EVI Series Hardware User's Manual

Default
Username: admin
Password: 1234

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Welcome

Thank you for purchasing our EVI DVR!

This user's manual is designed to be a reference tool for the installation and operation of your system.

Here you can find information about this series standalone DVR features and functions, as well as a detailed menu tree.

Before installation and operation please read the following safeguards and warnings carefully!

Important Safeguards and Warnings

1．Electrical safety

All installation and operation here should conform to your local electrical safety codes.
We assume no liability or responsibility for all the fires or electrical shock caused by improper handling or installation.

2．Transportation security

Heavy stress, violent vibration or water splash are not allowed during transportation, storage and installation.

3．Installation

Keep upwards. Handle with care.
Do not apply power to the DVR before completing installation.
Do not place objects on the DVR

4．Qualified engineers needed

All the examination and repair work should be done by the qualified service engineers.
We are not liable for any problems caused by unauthorized modifications or attempted repair.

5．Environment

The DVR should be installed in a cool, dry place away from direct sunlight, inflammable, explosive substances and etc.

6. Accessories

Be sure to use all the accessories recommended by manufacturer.
Before installation, please open the package and check all the components are included.
Contact your local retailer ASAP if something is broken in your package.

7. Lithium battery

Improper battery use may result in fire, explosion, or personal injury!
When replace the battery, please make sure you are using the same model!

1 FEATURES AND SPECIFICATIONS

1.1 Overview

The hybrid standalone series DVR is an excellent digital monitor product designed for security field.

It adopts embedded Linux OS to maintain reliable operation. Popular H.264 compression algorithm and G.711 audio compression technology realize high quality, low bit stream. Unique frame by frame play function is suitable for detailed analysis. It has various functions such as record, playback, monitor at the same time and can guarantee audio video synchronization. This series product has advanced technology and strong network data transmission function.

This series product can be widely used in various areas such as banking, telecommunication, electric power, interrogation, transportation, intelligent resident zone, factory, warehouse, resources, and water conservancy.

1.2 Features

This series product has the following features:

- **Real-time surveillance**

Support VGA port and HDMI port. Realize the surveillance through displayer. Support HDMI, VGA, and TV output at the same time.

- **Storage function**

Special data format to guarantee data security and can remove the risk of the vicious data modification. Support digital watermark.

- **Compression format**

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

- **Backup function**

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

- **Record & playback function**

Support each channel real-time record independently, and at the same time it can support search, forward play, network monitor, record search, download and etc.
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 customized zoom function during the preview.

- **Network operation**

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

- **Alarm activation function**

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

- **Communication port**

RS485 port can realize alarm input and PTZ control.
RS232 port can connect to keyboard to realize central control, and can also connect to PC COM to

upgrade system and realize maintenance, and matrix control.
Standard Ethernet port can realize network access function.
The dual-network port has the multiple-access, fault-tolerance, load-balance setup mode.

- **PTZ control**

Support PTZ decoder via RS485.

- **Intelligent operation**

Mouse operation function
In the menu, support copy and paste setup function

- **UPNP (Universal Plug and Play)**

Establish mapping connection between LAN and WAN via UPNP protocol.

Slight function differences may be found due to different series.

1.3 Specifications

1.3.1 EVI 1.3 Series

	Parameter	4-ch	8-ch
System	Main Processor	High-performance industrial embedded micro controller	
	OS	Embedded LINUX	
	System Resources	Multiplex operations: Multiple-channel record, multiple-channel playback and network operation simultaneously	
	Interface	User-friendly graphical user interface	
	Input Devices	USB mouse	
	Input Method	Arabic number, English character, donation and extension Chinese (optional)	
	Shortcut Function	Copy/paste operation, USB mouse right-key shortcut menu, double click USB mouse to switch screen.	
Compression Standard	Video Compression	H.264	
	Audio Compression	G711A, G711U, PCM	
Video monitor	Video Input	4-CH composite video input: (NTSC/PAL) BNC (1.0VBP- P, B75Ω)	8-CH composite video input: (NTSC/PAL) BNC (1.0VBP- P, B75Ω)
	Video Output	1-ch PAL/NTSC, BNC (1.0VP- P, 75Ω) composite video signal output. 1-ch VGA output. 1-ch HDMI output. Support TV/VGA/HDMI video output at the same time.	
	Video Standard	720P/25, 720P/30, 720P/50, 720P/60	
	Record Speed	Real-time Mode: PAL 1f/s to 25f/s per channel and NTSC 1f/s to 30f/s per channel	
	Video Partition	1/4windows(Optional)	1/4/8/9 windows

	Monitor Touring	Support monitor tour functions such as alarm, motion detection, and schedule auto control.
	Resolution (PAL/NTSC)	Real-time monitor： 720P 1280*720
		Playback： 1/16-ch: 720P 1280×720, D1 704×576/704×480, HD1 352×576/352×480, 2CIF 704×288/704×240, CIF 352×288/ 352×240, QCIF 176×144/176×120
		Support dual streams: extra stream resolution D1 704×576/704×480 CIF 352×288/ 352×240, QCIF 176×144/176×120
	Image Quality	6-level image quality (Adjustable)
	Privacy mask	Support one privacy mask of user-defined size in full screen. Support max 4 zones.
	Image Information	Channel information, time information and privacy mask zone.
	TV Adjust	Adjust TV output zone suitable to anamorphic video.
	Channel Lock	Cover secret channel with blue screen though system is encoding normally. Screen-lock function to prevent unauthorized user seeing secret video.
	Channel Information	Channel name, recording status, screen lock status, video loss status and motion detection status are shown on the bottom left of display screen.
	Color Configuration	Hue, brightness, contrast, saturation and gain setup for each channel.
Audio	Audio Input	4-ch 200-2000mv 10KΩ(BNC)
	Audio Output	1-ch audio output 200-3000mv 5KΩ(BNC)
	Bidirectional Audio	Reuse the AUDIO IN of the first channel and AUDIO OUT.
Hard disk	Hard Disk	2 built-in SATA ports. Support 2 HDDs.
	One HDD Capacity	Max 4T per port
	Hard Disk Occupation	Audio：PCM 28.8MByte/h Video：56-900MByte/h
Record and playback	Recording Mode	Manual recording, motion detection recording, schedule recording and alarm recording Priority: Manual recording> alarm recording>motion detection recording>schedule recording.
	Storage Mode	Support channel record quota setup
	Recording Length	1 to 120 minutes single record duration (Default setup is 60 minutes)

	Playback Repeat Way	When hard disk is full, system can overwrite previous video file.	
	Record Search	Various search engines such as time, type and channel.	
	Playback Mode	Various fast play, slow play speeds, manual frame by frame playback and reverse play mode.	
	Various File Switch Ways	Can switch to previous or next file or any file in current play list. Can switch to file on other channel of the same time. (If there is a file) Support file continuous play, when file is end system auto plays the next file in the current channel	
	Playback Way	Support mark playback	
	Multi-channel Playback	Support 1/4-channel modes	Support 1/4/8-channel modes
	Window Zoom	Switch between self-adaptive screen/full screen when playback	
	Partial Enlargement	When in one-window full-screen playback mode, you can select any zone to activate partial enlargement function.	
Backup function	Backup Mode	HDD backup	
		Support peripheral USB backup device. (Flash disk, portable disk, USB burner and etc.)	
		Does not support external eSATA device backup	
		Support network download and backup	
Network Function	Network control	View monitor channel remotely.	
		DVR configuration through client-end and web browser	
		Upgrade via client or browser to realize remote maintenance.	
		View alarm information such as external alarm, motion detection and video loss via client.	
		Support network PTZ lens control	
		File download backup and playback	
		Multiple devices share information via corresponding software such as professional surveillance software (PSS)	
		Duplex transparent COM	
		Network alarm input and output	
		Zero-channel encoding	
		Bidirectional audio.	
Motion Detection and Alarm	Motion Detection	Zone setup: support 396((PAL 22×18, NTSC 22×15)) detection zones. Various sensitivity levels. Alarm can activate record or external alarm or screen message prompt.	
	Video Loss	Alarm can activate external alarm or screen message prompt.	
	External Alarm	Support record activation function or activate external alarm or screen message in specified period.	
	Manual Alarm Control	Enable or disable alarm input channel Simulate alarm signal to specific alarm output channel.	
	Alarm Input	4-ch alarm input（NO/NC）	8-ch alarm input（NO/NC）
	Alarm Output	3-channel relay output.	
	Alarm Relay	30VDC 2A，125VAC 1A（activation alarm ）	

Interface	USB Interface	2 USB 2.0 ports.
	Network connection	1 RJ45 10M/100M/1000M self-adaptable Ethernet port
	RS485	1 RS485 port. PTZ control port Support various PTZ control protocols.
	RS232	Ordinary COM (Debug),keyboard connection and transparent serial port(COM input and output via network)
	RS422	RS422 port
System Information	Hard Disk Information	Display HDD current status
	Data Stream Statistics	Data stream statistics for each channel (in wave mode)
	Log statistics	Backup to 1024 log files. Support various search engines such as time and type.
	Version	Display version information: channel amount, alarm input and output amount, system version and release date.
	On-line user	Display current on-line user
User Management	User Management	Multi-lever user management; various management modes Integrated management for local user, serial port user and network user. Configurable user power.
		Support user /group and its corresponding rights modification. No limit to the user or group amount.
	Password Authentication	Password modification Administrator can modify other user's password.
		Account lock strategy Five times login failure in thirty minutes may result in account lock.
Upgrade		Web browser, client-end and update tool.
Login, Logout and Shutdown		Password login protection to guarantee safety
		User-friendly interface when login. Provide the following options: Logout /shutdown/ restart.
		Right authentication when shut down to make sure only those proper people can turn off DVR
General Parameter	Power	DC 12V
	Power Consumption	≤25W (With adapter, exclude HDD)
	Working Temperature	-10℃－＋55℃
	Working Humidity	10%－90%
	Air Pressure	86kpa－106kpa
	Dimension	1U standard industrial case. 375(W) x280(D) x50(H)mm
	Weight	1.5－2.5KG (Exclude HDD)
	Installation Mode	Desktop installation

1.3.2 EVI 2.1 Series

	Parameter	4-ch	8-ch
System	Main Processor	High-performance industrial embedded micro controller	
	OS	Embedded LINUX	
	System Resources	Multiplex operations: Multiple-channel record, multiple-channel playback and network operation simultaneously	
	Interface	User-friendly graphical user interface	
	Input Devices	USB mouse	
	Input Method	Arabic number, English character, donation and extension Chinese (optional)	
	Shortcut Function	Copy/paste operation, USB mouse right-key shortcut menu, double click USB mouse to switch screen.	
Compression Standard	Video Compression	H.264	
	Audio Compression	G711A, G711U, PCM	
Video monitor	Video Input	4-CH composite video input: (NTSC/PAL) BNC (1.0VBP- P, B75Ω)	8-CH composite video input: (NTSC/PAL) BNC (1.0VBP- P, B75Ω)
	Video Output	1-ch PAL/NTSC, BNC (1.0VP- P, 75Ω) composite video signal output. 1-ch VGA output. 1-ch HDMI output. Support TV/VGA/HDMI video output at the same time.	
	Video Standard	1080P25, 1080P30,720P/25, 720P/30, 720P/50, 720P/60	
	Record Speed	Real-time Mode: PAL 1f/s to 25f/s per channel and NTSC 1f/s to 30f/s per channel	
	Video Partition	1/4 windows(Optional)	1/4/8/9 windows
	Monitor Touring	Support monitor tour functions such as alarm, motion detection, and schedule auto control.	
	Resolution (PAL/NTSC)	Real-time monitor： 1080P 1920*1080	
		Playback： 1/16-ch: 1080P 1920*1080, 720P 1280×720, D1 704×576/704×480, HD1 352×576/352×480, 2CIF 704×288/704×240, CIF 352×288/ 352×240, QCIF 176×144/176×120	
		Support dual streams: extra stream resolution D1 704×576/704×480 CIF 352×288/ 352×240, QCIF 176×144/176×120	
	Image Quality	6-level image quality (Adjustable)	
	Privacy mask	Support one privacy mask of user-defined size in full screen. Support max 4 zones.	
	Image Information	Channel information, time information and privacy mask zone.	

	TV Adjust	Adjust TV output zone suitable to anamorphic video.	
	Channel Lock	Cover secret channel with blue screen though system is encoding normally. Screen-lock function to prevent unauthorized user seeing secret video.	
	Channel Information	Channel name, recording status, screen lock status, video loss status and motion detection status are shown on the bottom left of display screen.	
	Color Configuration	Hue, brightness, contrast, saturation and gain setup for each channel.	
Audio	Audio Input	4-ch 200-2000mv 10KΩ(BNC)	
	Audio Output	1-ch audio output 200-3000mv 5KΩ(BNC)	
	Bidirectional Audio	Reuse the AUDIO IN of the first channel and AUDIO OUT.	
Hard disk	Hard Disk	2 built-in SATA port. Support 2 HDDs.	
	One HDD Capacity	Max 4T	
	Hard Disk Occupation	Audio：PCM 28.8MByte/h Video：56-900MByte/h	
Record and playback	Recording Mode	Manual recording, motion detection recording, schedule recording and alarm recording Priority: Manual recording> alarm recording>motion detection recording>schedule recording.	
	Storage Mode	Support channel record quota setup	
	Recording Length	1 to 120 minutes single record duration (Default setup is 60 minutes)	
	Playback Repeat Way	When hard disk is full, system can overwrite previous video file.	
	Record Search	Various search engines such as time, type and channel.	
	Playback Mode	Various fast play, slow play speeds, manual frame by frame playback and reverse play mode.	
	Various File Switch Ways	Can switch to previous or next file or any file in current play list. Can switch to file on other channel of the same time. (If there is a file) Support file continuous play, when file is end system auto plays the next file in the current channel	
	Playback Way	Support mark playback	
	Multi-channel Playback	Support 1/4-channel modes	Support 1/4/8-channel modes
	Window Zoom	Switch between self-adaptive screen/full screen when playback	

	Partial Enlargement	When in one-window full-screen playback mode, you can select any zone to activate partial enlargement function.
Backup function	Backup Mode	HDD backup
		Support peripheral USB backup device. (Flash disk, portable disk, USB burner and etc.)
		Does not support external eSATA device backup
		Support network download and backup
Network Function	Network control	View monitor channel remotely.
		DVR configuration through client-end and web browser
		Upgrade via client or browser to realize remote maintenance.
		View alarm information such as external alarm, motion detection and video loss via client.
		Support network PTZ lens control
		File download backup and playback
		Multiple devices share information via corresponding software such as professional surveillance software (PSS)
		Duplex transparent COM
		Network alarm input and output
		Zero-channel encoding
		Bidirectional audio.
Motion Detection and Alarm	Motion Detection	Zone setup: support 396((PAL 22×18, NTSC 22×15)) detection zones. Various sensitivity levels. Alarm can activate record or external alarm or screen message prompt.
	Video Loss	Alarm can activate external alarm or screen message prompt.
	External Alarm	Support record activation function or activate external alarm or screen message in specified period.
	Manual Alarm Control	Enable or disable alarm input channel Support analog alarm signal to specific alarm output channel.
	Alarm Input	4-ch alarm input（NO/NC） | 8-ch alarm input（NO/NC）
	Alarm Output	3-channel relay output.
	Alarm Relay	30VDC 2A，125VAC 1A（activation alarm ）
Interface	USB Interface	2 USB 2.0 ports.
	Network connection	1 RJ45 10M/100M/1000M self-adaptable Ethernet port
	RS485	1 RS485 port. PTZ control port Support various PTZ control protocols.
	RS232	RS232 port. Ordinary COM (Debug),keyboard connection and transparent serial port(COM input and output via network)
System Information	Hard Disk Information	Display HDD current status
	Data Stream Statistics	Data stream statistics for each channel (in wave mode)
	Log statistics	Backup to 1024 log files. Support various search engines such as time and type.
	Version	Display version information: channel amount, alarm input and output amount, system version and release date.
	On-line user	Display current on-line user

User Management	User Management	Multi-lever user management; various management modes Integrated management for local user, serial port user and network user. Configurable user power.
		Support user /group and its corresponding rights modification. No limit to the user or group amount.
	Password Authentication	Password modification Administrator can modify other user's password.
		Account lock strategy Five times login failure in thirty minutes may result in account lock.
Upgrade		Web browser, client-end and update tool.
Login, Logout and Shutdown		Password login protection to guarantee safety
		User-friendly interface when login. Provide the following options: Logout /shutdown/ restart.
		Right authentication when shut down to make sure only those proper people can turn off DVR
General Parameter	Power	DC 12V
	Power Consumption	≤25W (With adapter, exclude HDD)
	Working Temperature	-10℃－＋55℃
	Working Humidity	10%－90%
	Air Pressure	86kpa－106kpa
	Dimension	1U standard industrial case. 375(W) x280(D) x50(H)mm
	Weight	1.5－2.5KG (Exclude HDD)
	Installation Mode	Desktop installation

2 Overview and Controls

This section provides information about front panel and rear panel. When you install this series DVR for the first time, please refer to this part first.

2.1 Front Panel

2.1.1 EVI 1.3 and 2.1 Series

The front panel is shown as below. See Figure 2-1.

Figure 2-1

Please refer to the following sheet for front panel button information.

Name	Icon	Function
Power button	⏻	Power button, press this button for three seconds to boot up or shut down DVR.
Shift	Shift	In textbox, click this button to switch between numeral, English(Small/Capitalized),donation and etc.
Up/1Down/4	▲、▼	Activate current control, modify setup, and then move up and down.
		Increase/decrease numeral.
		Assistant function such as PTZ menu.
		In text mode, input number 1/4 (English character G/H/I)
Left/2 Right/3	◄ ►	Shift current activated control,
		When playback, click these buttons to control playback bar. In text mode, input number 2(English character A/B/C) /3(English character D/E/F)
ESC	ESC	Go to previous menu, or cancel current operation.
		When playback, click it to restore real-time monitor mode.
Enter	ENTER	Confirm current operation
		Go to default button
		Go to menu
Record	REC	Manually stop/start recording, working with direction keys or numeral keys to select the recording channel.

Slow play/8	▮▸	Multiple slow play speeds or normal playback. In text mode, input number 8 (English character T/U/V).
Assistant	Fn	One-window monitor mode, click this button to display assistant function: PTZ control and image color.
		Backspace function: in numeral control or text control, press it for 1.5seconds to delete the previous character before the cursor.
		In motion detection setup, working with Fn and direction keys to realize setup.
		In text mode, click it to switch between numeral, English character(small/capitalized) and etc.
		Realize other special functions.
Fast play/7	▸▸	Various fast speeds and normal playback. In text mode, input number 7 (English character P/Q/R/S).
Play previous/0	|◀	In playback mode, playback the previous video In text mode, input number 0.
Reverse/Pause/6	||◀	In normal playback or pause mode, click this button to reverse playback In reverse playback, click this button to pause playback. In text mode, input number 6 (English character M/N/O)
Play Next/9	▶|	In playback mode, playback the next video In menu setup, go to down ward of the dropdown list. In text mode, input number 9 (English character W/X/Y/Z) .
Play/Pause /5	▶||	In normal playback click this button to pause playback In pause mode, click this button to resume playback. In text mode, input number 5(English character J/K/L).
USB port	⇽	To connect USB storage device, USB mouse.
Network abnormal indication light	Net	Network error occurs or there is no network connection, the light becomes red to alert you.
HDD abnormal indication light	HDD	HDD error occurs or HDD capacity is below specified threshold value, the light becomes red to alert you.

Record light	1-16	System is recording or not. It becomes on when system is recording.
IR Receiver	IR	It is to receive the signal from the remote control.

2.2 Rear Panel

2.2.1 4/8-Channel

This series products' rear panel is shown as below. See Figure 2-2.
The following figure is based on the 8-channel series product.

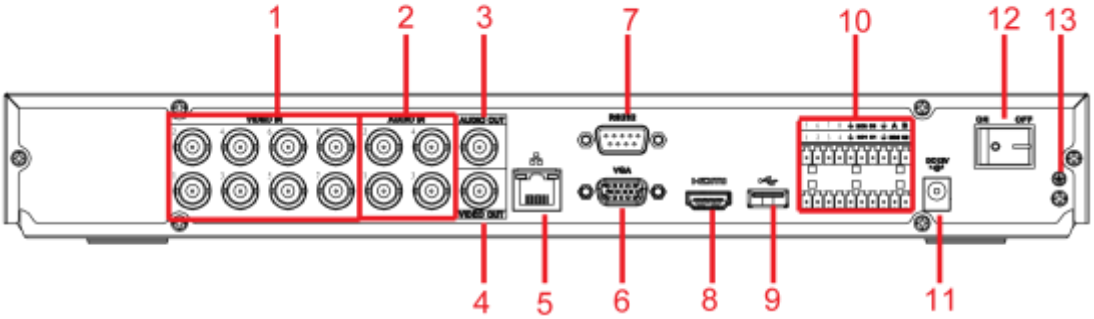

Figure 2-2

Please refer to the following sheet for detailed information.

SN	Icon	Name	Function
1	VIDEO IN	Video input port	Connect to analog camera, video input signal.
2	AUDIO IN	Audio input port	Connect to microphone and etc to input signal.
3	AUDIO OUT	Audio output port	Connect to sound box and etc to output audio signal.
4	VIDEO OUT	Video output port	Connect to output devices such as TV.
5		Network port	100M Ethernet port
6	VGA	VGA video output port	VGA video output port. Output analog video signal. It can connect to the monitor to view analog video.
7	RS-232	RS-232 debug port	It is for general COM debug to configure IP address or transfer transparent COM data.
8	HDMI	High definition media interface	High definition audio and video signal output port. It transmits uncompressed high definition video and multiple-channel data to the HDMI port of the display device.
9		USB2.0 port	Connect to mouse, USB storage media, USB-burner and etc.

10	1-8	Alarm input port1～8	● There are two groups. The first group is from port 1 to port 4, the second group is from port 5 to port 8. They are to receive the signal from the external alarm source. There are two types; NO (normal open)/NC (normal close). When your alarm input device is using external power, please make sure the device and the NVR have the same ground.
	NO1 C1～ NO3 C3	Alarm output port 1～3	● 3 groups of alarm output ports. (Group 1：port NO1～C1,Group 2:port NO2～C2,Group 3:port NO3～C3）).Output alarm signal to the alarm device. Please make sure there is power to the external alarm device. ● NO：Normal open alarm output port. ● C：Alarm output public end.
	A	RS485 (RS-485) communication port	RS485_A port. It is the cable A. You can connect to the control devices such as speed dome PTZ.
	B		RS485_B.It is the cable B. You can connect to the control devices such as speed dome PTZ.
11	DC 12V	Power input port	Input DC 12V
12	ON OFF	Power switch	Power on/off button.
13		GND	Ground port

2.2.2 16-Channel

This series products' rear panel is shown as below. See Figure 2-3.
The following figure is based on the 16-channel series product.

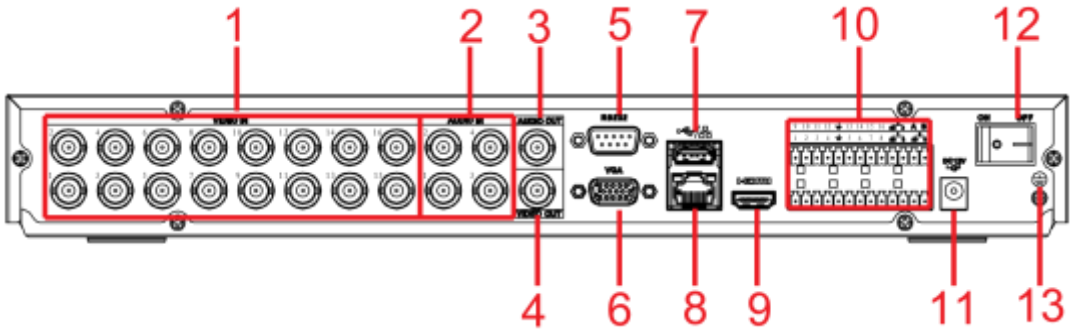

Figure 2-3

Please refer to the following sheet for detailed information.

SN	Icon	Name	Function
1	VIDEO IN	Video input port	Connect to analog camera, video input signal.
2	AUDIO IN	Audio input port	Connect to microphone and etc to input signal.
3	AUDIO OUT	Audio output port	Connect to sound box and etc to output audio signal.
4	VIDEO OUT	Video output port	Connect to output devices such as TV.
5	RS-232	RS-232 debug port	It is for general COM debug to configure IP address or transfer transparent COM data.
6	VGA	VGA video output port	VGA video output port. Output analog video signal. It can connect to the monitor to view analog video.
7		USB2.0 port	Connect to mouse, USB storage media, USB-burner and etc.
8		Network port	100M Ethernet port
9	HDMI	High definition media interface	High definition audio and video signal output port. It transmits uncompressed high definition video and multiple-channel data to the HDMI port of the display device.
10	1～16	Alarm input port1～16	● There are four groups. The first group is from port 1 to port 4, the second group is from port 5 to port 8, the third group is from port9 to port 12, the fourth group is from port13 to port 16. They are to receive the signal from the external alarm source. There are two types; NO (normal open)/NC (normal close). ● When your alarm input device is using external power, please make sure the device and the NVR have the same ground.
	NO1 C1～NO3 C3	Alarm output port 1～3	● 3 groups of alarm output ports. (Group 1：port NO1～C1,Group 2:port NO2～C2,Group 3:port NO3～C3）).Output alarm signal to the alarm device. Please make sure there is power to the external alarm

			device. ● NO：Normal open alarm output port. ● C：Alarm output public end.
	A	RS485 (RS-485) communication port	RS485_A port. It is the cable A. You can connect to the control devices such as speed dome PTZ.
	B		RS485_B.It is the cable B. You can connect to the control devices such as speed dome PTZ.
11		Power input port	Input DC 12V
12		Power switch	Power on/off button.
13		GND	Ground port

2.3 Sample Connection

2.3.1 4/8-Channel

Please refer to the following figure for detailed information. See Figure 2-4.
The following interface is based on the 8-channel series product.

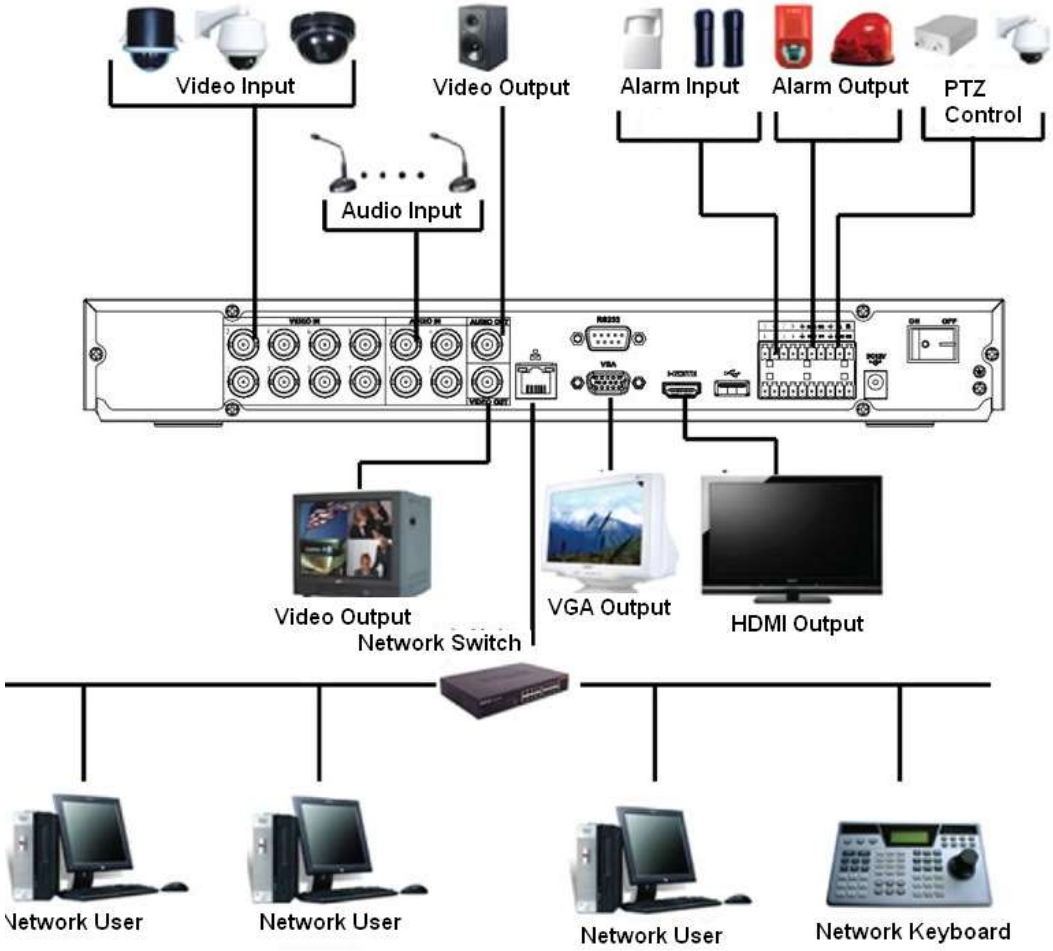

Figure 2-4

2.3.2 16-Channel

Please refer to the following figure for detailed information. See Figure 2-5.
The following interface is based on the 16-channel series product.

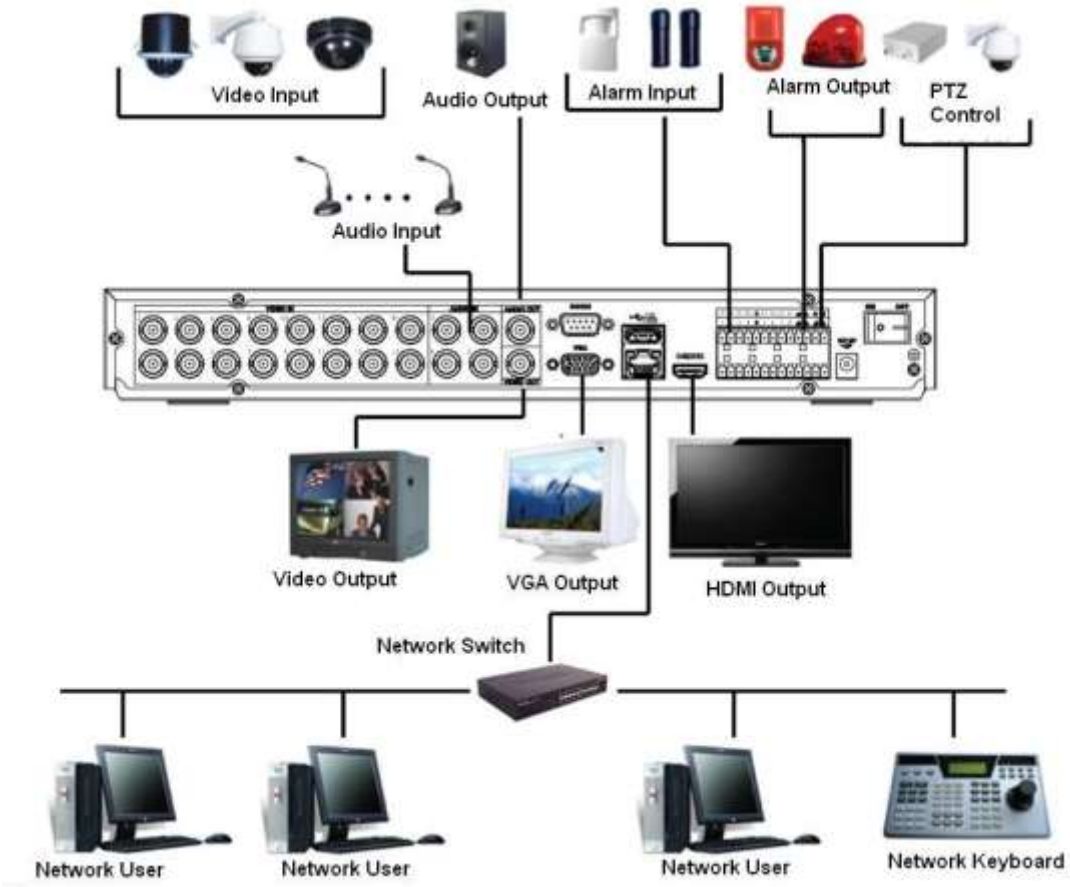
Video Input
Audio Output
Alarm Input
Alarm Output
PTZ Control
Audio Input
Video Output
VGA Output
HDMI Output
Network Switch
Network User
Network User
Network User
Network Keyboard

Figure 2-5

2.4 Remote Control (optional)

The remote control interface is shown as in Figure 2-6.
Please note remote control is not our standard accessory and it is not included in the accessory bag.

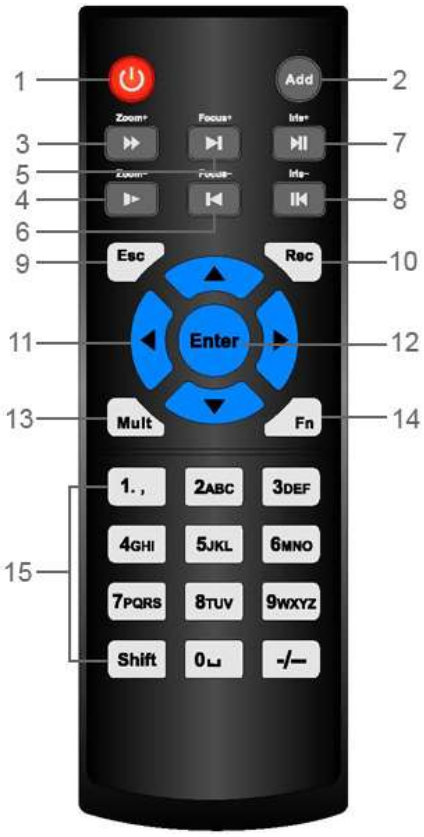

Figure 2-6

Serial Number	Name	Function
1	Power button	Click it to boot up or shut down the device.
2	Address	Click it to input device number, so that you can control it.
3	Forward	Various forward speeds and normal speed playback.
4	Slow play	Multiple slow play speeds or normal playback.
5	Next record	In playback mode, playback the next video.
6	Previous record	In playback mode, playback the previous video.
7	Play/Pause	In pause mode, click this button to realize normal playback.
		In normal playback click this button to pause playback.

		In real-time monitor mode, click this button to enter video search menu.
8	Reverse/pause	Reverse playback pause mode, click this button to realize normal playback.
		In reverse playback click this button to pause playback.
9	Esc.	Go back to previous menu or cancel current operation (close upper interface or control)
10	Record	Start or stop record manually In record interface, working with the direction buttons to select the record channel. Click this button for at least 1.5 seconds, system can go to the Manual Record interface.
11	Direction keys	Switch current activated control, go to left or right. In playback mode, it is to control the playback process bar. Aux function(such as switch the PTZ menu)
12	Enter /menu key	go to default button go to the menu
13	Multiple-window switch	Switch between multiple-window and one-window.
14	Fn	In 1-ch monitor mode: pop up assistant function：PTZ control and Video color.
		Switch the PTZ control menu in PTZ control interface.
		In motion detection interface, working with direction keys to complete setup.
		In text mode, click it to delete character.
15	0-9 number key	Input password, channel or switch channel.
		Shift is the button to switch the input method.

2.5 Mouse Control

Please refer to the following sheet for mouse operation instruction.

Left click mouse	When you have selected one menu item, left click mouse to view menu content.
	Modify checkbox or motion detection status.
	Click combo box to pop up dropdown list
	In input box, you can select input methods. Left click the corresponding button on the panel you can input numeral/English character (small/capitalized). Here ← stands for backspace button. __ stands for space button.   When input special sign, you can click corresponding numeral in the front panel to input. For example, click numeral 1 you can input"/" , or you can click the numeral in the on-screen keyboard directly.
Double left click mouse	Implement special control operation such as double click one item in the file list to playback the video.
	In multiple-window mode, double left click one channel to view in full-window. Double left click current video again to go back to previous multiple-window mode.
Right click mouse	In real-time monitor mode, pops up shortcut menu.
	Exit current menu without saving the modification.
Press middle button	In numeral input box: Increase or decrease numeral value.
	Switch the items in the check box.
	Page up or page down
Move mouse	Select current control or move control
Drag mouse	Select motion detection zone
	Select privacy mask zone.

3 Installation and Connections

Note: All the installation and operations here should conform to your local electric safety rules.

3.1 Check Unpacked DVR

When you receive the DVR from the forwarding agent, please check whether there is any visible damage. The protective materials used for the package of the DVR can protect most accidental clashes during transportation. Then you can open the box to check the accessories.
Please check the items in accordance with the list. Finally you can remove the protective film of the DVR.

Note

Remote control is not a standard accessory and it is not included in the accessory bag.

3.2 About Front Panel and Real Panel

The model in the front panel is very important; please check according to your purchase order.
The label in the rear panel is very important too. Usually we need you to represent the serial number when we provide the service after sales.

3.2.1 HDD Installation

This series DVR has 1 to 8 HDDs (no limitation for capacity). Please use HDD of 7200rpm or higher. Usually we do not recommend the HDD for the PC.You can refer to the Appendix for recommended HDD brand.

All figures listed here are for reference only.

Please follow the instructions listed below to install hard disk.

3.2.2 1U Series

The mini 1U series DVR has one SATA HDD and 1U series DVR has two SATA HDDs.

1. Loosen the screws of the upper cover and side panel.

2. Fix four screws in the HDD (Turn just three rounds).

3. Place the HDD in accordance with the four holes in the bottom.

4. Turn the device upside down and then turn the screws in firmly.
in the chassis.

5. Fix the HDD firmly.

6. Connect the HDD cable and power cable.

7. Put the cover in accordance with the clip and then place the upper cover back.	8. Secure the screws in the rear panel and the side panel.

3.3 Connecting Power Supply

Please check input voltage and device power button match or not.
We recommend you use UPS to guarantee steady operation, DVR life span, and other peripheral equipments operation such as cameras.

3.4 Connecting Video Input and Output Devices

3.4.1 Connecting Video Input

The video input interface is BNC. The input video format includes: PAL/NTSC BNC（1.0V_{P-P}，75Ω.）.
The HD-SDI series input interface is BNC. The input video format: BNC（0.8VP-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 direct sunlight, inflammable, explosive substances and etc.
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.

3.4.2 Connecting Video Output

Video output includes a BNC(PAL/NTSC, 1.0VP- P， 75Ω）output, a VGA output and a 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.

3.5 Connecting Audio Input & Output, Bidirectional Audio

3.5.1 Audio Input

BNC port is adopted for audio input 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.

3.5.2 Audio Output

The audio output signal parameter is usually over 200mv 1KΩ (BNC). 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 to reduce happening of the squeaking.

3.6 Alarm Input and Output Connection

Please read the followings before connecting.

1. Alarm input

a. Please make sure alarm input mode is grounding alarm input.

b. Grounding signal is needed for alarm input.

c. Alarm input needs the low level voltage signal.

d. Alarm input mode can be either NC (normal Open) or NO (Normal Close)

e. When you are connecting two DVRs or you are connecting one DVR and one other device, please use a relay to separate them,

2. 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 may result in relay damage. Please use the co contactor to realize the connection between the alarm output port and the load.

3. How to connect PTZ decoder

a. Ensure the decoder has the same grounding with DVR, otherwise you may not control the PTZ. Shielded twisted wire is recommended and the shielded layer is used to connect to the grounding.

b. Avoid high voltage. Ensure proper wiring and some thunder protection measures.

c. 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.

d. “485 A, B” of DVR cannot parallel connect with “485 port” of other device.

e. The voltage between of A,B lines of the decoder should be less than 5v.

4. Please make sure the front-end device has soundly earthed.
Improper grounding may result in chip damage.

3.6.1 Alarm Input and Output Details (System Dependent)

Important

Please refer to the specifications for the alarm input and output channel amount. Do not merely count the alarm input and out channel amount according to the ports on the rear panel.

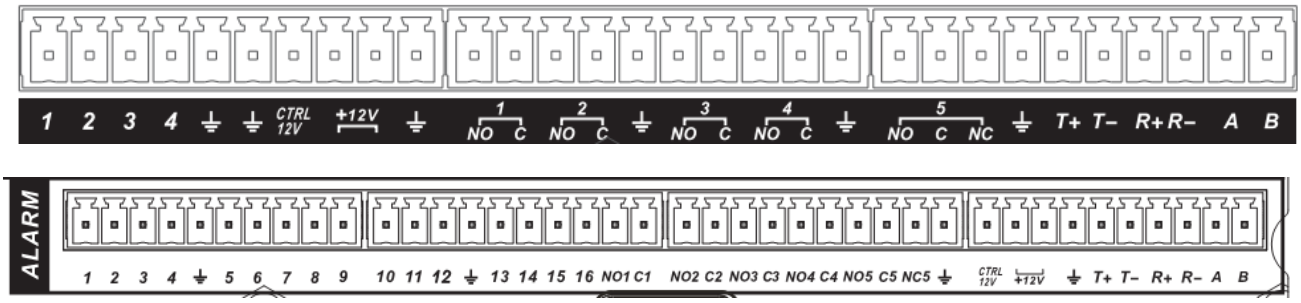

Figure 3-1

In the first line, from the left to the right,: 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.
In the second line, from the left to the right: NO1 C1， NO2 C2， NO3 C3， NO4 C4， NO5 C5 NC5	The first four are four groups of normal open activation output (on/off button) NO5 C5 NC5 is a group of NO/NC activation output (on/off button)
CTRL 12V	Control power output. For external alarm, you need to close the device power to cancel the alarm.
+12V	It is external power input. Need the peripheral equipment to provide +12V power (below 1A).
⏚	Earth cable.
485 A/B	485 communication port. They are used to control devices such as decoder.
T+,T-,R+,R-	They are four-wire double duplex RS485 port T+ T-: output wire R+ R-: input wire

3.6.2 Alarm Input Port

Please refer to the following sheet for more information.

- Grounding alarm inputs. Normal open or Normal close type)
- Please parallel connect COM end and GND end of the alarm detector (Provide external power to the alarm detector).
- Please parallel connect the Ground of the DVR and the ground of the alarm detector.
- Please 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.

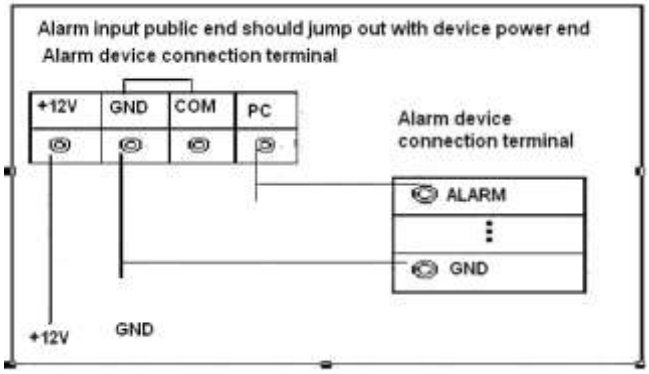

Figure 3-2

3.6.3 Alarm Output Port

- Provide external power to external alarm device.
- To avoid overloading, please read the following relay parameters sheet carefully.
- RS485 A/B cable is for the A/B cable of the PTZ decoder.
- T+,T-,R+,R- are four-wire double duplex RS485 port.
  T+ T-: output wire
  R+ R-: input wire

Relay Specification

Model:	**JRC-27F**	
Material of the touch	Silver	
Rating （Resistance Load）	Rated switch capacity	30VDC 2A, 125VAC 1A
	Maximum switch power	125VA 160W
	Maximum switch voltage	250VAC, 220VDC
	Maximum switch currency	1A
Insulation	Between touches with same polarity	1000VAC 1minute
	Between touches with different polarity	1000VAC 1minute
	Between touch and winding	1000VAC 1minute
Surge voltage	Between touches with same polarity	1500V (10×160us)
Length of open time	3ms max	

Length of close time	3ms max	
Longevity	Mechanical	50×106 times (3Hz)
	Electrical	200×103 times (0.5Hz)
Temperature	-40℃~+70℃	

3.7 RS485

When the DVR receives a camera control command, it transmits that command up the coaxial cable to the PTZ device. RS485 is a single-direction protocol; the PTZ device can't return any data to the unit. To enable the operation, connect the PTZ device to the RS485 (A,B) input on the DVR.
Since RS485 is disabled by default for each camera, you must enable the PTZ settings first. This series DVRs support multiple protocols such as Pelco-D, Pelco-P.
To connect PTZ devices to the DVR:
1. Connect RS485 A,B on the DVR rear panel.
2. Connect the other end of the cable to the proper pins in the connector on the camera.
3. Please follow the instructions to configure a camera to enable each PTZ device on the DVR.

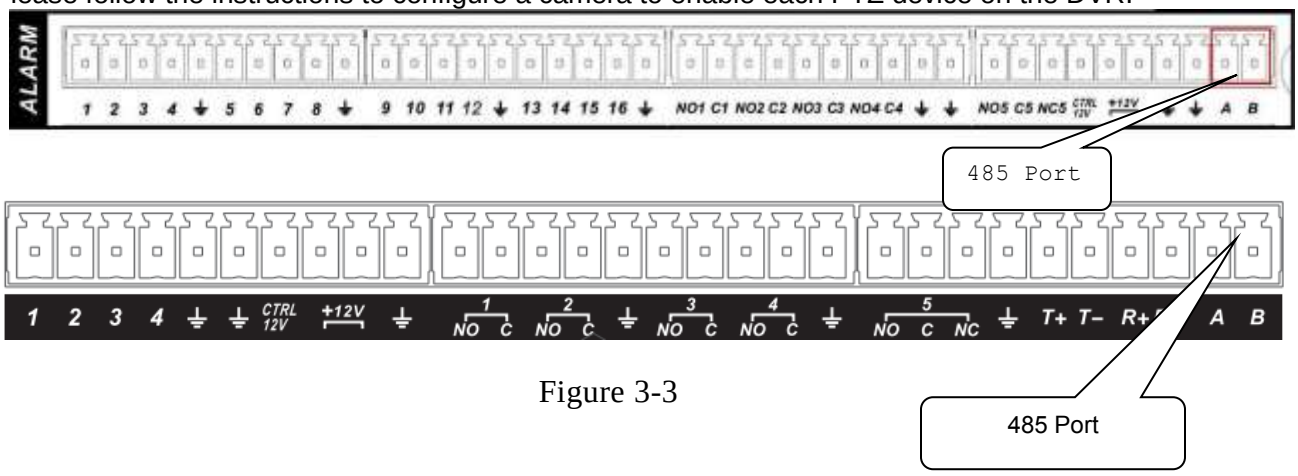

Figure 3-3

4 Overview of Navigation and Controls

4.1 Boot up and Shutdown

4.1.1 Boot up

Before the boot up, please make sure:

- The rated input voltage matches the device power on-off button. Please make sure the power wire connection is OK. Then click the power on-off button.
- Always use the stable current, if necessary UPS is a best alternative measure.

Please follow the steps listed below to boot up the device.

- Connect the device to the monitor and then connect a mouse.
- Connect power cable.
- Click the power button at the front or rear panel and then boot up the device. After device booted up, the system is in multiple-channel display mode by default.

4.1.2 Shutdown

Note

- When you see corresponding dialogue box “System is shutting down…” Do not click power on-off button directly.
- Do not unplug the power cable or click power on-off button to shutdown device directly when device is running (especially when it is recording.)

There are three ways for you to log out.

a) Main menu (**RECOMMENDED**)

From Main Menu->Shutdown, select shutdown from dropdown list.
Click OK button, you can see device shuts down.

b) From power on-off button on the front panel or remote control

Press the power on-off button on the DVR front panel or remote control for more than 3 seconds to shutdown the device.

c) From power on-off button on the rear panel.

4.1.3 Auto Resume after Power Failure

The system can automatically backup video and resume previous working status after power failure.

4.1.4 Replace Button Battery

Please make sure to use the same battery model if possible.
We recommend replace battery regularly (such as one-year) to guarantee system time accuracy.
Note:
Before replacement, please save the system setup, otherwise, you may lose the data completely!