Video Wall Controller

Quick Start Guide

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Preface

Applicable Models

This manual is applicable to the DS-C66S series video wall controller.

Default Parameters

Type	Default Parameter
Device	• Login user name: admin • IP address: 192.0.0.64
SSH connection	

Caution

To improve system security, it is highly recommended to change password regularly. In order to protect your privacy and corporate data and avoid network security issues, it is recommended to set strong password that meets security requirements.

Symbol Conventions

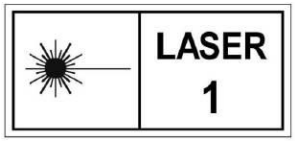
The symbols that may be found in this document are defined as follows.

Symbol	Description
Note	Provides additional information to emphasize or supplement important points of the main text.
Caution	Indicates a potentially hazardous situation, which if not avoided, could result in equipment damage, data loss, performance degradation, or unexpected results.
Danger	Indicates a hazard with a high level of risk, which if not avoided, will result in death or serious injury.

Safety Instructions

Caution

- The device must be connected to an earthed mains socket-outlet.
- The socket-outlet shall be installed near the device and shall be easily accessible.
- Do not touch the bare components (such as the metal contacts of the inlets) and wait for at least 5 minutes, since electricity may still exist after the device is powered off.
- Never place the device in an unstable location. The device may fall, causing serious personal injury or death.
- This device is not suitable for use in locations where children are likely to be present.
-  CAUTION: Risk of explosion if the battery is replaced by an incorrect type.
- Improper replacement of the battery with an incorrect type may defeat a safeguard (for example, in the case of some lithium battery types).
- Do not dispose of the battery into fire or a hot oven, or mechanically crush or cut the battery, which may result in an explosion.
- Do not leave the battery in an extremely high temperature surrounding environment, which may result in an explosion or the leakage of flammable liquid or gas.
- Do not subject the battery to extremely low air pressure, which may result in an explosion or the leakage of flammable liquid or gas.
- Dispose of used batteries according to the instructions.
- Keep body parts away from fan blades. Disconnect the power source during servicing.
- Class 1 laser product used with compatible Class 1 fiber optical transceivers according to IEC 60825-1:2014 and EN 60825-1:2014+A11:2021, and hazard level 1 based on IEC 60825-2:2021 and EN 60825-2:2004+A1:2007+A2:2010. Make sure that the power has been disconnected before you wire, install, maintain, or repair. When any laser equipment is in use, make sure that the device lens is not exposed to the laser beam, or it may burn out. The laser radiation emitted from the device can cause eye injuries, burning of skin or inflammable substances. Before enabling the laser ranging function, make sure no human or inflammable substances are in front of the laser lens. Do not place the device where minors can fetch it.



Note

- This device is suitable for use in equipment room only.
- Make sure that the power has been disconnected before you wire, install, or disassemble the device.

- The device shall not be exposed to water dripping or splashing, and no objects filled with liquids, such as vases, shall be placed on the device.
- No naked flame sources, such as lighted candles, should be placed on the device.
- If smoke, odor, or noise arises from the device, immediately turn off the power, unplug the power cable, and contact the service center.
- Install the device according to the instructions in Quick Start Guide.
- To prevent injury, this device must be securely attached to the installation surface in accordance with the installation instructions.
- The ventilation should not be impeded by covering the ventilation openings with items, such as newspapers, table-cloths, curtains. The openings shall never be blocked by placing the device on a bed, sofa, rug, or other similar surface.

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Chapter 1 Introduction

1.1 Overview

The video wall controller (hereinafter referred as the device) is the core control device of the screen splicing control system. As a new-generation FPGA-based pure hardware image processing device, it adopts the structure of main control board and service boards to provide the following advantages:

- Supports the video input and video output via various ports.
- Supports the network encoding and real-time preview of signal sources.
- Supports the decoding and output of various network signal sources.
- Supports the high-definition (HD) video splicing and fusion.
- Supports the window splicing, roaming window, and other operations.
- Supports the management on users, network, operation, alarm and logs.

1.2 Appearance

1.2.1 Host System

The device adopts a plug-and-play modular design, and the host system achieves different functions by being equipped with various service boards.

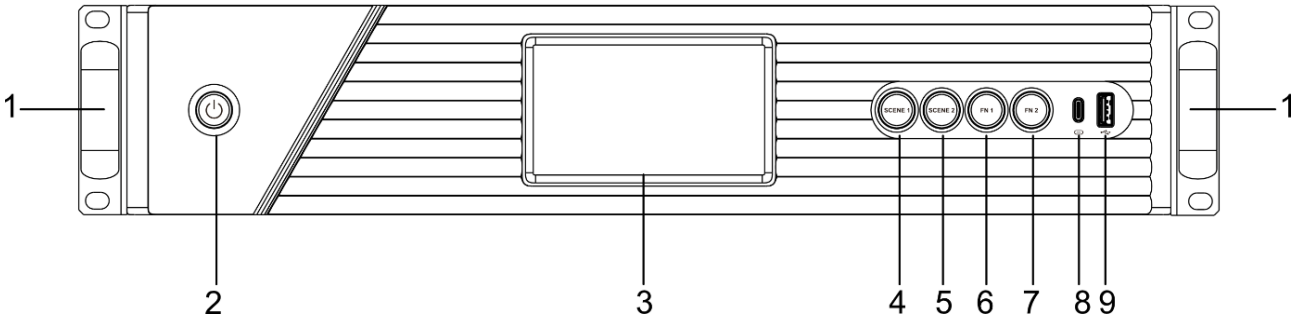

Figure 1-1 2U Device Front Panel

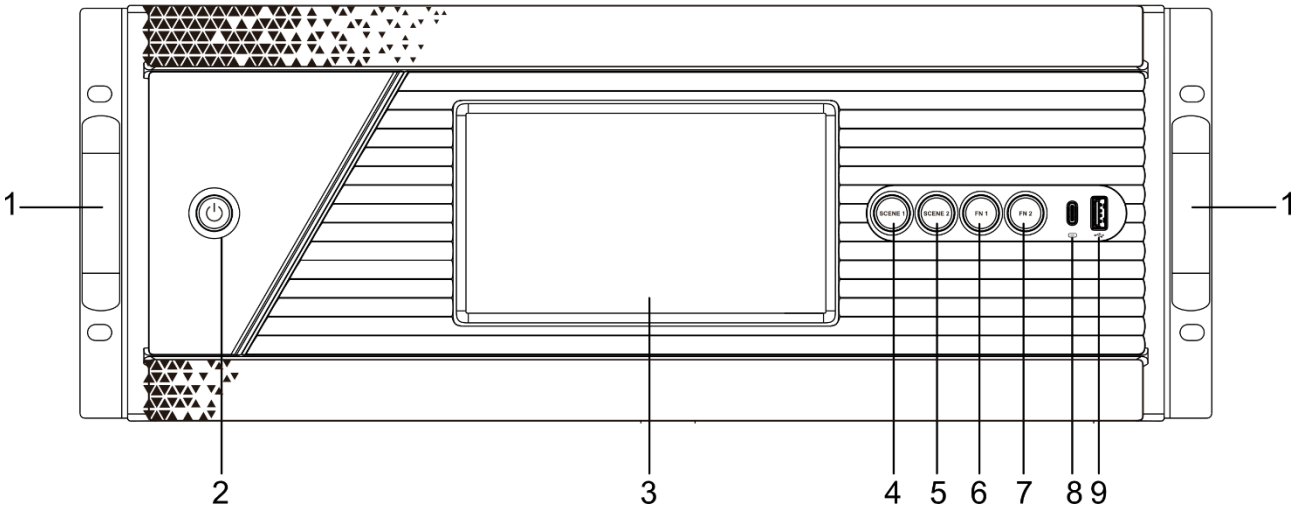

Figure 1-2 4U Device Front Panel

Table 1-1 Front Panel Description

No.	Name	Description
1	Mounting ears	Hold the handles on the mounting ears with both hands to move the device.

2	Power button/power indicator	• Power button:
		  ◦ Default: The device starts automatically upon power connection (including after reconnection).
		  ◦ Power off: Press and hold for 3 seconds to force shutdown (effective in any state).
		  ◦ Power on: Press briefly (1 second) to power on the device (effective only when powered off).
		• Power indicator status:
		  ◦ On: Device is powered on.
		  ◦ Off: Device is powered off.

3	LCD touch panel	• Status monitoring: Displays real-time device operation status and board status. • Function configuration: Supports scene changing, USB upgrade, debugging information export, and quick self-test.
4	Scene switch button (SCENE 1)	One-key switch to Scene 1 of Video Wall 1.
5	Scene switch button (SCENE 2)	One-key switch to Scene 2 of Video Wall 1.
6	Custom scene switch button (FN 1)	One-key switch to the video wall scene configured

No.	Name	Description
		via the web interface.
7	Custom scene switch button (FN 2)	One-key switch to the video wall scene configured via the web interface.
8	Type-C port	Reserved.
9	USB 2.0 port	Connect a USB drive to support USB upgrade, debugging information export, and quick self-test.

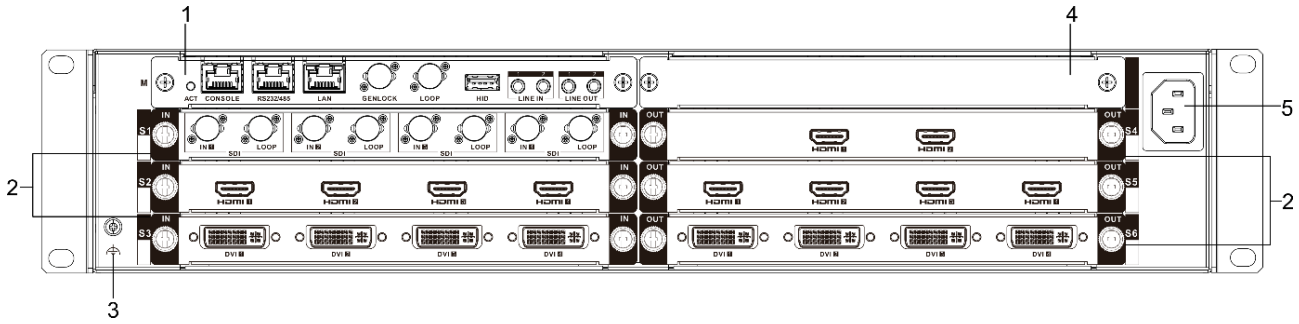

Figure 1-3 2U Device Rear Panel

Table 1-2 2U Device Rear Panel Description

No.	Name	Description
1	Main control board slot (M)	Supports the main control board.
2	Service board slot (S1 to S6)	Supports the input boards and output boards.
3	Grounding point	Connect the ground wire.
4	Empty slot	Keep the blank panel in the slot.
5	AC power input	Connects to the AC power cord.

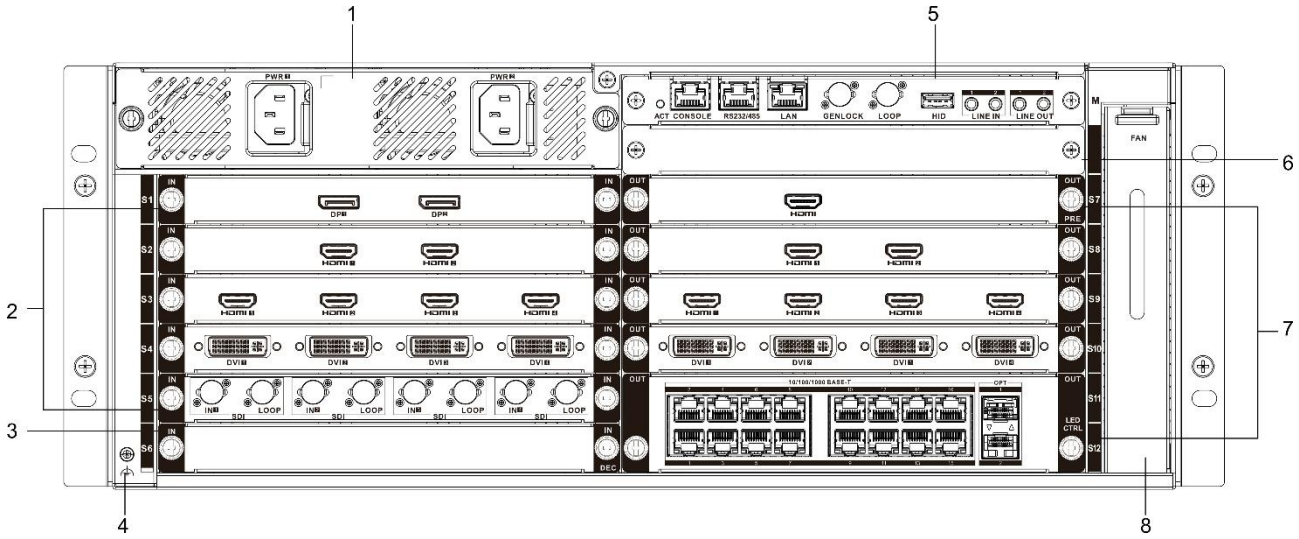

Figure 1-4 4U Device Rear Panel

Table 1-3 4U Device Rear Panel Description

No.	Name	Description
1	Power module slot (PWR1 and PWR2)	• Supports the power modules. • Provides two power slots (one power module is provided). Supports power redundancy by adding an optional power module.
2	Service board slot (S1 to S5)	Supports the input boards.
3	Service board slot (S6)	Supports the input board and preview board.
4	Grounding point	Connect the ground wire.
5	Main control board slot (M)	Supports the main control board.
6	Empty slot	Keep the blank panel in the slot.
7	Service board slot (S7 to S12)	Supports the output boards.
8	Fan slot	Supports the fan module.

1.2.2 Main Control Board

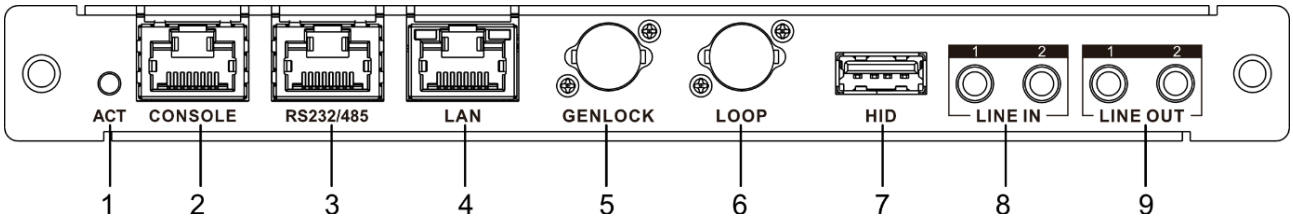

Figure 1-5 F Main Control Board

No.	Name	Description
1	ACT indicator	Flashing green: the board runs normally.
2	Console port	Connect an RJ-45 serial cable for device debugging, parameter configuration, and etc.
3	RS-485/RS-232 port	Connect an RJ-45 serial cable to an external device that supports RS-485 or RS-232 protocols.
4	Gigabit Ethernet port (LAN)	Connect a network cable.
5	Genlock input port (GENLOCK)	Connect to the GENLOCK port of other devices of the same type.
6	Genlock loop output port (LOOP)	Connect to the LOOP port of other devices of the same type for signal looping.
7	USB port (HID)	Connect to the USB port of the controlled device (such as computers, ultra-high-resolution servers, etc.) for transmitting keyboard and mouse data.
8	Audio input port (LINE IN)	Provides two audio input ports for connecting active audio sources, such as active microphone.
9	Audio output port (LINE OUT)	Provides two audio output ports for connecting to the amplified audio playback devices.

1.2.3 Input Boards

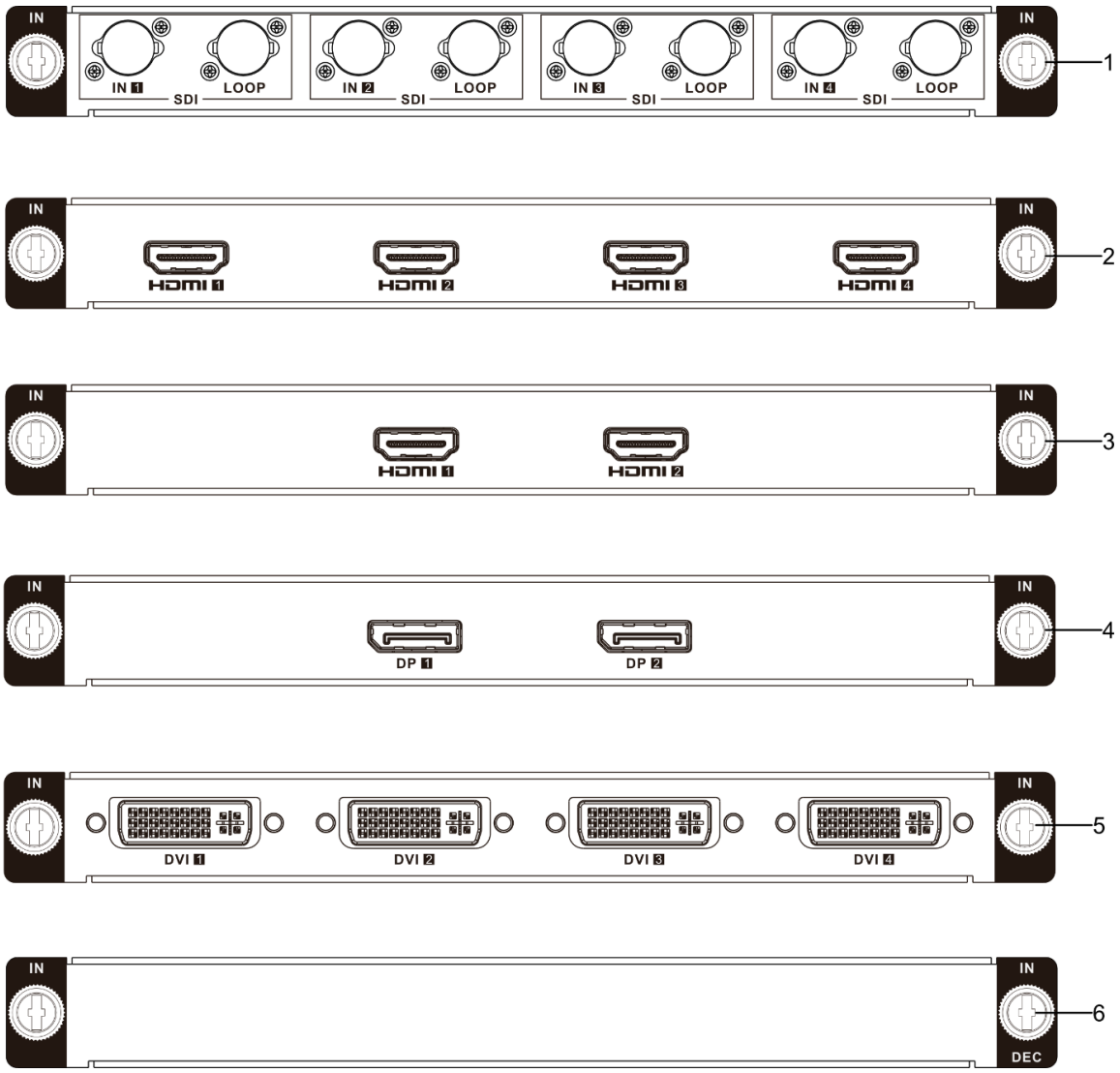

Figure 1-6 Input Boards

No.	Name	Description
1	SDI input board	• Supports 4 channels of SDI input, with a maximum input resolution of 4096 × 2160 @ 60 Hz. • Supports 4 channels of SDI loop-through output, with a maximum output resolution of 4096 × 2160 @ 60 Hz.
2	2K HDMI input board	Supports 4 channels of HDMI input, with a maximum input resolution of 1920 × 1200 @ 60 Hz.
3	4K HDMI input board	Supports 2 channels of 4K HDMI input, with a maximum input resolution of 4096 × 2160 @ 60 Hz.
4	4K DP input board	Supports 2 channels of 4K DP input, with a maximum input

No.	Name	Description
		resolution of 4096 × 2160 @ 60 Hz.
5	DVI input board	Supports 4 channels of DVI input, with a maximum input resolution of 1920 × 1200 @ 60 Hz.
6	Decoding board	Provides 24 channels of 1080p @ 30 fps video decoding capacity.

1.2.4 Output Boards

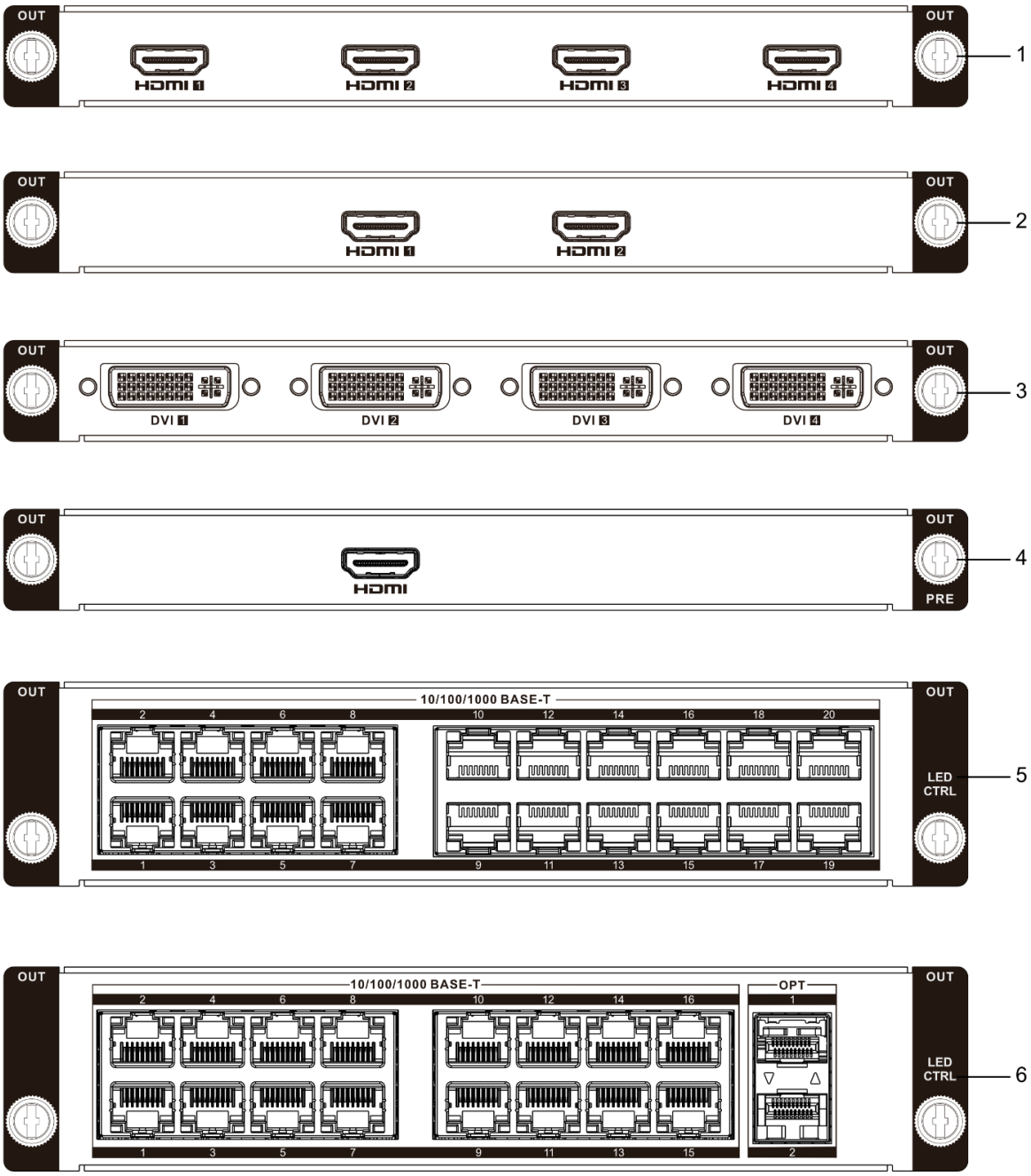

Figure 1-7 Output Boards

No.	Name	Description
1	2K HDMI output board	Provides 4 HDMI output ports for connecting HDMI display devices, with a maximum output resolution of 1920 × 1200 @ 60 Hz.
2	4K HDMI output board	Provides 2 HDMI output ports for connecting HDMI display devices, with a maximum output resolution of 4096 × 2160 @ 60 Hz.
3	DVI output board	Provides 4 DVI output ports for connecting DVI display devices, with a maximum output resolution of 1920 × 1200 @ 60 Hz.
4	Preview board	• Provides 1 HDMI output port for connecting an HDMI display device, with a maximum output resolution of 3840 × 2160 @ 30 Hz. • Supports previewing a single video wall remotely via the client.
5	Electrical LED controller board	Provides 20 Gigabit Ethernet ports for direct connection to LED cabinets via network cables. Each port supports a maximum load of 0.65MP, and the entire board supports a total load of up to 10.4MP. **Note** This board occupies 2 slots.

6	Optical LED controller board	• Provides 16 Gigabit Ethernet ports for direct connection to LED cabinets via network cables. Each port supports a maximum load of 0.65MP, and the entire board supports a total load of up to 10.4MP. The supported image width ranges from 64 to 16,384 pixels (must be a multiple of 4), and the height ranges from 64 to 8,192 pixels.
		• Provides two 10G optical ports. Insert a 10G optical transceiver module and connect via fiber to another optical LED controller board or a 10G switch.
		  ◦ Optical port 1 (OPT 1): Replicates data from Gigabit Ethernet ports 1 to 8.
		  ◦ Optical port 2 (OPT 2): Replicates data from Gigabit Ethernet ports 9 to 16.
		Note
		• This board occupies 2 slots.
		• Optical and electrical ports are mutually exclusive and cannot be used simultaneously.

Chapter 2 Installation

2.1 Safety Precautions

Caution

As a high-precision, system-level electronic product, the device should be installed and maintained by professionals.

In order to avoid personal and property injury, please read the safety precautions in this section carefully before installation. The following safety recommendations do not cover all possible dangerous situations.

Electricity Safety

- During the installation, wiring, disassembly, and maintenance of the device, please disconnect the power supply and do not operate with electricity (except for the operation of the hot plug).
- In the installation and use of the device, make sure to follow the local electrical safety regulations.
- In case of abnormal phenomena such as smoke or odor occur during the use of the device, please cut off the power immediately, unplug the power cord from the socket, and contact the after-sales service center in time.

Anti-Static Measures

The equipment is a precision electronic device. In order to avoid static electricity from damaging the components, in addition to anti-static measures in the equipment room, you also need to pay attention to the following measures:

- During the installation process (especially when installing the main control board and service board), you must wear anti-static gloves or anti-static wrists.
- When holding the main control board or the service board, try to avoid touching the components or printed circuits.

Grounding Requirements

In order to ensure personal safety and device safety, the device must be grounded.

Power Supply Requirements

The device supports 90 VAC to 264 VAC @ 50/60 Hz power supply. To ensure the stable operation of the device, it is recommended to install UPS for power supply.

Anti-Interference Requirements

- The on-site power supply system must have effective measures to prevent grid interference.
- Do not use the working ground together with the grounding device or lightning protection grounding device of power equipment, and keep the two as far away as possible.
- Keep away from high-power radio transmitters, radar transmitters, and high-frequency and high-current equipment.
- When necessary, electromagnetic shielding can be used for anti-interference.

Environmental Requirements

The device is a system-level monitoring equipment, which is generally placed in the central equipment room of the monitoring system at all levels. The selection of the installation site should comply with the relevant standards of the equipment room construction in the country and region of use.

The device is a standard rack-mounted equipment. Please pay attention to the following information during installation and use:

- Ensure that the temperature in the rack is from 0 °C to 50 °C.
- Ensure that the humidity in the equipment room is between 10% RH and 90% RH (no condensation).
- Ensure that the rack is strong enough to support the weight of the device and its accessories. During the installation, avoid the risk caused by uneven mechanical load.
- Ensure that there is enough installation space for the video and audio cables. The bending radius of a cable should not be less than 5 times the cable outer diameter.
- Keep the horizontal distance between the video wall controller and other devices above 50 cm for sufficient ventilation.

2.2 Open Package and Check Items

Open the device package to verify that all items in the package are intact according to the packing list.

Table 2-1 Packing List

Item	Quantity
Device	1
AC power cord	1
Ground wire	1
Rubber feet	4
Regulatory compliance and safety information manual	1

2.3 Install Modules

The device adopts a plug-and-play modular design, with the main control board managing all service boards. The factory configuration varies by model:

- 2U Model: 1 main control board + 7 blank panels.

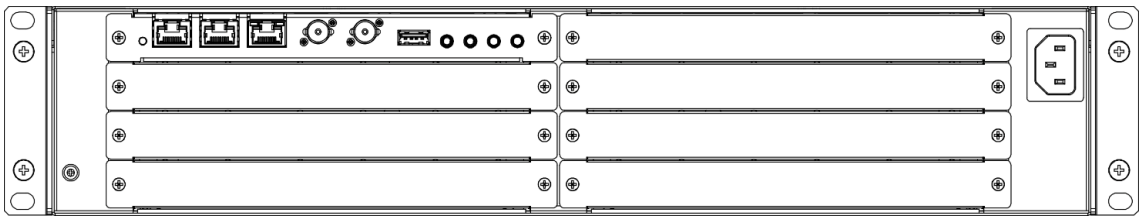

Figure 2-1 Factory Configuration of 2U Device

- 4U Model: 1 main control board + 1 power module + 1 fan module + 13 blank panels.

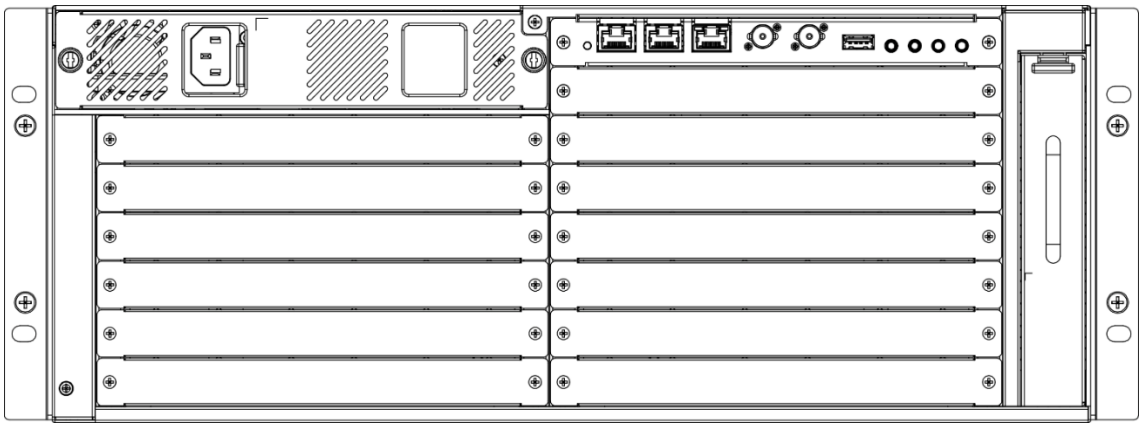

Figure 2-2 Factory Configuration of 4U Device

2.3.1 Install Service Boards

Note

- All service board slots in the 2U device are compatible with both input boards and output boards. In the 4U device, slots S1 to S5 support only input boards, slot S6 is compatible with the input board and preview board, and slots S7 to S12 support only output boards.
- To improve heat dissipation while maintaining low noise levels, when installing a small number of service boards, it is recommended to prioritize slots near the center of the device and adopt a vertically adjacent layout.

Step 1 Use a Phillips screwdriver compatible with M3 screws to remove the fixing screws (1) on both sides of the blank panel, and then pull out the two blank panels from the middle slots.

For normal operation, install at least one input board and one output board. For example, use slots S4 and S5 in a 2U device, or use slots S2 and S9 in a 4U device.

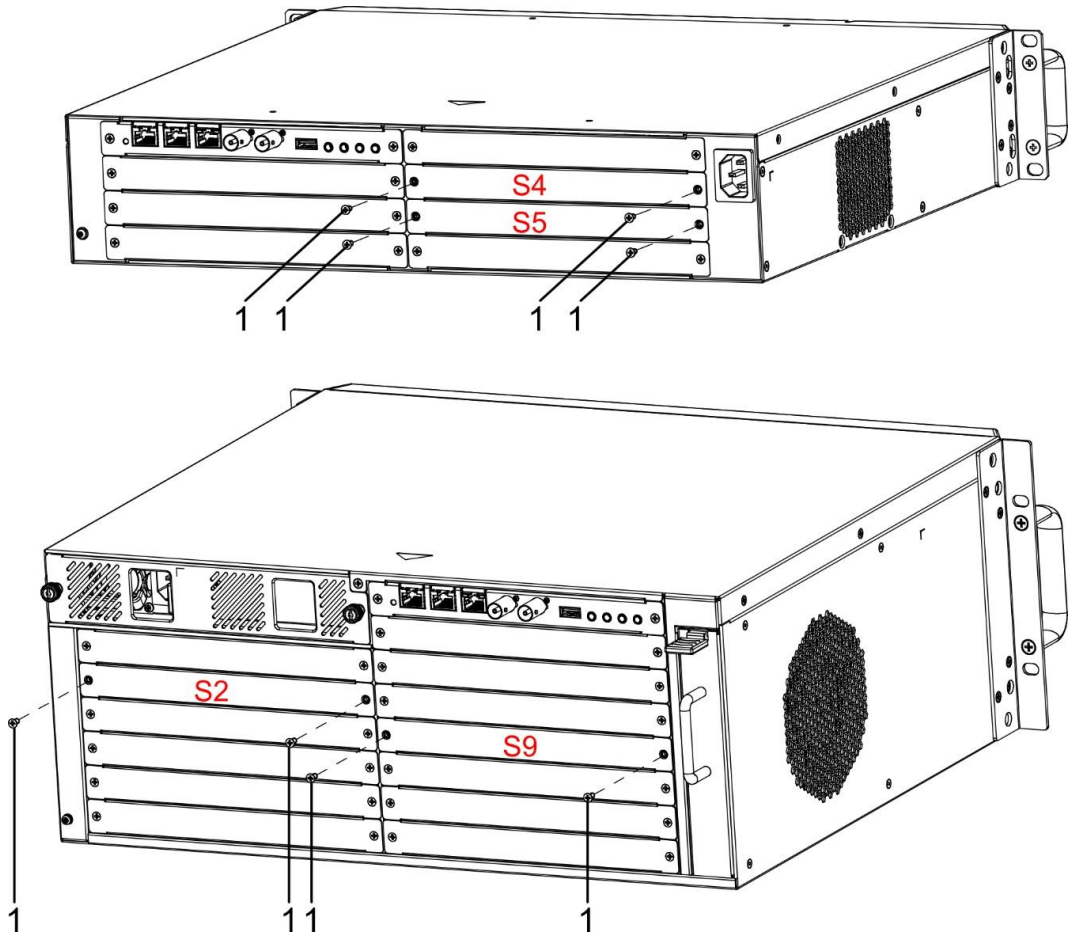

Figure 2-3 Remove Blank Panels

Step 2 Insert the input board (2) and output board (3) into the corresponding slots of the device.

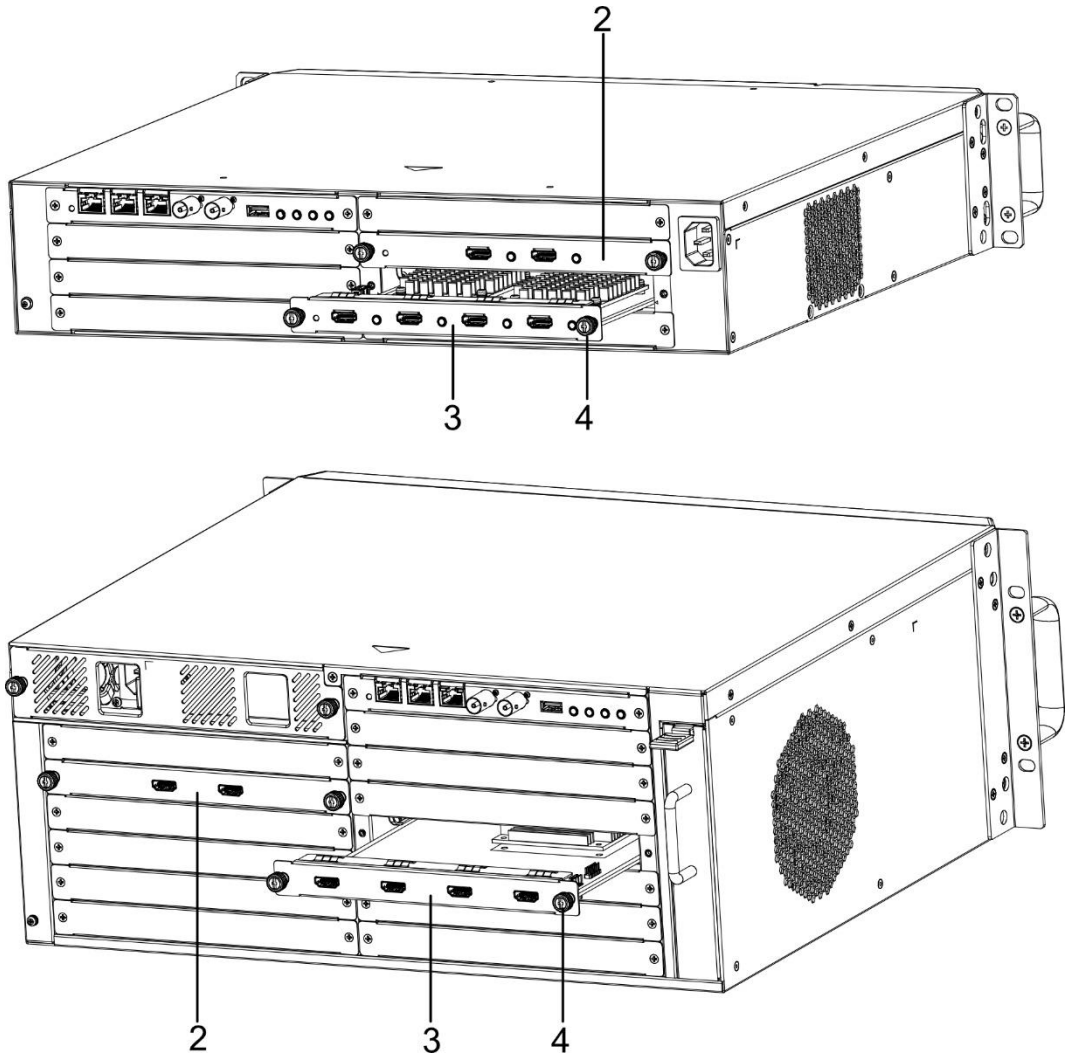

Figure 2-4 Install Two Boards

Step 3 Use the screwdriver to tighten the captive screws (4) provided with the boards clockwise, securing them on both sides of the slots.

Step 4 To install additional service boards, use the screwdriver to remove the fixing screws (1) on both sides of the corresponding blank panel, and then pull out the blank panel.

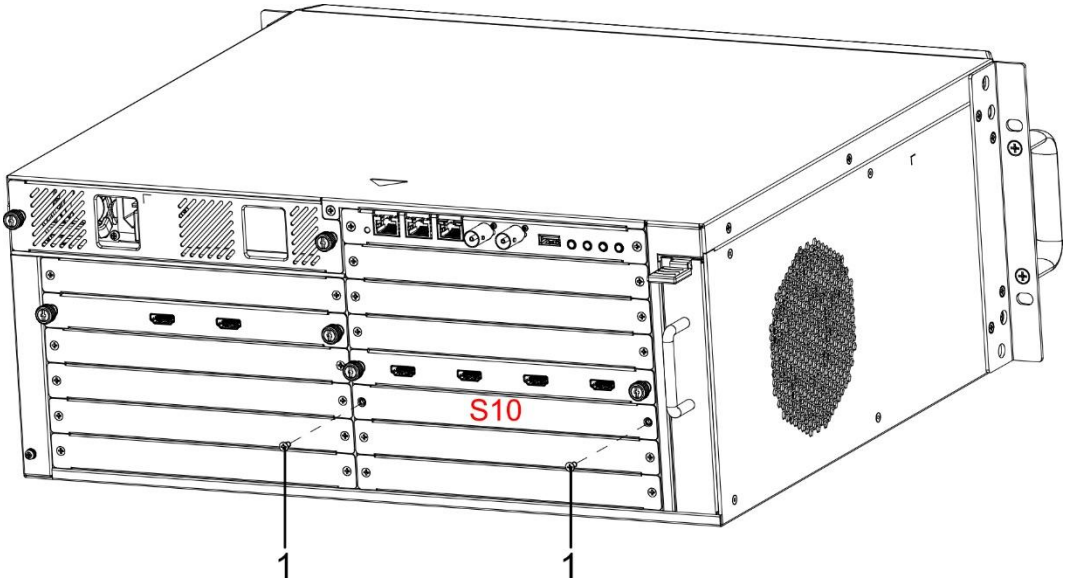

Figure 2-6 Remove Blank Panel

Note

Unused slots must retain blank panels to avoid disrupting the cooling airflow.

Step 5 Insert the service board (5) into the slot along the guide, and then use the screwdriver to tighten the captive screws on both sides of the board clockwise.

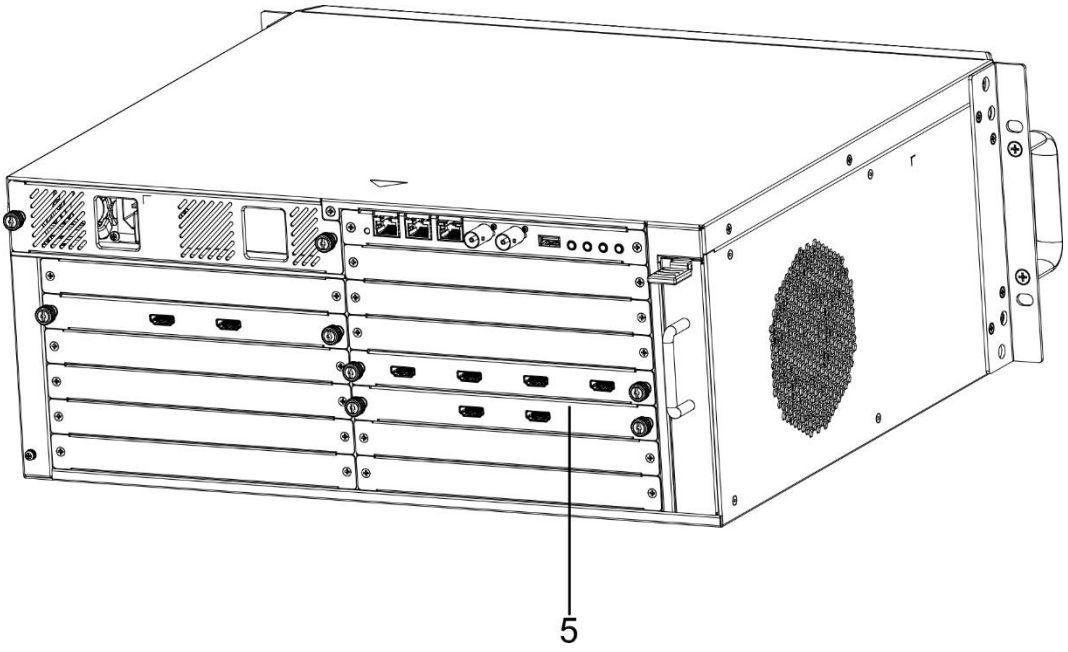

Figure 2-5 Install Three Service Boards

2.3.2 Install Power Module

The 4U device comes with one power module and supports power redundancy by adding an additional power module.

Step 1 Use a Phillips screwdriver compatible with M3 screws to loosen the two captive screws (1) on the power panel counterclockwise, and then remove the power panel (2).

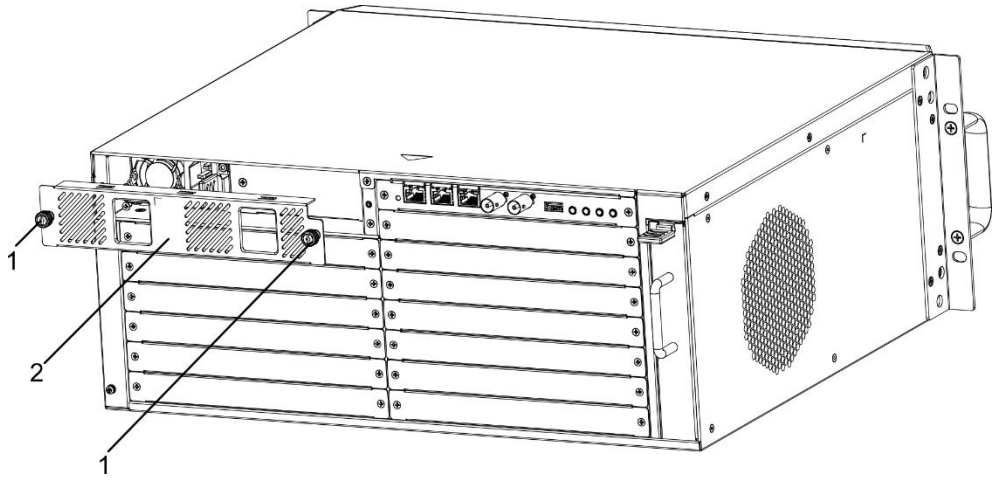

Figure 2-6 Remove Power Panel

Step 2 Use the screwdriver to remove the fixing screws (3) on both sides of the power filler panel (4), and then remove the power filler panel.

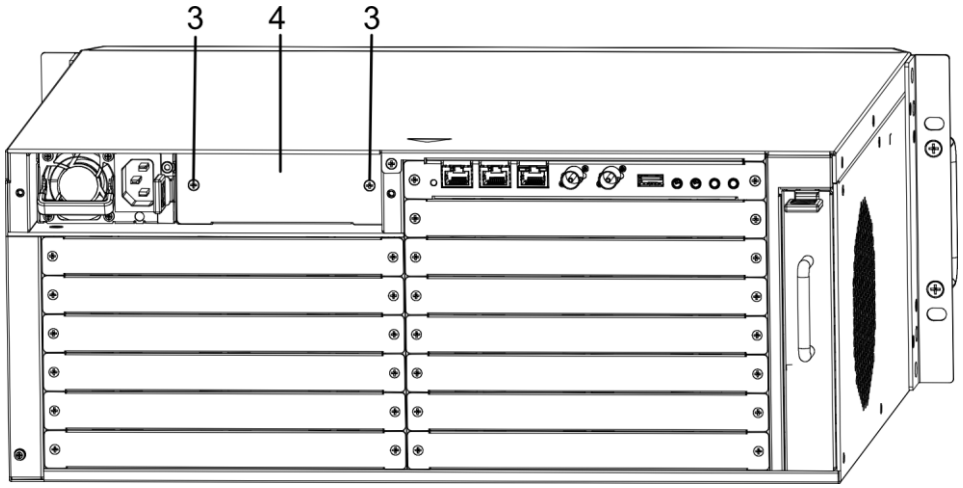

Figure 2-7 Remove Power Filler Panel

Step 3 Insert the power module (5) into the power slot of the device.

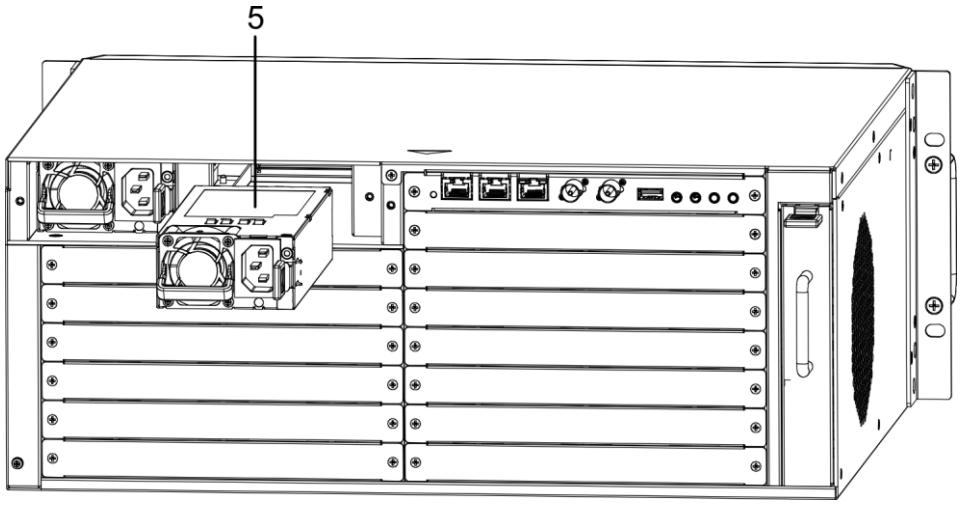

Figure 2-8 Install Power Module

Step 4 Align the power panel with the power slots, and then use the screwdriver to tighten the captive screws on both sides of the panel clockwise, securing it to the device.

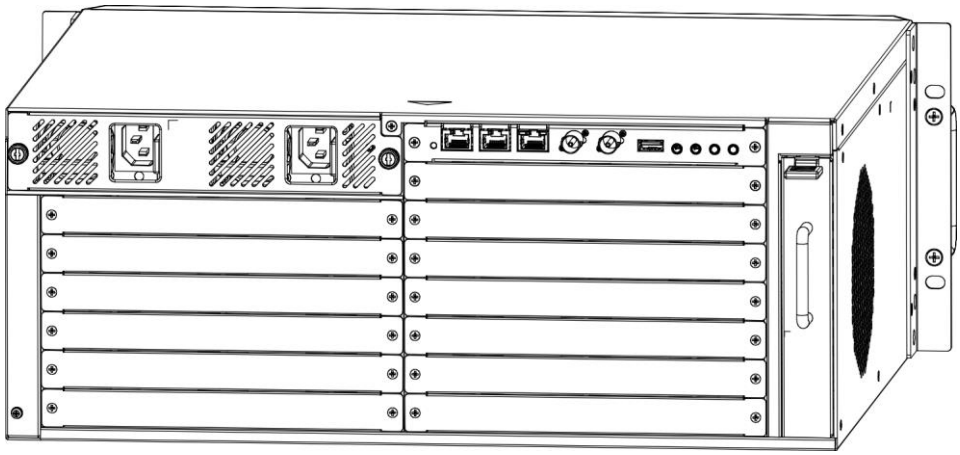

Figure 2-9 Install Power Panel

2.4 Install the Device in the Rack

Both the 2U and 4U devices come with mounting ears pre-installed. Please prepare your own rack. Use the screws (2) provided with the rack to secure the device to the rack posts (1).

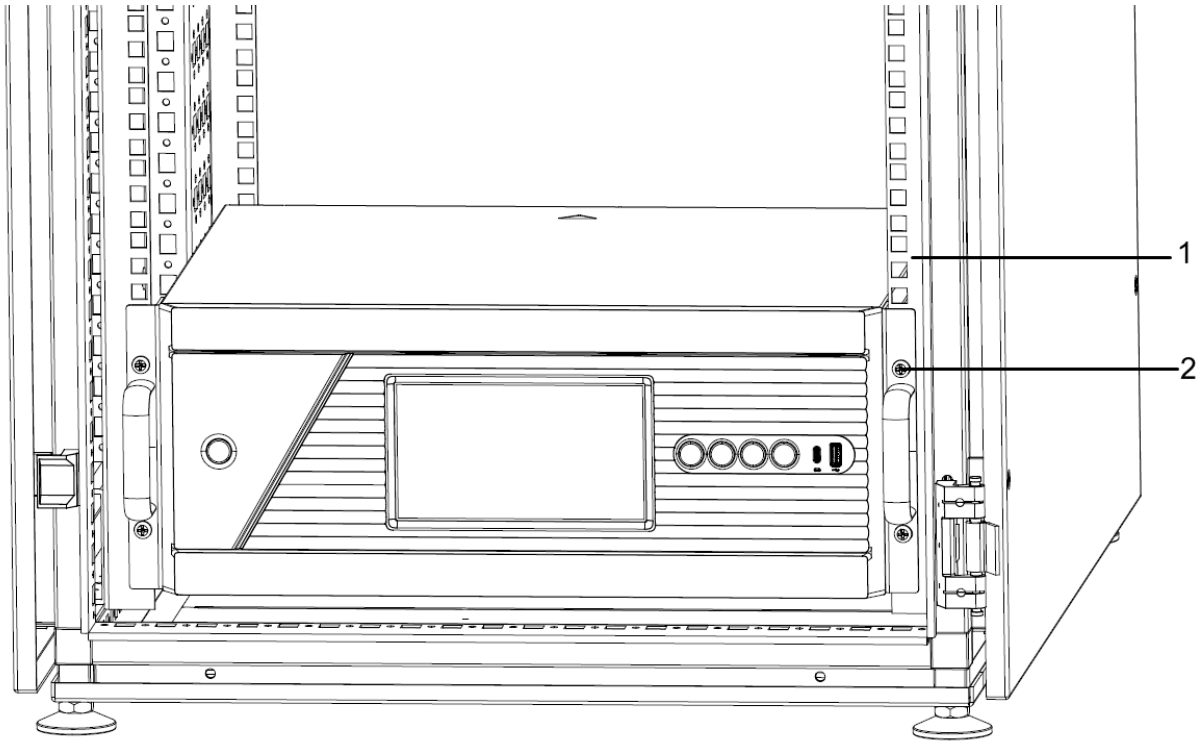

Figure 2-10 Install the 4U Device in the Rack

2.5 Connect the Ground Wire

Connecting the ground wire can release the excessive voltage and current induced by lightning shock. Please select the most suitable connection mode to protect the ground wire according to the installation environment.

Use Grounding Busbar

Step 1 Connect one end of the ground wire (2) to the terminal post of the server room grounding busbar (3).

Step 2 Connect the other end of the ground wire to the equipment grounding terminal (1) and tighten the screw.

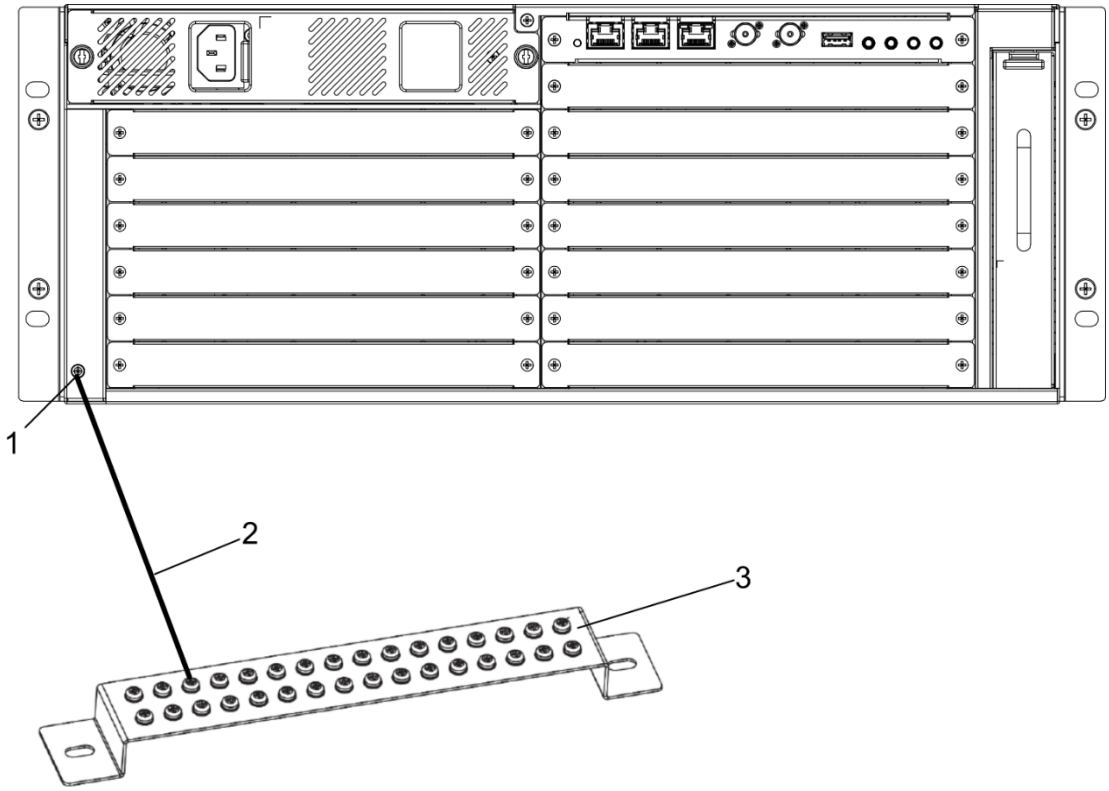

Figure 2-11 Connect the Ground Wire to the Grounding Busbar

Use Grounding Electrode

Step 1 Drive an angle steel or steel pipe (4) with a length ≥ 0.5 m into the ground (3) as a grounding electrode.

Step 2 Weld one end of the ground wire (2) to the grounding electrode and then apply anti-corrosion treatment (e.g., galvanizing or coating) to the welded joint.

Step 3 Connect the other end of the ground wire to the equipment grounding terminal (1).

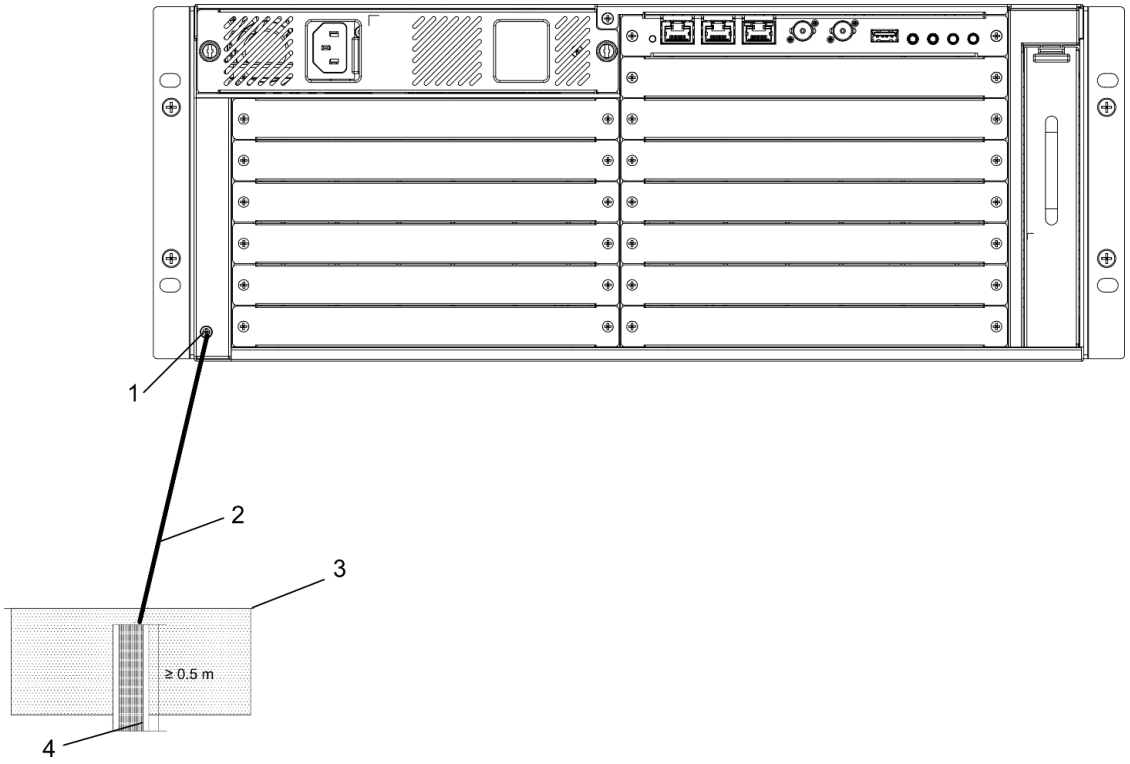

Figure 2-12 Connect the Ground Wire to the Grounding Electrode

2.6 Connect the Network Cable

The device is connected to the network through networking equipment such as switches. It is recommended to use the CAT 6 Ethernet cable to connect the network port of the device to the network port of the networking equipment.

2.7 Connect the Power Cord

Use a power cord to connect the power supply socket of the device to the power supply in the equipment room. After the power cord is connected, the device is powered on.

Chapter 3 Configuration

Scan the QR code below to view the user manual to configure the device.

Note

Obtaining the manual requires network data traffic. It is recommended to be performed in a Wi-Fi environment.

Figure 3-1 User Manual


See Far, Go Further