Hardware Manual

General

This user's manual (hereinafter referred to be "the Manual") introduces the functions and operations of the DVR devices (hereinafter referred to be "the Device").

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 include but not limited to: providing clear and visible identification to inform data subject the existence of surveillance area and providing related contact.

About the Manual

- The manual is for reference only. If there is inconsistency between the manual 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 manual.
- The manual would be updated according to the latest laws and regulations of related regions. For detailed information, see the paper manual, CD-ROM, QR code or our official website. If there is inconsistency between paper manual and the electronic version, the electronic version shall prevail.

Important Safeguards and Warnings

This Chapter describes the contents covering proper handling of the Device, hazard prevention, and prevention of property damage. Read these contents carefully before using the Device, comply with them when using, and keep it well for future reference.

Operation Requirement

- Do not place or install the Device in a place exposed to sunlight or near the heat source.
- Keep the Device away from dampness, dust or soot.
- Keep the Device installed horizontally on the stable place to prevent it from falling.
- Wall-mounting is not supported.
- Do not drop or splash liquid onto the Device, and make sure there is no object filled with liquid on the Device to prevent liquid from flowing into the Device.
- Install the Device in a well-ventilated place, and do not block the ventilation of the Device.
- Operate the device within the rated range of power input and output.
- Do not dissemble the Device.
- Transport, use and store the Device under the allowed humidity and temperature conditions.

Electrical Safety

- Use the battery of specified manufacturer; otherwise there might result in explosion. When replacing battery, make sure the same type is used. Improper battery use might result in fire, explosion, or inflammation.
- Follow the instructions to dispose of the used battery.
- Use the recommended power cables in the region and conform to the rated power specification.
- Use the power adapter provided with the Device; otherwise, it might result in people injury and device damage.
- The power source shall conform to the requirement of the Safety Extra Low Voltage (SELV) standard, and supply power with rated voltage which conforms to Limited power Source requirement according to IEC60950-1. Please note that the power supply requirement is subject to the device label.
- Connect the device (I-type structure) to the power socket with protective earthing.
- The appliance coupler is a disconnection device. When using the coupler, keep the angle for easy operation.

Table of Contents

1 Introduction

1.1 Overview

The Device is an excellent digital monitor product for security industry. The embedded LINUX OS assures the stable operation. The H.265 and G.711 technologies assure the high-quality image and low bit stream. The frame-by-frame play function displays more details for analysis, and provides the functions such as record, playback, and monitor and assures the synchronization for audio and video. The Device also adopts the advanced control technology and great network data transmission capability.

The Device adopts embedded design to achieve high security and reliability. It can work in the local end and, with strong networking capability it can get connected to the professional surveillance software (Smart PSS) to form a security network to show its powerful remote monitoring function.

The Device is applicable to the areas such as bank, telecom, electricity, traffic, intelligent residential district, factory, warehouse, resources, and water conservancy facilities.

1.2 Functions

The functions might be different depending on the software and hardware version of the model you purchased.

Smart Detection

- Smart detection: Effectively detect persons and motor vehicles in the video.
- Face detection: Effectively recognize faces in the video, analyze and carry out structured storage of faces, and search faces quickly.
- Analyze IVS, carry out tripwire and zone intrusion analysis of persons and vehicles, and effectively filter false report caused by tree leaves, rain and brightness changes.

Real-time Surveillance

- Support VGA port and HDMI port to realize the surveillance through monitors.
- Support HDMI, VGA, and TV output at the same time.

IoT Management

Provide specific management module for IoT features including humidity and temperature data reports and alarms linkage.

Sensor Integration

Integrate coaxial cameras with diverse array of sensors such as temperature, humidity and wireless alarm devices.

Storage Management

- Special data format to guarantee data security and avoid the risk of modifying data viciously.
- Support digital watermark.

Compression Format

Support multiple-channel audio and video signal. An independent hardware decodes the audio and video signal from each channel to maintain video and audio synchronization.

Backup Function

- Support backup operation through USB port (such as USB storage disk, portable HDD, and burner).
- Client-end user can download the file from local HDD through network to backup.

Record & Playback

- Support each channel real-time record independently, and simultaneously support the functions such as search, backward play, network monitor, record search, and download.
- Support various playback modes: slow play, fast play, backward play and frame by frame play.
- Support time title overlay so that you can view event accurate occurred time.
- Support zooming in the selected area in the live view.

Network Operation

Support network remote real-time monitor, remote record search and remote PTZ control.

Alarm Activation

- Several relay alarm outputs to realize alarm activation and on-site light control.
- The alarm input port and output port have the protection circuit to guarantee the Device safety.

Communication Port

- RS-485 port can realize alarm input and PTZ control.
- RS-232 port can connect to keyboard, COM port of PC or the matrix control.
- Standard Ethernet port can realize network remote access function.
- The dual-network port has the multi-address, fault tolerance, load balance setup mode.

PTZ Control

Support PTZ decoder through RS-485 port.

Intelligent Operation

- Support mouse operation function.
- Support "copy and paste" function for the same settings.

UPnP (Universal Plug and Play)

Establish mapping connection between LAN and WAN through UPnP protocol.

Camera Self-adaptive

Auto-recognize and work with the PAL or NTSC camera and HD camera.

2 Getting Started

2.1 Checking the Components

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The actual appearance, component, or quantity might be different depending on the model you purchased.

When you receive the Device, please check against the following checking list. If any of the items are missing or damaged, contact the local retailer or after-sales engineer immediately.

Sequence	Checking items		Requirement
1	Package	Appearance	No obvious damage.
		Packing materials	No broken or distorted positions that could be caused by hit.
2	Labels	Labels on the device	Not torn up. 📖 Do not tear up or throw away the labels; otherwise the warranty services are not ensured. You need to provide the serial number of the product when you call the after-sales service.
3	Device	Appearance	No obvious damage.
		Data cables, power cables, fan cables, mainboard	No connection loose.

2.2 Installing HDD

Please check whether the HDD is already installed in the Device when you first time using the Device. It is suggested to use the HDD recommended officially. Do not use the PC HDD.

⚠

Shut down the device and then unplug the power cable before you open the case to replace the HDD.

2.2.1 1U
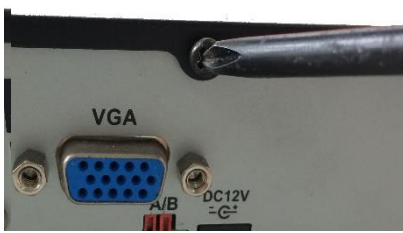
1. Remove the screws on the rear panel.

2. Fix the screws on the HDD, but do not be fastened.

3. Place the HDD onto the Device.
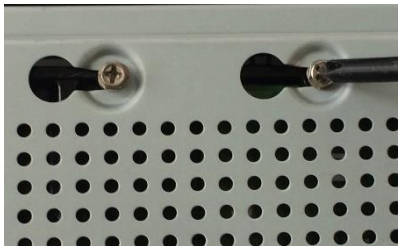
2.2.2 2U

1. Remove the screws on the cover.

2. Fix the HDD(s) onto the bracket. Remove the top bracket if you want to install HDD to the bottom bracket.

3. Connect one end of HDD cable to the HDD.

4. Connect the other end of HDD cable to the mainboard.

5. Use the power cable to connect HDD and mainboard.

6. Put back the cover and fix the screws.

2.3 Installing Device into Rack

📖

Only 1.5U and 2U Devices support this installation.

To install the DVR into rack, do the following:

Step 1 Check whether the in-house temperature is lower than 35℃(95℉) and make sure the 15 cm (6 inches) spacing around the Device for ventilation.

Step 2 Use six screws to fix the DVR on each side.

Step 3 Install from the bottom up.

⚠️

If you want to install more accessories to the rack, take preventive measures to avoid power socket overload.

Step 4 (Optional) Install more accessories to the rack if needed.

3 The Grand Tour

This chapter introduces various components of the Device, remote control and mouse operations.

3.1 Front Panel

3.1.1 1U

Figure 3-1

Table 3-1

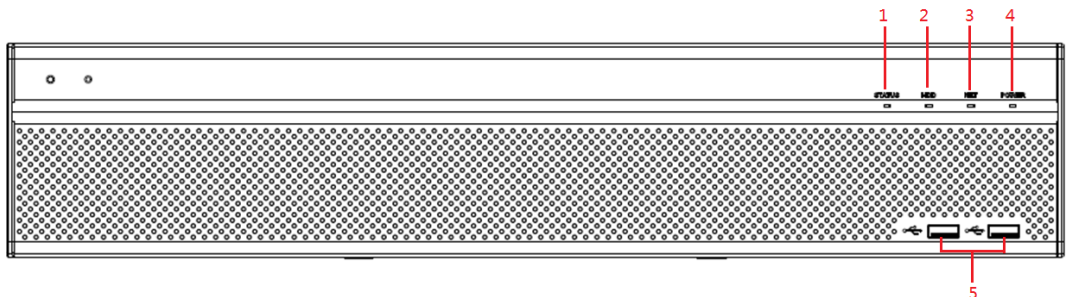| No.	Port Name	Function
1	HDD	Glows blue when HDD status is abnormal.
3	NET	Glows blue when network status is abnormal.
4	POWER	Glows blue when the power is connected properly.
5	USB port	Connects to the external devices such as keyboard, mouse, and USB storage device.

3.1.2 2U

Figure 3-2

Table 3-2

No.	Port Name	Function
1	Status indicator light	Glows blue when the device is working properly.

No.	Port Name	Function
2	HDD	Glows blue when HDD status is abnormal.
3	NET	Glows blue when network status is abnormal.
4	POWER	Glows blue when the power is connected properly.
5	USB port	Connects to peripheral devices such as USB storage device, keyboard, and mouse.

3.2 Rear Panel

3.2.1 1U

Figure 3-3
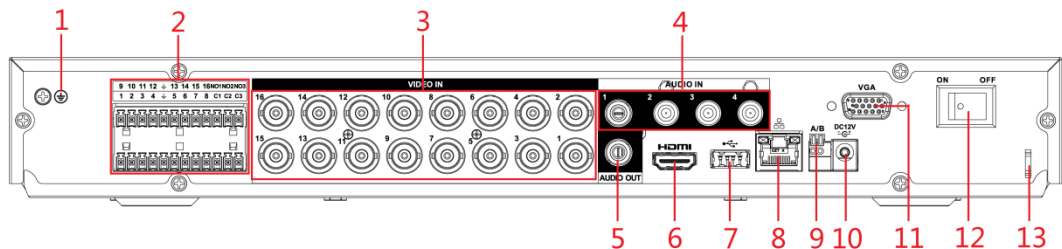
Table 3-3

No.	Port Name	Function
1	⏚	Ground terminal.
2	Alarm input port 1–16	Four groups of alarm input ports (Group 1: port 1 to port 4; Group 2: port 5 to port 8; Group 3: port 9 to port 12; Group 4: port 13 to port 16). These ports receive the signal from the external alarm source. There are two types: NO (Normally Open) and NC (Normally Closed). When your alarm input device is using external power, please make sure the alarm input device and the DVR connect to the same ground.
	Alarm output port 1–3 (NO1–NO3; C1–C3)	● Three groups of alarm output ports. (Group 1: port NO1–C1,Group 2:port NO2–C2,Group 3:port NO3–C3）). These ports output alarm signal to the alarm device. Please make sure power supply to the external alarm device. ● NO：Normally open alarm output port. ● C：Alarm output public end.
	⏚	Ground.
3	Video input port	Connects to analog camera to input video signal.
4	Audio input port	Receives audio signal output from the devices such as microphone.

No.	Port Name	Function
5	Audio output port	Outputs audio signal to the devices such as the sound box.
6	HDMI port	High definition audio and video signal output port. The port outputs the uncompressed high definition video and multi-channel audio data to the connected display with HDMI port.
7	USB port	Connects to the external devices such as keyboard, mouse, and USB storage device.
8	Network port	Connects to Ethernet port.
9	RS-485 communication port	Connects to the control devices such as speed dome PTZ. RS-485_A port is connected by the cable A and RS-485_B is connected to the cable B.
10	Power input port	Inputs 12V DC power.
11	VGA port	Outputs analog video data to the connected display with VGA port.
12	Power button	Turns on/off the DVR.
13	Power cable fastener	Use clamp to secure the power cable on the DVR in case there is any loss.

3.2.2 1.5U

Figure 3-4
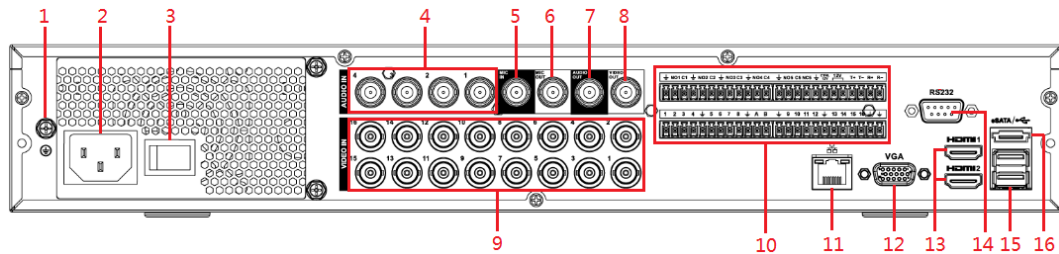
Table 3-4

No.	Port Name	Function
1	⏚	Ground terminal.
2	Power input port	Inputs power.
3	Power button	Turns on/off the DVR.
4	Audio input port	Receives audio signal output from the devices such as microphone.
5	Audio input port (MIC IN)	Tow-way talk input port which receives analog audio signal output from the devices such as microphone and pickup.
6	Audio output port (MIC OUT)	Tow-way talk output port which outputs the analog audio signal to the devices such as the sound box.
7	Audio output port	Outputs audio signal to the devices such as the sound box.

No.	Port Name	Function
8	Video output port	Connects to video output devices such as TV.
9	Video input port	Connects to analog camera to input video signal.
10	Alarm input port 1–16	Four groups of alarm input ports (Group 1: port 1 to port 4; Group 2: port 5 to port 8; Group 3: port 9 to port 12; Group 4: port 13 to port 16). These ports receive the signal from the external alarm source. There are two types: NO (Normally Open) and NC (Normally Closed). 📖 When your alarm input device is using external power, please make sure the input device and the DVR connect to the same ground.
	Alarm output port 1–5 (NO1–NO5; C1–C5; NC5)	● Five groups of alarm output ports (Group 1: port NO1–C1,Group 2: port NO2–C2, Group 3: port NO3–C3, Group 4: port NO4–C4, Group 5: port NO5, C5, NC5). These ports output alarm signal to the alarm device. Please make sure power supply to the external alarm device. ● NO: Normally open alarm output port. ● C: Alarm output public end. ● NC: Normally closed alarm output port.
	RS-485 communication port	Connects to the control devices such as speed dome PTZ. RS-485_A port is connected by the cable A and RS-485_B is connected to the cable B.
	Four-wire full-duplex RS-485 port (T+, T-, R+, R-)	Four-wire full-duplex 485 port. T+ and T- is the output wire; R+ and R- is the input wire.
	Power output control for alarm (CTRL 12V)	Controls the 6th channel power output for alarm. ● Turns off power output when there is alarm output. ● Turns on power output when the alarm is cleared.
	12V power output port	Provides power to external devices such as camera and alarm device. Please note the power supply shall be below 1A.
	⏚	Ground.
10	Network port	Connects to Ethernet port.
12	VGA port	Outputs analog video data to the connected display with VGA port.
13	HDMI port	High definition audio and video signal output port. The port outputs the uncompressed high definition video and multi-channel audio data to the connected display with HDMI port. Resolution varies depending on different models.
14	RS-232 debug COM	The port is used for general COM debug to configure IP address or transfer transparent COM data.
15	USB port	Connects to the external devices such as keyboard, mouse, and USB storage device.

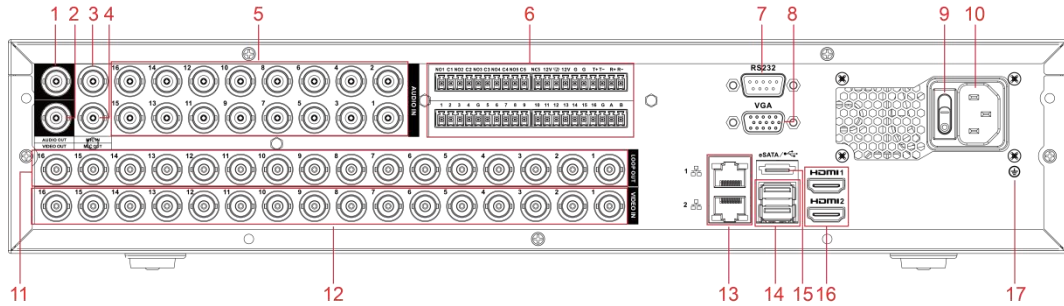| No.	Port Name	Function
16	eSATA port	External SATA port which connects to the device with SATA port. Perform the jumper configuration when connecting HDD.

3.2.3 2U

Figure 3-5

Table 3-5

No.	Port Name	Function
1	Audio output port	Outputs the analog audio signal to the devices such as the sound box.
2	Video output port	Connect to video output devices such as TV.
3	Audio input port (MIC IN)	Tow-way talk input port which receives the analog audio signal output from the devices such as microphone, pickup.
4	Audio output port (MIC OUT)	Tow-way talk output port which outputs the analog audio signal to the devices such as the sound box.
5	Audio input port	Receives the analog audio signal output from the devices such as microphone.
6	Alarm input port 1–16	- Four groups of alarm output ports (Group 1: port 1 to port 4; Group 2: port 5 to port 8; Group 3: port 9 to port 12; Group 4: port 13 to port 16). These ports receive the signal from the external alarm source. There are two types; NO (Normally Open) and NC (Normally Closed). - When your alarm input device is using external power, please make sure the device and the NVR have the same ground.
	Alarm output port 1–5 (NO1–NO5; C1–C5; NC5)	- Five groups of alarm output ports. (Group 1: port NO1–C1,Group 2:port NO2–C2,Group 3:port NO3–C3, Group 4 : port NO4–C4, Group 5: port NO5, C5, NC5). These ports output alarm signal to the alarm device. Please make sure power supply to the external alarm device. - NO: Normally open alarm output port. - C: Alarm output public end. - NC: Normally closed alarm output port.

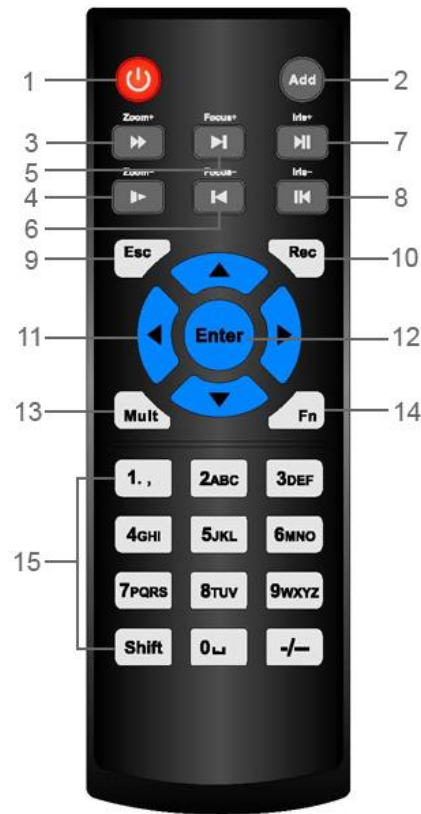| No.	Port Name	Function
	RS-485 communication port	You can connect to the control devices such as speed dome PTZ. RS-485_A port is connected by the cable A and RS-485_B is connected to the cable B.
	Four-wire full-duplex RS-485 port (T+, T-, R+, R-)	Four-wire full-duplex 485 port. T+ and T- is the output wire; R+ and R- is the input wire.
	Power output control for alarm (CTRL 12V)	Controls the 6th channel power output for alarm. It is to control the on-off alarm relay output.
	12V power output port	Provides power to external devices such as camera and alarm device. Please note the supplying power shall be below 1A.
	G	Ground.
7	RS-232 debug COM.	It is for general COM debug to configure IP address or transfer transparent COM data.
8	VGA video output	Outputs analog video signal. It can connect to the monitor to view analog video.
9	Power button	Turns on/off the Device.
10	Power input port	Inputs power.
11	Loop out	Outputs the video signal of the corresponding video input port.
12	Video input port	Connect to analog camera to input video signal.
13	Network port	Connects to Ethernet port.
14	USB port	Connects to the external devices such as keyboard, mouse, and USB storage device.
15	eSATA port	External SATA port which connects to the device with SATA port. Perform the jumper configuration when connecting HDD.
16	HDMI port	High definition audio and video signal output port. It outputs the same video source as VGA. It supports 4K resolution output and supports mouse operation and control. Please note when the HDMI output resolution is 4K, the VGA output stops. Resolution varies depending on different models.
17	GND	Ground.

3.3 Remote Control Operations

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The remote control is not our standard accessory and might not be included in the accessary bag. It is supplied dependent on the model you purchased.
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Figure 3-6

No.	Name	Function
1	Power button	Press this button to boot up or shut down the device.
2	Address	Press this button to input device serial number, so that you can control the Device.
3	Forward	Multi-step forward speed and normal speed playback.
4	Slow motion	Multi-step slow motion speed or normal playback.
5	Next record	In playback state, press this button to play back the next video.
6	Previous record	In playback state, press this button to play back the previous video.
7	Play/Pause	- In normal playback state, press this button to pause playback. - In pause state, press this button to resume to normal playback. - In live view window interface, press this button to enter video search menu.
8	Reverse/pause	In the reverse playback state, press this button to pause reverse playback.
		In the reverse playback pause state, press this button to resume to playback reversing state.

No.	Name	Function
9	Esc.	Go back to previous menu or cancel current operation (close front interface or control).
10	Record	- Start or stop record manually. - In record interface, use the direction buttons to select the channel that you want to record. - Press this button for at least 1.5 seconds, and the manual record interface will be displayed.
11	Direction keys	Switch between current activated controls by going left or right. In playback state, the keys control the playback progress bar. Aux function (such as operating the PTZ menu).
12	Enter/menu key	- Confirms an operation. - Go to the **OK** button. - Go to the menu.
13	Multiple-window switch	Switch between multiple-window and one-window.
14	Fn	- In single-channel monitoring mode, press this button to display the PTZ control and color setting functions. - Switch the PTZ control menu in PTZ control interface. - In motion detection interface, press this button with direction keys to complete setup. - In text mode, press and hold this button to delete the last character. To use the clearing function: Long press this button for 1.5 seconds. - In HDD menu, switch HDD recording time and other information as indicated in the pop-up message.
15	Alphanumeric keys	- Input password, numbers. - Switch channel. - Press Shift to switch the input method.

Table 3-6

3.4 Mouse Operations

The operations are based on the considerations for right-handed users.

Table 3-7

| Operation	Function
Click left mouse button	Password input dialogue box pops up if you have not logged in yet. In live view window interface, you can go to the main menu.
	When you have selected one menu item, click it to view menu content.
	Implement the control operation.
	Modify check box or motion detection status.
	Click combo box to pop up drop-down list.
	In text box, click the corresponding button on the panel to enter a numeral or English character (small/capitalized). ● In English input mode: Click ⌨ to enter a backspace and click ← to delete the previous character. ● In numeral input mode: Click ⌨ to clear and click ← to delete the previous character.
Double-click left mouse button	Implement special control operations such as double-click one item in the file list to play back the video.
	In multiple-window mode, double-click one channel to view in full-window. Double-click current video again to go back to previous multiple-window mode.
Right-click	Right-click in live view window interface, the shortcut menu is displayed. For different series product, the shortcut menu may vary.
	Exit current menu without saving the modification.
Click scroll wheel button	In numeral input box: Increase or decrease numeral value.
	Switch the items in the combo box.
	Page up or page down.
Point to select and move	Select current control and move it.
Dragging a selection box with left mouse button	Select motion detection zone.
	Select privacy mask zone.

4 Connecting Basics

This chapter introduces the typical connection diagrams and ports connections.

4.1 Typical Connection Diagram

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The following figure is for reference only. The actual product shall govern.

Figure 4-1
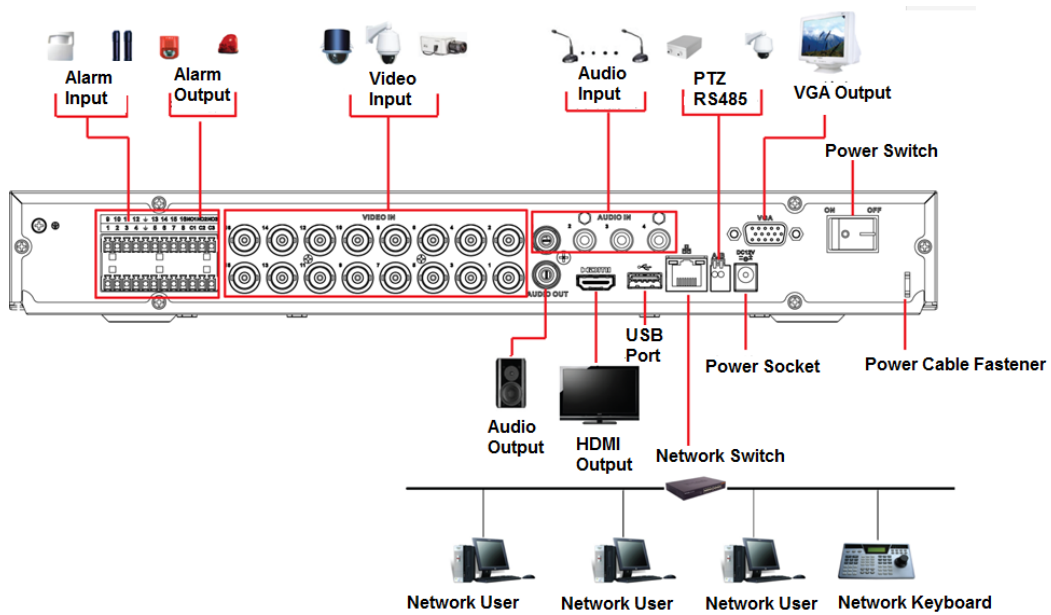
4.2 Connecting to Video and Audio Input and Output

4.2.1 Video Input

The video input interface is BNC. The input video format includes: PAL/NTSC BNC ($1.0V_{P-P}$, 75Ω).

The video signal should comply with your national standards.

The input video signal shall have high SNR, low distortion; low interference, natural color, and suitable lightness.

Guarantee the stability and reliability of the camera signal

The camera shall be installed in a cool, dry place away from the conditions such as direct sunlight, inflammable, and explosive substances.

The camera and the DVR should have the same grounding to ensure the normal operation of the camera.

Guarantee stability and reliability of the transmission line

Please use high quality, sound shielded BNC. Please select suitable BNC model according to the transmission distance.

If the distance is too long, you should use twisted pair cable, and you can add video compensation devices or use optical fiber to ensure video quality.

You should keep the video signal away from the strong electromagnetic interference, especially the high tension current.

Keep connection lugs in well contact

The signal line and shielded wire should be fixed firmly and in well connection. Avoid dry joint, lap welding, and oxidation.

4.2.2 Video Output

Video output includes a BNC (PAL/NTSC$1.0V_{P-P}$, 75Ω) output, a VGA output, and HDMI output. System supports BNC, VGA and HDMI output at the same time.

When you are using pc-type monitor to replace the monitor, please pay attention to the following points:

- To defer aging, do not allow the pc monitor to run for a long time.
- Regular demagnetization will keep device maintain proper status.
- Keep it away from strong electromagnetic interference devices.

Using TV as video output device is not a reliable substitution method. You also need to reduce the working hour and control the interference from power supply and other devices. The low quality TV may result in device damage.

4.2.3 Audio Input

This series of products audio input port adopt BNC port.

Due to high impedance of audio input, please use active sound pick-up.

Audio transmission is similar to video transmission. Try to avoid interference, dry joint, loose contact and it shall be away from high tension current.

4.2.4 Audio Output

The audio output signal parameter is usually over 200mv 1KΩ (BNC or RCA). It can directly connect to low impedance earphone, active sound box or amplifier-drive audio output device.

If the sound box and the pick-up cannot be separated spatially, it is easy to arouse squeaking. In this case you can adopt the following measures:

- Use better sound pick-up with better directing property.
- Reduce the volume of the sound box.
- Using more sound-absorbing materials in decoration can reduce voice echo and improve acoustics environment.
- Adjust the layout of speaker and pickup to reduce squeaking.

4.3 Connecting to Alarm Input and Output

Please read the followings before connecting.

Alarm input

- Make sure alarm input mode is grounding alarm input.
- Grounding signal is needed for alarm input.
- Alarm input needs the low level voltage signal.
- Alarm input mode can be either NC (Normally Closed) or NO (Normally Open).
- When you are connecting two DVRs or you are connecting one DVR and one other device, use a relay to separate them.

Alarm output

The alarm output port should not be connected to high power load directly (It shall be less than 1A) to avoid high current which might result in relay damage. Use the contactor to realize the connection between the alarm output port and the load.

How to connect PTZ decoder

- Ensure the decoder has the same grounding with DVR; otherwise the PTZ might not be controlled. Shielded twisted wire is recommended and the shielded layer is used to connect to the grounding.
- Avoid high voltage. Ensure proper wiring and some thunder protection measures.
- For too long signal wires, 120Ω should be parallel connected between A, B lines on the far end to reduce reflection and guarantee the signal quality.
- "485 A, B" of DVR cannot parallel connect with "485 port" of other device.
- The voltage between of A, B lines of the decoder should be less than 5V.

Make sure the front-end device has soundly earthed

Improper grounding might result in chip damage.

4.3.1 Introducing Alarm Port

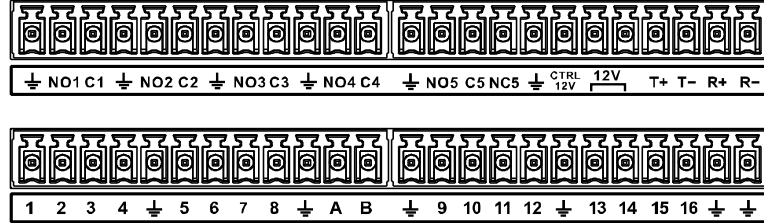The alarm input ports are dependent on the model you purchased.

Figure 4-2

Table 4-1

Icon	Description
1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16	ALARM 1 to ALARM 16. The alarm becomes active in low voltage.
NO1 C1, NO2 C2, NO3 C3, NO4 C4	There are four groups of normally open activation output (on/off button).
NO5 C5 NC5,	There is one group of normally open activation output (on/off button).
Power output control for alarm (CTRL 12V)	Controls the 6th channel power output for alarm. Electric current: 500mA. ● When there is an alarm output, close the power output. ● When the alarm is cancelled, open the power output.
+12V	Rated power supply. Electric current: 500mA.
⏚	Ground cable.
485 A/B	485 communication port. They are used to control devices such as decoder. 120Ω should be parallel connected between A, B lines if there are too many PTZ decoders.
T+,T-,R+,R-	Four-wire full-duplex RS-485 port. T+ T-: output wire. R+ R-: input wire.

4.3.2 Alarm Input

Refer to the following figure for more information.

● Grounding alarm inputs which includes NO (Normally Open) and NC (Normally Closed) type.
● Parallel connect COM end and GND end of the alarm detector (Provide external power to the alarm detector).
● Parallel connect the Ground of the DVR and the ground of the alarm detector.
● Connect the NC port of the alarm sensor to the DVR alarm input (ALARM).
● Use the same ground with that of DVR if you use external power to the alarm device.

Figure 4-3
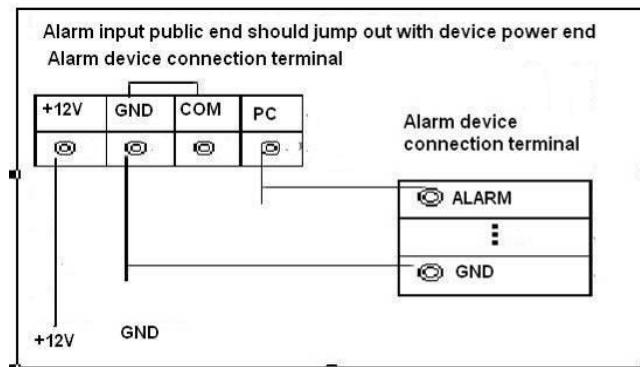
4.3.3 Alarm Output

- Provide external power to external alarm device.
- To avoid overloading, read the following relay parameters table carefully.
- RS-485 A/B cable is for the A/B cable of the PTZ decoder.

4.3.4 Alarm Output Relay Parameters

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Refer to the actual product for relay model information.

Model		HFD23/005-1ZS	HRB1-S-DC5V
Material of the touch		AgNi+ gold-plating	AuAg10/AgNi10/CuNi30
Rating (Resistance Load)	Rated switch capacity	30V DC 1A/125V AC 0.5A	24V DC 1A/125V AC 2A
	Maximum switch power	62.5VA/30W	250VA/48W
	Maximum switch voltage	125V AC/60V DC	125V AC/60V DC
	Maximum switch currency	2A	2A
Insulation	Between touches	400VAC 1 minute	500VAC 1 minute
	Between touch and winding	1000VAC 1 minute	1000VAC 1 minute
Turn-on Time		5ms maximum	5ms maximum
Turn-off Time		5ms maximum	5ms maximum
Longevity	Mechanical	1×10^7 times (300 times/MIN)	5×10^6 times (300 times/MIN)
	Electrical	1×10^5 times (30 times/MIN)	2.5×10^4 times (30 times/MIN)
Working Temperature		-30℃—+70℃	-40℃—+70℃

4.4 Connecting to RS-485 Port

Step 1   Connect the RS-485 cable of the PTZ camera to the RS-485 port on the Device. Ensure the match of A and B interfaces.

Step 2   Connect the video out cable of the PTZ camera to the video input port on the Device.

Step 3   Turn on the PTZ camera