HIKVISION

LED Controller

Quick Start Guide

Legal Information

About this Document

- This Document includes instructions for using and managing the Product. Pictures, charts, images and all other information hereinafter are for description and explanation only.
- The information contained in the Document is subject to change, without notice, due to firmware updates or other reasons. Please find the latest version of the Document at the Hikvision website (*https://www.hikvision.com*). Unless otherwise agreed, Hangzhou Hikvision Digital Technology Co., Ltd. or its affiliates (hereinafter referred to as "Hikvision") makes no warranties, express or implied.
- Please use the Document with the guidance and assistance of professionals trained in supporting the Product.

About this Product

This product can only enjoy the after-sales service support in the country or region where the purchase is made.

Acknowledgment of Intellectual Property Rights

- Hikvision owns the copyrights and/or patents related to the technology embodied in the Products described in this Document, which may include licenses obtained from third parties.
- Any part of the Document, including text, pictures, graphics, etc., belongs to Hikvision. No part of this Document may be excerpted, copied, translated, or modified in whole or in part by any means without written permission.
- **HIKVISION** and other Hikvision's trademarks and logos are the properties of Hikvision in various jurisdictions.
- Other trademarks and logos mentioned are the properties of their respective owners.
- **HDMI** The terms HDMI and HDMI High-Definition Multimedia Interface, and the HDMI Logo are trademarks or registered trademarks of HDMI Licensing Administrator, Inc. in the United States and other countries.

LEGAL DISCLAIMER

- TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, THIS DOCUMENT AND THE PRODUCT DESCRIBED, WITH ITS HARDWARE, SOFTWARE AND FIRMWARE, ARE PROVIDED "AS IS" AND "WITH ALL FAULTS AND ERRORS". HIKVISION MAKES NO WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION, MERCHANTABILITY, SATISFACTORY QUALITY, OR FITNESS FOR A PARTICULAR PURPOSE. THE USE OF THE PRODUCT BY YOU IS AT YOUR OWN RISK. IN NO EVENT WILL HIKVISION BE LIABLE TO YOU FOR ANY SPECIAL, CONSEQUENTIAL, INCIDENTAL, OR INDIRECT DAMAGES, INCLUDING, AMONG OTHERS, DAMAGES FOR LOSS OF BUSINESS PROFITS, BUSINESS INTERRUPTION, OR LOSS OF DATA, CORRUPTION OF SYSTEMS, OR LOSS OF DOCUMENTATION, WHETHER BASED ON BREACH OF CONTRACT, TORT (INCLUDING NEGLIGENCE), PRODUCT LIABILITY, OR OTHERWISE, IN CONNECTION WITH THE USE OF THE PRODUCT, EVEN IF HIKVISION HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES OR LOSS.
- YOU ACKNOWLEDGE THAT THE NATURE OF THE INTERNET PROVIDES FOR INHERENT SECURITY RISKS, AND

HIKVISION SHALL NOT TAKE ANY RESPONSIBILITIES FOR ABNORMAL OPERATION, PRIVACY LEAKAGE OR OTHER DAMAGES RESULTING FROM CYBER-ATTACK, HACKER ATTACK, VIRUS INFECTION, OR OTHER INTERNET SECURITY RISKS; HOWEVER, HIKVISION WILL PROVIDE TIMELY TECHNICAL SUPPORT IF REQUIRED.

● YOU AGREE TO USE THIS PRODUCT IN COMPLIANCE WITH ALL APPLICABLE LAWS, AND YOU ARE SOLELY RESPONSIBLE FOR ENSURING THAT YOUR USE CONFORMS TO THE APPLICABLE LAW. ESPECIALLY, YOU ARE RESPONSIBLE, FOR USING THIS PRODUCT IN A MANNER THAT DOES NOT INFRINGE ON THE RIGHTS OF THIRD PARTIES, INCLUDING WITHOUT LIMITATION, RIGHTS OF PUBLICITY, INTELLECTUAL PROPERTY RIGHTS, OR DATA PROTECTION AND OTHER PRIVACY RIGHTS. YOU SHALL NOT USE THIS PRODUCT FOR ANY PROHIBITED END-USES, INCLUDING THE DEVELOPMENT OR PRODUCTION OF WEAPONS OF MASS DESTRUCTION, THE DEVELOPMENT OR PRODUCTION OF CHEMICAL OR BIOLOGICAL WEAPONS, ANY ACTIVITIES IN THE CONTEXT RELATED TO ANY NUCLEAR EXPLOSIVE OR UNSAFE NUCLEAR FUEL-CYCLE, OR IN SUPPORT OF HUMAN RIGHTS ABUSES.

● IN THE EVENT OF ANY CONFLICTS BETWEEN THIS DOCUMENT AND THE APPLICABLE LAW, THE LATTER PREVAILS.

Preface

Applicable Models

This manual is applicable to the DS-DT60 series LED controllers.

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**

● In the use of the product, you must be in strict compliance with the electrical safety regulations of the nation and region.

● 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.

[i]**Note**

- Provide a surge suppressor at the inlet opening of the device under special conditions such as the mountain top, iron tower, and forest.
- + identifies the positive terminals of the device which is used with, or generates direct current, and - identifies the negative terminals of the device which is used with, or generates direct current.
- The serial port of the device is used for debugging only.
- The interface varies with the models. Please refer to the product datasheet for details.
- The USB port of the device is used for connecting to a mouse, a keyboard, or a USB flash drive only. The current for the connected device shall be not more than 0.1 A.
- 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.

TABLE OF CONTENTS

Chapter 1 Introduction

1.1 Overview

The LED controller (hereinafter referred to as the device) controls the full-color LED display (hereinafter referred to as the display or screen) and is suitable for various occasions such as meeting rooms, broadcasting studios, stadiums, airports, stations, banks, advertising locations, and home theaters. After connecting the screens, the device can efficiently manage and control the screens and seamlessly splice the screens.

ⓘNote

This radio transmitter (IC:20199-DT60P02HDI2) has been approved by Innovation, Science and Economic Development Canada to operate with the antenna types listed below, with the maximum permissible gain indicated. Antenna types not included in this list that have a gain greater than the maximum gain indicated for any type listed are strictly prohibited for use with this device.

Antenna Type: Dipole Antenna with SMA connector

Antenna Gain: 3.5 dBi

1.2 Appearance

LED controllers of the same series have a uniform appearance, though interface layouts vary across models (check the actual product for details). To demonstrate all possible features, this documentation uses the panel version with the most ports as the standard reference.

2K devices include C, V, and P models, and 4K devices include V and P models.

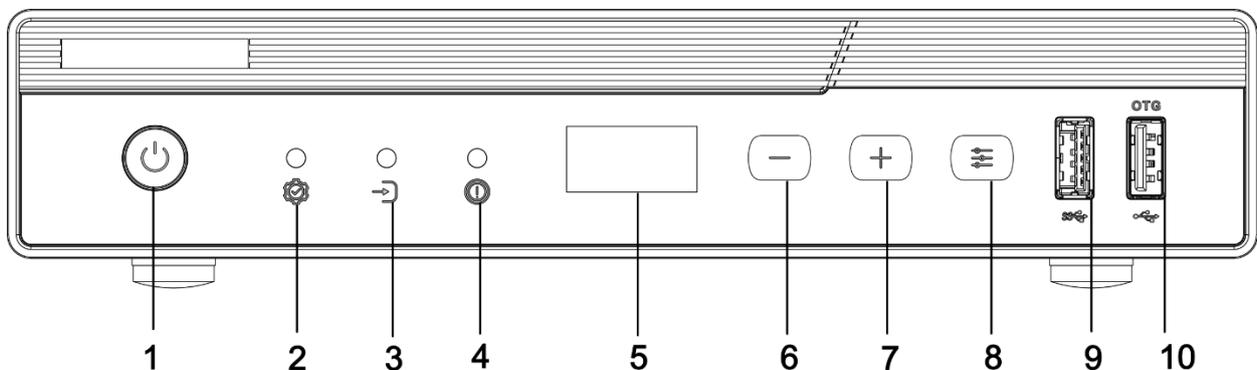### 1.2.1 Front Panel

2K Device Front Panel

Figure 1-1 2K Device Front Panel

No.	Name	Description
1	Power switch/power LED	The device starts up when powered on. Press the button to power off the device and press it again to power on the device. • When the device is powered on, the power LED is on. • When the device is powered off, the power LED is off.
2	Active LED	• Fast blink: When the device is not in the self-test picture mode, the device is running normally. • Slow blink: The system is in soft shutdown process. • On: The device is in self-test picture mode. • Off: A device exception occurs or the device is not powered on.
3	Signal source LED	• Solid green: The device has a valid signal access. • Off: No signal access to the device. • Alternating on and off: The signal is unstable.
4	Error LED	• Solid green: The system has detected an exception or alarm. • Off: The system status is normal.
5	LCD panel	Displays the current device status: • IP: Displays the IP address. • Brightness: Displays the brightness value. • Status: Displays the activation status and backup status. • Output: Displays the output resolution and frame rate. 📖**Note** This LCD panel is only supported on V and P devices.
6	Button –	• Normal status: Press the button to decrease brightness. • Self-test status: Press the button to switch to the previous self-test picture.
7	Button +	• Normal status: Press the button to increase brightness. • Self-test status: Press the button to switch to the next self-test picture.
8	Signal source button	• Press the button to switch the signal source. • Press and hold the button to enter or exit self-test.
9	USB 3.0 port	Supports connecting to the mouse, keyboard, USB flash drive or USB plug of the RF remote control.

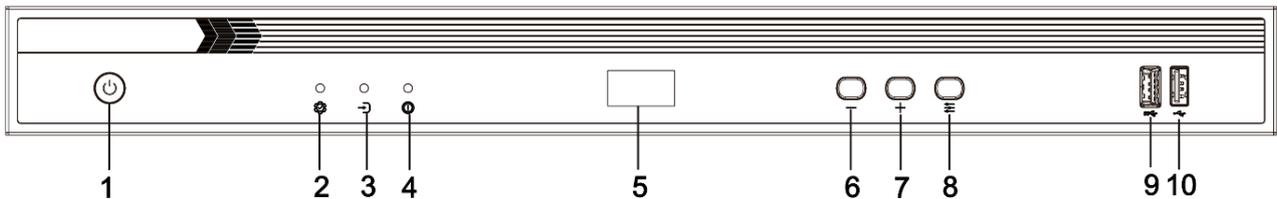| No.	Name	Description
		[i]Note ● This port is only supported on P devices. ● The P devices allow program export to USB flash drives via program play software and allow direct playback from USB drives. ● It is recommended to use FAT-formatted USB flash drives.
10	USB 2.0 port	Supports connecting to the mouse, keyboard, USB flash drive or USB plug of the RF remote control. **[i]Note** ● The C or V devices cannot play programs from inserted USB flash drives. ● The P devices allow program export to USB flash drives via program play software and allow direct program playback from inserted USB drives. ● It is recommended to use FAT-formatted USB flash drives.

4K Device Front Panel

Figure 1-2 4K Device Front Panel

No.	Name	Description
1	Power switch/power LED	The device starts up when powered on. Press the button to power off the device and press it again to power on the device. ● When the device is powered on, the power LED is on. ● When the device is powered off, the power LED is off.
2	Active LED	● Fast blink: When the device is not in the self-test picture mode, the device is running normally. ● Slow blink: The system is in soft shutdown process. ● On: The device is in self-test picture mode.

No.	Name	Description
		• Off: A device exception occurs or the device is not powered on.
3	Sigal source LED	• Solid green: The device has a valid signal access. • Off: No signal access to the device. • Alternating on and off: The signal is unstable.
4	Error LED	• Solid green: The system has detected an exception or alarm. • Off: The system status is normal.
5	LCD panel	Displays the current device status: • IP: Displays the IP address. • Brightness: Displays the brightness value. • Status: Displays the activation status and backup status. • Output: Displays the output resolution and frame rate.
6	Button –	• Normal status: Press the button to decrease brightness. • Self-test status: Press the button to switch to the previous self-test picture.
7	Button +	• Normal status: Press the button to increase brightness. • Self-test status: Press the button to switch to the next self-test picture.
8	Signal souce button	• Press the button to switch the signal source. • Press and hold the button to enter or exit self-test.
9	USB 3.0 port	Supports connecting to the mouse, keyboard, USB flash drive or USB plug of the RF remote control. ⬚**Note** • This port is only supported on P devices. • The P devices allow program export to USB flash drives via program play software and allow direct playback from USB drives. • It is recommended to use FAT-formatted USB flash drives.
10	USB 2.0 port	Supports connecting to the mouse, keyboard, USB flash drive or USB plug of the RF remote control.

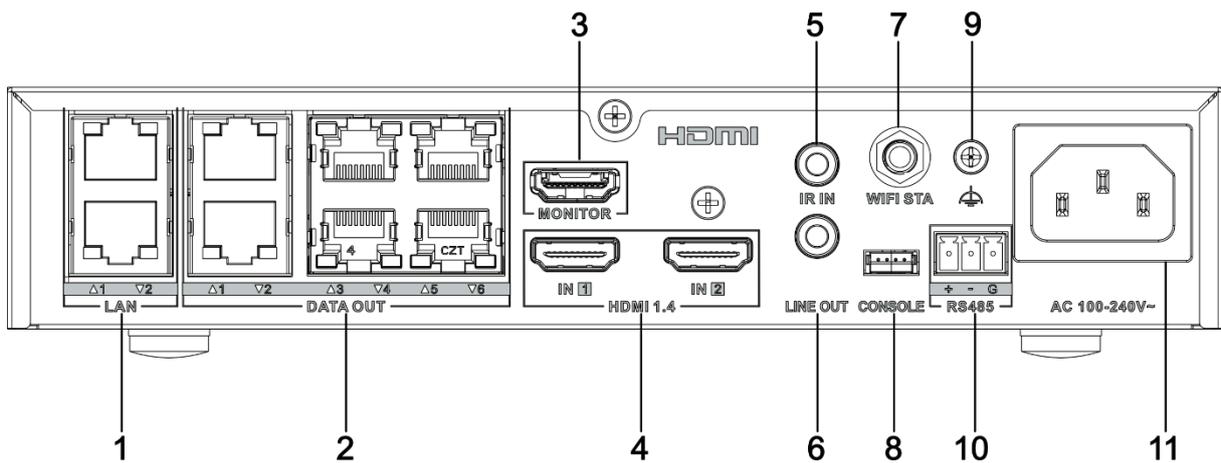| No.	Name	Description
		ⓘ**Note** ● The C or V devices cannot play programs from inserted USB flash drives. ● The P devices allow program export to USB flash drives via program play software and allow direct program playback from inserted USB drives. ● It is recommended to use FAT-formatted USB flash drives.

1.2.2 Rear Panel

2K Device Rear Panel

Figure 1-3 2K Device Rear Panel

No.	Name	Description
1	Debug port (LAN)	Provides 2 Ethernet ports for device debugging over a network cable.
2	Output network port (DATA OUT)	Provides 2/4/6 ports for connecting LED displays.
3	HDMI output port (MONITOR)	Connect a monitor to view the LED display status. ● For a single Android signal source, the maximum resolution is 1080p. ● For multiple signal sources, the maximum resolution is 720p.

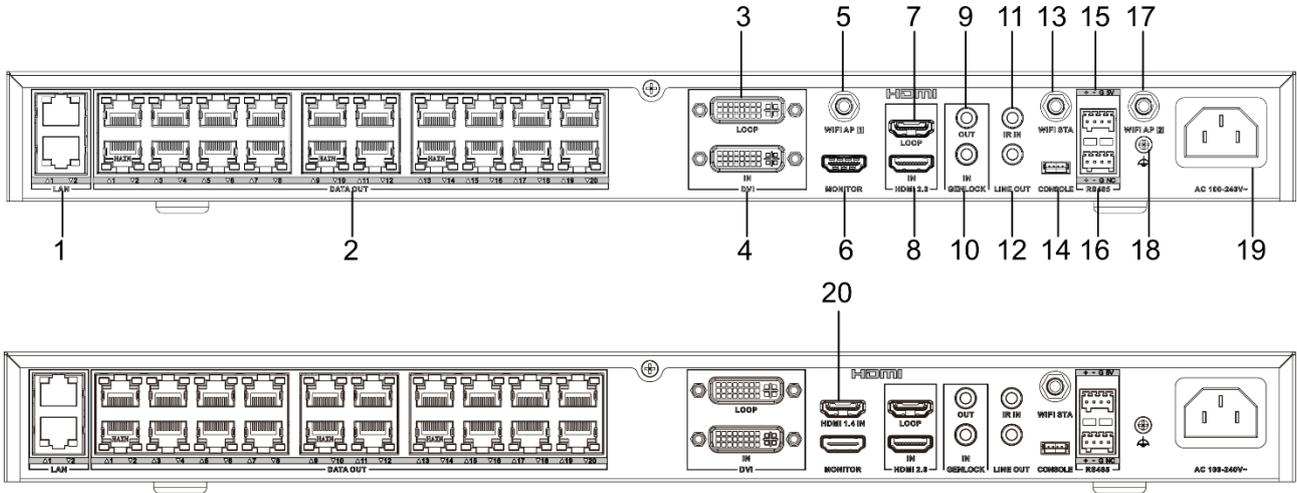| No.	Name	Description
		ⓘ**Note** This port is only supported on V and P devices.
4	HDMI input port (HDMI 1.4 IN)	Supports 1/2/3 HDMI input ports, each compatible with signal sources < 2.6 MP resolution and < 170 MHz pixel clock frequency.
5	IR input port (IR IN)	Connect an infrared (IR) control device.
6	Audio output port (LINE OUT)	Connect an amplified audio playback device. ⓘ**Note** ● With multiple signal sources, the system outputs audio from the active source. ● Each video wall outputs audio from one signal source at a time. ● By default, the video wall outputs the audio of the first decoded signal source, but this can be manually switched.
7	Wireless port (WIFI STA)	Connect a Wi-Fi antenna to configure Wi-Fi or Bluetooth via the web interface or LED Tool client. ⓘ**Note** ● This port is only supported on P devices. ● Initial Wi-Fi configuration requires activation via LAN cable. Subsequent connections can use Wi-Fi.
8	Console port	Connect a serial cable for device debugging.
9	Grounding terminal	Connect a ground wire.
10	RS-485 port	Connect to the RS-485 port of a central control device.
11	Power supply socket (AC 100-240V~)	Connect the power cord.

4K Device Rear Panel

Figure 1-4 4K Device Rear Panel

No.	Name	Description
1	Debug port (LAN)	Provides 2 Ethernet ports for device debugging over a network cable.
2	Output network port (DATA OUT)	Provides 12/20 ports for connecting LED displays.
3	DVI loop output port (LOOP)	• Connect to the DVI port of a display device to monitor the signal source status. • Connect to the DVI IN port of the next device for signal looping. **⊡Note** This port is only supported on V and P devices.
4	DVI input port (DVI IN)	Connect a DVI video source device with a resolution < 2.6 MP and a pixel clock frequency < 170 MHz.
5	Wireless port (WIFI AP 1)	Connect a Wi-Fi antenna to configure a hotspot via the web interface or LED Tool client. **⊡Note** ● This port is only supported on P devices. ● Initial Wi-Fi configuration requires activation via LAN cable. Subsequent connections can use Wi-Fi.

No.	Name	Description
6	HDMI output port (MONITOR)	Connect a monitor to view the LED display status. • For a single Android signal source, the maximum resolution is 1080p. • For multiple signal sources, the maximum resolution is 720p. ⬛ **Note** This port is only supported on V and P devices.
7	HDMI loop output port (LOOP)	• Connect to the HDMI port of a display device to monitor the signal source status. • Connect to the HDMI IN port of the next device for signal looping. ⬛ **Note** This port is only supported on V and P devices.
8	HDMI input port (HDMI 2.0 IN)	Connect an HDMI 2.0 video source device with a resolution < 8.84 MP.
9	Sync output port (GENLOCK OUT)	Connect to the GENLOCK IN port of the next device. ⬛ **Note** ● This port is only supported on V and P devices. ● This port is plug-and-play. No configuration is required.
10	Sync input port (GENLOCK IN)	Connect to the GENLOCK OUT port of the next device. ⬛ **Note** This port is plug-and-play. No configuration is required.
11	IR input port (IR IN)	Connect an infrared(IR) control device.

No.	Name	Description
12	Audio output port (LINE OUT)	Connect an amplified audio playback device. ⊡**i**Note ● With multiple signal sources, the system outputs audio from the active source. ● Each video wall outputs audio from one signal source at a time. ● By default, the video wall outputs the audio of the first decoded signal source, but this can be manually switched.
13	Wireless port (Wi-Fi STA)	Connect a Wi-Fi antenna to configure Wi-Fi or Bluetooth via the web page or LED Tool client. ⊡**i**Note ● This port is only supported on P devices. ● Initial Wi-Fi configuration requires activation via LAN cable. Subsequent connections can use Wi-Fi.
14	Console port	Connect a serial cable for device debugging.
15	RS-485 port for light sensor	Connect to the RS-485 port of a light sensor, ensuring proper pin mapping: ● +: Connect to the positive terminal of the light sensor. ● −: Connect to the negative terminal of the light sensor. ● GND: Connect to the ground terminal of the light sensor. ● 5V: Connect to the power input terminal of the light sensor to provide 5V DC power supply to the light sensor.
16	RS-485 port for central control device	Connects to the RS-485 port of a central control device, ensuring proper pin mapping: ● +: Connect to the positive terminal of the central control device. ● −: Connect to the negative terminal of the central control device. ● GND: Connect to the ground terminal of the central control device. ● NC: Keep unconnected.

No.	Name	Description
17	Wireless port (WIFI AP 2)	Connect a Wi-Fi antenna to configure a hotspot via the web interface or LED Tool client. **⬛i Note** ● This port is only supported on P devices. ● Initial Wi-Fi configuration requires activation via LAN cable. Subsequent connections can use Wi-Fi.
18	Grounding terminal	Connect a ground wire.
19	Power supply socket (AC 100-240V~)	Connect the power cord.
20	HDMI input port (HDMI 1.4 IN)	Connect an HDMI 1.4 video source device with a resolution < 2.6 MP and a pixel clock frequency < 170 MHz.

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 must wear anti-static gloves or anti-static wrists during the installation process.

Grounding Requirements

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

Power Supply Requirements

The device supports 100 VAC to 240 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 45 °C.
- Ensure that the humidity in the equipment room is between 10% RH and 90% RH.
- 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.
- To ensure good ventilation, install the device at the position above the ground of at least 4 cm.
- Do not block the air vents and outlets of the device. Keep the air vents and outlets at least 4 cm away from the chassis surface.

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
Terminal block	2K devices (C/V/P): 1 × 3-position terminal block
	4K devices (V/P): 2 × 4-position terminal blocks
Regulatory compliance and safety information manual	1
Mounting ears	1 pair
Connecting brackets	2K devices (C/V/P): 1 pair

Item	Quantity
AC power cord	1
Rubber feet	4K devices (V): 1 pair
Rod-shaped Wi-Fi antenna	2K devices (P): 1 4K devices (P): 3

2.3 Install the Device in the Rack

Note

Prepare the rack and screws by yourself.

Step 1 Use two KM3 × 6 countersunk screws (1) to install one mounting ear (2) to the left side of the first device front panel. Use the same method to install the other mounting ear to the right side of the second device front panel.
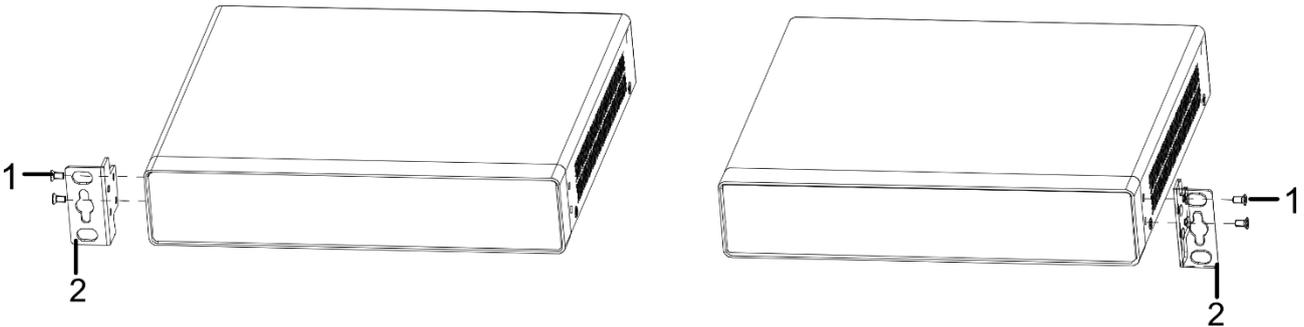

Figure 2-1 Install the Mounting Ears

Step 2 Use two KM3 × 6 countersunk screws (1) to install two connecting brackets (3) to the inner sides of two devices with the FRONT surface facing forward and arrow facing upward.
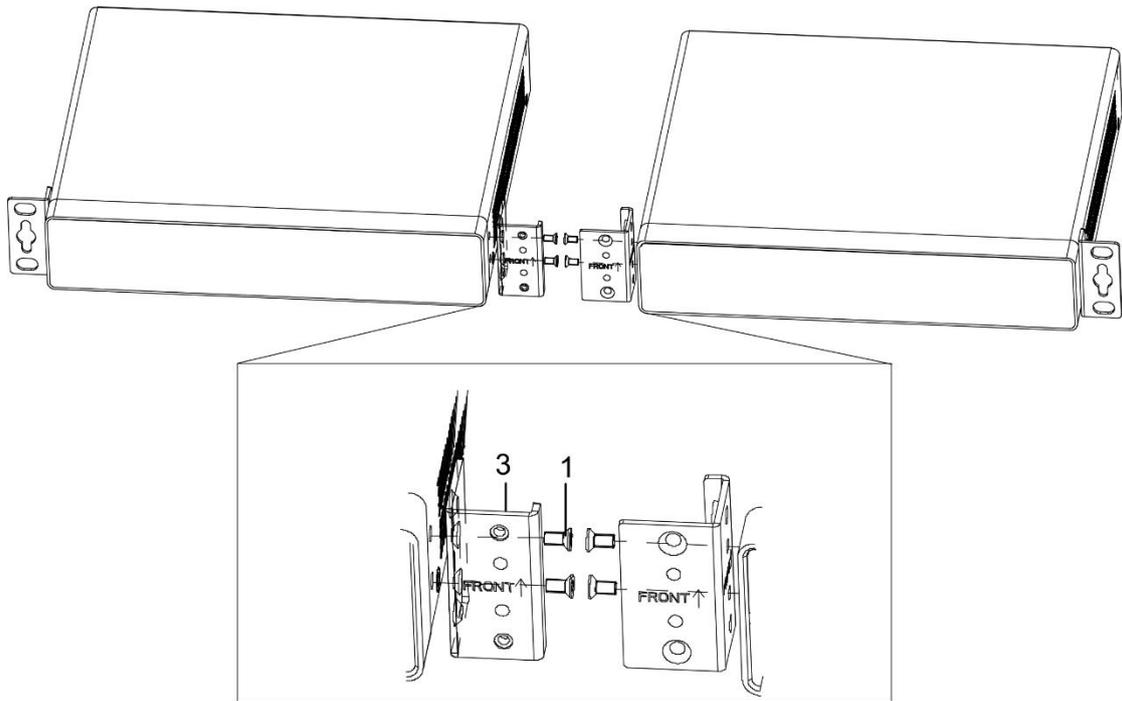
Figure 2-2 Install the Connecting Brackets 2

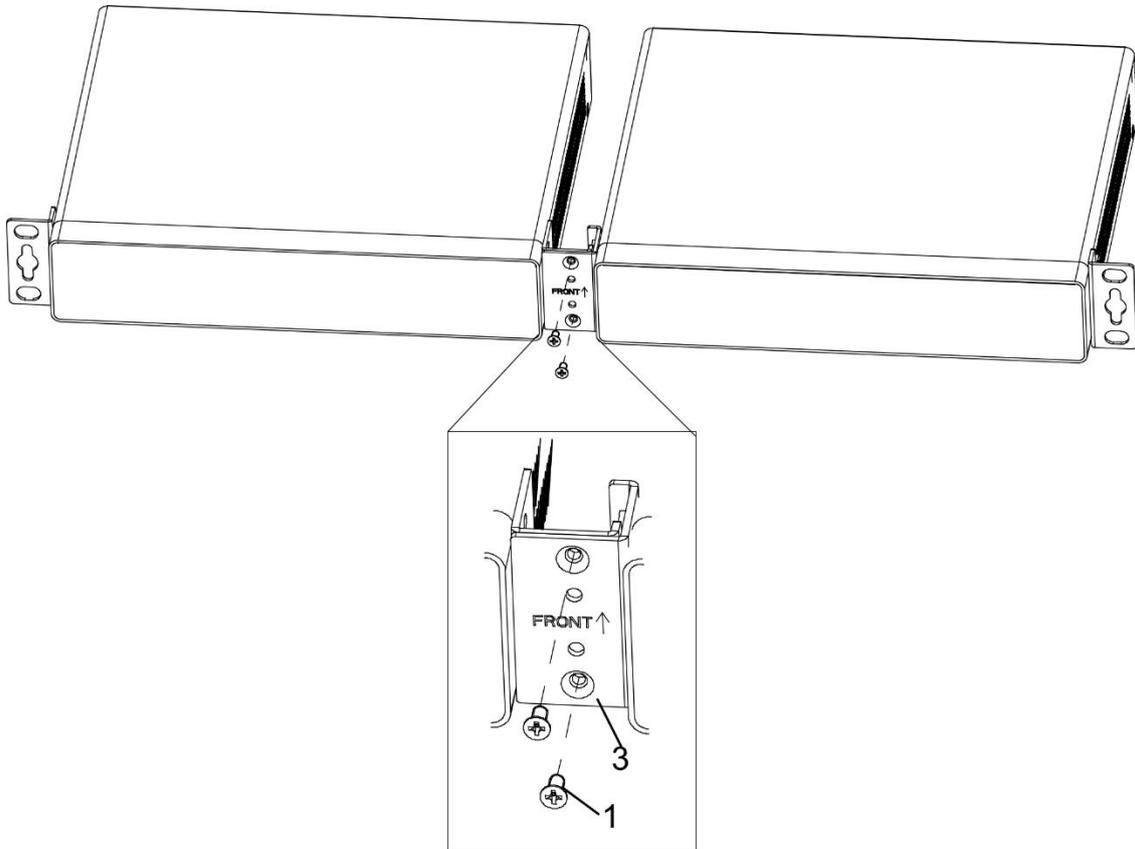Step 3 Use two KM3 × 6 countersunk screws (1) to secure the connecting brackets (3).

Figure 2-3 Secure the Connecting Brackets 2

Step 4 Prepare the clip nuts and M5 screws or M6 screws to secure two devices to the rack post.

⬛**Note**

If you install multiple layers of devices in the rack, keep at least one rack post hole between each layer of devices.

2.4 Connect Cables

2.4.1 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.
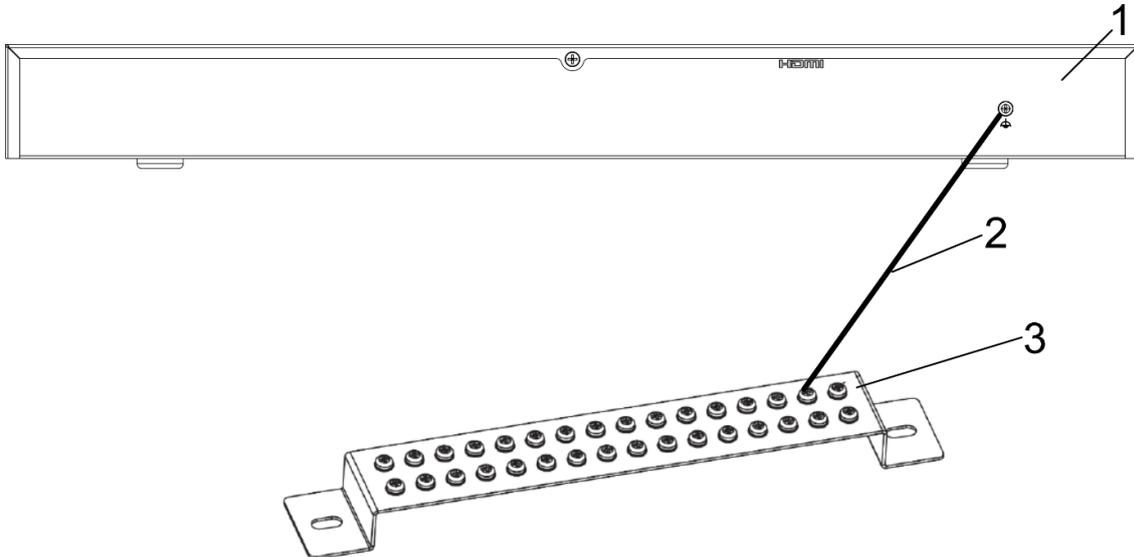

Figure 2-4 Connect the Ground wire to the Grounding Busbar

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).
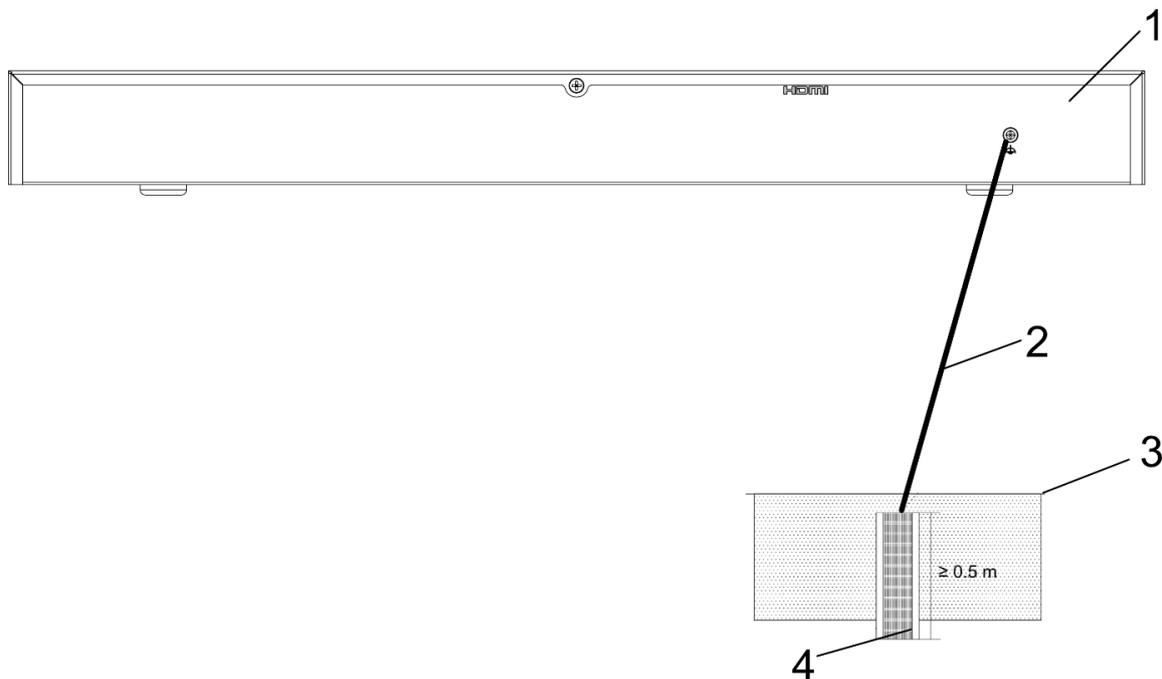

Figure 2-5 Connect the Ground wire to the Grounding Electrode

2.4.2 Connect the Network Cable

For network connections between devices and switches/network equipment, use Category 5e or higher Ethernet cables (Cat6 recommended), with a maximum transmission distance of 100 meters.

2.4.3 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 cable is connected, the device is powered on.

2.5 Ligthen Screens

After the device and screens are connected, you can use either of the following methods to lighten the screens:

● Use the LED batch controller client. Download the LED batch controller client, and then scan the QR code in Table 2-2 to view the user manual to lighten the screens.

● Use the LED Tool client. Download the LED Tool client, and then scan the QR code in Table 2-2 to view the user manual to lighten the screens.

● Use the web page of the device. Scan the QR code in Table 2-2 to view the user manual to lighten the screens.

Note

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

Table 2-2 Related Documents

Document Name	QR Code
LED batch controller client user manual	
LED Tool client user manual	
LED controller user manual	

See Far, Go Further