Network Video Decoder

Quick Start Guide

V1.0.0

Cybersecurity Recommendations

Mandatory actions to be taken towards cybersecurity

1. Change Passwords and Use Strong Passwords:

The number one reason systems get "hacked" is due to having weak or default passwords. It is recommended to change default passwords immediately and choose a strong password whenever possible. A strong password should be made up of at least 8 characters and a combination of special characters, numbers, and upper and lower case letters.

2. Update Firmware

As is standard procedure in the tech-industry, we recommend keeping NVR, DVR, and IP camera firmware up-to-date to ensure the system is current with the latest security patches and fixes.

"Nice to have" recommendations to improve your network security

1. Change Passwords Regularly

Regularly change the credentials to your devices to help ensure that only authorized users are able to access the system.

2. Change Default HTTP and TCP Ports:

● Change default HTTP and TCP ports for systems. These are the two ports used to communicate and to view video feeds remotely.

● These ports can be changed to any set of numbers between 1025-65535. Avoiding the default ports reduces the risk of outsiders being able to guess which ports you are using.

3. Enable HTTPS/SSL:

Set up an SSL Certificate to enable HTTPS. This will encrypt all communication between your devices and recorder.

4. Enable IP Filter:

Enabling your IP filter will prevent everyone, except those with specified IP addresses, from accessing the system.

5. Change ONVIF Password:

On older IP Camera firmware, the ONVIF password does not change when you change the system's credentials. You will need to either update the camera's firmware to the latest revision or manually change the ONVIF password.

6. Forward Only Ports You Need:

● Only forward the HTTP and TCP ports that you need to use. Do not forward a huge range of numbers to the device. Do not DMZ the device's IP address.

● You do not need to forward any ports for individual cameras if they are all connected to a recorder on site; just the NVR is needed.

7. Disable Auto-Login on SmartPSS:

Those using SmartPSS to view their system and on a computer that is used by multiple people should disable auto-login. This adds a layer of security to prevent users without the appropriate credentials from accessing the system.

8. Use a Different Username and Password for SmartPSS:

In the event that your social media, bank, email, etc. account is compromised, you would not want someone collecting those passwords and trying them out on your video surveillance system. Using a different username and password for your security system will make it more difficult for someone to guess their way into your system.

9. Limit Features of Guest Accounts:

If your system is set up for multiple users, ensure that each user only has rights to features and functions they need to use to perform their job.

10. UPnP:

● UPnP will automatically try to forward ports in your router or modem. Normally this would be a good thing. However, if your system automatically forwards the ports and you leave the credentials defaulted, you may end up with unwanted visitors.

● If you manually forwarded the HTTP and TCP ports in your router/modem, this feature should be turned off regardless. Disabling UPnP is recommended when the function is not used in real applications.

11. SNMP:

Disable SNMP if you are not using it. If you are using SNMP, you should do so only temporarily, for tracing and testing purposes only.

12. Multicast:

Multicast is used to share video streams between two recorders. Currently there are no known issues involving Multicast, but if you are not using this feature, deactivation can enhance your network security.

13. Check the Log:

If you suspect that someone has gained unauthorized access to your system, you can check the system log. The system log will show you which IP addresses were used to login to your system and what was accessed.

14. Physically Lock Down the Device:

Ideally, you want to prevent any unauthorized physical access to your system. The best way to achieve this is to install the recorder in a lockbox, locking server rack, or in a room that is behind a lock and key.

15. Connect IP Cameras to the PoE Ports on the Back of an NVR:

Cameras connected to the PoE ports on the back of an NVR are isolated from the outside world and cannot be accessed directly.

16. Isolate NVR and IP Camera Network

The network your NVR and IP camera resides on should not be the same network as your public computer network. This will prevent any visitors or unwanted guests from getting access to the same network the security system needs in order to function properly.

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

Safety Instructions

The following categorized signal words with defined meaning might appear in the Manual.

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

Privacy Protection Notice

As the device user or data controller, you might collect personal data of others, such as face, fingerprints, car plate number, Email address, phone number, GPS and so on. You need to be in compliance with the local privacy protection laws and regulations to protect the legitimate rights and interests of other people by implementing measures, including but not limited to: providing clear and visible identification to inform data subject the existence of surveillance area and providing related contact.

About the Guide

- The Guide is for reference only. If there is inconsistency between the Guide and the actual

product, the actual product shall prevail.

- We are not liable for any loss caused by the operations that do not comply with the Guide.
- The Guide would be updated according to the latest laws and regulations of related regions. For detailed information, see the User's Manual, CD-ROM, QR code or our official website. If there is inconsistency between User's Manual and the electronic version, the electronic version shall prevail.
- All the designs and software are subject to change without prior written notice. The product updates might cause some differences between the actual product and the Guide. Please contact the customer service for the latest program and supplementary documentation.
- There still might be deviation in technical data, functions and operations description, or errors in print. If there is any doubt or dispute, please refer to our final explanation.
- Upgrade the reader software or try other mainstream reader software if the Guide (in PDF format) cannot be opened.
- All trademarks, registered trademarks and the company names in the Guide are the properties of their respective owners.
- Please visit our website, contact the supplier or customer service if there is any problem occurred when using the device.
- If there is any uncertainty or controversy, please refer to our final explanation.

Important Safeguards and Warnings

The following description is the correct application method of the device. Please read the manual carefully before use, in order to prevent danger and property loss. Strictly conform to the manual during application and keep it properly after reading.

Operating Requirement

- Do not place and install the device in an area exposed to direct sunlight or near heat generating device.
- Do not install the device in a humid, dusty or fuliginous area.
- Keep its horizontal installation, or install it at stable places, and prevent it from falling.
- Do not drip or splash liquids onto the device; do not put on the device anything filled with liquids, in order to prevent liquids from flowing into the device.
- Install the device at well-ventilated places; do not block its ventilation opening.
- Use the device only within rated input and output range.
- Do not dismantle the device arbitrarily.
- Transport, use and store the device within allowed humidity and temperature range.

Power Requirement

- Use batteries according to requirements; otherwise, it may result in fire, explosion or burning risks of batteries!
- To replace batteries, only the same type of batteries can be used!
- The product shall use electric wires (power wires) recommended by this area, which shall be used within its rated specification!
- Use standard power adapter matched with this device. Otherwise, the user shall undertake resulting personnel injuries or device damages.
- Use power supply that meets SELV (safety extra low voltage) requirements, and supply power with rated voltage that conforms to Limited Power Source in IEC60950-1. For specific power supply requirements, please refer to device labels.
- Products with category I structure shall be connected to grid power output socket, which is equipped with protective grounding.
- Appliance coupler is a disconnecting device. During normal use, keep an angle that facilitates operation.

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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 Check Unpacked Decoder

When you receive the decoder from the shipping agency, 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, since 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 and 4-channel 4K High Definition (H.265, with 2 Input Ports) Series

Figure 1-1 Front panel



Table 1-1 Description for front panel

Name	Icon	Function
Power button		Press it for three seconds to boot up or shut down the device. Press it for three times within one second, it can clear device configuration and restore factory defaults.
Power indicator		The indicator becomes on after system boots up.

Name	Icon	Function
Network indicator		The network indicator is 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 becomes on when there is an alarm.
HDD indicator		N/A
IR receiver		N/A
Output indicator		Indicate working status of output port. ● For 1-channel 4K high definition (H.265) series, only the first indicator is effective. ● For 4-channel 4K high definition (H.265, with 2 input ports), indicators 1–4 are effective.

1.2.1.2 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		Press it for three seconds to boot up or shut down the device. Press it for three times within one second, it can clear device configuration and restore factory defaults.
Power indicator		The indicator becomes on after system boots up.
Network indicator		● The network indicator is blue when abnormal network event occurs (offline, IP conflict etc.). ● In case of dual Ethernet cards, in multi-address mode, insert one network cable, and the blue indicator turns on.

Name	Icon	Function
USB port		Connect external devices such as mouse, keyboard and flash drive.
Alarm indicator		The alarm indicator becomes on when there is an alarm.
HDD indicator		N/A
IR receiver		N/A
Output indicator		Indicate working status of output port. 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

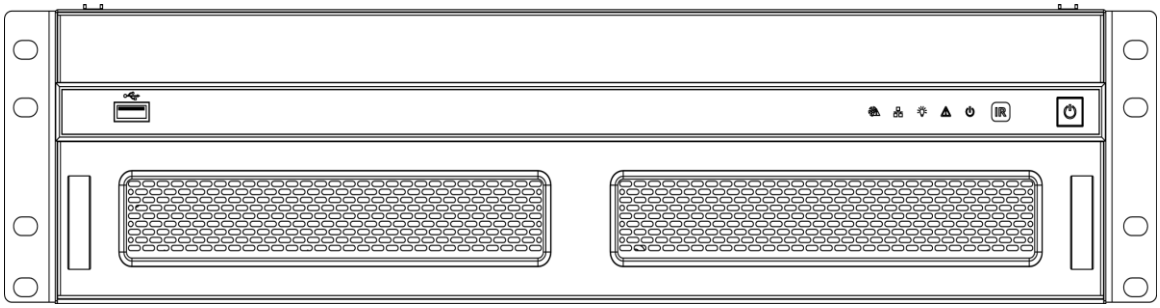


Table 1-3 Description for front panel

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

Name	Icon	Function
Network indicator		N/A
Fan indicator		N/A
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

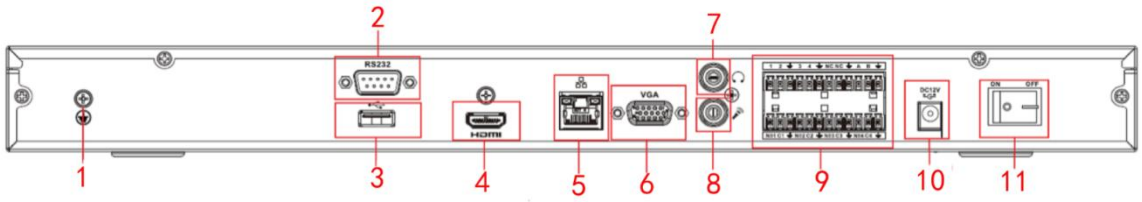


Table 1-4 Description for rear panel

No.	Name	No.	Name	No.	Name
1	Ground screw hole	2	RS–232 port	3	USB port
4	HDMI port	5	Network port (10M/100M/1000M Ethernet port)	6	VGA port
7	Audio talk output port RCA OUT	8	Audio talk input port RCA IN	9	4-channel alarm input, 4-channel alarm output, 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

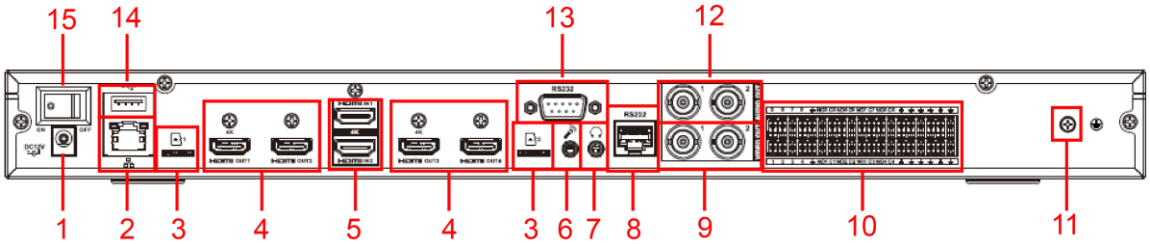


Table 1-5 Description for rear panel

No.	Name	No.	Name	No.	Name

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

1.2.2.3 9-channel 4K High Definition (H.265, with 4 Input Ports) Series

Figure 1-6 Rear panel

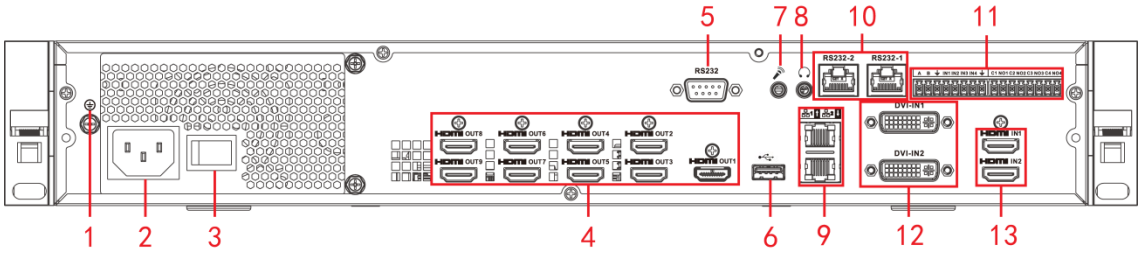


Table 1-6 Description for rear panel

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	Audio talk input port	8	Audio talk output port	9	Network port (10M/100M/1000M Ethernet port)
10	RS–232 port of screen control	11	Alarm input, alarm output, standard RS–485 port.	12	DVI-I input port
13	HDMI input port	–	–	–	–

1.2.2.4 12/15/18/21-channel 4K High Definition (H.265, with 4 Input Ports) Series

Figure 1-7 Rear panel of 21-channel 4K high definition (H.265, with 4 input ports) series

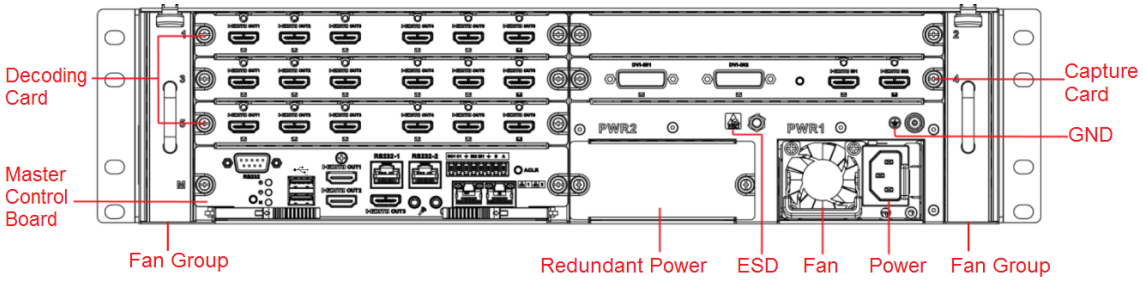


Figure 1-8 Rear panel of 18-channel 4K high definition (H.265, with 4 input ports) series

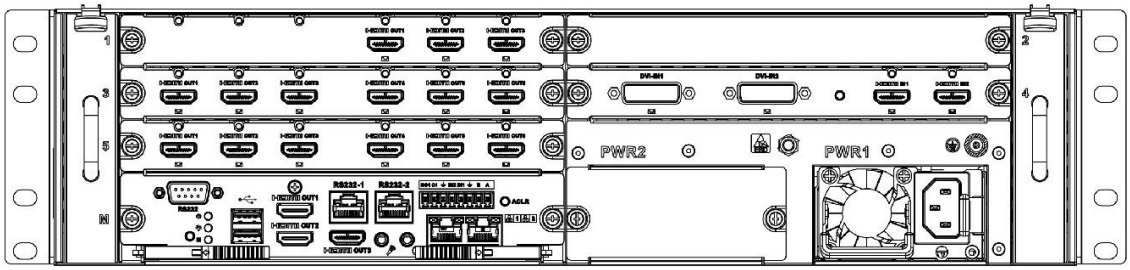


Figure 1-9 Rear panel of 15-channel 4K high definition (H.265, with 4 input ports) series

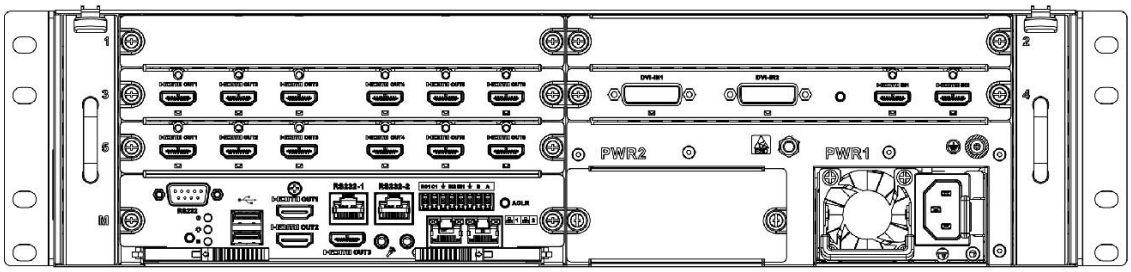
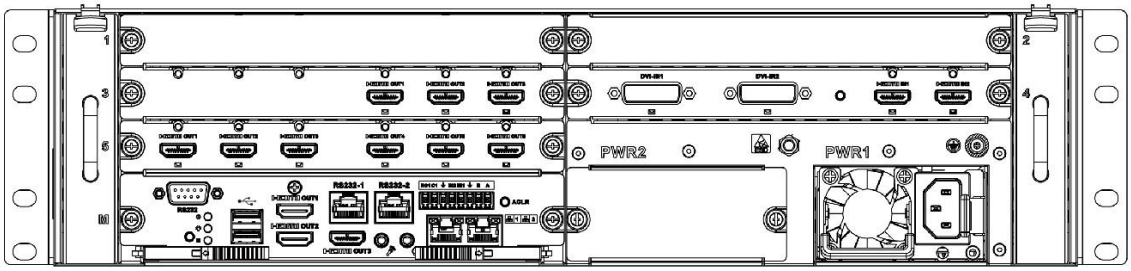


Figure 1-10 Rear panel of 12-channel 4K high definition (H.265, with 4 input ports) series



- 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.

1.2.2.4.2 Master Control Board

Figure 1-11 Master control board

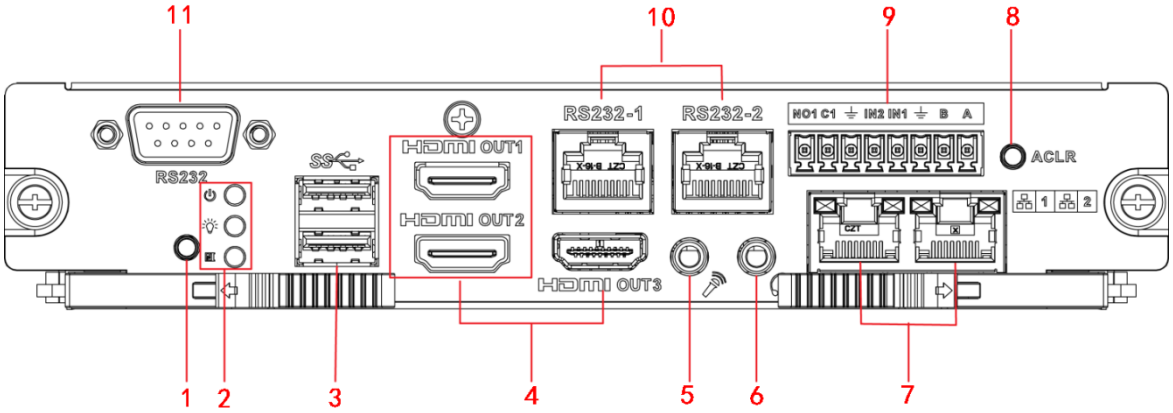


Table 1-7 Description of master control board

No.	Name	No.	Name	No.	Name
1	Default button	2	● Power indicator of master control board ● System status indicator ● PCI-E status indicator	3	USB port
4	HDMI output port	5	Audio talk input port	6	Audio talk output port
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	–	–

1.2.2.4.3 Decoding Card

Figure 1-12 3-channel decoding card

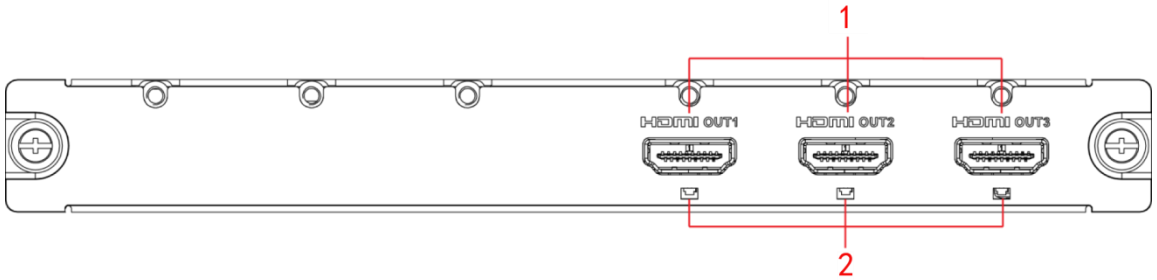


Figure 1-13 6-channel decoding card

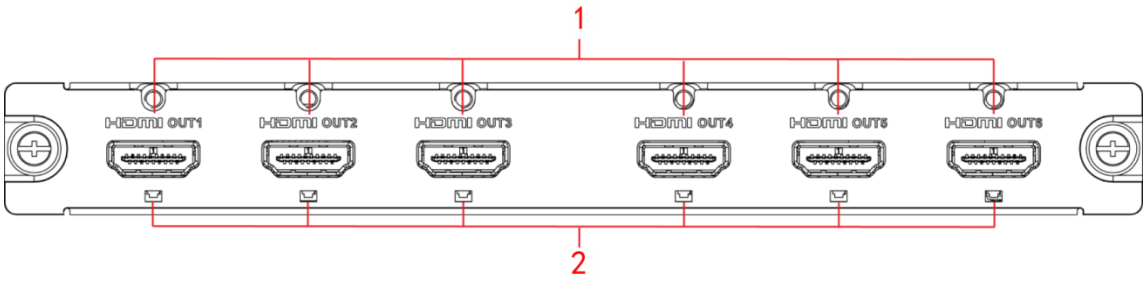


Table 1-8 Description of decoding card

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

1.2.2.4.4 Capture Card

Figure 1-14 Capture card

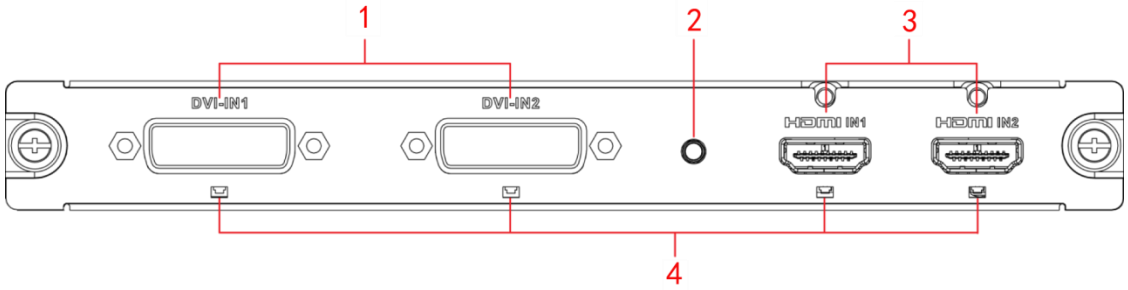


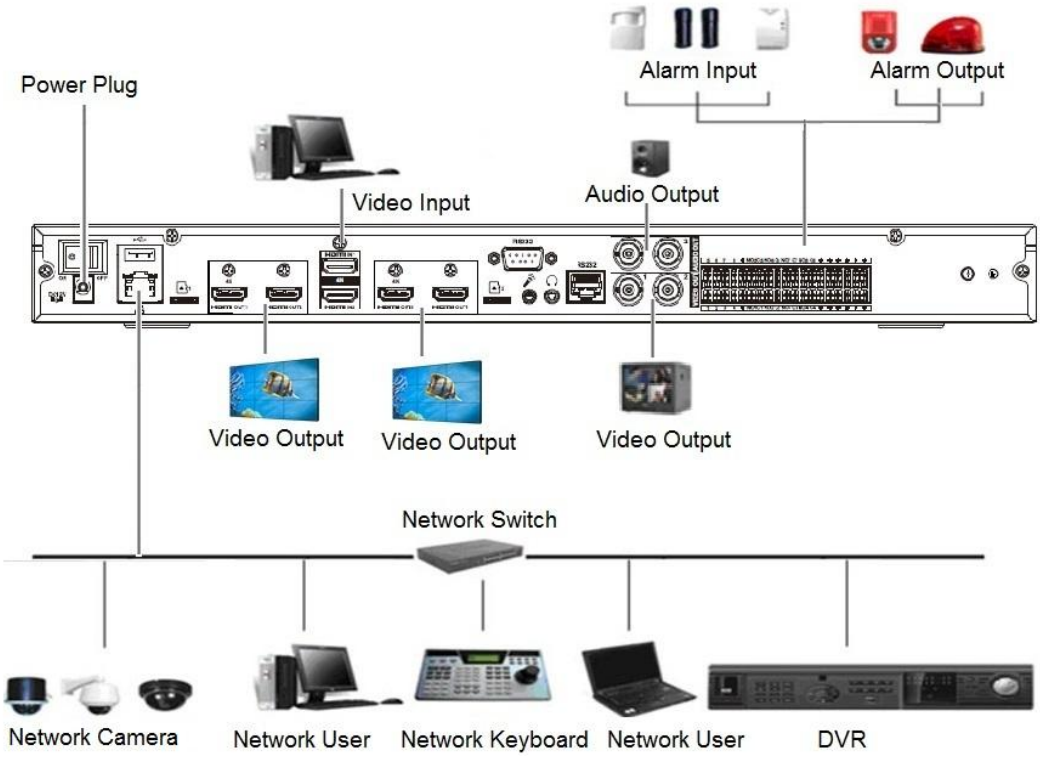
Table 1-9 Description of capture card

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

Take 4-channel 4K high definition (H.265, with 2 input ports) series for example. See Figure 1-15.

Figure 1-15 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. The system is in multiple-window output mode by default.

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 With 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 Internet Explorer, 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 login the WEB interface, change IP address of decoder according to the actual situation.

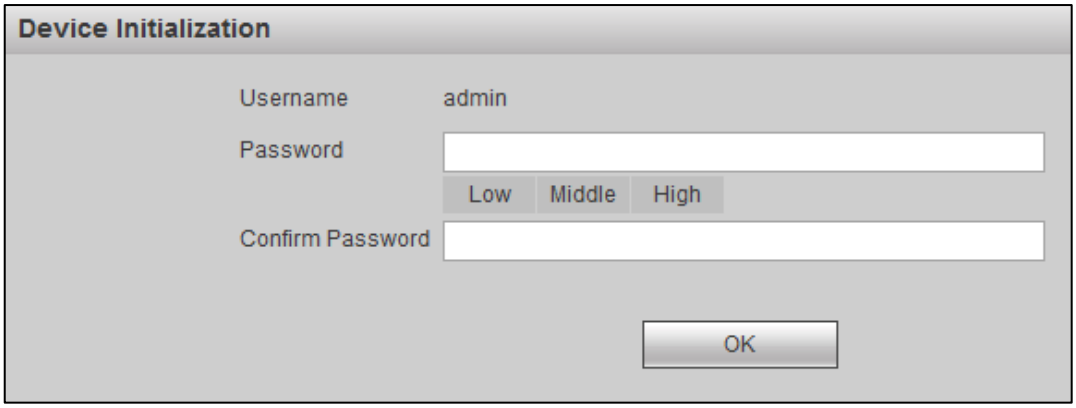
Step 5 Connect the decoder to network.

2.4 System Login

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

After connection succeeds, the **Device Initialization** interface is displayed. See Figure 2-1.

Figure 2-1 Device initialization



Step 2 Set admin user's password.

The password can be set from 8 through 32 non-empty characters and contains at least two types from capital letter, lower-case letter, number, and special characters (excluding "'", """, ";", ":" and "&"). **Password** and **Confirm Password** shall be the same. Enter a strong password according to the password strength prompt.

Step 3 Click **OK**.

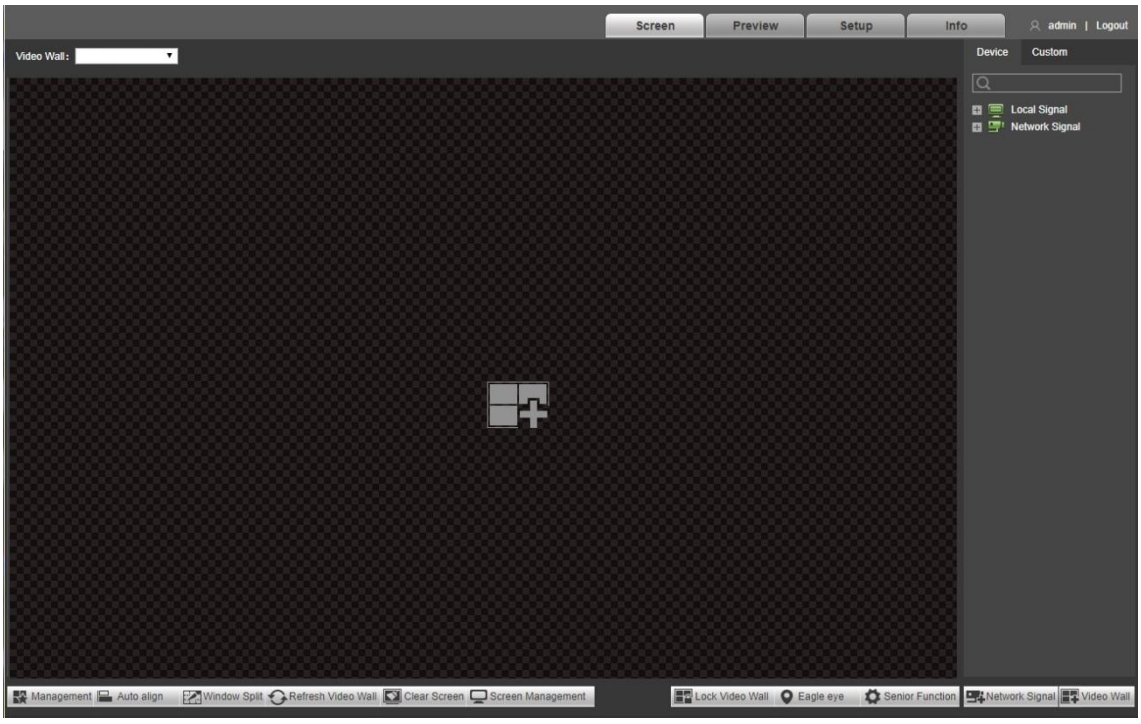
The login interface is displayed. See Figure 2-2.

Figure 2-2 Login



Step 4 Enter username and password, and then click **Login**. See Figure 2-3.

Figure 2-3 Operation interface



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

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

2.5 Screen

Click **Screen** tab. The **Screen** interface is displayed. See Figure 2-4 or Figure 2-5. Refer to Table 2-1 for details.

- The interface might be different depending on the model you purchased. The actual interface shall prevail.
- 1-channel 4K high definition (H.265) series displays Figure 2-4, and 4-channel 4K high definition (H.265, with 2 input ports) series displays Figure 2-5.

Figure 2-4 Screen (1)

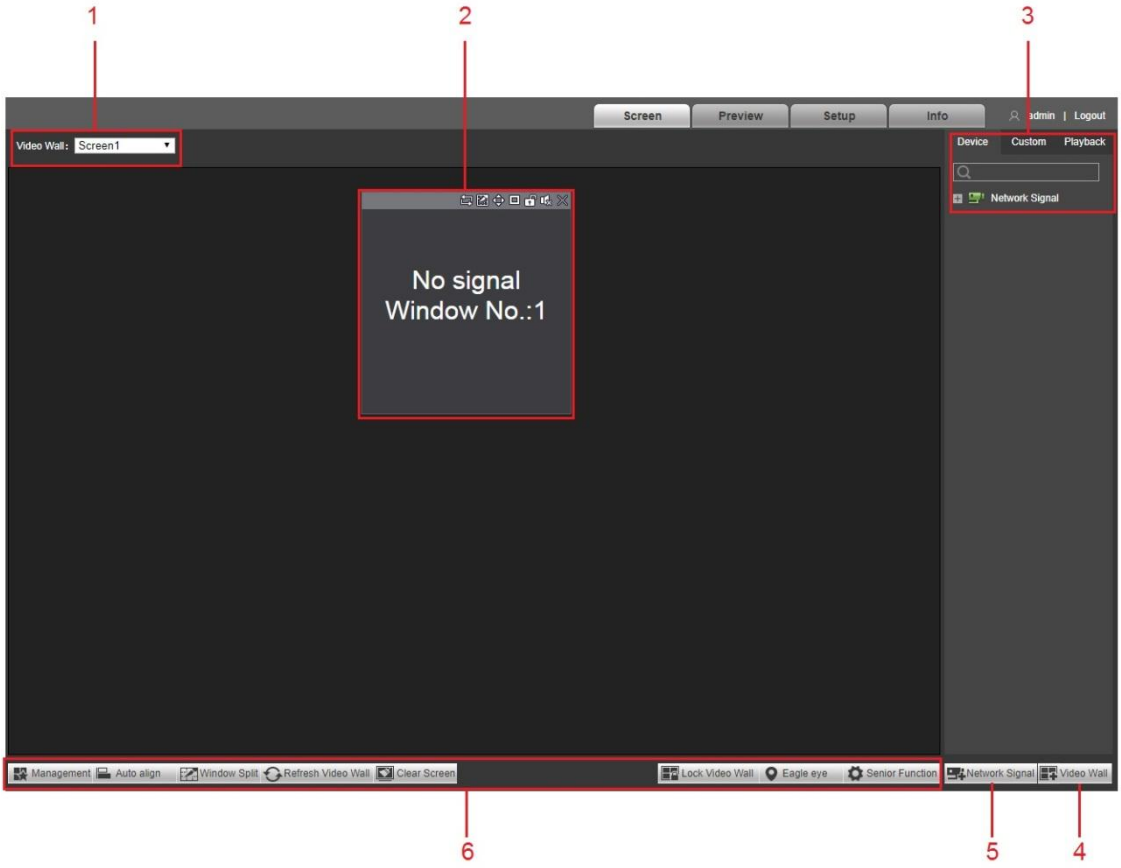


Figure 2-5 Screen (2)

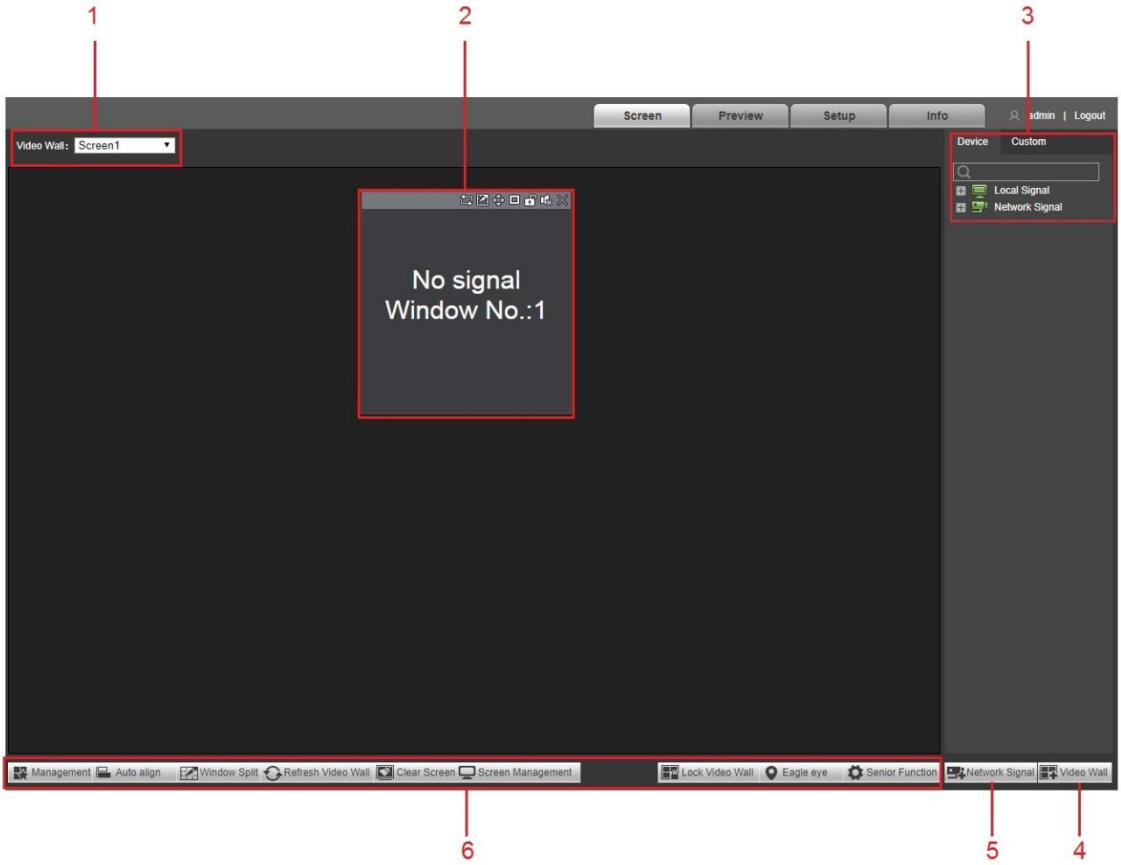


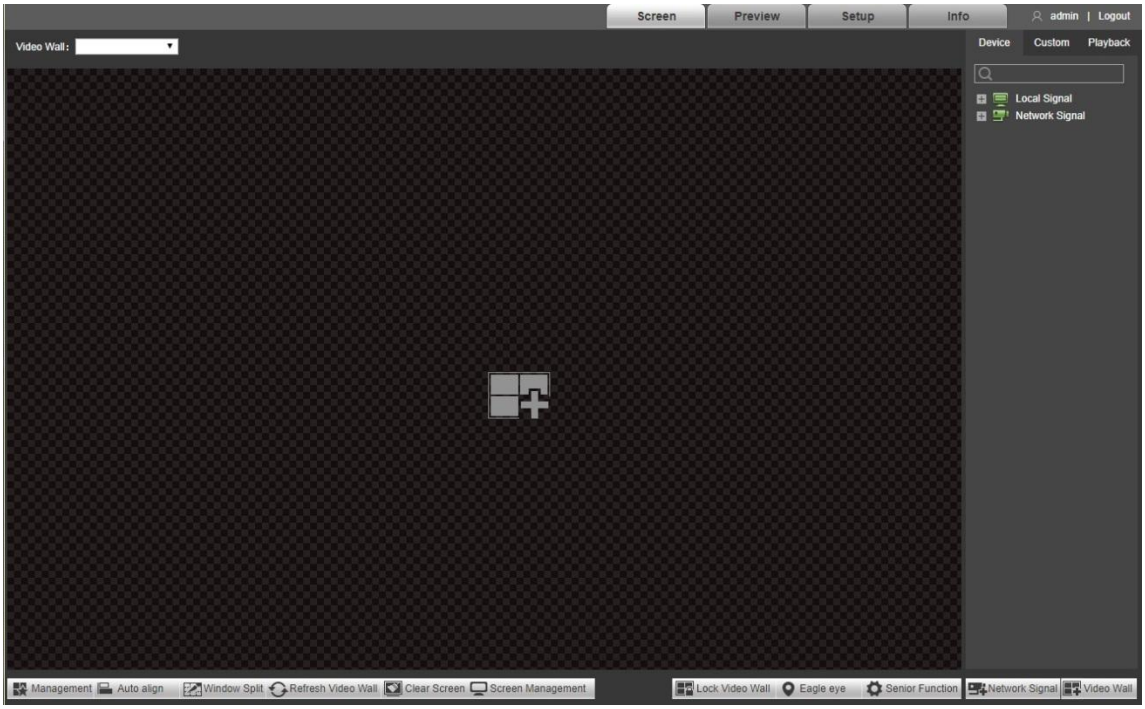
Table 2-1 Screen function description

No.	Name	Description
1	Video wall selection area	After you add a video wall, you can select the video wall in the drop-down list of **Video Wall**. Refer to "2.5.1 Adding Video Wall" for details.
2	Window configuration	Add window, adjust window, put the window at the bottom and turn off the signal. Refer to "2.5.2 Window Configuration" for details.
3	Signal management	Select different tabs to operate. ● In **Device** tab, you can view local signal and channel information, preview and display the signal on the video wall. 1-channel 4K high definition (H.265) series does not support local signal. ● In **Custom** tab, you can view signal group information, and configure signal tour on the video wall. ● In **Playback** tab, you can play back the recorded video of storage device. Only 1-channel 4K high definition (H.265) series supports the playback function.
4	Video wall	Click Video Wall to enter **Video Wall Setup** interface. You can add, modify and delete video wall.
5	Network signal	Click Network Signal to enter **Network Signal** interface. You can add, modify and delete device.
6	Video wall management	You can carry out management, auto-align, window-split, refresh video wall, clear screen and screen management. Lock or unlock video wall, view eagle eye, zoom in and out the window, carry out PTZ control, set background and show screen ID. 1-channel 4K high definition (H.265) series does not support screen management.

2.5.1 Adding Video Wall

You need to add video wall when you login for the first time. See Figure 2-6.

Figure 2-6 Adding video wall



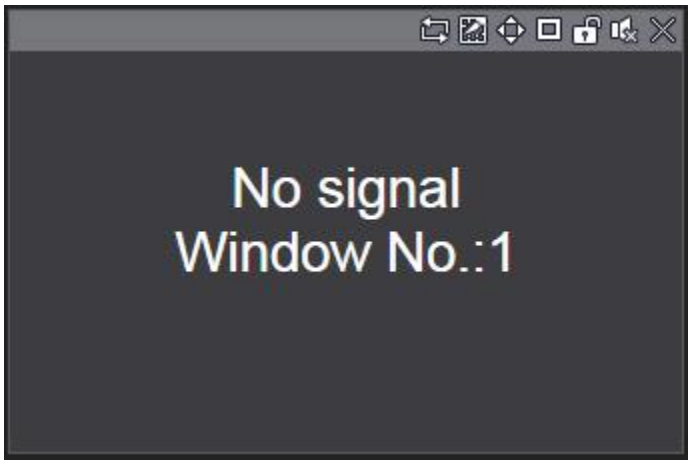
Click  in the center of interface to enter **Video Wall Setup** interface.

2.5.2 Window Configuration

2.5.2.1 Adding a Window

Press and hold the left mouse button on the video wall, drag and form a window. See Figure 2-7.

Figure 2-7 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 change the dimension of the selected window.

- Select a window, right-click and select **Bottom**. The selected window will be at the bottom of 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. See Figure 2-8.

Figure 2-8 Window adjustment icons



Refer to Table 2-2 for details.

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 . Click to stop signal tour. Configure the tour setting of signal.
2	Split	Split the window, including 2-split (horizontal/vertical), 4-split, 9-split and 16-split. 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.
4	Paste window	Click the icon, so the window will be pasted to surrounding windows.
5	Lock	Click the icon to lock the window. Then, window position and size cannot be adjusted. Click to unlock the window.
6	Audio	Click the icon to turn on/off the audio.
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 signal.

2.5.3.1 Device Tree

1-channel 4K high definition (H.265) series does 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 Network Signal 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. See Figure 2-9.

Figure 2-9 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*.