BOLiN TECHNOLOGY D Series Dante AV Decoder User Manual

Contents

BOLiN TECHNOLOGY D Series Dante AV Decoder

Operating Instructions

Thank you for purchasingour product. If there are any questions, please contact the authorized dealer.
Before operating the unit, please read this manual thoroughly and retain it for future reference.

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IMPORTANT INFORMATION

Legal Notice

The contents of this document are subject to change without prior notice. Updates will be added to the new version of this manual. We will readily improve or update the products or procedures described in the manual. Best effort has been made to verify the integrity and correctness of the contents in this document, but no statement, information, or recommendation in this manual shall constitute formal guarantee of any kind, expressed or implied. We shall not be held responsible for any technical or typographical errors in this manual.
The product appearance shown in this manual is for reference only and may be different from the actual appearance of your device.
This manual is a guide for multiple product models and so it is not intended for any specific product.
In this manual, the illustrations of displayed interface, parameters displayed, drawings and value ranges may vary with models. Please see the actual product for details.
Due to uncertainties such as physical environment, discrepancy may exist between the actual values and reference values provided in this manual.
Use of this document and the subsequent results shall be entirely on the user's own responsibility.

Safety Information

WARNING!

Installation and removal of the unit and its accessories must be carried out by qualified personnel. You must read all of the Safety Instructions supplied with your equipment before installation and operation.

Warnings:

- If the product does not work properly, please contact your dealer. Never attempt to disassemble the decoder by yourself. (We will not assume any responsibility for problems caused by unauthorized repair or maintenance.)
- This installation should be made by a qualified service person and should conform to all the local codes.
- When shipping, the decoder should be packed in its original packaging.
- Make sure the power supply voltage is correct before using the decoder.
- Do not drop the decoder or subject it to physical shock.

Maintenance Precautions

- If there is dust on the decoder surface, remove the dust gently using an oil-free brush or a rubber dust blowing ball.
- If there is grease or a dust stain on the front surface, clean the surface gently from the center outward using anti-static gloves or an oil-free cloth. If the grease or the stain still cannot be removed, use anti-static gloves or an oil-free cloth dipped with detergent and clean the glass surface gently until it is removed.
- Do not use organic solvents, such as benzene or ethanol when cleaning the surface.

FCC Part 15

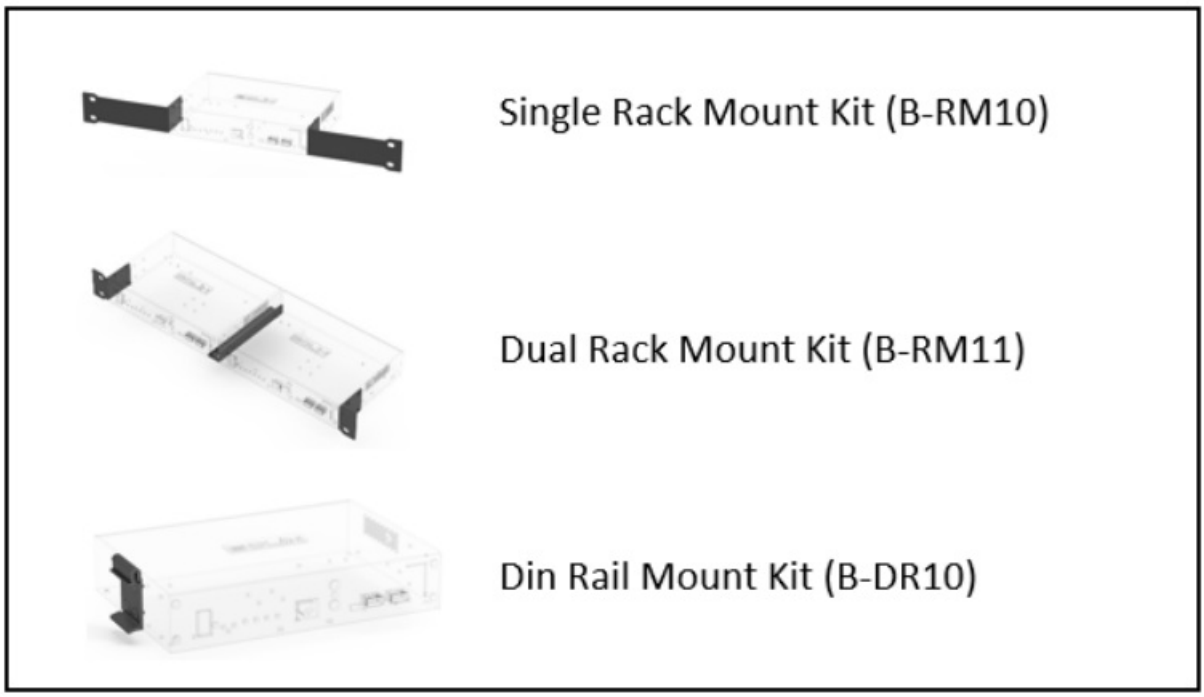
- This equipment has been tested and found to comply with the limits for digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.
- This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.
- Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.
- This product complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.

LVD/EMC Directive
This product complies with the European Low Voltage Directive 2006/95/EC and EMC Directive 2004/108/EC.

WEEE Directiveâ€“2002/96/EC
The product this manual refers to is covered by the Waste Electrical & Electronic Equipment (WEEE) Directive and must be disposed of in a responsible manner.

WHAT'S IN THE BOX

Accessories (Optional)



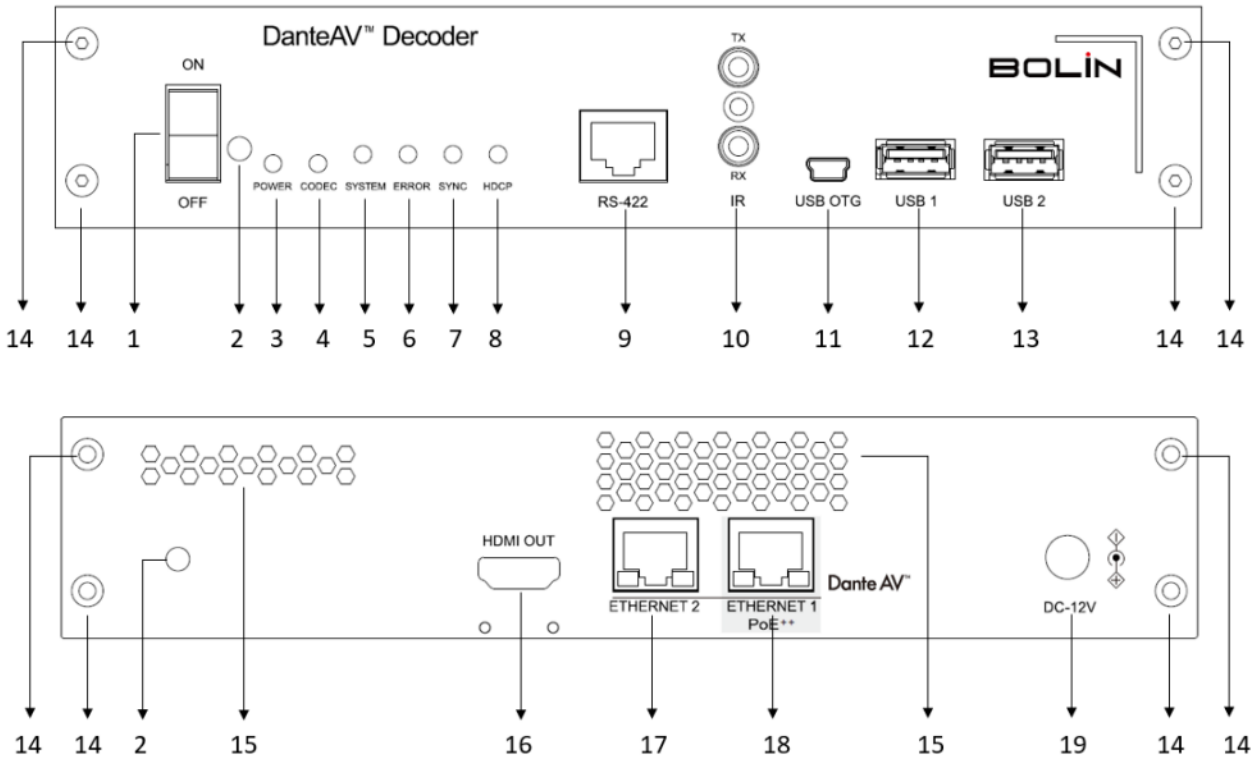
Overview

This user guide is suitable for the following models: D10H

Features

- Dante AV video streaming decoder HDMI 2.0 output
- 4K 60 4:4:4 video over standard Gigabit Ethernet
- Ultra-low latency real-time video performance over the network
- 32-bit wide video interface capable of processing code streams 200-800 Mbps
- Eight audio channels from 44.1 kHz to 192 kHz
- HDMI 7.1 embedded audio input/output
- Bit depths: 24, 16 and 32 bits per audio sample
- Tunable audio delay to facilitate lip-sync control
- Support unicast and multicast for 8 audio flow and 1 video flow
- Full support of Dante audio and video protocols
- Supported by Dante Controller
- Instant compatibility with most of existing Dante-enabled audio products
- Fully time-aligned and separately routable audio and video streams
- Visually perfect video using network efficient JPEG2000 codec
- Easy control of PTZ camera and remote devices via USB HID, serial, and IR over IP
- Fully validated implementation of HDCP 2.3 encryption
- 0Complete EDID support
- Firmware updateable over the network
- Works with installed 1Gbps network, no need to replace network infrastructure
- Powered via POE (25W 802.3at PoE+) or DC power (12V 4A) pack
- Compact, surface/rack-mountable design

Decoder Diagrams



1. **Power Switch**
    1. To power on / off the decoder
2. **3.5mm IR IN**
3. **Power LED Indicator**
    1. Turns green when the decoder is connected to power and switched on
4. **Codec LED Indicator**
    1. **Green** Normal
    2. **Not lit** – Abnormal/Error
5. **System LED Indicator**
    1. **Solid green** – All ok, sync achieved
    2. **Amber** Booting up, waiting sync
    3. **Red** – System failed to boot correctly
    4. **Off** No power
6. **Error LED Indicator**
    1. **Solid green** – Software running
    2. **Blinking green** – Identifying function activated
    3. **Solid or blinking red** – Software fault or exception
    4. **Off** – No power
7. **Sync LED Indicator**
    1. **Solid green** – Dante network clock follower sync to leader achieved
    2. **Blinking green** – Dante network clock leader
    3. **Amber** – Syncing in progress
    4. **Red** sync error
    5. **Off** – No power

8. **HDCP LED Indicator**
    1. **Solid green** – Non HDCP unprotected video sink or source detected
    2. **Blinking green** – HDCP protected content detected
    3. **Solid red** – Invalid non-HDCP video sink or source
    4. **Blinking red** – Failed HDCP negotiation
    5. **Blinking Amber** – HDCP negotiation in progress
    6. **Off** – No power
9. **RS-422 Control Port**
    1. Connect to the keyboard controller RS422 port and use the standard Visca RS422 to control the connected camera through the decoder
10. 3.5mm IR in for External IR Receiver Connection
11. **USB OTG**
    1. USB On The Go (OTG), reserved
12. **USB 1 Port**
    1. Used to connect a keyboard
13. **USB 2 Port**
14. Used to connect a mouse

    NOTE:
    1. The USB ports can only be used for keyboard and mouse connections – USB flash drives / hard drives are not supported.
    2. Connect a USB cable (male type A USB to male mini-USB) from a USB port on a PC to the USB OTG port of a Dante AV Encoder. When properly configured, the keyboard and/or mouse connected to the Dante AV Decoder end can be used to control the PC connected at the Encoder location.
15. Screw Hole
16. Vents
17. HDMI 2.0 Output
18. **LAN Port**
    1. RJ45 port for Ethernet connection, does not support POE power supply
19. LAN/POE++(IEEE802.3bt) for Dante Video Input
20. **12V DC Power Port**
    1. Connect the supplied DC power adaptor and cord.

Decoder Installation

The following will introduce various installation methods of the Dante AV decoder.
Before mounting your decoder, please check the included contents against the packing list to ensure components are accounted for. Additional purchase(s) may be necessary for the optional accessories in different installation methods.

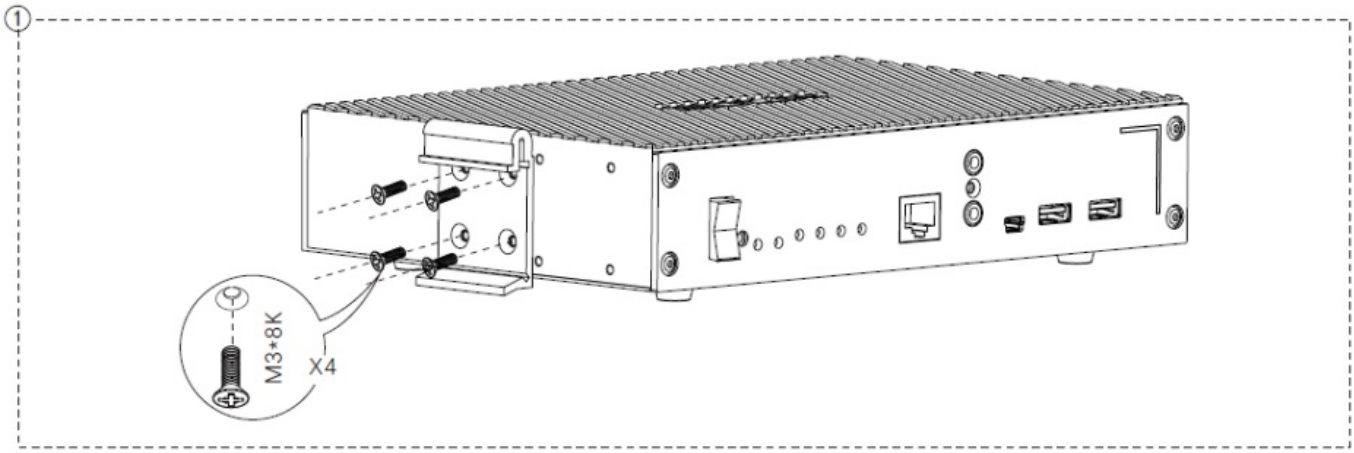
- Disconnect the power from the decoder before decoder installation.
- Accessories such as the Single rack mount kit or Dual rack mount kit may be necessary during Rack mounting. For more details, refer to the accessory list recommended by your dealer.
- When mounting the decoder, please install the mount kit to decoder first, and then mount the decoder to the Rack or other installation location.

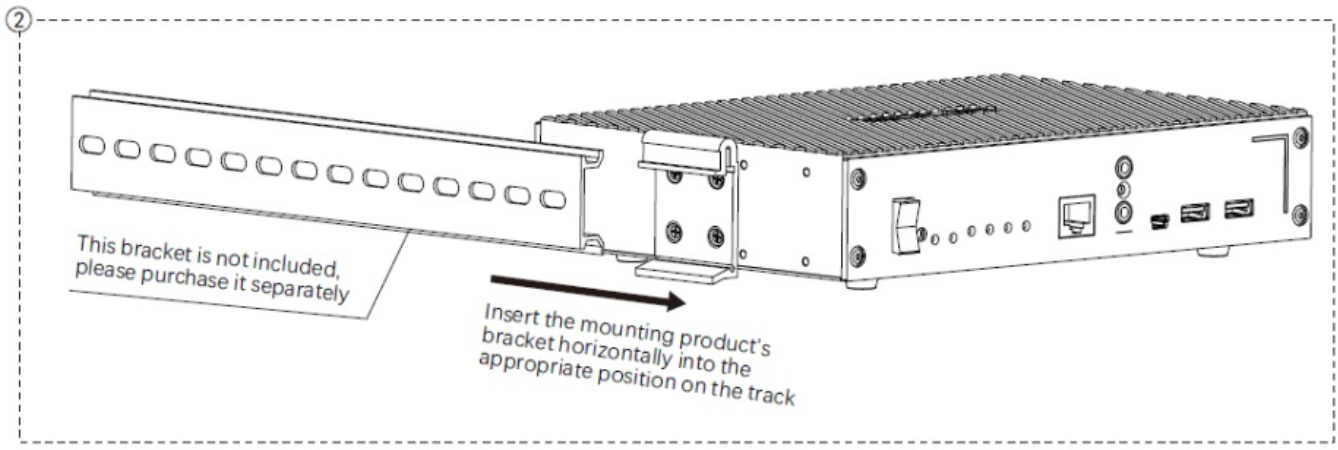
- For Surface mount kit, there are two separately parts, the outer frame and inner frame. Please install the outer frame to the decoder bottom cover, then install the inner frame to the TV or monitor back surface. Combine outer frame and inner frame and hook lock it.
- Tighten all the screws to hold the decoder securely.

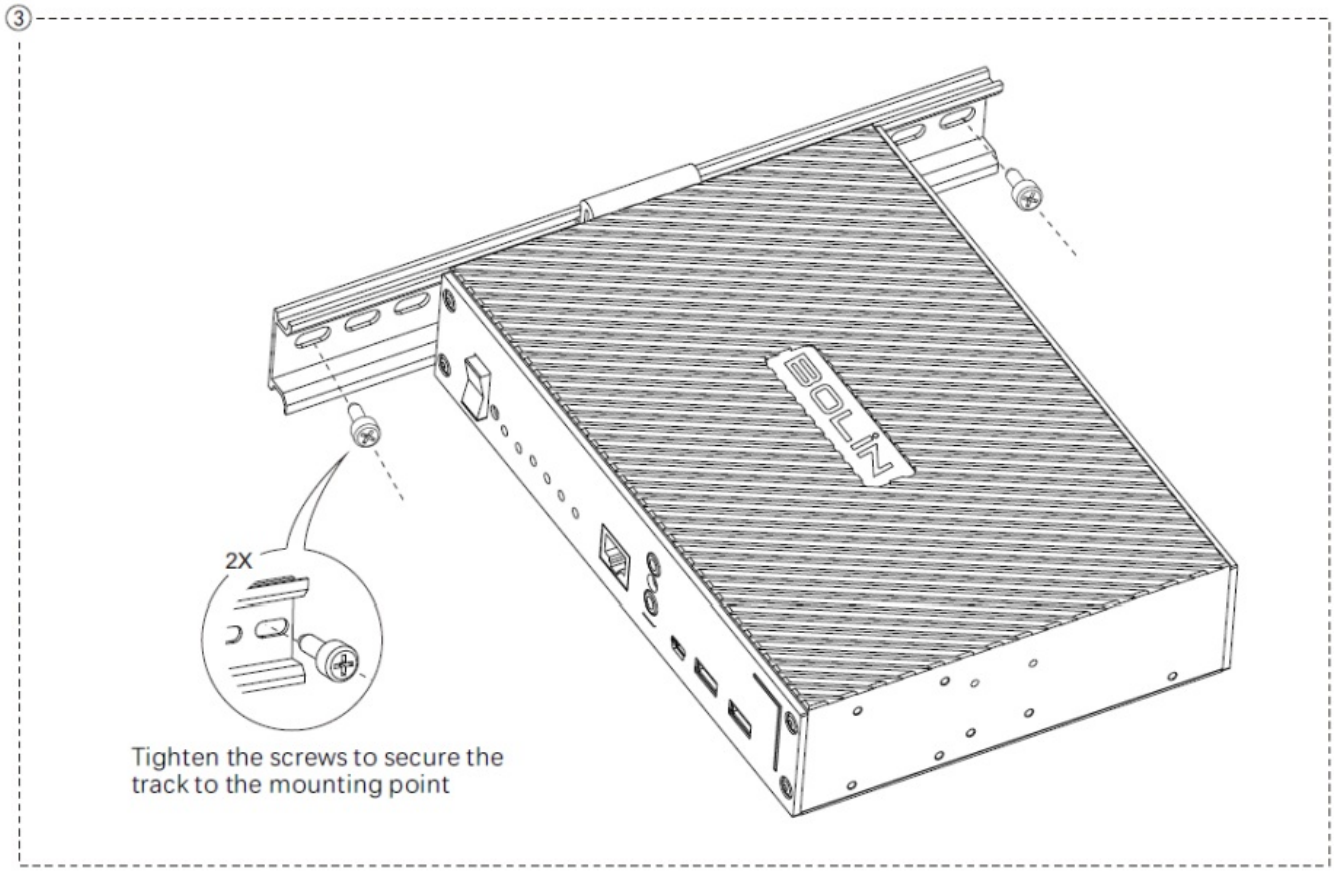
Din Rail Mount Installation

Need to use Din Rail Mount Kit and M3*8K screws for this installation, Din Rail and Rail Mounting Bracket are sold separately. Please following the below diagrams to do Din Rail mount installation:

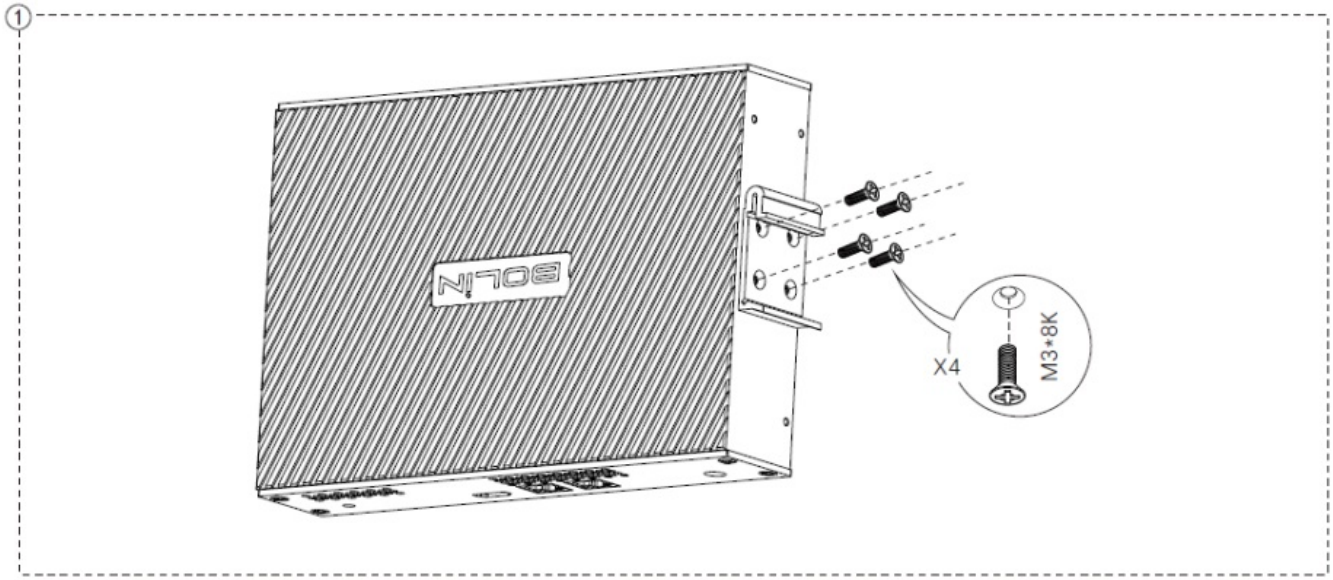
Din Rail mounting method 1:

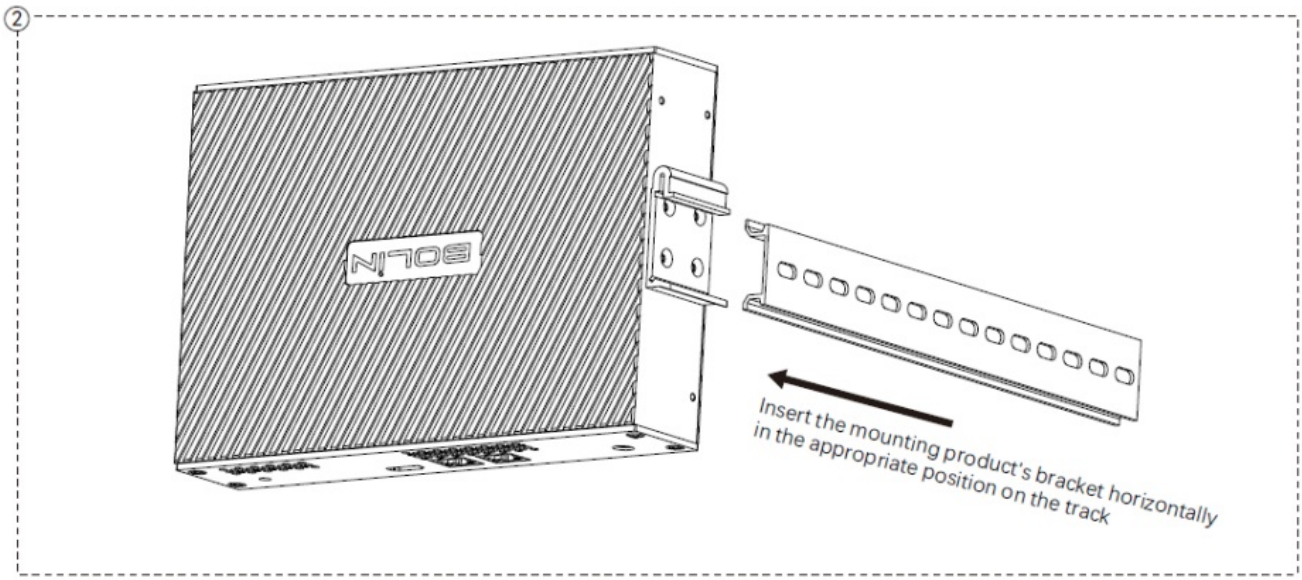


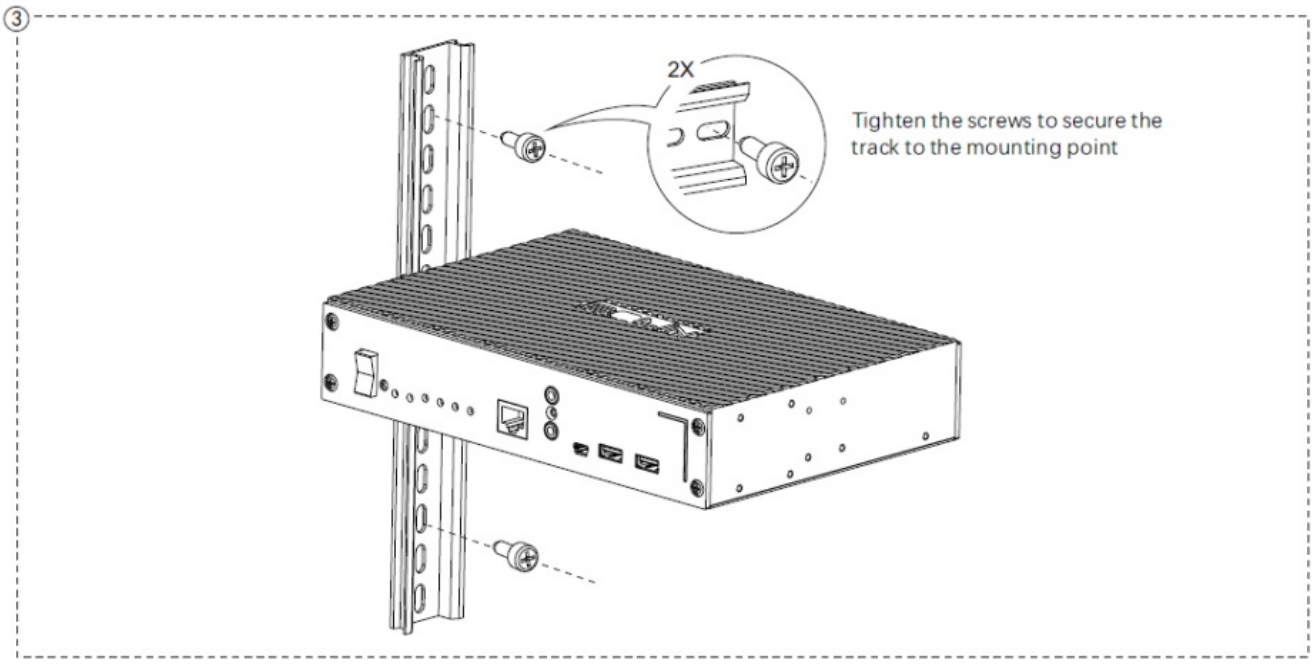




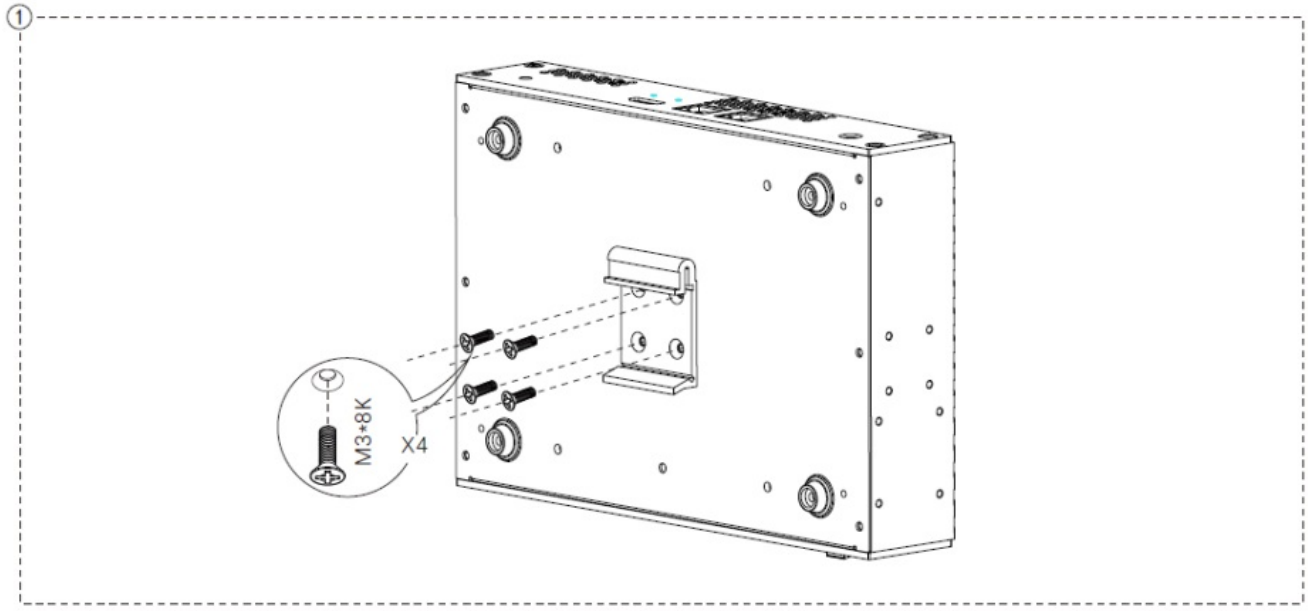
Din Rail mounting method 2:

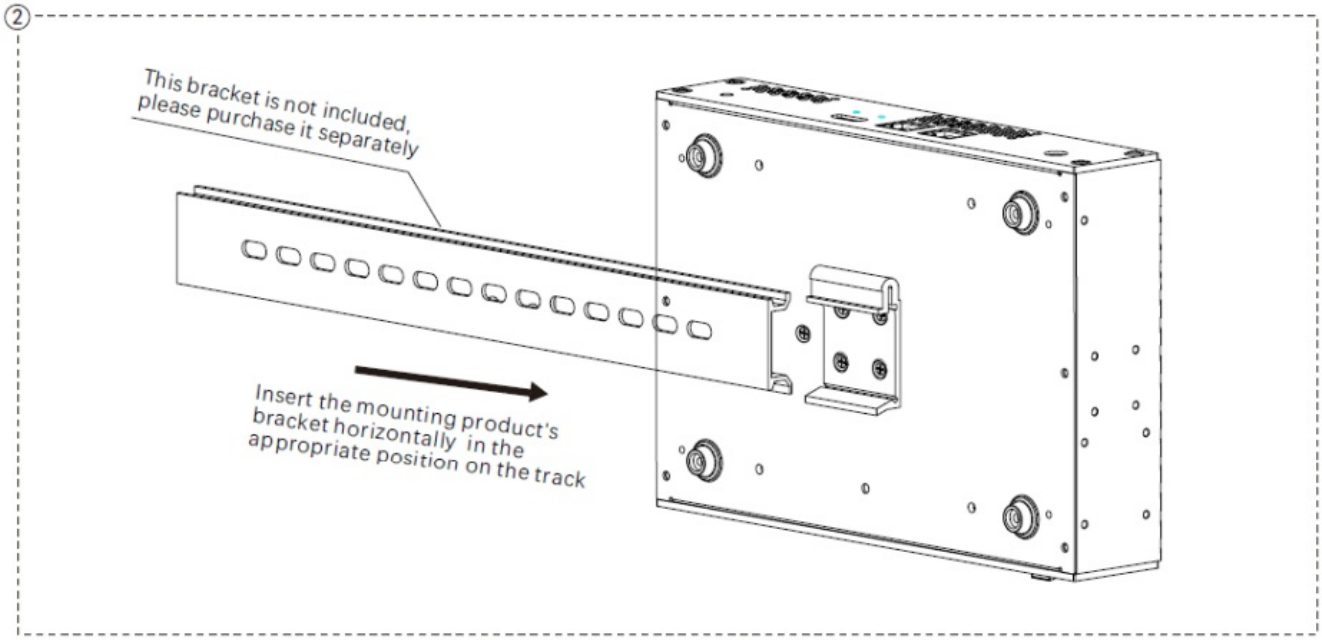


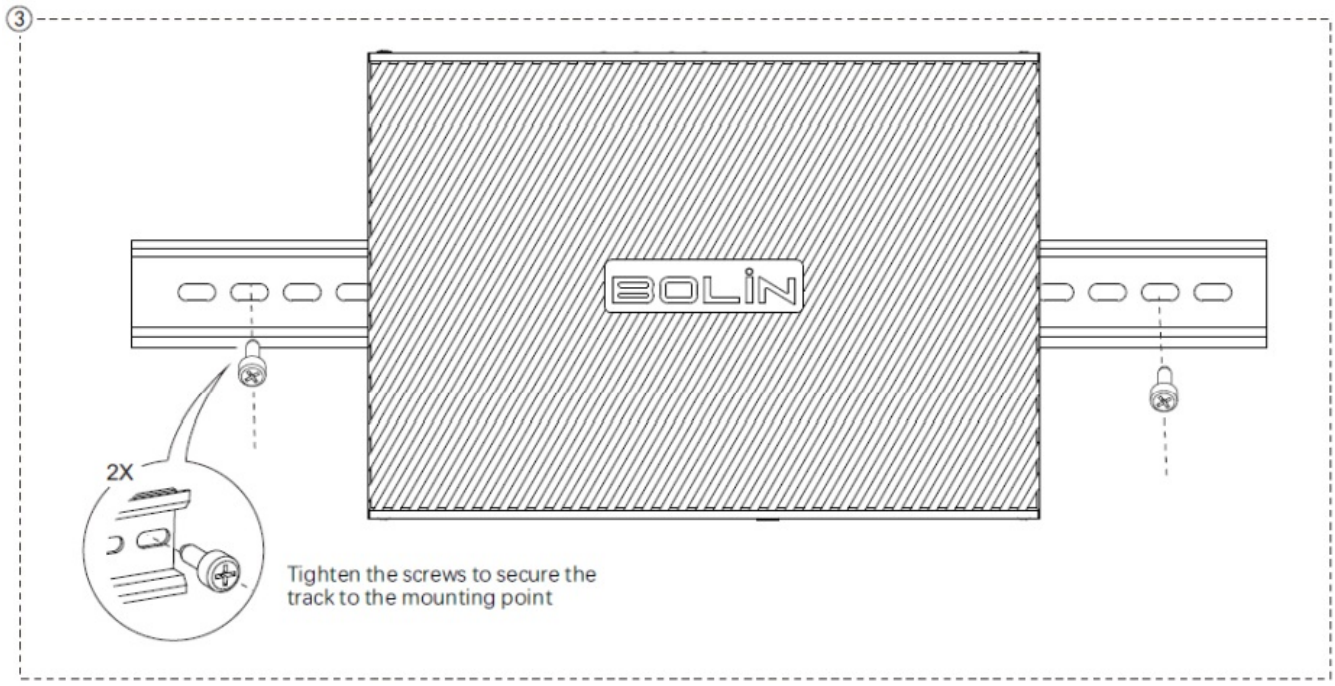




Din Rail mounting method 3:

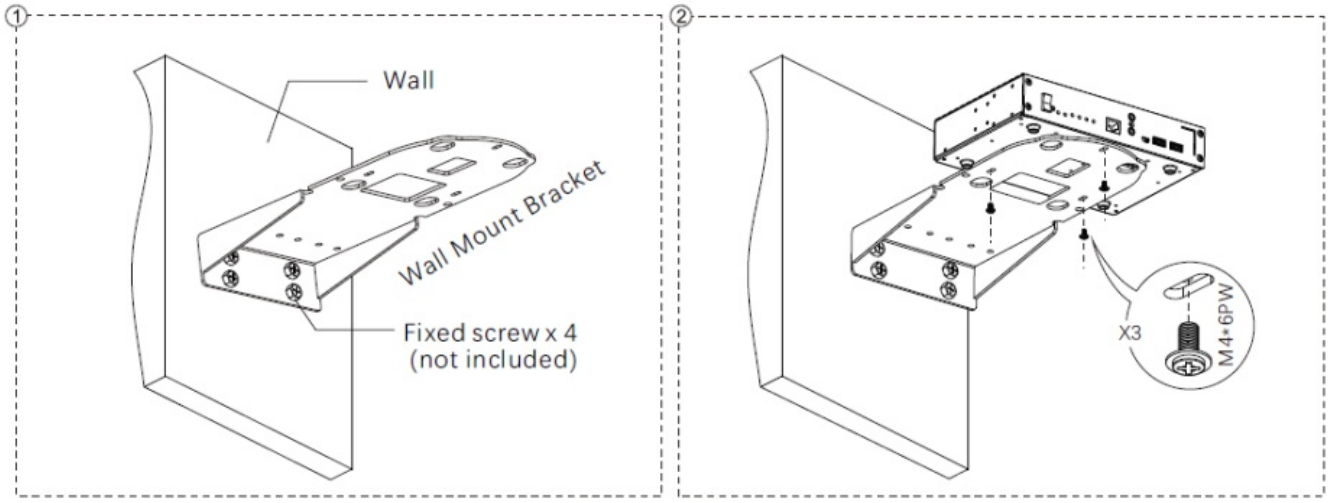






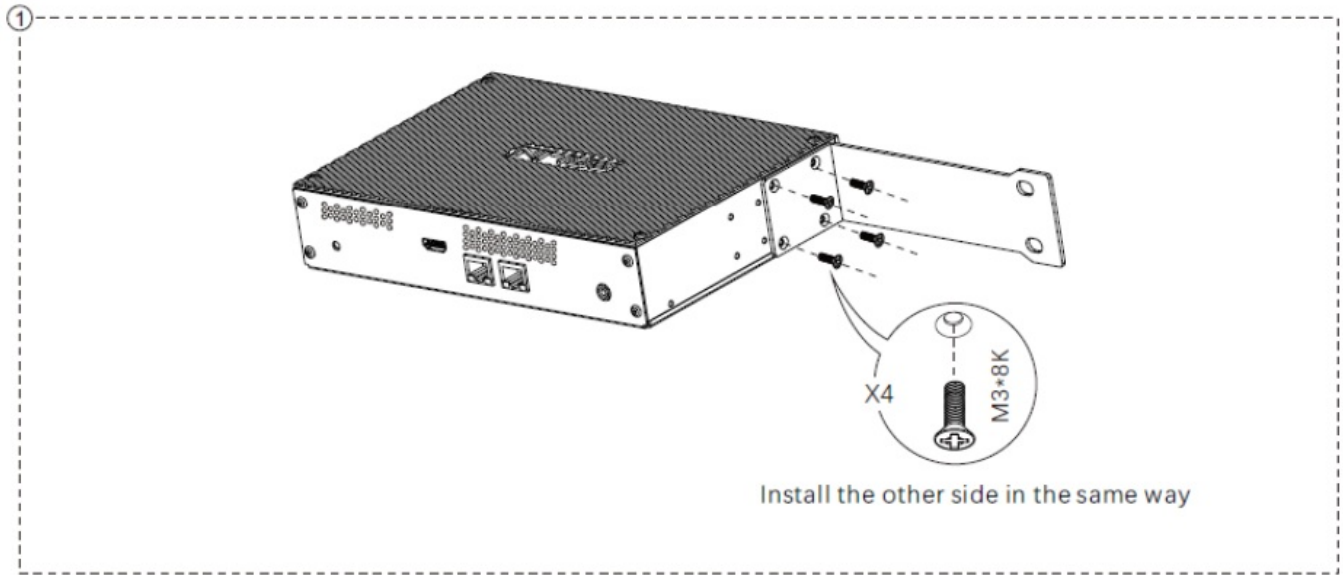
Wall Mount Installation

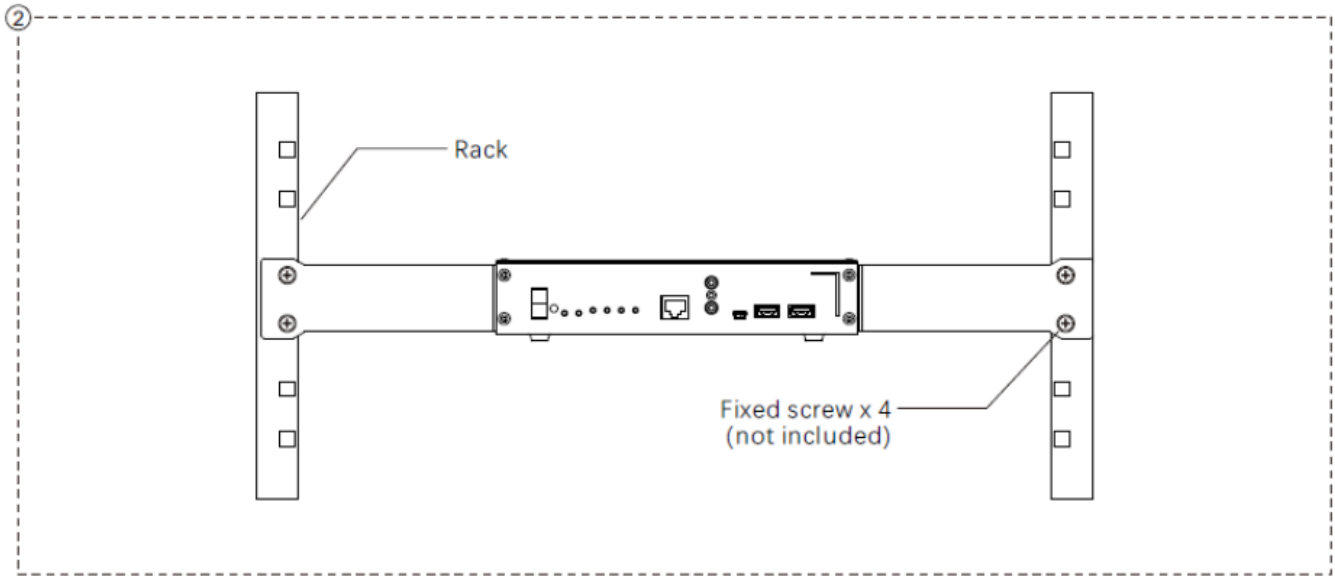
Need to use Wall Mount Bracket and M4*6PW screws for this installation. Wall Mount Bracket is sold separately. Please following the diagrams below to do wall mount installation.



Single Rack Mount Installation

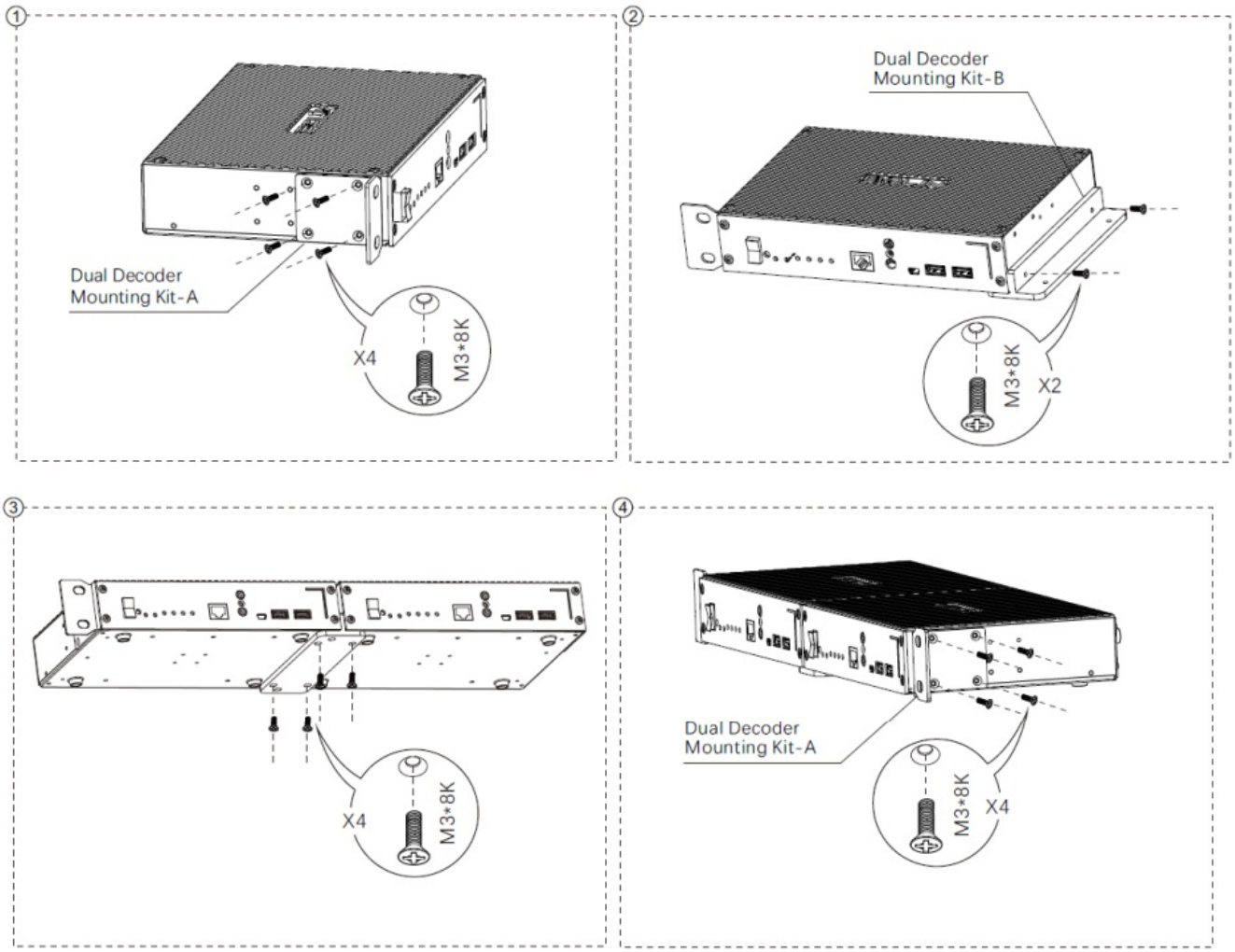
Need to use Single Rack Mount Kit and M3*8K screws for this installation. Single Rack Mount kit is sold separately. Please following the diagrams below to do single rack mount installation.

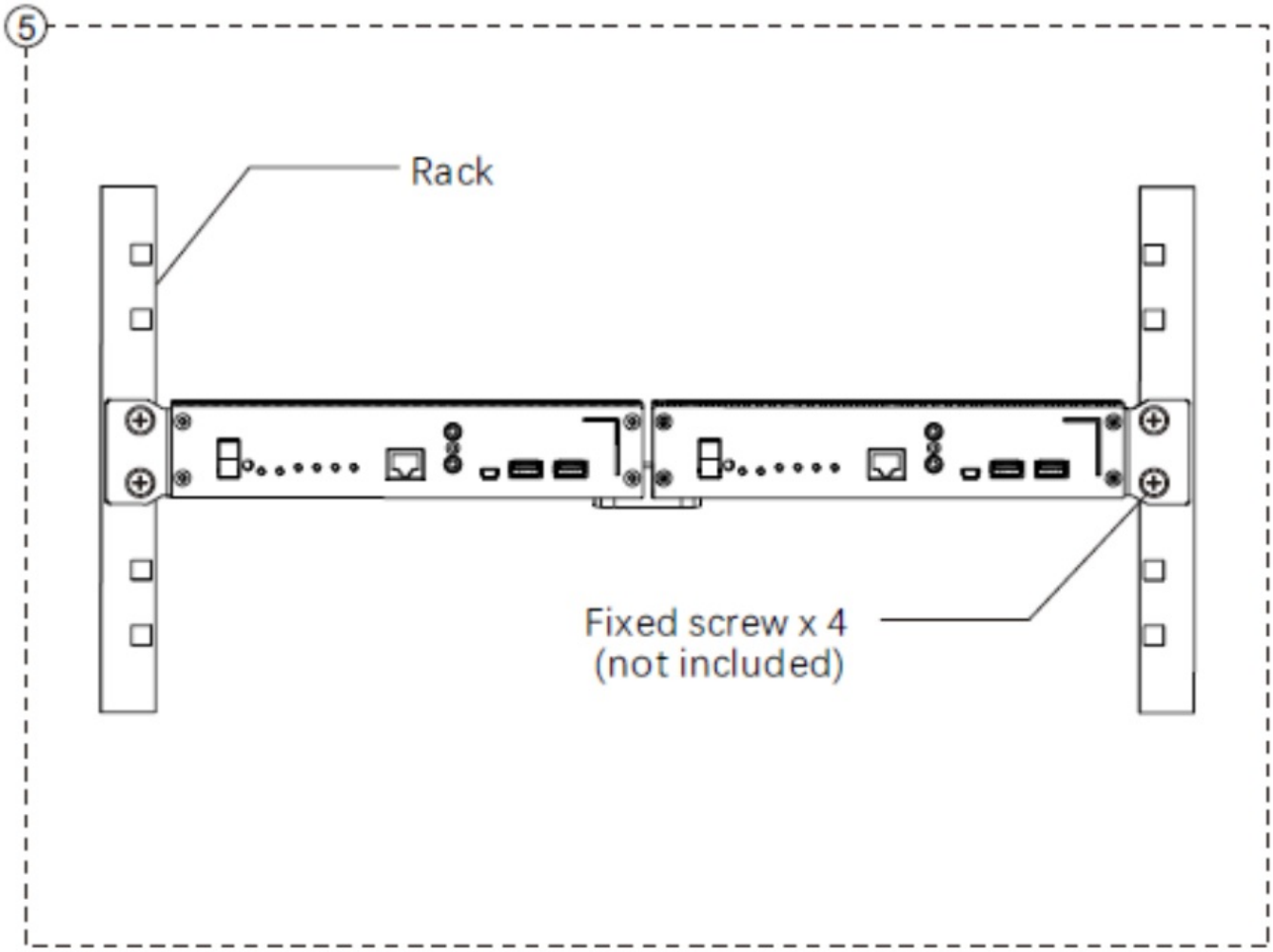




Dual Rack Mount Installation

Need to use Dual Rack Mount Kit and M3*8K screws for this installation, Dual Rack Mount kit is sold separately. Please following the diagrams below to do dual rack mount installation.

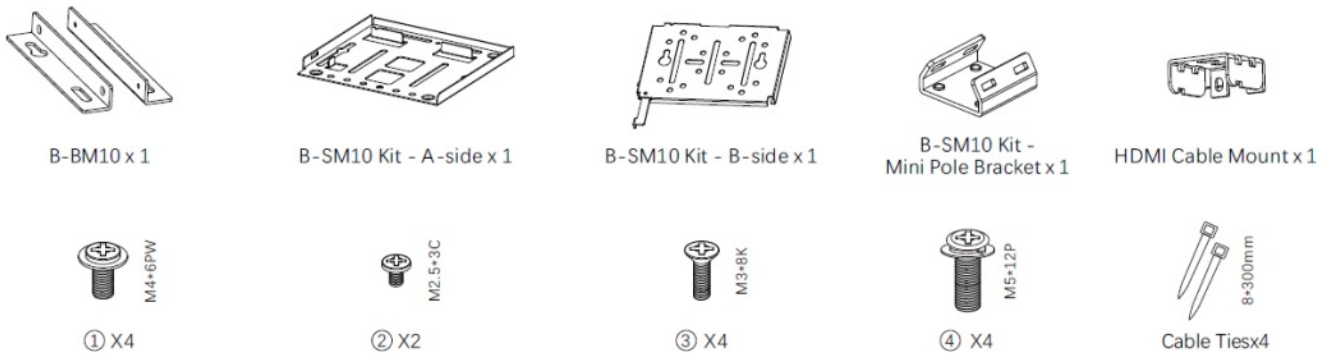




Base and Surface Mount Installation

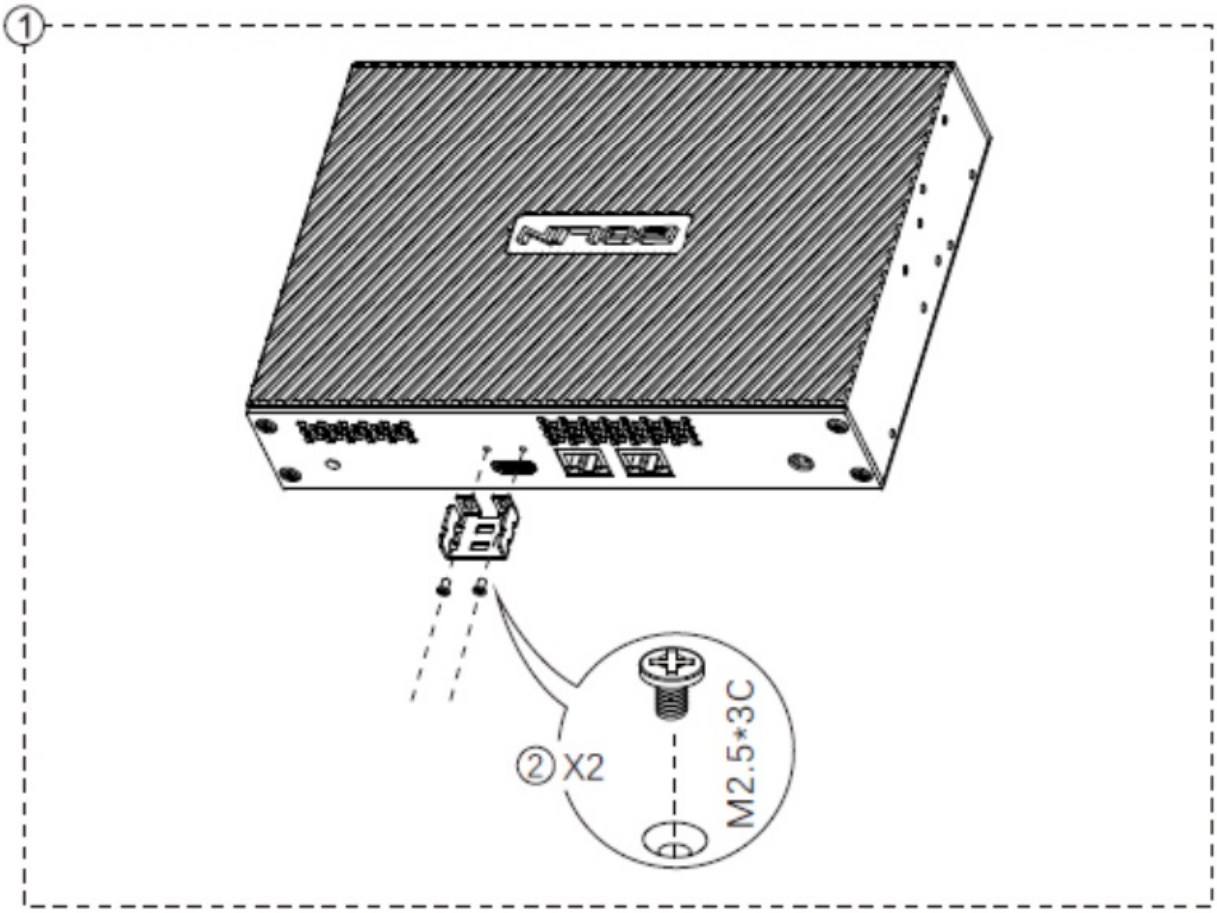
Need to use Base Mount Kit and Surface Mount Kit for this installation. Base Mount kit and Surface Mount kit are included with decoder purchase. Please following the diagrams below to do the installation.

Required accessories and components:

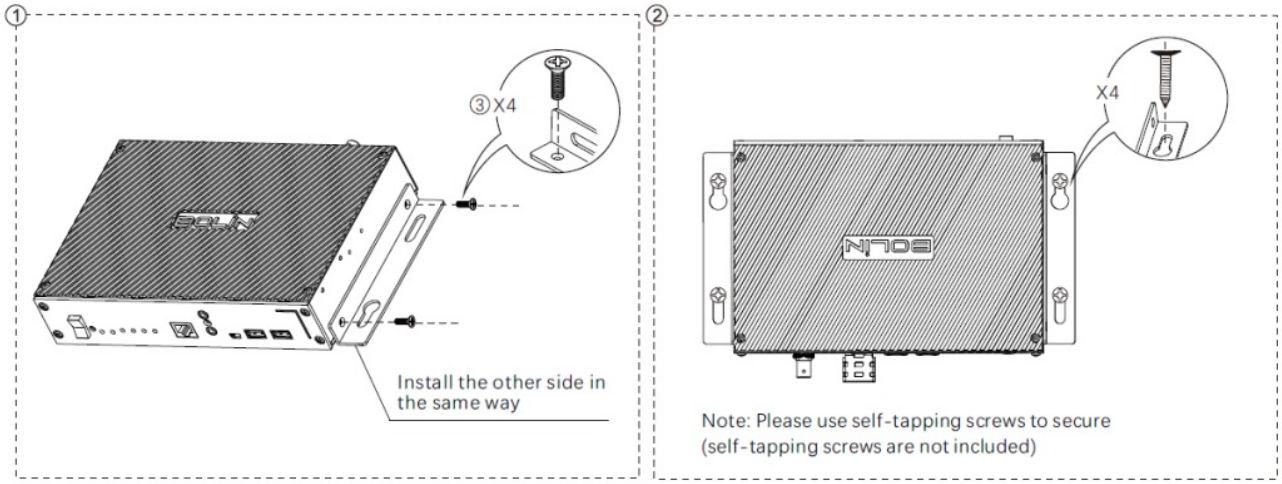


Base mount installation

1. HDMI cable mount installation:

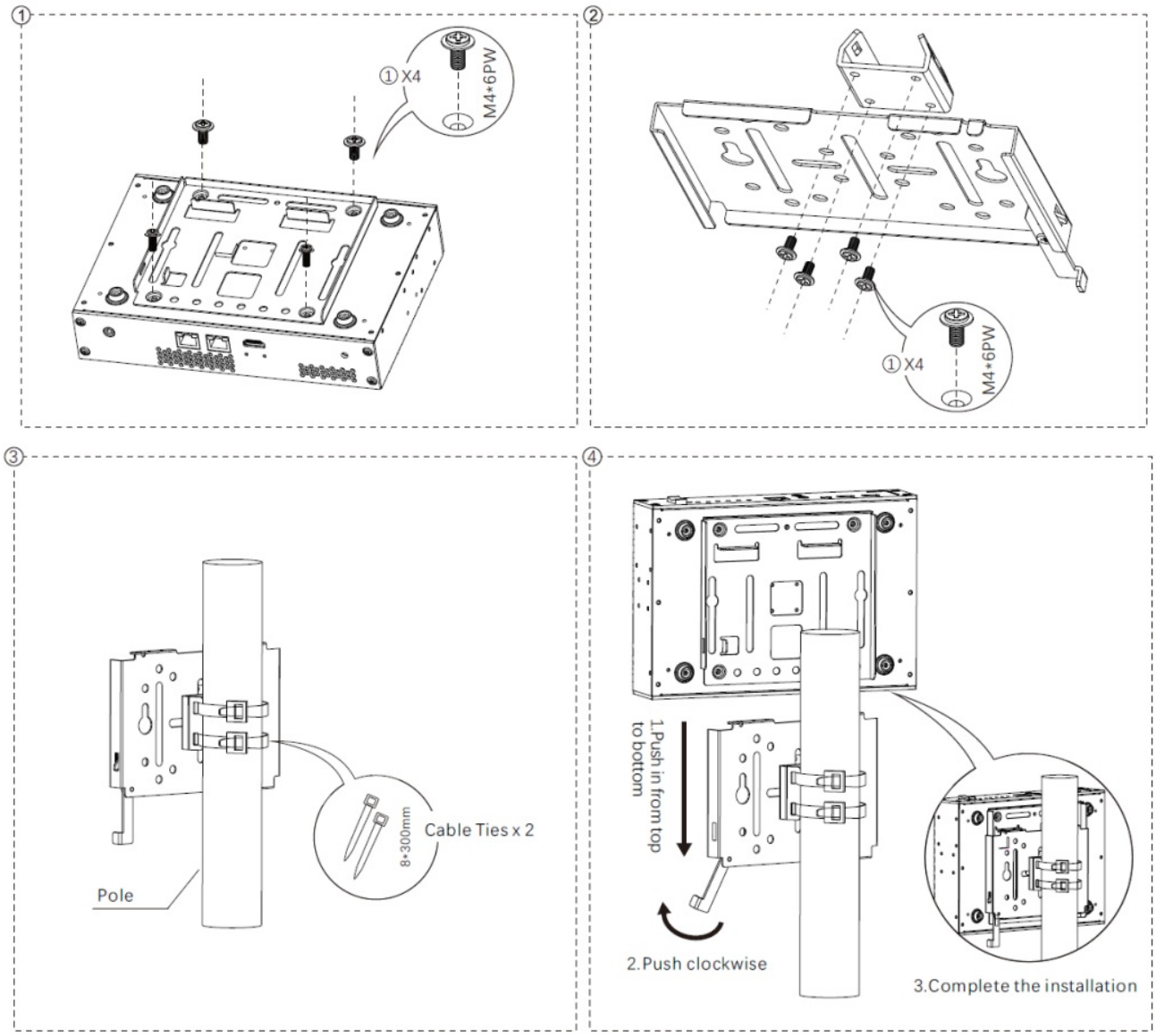


2. Base mount kit installation (B-BM10):

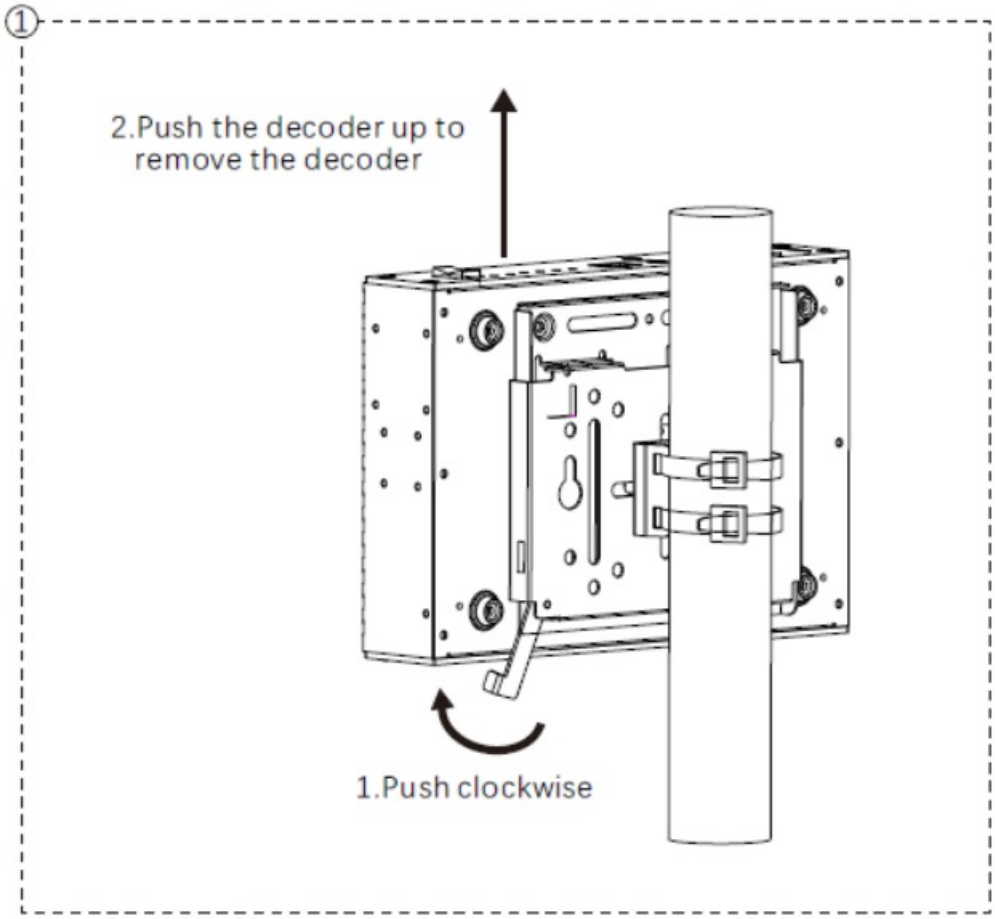


Surface mount installation

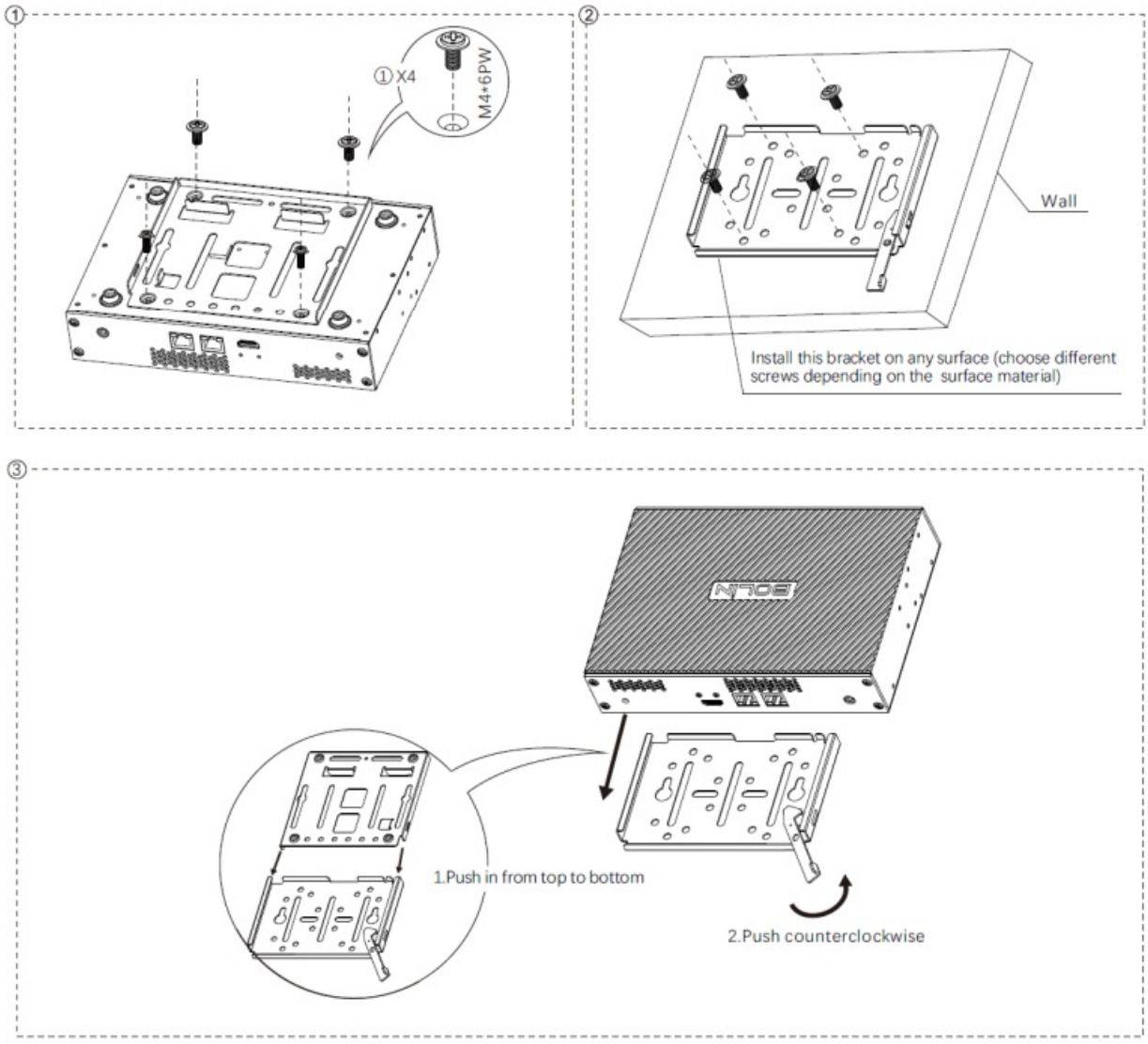
1. Surface Mount kit installation with pole mounting (B-SM10):



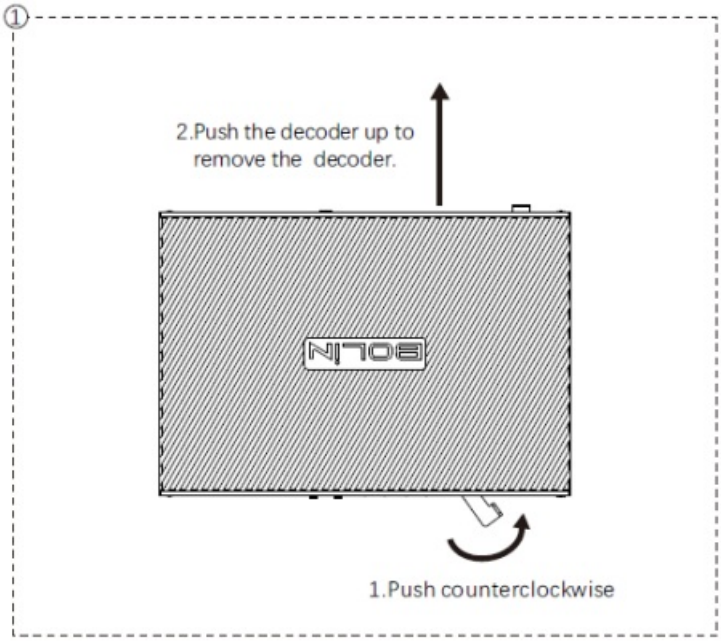
NOTE: To remove the decoder



2. Surface mount kit installation with surface mounting (B-SM10)



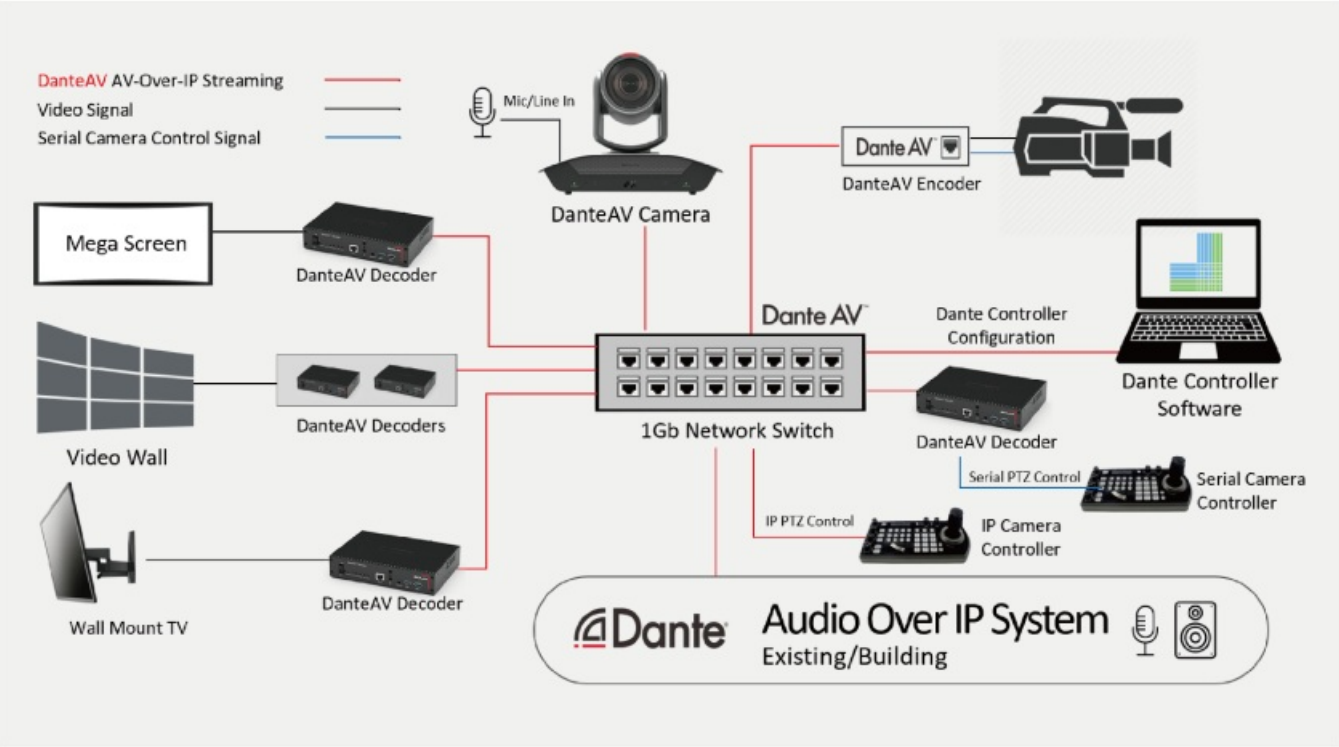
NOTE: To remove the decoder



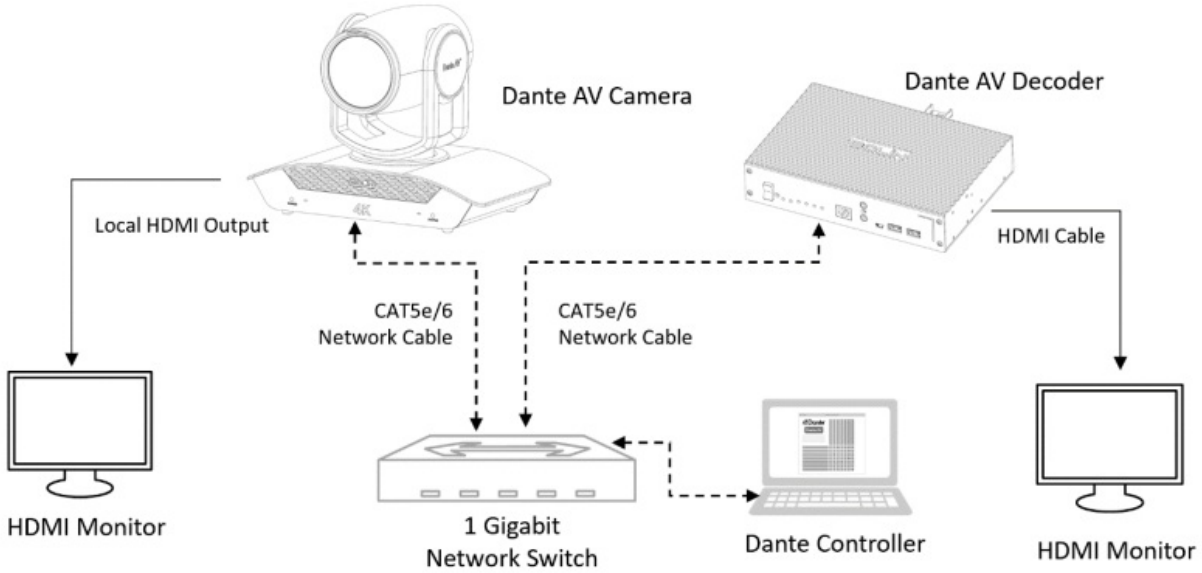
System Configuration

Connection

Dante AV decoder is used to work together with Dante AV camera and Dante AV encoder to decode the Dante AV stream, included audio and video that output from the camera or encoder, and output it to the back-end display device via HDMI.
Dante AV decoder is equipped with an RS422 interface, the keyboard controller can use the standard Visca RS422 to control the connected camera through the decoder. Or the keyboard controller can also control the camera directly through the network (Visca over IP).



Dante AV Connection Basic System Diagram



Obtain Video Signal

Use Dante AV Decoder to obtain Dante AV Camera video stream

1. Use Cat6 network cable to connect Dante AV decoder and Dante AV camera to the same POE network switch.
2. Connect Dante AV decoder's HDMI to HDMI display device.

3. Use Cat6 network cable to connect the PC that installed Dante Controller to the same network switch.
4. Running the Dante Controller, check to subscribe video TX (camera HDMI video) to RX (decoder HDMI video) connection.
5. Dante video will be routed to display on the HDMI monitor via Dante AV decoder.
6. You can set the video format of the Dante AV camera to the one you want to display.

Supported Video Resolutions

The Dante AV decoder supports the following video resolutions.

<table>
<tr><th>Video Resolution</th><th>Color space, chroma subsampling & pixel depth</th><th>Refresh (Hz)</th><th></th></tr>
<tr><td>VGA (640×480)</td><td>RGB 4:4:4 @ 8 bit</td><td>59.94/60</td><td></td></tr>
<tr><td>SVGA (800×600)</td><td>RGB 4:4:4 @ 8 bit</td><td>60</td><td></td></tr>
<tr><td>XGA (1024×768)</td><td>RGB 4:4:4 @ 8 bit</td><td>60</td><td></td></tr>
<tr><td>SXGA (1280×1024)</td><td>RGB 4:4:4 @ 8 bit</td><td>60</td><td></td></tr>
<tr><td>UXGA (1600×1200)</td><td>RGB 4:4:4 @ 8 bit</td><td>60</td><td></td></tr>
<tr><td>WUXGA (1920×1200)</td><td>RGB 4:4:4 @ 8 bit</td><td>60</td><td></td></tr>
<tr><td>480p (720×480)</td><td rowspan="2">RGB 4:4:4 @ 8/10/12 bit</td><td>59.94/60</td><td></td></tr>
<tr><td>576p (720×576)</td><td rowspan="2">50</td><td></td></tr>
<tr><td>HD (1280×720)</td><td rowspan="2">YCbCr 4:4:4 @ 8/10/12 bit</td><td></td></tr>
<tr><td rowspan="2">Full HD (1920×1080)</td><td rowspan="2">YCbCr 4:2:2 @ 8/10/12 bit</td><td rowspan="2"></td><td></td></tr>
<tr><td rowspan="2"></td><td rowspan="3">23.98/24/25/29.97/30/50 /
59.94/60</td></tr>
<tr><td>UHD (3840×2160)</td><td rowspan="2">RGB 4:4:4 @ 8 bit
YCbCr 4:4:4 @ 8 bit</td></tr>
<tr><td rowspan="2">2160p (4096×2160)</td><td></td></tr>
<tr><td>YCbCr 4:2:2 @ 8/10/12 bit</td><td></td><td></td></tr>
</table>

Camera Control Methods through the Decoder

Dante AV decoder has two ways of controlling the Dante AV camera. This section describes ways of controlling the camera with typical system examples and the required components of each system.

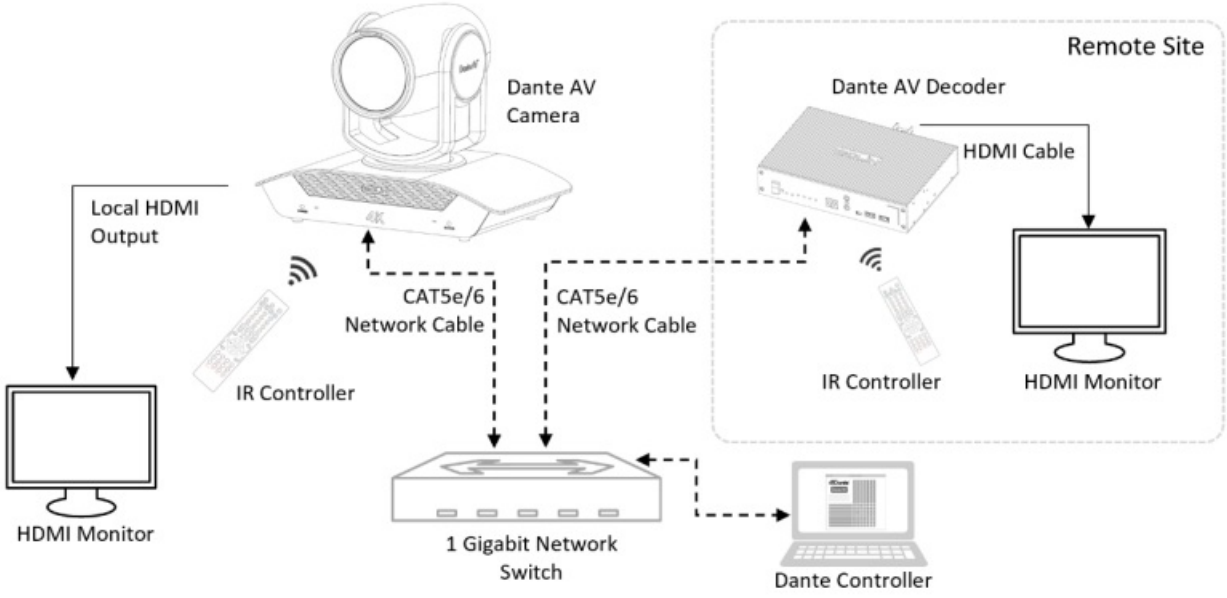
1. Use the Infrared Remote Controller to control
2. Use Keyboard Controller RS-422 to control.

Using Infrared Remote Controller via Decoder

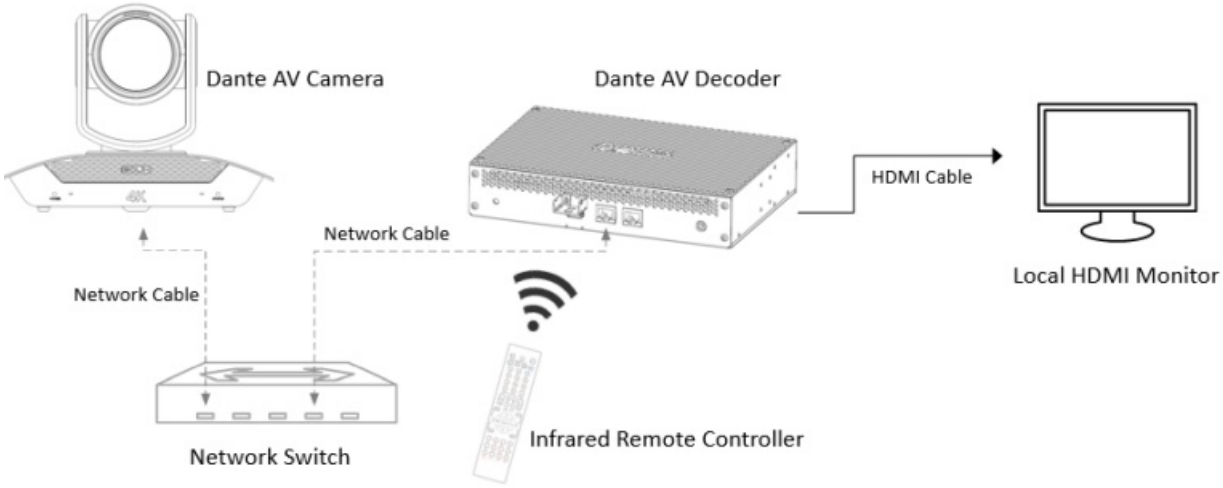
Dante AV decoder is equipped with infrared receiver head, allowing control signals from the infrared controller to be received and forwarded to the camera that has been installed at the other end point. This enables the use of

an infrared remote controller to control the Dante AV camera through the decoder.
The Dante AV camera may be installed at a remote site with the decoder placed in the control room. This setup allows the administrator in the control room to be able to use the Dante AV decoder, to decode the camera's video stream, and output it to the HDMI monitor. Meanwhile, the same administrator can use Infrared Remote Controller to control the remote location's camera through the Dante AV decoder.

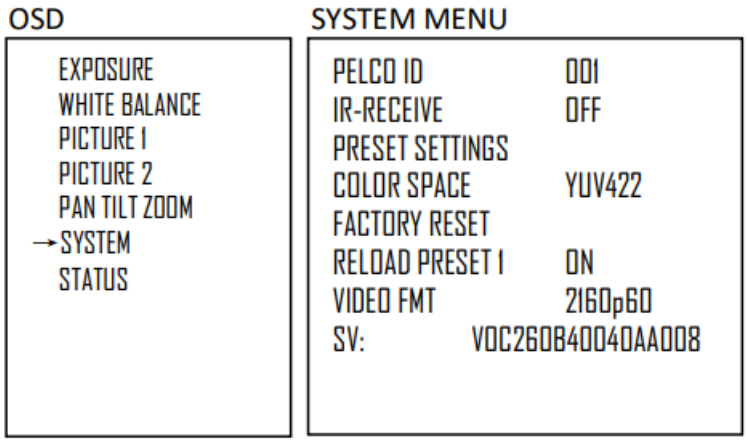
1. When Bolin Dante AV decoder is used, the decoder has camera IR receiver built in. At the remote site where the decoder is connected to the displayer, use IR remote controller to control the PTZ camera via decoder



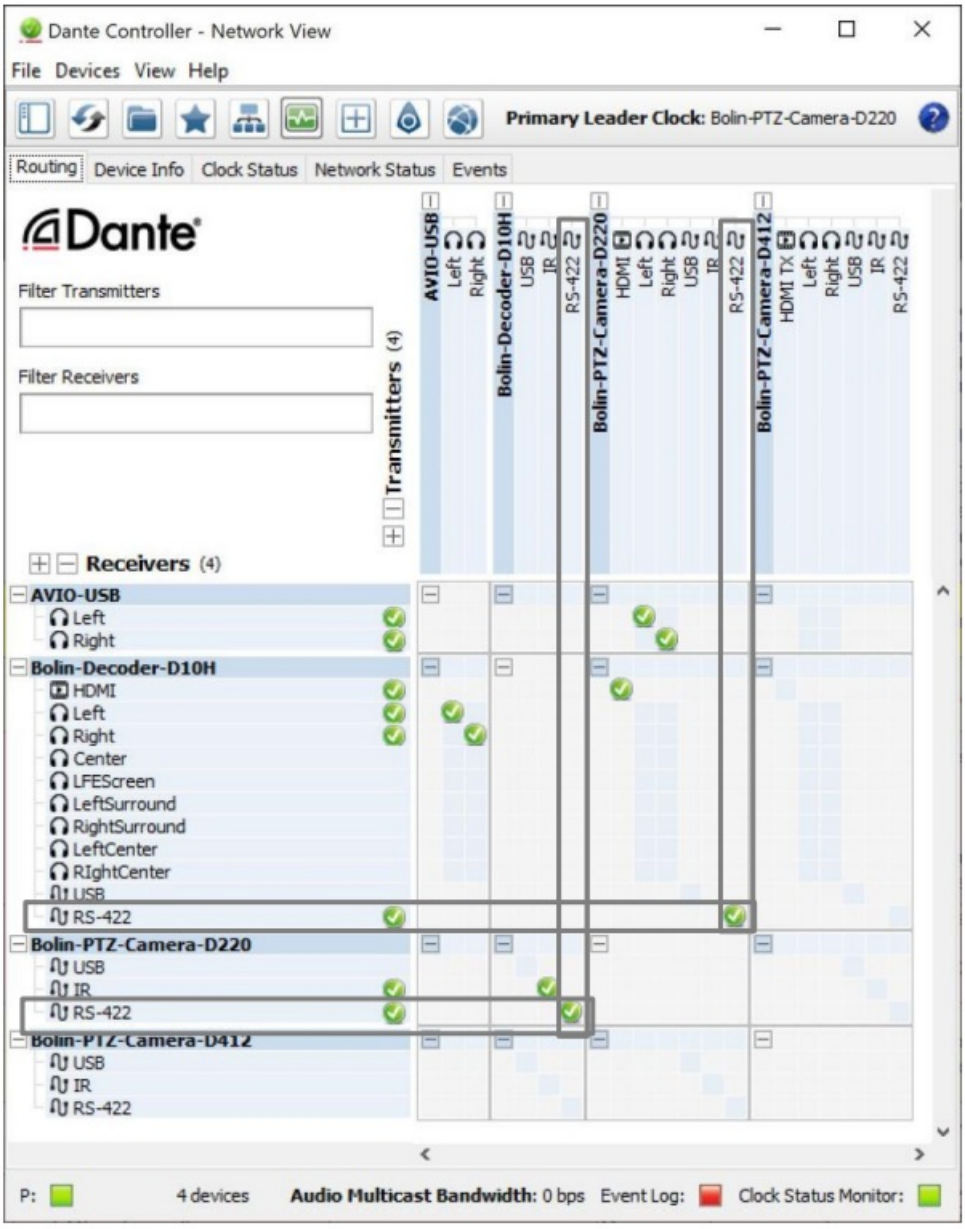
How to use IR remote controller to remotely control the PTZ camera via Dante AV decoder



1. Use the IR remote controller to control the PTZ camera directly aiming to the camera.
2. Go to camera OSD setting, set the IR-RECEIVE to OFF.



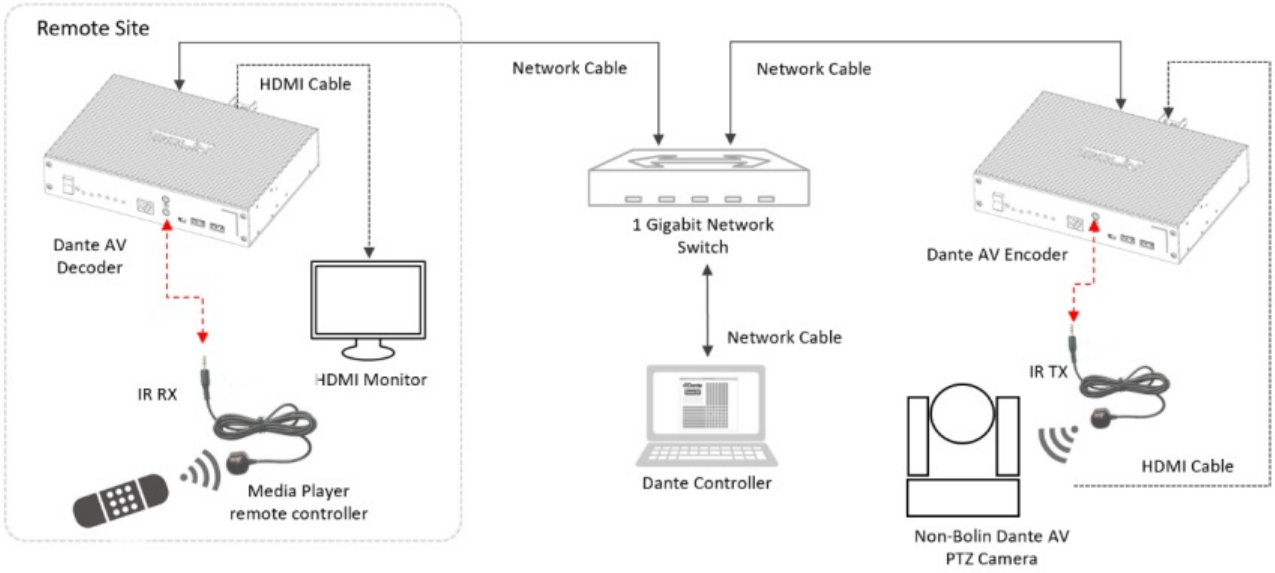
3. Dante Controller serial RS422 routing check.
    1. The ‘RS-422’ ancillary channel on the Bolin-PTZ-Camera-D220 receiver is subscribed to the equivalent channels on the Bolin-Decoder-D10H transmitter.
       These subscriptions would enable serial control RS-422 on the transmitter (decoder) via the Serial control ports RS-422 on the receiver (camera).
    2. The ‘RS-422’ ancillary channel on the Bolin-Decoder-D10H receiver is subscribed to the equivalent channels on the Bolin-PTZ-Camera-D220 transmitter.
       These subscriptions would enable serial control RS-422 on the transmitter (camera) via the Serial control ports RS-422 on the receiver (decoder).
    3. It is not needed to use IR subscription when you use Bolin Dante AV camera and Bolin Dante AV decoder.



4. Aim IR remote controller to decoder, you can control the Dante AV PTZ camera remotely.
5. When use IR remote controller via decoder, following features with IR control are not functional:
    1. Fn + Scan
    2. Fn + Left Limit
    3. Fn + Right limit
    4. Fn + F.Default
    5. Fn + STATUS
    6. Fn + Resolution
    7. WB.R plus + – adjustment
    8. WB.B plus + – adjustment
    9. PT.S plus + – adjustment
    10. Zoom S. plus + – adjustment
    11. Preset S. plus + – adjustment
    12. WDR plus + – adjustment

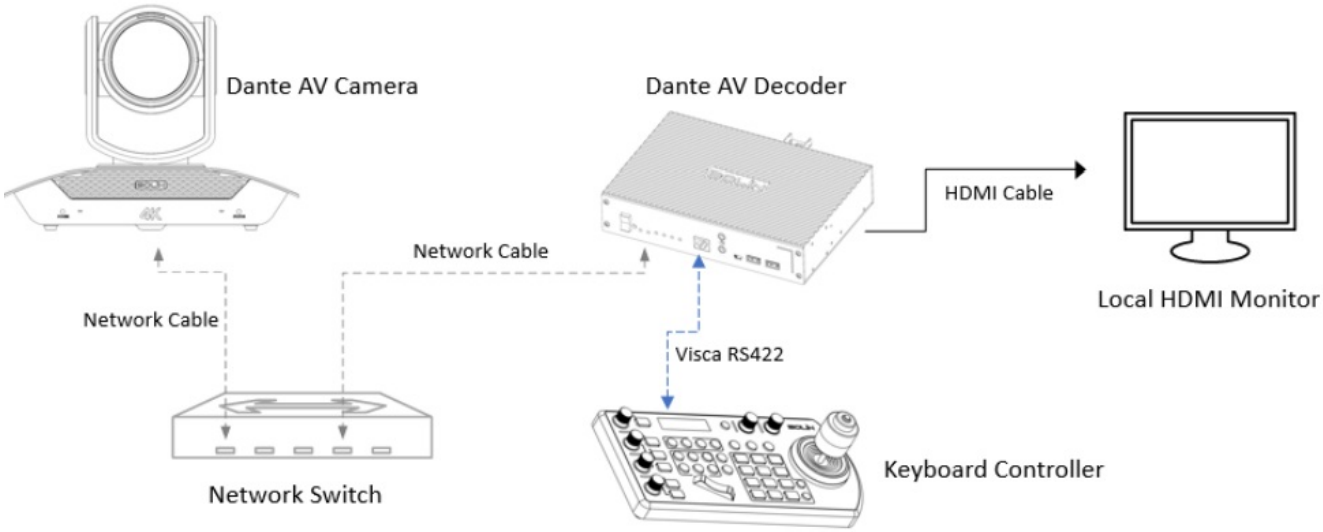
Please turn on the IR Receive in OSD, then use the IR controller directly to face the camera if you want to use above features.

When Non-Bolin Dante AV decoder is used, you may need external IR TX/RX on both encoder and decoder side to transfer IR control signal. At the remote site where the decoder is connected to the display, use IR remote controller to control the PTZ camera via decoder.



Using Keyboard Controller via Decoder

Dante AV decoder is equipped with an RS422 interface. Administrators can connect a keyboard controller to the decoder's RS422 port, and use standard Visca RS422 protocol, to control the subscribed camera through the decoder.



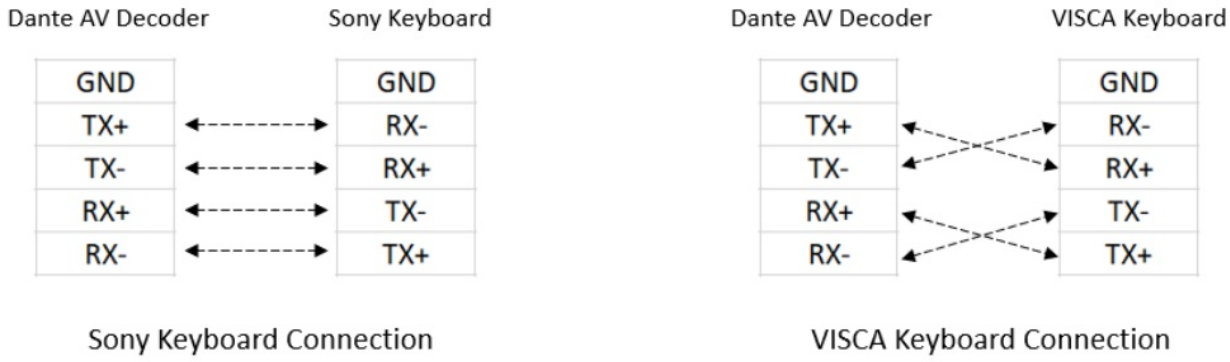
RS422 (VISCA) Connection

You can use the RS422 port to connect optional controllers, such as a joystick keyboard and a PC control station, to operate and control the connected camera.
To perform pan/tilt and zoom operations use the joystick of the keyboard. Use the keyboard buttons to perform preset operations.
An application software that supports this unit is needed if using a PC station.

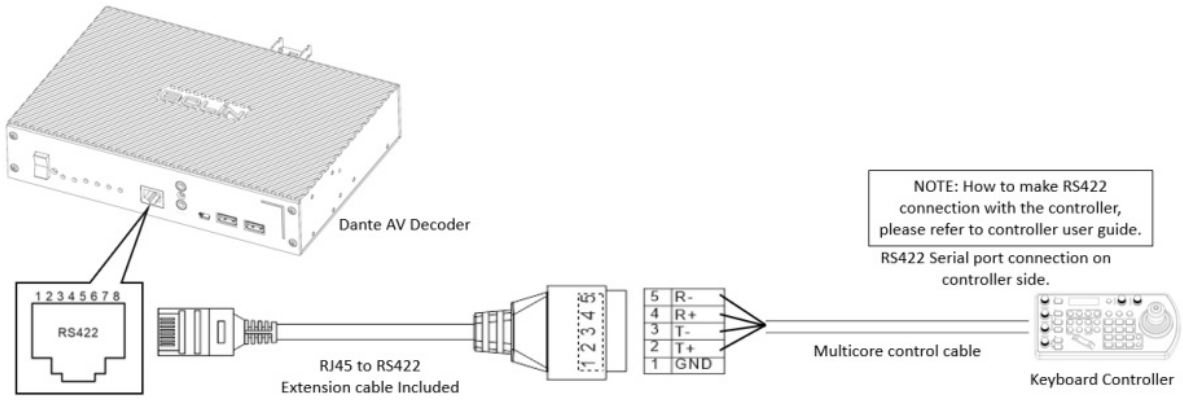
1. Set RS422 control method on camera Dip Switch
2. Set the same baud rate on the camera's Dip Switch, the keyboard controller, and the Dante AV decoder.
3. Reboot the camera once after the Dip Switch has been set up properly.
4. Use the RJ45 to RS422 control cable to connect the decoder with the keyboard controller. The controller must

be VISCA compatible.

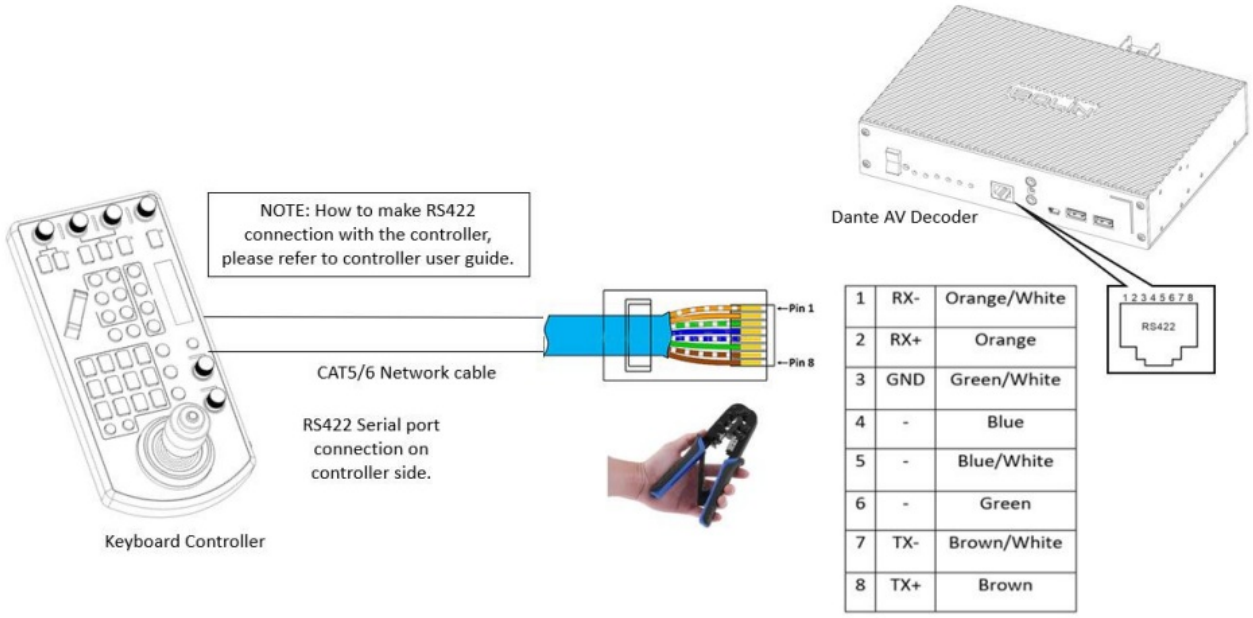
5. The connection of Sony keyboard is different than other VISCA (Non-Sony) keyboards.



6. Use the included RJ45 to RS422 Phoenix connecter adaptor to make RS422 connection.

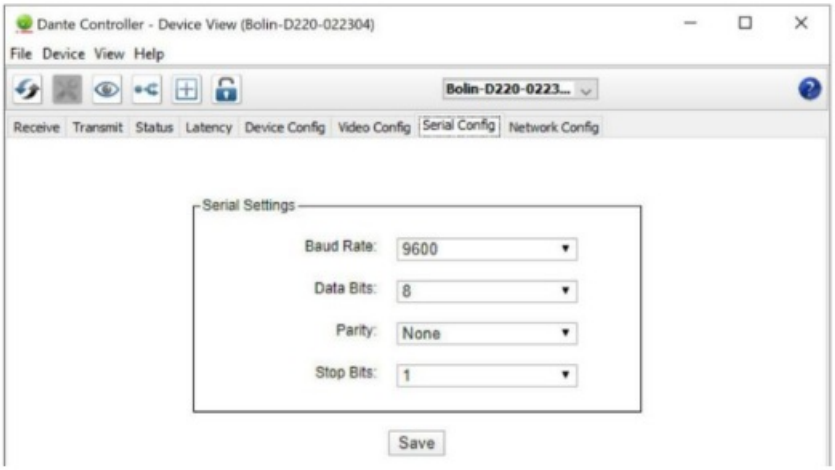


7. Or you can use CAT5/6 T-568B Standard Ethernet cable to direct connect between the decoder and the keyboard controller by making RS422 connection with the pin definition below.



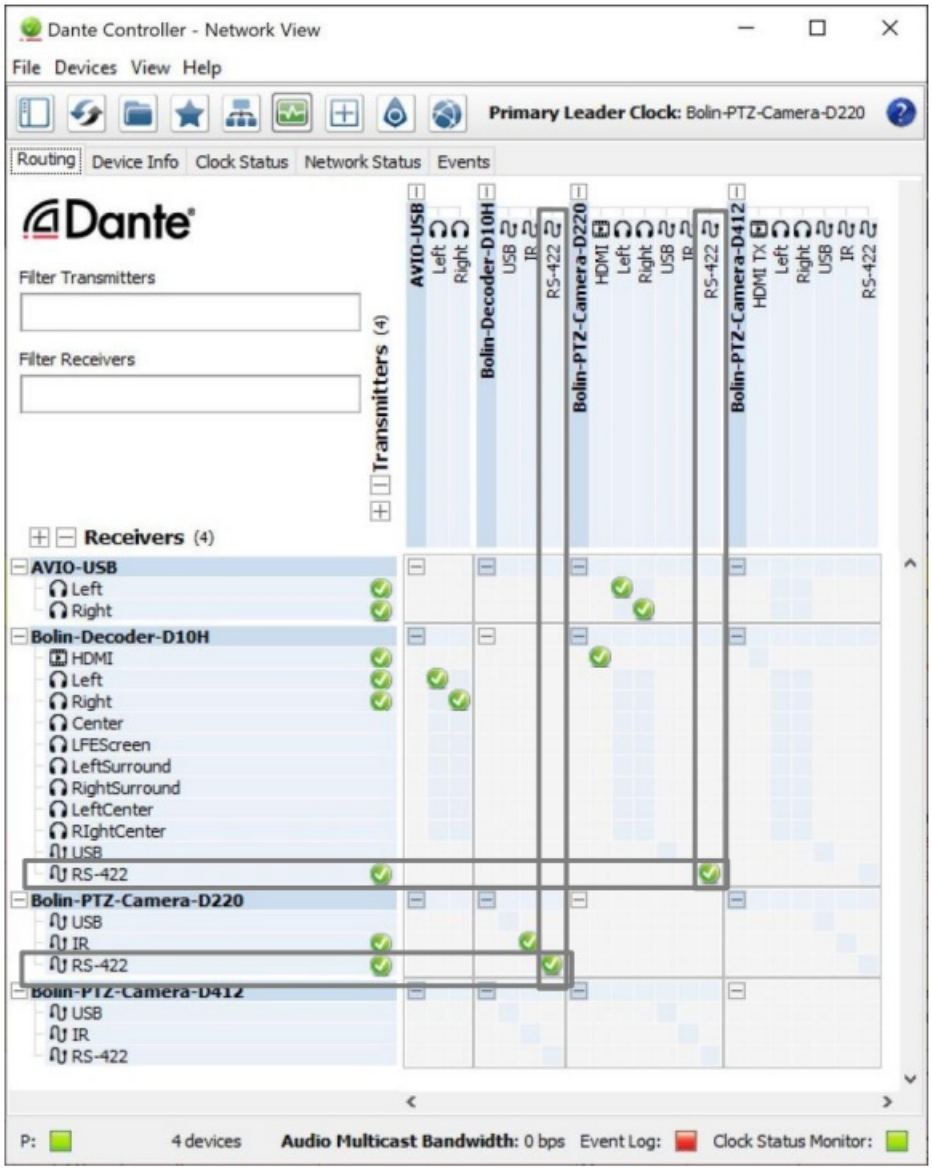
Use serial control over Dante AV network, you need to setup Serial Config and run routing check within Dante Controller.

- Set up Serial Config Tab within Dante Controller

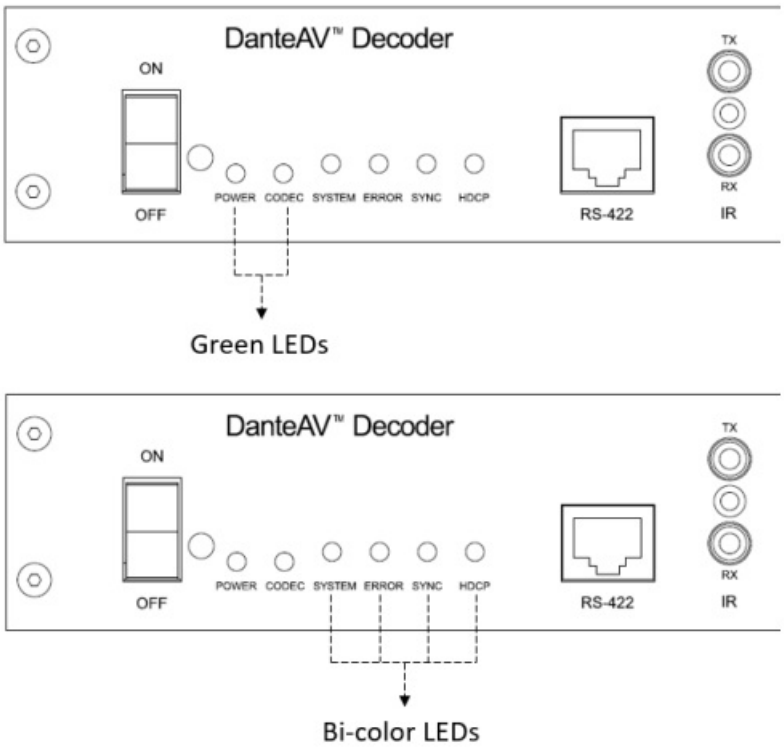


Dante Controller serial RS422 routing check

- The ‘RS-422’ ancillary channel on the Bolin-PTZ-Camera-D220 receiver is subscribed to the equivalent channels on the Bolin-Decoder-D10H transmitter.
    - These subscriptions would enable serial control RS-422 on the transmitter (decoder) via the Serial control ports RS-422 on the receiver (camera).
- The ‘RS-422’ ancillary channel on the Bolin-Decoder-D10H receiver is subscribed to the equivalent channels on the Bolin-PTZ-Camera-D220 transmitter.
    - These subscriptions would enable serial control RS-422 on the transmitter (camera) via the Serial control ports RS-422 on the receiver (decoder).
- It is not needed to use IR subscription when you use Bolin Dante AV camera and Bolin Dante AV decoder.


Dante Controller - Network View
File Devices View Help
Primary Leader Clock: Bolin-PTZ-Camera-D220
Routing
Device Info
Clock Status
Network Status
Events
Filter Transmitters
Filter Receivers
Transmitters (4)
Receivers (4)
AVIO-USB
Left
Right
Bolin-Decoder-D10H
HDMI
Left
Right
Center
LFEScreen
LeftSurround
RightSurround
LeftCenter
RIghtCenter
USB
RS-422
Bolin-PTZ-Camera-D220
USB
IR
RS-422
Bolin-PTZ-Camera-D412
USB
IR
RS-422
HDMI TX
P:
4 devices
Audio Multicast Bandwidth: 0 bps
Event Log:
Clock Status Monitor:

LED Indicators



The Dante AV decoder features 2 green LEDs and 4 bi-color LEDs.

Green LEDs

- **POWER LED**: Indicates power is supplied to the Dante AV decoder
- **CODEC LED:** Indicates the decoder codec is active

Bi-color LEDs

1. **SYSTEM LED**: Tri-color LED indicating the status of the Dante system
    1. **Solid green –** all ok, sync achieved
    2. **Amber –** booting up, awaiting sync
    3. **Red –** system failed to boot correctly
    4. **Off –** no power
2. **ERROR LED**: Tri-color LED indicating the status of the Dante software
    1. **Solid green –** software running
    2. **Blinking green –** identifying function activated
    3. **Solid or blinking red –** software fault or exception
    4. **Off –** no power
3. **SYNC LED**: Tri-color LED indicating the clock synchronization status
    1. **Solid green** – Dante network clock follower sync with leader achieved
    2. **Blinking green –** Dante network clock leader
    3. **Amber –** syncing in progress
    4. **Red –** sync error
    5. **Off –** no power

4. **HDCP LED**: Tri-color LED indicating the status of HDCP on the HDMI input or output
    1. Solid green – non-HDCP unprotected video sink or source detected
    2. Blinking green – HDCP protected content detected
    3. Solid red – invalid non-HDCP video sink or source
    4. Blinking red – HDCP negotiation failed
    5. Blinking Amber – HDCP negotiation in progress
    6. Off – no power

Connectors and Interfaces

USB Interface

USB control over IP allows you to use a USB mouse and/or keyboard to control a remote computer via the Dante network, this function needs to work together with Dante AV encoder.

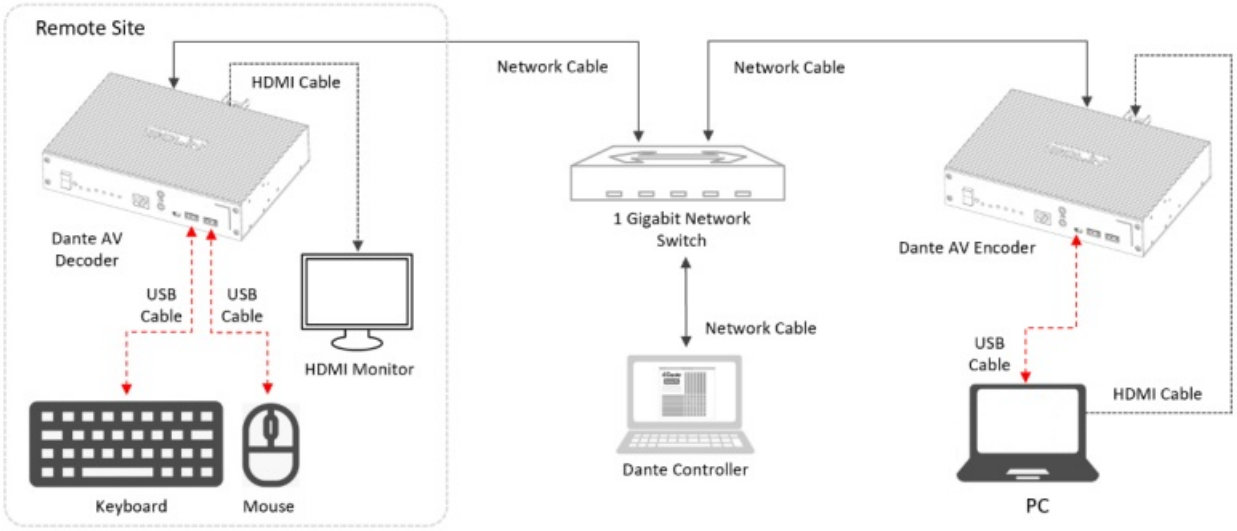
How to setup

- On the Dante AV decoder, connect a keyboard to USB 1 and a mouse to USB 2.
- Connect a USB cable (male type A USB to male mini-USB) from a USB port on the PC host to the USB OTG port on the Dante AV encoder.
- Open the Windows Device Manager and verify that you see the keyboard and mouse.
- Using Dante Controller, make the following subscriptions (two subscriptions are required, as the USB channel is bidirectional):
    - Subscribe the USB channel on the encoder to USB channel on the decoder
    - Subscribe the USB channel on the decoder to USB channel on the encoder

After the above setup, the keyboard and/or mouse connected to the decoder can control the PC connected to the encoder.

NOTE: The USB interface on the decoder can only be used for keyboard and mouse connections. USB flash drives / hard drives are not supported.

The diagram below illustrates the example setup described above.



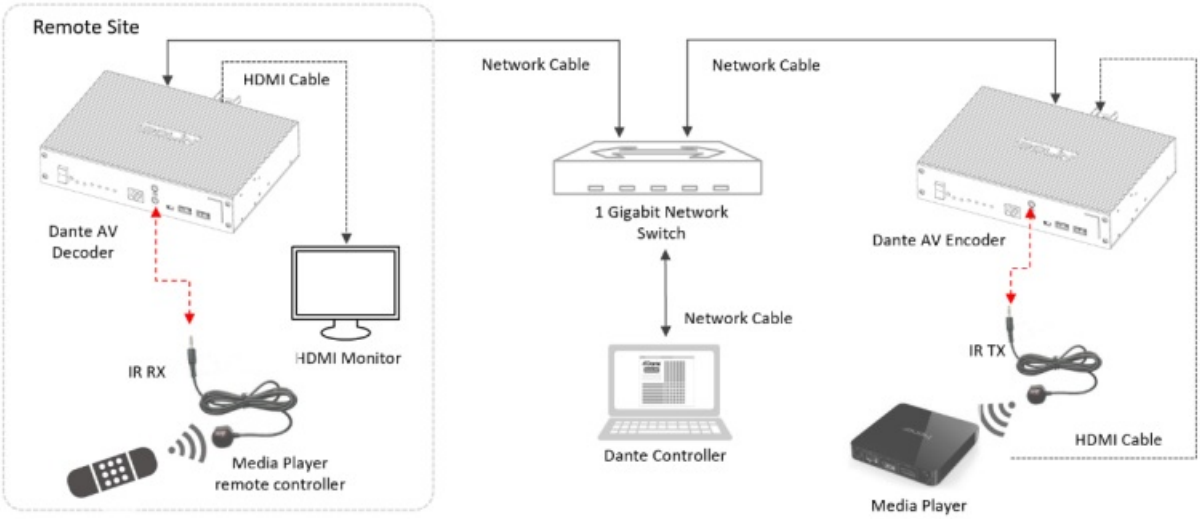
Infrared Interface

Infrared control over IP allows an IR controller to remotely control a device via the Dante network. The decoder equipped with 3.5mm jacks for infrared control over IP, right side is TX and left side is RX.
This function needs to work together with the Dante AV encoder.

How to setup

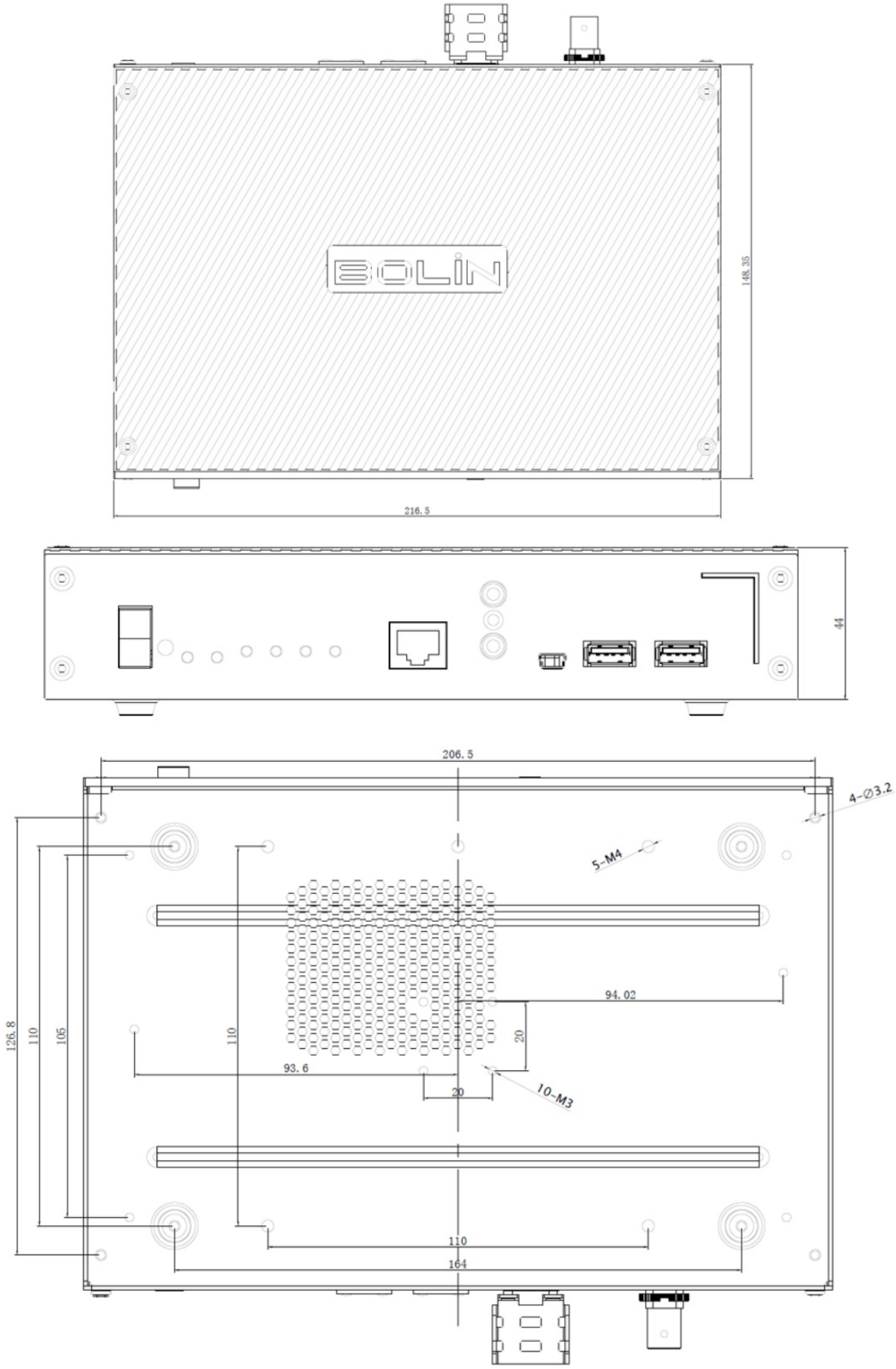
- Connect the IR transmitter to the IR TX port located on the encoder's front panel
- Connect the IR receiver to the IR RX port located on the decoder front panel
- Using the Dante Controller, subscribe IR channel on the encoder to IR channel on the decoder. (In this instance, the IR signal is being passed from the decoder across the network to the encoder.) //Should verify the TX and RX phrasing

The diagram below illustrates the example setup described above.



Dimension

Unit: mm


148.35
216.5
44
206.5
4-Ø3.2
5-M4
94.02
126.8
110
105
110
20
93.6
20
10-M3
110
164

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Documents / Resources

	BOLiN TECHNOLOGY D Series Dante AV Decoder [pdf] User Manual D10H-09232021, D Series Dante AV Decoder, D Series, Dante AV Decoder, AV Decoder, Decoder

References

- Patent Lists - Access Advance
- Home - BolinTechnology