effect with full dual transmission.

(3) Physical Specifications

Regarding the optical fiber cables used in the transceivers, refer to “ALAXALA Transceiver Hardware Operating Instructions (AX-COM-H001).”

3.2.4 Ethernet 10GBASE-R

(1) Port Mode Settings

Ethernet 10GBASE-R mode settings are compatible only with full double fixation.

NOTE Support is not available for auto-negotiation or half-duplex transmission.

(2) Flow Control Feature

Goes into effect with full dual transmission.

(3) Physical Specifications

Regarding the optical fiber cables used in the transceivers, refer to “ALAXALA Transceiver Hardware Operating Instructions (AX-COM-H001).”

3.2.5 Ethernet 40GBASE-R

(1) Port Mode Settings

Ethernet 40GBASE-R mode settings are full all dual fixed settings only.

NOTE

Support is not available for auto-negotiation or half-duplex transmission.

(2) Flow Control Feature

Goes into effect with full dual transmission.

(3) Physical Specifications

Regarding the optical fiber cables used in the transceivers, refer to “ALAXALA Transceiver Hardware Operating Instructions (AX-COM-H001).”

3.2.6 Ethernet 100GBASE-R

(1) Port Mode Settings

Ethernet 100GBASE-R mode settings are compatible only with full double fixation.

NOTE

Support is not available for auto-negotiation or half-duplex transmission.

(2) Flow Control Feature

Goes into effect with full dual transmission.

(3) Physical Specifications

Regarding the optical fiber cables used in the transceivers, refer to “ALAXALA Transceiver Hardware Operating Instructions (AX-COM-H001).”

3.2.7 Stack-Port

(1) Stack Ports

Stack ports can be used with the following ports.

- AX3660S-24T4X QSFP + slot (stacking only) (ports 29～30)
- AX3660S-24T4XW QSFP + slot (stacking only) (ports 29～30)
- AX3660S-48T4XW QSFP + slot (stacking only) (ports 53～54)
- AX3660S-16S4XW QSFP + slot (stacking only) (ports 45～46)
- AX3660S-24S8XW QSFP + slot (stacking only) (ports 45～46)
- AX3660S-48XT4QW QSFP28 slot (ports 49～52)
- AX3660S-24X4QW QSFP28 slot (ports 49～52)
- AX3660S-48X4QWQSFP28 slot (ports 49～52)

(2) Flow control function

Send and receive operations are both Off.

(3) Physical Specifications

To stack links, directly connect two main switch stack ports by circuit. Other network equipment cannot be connected between stack ports connecting two switches. The following transceivers and direct-attach cables can be utilized in stack links.

Table 3-6 Stack Port Transceivers and Direct-Attach Cables

Category	Transceiver	Stack-port
QSFP+	QSFP-SR4	Supported
	QSFP-LR4, QSFP-LR4A	
	QSFP-CU35C	
	QSFP-CU1M	
	QSFP-CU3M	
	QSFP-CU5M	
QSFP28	QSFP28-SR4	Unsupported
	QSFP28-CW4	
	QSFP28-LR4	
	QSFP28-4WDM-40	
	QSFP28-C35	Supported
	QSFP28-C1M	

3.3 Terminals and Connector Cables

3.3.1 Connecting the Operating Terminal with the CONSOLE Port

(1) Operating Terminal

To connect the operating terminal with the Unit MANAGEMENT Port, obtain a personal computer or work station supporting the following features.

Table 3-7 Operating terminal (connecting to the CONSOLE port)

Category		Specifications
Transmission port		RS-232C port
Transmission software		Trasmission software meeting the following transmission settings
Transmission settings	Transmission parameters	8 bit, 1 stop bit, no parity
	Transmission speed*1	19200bit/s, 9600bit/s, 4800bit/s, 2400bit/s, 1200bit/s

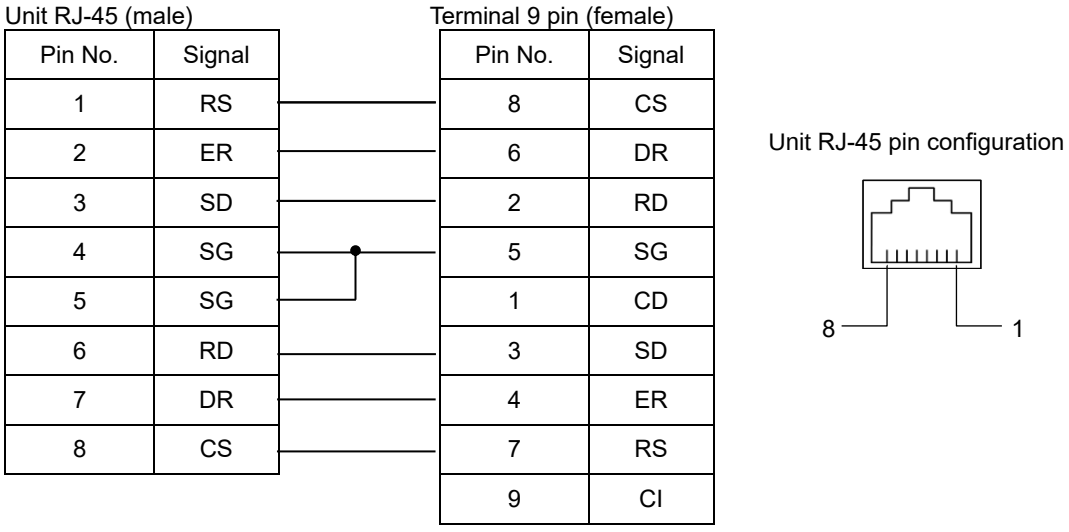
*1 Factory settings at a transmission speed of 9600bit/s.

(2) RS-232C Cross Cable

To connect the operating terminal with the Unit CONSOLE Port, use the RS-232C cross cable (RJ-45 (male) -D-Sub 9 pin (female).

The following indicates the RS-232C cross cable pin configuration.

Fig. 3-1 Operating terminal connector cable



NOTE

You may choose to use the RS-232C cable, which conforms to Cisco System specifications, but be sure to check the signal line between the RS-232C cable and the operating terminal prior to use.

3.3.2 Connecting the Operating Terminal to the MANAGEMENT Port

(1) Operating Terminal

To connect the operating terminal with the Unit MANAGEMENT Port, obtain a personal computer or work station supporting the following features.

Table 3-8 Terminal Specifications

Category	Specifications
Transmission port	10/100BASE-TX Port
Transmission software	Telnet client/ftp client*1
Flow of transmission operations	telnet, ftp

*1 Used in transfer of firmware or dumpfile forwarding.

(2) UTP Cable (10 /100BASE-TX)

To connect the operating terminal with the Unit MANAGEMENT Port, obtain a UTP cable as indicated in Chart 3-15 “MANAGEMENT PORT Physical Specifications.”

Table 3-9 MANAGEMENT Port Physical Specifications

Category	Physical Specifications	
	10BASE-T	100BASE-TX
Category	Category 3 & up	Category 5 & up
Transmission range (maximum)	100m	100m

NOTE

The Unit MANAGEMENT Port supports the Auto MDI/MDI-X feature. Both straight cables and cross cables can be used to connect regardless of which device is being connected.

NOTE

The Auto MDI/MDI-X feature cannot be disabled with the Unit MANAGEMENT Port.

4 Equipment Setup

This Chapter provides an overview of how to set up the equipment.

4.1 Required Tools and Materials
4.2 Read Before Starting Work
4.3 Setting up the Unit
4.4 Installing and Disconnecting Power Cables
4.5 Installing and Removing Memory Cards and Dummy Memory Cards
4.6 Installing and Disconnecting SFP and SFP+ Models.
4.7 Installing and Disconnecting QSFP+ and QSFP28 Models
4.8 Connecting the Operating Terminal
4.9 Connecting Interface Cables
4.10 Powering On/Powering Down the Unit
4.11 Subsequent Procedures

4.1 Required Tools and Materials

The following tools and materials are required for equipment installation.

Phillips screwdriver no. 2:

This screwdriver is used when installing a rack cable clamp to the Unit, or when installing the Unit to or removing it from the rack.

Anti-static-electricity strap:

Protects the equipment from static electricity.

NOTE

The above screwdriver sizes are guidelines. Check that your screwdriver fits in the thread groove. You run the risk of stripping the grooves if you use the incorrect size screwdriver.

4.2 Read Before Starting Work

⚠CAUTION

Do not cover the ventilation holes. Covering ventilation holes can cause heat to accumulate inside the device, potentially causing a fire. Secure space of 100 mm or greater from the ventilation holes.

⚠CAUTION

Do not place items on top of the Unit as this may cause it to break. Placing items atop the Unit can also disturb its balance, causing it to topple and potentially causing injury.

Notice

Wear the anti-static electricity wrist strap. Handling the Unit without the wrist strap can cause equipment to malfunction due to static electricity.

NOTE

Place the Unit in a location where the LED lights can easily be seen.

NOTE

Thread cables through ducts or protect them with ducts. Optical fiber cables in particular of 100 mm or greater of bend radius in the length-wise direction, and 50 mm or greater of the short diameter should be protected with metal ducts or similar.

NOTE

When choosing optical fiber cables, users should consider the length required (3 meters) to protect the Unit. Extra cable should be wound up and placed nearby. Also, if you are using optical fiber cables and interface cables together, take care not to place excess load on optical fiber cables.

4.3 Setting up the Unit

The following is an overview of how to set up the device on a desktop, as well as how to install racks.

Follow the steps below.

⚠CAUTION

When moving the Unit, do not hold it by the power source handle or fan unit handle. The handle could detach, causing the Unit to fall and causing potential injury. A damaged unit could also lead to fire or electric shock.

4.3.1 Desktop Setup

The Unit can be set up so that it lays flat in a stable position horizontally. Follow the steps below.

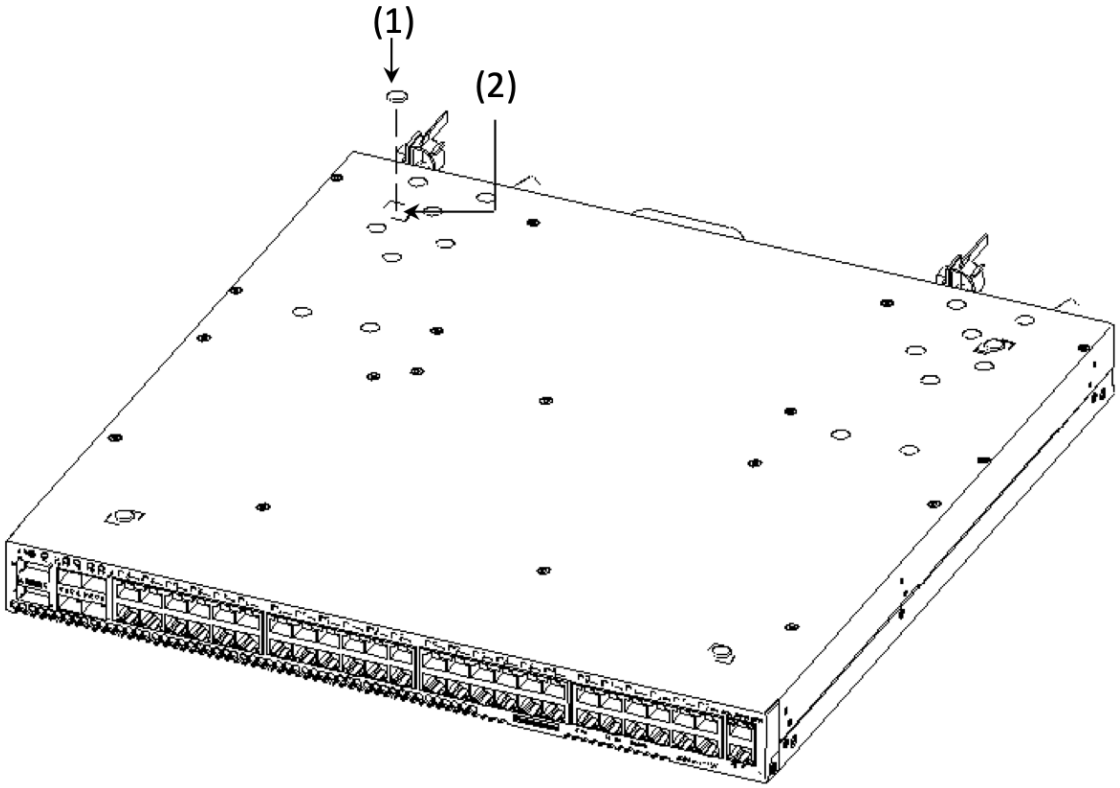
Step 1

Turn the Unit upside down and lay flat.

Step 2

Place the rubber feet (4) on the Unit (make sure the rubber feet fit into the engraving on the underside of the Unit).

Fig.4-1 Installing rubber feet



(1) Rubber feet
(2) Engraving

NOTE

Check that there is no dirt or grime where you will be affixing the rubber feet. If there is any dirt or grime, wipe the area with a dry cloth and then place the rubber feet.

Step 3

Turn the Unit right-side up, and set up on your desktop.

4.3.2 Mounting on the rack

The Unit can be loaded onto Style 19 (EIA specification) cabinet racks, as follows:

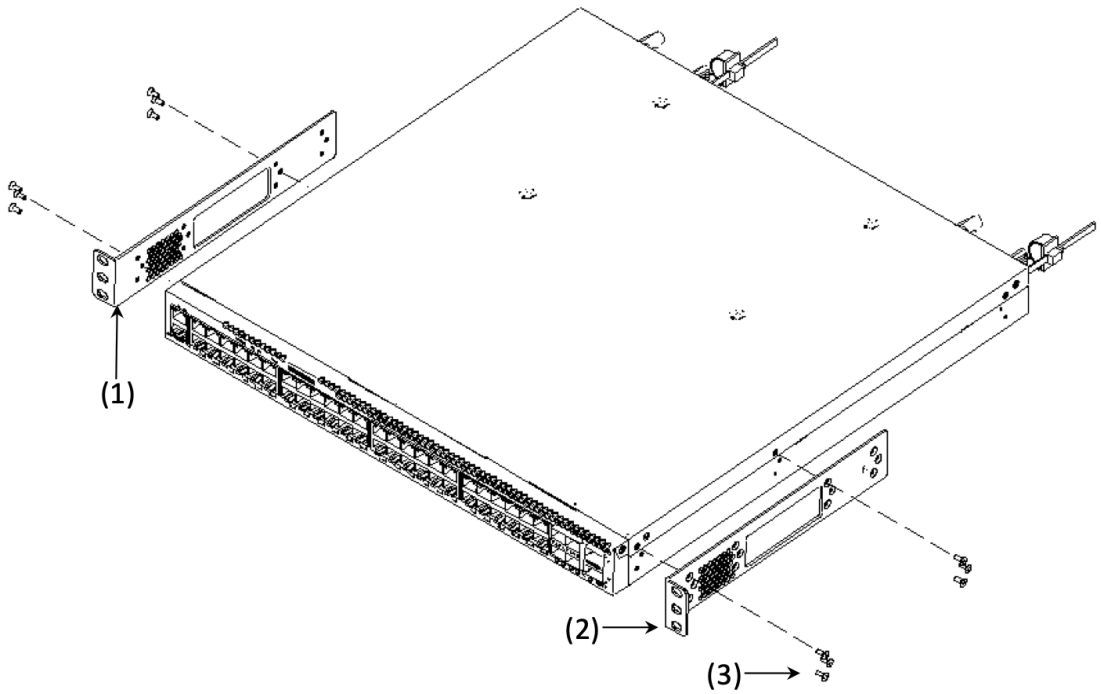
Step 1

Attach the rack mounting bracket to the Unit.

NOTE

To install the rack mounting bracket, use the screws that come with the Unit.

Fig.4-2 Installing the rack mounting bracket



(1) Rack mounting bracket (L)
(2) Rack mounting bracket (R)
(3) Screws (M3x6, 12 pieces)

NOTE

There are left (L) and right (R) mounting brackets. The left bracket is engraved with an “L” on the metal side of the left bracket, while the letter “R” is engraved on the metal side of the right bracket. Refer to the engraving to ensure that you are installing the correct rack in the correct position. If you connect a rack in the incorrect position, you will be unable to install the Unit onto the rack.

NOTE

If you are unable to secure space (for pulling out the cable) on the Unit, pull the rack mounting bracket 50 mm forward.

Step 2

Mount the Unit on the Rack

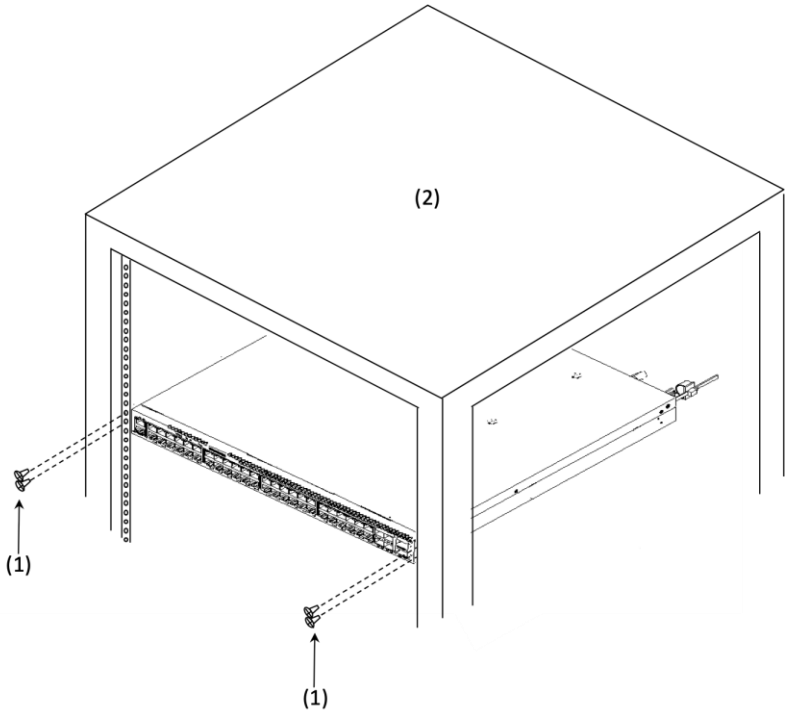
⚠**CAUTION**

When mounting the Unit on the rack, first check that the device is stably positioned. If unstable, the Unit could fall or topple and potentially cause injury.

NOTE

When mounting the Unit on the rack, use the M5 screws that come with the rack.

Fig.4-3 Mount on rack



(1) Screw (M5, 4 pieces)
(2) Style 19 cabinet rack

4.4 Installing and Disconnecting Power Cables

The following is an overview of how to install and disconnect Unit power cables.

Follow the steps below.

4.4.1 Installing and Disconnecting AC Power Cables

⚠ WARNING

In using the Unit with AC 100V, use only the power cable that comes with the Unit or a specified power cable. Using the Unit with other cables could result in fire or electric shock. Do not use the power cable with equipment other than the Unit. Such use could potentially result in fire or electric shock.

⚠ WARNING

In using the Unit with A200V, use only power cables sold separately by our company or designated by our company. Also, do not use our company's power cables with equipment other than the Unit. Doing so could result in fire or electric shock.

⚠ WARNING

Use only grounded outlets. Failure to ground could result in electric shock, or malfunction due to electrical noise.

NOTE

After installing the power cable, attach the cable to the cable holder, ensuring that the electrical connector and clamp are not overloaded.

NOTE

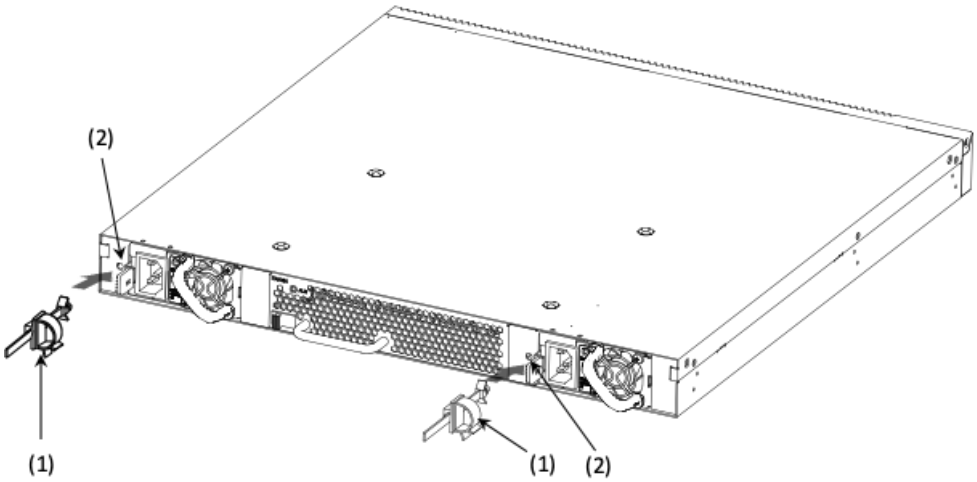
Install and uninstall fixed power models in the same manner.

(1) Installation

Step 1

Attach the cable clamp (included in package) on the back of the Unit.

Fig.4-4 Installing cable clamps

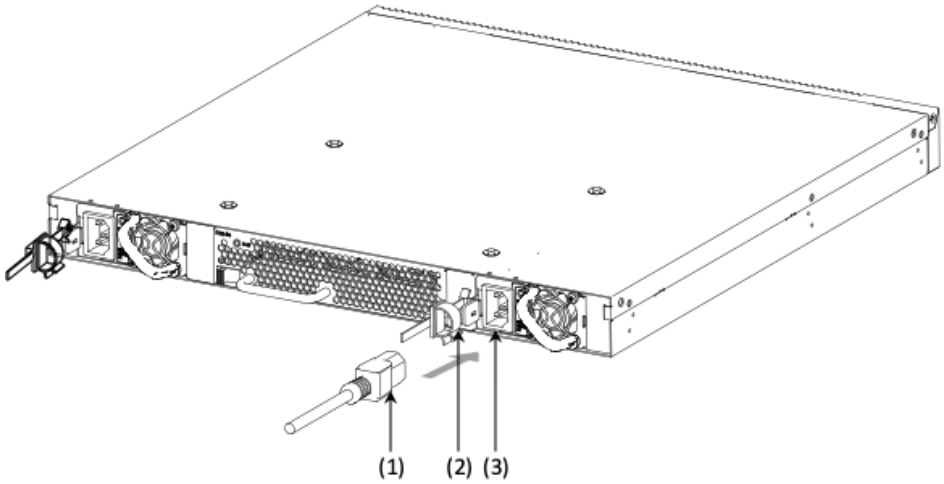


(1) Cable clamp
(2) Cable clamp installation hole

Step 2

Install the power cable included with the Unit to the AC power connector on the back of the Unit.

Fig.4-5 Install the power cable



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

⚠ WARNING When installing or disconnecting the power cable, do so with the power sources loaded in the Unit.

⚠CAUTION There is no power switch on the unit. Power is supplied to the Unit by attaching an AC power cable.

NOTE Refer to “2.3.2 AC200v Power Supply Equipment” regarding specifications noted by our company.

Step 3

Use a cable clamp to clamp the power cable connector.

Fig.4-6 Power cable clamp

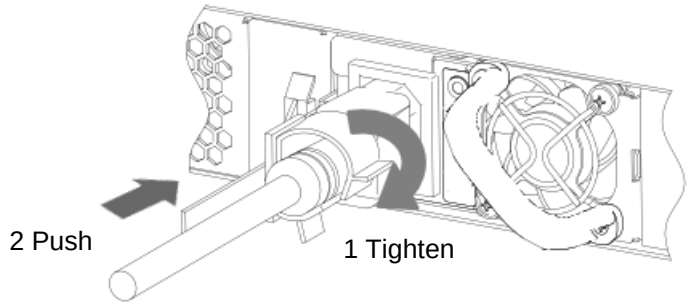
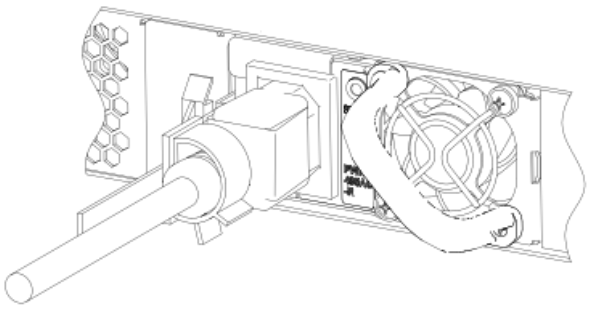


Fig.4-7 Power cable after clamping



(2) Disconnecting

Remove the cable clamp and disconnect the power cable.

⚠ WARNING When installing or disconnecting the power cable, do so with the power sources loaded in the Unit.

4.4.2 Attaching and Disconnecting DC Power Cables

⚠ WARNING With DC power sources, use upstream and downstream-insulated items that carry no risk of electric shock. Uninsulated electric power equipment may carry the risk of electric shock.

⚠ WARNING Use only the DC cables specified by our company. Using other equipment could result in fire or electric shock.

⚠ WARNING Mounting and removing the DC power cable must be done by a trained technician or maintenance personnel. Terminal connections are required for connection of the DC power cable to the power facility. For this reason, incorrect handling of the DC power cable could result in fire or electric shock.

⚠ WARNING When installing or disconnecting the DC power cable, first turn the distribution panel breaker OFF. Keeping the breaker ON could result in electric shock.

⚠ WARNING When installing or disconnecting the DC power connector, first turn the distribution panel breaker OFF. Keeping the breaker ON could result in electric shock.

NOTE For information on our company's power cable specifications, refer to "2.3.4 DC-48 Power Source Equipment."

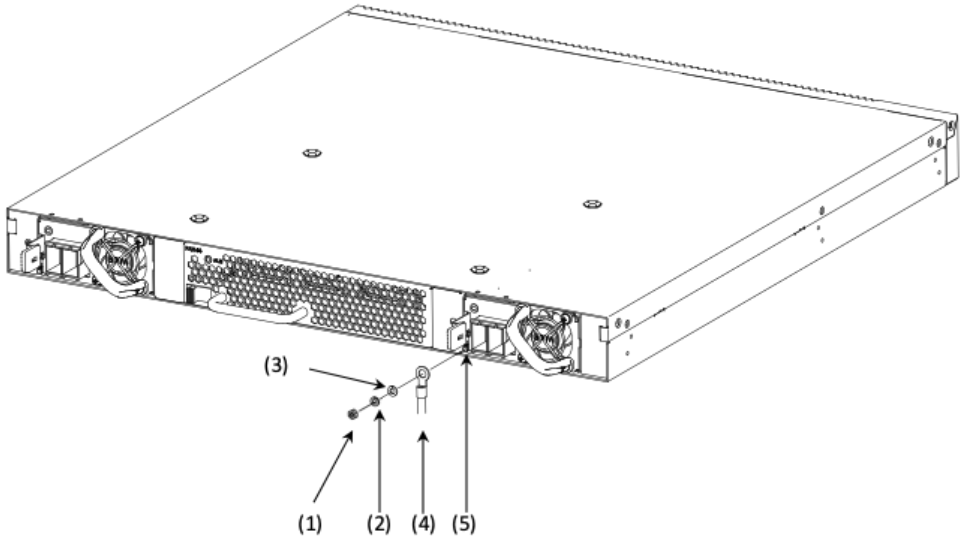
NOTE If you are installing in the rack, attach the cable to the cable holder that comes with the rack, ensuring that no load is placed on the end of the cable.

(1) Installation

Step 1

Remove the nuts, washers, and tooth lock washers attached to the power source grounding terminal, and install the grounding cables to the power sources as noted below.

Fig.4-8 Installing the grounding cable



(1) Nuts（#6-32, measured flat＝ 6.35mm）
(2) Washers
(3) Tooth-locked washers
(4) Grounding cables
(5) Grounding terminal

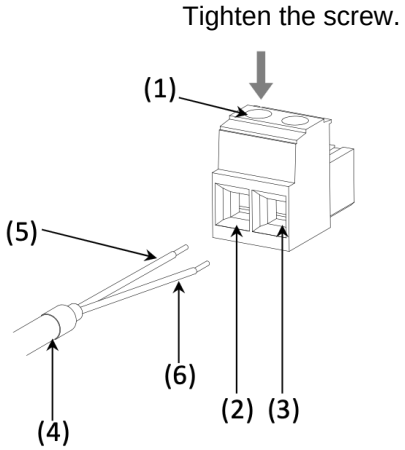
⚠ WARNING Be sure to ground by connecting to the grounding terminal. Failure to ground could result in electric shock, or malfunction due to electrical noise.

Step 2

Loosen the DC power connector screw.

(1) Insert the screwdriver into the cable installation screw hole and loosen the screw.

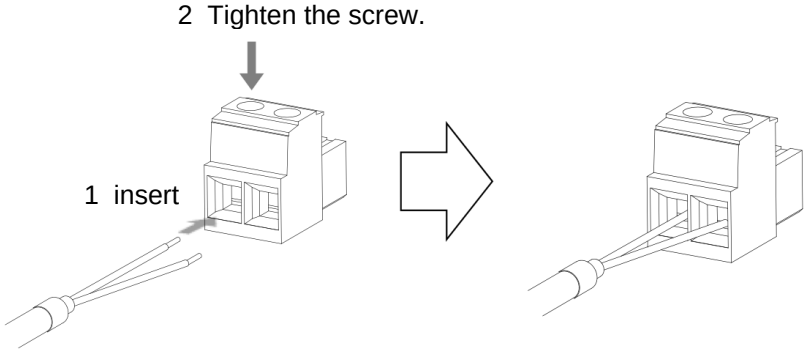
Fig.4-9 Installing the DC power cable 1



(1) Cable installation screw hole
(2) Wire outlet (0V)
(3) Wire outlet (-48V)
(4) DC power cable
(5) 0V
(6) -48V

(2) After plugging the power cable into the power outlet, insert the screwdriver into the cable installation screw hole and tighten the screw.

Fig.4-10 DC power cable installation 2



⚠ WARNING

DC power cable sheath peeling (Unit side) should be 8-9 mm. If sheath peeling is too short, contact may be poor, which could cause the cable to come out. If the sheath peeling is too long, the core wire could be exposed, potentially leading to fire or electric shock.

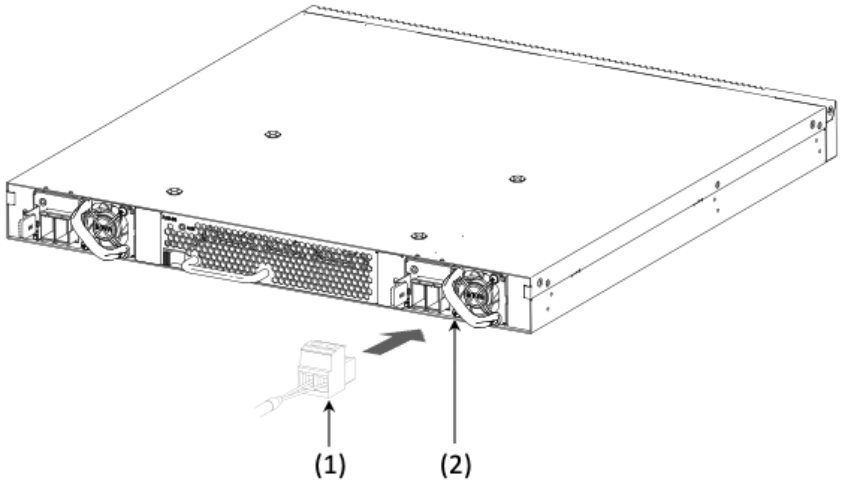
⚠CAUTION Ensure that polarity is correct when connecting DC electric power cables. Connecting with incorrect polarity could result in malfunction.

⚠ WARNING When installing or disconnecting the DC power connector, first turn the distribution panel breaker OFF. Keeping the breaker ON could result in electric shock.

Step 3

Install the DC power connector to the DC power source.

Fig.4-11 Install the DC power connector



(1) DC power connector
(2) DC power source

⚠CAUTION There is no power switch on the unit. Power is supplied to the Unit by attaching an AC power cable.

⚠ WARNING When installing or disconnecting the DC power connector, first turn the distribution panel breaker OFF. Keeping the breaker ON could result in electric shock.

(2) Disconnecting

⚠ WARNING

When installing or disconnecting the DC power connector, first turn the distribution panel breaker OFF. Keeping the breaker ON could result in electric shock.

⚠ WARNING

When attaching a DC power cable to electrical equipment, turn the distribution board breaker to OFF before starting work. Leaving the breaker ON can result in electric shock.

⚠ CAUTION

Use the DC power connector extraction tool including tin the same package with the Unit. Using other equipment could result in malfunction of the Unit.

Do not use the DC power connector extraction tool (included in the package) with equipment other than the Unit. Using the tool with other equipment could result in malfunction of said device.

NOTE

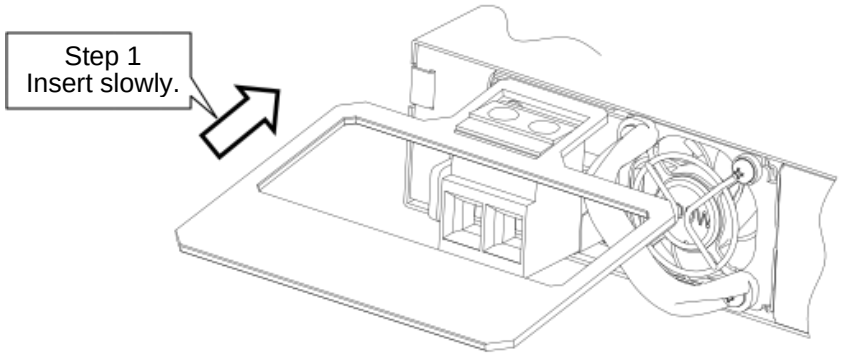
The following Unit comes with a DC power connector extraction tool in the same package.

・PS-D06

Step 1

Slowly insert the DC power connector extraction tool horizontally.

Fig.4-12 Inserting the DC power connector extraction tool



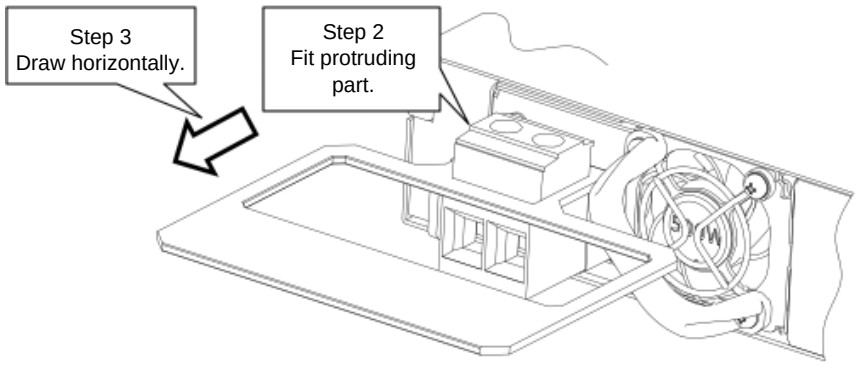
Step 2

The hole at the tip of the DC power connector extraction tool is inserted into the top of the DC power connector.

Step 3

Place the DC power connector extraction tool horizontally and disconnect the DC power connector from the power source. Pull out holding on to the DC power cable connector.

Fig.4-13 Disconnecting the DC power connector



⚠ WARNING

When installing or disconnecting the DC power connector, first turn the distribution panel breaker OFF. Keeping the breaker ON could result in electric shock.

Step 4

Disconnect the DC power cable from the DC power connector cord (first loosen the screw in hole used to hold cable in place).

⚠ WARNING

When attaching a DC power cable to electrical equipment, turn the distribution board breaker to OFF before starting work. Leaving the breaker on can result in electric shock.

Step 5

Disconnect the grounding cable from the Unit.

NOTE

Carefully store any DC power connectors or grounding cables that you have removed.

4.5 Installing and Removing Memory Cards and Dummy Memory Cards

4.5.1 Installing and Removing Memory Cards

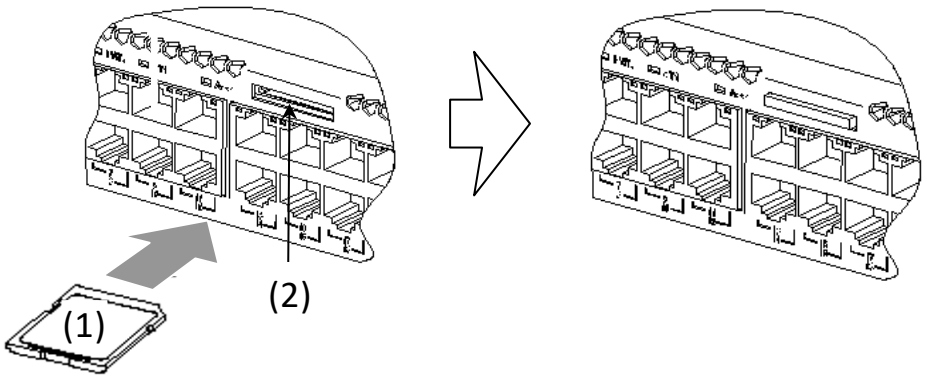
NOTICE

First remove the memory card when transporting the Unit. Placing excess force on memory cards during transport can result in damage to the memory card slot connector.

(1) Installation

Insert the memory card into the slot until you hear a distinct click, and slowly remove your finger. (The rounded corner of the memory card should be to the right when installing the card).

Fig.4-14 Installing memory card



(1) Memory card
(2) Memory card slot

NOTICE

When installing the memory card, do not apply any excess force or flick with your fingers as this may damage the memory card slot connector.

NOTE

In order to prevent deletion or over-writing of data, turn on Protect Switch ▼ Lock.

NOTE

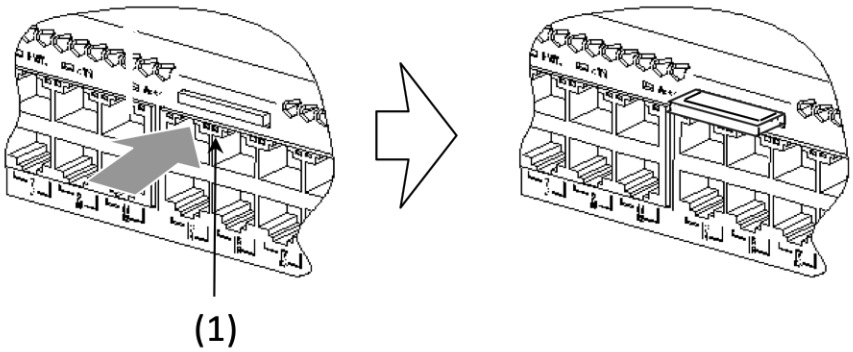
If there is any dust on the memory card slot, wipe it off with a dry cloth or similar before installing.

(2) Disconnecting

Step 1

After checking that the ACC LEED light is off, insert the memory card until you hear a distinct click. (Pull the memory card slightly forward when the lock unlocks).

Fig.4-15 Removing the memory card

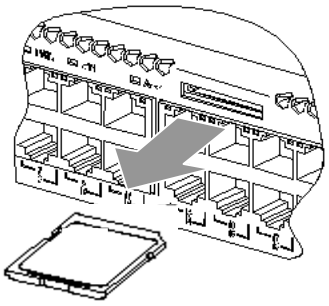


(1) Memory card

Step 2

Remove the memory card.

Fig.4-16 Removing the memory card



NOTICE

The memory card is being accessed when the ACC LED light is lit up. During access, do not remove power sources or the memory card. This could cause the memory card to malfunction.
With some commands, it may take time for the Unit to stop accessing the memory card. Check that the Unit has stopped accessing the memory card before removing the memory card or power sources.

NOTICE

When removing the memory card, do not attempt to pull it out from the locked position as this may damage the memory card slot connector.

4.5.2 Installing and disconnecting dummy memory cards

The dummy memory card (referred to below as the “dummy card”) should be stored in the Unit memory card slot when the memory card is not in use.

The dummy card is packaged together with the Unit when shipped. After setting up the Unit, observe the following procedures to use the dummy card.

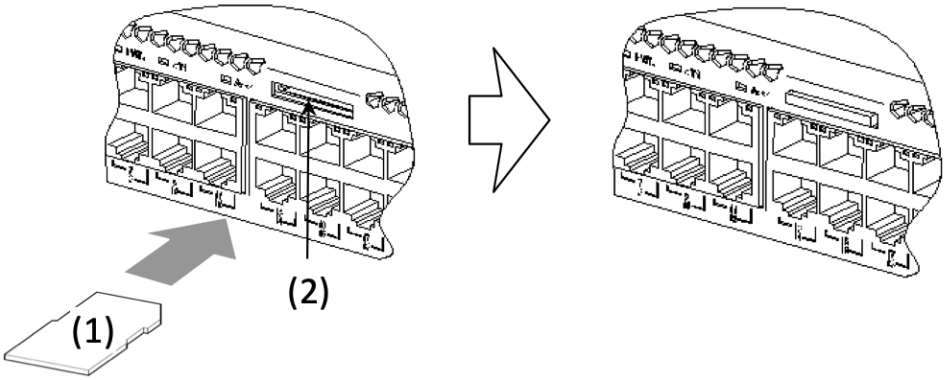
⚠CAUTION

First remove the dummy card when transporting the Unit. Placing excess force on memory cards during transport can result in damage to the memory card slot connector.

(1) Installation

Insert the dummy card until you hear a distinct click, and slowly remove your finger. (The rounded corner of the dummy card should be to the right when installing the card).

Fig.4-17 Installing the dummy card



(1) Dummy card
(2) Memory card slot

NOTICE

When installing the dummy card, do not apply any excess force or flick with your fingers as this may damage the memory card slot connector.

NOTE

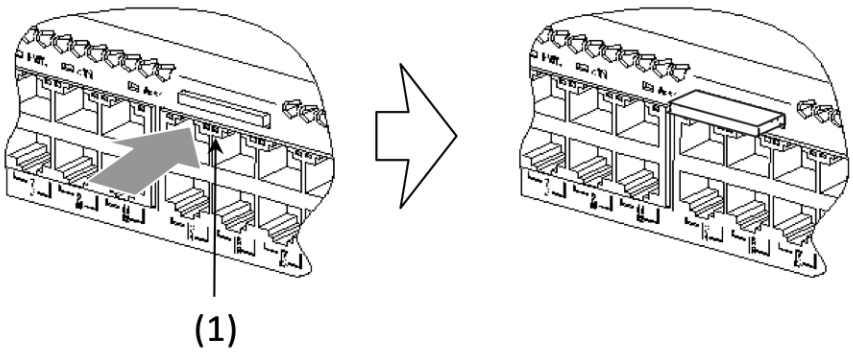
If there is dust on the memory card slot, wipe it away with a dry cloth before installing the Unit.

(2) Removing the Card

Step 1

Insert the memory card into the slot until you hear a distinct click, and slowly remove your finger (the lock will unlock and the memory card will move slightly forward).

Fig.4-18 Removing the memory card

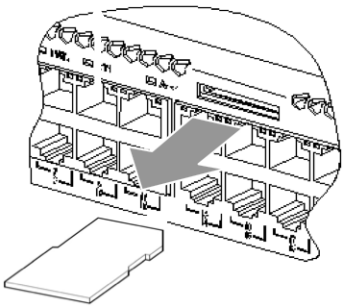


(1) Dummy card

Step 2

Remove the dummy card.

Fig.4-19 Removing the dummy card.



NOTICE

When removing the dummy card, do not attempt to pull it out from the locked position as this may cause damage to the memory card slot connector.

4.6 Installing and Disconnecting SFP and SFP+ Models

SFP and SFP+ models can be installed and removed with the power on.

⚠CAUTION

The Unit uses lasers. Note that laser light is colorless and cannot be observed with the naked eye. Do not look directly at the optical transmitter or receiver, or through the optical equipment.

⚠CAUTION

The temperature while the SFP-T and SFPP-ZR models are operating (while connection is being established) should be a maximum of 65℃. Do not touch the Unit while it is operating or immediately after shutdown as this could cause burn injury,

Observe the following procedures when disconnecting SFP-T or SFPP-ZR. Failure to do so could result in burn injury.

- When powering down the Unit, first implement the “Inactivate” command and wait five minutes before disconnecting.
- Wait five minutes after powering down when removing the Unit power source to disconnect.

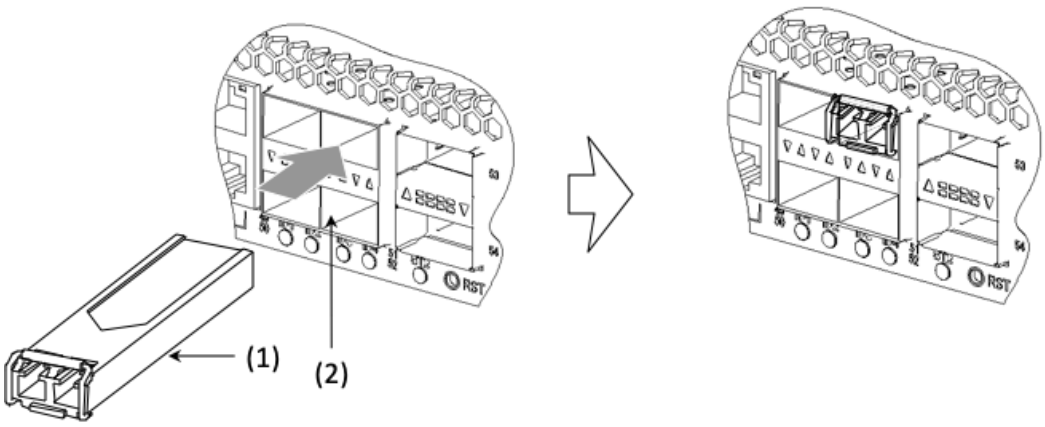
NOTICE

Do not install or disconnect the transceiver more often than necessary, as this nay shorten the life of the product.

(1) Installation

With the lever out as below, insert the SFP until you hear a click.

Fig.4-20 SFP installation (top port)

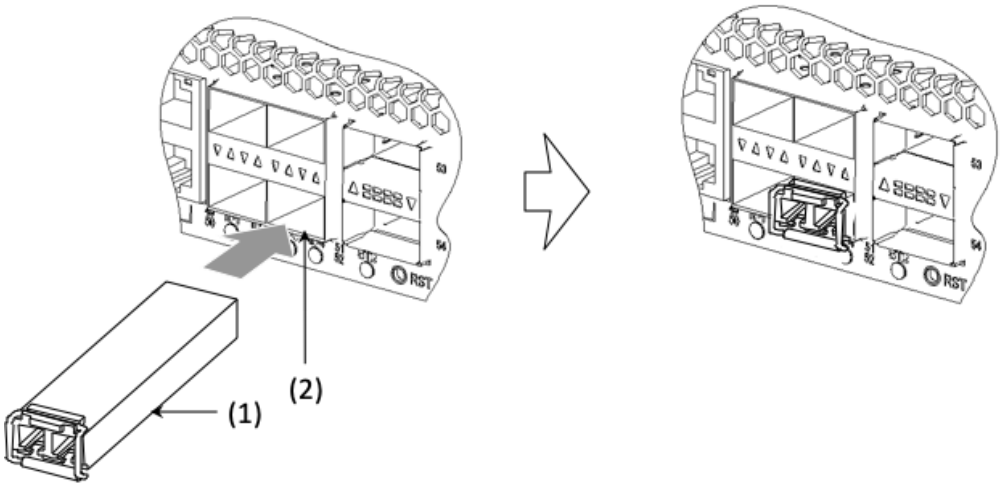


(1) SFP
(2) SFP slot

NOTE

The above is an illustration of how to install the Unit into the Ethernet port on top, where there are two levels of SFP and SFP+ slots. To install in the Ethernet port on the bottom, turn the SFP the opposite way as in the following illustration.

Fig.4-21 SFP installation (bottom port)



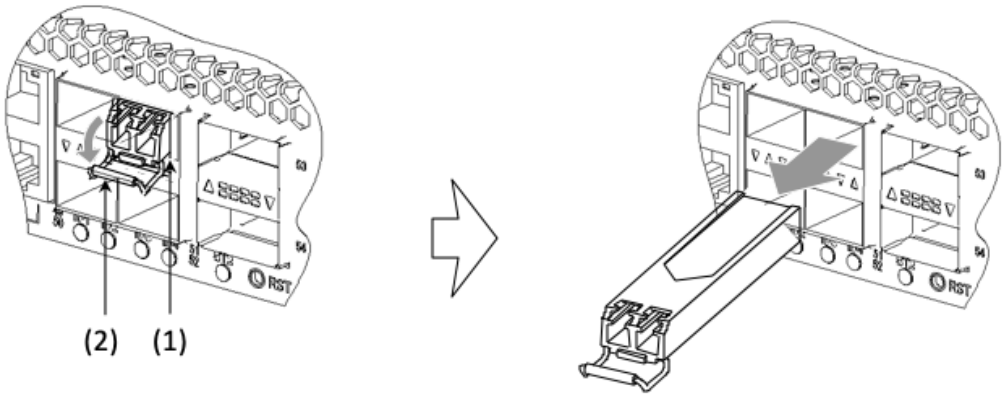
(1) SFP
(2) SFP slot

NOTE Follow the same procedures for SFP+.

(2) Disconnecting

Pull down the lever as indicated by the arrow. Hold the lever and pull it forward.

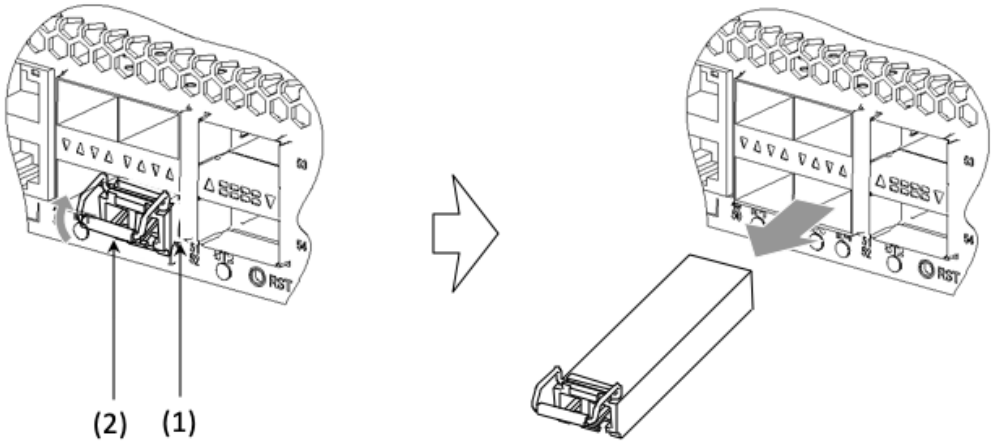
Fig.4-22 Disconnecting the SFP model (top port)



(1) SFP
(2) Lever

NOTE The above is an illustration of how to remove the Unit from the Ethernet port on top, where there are two levels of SFP and SFP+ slots. To install on the bottom port, which is an Ethernet port, turn the SFP the opposite way, as in the following illustration.

Fig.4-23 SFP removal (bottom port)



(1) SFP
(2) Lever

⚠ CAUTION

The temperature while SFP-T or SFPP-ZR models are operating (while connection is being established) should be a maximum of 65°C. Do not touch the Unit while it is operating or immediately after shutdown as this could cause burn injury,

Observe the following procedures when disconnecting SFP-T or SFPP-ZR. Failure to do so could result in burn injury.

- When powering down the Unit, first implement the “Inactivate” command and wait five minutes before disconnecting.
- Wait five minutes after powering down before doing so when removing the Unit power source to disconnect.

NOTICE

If the SFP or SFP+ models are difficult to remove, press on the transceiver in the direction of the Unit with your finger and check if you are able to remove the transceiver. Do not pull hard on the lever as it may cause damage to the transceiver including the lever.

NOTE

Follow the same procedure with SFP+.

4.7 Installing and Disconnecting QSFP+ and QSFP28 Models

The QSFP+ and QSF28 models can be installed and disconnected with the Unit powered on.

⚠CAUTION

The Unit uses lasers. Note that laser light is colorless and cannot be observed with the naked eye. Do not look directly at the optical transmitter or receiver, or through the optical equipment.

⚠CAUTION

The temperature while SFP-T or SFPP-ZR models are operating (while connection is being established) should be a maximum of 65℃. Do not touch the Unit while it is operating or immediately after shutdown as this could cause burn injury,

Observe the following procedures when disconnecting SFP-T or SFPP-ZR. Failure to do so could result in burn injury.

・When powering down the Unit, first implement the “Inactivate” command and wait five minutes before disconnecting.

・When disconnecting the Unit power source to disconnect, wait five minutes after powering down before doing so.

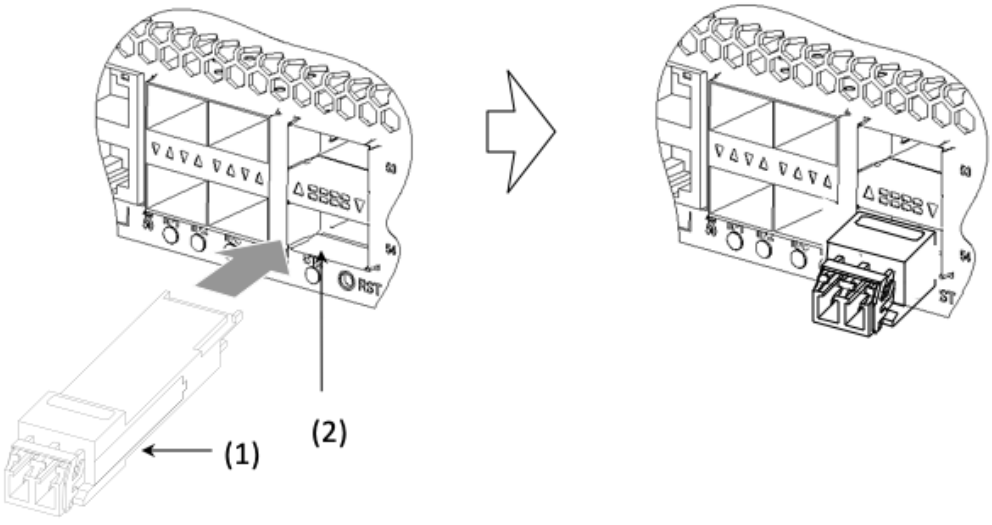
NOTICE

Do not install or disconnect the transceiver more often than necessary, as this may shorten the life of the product.

(1) Installation

With the lever out as below, insert the SFP until you hear a distinct click.

Fig.4-24 QSFP+ installation



(1) QSFP+
(2) QSFP+ slot

NOTE

The above is an illustration of how to install the Unit in the Ethernet port on the bottom, where there are two levels of QSFP+ slots. To install on the bottom port, which is an Ethernet port, turn the QSFP+ the opposite way, as in the following illustration.

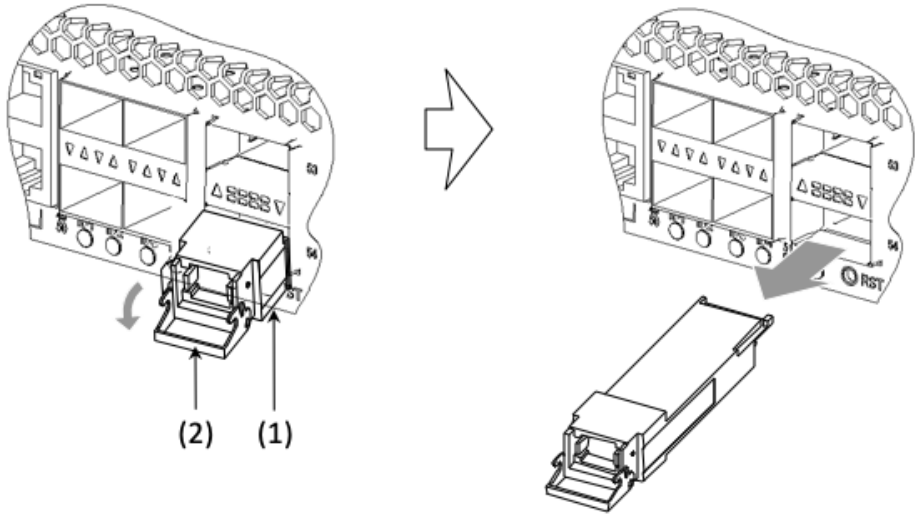
NOTE

Follow the same procedure for QSFP28.

(2) Removing the Unit

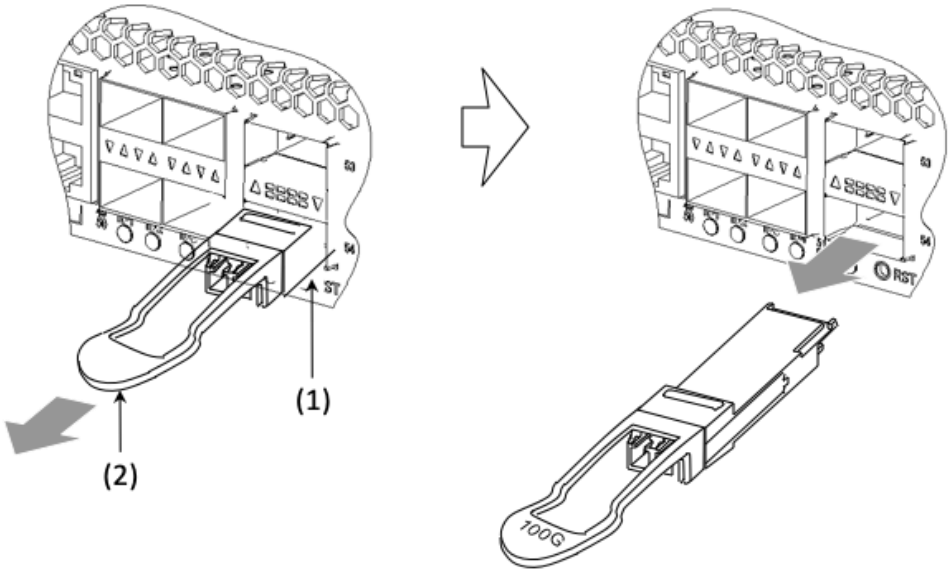
Pull down the lever in the direction of the arrow. Remove the Unit holding the lever.

Fig.4-25 Removing the QSFP+ (in models with levers)



(1) QSFP+ (2) Lever

Fig.4-26 Removing QSFP+ (for devices with pull tabs)



(1) QSFP+ (2) Pull tabs

⚠CAUTION

The temperature while the QSFP28 is operating (while connection is being established) should be a maximum of 65°C. Do not touch the Unit while it is operating or immediately after shutdown as this could cause burn injury,

Observe the following procedures when disconnecting the QSFP28. Failure to do so could result in burn injury.

- When disconnecting with the Unit power source on, first implement the “Inactivate” command and wait five minutes before disconnecting.
- When disconnecting the power source to remove the Unit, wait five minutes after powering down before doing so.

NOTICE

If you are having trouble disconnecting the QSFP+ or QSF28, press on the transceiver in the direction of the Unit, slowly adding pressure as you do so, and pull the lever or pull tab. Pulling too hard on the lever or pull tag could result in damage to the transceiver such as malfunction of the lever or pull tab.

NOTE

Follow the same procedures for the QSFP28 model.

4.8 Connecting to the Operating Terminal

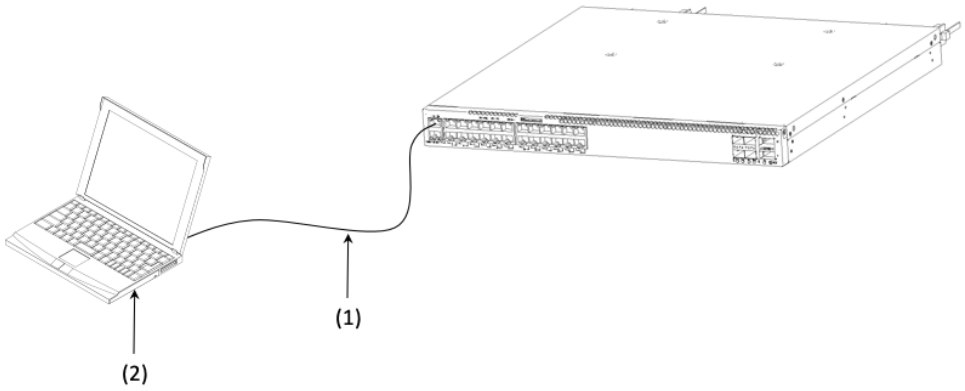
Connect the operating terminal to the Unit console port.

To connect to the operating terminal, use the RS-232C cross cable (RJ-45 (male)-D-Sub9 pin (male).

Step 1

Insert the RS-232C cable connector into the Unit console port until you hear a distinct click.

Fig.4-27 Installing the RS-232C cable

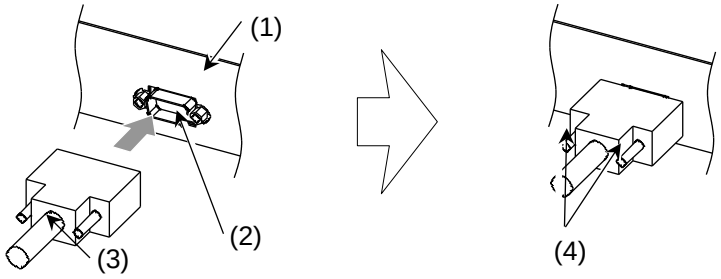


(1) RS-232C cable
(2) Operational terminal

Step 2

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

Fig.4-28 Installing the RS-232C cable



(1) Operational terminal
(2) D-Sub9 pin connector
(3) RS-232C cable
(4) Screw

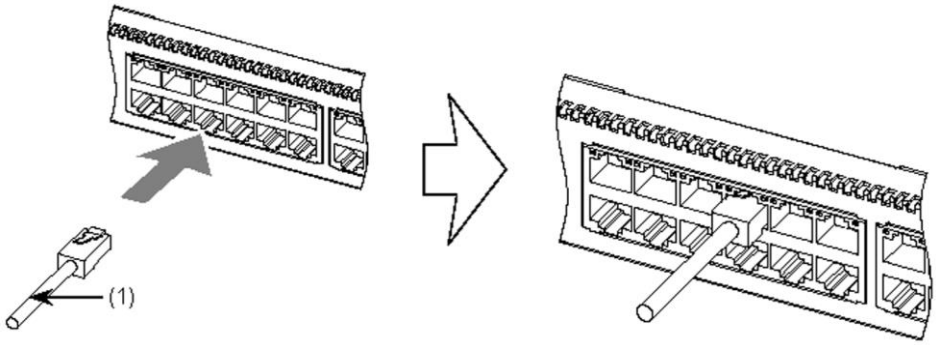
NOTE Tighten the screw after connecting. Check that it is firmly in place.

4.9 Connecting Interface Cables

(1) UTP Cable

The UTP cable can be installed or disconnected with the Unit powered on. Insert the connector until you hear a distinct click.

Fig.4-29 UTP cable installation



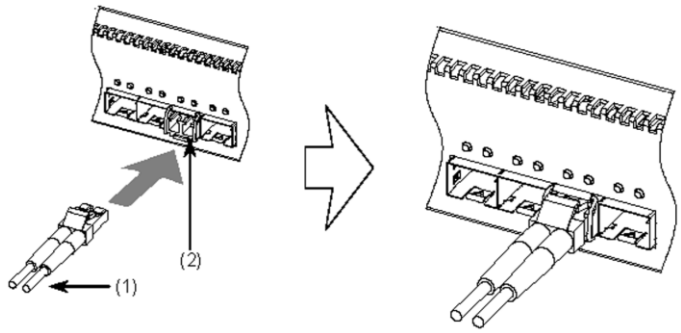
(1) UTP cable

NOTE Do not dig your fingernails into the equipment.

(2) Optical fiber cable (LC2 core connector)

Optical fiber cables can be installed or disconnected with the Unit powered on. Insert the connector until you hear a distinct click.

Fig.4-30 Installing the optical fiber cable (LC2 core connector)



(1) Optical fiber cable (LC2 core connector)
(2) Transceiver

⚠CAUTION The Unit uses lasers. Note that laser light is colorless and cannot be observed with the naked eye. Do not look directly at the optical transmitter or receiver, or through the optical equipment.

NOTE Do not dig your fingernails into the equipment.

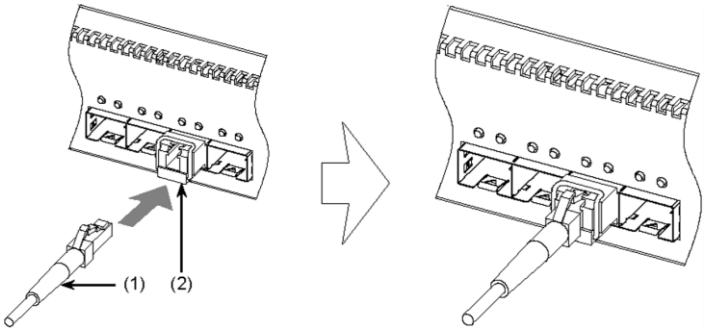
NOTE Use the same procedure to install the QSFP+ and QSFP28.

NOTE To clean the optical connector, refer to the ALAXALA Transceiver Hardware Manual (AX-COM-H001).

(3) Optical fiber cable (LC1 core connector)

The optical fiber cable can be installed or disconnected with the Unit power on. Insert the connector until you hear a distinct click.

Fig.4-31 Installing the optical fiber cable (LC1 core connector)



(1) Optical fire cable (LC1 core connector)
(2) Transceiver

⚠CAUTION The Unit uses lasers. Note that laser light is colorless and cannot be observed with the naked eye. Do not look directly at the optical transmitter or receiver, or through the optical equipment.

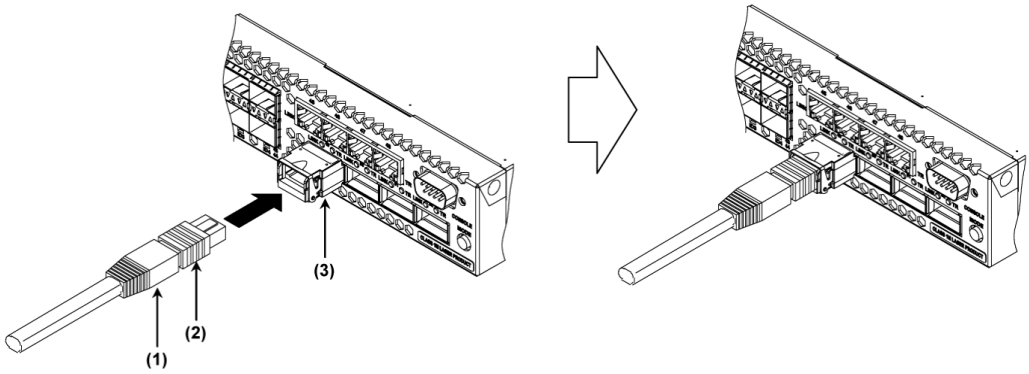
NOTE To disconnect the cables, hold down the prongs.

NOTE To clean the optical fiber connectors, refer to the “ALAXALA Transceiver Hardware Manual (AX-COM-H001).

(4) Optical fiber cable (MPO connector)

Optical fiber cables can be installed or disconnected with the Unit powered on. Hold the MPO cable connector plug, pull out the MPO cable, and insert the MPO connector in until you hear a distinct click.

Fig.4-32 Installing the optical fiber cable (MPO connector)



(1) Optical fiber cable (plug for installing MPO cables)
(2) Optical fiber cable (plug for disconnecting MPO cables)
(3) Transceiver

⚠CAUTION The Unit uses lasers. Note that laser light is colorless and cannot be observed with the naked eye. Do not look directly at the optical transmitter or receiver, or through the optical equipment.

NOTE To disconnect, hold the disconnector plug and pull out the MPO cable.

NOTE Regarding cleaning of the optical connector, refer to the “ALAXALA Transceiver Hardware Manual (AX-COM-H001)

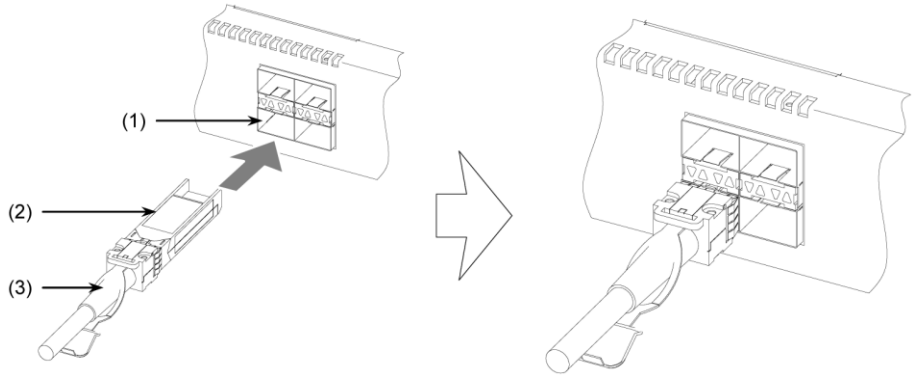
(5) Directly-attached cables

Directly-attached cables can be installed or disconnected with the Unit powered on.

Installation

Hold the base of the cable and insert the connector until you hear a distinct click.

Fig.4-33 Installing the directly-attached cables

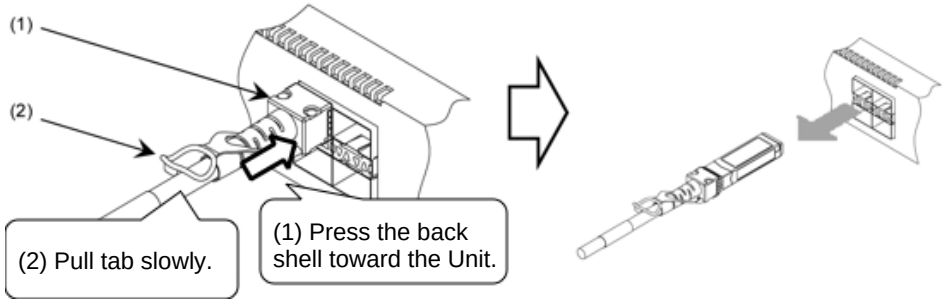


(1) SFP+ slot
(2) Connector
(3) Ends of the cable

Disconnecting

To remove a directly-attached cable, press the directly-attached cable back shell toward the Unit horizontally with your fingers (Chart 1 below). Pull on the pull tab as you slowly add pressure (Chart 2 below). Once unlocked, pull the cable out.

Fig.4-34 Disconnecting the directly-attached cable



NOTICE

To remove a directly-attached cable, press the directly-attached cable back shell toward the Unit horizontally with your fingers. Pull on the pull tab as you slowly add pressure. Do not pull excessively hard. If you do, you may pull off the tab and damage the directly-attached cable.

⚠CAUTION To ensure that the cables do not bend over time, fix the directly-attached cable in place with the cable holder (rack included). Check that no extra load is being placed on the ends of the cables.

NOTE Install and disconnect the directly-attached cables (for the QSFP+ and QSFP28 models) in the same manner.

4.10 Powering On/Powering Down the Unit

NOTE

The following are examples of attaching and disconnecting power sources where there are AC power sources. Take the same steps when installing a DC power source. Refer to “4.4.2. DC Power Cable Installation and Disconnection.”

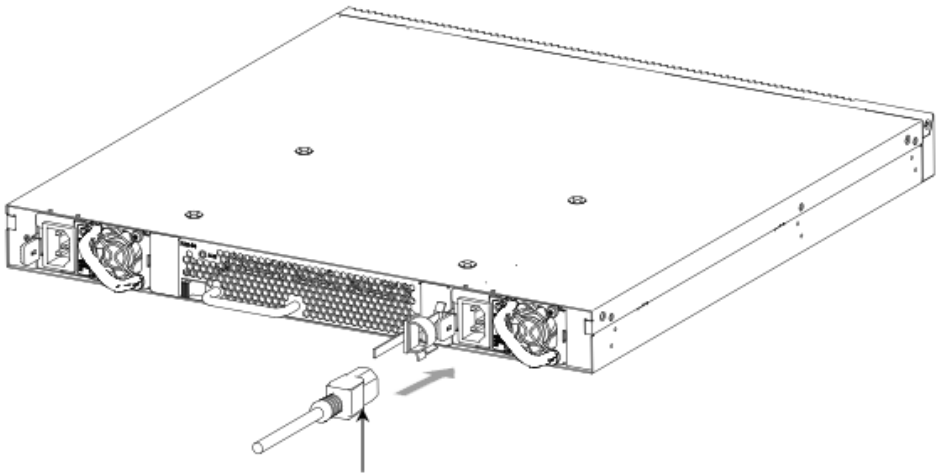
NOTE

Note that the Unit does not have a power switch. The power cable can be attached or disconnected at the same time that power sources are connected or disconnected.

(1) Adding a power source

Attach the power cable to the power connector on the back of the Unit.

Fig.4-35 Powering on the Unit



NOTE

Where there are redundant power sources, an abnormality may be detected (ST1 LED flashes red) where only one of the power cables is connected. Any such abnormality related to power will disappear once all power cables are connected.

(2) Removing power sources

Remove all power cables from the back of the Unit.

⚠WARNING Where there are redundant power sources, power to the Unit will not be cut where just one of the power cables is disconnected. To cut all power, disconnect all power cables from all power sources.

⚠CAUTION The memory card is being accessed when the ACC LED light is lit up. During access, do not remove power sources or the memory card. This could cause the memory card to malfunction.

With some commands, it may take time for the Unit to stop accessing the memory card. Check that the Unit has stopped accessing the memory card before removing the memory card or power sources.

⚠CAUTION In the following cases, do not remove Unit power sources until the ST1 LED has transitioned from flashing to a solid light. Failure to do so could cause malfunction.

- Updating software

4.11 Subsequent Procedures

(1) Setting the Time

The time is not set when the Unit is purchased. The user must set the time. Refer to Software Manual Configuration Guide Vol.1（AX38S-S010）for instructions on how to set the time.

NOTE

The Unit maintains time settings for about ten days once the power sources have been disconnected. After a period of about ten days, rest the time when you power the Unit back on.

(2) Operations Management and Configuration Settings

- Refer to the following manuals on operations management and configuration settings:
  - Software Manual Configuration Guide Vol.1 (AX38S-S010)
  - Software Manual Configuration Guide Vol.2 (AX38S-S011)
  - Software Manual Configuration Guide Vol.3 (AX38S-S012)

- Refer to the following manuals on configuration command details:
  - Software Manual Configuration Command Reference Vol.1 (AX38S-S013)
  - Software Manual Configuration Command Reference Vol.2 (AX38S-S014)

- Refer to the following manuals on operational command details:
  - Software Manual Operations Command Reference Vol.1 (AX38S-S015)
  - Software Manual Operations Command Reference Vol.2 (AX38S-S016)

NOTE

Back up your operating information once you have configured your settings. Once you have backed up the system, your operating information can be easily restored if you need to replace the Unit due to malfunction or other reasons. Refer to the Software Manual Configuration Guide Vol.1 for information on making backups.

(3) Testing system operations

Run a test to ensure that your configuration/settings are correct prior to operating the system.

(4) Troubleshooting

Refer to the following manuals for help on troubleshooting.

- Troubleshooting Guide (AX36S-T002)

5 Adding and Replacing Options

The Chapter provides an overview of procedures for adding fan units and power sources, as well as replacement.

5.1 Required Tools

5.2 Read Prior to Commencing Work

5.3 Adding and Replacing Power Sources

5.4 Replacing the Fan Unit

5.1 Required Tools

The following tools are required for adding, replacing, or removing equipment.

Philipps screwdriver #2:

Used to install fixed parts to the Unit rack, or installing/uninstalling the Unit from the rack.

Flathead screwdriver of 2mm diameter:

Used to install or uninstall DC power connectors to electric power sources (PS-D06).

Anti-static wrist strap:

Protects equipment from static electricity.

⚠CAUTION The above screwdriver sizes are guidelines. Check that your screwdriver fits in the thread groove. You run the risk of stripping the grooves if you use the incorrect size screwdriver.

5.2 Read Prior to Commencing Work

⚠WARNING

Adding or replacing power sources, or replacing a fan unit, should only be done by trained technicians or maintenance personnel. Mistakes made by untrained personal can result in fires, electric shock, or Unit failure.

⚠CAUTION

Do not touch the inside of the Unit without preparing first. Working parts can cause injury. The temperature of internal parts may rise to high temperatures, which can cause fire.

⚠CAUTION

If you are removing the electric power source, first install a blank panel. The following issues may occur in the absence of a blank panel.

- As the internal temperature of the Unit rises, Unit failure can occur.
- Working parts may cause injury.
- Breakage may occur where foreign matter gets into the Unit.
- Radio wave interference generated by the Unit can impact other machinery, while at the same time interference generated by other machinery may impact the Unit. This can cause malfunction.

Note

Disconnect electric cables from electric power sources prior to installing or uninstalling electric power sources.

Note

Use the antistatic wrist strap. If the Unit is handled without using the anti-static wrist strap, static electricity may cause damage to equipment.

Note

Do not touch the embedded parts of the power source or the solder surface. In addition, store the Unit inside an anti-static bag.

5.3 Adding and Replacing Power Sources

You can replace electric power sources with the device powered on.

⚠WARNING

Adding or replacing power sources, or replacing a fan unit, should only be done by trained technicians or maintenance personnel. Mistakes made by untrained personal can result in fires, electric shock, or Unit failure.

⚠CAUTION

If you are removing the power source, first install a blank panel. The following issues may occur in the absence of a blank panel.

- As the internal temperature of the Unit rises, Unit failure can occur.
- Working parts may cause injury.
- Breakage may occur where foreign matter gets into the Unit.
- Radio wave interference generated by the Unit can impact other machinery, while at the same time interference generated by other machinery may impact the Unit. This can cause malfunction.

NOTE

The following are examples of AC power sources. Follow the same procedures for DC power sources.

(1) Disconnecting

Step 1

Disconnect the power cable from the power source you are replacing.

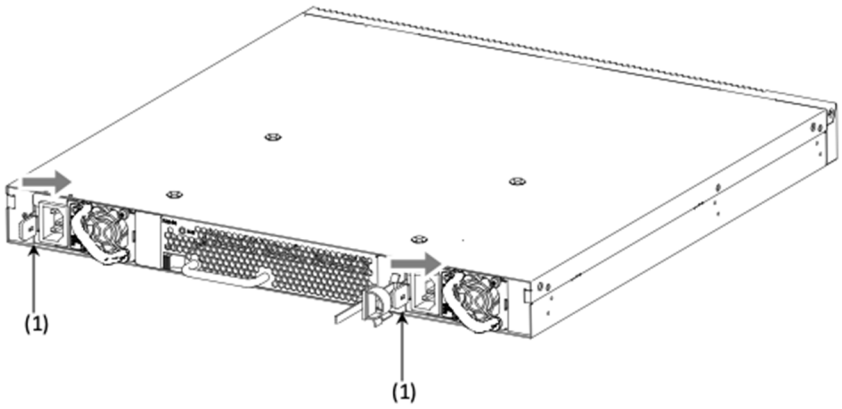
NOTE

When replacing the DC power source with an AC power source, disconnect the grounding cable after disconnecting the power cable.
Also note that you should carefully store the disconnected grounding cables.

Step 2

Pull the power supply lever in the direction of the arrow.

Fig.5-1 Disconnecting power source (unlock)



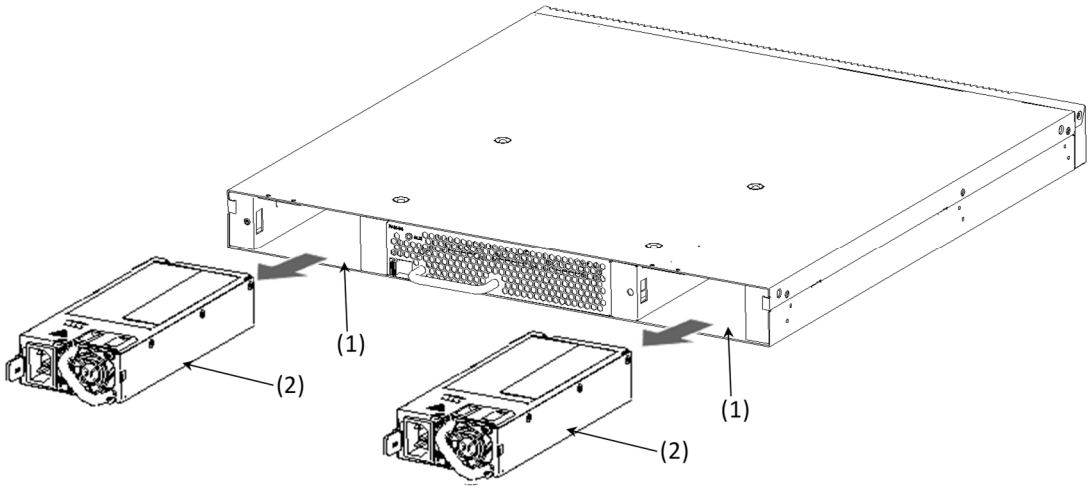
(1) Lever

Step 3

Pull the lever in the down position toward you to disconnect.

(To disconnect, take the handle and bring it toward you. Support the bottom as you disconnect).

Fig.5-2 Disconnecting the power source



(1) Power source slot

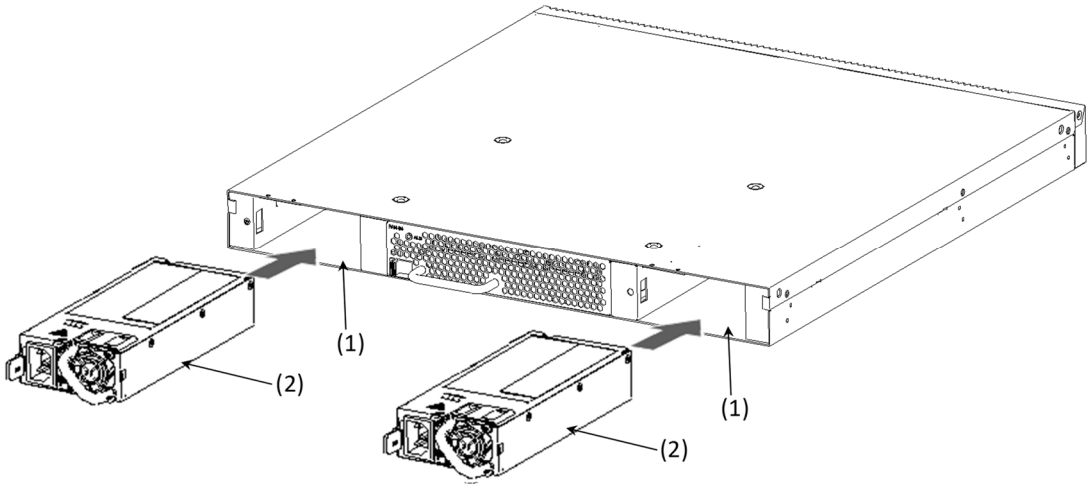
(2) Power source

(2) Connection

Step 1

Connect the power slot in the power slot source.

Fig.5-3 Connecting the Power Source



(1) Power Source Slot

(2) Power Source

Step 2

Connect the power cable to the power source.

5.4 Replacing the Fan Unit

The following is an overview of the process of replacing the Fan Unit. The Fan Unit can be connected or disconnected with the power connected to the Unit.

⚠WARNING

Adding or replacing power sources, or replacing a fan unit, should only be done by trained technicians or maintenance personnel. Mistakes made by untrained personal can result in fires, electric shock, or Unit failure.

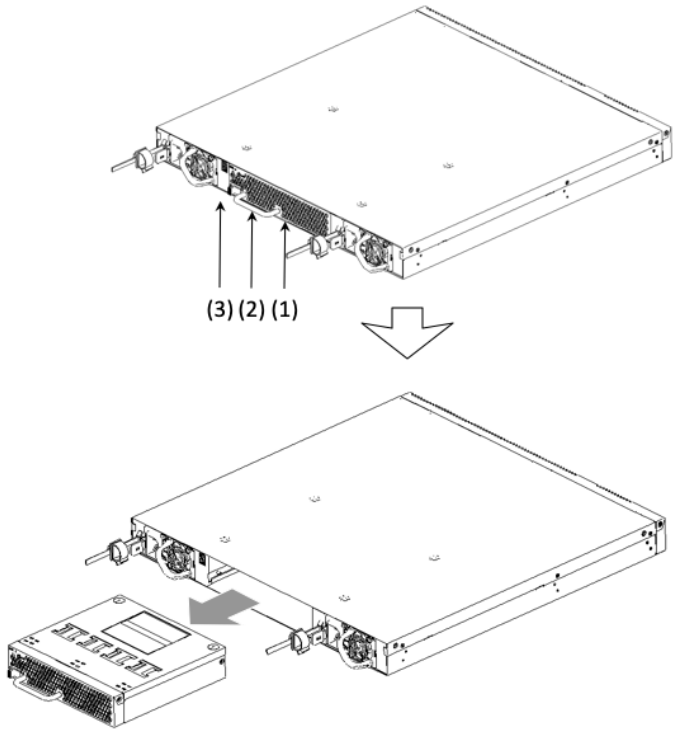
⚠CAUTION

To replace the fan unit with the Unit powered on, the Unit intake temperature must be 40℃ or less, and the uninstallation/replacement must be completed in one minute or less. If the fan unit is replaced in an environment were the temperature exceeds 40℃, or if the process takes more than one minute, the internal temperature may rise to the point where it causes failure.

(1) Disconnecting

Slide the Fan Unit in the direction of the latch and pull it toward you to disconnect.

Fig.5-4 Disconnecting the Fan Unit

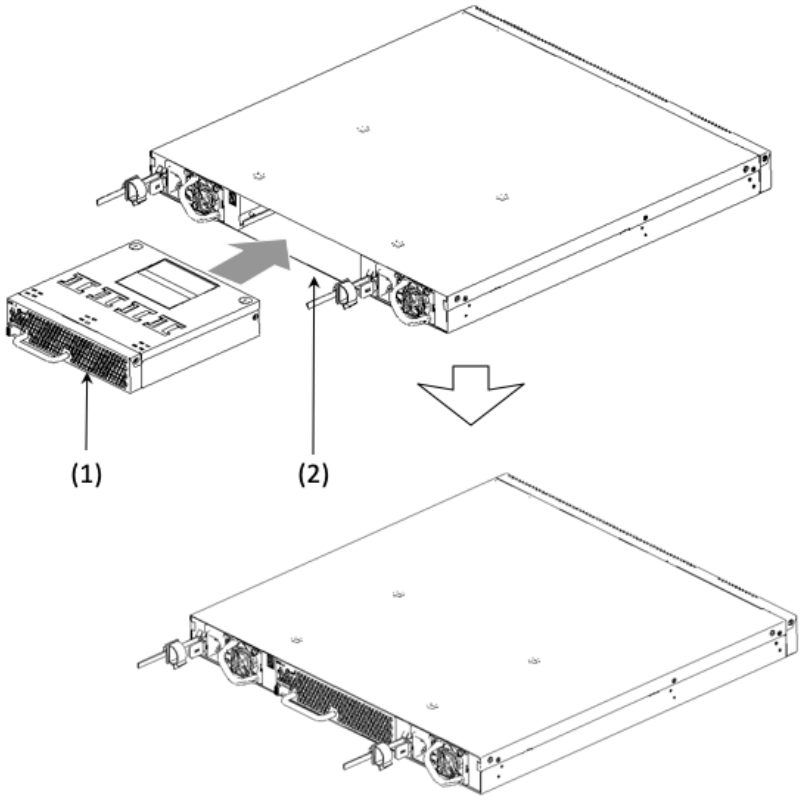


(1) Fan Unit
(2) Handle
(3) Latch

(2) Connecting

Inset the Fan Unit until you hear a click.

Fig.5-5 Connecting the Fan Unit



(1) Fan Unit
(2) Fan Unit Slot

Appendices

Appendix A Cleaning Optical Connectors

Appendix B Network Interface Physical Specifications

Appendix A Cleaning Optical Connectors

For information on cleaning optical connectors, refer to the “ALAXALA Transceiver Hardware User Manual (AX-COM-H001).”

Appendix B Network Interface Physical Specifications

For information on physical specifications for auxiliary transceiver network interface equipment for the Unit, refer to the “ALAXALA Transceiver Hardware User Manual (AX-COM-H001).”