

# **Network Video Decoder**

## **Quick Start Guide**



# Foreword

## General






This Guide introduces the installations, functions and operations of network video decoder (hereinafter referred to be "the Device").

## Models

1-channel 4K high definition (H.265) series, 4-channel 4K high definition (H.265, with 2 input ports) series, 4-channel 8K high definition (H.265) and 9/12/15/18/21-channel 4K high definition (H.265, with 4 input ports) series

## Safety Instructions

The following signal words might appear in the manual.

| Signal Words   | Meaning   |
|--|---|
|  <b>DANGER</b>   | Indicates a high potential hazard which, if not avoided, will result in death or serious injury.  |
|  <b>WARNING</b> | Indicates a medium or low potential hazard which, if not avoided, could result in slight or moderate injury.                              |
|  <b>CAUTION</b> | Indicates a potential risk which, if not avoided, could result in property damage, data loss, lower performance, or unpredictable result. |
|  <b>TIPS</b>    | Provides methods to help you solve a problem or save you time.  |
|  <b>NOTE</b>    | Provides additional information as the emphasis and supplement to the text.   |

## Revision History

| Version | Revision Content   | Release Time   |
|---------|--|----------------|
| V1.1.0  | <ul style="list-style-type: none"><li>• Add new series.</li><li>• Delete function about audio.</li><li>• Update Important Safeguards and Warnings.</li></ul> | September 2021 |
| V1.0.0  | First release.   | Jun 2019       |

## Privacy Protection Notice

As the device user or data controller, you might collect the personal data of others such as their face, fingerprints, and license plate number. You need to be in compliance with your local privacy

protection laws and regulations to protect the legitimate rights and interests of other people by implementing measures which include but are not limited: Providing clear and visible identification to inform people of the existence of the surveillance area and provide required contact information.

## About the Manual

- The manual is for reference only. Slight differences might be found between the manual and the product.
- We are not liable for losses incurred due to operating the product in ways that are not in compliance with the manual.
- The manual will be updated according to the latest laws and regulations of related jurisdictions. For detailed information, see the paper user's manual, use our CD-ROM, scan the QR code or visit our official website. The manual is for reference only. Slight differences might be found between the electronic version and the paper version.
- All designs and software are subject to change without prior written notice. Product updates might result in some differences appearing between the actual product and the manual. Please contact customer service for the latest program and supplementary documentation.
- There might be errors in the print or deviations in the description of the functions, operations and technical data. If there is any doubt or dispute, we reserve the right of final explanation.
- Upgrade the reader software or try other mainstream reader software if the manual (in PDF format) cannot be opened.
- All trademarks, registered trademarks and company names in the manual are properties of their respective owners.
- Please visit our website, contact the supplier or customer service if any problems occur while using the device.
- If there is any uncertainty or controversy, we reserve the right of final explanation.

# Important Safeguards and Warnings

This section introduces content covering the proper handling of the Device, hazard prevention, and prevention of property damage. Read carefully before using the Device, comply with the guidelines when using it, and keep the manual safe for future reference.

## Operation Requirements

### **WARNING**

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



- Make sure that the power supply of the device works properly before use.
- Do not pull out the power cable of the device while it is powered on.
- Only use the device within the rated power range.
- Transport, use and store the device under allowed humidity and temperature conditions.
- Prevent liquids from splashing or dripping on the device. Make sure that there are no objects filled with liquid on top of the device to avoid liquids flowing into it.
- Do not disassemble the device.
- Operating temperature: –10 °C to +55 °C (14 °F–131 °F).

## Installation Requirements

### **WARNING**

- Connect the device to the adapter before power on.
- Strictly abide by local electrical safety standards, and make sure that the voltage in the area is steady and conforms to the power requirements of the device.
- Do not connect the device to more than one power supply. Otherwise, the device might become damaged.
- To prevent explosion, replace the battery with the correct model and dispose of the unwanted one as instructed.
- Do not expose the battery to environments where it can easily overheat such as with direct sunlight and fire.



- Observe all safety procedures and wear required protective equipment provided for your use while working at heights.
- Do not expose the device to direct sunlight or heat sources.
- Do not install the device in humid, dusty or smoky places.
- To ensure heat dissipation, the gap between the device and the surrounding area should not be less than 10 cm on the sides and 5 cm on top of the device.
- Use the power adapter or case power supply provided by the device manufacturer.

- The power supply must conform to the requirements of ES1 in IEC 62368-1 standard and be no higher than PS2. Note that the power supply requirements are subject to the device label.
- Connect class I electrical appliances to a power socket with protective earthing.
- When installing the device, make sure the power plug and appliance coupler are easy to reach to cut off the power.

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# 1 Inspection and Cable Connection



- For installation requirement of the decoder, refer to engineering construction specifications and national standards.
- HDMI cable quality and length affect the video quality. The video might blur, have noise or black edge. Sometimes the video quality might vary when the same video is output with different cables.

## 1.1 Checking Unpacked Decoder

When you receive the decoder, please check whether there is any visible damage or not. The protective materials used for the package of the device can resist most accidental collisions during transportation.

The label at the bottom of the box is very important, because there is serial number and other information. Usually we need you to present the serial number when we provide after-sales service. Do not tear or discard it.

## 1.2 Device Installation Diagram and Operation

### 1.2.1 Front Panel







#### 1.2.1.1 1-channel 4K High Definition (H.265) Series, 4-channel 4K High Definition (H.265, with 2 Input Ports) Series and 4-channel 8K High Definition (H.265) Series

Figure 1-1 Front panel



Table 1-1 Description for front panel

| Name            | Icon | Function  |
|-----------------|------|---|
| Power button    |      | <ul style="list-style-type: none"><li>• Press it for 3 times within 1 second to restore default password.</li><li>• Press it for 5 times within 1 second to restore factory settings.</li></ul> |
| Power indicator |      | The indicator glows after system boots up.  |




| Name              | Icon  | Function  |
|-------------------|---|---|
| Network indicator |  | The network indicator glows blue when abnormal network event occurs (offline, IP conflict and etc.).  |
| USB port          |  | Connect external devices such as mouse, keyboard and flash drive.   |
| Alarm indicator   |  | The alarm indicator is on when there is an alarm.   |
| HDD indicator     |  | Reserved function.  |
| IR receiver       |  | Reserved function.  |
| Output indicator  |  | <p>Indicate working status of output port.</p> <ul style="list-style-type: none"> <li>For 1-channel 4K high definition (H.265) series, only the first indicator is effective.</li> <li>For 4-channel 4K high definition (H.265, with 2 input ports), indicators 1–4 are effective.</li> </ul> |

### 1.2.1.2 6/9-channel 4K High Definition (H.265, with 4 Input Ports) Series






Figure 1-2 Front panel



Table 1-2 Description for front panel

| Name              | Icon  | Function   |
|-------------------|---|--|
| Power button      |  | <ul style="list-style-type: none"> <li>Press it for 3 times within 1 second to restore default password.</li> <li>Press it for 5 times within 1 second to restore factory settings.</li> </ul>   |
| Power indicator   |  | The indicator is on after system boots up.   |
| Network indicator |  | <ul style="list-style-type: none"> <li>The network indicator glows blue when abnormal network event occurs (offline, IP conflict and etc.).</li> <li>In case of dual Ethernet cards, in multi-address mode, insert one network cable, and the blue indicator is on.</li> </ul> |



| Name             | Icon  | Function  |
|------------------|---|---|
| USB port         |  | Connect external devices such as mouse, keyboard and flash drive.   |
| Alarm indicator  |  | The alarm indicator is on when there is an alarm.   |
| HDD indicator    |  | Reserved function.  |
| IR receiver      |  | Reserved function.  |
| Output indicator |  | Indicate working status of output port.<br>For 9-channel 4K high definition (H.265) and 9-channel 4K high definition (H.265, with 4 input ports), indicators 1–9 are effective. |

### 1.2.1.3 12/15/18/21-channel 4K High Definition (H.265, with 4 Input Ports)

#### Series

Figure 1-3 Front panel

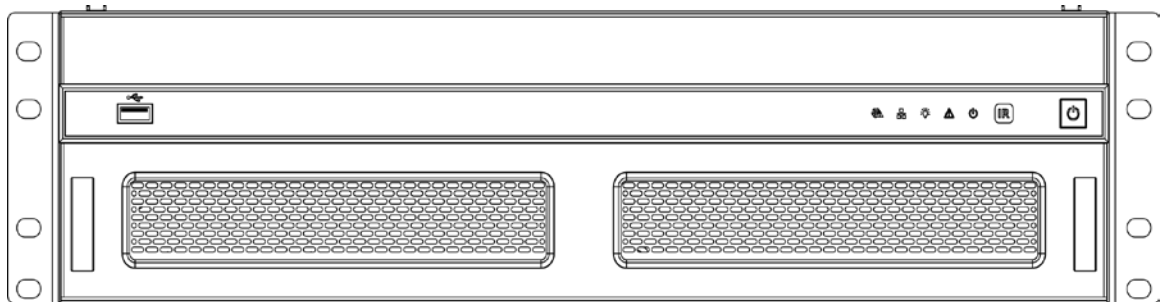










Table 1-3 Description for front panel

| Name                | Icon  | Function   |
|---------------------|---|--|
| Power button        |  | Press it for three seconds to boot up or shut down the device. |
| IR receiver         |  | Reserved function.   |
| Power indicator     |  | The indicator is on after system boots up.                     |
| Alarm indicator     |  | The alarm indicator is on when there is an alarm.              |
| Operation indicator |  | Operation indicator is on when the device is operating.        |

| Name              | Icon  | Function                     |
|-------------------|---|------------------------------|
| Network indicator |  | Reserved function.           |
| Fan indicator     |  | Reserved function.           |
| USB port          |  | Connect external USB device. |

## 1.2.2 Rear Panel

### 1.2.2.1 1-channel 4K High Definition (H.265) Series

Figure 1-4 Rear panel

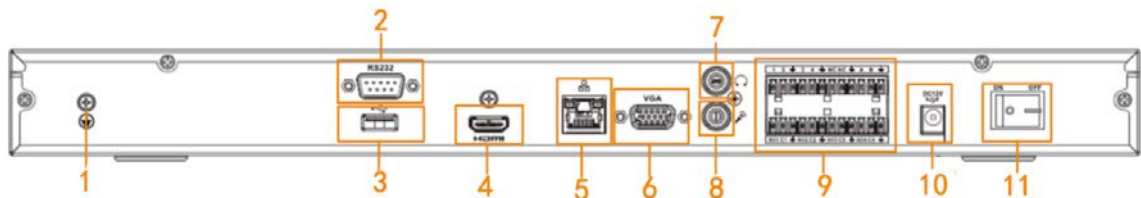


Table 1-4 Description for rear panel

| No. | Name                        | No. | Name  | No. | Name  |
|-----|-----------------------------|-----|---|-----|---|
| 1   | Ground screw hole           | 2   | RS-232 port                                   | 3   | USB port  |
| 4   | HDMI port                   | 5   | Network port<br>(10/100/1000 M Ethernet port) | 6   | VGA port  |
| 7   | Earphone port<br>(Reserved) | 8   | Microphone port<br>(Reserved)                 | 9   | 4-channel alarm input,<br>4-channel alarm output,<br>RS-485 port. |
| 10  | Power port                  | 11  | Power button                                  | –   | –   |

### 1.2.2.2 4-channel 4K High Definition (H.265, with 2 Input Ports) Series

Figure 1-5 Rear panel

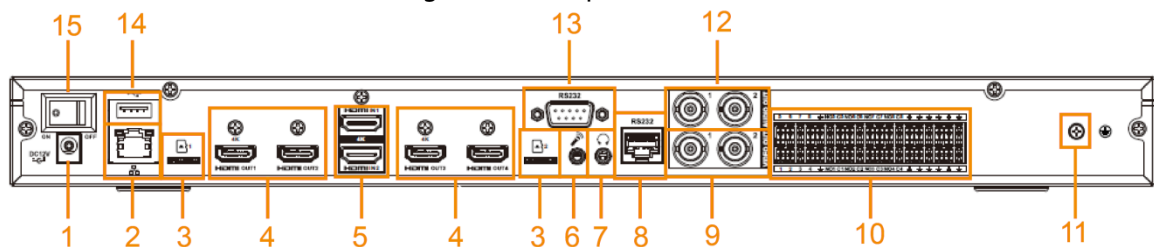


Table 1-5 Description for rear panel

| No. | Name  | No. | Name  | No. | Name                          |
|-----|---|-----|---|-----|-------------------------------|
| 1   | Power port                                      | 2   | Network port<br>(10/100/1000 M Ethernet port) | 3   | TF card slot                  |
| 4   | HDMI output port                                | 5   | HDMI input port                               | 6   | Microphone port<br>(Reserved) |
| 7   | Earphone port<br>(Reserved)                     | 8   | RS-232 port of screen control                 | 9   | Video output port<br>(BNC)    |
| 10  | Alarm input, alarm output, standard RS-485 port | 11  | Ground screw hole                             | 12  | Audio output port<br>(BNC)    |
| 13  | RS-232 port                                     | 14  | USB port                                      | 15  | Power button                  |

### 1.2.2.3 4-channel 8K High Definition (H.265) Series

Figure 1-6 Rear panel

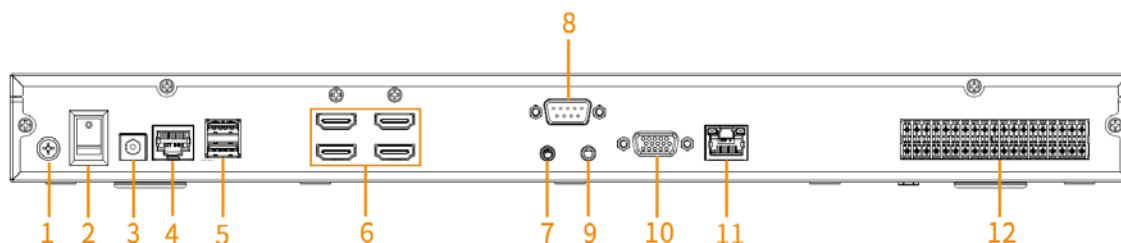


Table 1-6 Rear panel

| No. | Name                          | No. | Name  | No. | Name  |
|-----|-------------------------------|-----|---|-----|---|
| 1   | Ground screw hole             | 2   | Power button                                  | 3   | Power port                                      |
| 4   | RS-232 port of screen control | 5   | USB port                                      | 6   | HDMI output port                                |
| 7   | Earphone port<br>(Reserved)   | 8   | RS-232 port                                   | 9   | Microphone port<br>(Reserved)                   |
| 10  | VGA port (Reserved)           | 11  | Network port<br>(10/100/1000 M Ethernet port) | 12  | Alarm input, alarm output, standard RS-485 port |

### 1.2.2.4 6-channel 4K High Definition Series

Figure 1-7 Rear panel

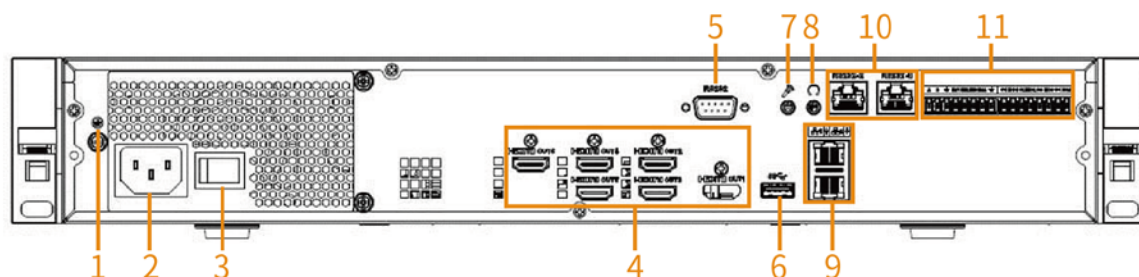


Table 1-7 Description for rear panel

| No. | Name                          | No. | Name   | No. | Name  |
|-----|-------------------------------|-----|--|-----|---|
| 1   | Ground screw hole             | 2   | Power port                                       | 3   | Power button                                  |
| 4   | HDMI output port              | 5   | RS-232 port                                      | 6   | USB 3.0 port                                  |
| 7   | Microphone port<br>(Reserved) | 8   | Earphone port<br>(Reserved)                      | 9   | Network port<br>(10/100/1000 M Ethernet port) |
| 10  | RS-232 port of screen control | 11  | Alarm input, alarm output, standard RS-485 port. | -   | -   |

### 1.2.2.5 6-channel 4K High Definition H.265 Series with 4 Input Ports

Figure 1-8 Rear panel

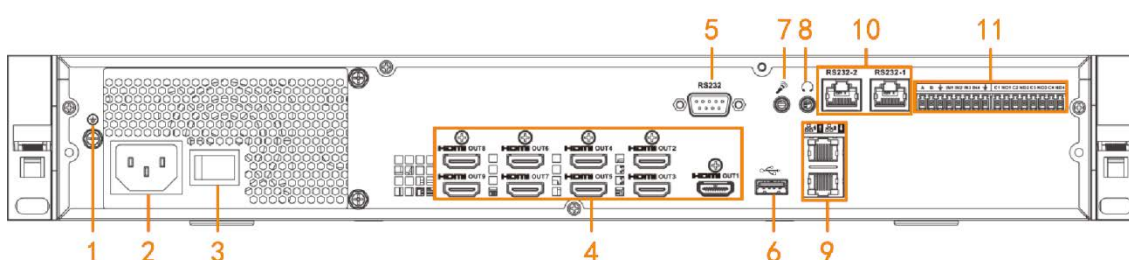


Table 1-8 Description for rear panel

| No. | Name                          | No. | Name   | No. | Name  |
|-----|-------------------------------|-----|--|-----|---|
| 1   | Ground screw hole             | 2   | Power port                                       | 3   | Power button                                  |
| 4   | HDMI output port              | 5   | RS-232 port                                      | 6   | USB 3.0 port                                  |
| 7   | Microphone port<br>(Reserved) | 8   | Earphone port<br>(Reserved)                      | 9   | Network port<br>(10/100/1000 M Ethernet port) |
| 10  | RS-232 port of screen control | 11  | Alarm input, alarm output, standard RS-485 port. | -   | -   |

### 1.2.2.6 9-channel 4K High Definition (H.265, with 4 Input Ports) Series

Figure 1-9 Rear panel

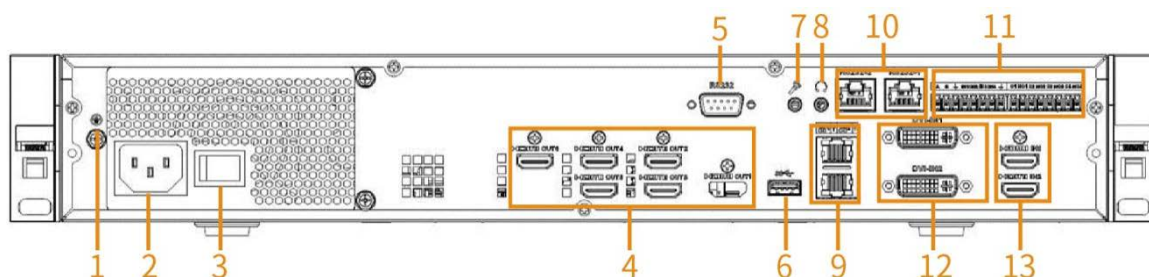


Table 1-9 Description for rear panel

| No. | Name                             | No. | Name   | No. | Name   |
|-----|----------------------------------|-----|--|-----|--|
| 1   | Ground screw hole                | 2   | Power port   | 3   | Power button                                     |
| 4   | HDMI output port                 | 5   | RS-232 port  | 6   | USB 3.0 port                                     |
| 7   | Microphone port<br>(Reserved)    | 8   | Earphone port (Reserved)                               | 9   | Network port<br>(10/100/1000 M<br>Ethernet port) |
| 10  | RS-232 port of screen<br>control | 11  | Alarm input, alarm<br>output, standard RS-485<br>port. | 12  | DVI-I input port                                 |
| 13  | HDMI input port                  | —   | —  | —   | —  |

### 1.2.2.7 12/15/18/21-channel 4K High Definition (H.265, with 4 Input Ports)

#### Series

Figure 1-10 Rear panel of 21-channel 4K high definition (H.265, with 4 input ports) series

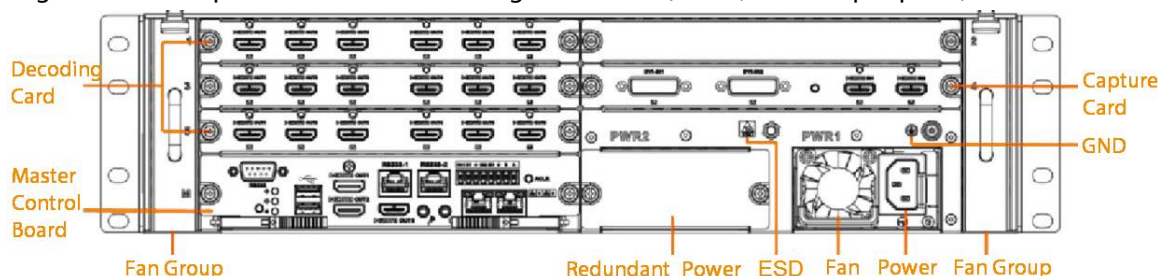


Figure 1-11 Rear panel of 18-channel 4K high definition (H.265, with 4 input ports) series

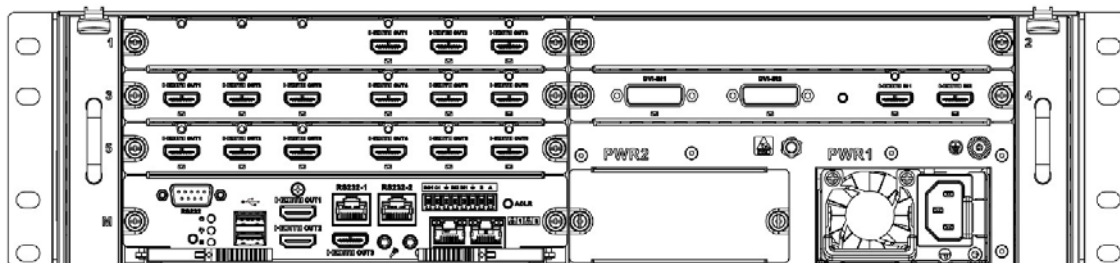


Figure 1-12 Rear panel of 15-channel 4K high definition (H.265, with 4 input ports) series

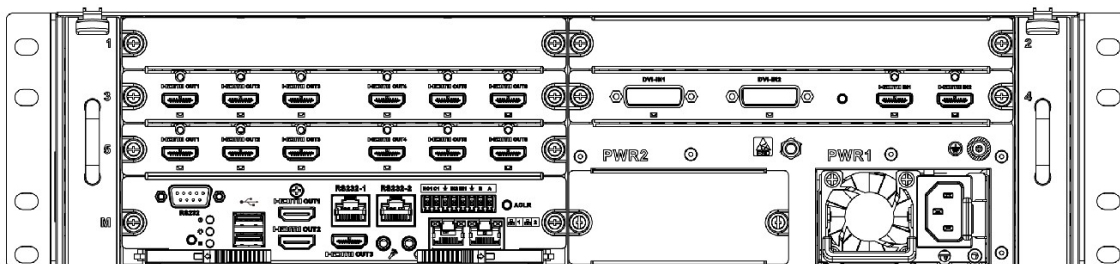
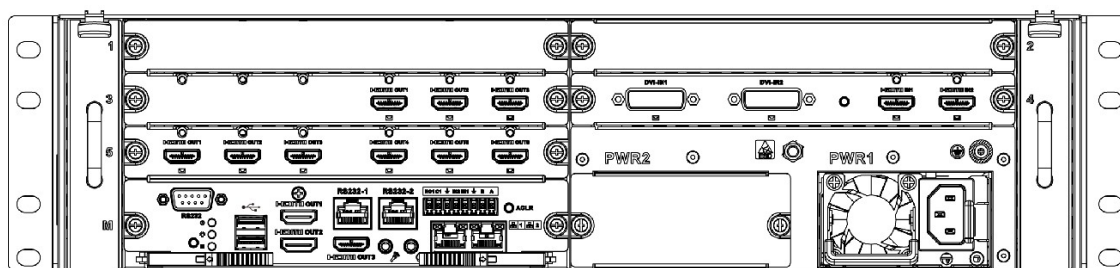


Figure 1-13 Rear panel of 12-channel 4K high definition (H.265, with 4 input ports) series



- For the above four series, they only have different decoding card types. The rest parts are the same.
- For 12/15/18/21-channel 4K high definition series and 12/15/18/21-channel 4K high definition (with 4 input ports) series, the only difference is one series has the capture card and the other does not have capture card. The rest parts are the same.

### 1.2.2.7.2 Master Control Board

Figure 1-14 Master control board

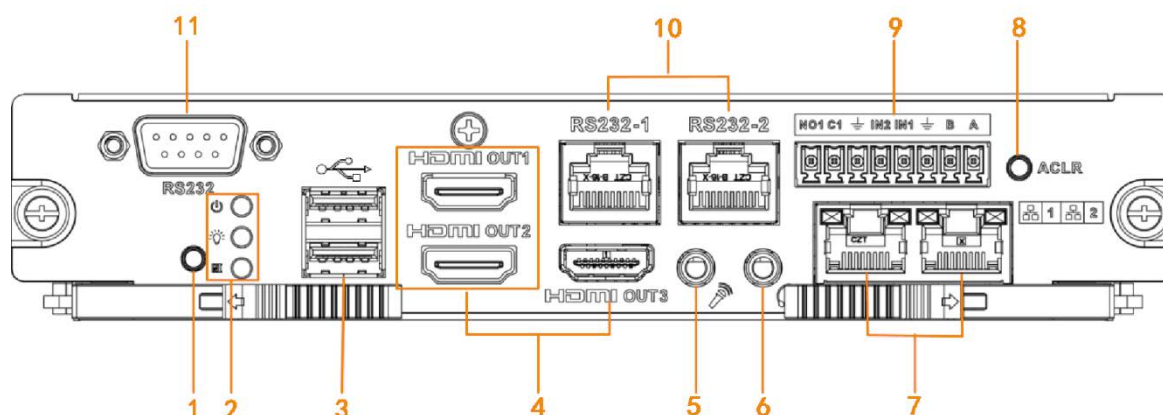


Table 1-10 Description of master control board

| No. | Name                          | No. | Name   | No. | Name   |
|-----|-------------------------------|-----|--|-----|--|
| 1   | Default button                | 2   | <ul style="list-style-type: none"> <li>Power indicator of master control board</li> <li>System status indicator</li> <li>PCI-E status indicator</li> </ul> | 3   | USB port   |
| 4   | HDMI output port              | 5   | Microphone port (Reserved)   | 6   | Earphone port (Reserved)                                   |
| 7   | Network port                  | 8   | Alarm clear button   | 9   | 2-channel alarm input, 1-channel alarm output, RS-485 port |
| 10  | RS-232 port of screen control | 11  | RS-232 serial port   | –   | –  |

1.2.2.7.3 Decoding Card

Figure 1-15 3-channel decoding card

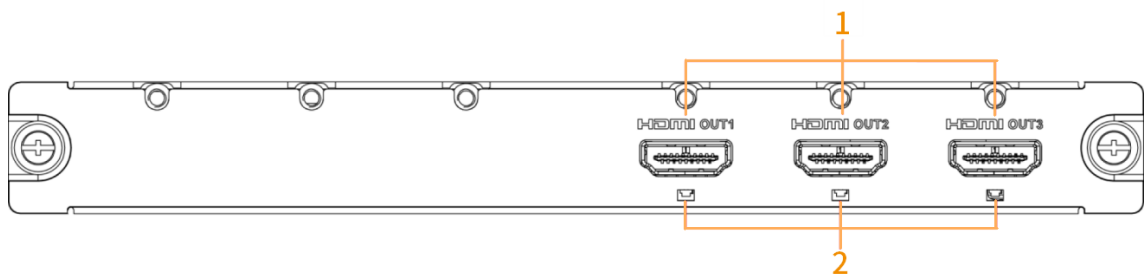


Figure 1-16 6-channel decoding card

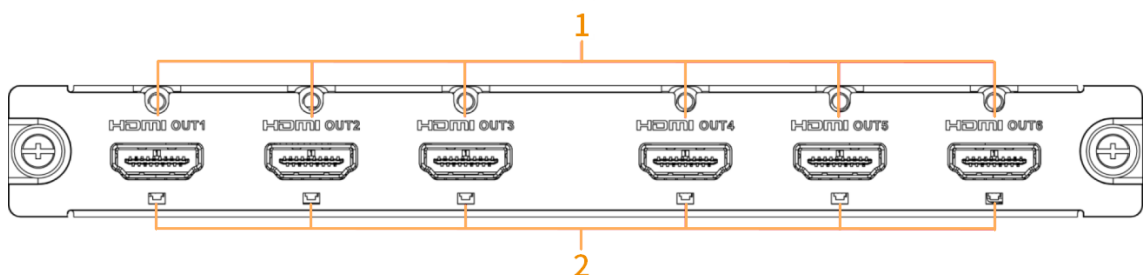


Table 1-11 Description of decoding card

| No. | Name             | No. | Name      |
|-----|------------------|-----|-----------|
| 1   | HDMI output port | 2   | Indicator |

1.2.2.7.4 Capture Card

Figure 1-17 Capture card

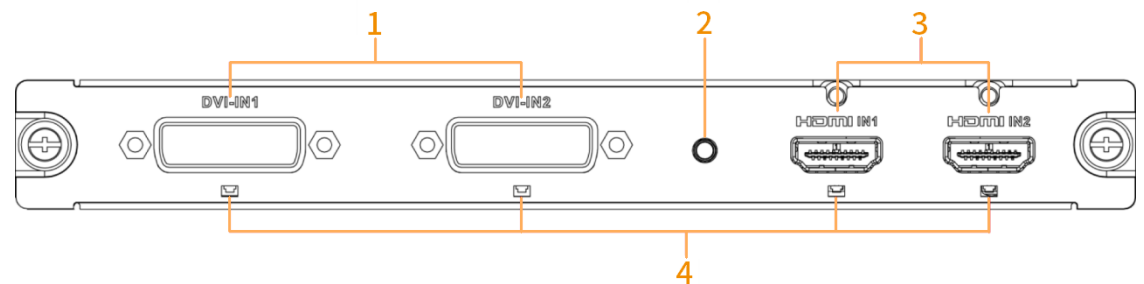


Table 1-12 Description of capture card

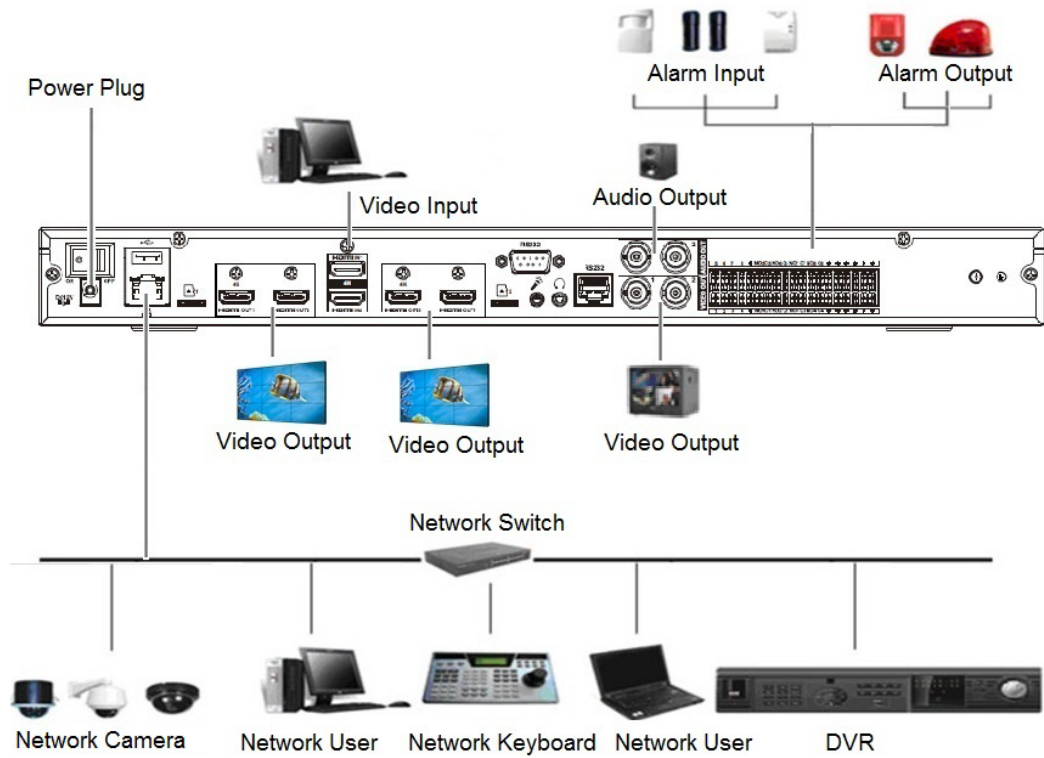
| No. | Name           | No. | Name                        | No. | Name            |
|-----|----------------|-----|-----------------------------|-----|-----------------|
| 1   | DVI input port | 2   | Start button of backup area | 3   | HDMI input port |
| 4   | Indicator      | —   | —                           | —   | —               |

1.2.3 Connection

Use 4-channel 4K high definition (H.265, with 2 input ports) series for example.



Figure 1-18 Connection diagram





## 2 Web Operations

### 2.1 Start

Connect the device to the power, and then press the power button on the rear panel. You can see the power indicator light turns on and device boots up.

### 2.2 Shutdown

You can press power button on the front panel for three seconds to shut down the device.



When decoder is working, if the power is cut off or the device is shut down forcibly, the system can automatically connect to the IPC, NVR and other devices and restore previous working status, once the power connection becomes normal.

### 2.3 Network Connection

Step 1 Connect the Ethernet port of the decoder and the PC NIC port with network cable.

Step 2 Set PC and decoder in the same IP segment.



Default IP address is 192.168.1.108.

Step 3 On the computer, ping `***.***.***.***`(IP address of decoder) to check whether connection is OK or not. Usually the returned TTL value should be less than or equal to 64.

Step 4 Open the browser, enter IP address of decoder in the address bar, and then press Enter.



Web controls can be recognized and downloaded automatically. System can download the latest web controls and remove the old one.

After logging in to the the web interface, you should change the IP address of decoder according to the actual situation.

Step 5 Connect the decoder to network.

### 2.4 System Login

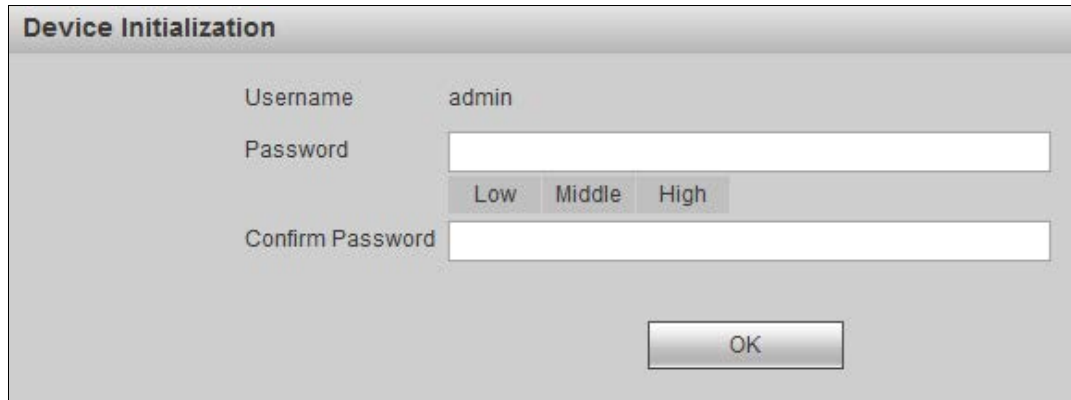
Step 1 Enter IP address of the decoder in the address bar of the browser (use 192.168.1.108 for example). Enter `http://192.168.1.108` in the address bar, and then press Enter.

Step 2 Set admin user's password and click **OK**.



The password must consist of 8–32 non-blank characters and contain at least two types of the following characters: Uppercase, lowercase, numbers, and special characters (excluding ' " ; : & ).

Figure 2-1 Device initialization




The 'Device Initialization' dialog box contains the following fields and controls:

- Username:** A text field with the value 'admin'.
- Password:** A text field with a password strength indicator below it showing 'Low', 'Middle', and 'High' levels.
- Confirm Password:** A text field for re-entering the password.
- OK:** A button at the bottom right to confirm the initialization.

**Step 3** Enter username and password, and then click **Login**.

Figure 2-2 Login

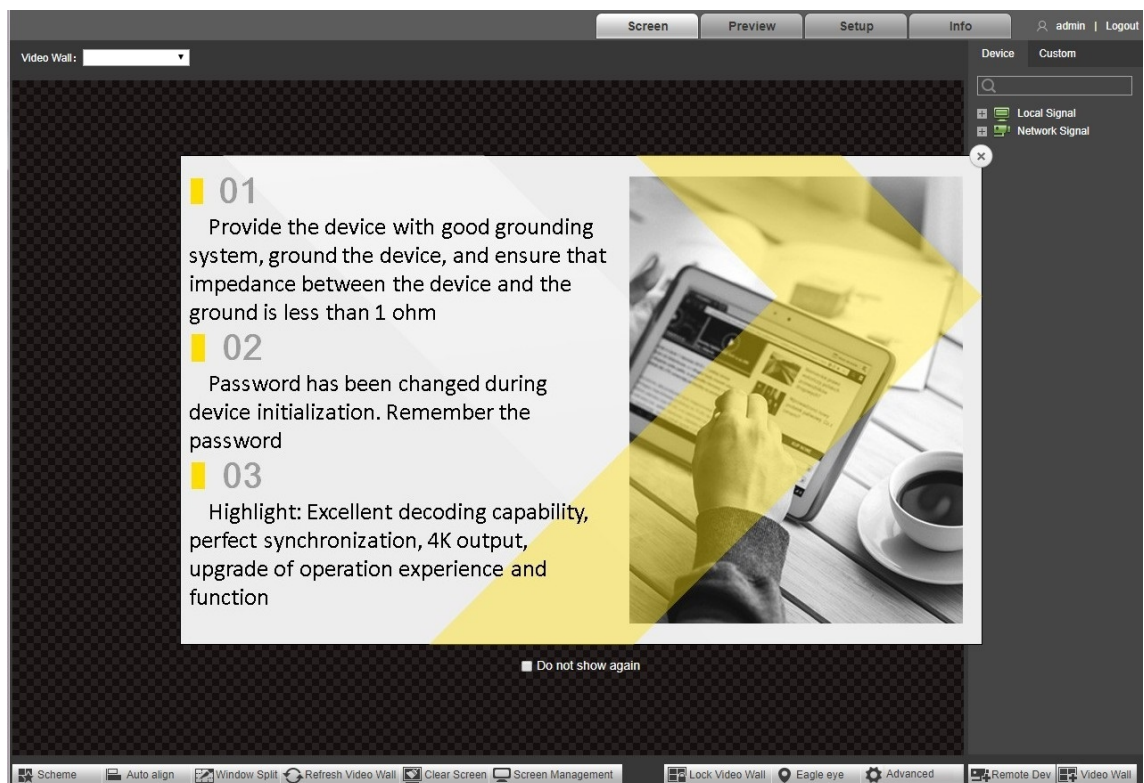


The 'WEB SERVICE' login dialog box contains the following fields and controls:


- Username:** A text input field.
- Password:** A text input field with a yellow highlight.
- Login:** A button to submit the credentials.
- Cancel:** A button to cancel the login attempt.

**Step 4** View the points for attention and highlights on the page.

Figure 2-3 Operation interface





- Please conform to the points for attention.
- Click  to close the attention page.
- Select **Do not show again**, and this attention page will not show when you log in the next time.

**Step 5** Install or load controls as prompted by the system.



Click **Logout** to log out the system.

## 2.5 Screen



1-channel 4K high definition (H.265) series and 4-channel 8K high definition (H.265) series do not support local signals.

Figure 2-4 Screen

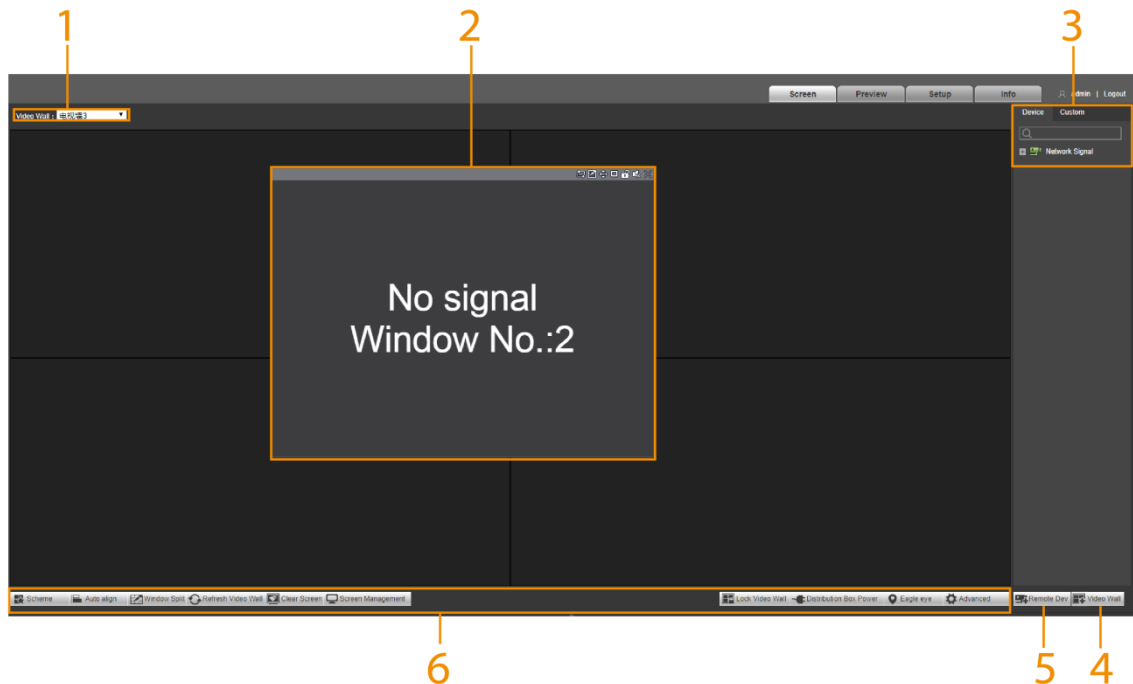


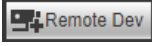



Table 2-1 Screen function description

| No. | Name                      | Description   |
|-----|---------------------------|---|
| 1   | Video wall selection area | After you add a video wall, you can select the video wall in the <b>Video Wall</b> drop-down list.                                      |
| 2   | Window configuration      | You can add window, adjust window, put the window at the bottom and turn off the signal. For details, see "2.5.2 Window Configuration". |

| No. | Name                  | Description  |
|-----|-----------------------|--|
| 3   | Signal management     | <ul style="list-style-type: none"> <li>• <b>Device:</b> You can view local signals and channel information, preview and display the signal on the video wall.<br/>  1-channel 4K high definition (H.265) series and 4-channel 8K high definition (H.265) series do not support local signal.</li> <li>• <b>Custom:</b> You can view signal group information, and configure signal tour on the video wall.</li> </ul> |
| 4   | Video wall            | Click  to enter <b>Video Wall Setup</b> interface. You can add, modify and delete video wall.   |
| 5   | Network signal        | Click  to enter <b>Network Signal</b> interface. You can add, modify and delete remote devices.   |
| 6   | Video wall management | <p>You can carry out video wall management, auto-align, window-split, video wall refreshment, screen clearance and screen management and more.</p>  1-channel 4K high definition (H.265) series does not support screen management.   |

## 2.5.1 Adding Video Wall


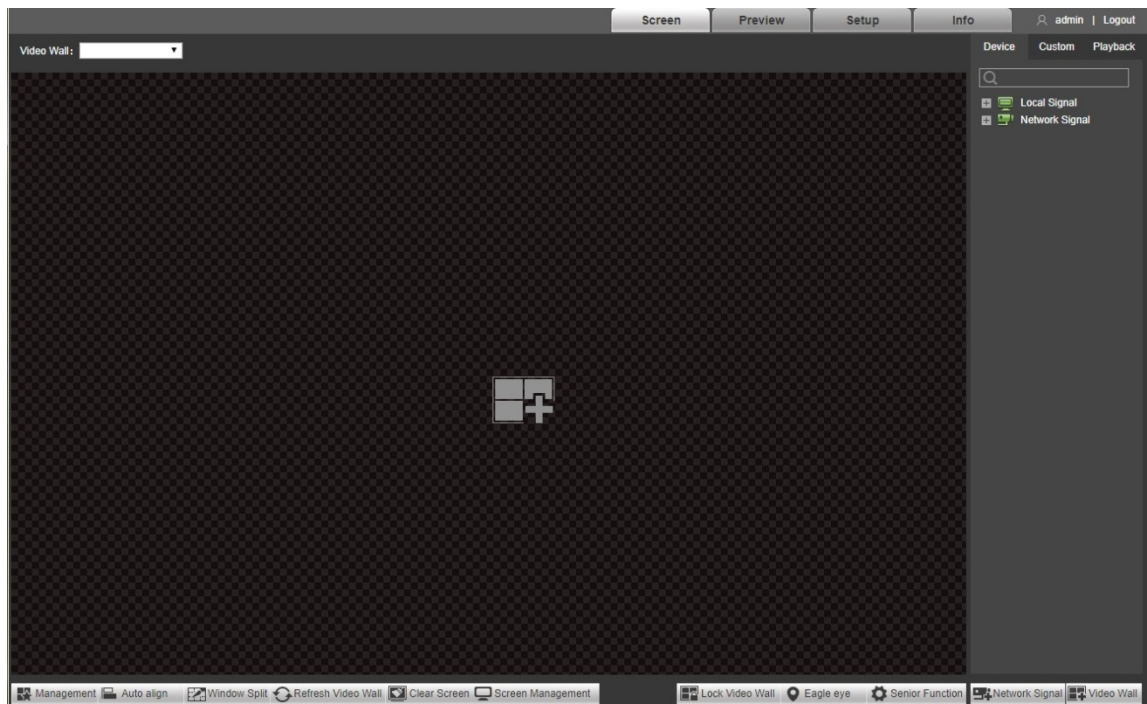
Click  to add video wall when you login for the first time.

Figure 2-5 Adding video wall

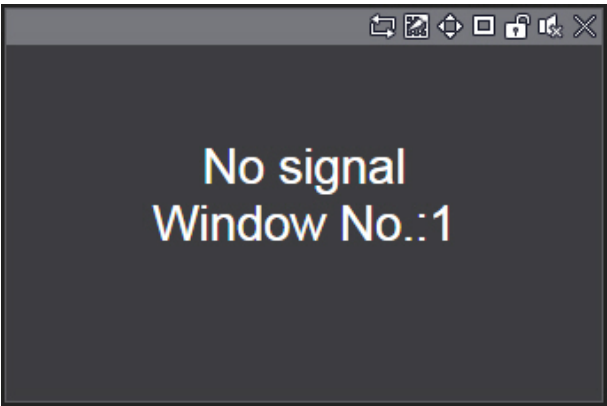


# 2.5.2 Window Configuration

## 2.5.2.1 Adding a Window

Press and hold the left mouse button to drag a window to the video wall.

Figure 2-6 Adding a Window



- Select a window, press and move the left mouse button. The selected window will be moved to the required position.
- Select a window, drag any direction control point to resize the window.
- Select a window, right-click and select **Bottom**. The selected window will be at the bottom of the other windows.
- Select a window that is displaying signal, right-click and select **Signal Off**. The signal can be turned off.

## 2.5.2.2 Adjusting Window

The operation icons are displayed at the top right corner of the window.

Figure 2-7 Window adjustment icons

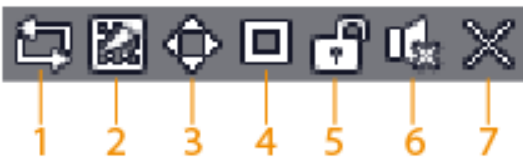








Table 2-2 Window adjustment icon description

| No. | Name                   | Description   |
|-----|------------------------|---|
| 1   | Start/stop signal tour | Click the icon to start signal tour, and the icon becomes <br>Click  to stop the signal tour. |

| No. | Name         | Description  |
|-----|--------------|--|
| 2   | Split        | Split the window, including 2-split (horizontal/vertical), 4-split, 9-split and 16-split.<br><br>When the window is maximized or pasted to the screen, the icon becomes  . Click the icon to drag the window anywhere. |
| 3   | Paste screen | Click the icon to paste the window to the screen and the size of the window will be the same as the screen.  |
| 4   | Paste window | Click the icon and the window will be enlarged until it is connected to another window.  |
| 5   | Lock         | Click the icon to lock the window. Then, window position and size cannot be adjusted.<br><br>Click  to unlock the window.  |
| 6   | Audio        | Reserved function.   |
| 7   | Close        | Click the icon to close this window.   |

## 2.5.3 Signal Configuration


You can select signal directly, or enter signal name in search bar to search the signal.

### 2.5.3.1 Device Tree



1-channel 4K high definition (H.265) series and 4-channel 8K high definition (H.265) series do not support local signal.

Device tree displays all local signals and the added network signals.

- Local signal: Display local signal sources.
- Network signal: Display the added signal sources. Click  to add.

### 2.5.3.2 Custom

You can customize signal group. **Custom** tab displays the added group and signal source. You can drag the signal group to the window for loop play of signals in the group.

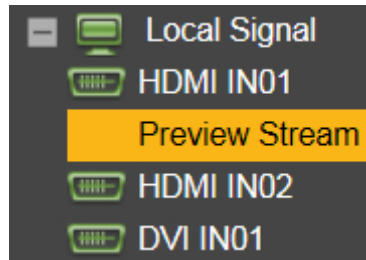
### 2.5.3.3 Signal on Wall

Output a signal to a window on the video wall, and you can view video of the signal on the screen.

Step 1 Select a window on the video wall, or press and hold left mouse button to select an area on the video wall.

Step 2 Select signal source from **Device** or **Custom** tab. Take **Device** for example.

Figure 2-8 Select signal source



**Step 3** Display signal on the video wall.

- Press and hold left mouse button, drag the signal to designated window, and the signal is output to the window.
- Select a window, double-click channel preview or main/sub stream, and the signal is output to the window.



For specific operations of web interface, please refer to *Network Video Decoder\_User's Manual*.

# Appendix 1 Cybersecurity Recommendations

## **Mandatory actions to be taken for basic device network security:**

### **1. Use Strong Passwords**

Please refer to the following suggestions to set passwords:

- The length should not be less than 8 characters.
- Include at least two types of characters; character types include upper and lower case letters, numbers and symbols.
- Do not contain the account name or the account name in reverse order.
- Do not use continuous characters, such as 123, abc, etc.
- Do not use overlapped characters, such as 111, aaa, etc.

### **2. Update Firmware and Client Software in Time**

- According to the standard procedure in Tech-industry, we recommend to keep your device (such as NVR, DVR, IP camera, etc.) firmware up-to-date to ensure the system is equipped with the latest security patches and fixes. When the device is connected to the public network, it is recommended to enable the "auto-check for updates" function to obtain timely information of firmware updates released by the manufacturer.
- We suggest that you download and use the latest version of client software.

## **"Nice to have" recommendations to improve your device network security:**

### **1. Physical Protection**

We suggest that you perform physical protection to device, especially storage devices. For example, place the device in a special computer room and cabinet, and implement well-done access control permission and key management to prevent unauthorized personnel from carrying out physical contacts such as damaging hardware, unauthorized connection of removable device (such as USB flash disk, serial port), etc.

### **2. Change Passwords Regularly**

We suggest that you change passwords regularly to reduce the risk of being guessed or cracked.

### **3. Set and Update Passwords Reset Information Timely**

The device supports password reset function. Please set up related information for password reset in time, including the end user's mailbox and password protection questions. If the information changes, please modify it in time. When setting password protection questions, it is suggested not to use those that can be easily guessed.

### **4. Enable Account Lock**

The account lock feature is enabled by default, and we recommend you to keep it on to guarantee the account security. If an attacker attempts to log in with the wrong password several times, the corresponding account and the source IP address will be locked.

### **5. Change Default HTTP and Other Service Ports**

We suggest you to change default HTTP and other service ports into any set of numbers between 1024–65535, reducing the risk of outsiders being able to guess which ports you are using.

### **6. Enable HTTPS**

We suggest you to enable HTTPS, so that you visit Web service through a secure communication channel.

### **7. MAC Address Binding**

We recommend you to bind the IP and MAC address of the gateway to the device, thus reducing



the risk of ARP spoofing.

#### **8. Assign Accounts and Privileges Reasonably**

According to business and management requirements, reasonably add users and assign a minimum set of permissions to them.

#### **9. Disable Unnecessary Services and Choose Secure Modes**

If not needed, it is recommended to turn off some services such as SNMP, SMTP, UPnP, etc., to reduce risks.

If necessary, it is highly recommended that you use safe modes, including but not limited to the following services:

- SNMP: Choose SNMP v3, and set up strong encryption passwords and authentication passwords.
- SMTP: Choose TLS to access mailbox server.
- FTP: Choose SFTP, and set up strong passwords.
- AP hotspot: Choose WPA2-PSK encryption mode, and set up strong passwords.

#### **10. Audio and Video Encrypted Transmission**

If your audio and video data contents are very important or sensitive, we recommend that you use encrypted transmission function, to reduce the risk of audio and video data being stolen during transmission.

Reminder: encrypted transmission will cause some loss in transmission efficiency.

#### **11. Secure Auditing**

- Check online users: we suggest that you check online users regularly to see if the device is logged in without authorization.
- Check device log: By viewing the logs, you can know the IP addresses that were used to log in to your devices and their key operations.

#### **12. Network Log**

Due to the limited storage capacity of the device, the stored log is limited. If you need to save the log for a long time, it is recommended that you enable the network log function to ensure that the critical logs are synchronized to the network log server for tracing.

#### **13. Construct a Safe Network Environment**

In order to better ensure the safety of device and reduce potential cyber risks, we recommend:

- Disable the port mapping function of the router to avoid direct access to the intranet devices from external network.
- The network should be partitioned and isolated according to the actual network needs. If there are no communication requirements between two sub networks, it is suggested to use VLAN, network GAP and other technologies to partition the network, so as to achieve the network isolation effect.
- Establish the 802.1x access authentication system to reduce the risk of unauthorized access to private networks.
- Enable IP/MAC address filtering function to limit the range of hosts allowed to access the device.