

Digital Video Recorder

Quick Start Guide

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Regulatory information

FCC information

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

FCC conditions

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

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This product and - if applicable - the supplied accessories too are marked with "CE" and comply therefore with the applicable harmonized European standards listed under the Low Voltage Directive 2006/95/EC, the EMC Directive 2004/108/EC, the RoHS Directive 2011/65/EU.



2012/19/EU (WEEE directive): Products marked with this symbol cannot be disposed of as unsorted municipal waste in the European Union. For proper recycling, return this product to your local supplier upon the purchase of equivalent new equipment, or dispose of it at designated collection points. For more information see:

www.recyclethis.info.



2006/66/EC (battery directive): This product contains a battery that cannot be disposed of as unsorted municipal waste in the European Union. See the product documentation for specific battery information. The battery is marked with this symbol, which may include lettering to indicate cadmium (Cd), lead (Pb), or mercury (Hg). For proper recycling, return the battery to your supplier or to a designated collection point. For more information see:

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Thank you for purchasing our product. If there is any question or request, please do not hesitate to contact dealer. This manual is applicable to **4/8/16/24/32CH ST/FT/FA Series HD-TVI DVR**.

DVR Pre-Installation

The HD-TVI series DVR is highly advanced surveillance equipment that should be installed carefully. Please take into consideration the following precautionary steps before installation of the DVR.

1. Keep all liquids away from the DVR.
2. Install the DVR in a well-ventilated and dust-free area.
3. Ensure environmental conditions meet factory specifications.
4. Install a manufacturer recommended HDD.

DVR Installation

During the installation of the DVR:

1. Use brackets for rack mounting.
2. Ensure there is ample room for audio and video cables.
3. When installing cables, ensure that the bend radius of the cables are no less than five times than its diameter.
4. Connect both the alarm and RS-485 cable.
5. Allow at least 2cm (≈ 0.75 -inch) of space between racks mounted devices.
6. Ensure the DVR is grounded.
7. Environmental temperature should be within the range of $-10\text{ }^{\circ}\text{C} \sim 55\text{ }^{\circ}\text{C}$, $14\text{ }^{\circ}\text{F} \sim 131\text{ }^{\circ}\text{F}$.
8. Environmental humidity should be within the range of 10% ~ 90%.

Hard Disk Installation

Before you start:

Before installing a hard disk drive (HDD), please make sure the power is disconnected from the DVR. A factory recommended HDD should be used for this installation.

Up to 8 SATA hard disks can be installed on your DVR.

Tools Required: Screwdriver.



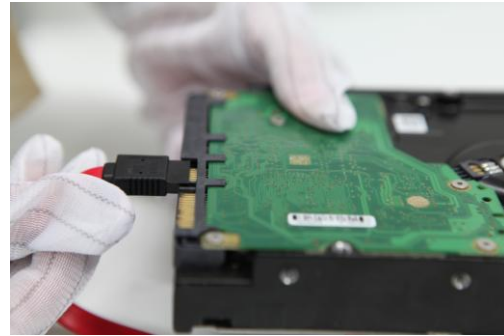
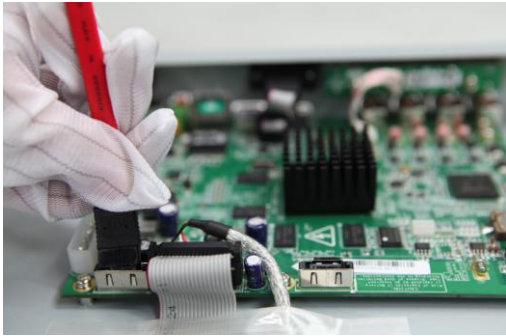
As the installation steps of HDD are similar among different models, here we take the steps of the FT series as an example.

Steps:

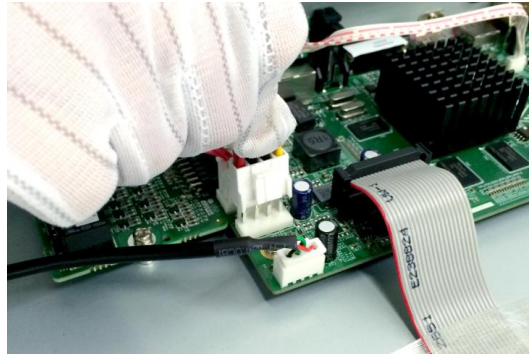
1. Remove the cover from the DVR by unfastening the screws on the back and side.



2. Connect one end of the data cable to the motherboard of DVR and the other end to the HDD.



3. Connect the power cable to the HDD.



4. Place the HDD on the bottom of the device and then fasten the screws on the bottom to fix the HDD.



5. Re-install the cover of the DVR and fasten screws.

Front Panels



Front Panel of 4/8ch-FT/FA and 4ch-ST series



Front Panel of 16ch-FT/FA and 8ch-ST series

Description of Front Panel

| No. | Name | Function Description | |
|-----|-------------------|---|--|
| 1 | Status Indicators | POWER: the POWER indicator turns green when NVR is powered up. | |
| | | READY: The indicator light is green when the device is running normally. | |
| | | STATUS: 1.The light is green when the IR remote control is enabled; 2.The light is red when the function of the composite keys (SHIFT) are used; 3. The light is out when none of the above condition is met/ | |
| | | ALARM: the light is red when there is an alarm occurring. | |
| | | HDD: the indicator flickers red when HDD is reading/writing. | |
| | | Tx/Rx: TX/RX indicator flickers green when network connection is functioning normally. | |
| 2 | USB Interfaces | Universal Serial Bus (USB) ports for additional devices such as USB mouse and USB Hard Disk Drive (HDD). | |
| 3 | Composite Keys | 1/MENU: | Enter numeral "1"; |
| | | | Access the main menu interface. |
| | | 2/ABC/F1: | Enter numeral "2"; |
| | | | Enter letters "ABC"; |
| | | | The F1 button when used in a list field will select all items in the list. |
| | | | In PTZ Control mode, it will turn on/off PTZ light and when the image is zoomed in, the key is used to zoom out. |
| | | 3/DEF/F2: | Enter numeral "3"; |
| | | | Enter letters "DEF"; |
| | | | The F2 button is used to change the tab pages. |
| | | | In PTZ control mode, it zooms in the image. |
| | | 4/GHI/ESC: | Enter numeral "4"; |
| | | | Enter letters "GHI"; |

| No. | Name | Function Description |
|-----|------------------------|--|
| | | <p>Exit and back to the previous menu.</p> <p>5/JKL/EDIT:</p> <p>Enter numeral “5”;</p> <p>Enter letters “JKL”;</p> <p>Delete characters before cursor;</p> <p>Check the checkbox and select the ON/OFF switch;</p> <p>Start/stop record clipping in playback.</p> <p>6/MNO/PLAY:</p> <p>Enter numeral “6”;</p> <p>Enter letters “MNO”;</p> <p>Playback, for direct access to playback interface.</p> <p>7/PQRS/REC:</p> <p>Enter numeral “7”;</p> <p>Enter letters “PQRS”;</p> <p>Open the manual record interface.</p> <p>8/TUV/PTZ:</p> <p>Enter numeral “8”;</p> <p>Enter letters “TUV”;</p> <p>Access PTZ control interface.</p> <p>9/WXYZ/PREV:</p> <p>Enter numeral “9”;</p> <p>Enter letters “WXYZ”;</p> <p>Multi-channel display in live view.</p> <p>0/A:</p> <p>Enter numeral “0”;</p> <p>Shift the input methods in the editing text field. (Upper and lowercase, alphabet, symbols or numeric input).</p> <p>Double press the button to switch the main and auxiliary output.</p> |
| 4 | SHIFT | Switch between the numeric or letter input and functions of the composite keys. (Input letter or numbers when the light is out; Realize functions when the light is red.) |
| 5 | Control Buttons | <p>Directional buttons:</p> <p>In menu mode, the direction buttons are used to navigate between different fields and items and select setting parameters.</p> <p>In playback mode, the Up and Down buttons are used to speed up and slow down record playing, and the Left and Right buttons are used to move the recording 30s forwards or backwards.</p> <p>In the image setting interface, the up and down button can adjust the level bar of the image parameters.</p> <p>In live view mode, these buttons can be used to switch channels.</p> <p>Enter:</p> <p>The Enter button is used to confirm selection in menu mode; or used to check checkbox fields and ON/OFF switch.</p> <p>In playback mode, it can be used to play or pause the video.</p> <p>In single-frame play mode, pressing the Enter button will play the video by a single frame.</p> <p>And in auto sequence view mode, the buttons can be used to pause or resume auto sequence.</p> |
| 6 | IR Receiver | Receiver for IR remote. |



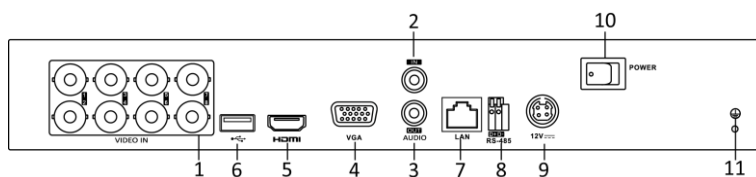
Front Panel of 16ch-ST and 24/32ch-FA series

Description of Front Panel

| No. | Name | Function Description | |
|-----|-----------------------|--|--|
| 1 | POWER | Power indicator lights in green when DVR is powered up. | |
| | READY | Ready indicator is normally green, indicating that the DVR is functioning properly. | |
| | STATUS | Indicator turns green when DVR is controlled by an IR remote control with the address from 1~254; Indicator turns red when the SHIFT button is used; Indicator does not light when the DVR is controlled by a keyboard or by the IR remote control with the address of 255; Indicator turns green when the DVR is controlled by IR remote control (with the address from 1~254) and keyboard at the same time , and the SHIFT button is not used; Indicator turns orange : (a) when the DVR is controlled by IR remote control (with the address from 1~254) and keyboard at the same time and the SHIFT button is used as well; (b) when the DVR is controlled by IR remote control (with the address from 1~254) and the SHIFT button is used. | |
| | ALARM | Alarm indicator turns red when a sensor alarm is detected. | |
| | HDD | HDD indicator blinks in red when data is being read from or written to HDD. | |
| | Tx/Rx | Tx/Rx indicator blinks in green when network connection is functioning properly. | |
| | 2 | DVD-R/W | Slot for DVD-R/W. |
| 3 | Composite Keys | SHIFT | Switch between the numeric or letter input and functions of the composite keys. (Input letter or numbers when the light is out; Realize functions when the light is red.) |
| | | 1/MENU | Enter numeral “1”; Access the main menu interface. |
| | | 2/ABC/F1 | Enter numeral “2”; |
| | | | Enter letters “ABC”; |
| | | | The F1 button when used in a list field will select all items in the list. In PTZ Control mode, it will turn on/off PTZ light and when the image is zoomed in, the key is used to zoom out. In live view or playback mode, the F1 button can be used to switch between main and spot video output. |
| | | 3/DEF/F2 | Enter numeral “3”; |
| | | | Enter letters “DEF”; |
| | | | The F2 button is used to change the tab pages. In PTZ control mode, it zooms in the image. |
| | | 4/GHI/ESC | Enter numeral “4”; |
| | | | Enter letters “GHI”; |
| | | | Exit and back to the previous menu. |

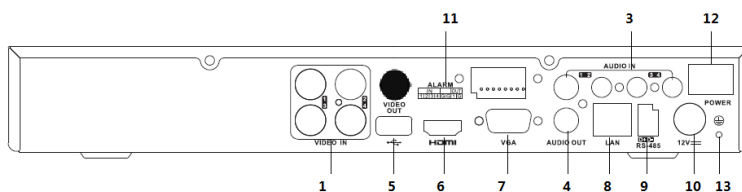
| No. | Name | Function Description |
|-------------------------------------|---|--|
| | 5/JKL/EDIT | Enter numeral “5”; |
| | | Enter letters “JKL”; |
| | | Delete characters before cursor; |
| | | Check the checkbox and select the ON/OFF switch; |
| | | Start/stop record clipping in playback. |
| | 6/MNO/PLAY | Enter numeral “6”; |
| | | Enter letters “MNO”; |
| | | In Playback mode, it is used for direct access to playback interface. |
| | 7/PQRS/REC | Enter numeral “7”; |
| | | Enter letters “PQRS”; |
| | | Manual record, for direct access to manual record interface; manually enable/disable record. |
| | 8/TUV/PTZ | Enter numeral “8”; |
| | | Enter letters “TUV”; |
| | | Access PTZ control interface. |
| | 9/WXYZ/PREV | Enter numeral “9”; |
| | | Enter letters “WXYZ”; |
| Multi-channel display in live view. | | |
| 0/A | Enter numeral “0”; | |
| | Shift the input methods in the editing text field. (Upper and lowercase, alphabet, symbols or numeric input). | |
| 4 | DIRECTION | The DIRECTION buttons are used to navigate between different fields and items in menus. |
| | | In the Playback mode, the Up and Down button is used to speed up and slow down recorded video. The Left and Right button will select the next and previous record files. |
| | | In Live View mode, these buttons can be used to cycle through channels. |
| | | In PTZ control mode, it can control the movement of the PTZ camera. |
| | ENTER | The ENTER button is used to confirm selection in any of the menu modes. |
| | | It can also be used to <i>tick</i> checkbox fields. |
| | | In Playback mode, it can be used to play or pause the video. |
| | | In single-frame Playback mode, pressing the button will advance the video by a single frame. |
| | | In Auto-switch mode, it can be used to stop /start auto switch. |
| | | |
| 5 | POWER | Power on/off switch. |
| 6 | JOG SHUTTLE Control | Move the active selection in a menu. It will move the selection up and down. |
| | | In Live View mode, it can be used to cycle through different channels. |
| | | In the Playback mode, it can be used to jump 30s forward/backward in video files. |
| | | In PTZ control mode, it can control the movement of the PTZ camera. |
| 7 | USB Interface | Universal Serial Bus (USB) ports for additional devices such as USB mouse and USB Hard Disk Drive (HDD). |
| 8 | IR Receiver | Receiver for IR remote control. |

Rear Panels

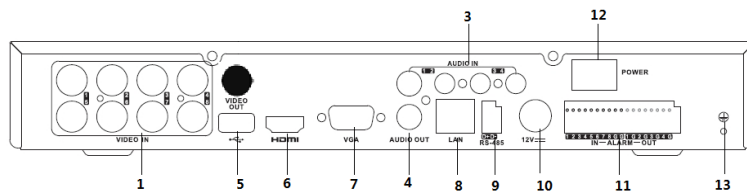


4/8/16ch-FT Series

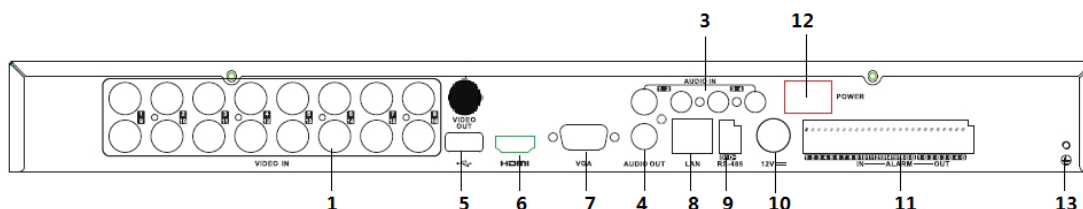
| No. | Item | Description |
|-----|-------------------|---|
| 1 | VIDEO IN | BNC interface for TVI and analog video input. |
| 2 | AUDIO IN | RCA connector |
| 3 | AUDIO OUT | RCA connector |
| 4 | VGA | DB15 connector for VGA output. Display local video output and menu. |
| 5 | HDMI | HDMI video output connector. |
| 6 | USB Port | Universal Serial Bus (USB) port for additional devices. |
| 7 | Network Interface | Connector for network |
| 8 | RS-485 Interface | Connector for RS-485 devices. |
| 9 | Power Supply | DC 12V power supply. |
| 10 | Power Switch | Switch for turning on/off the device. |
| 11 | GND | Ground |



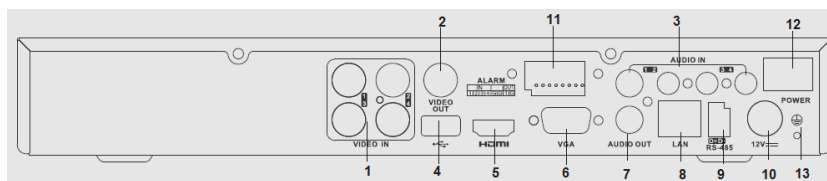
4ch-FA Series



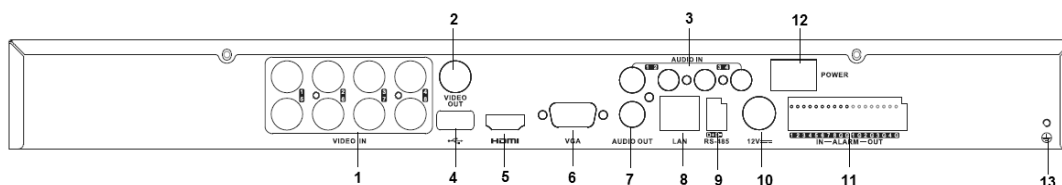
8ch-FA Series



16ch-FA Series

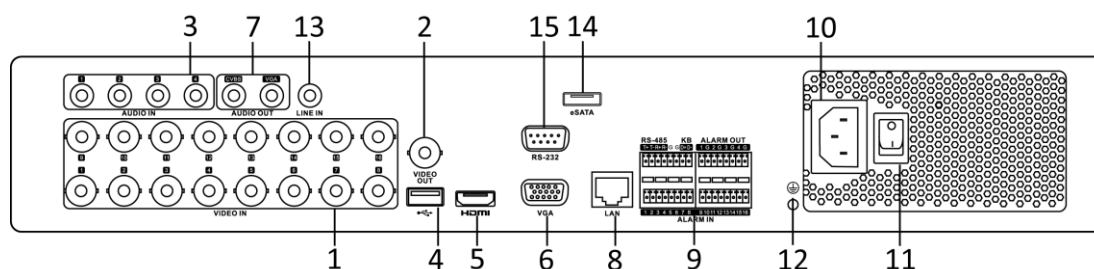


4ch-ST Series

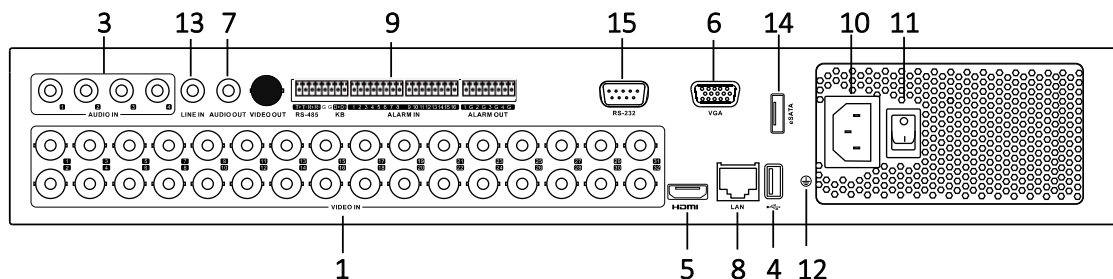


8ch-ST Series

| No. | Item | Description |
|-----|-------------------|---|
| 1 | VIDEO IN | BNC interface for TVI and analog video input. |
| 2 | VIDEO OUT | BNC connector for video output. |
| 3 | AUDIO IN | RCA connector |
| 4 | AUDIO OUT | RCA connector |
| 5 | USB Port | Universal Serial Bus (USB) port for additional devices. |
| 6 | HDMI | HDMI video output connector. |
| 7 | VGA | DB15 connector for VGA output. Display local video output and menu. |
| 8 | Network Interface | Connector for network |
| 9 | RS-485 Interface | Connector for RS-485 devices. |
| 10 | Power Supply | DC 12V power supply. |
| 11 | Alarm | Alarm in and alarm out |
| 12 | Power Switch | Switch for turning on/off the device. |
| 13 | GND | Ground |



16ch-ST Series



24/32ch-FA Series

| No. | Item | Description |
|-----|--------------------------|---|
| 1 | VIDEO IN | BNC interface for TVI and analog video input. |
| 2 | VIDEO OUT | BNC connector for video output. |
| 3 | AUDIO IN | RCA connector |
| 4 | USB Port | Universal Serial Bus (USB) port for additional devices. |
| 5 | HDMI | HDMI video output connector. |
| 6 | VGA | DB15 connector for VGA output. Display local video output and menu. |
| 7 | AUDIO OUT | RCA connector |
| 8 | Network Interface | Connector for network |
| 9 | RS-485 Interface | Connector for RS-485 devices. T+ and T- pins connect to R+ and R- pins of PTZ receiver respectively. |
| | | D+, D- pin connects to Ta, Tb pin of controller. For cascading devices, the first DVR's D+, D- pin should be connected with the D+, D- pin of the next DVR. |
| | | Connector for alarm input. |
| | | Connector for alarm output. |
| 10 | Power Supply | AC 100 ~ 240V power supply. |
| 11 | Power Switch | Switch for turning on/off the device. |
| 12 | GND | Ground |
| 13 | LINE IN | BNC connector for audio input. |
| 14 | eSATA | Connects external SATA HDD, CD/DVD-RW. |
| 15 | RS-232 Interface | Connector for RS-232 devices. |

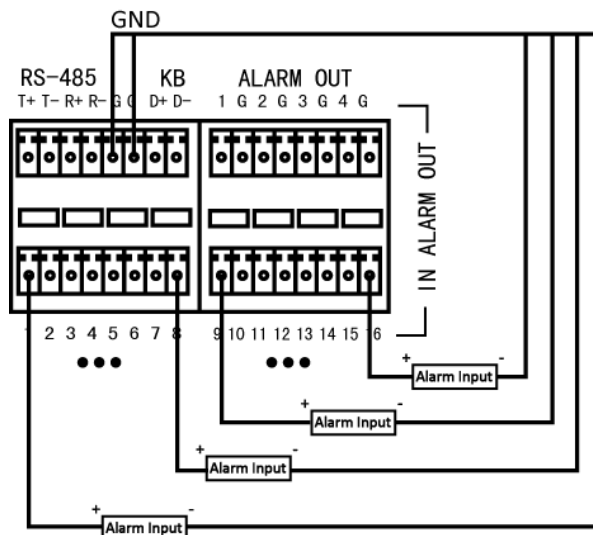
Peripheral Connections

Wiring of Alarm Input

The alarm input is an open/closed relay. To connect the alarm input to the device, use the following diagram.

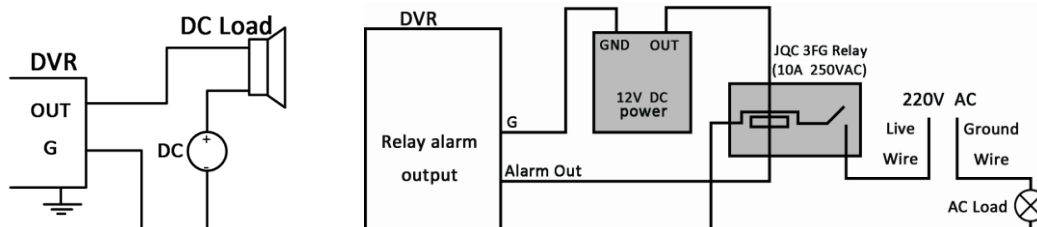
Note:

If the alarm input is not an open/close relay, please connect an external relay between the alarm input and the device.



Wiring of Alarm Output

To connect to an alarm output (AC or DC load), use the following diagram:



DC Load Connection Diagram

AC Load Connection Diagram

For DC load, the jumpers can be used within the limit of 12V/1A safely.

To connect an AC load, jumpers should be left open (you must remove the jumper on the motherboard in the DVR). Use an external relay for safety (as shown in the figure above).

There are 4 jumpers (JP1, JP2, JP3, and JP4) on the motherboard, each corresponding with one alarm output. By default, jumpers are connected. To connect an AC load, jumpers should be removed.

Example:

If you connect an AC load to the alarm output 3 of the DVR, then you must remove the JP 3.

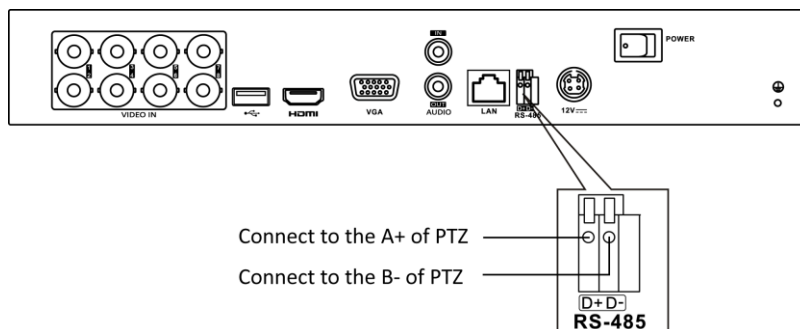
Alarm Connection

To connect alarm devices to the DVR:

1. Disconnect *pluggable block* from the ALARM IN /ALARM OUT terminal block.
2. Press and hold the orange part of the *pluggable block*; insert signal cables into slots and release the orange part. Ensure signal cables are in tight.
3. Connect *pluggable block* back into terminal block.

RS-485 and Controller Connection

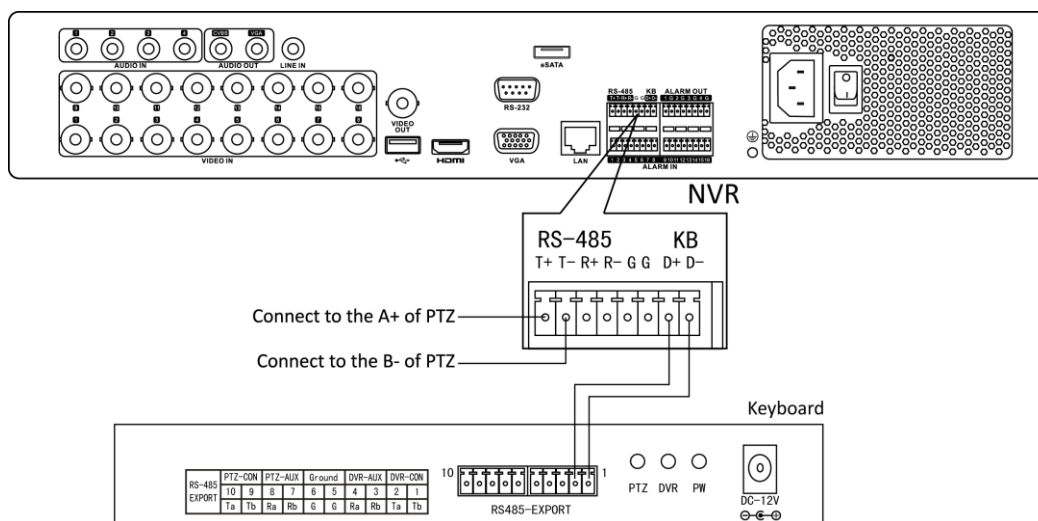
For 4/8/16-FT Series



To connect PTZ to the DVR:

1. Disconnect *pluggable block* from the RS-485 terminal block.
2. Press and hold the orange part of the *pluggable block*; insert signal cables into slots and release the orange part. Ensure signal cables are in tight.
3. Connect A+ on PTZ to D+ on terminal block and B- on controller to D- on terminal block. Fasten stop screws.
4. Connect *pluggable block* back into terminal block.

For 4/8/16-ST Series



To connect PTZ to the DVR:

1. Disconnect *pluggable block* from the RS-485 terminal block.
2. Press and hold the orange part of the *pluggable block*; insert signal cables into slots and release the orange part. Ensure signal cables are in tight.
3. Connect A+ on PTZ to T+ on terminal block and B- on controller to T- on terminal block. Fasten stop screws.
4. Connect *pluggable block* back into terminal block.

To connect a controller to the DVR:

1. Disconnect *pluggable block* from the KB terminal block.
2. Press and hold the orange part of the *pluggable block*; insert signal cables into slots and release the orange part. Ensure signal cables are in tight.
3. Connect Ta on controller to D+ on terminal block and Tb on controller to D- on terminal block. Fasten stop

screws.

4. Connect *pluggable block* back into terminal block.

Note: Make sure both the controller and DVR are grounded.

Termination Switch Operation

- This function is applicable to the ST series DVR.
- The termination switch is placed on the mainboard instead of the rear panel. Open the upper cover and turn on/off the SW switch if needed.

Purpose:

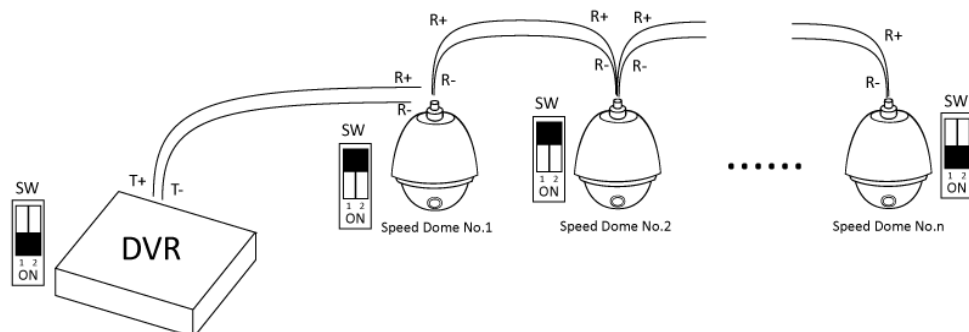
To connect the DVR with several speed domes, the bus topology can be adopted, which means the speed domes are connected with each other via the R+ and R- of RS-485 serial interface. But due to the impedance of 485 wire, the longer the wire is, the greater the impedance gets.

To avoid the signal reduction caused by the great impedance of long distance transmission, please connect two 120Ω resistors in the circuit: one resistor between the DVR and the nearest speed dome, and the other one after the furthest speed dome.

Steps:

1. Turn on the SW switches on the DVR and the furthest speed dome.
2. Keep other SW switches off.

The connection diagram and status of each SW switch are shown in the following figure.



Specifications

Table 1 Specification for 4/8/16ch-FT Series

| Model | | 4ch-FT | 8ch-FT | 16ch-FT |
|----------------------|---|--|------------------|--|
| Video/Audio input | Video compression | H.264 | | |
| | Analog and HD-TVI video input | 4-ch | 8-ch | 16-ch |
| | | BNC interface (1.0Vp-p, 75 Ω) | | |
| | Supported camera types | 720P25, 720P30, 720P50, 720P60, 1080P25, 1080P30, CVBS | | |
| | IP video input | 1 CH 1080P@30fps | 2 CH 1080P@30fps | 2 CH 1080P@30fps |
| | Audio compression | G.711u | | |
| | Audio input / Two-way audio in | 1-ch, RCA (2.0 Vp-p, 1 KΩ) | | |
| Video/Audio output | HDMI / VGA output | 1920 × 1080 / 60 Hz, 1280 × 1024 / 60 Hz, 1280 × 720 / 60 Hz, 1024 × 768 / 60 Hz | | |
| | Encoding resolution | Main stream: 1080P(non-real-time) / 720P / VGA / WD1 / 4CIF / CIF | | |
| | | Sub-stream: WD1(non-real-time) / 4CIF(non-real-time) / CIF / QCIF / QVGA | | |
| | Frame rate | Main stream: 1/16 fps ~ Real time frame rate | | |
| | | Sub-stream: 1/16 fps ~ Real time frame rate | | |
| | Video bitrate | 32 Kbps-6 Mbps | | |
| | Audio output | 1-ch, RCA (Linear, 1KΩ) | | |
| | Audio bitrate | 64 Kbps | | |
| | Dual-stream | Support | | |
| | Stream type | Video, Video & Audio | | |
| Synchronous playback | 4-ch | 8-ch | 16-ch | |
| Playback resolution | 1080P / 720P / VGA / WD1 / 4CIF / CIF / QVGA / QCIF | | | |
| Network management | Remote connections | 128 | | |
| | Network protocols | TCP/IP, PPPoE, DHCP, DNS, DDNS, NTP, SADP, SMTP, SNMP, NFS, iSCSI, UPnP™, HTTPS | | |
| Hard disk | SATA | 1 SATA interface | | 2 SATA interfaces |
| | Capacity | Up to 4 TB capacity for each disk | | |
| External interface | Network interface | 1; 10M / 100M self-adaptive Ethernet interface | | 1; 10M / 100M / 1000M self-adaptive Ethernet interface |
| | Serial interface | 1; standard RS-485 serial interface, half-duplex | | |
| | USB port | 2 × USB2.0 | | |
| General | Power supply | 12V DC | | |
| | Consumption (without hard disks) | ≤ 15W | ≤ 20W | ≤ 30W |
| | Working temperature | -10 °C ~ +55 °C (14 °F ~ 131 °F) | | |
| | Working humidity | 10% ~ 90% | | |
| | Chassis | 1U chassis | | 19" rack-mounted 1U chassis |
| | Dimensions(W × D × H) | 315 × 230 × 45mm (12.4 × 9.1 × 1.8 inch) | | 445 × 290 × 45mm (17.5 × 11.4 × 1.8 inch) |
| | Weight (without hard disks) | ≤ 1.5Kg (3.3lb) | | ≤ 2Kg (4.4lb) |

Table 2 Specification for 4/8/16ch-FA Series

| Model | | 4ch-FA | 8ch-FA | 16ch-FA |
|----------------------|---|--|------------------|--|
| Video/Audio input | Video compression | H.264 | | |
| | Analog and HD-TVI video input | 4-ch | 8-ch | 16-ch |
| | | BNC interface (1.0Vp-p, 75 Ω) | | |
| | Supported camera types | 720P25, 720P30, 720P50, 720P60, 1080P25, 1080P30, CVBS | | |
| | IP video input | 1CH 1080P@30fps | 2 CH 1080P@30fps | |
| | Audio compression | G.711u | | |
| | Audio input / Two-way audio in | 1-ch, RCA (2.0 Vp-p, 1 KΩ) | | |
| Video/Audio output | HDMI / VGA output | 1920 × 1080 / 60 Hz, 1280 × 1024 / 60 Hz, 1280 × 720 / 60 Hz, 1024 × 768 / 60 Hz | | |
| | Encoding resolution | Main stream: 1080P(non-real-time) / 720P / VGA / WD1 / 4CIF / CIF | | |
| | | Sub-stream: WD1(non-real-time) / 4CIF(non-real-time) / CIF / QCIF / QVGA | | |
| | Frame rate | Main stream: 1/16 fps ~ Real time frame rate | | |
| | | Sub-stream: 1/16 fps ~ Real time frame rate | | |
| | Video bitrate | 32 Kbps-6 Mbps | | |
| | Audio output | 1-ch, RCA (Linear, 1KΩ) | | |
| | Audio bitrate | 64 Kbps | | |
| | Dual-stream | Support | | |
| | Stream type | Video, Video & Audio | | |
| Synchronous playback | 4-ch | 8-ch | 16-ch | |
| Playback resolution | 1080P / 720P / VGA / WD1 / 4CIF / CIF / QVGA / QCIF | | | |
| Network management | Remote connections | 128 | | |
| | Network protocols | TCP/IP, PPPoE, DHCP, DNS, DDNS, NTP, SADP, SMTP, SNMP, NFS, iSCSI, UPnP™, HTTPS | | |
| Hard disk | SATA | 1 SATA interface | | 2 SATA interfaces |
| | Capacity | Up to 4 TB capacity for each disk | | |
| External interface | Network interface | 1; 10M / 100M self-adaptive Ethernet interface | | 1; 10M / 100M / 1000M self-adaptive Ethernet interface |
| | Serial interface | 1; standard RS-485 serial interface, half-duplex | | |
| | Alarm in /out | 4/1 | 8/4 | 16/4 |
| | USB port | 2 × USB2.0 | | |
| General | Power supply | 12V DC | | |
| | Consumption (without hard disks) | ≤ 15W | ≤ 20W | ≤ 30W |
| | Working temperature | -10 °C ~ +55 °C (14 °F ~ 131 °F) | | |
| | Working humidity | 10% ~ 90% | | |
| | Chassis | 1U chassis | | 19" rack-mounted 1U chassis |
| | Dimensions (W × D × H) | 315 × 230 × 45mm (12.4 × 9.1 × 1.8 inch) | | 445 × 290 × 45mm (17.5 × 11.4 × 1.8 inch) |
| | Weight (without hard disks) | ≤ 1.5Kg (3.3lb) | | ≤ 2Kg (4.4lb) |

Table 3 Specification for 24/32ch FA Series

| Model | | 24ch-FA | 32ch-FA | |
|------------------------|---|--|--------------------|--|
| Video/ Audio input | Video compression | H.264 | | |
| | Analog and HD-TVI video input | 24-ch | 32-ch | |
| | | BNC interface (1.0Vp-p, 75 Ω) | | |
| | Supported camera types | 720P/25, 720P/30, 720P/50, 720P/60, 1080P/25, 1080P/30, CVBS | | |
| | IP video input | 8-ch (up to 32-ch) | 8-ch (up to 32-ch) | |
| | | Up to 2MP resolution | | |
| | Audio compression | G.711u | | |
| Audio input | 4-ch, RCA (2.0 Vp-p, 1 KΩ) | | | |
| Two-way audio in | 1-ch, RCA (2.0 Vp-p, 1 KΩ) | | | |
| Video/ Audio output | HDMI / VGA output | 1920 × 1080/60 Hz, 1280 × 1024/60 Hz, 1280 × 720/60 Hz, 1024 × 768/60 Hz | | |
| | Encoding resolution | Main stream: 1080P (non-real-time) / 720P / WD1 / VGA / 4CIF / CIF | | |
| | | Sub-stream: WD1 (non-real-time) / 4CIF(non-real-time) / CIF / QCIF / QVGA | | |
| | Frame rate | Main stream: 1/16 fps ~ Real time frame rate | | |
| | | Sub-stream: 1/16 fps ~ Real time frame rate | | |
| | Video bitrate | 32 Kbps-6 Mbps | | |
| | Audio output | 1-ch, RCA (Linear, 1KΩ) | | |
| | Audio bitrate | 64 Kbps | | |
| | Dual-stream | Support | | |
| | Stream type | Video, Video & Audio | | |
| Synchronous playback | 24-ch | 32-ch | | |
| Playback resolution | 1080P / 720P / VGA / WD1 / 4CIF / CIF / QVGA / QCIF | | | |
| Network management | Remote connection | 128 | | |
| | Network protocols | TCP/IP, PPPoE, DHCP, EZVIZ Cloud P2P, DNS, DDNS, NTP, SADP, SMTP, SNMP, NFS, iSCSI, UPnP™, HTTPS | | |
| Hard disk | Type | 4 SATA interfaces for 4 HDDs; 1 eSATA interface | | |
| | Capacity | Up to 4 TB capacity for each disk | | |
| External interface | Network interface | 1; 10M / 100M / 1000M self-adaptive Ethernet interface | | |
| | Serial interface | RS-232, RS-485, Keyboard | | |
| | USB port | 3 × USB2.0 | | |
| | Alarm in / out | 16 / 4 | | |
| General | Power supply | 100 ~ 240VAC, 47 ~ 63HZ | | |
| | Consumption (without hard disks) | ≤ 55W | ≤ 65W | |
| | Working temperature | -10 °C ~ +55 °C (14 °F ~ 131 °F) | | |
| | Working humidity | 10% ~ 90% | | |
| | Chassis | 19-inch rack-mounted 1.5U chassis | | |
| | Dimensions (W × D × H) | 445 × 390 × 70 mm (17.5 × 15.3 × 2.7 inch) | | |
| | Weight (without hard disks) | ≤ 5Kg (11.0lb) | | |

Table 4 Specification for 4/8ch ST Series

| Model | | 4ch-ST | 8ch-ST | |
|-------------------------|---|--|---|--|
| Video/ Audio input | Video compression | H.264 | | |
| | Analog and HD-TVI video input | 4-ch | 8-ch | |
| | | BNC interface (1.0Vp-p, 75 Ω) | | |
| | Supported camera types | 720P/25, 720P/30, 720P/50, 720P/60, 1080P/25, 1080P/30, CVBS | | |
| | IP video input | 1ch(1080p@30fps) | 2ch(1080p@30fps) | |
| | | Up to 2MP resolution | | |
| | Audio compression | G.711u | | |
| Audio input | 4-ch, RCA (2.0 Vp-p, 1 KΩ) | | | |
| Two-way audio in | 1-ch, RCA (2.0 Vp-p, 1 KΩ) | | | |
| Video/ Audio output | HDMI / VGA output | 1920 × 1080/60 Hz, 1280 × 1024/60 Hz, 1280 × 720/60 Hz, 1024 × 768/60 Hz | | |
| | CVBS output | 1-ch, BNC (1.0 Vp-p, 75 Ω), resolution: PAL: 704 × 576, NTSC: 704 × 480 | | |
| | Encoding resolution | Main stream: 1080P (non-real-time) / 720P / WD1 / VGA / 4CIF / CIF | | |
| | | Sub-stream: WD1 (non-real-time) / 4CIF(non-real-time) / CIF / QCIF / QVGA | | |
| | Frame rate | Main stream: 1/16 fps ~ Real time frame rate | | |
| | | Sub-stream: 1/16 fps ~ Real time frame rate | | |
| | Video bitrate | 32 Kbps-6 Mbps | | |
| | Audio output | 1-ch, RCA (Linear, 1KΩ) | | |
| | Audio bitrate | 64 Kbps | | |
| | Dual-stream | Support | | |
| | Stream type | Video, Video & Audio | | |
| Synchronous playback | 4-ch | 8-ch | | |
| Playback resolution | 1080P / 720P / VGA / WD1 / 4CIF / CIF / QVGA / QCIF | | | |
| Network management | Remote connection | 128 | | |
| | Network protocols | TCP/IP, PPPoE, DHCP, EZVIZ Cloud P2P, DNS, DDNS, NTP, SADP, SMTP, SNMP, NFS, iSCSI, UPnP™, HTTPS | | |
| Hard disk | Type | 1SATA interfaces | 2SATA interfaces | |
| | Capacity | Up to 4 TB capacity for each disk | | |
| External interface | Network interface | 1; 10M / 100M self-adaptive Ethernet interface | | |
| | Serial interface | 1; standard RS-485 serial interface, half-duplex | | |
| | USB port | 2 × USB2.0 | | |
| | Alarm in / out | 4/ 1 | 8/4 | |
| General | Power supply | 12V DC | | |
| | Consumption (without hard disks) | ≤ 15W | ≤20W | |
| | Working temperature | -10 °C ~+55 °C (14 °F ~ 131 °F) | | |
| | Working humidity | 10% ~ 90% | | |
| | Chassis | 1 U chassis | 19" rack-mounted 1U | |
| | Dimensions (W × D × H) | 315 × 230 × 45 mm(12.4" x 9.1" x 1.8") | 445 x 290 x 45 mm(17.5" x 11.4" x 1.8") | |
| | Weight (without hard disks) | ≤ 1.5 kg (3.3 lb) | ≤ 2 kg (4.4 lb) | |

Table 5 Specification for 16ch ST Series

| Model | | 16ch-ST |
|----------------------|---|---|
| Video/Audio input | Video compression | H.264 |
| | Analog and HD-TVI video input | 16-ch BNC interface (1.0Vp-p, 75 Ω) |
| | Supported camera types | 720P25, 720P30, 720P50, 720P60, 1080P25, 1080P30, CVBS |
| | IP video input | 2ch(1080p@30fps) |
| | Audio compression | G.711u |
| | Audio input | 4-ch, RCA (2.0 Vp-p, 1 KΩ) |
| | Two-way audio in | 1-ch, RCA (2.0 Vp-p, 1 KΩ) |
| | Video/Audio output | HDMI / VGA output |
| CVBS output | | 1-ch, BNC (1.0 Vp-p, 75 Ω), resolution: PAL: 704 × 576, NTSC: 704 × 480 |
| Encoding resolution | | Main stream: 1080P / 720P / VGA / 4CIF / CIF |
| | | Sub-stream: WD1 (non-real-time) / 4CIF(non-real-time) / CIF / QCIF / QVGA |
| Frame rate | | Main stream: 1/16 fps ~ Real time frame rate |
| | | Sub-stream: 1/16 fps ~ Real time frame rate |
| Video bitrate | | 32 Kbps-10 Mbps |
| Audio output | | 2-ch, RCA (Linear, 1KΩ, for VGA output and CVBS output respectively) |
| Audio bitrate | | 64 Kbps |
| Dual-stream | | Support |
| Stream type | | Video, Video & Audio |
| Synchronous playback | 16-ch | |
| Playback resolution | 1080P / 720P / VGA / WD1 / 4CIF / CIF / QVGA / QCIF | |
| Network management | Remote connection | 128 |
| | Network protocols | TCP/IP, PPPoE, DHCP, DNS, DDNS, NTP, SADP, SMTP, SNMP, NFS, iSCSI, UPnP™, HTTPS |
| Hard disk | Type | 4 SATA interfaces for 4 HDDs; 1 eSATA interface |
| | Capacity | Up to 4 TB capacity for each disk |
| External interface | Network interface | 1; 10M / 100M / 1000M self-adaptive Ethernet interface |
| | Serial interface | RS-232, RS-485, Keyboard |
| | USB port | 3 × USB2.0 |
| | Alarm in / out | 16 / 4 |
| General | Power supply | 100 ~ 240VAC, 47 ~ 63HZ |
| | Consumption (without hard disks) | ≤ 55W |
| | Working temperature | -10 °C ~ +55 °C (14 °F ~ 131 °F) |
| | Working humidity | 10% ~ 90% |
| | Chassis | 19-inch rack-mounted 1.5U chassis |
| | Dimensions (W × D × H) | 445 × 390 × 70 mm (17.5 × 15.3 × 2.7 inch) |
| | Weight (without hard disks) | ≤ 5Kg (11.0lb) |

HDD Storage Calculation Chart

The following chart shows an estimation of storage space used based on recording at one channel for an hour at a fixed bit rate.

| Bit Rate | Storage Used |
|----------|--------------|
| 96K | 42M |
| 128K | 56M |
| 160K | 70M |
| 192K | 84M |
| 224K | 98M |
| 256K | 112M |
| 320K | 140M |
| 384K | 168M |
| 448K | 196M |
| 512K | 225M |
| 640K | 281M |
| 768K | 337M |
| 896K | 393M |
| 1024K | 450M |
| 1280K | 562M |
| 1536K | 675M |
| 1792K | 787M |
| 2048K | 900M |
| 4096K | 1800M |
| 8192K | 3600M |
| 16384K | 7200M |

Note: Please note that supplied values for storage space used are just for reference. Storage space used is estimated by formulas and may have some deviation from actual value.

Accessing by Web Browser

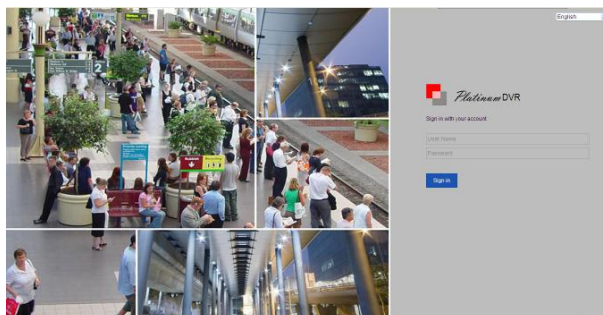
Logging In

You can get access to the device via web browser. Open web browser, input the IP address of the device and then press Enter. The login interface appears.

Note: You may use one of the following listed web browsers: Internet Explorer 6.0, Internet Explorer 7.0, Internet Explorer 8.0, Internet Explorer 9.0, Apple Safari, Mozilla Firefox, and Google Chrome.

Note: The supported resolutions include 1024*768 and above.

Note: The default IP address is 192.0.0.64.



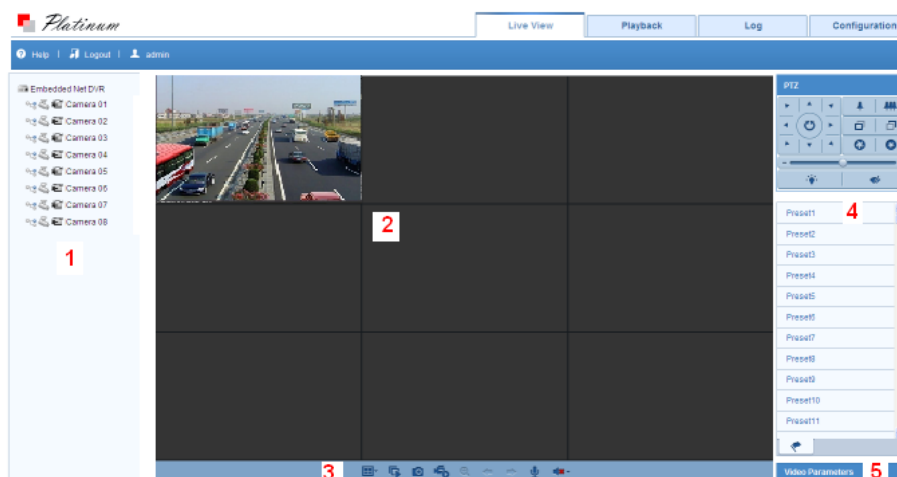
Input the user name and password, and click the Login button.

Note: The default user name is admin, and password is 12345.

When you log in for the first time, the system will remind you to install the Plug-in control. After the installation, you can configure and manage the device remotely.

Live View

The live view interface appears by default when you log in the device.



Interface Introduction


- 1 Channel List: Displays the list of channels and the playing and recording status of each channel.
- 2 Live View Window: Displays the image of channel, and multi-window division is supported.
- 3 Play Control Bar: Play control operations are supported.
- 4 PTZ Control: Pan, tilt, zoom operations are supported, as well as preset editing and calling.

Note: PTZ function can only be realized if the connected camera supports PTZ control.











- 5 Video Parameters Configuration: Brightness, contrast, saturation and hue of the image can be modified.

Start Live View

Steps:

1. In the live view window, select a playing window by clicking the mouse.
2. Double click a camera from the device list to start the live view.
3. You can click the  button on the toolbar to start the live view of all cameras on the device list.

Refer to the following table for the description of buttons on the live view window:

| Icon | Description |
|---|--|
|  | Select the window-division mode |
|  | Start/Stop all live view |
|  | Capture pictures in the live view mode |
|  | Start/Stop all recording |
|  | Previous page |
|  | Next page |
|  | Open/Close audio |
|  | Start/Stop two-way Audio |
|  | Adjust volume |
|  | Enable/Disable digital zoom |

Recording

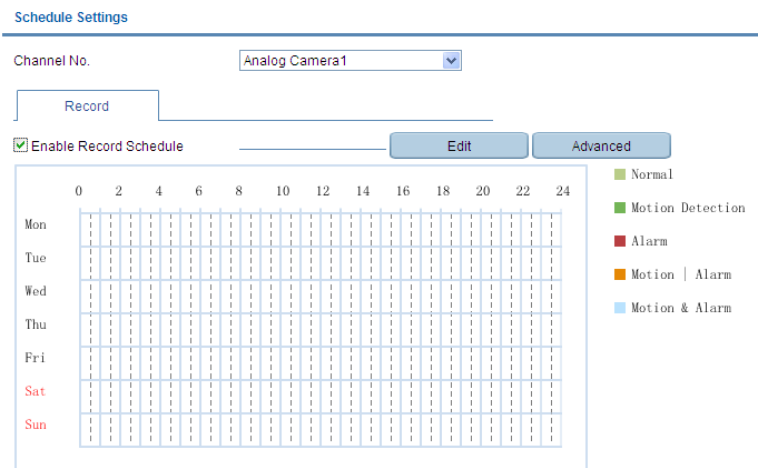
Before you start

Make sure the device is connected with HDD or network disk, and the HDD or network disk has been initialized for the first time to use.

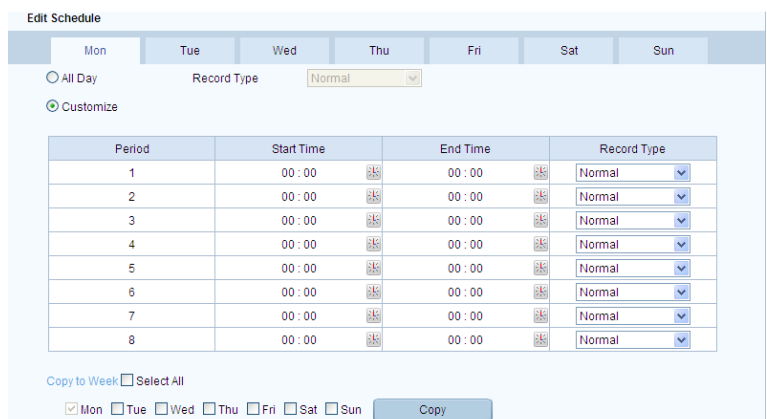
Two recording types can be configured: Manual and Scheduled. The following section introduces the configuration of scheduled recording.

Steps:

1. Click **Remote Configuration> Camera Settings> Record Schedule** to enter Record Schedule settings interface.
2. Select the camera to configure the record schedule.
3. Check the checkbox of **Enable Schedule** to enable recording schedule.



4. Choose the day in a week to configure scheduled recording.
5. Click **Edit** to edit record schedule.



- 1) Configure All Day or Segment Record:
 - If you want to configure the all-day recording, please check the **All Day** checkbox.
 - If you want to record in different time sections, check the **Segment Record** checkbox. Set the **Start Time** and **End Time**.
- Note:** The time of each segment can't be overlapped. Up to 8 segments can be configured.
- 2) Select a **Record Type**. The record type can be Normal, Motion, Alarm, Motion & Alarm, and Motion | Alarm.
 - 3) Check the checkbox of **Select All** and click **Copy** to copy settings of this day to the whole week. You can also check any of the checkboxes before the date and click **Copy**.
 - 4) Click **OK** to save the settings and exit the **Edit Schedule** interface.
6. Click **Advanced** to configure advanced record parameters.
 7. Click **Save** to validate the above settings.

Playback



Interface Introduction

- 1 Channel List: Displays the list of channels and the playing status of each channel.
- 2 Playback Window: Displays the image of channel.
- 3 Play Control Bar: Play control operations are supported.
- 4 Time Line: Displays the time bar and the records marked with different colors.
- 5 Playback Status: Displays the playback status, including channel number and playback speed.
- 6 Calendar: You can select the date to play.

Start Playback

Steps:

1. Click **Playback** on the menu bar to enter playback interface.
2. Click the camera from the device list for playback.
3. Select the date from the calendar and click **Search**.
4. Click the **Play** button to play the video file searched on the current date.
5. Use the buttons on the toolbar to operate in playback mode.

| Button | Description | Button | Description |
|--------|----------------------|--------|------------------|
| | Play/Pause | | Stop |
| | Slow down | | Speed up |
| | Play by single frame | | Capture |
| | Stop all playback | | Download |
| | Video clip | | Open/Close audio |
| | Full Screen | | |

6. You can drag the progress bar with the mouse to locate the exact playback point. You can also input the time

in the textbox : : and click button to locate the playback point.

The color of the video on the progress bar stands for the different video types.

■ Command
 ■ Schedule Recording
 ■ Alarm Recording
 ■ Manual Recording

Log

You can view and export the log files at any time, including operation, alarm, exception and information of device.

Before you start

The Log function can be realized only when the device is connected with HDD or network disk. And make sure the HDD or network disk has been initialized for the first time to use.


Steps:

1. Click **Log** on the menu bar to enter the Log interface.

| No. | Time | Major Type | Minor Type | Channel No. | Local/Remote User | Remote Host IP |
|-----|---------------------|-------------|------------------------|-------------|-------------------|----------------|
| 1 | 2013-09-11 08:58:14 | Operation | Power On | | | 0.0.0.0 |
| 2 | 2013-09-11 08:58:14 | Information | HDD Information | | | 0.0.0.0 |
| 3 | 2013-09-11 08:58:18 | Operation | Local Login | | admin | 0.0.0.0 |
| 4 | 2013-09-11 08:58:19 | Exception | IP Address Conflicted | | | 0.0.0.0 |
| 5 | 2013-09-11 08:58:39 | Information | System Running State | | | 0.0.0.0 |
| 6 | 2013-09-11 08:58:40 | Exception | IP Camera Disconnect | | | 0.0.0.0 |
| 7 | 2013-09-11 08:58:40 | Exception | IP Camera Disconnect | | | 0.0.0.0 |
| 8 | 2013-09-11 08:58:40 | Exception | IP Camera Disconnect | | | 0.0.0.0 |
| 9 | 2013-09-11 08:58:40 | Exception | IP Camera Disconnect | | | 0.0.0.0 |
| 10 | 2013-09-11 08:58:40 | Exception | IP Camera Disconnect | | | 0.0.0.0 |
| 11 | 2013-09-11 08:58:40 | Exception | IP Camera Disconnect | | | 0.0.0.0 |
| 12 | 2013-09-11 08:58:42 | Information | S.M.A.R.T. Information | 5 | | 0.0.0.0 |
| 13 | 2013-09-11 08:58:49 | Exception | IP Camera Disconnect | | | 0.0.0.0 |
| 14 | 2013-09-11 08:58:49 | Exception | Video Signal Loss | D1 | | 0.0.0.0 |
| 15 | 2013-09-11 08:58:49 | Exception | IP Camera Disconnect | | | 0.0.0.0 |
| 16 | 2013-09-11 09:08:39 | Information | System Running State | | | 0.0.0.0 |
| 17 | 2013-09-11 09:18:38 | Information | System Running State | | | 0.0.0.0 |
| 18 | 2013-09-11 09:21:27 | Operation | Local Set IP Camera | | admin | 0.0.0.0 |
| 19 | 2013-09-11 09:22:11 | Operation | Local Set IP Camera | | admin | 0.0.0.0 |

2. Set the log search conditions to refine your search, including the Major Type, Minor Type, Start Time and End Time.
3. Click the **Search** button to start searching log files.
4. The matched log files will be displayed on the list shown below.

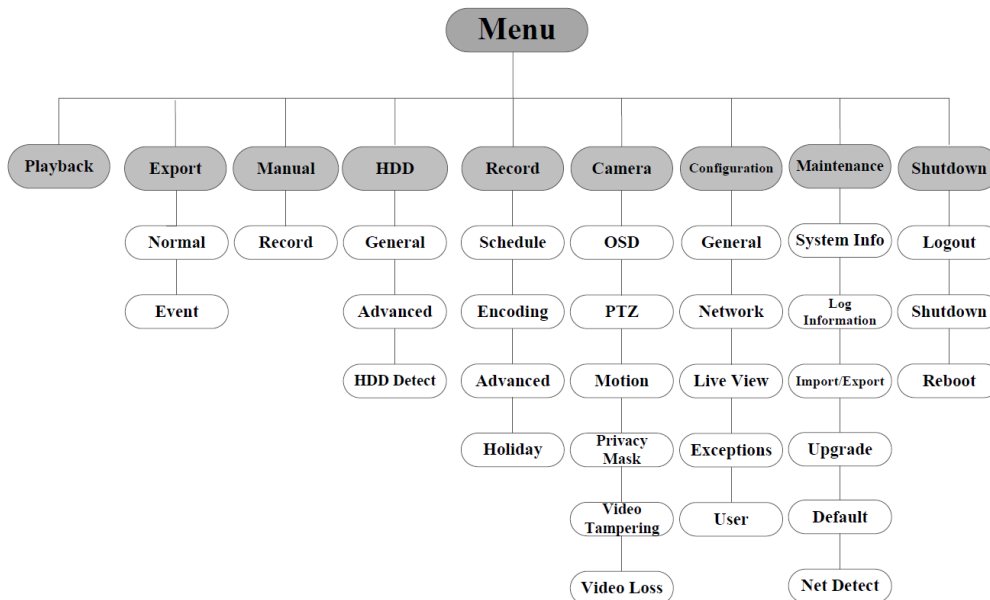
Note: Up to 100 log files can be displayed each time.

You can click the  **Save Log** button to save the searched log files to local directory.

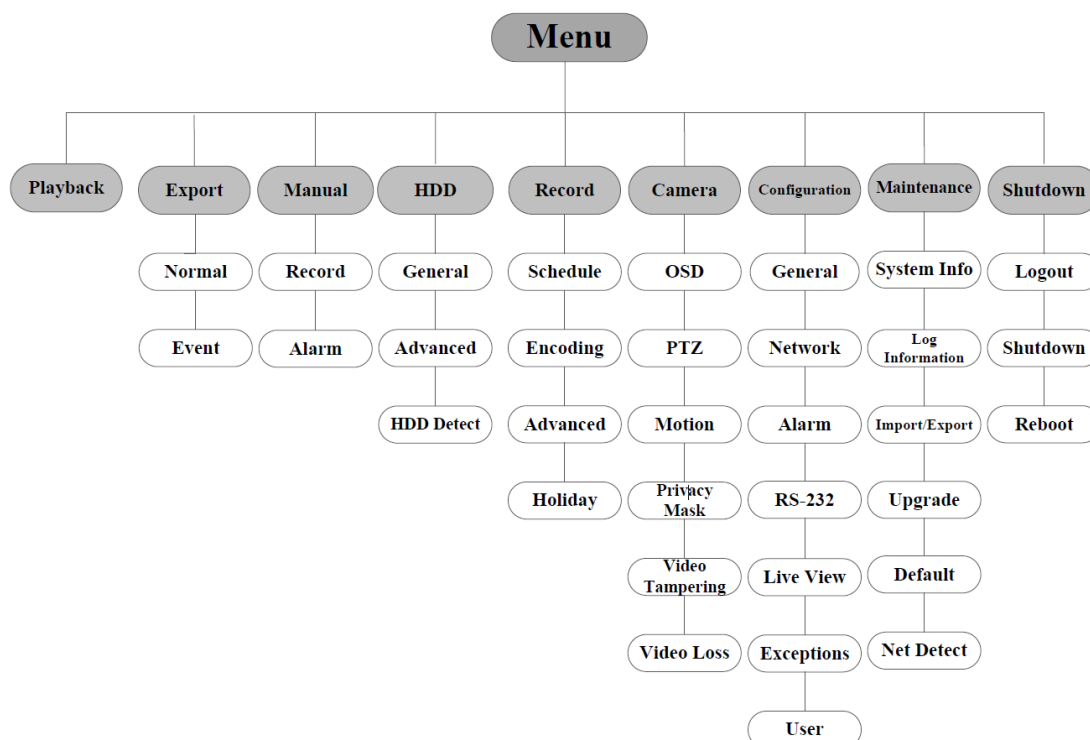
Menu Operation

Menu Structure

The menu structure of the 4CH/8CH-FT/ST DVR is shown below:



The menu structure of the 16/CH-ST and 24/32CH-FA DVR is shown below:



Startup and Shutdown

Proper startup and shutdown procedures are crucial to expand the service time of the DVR.

To start the DVR:

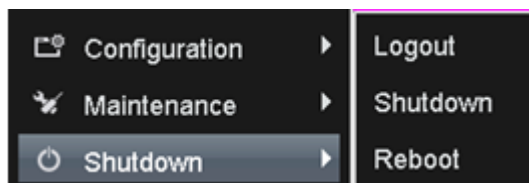
Check the power supply is plugged into an electrical outlet. It is **HIGHLY** recommended that an Uninterruptible Power Supply (UPS) be used in conjunction with the device. Turn on the power switch on the rear panel; the

Power indicator LED on the front panel should be yellow.

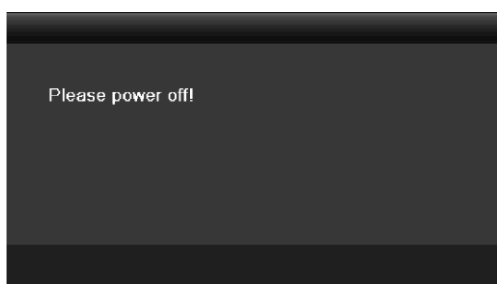
To shut down the DVR:

1. Enter the Shutdown menu.

Menu > Shutdown



2. Select the **Shutdown** button.
3. Click the **Yes** button.
4. Turn off the power switch on the rear panel when the note appears (for 4/8CH ST SERIES series only).



After the device starting up, the wizard will guide you through the initial settings, including modifying password, date and time settings, network settings, HDD initializing, and recording.

Live View

Some icons are provided on screen in Live View mode to indicate different camera status. These icons include:

Live View Icons

In the live view mode, there are icons at the right top of the screen for each channel, showing the status of the record and alarm in the channel, so that you can find problems as soon as possible.



Indicating that there is an alarm or are alarms. Alarm includes (video loss, tampering, motion detection or sensor alarm, etc.).



Recording (manual record, schedule record, motion detection or alarm triggered record)

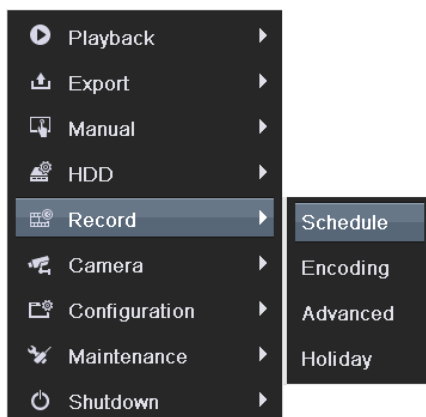


Alarm & Recording

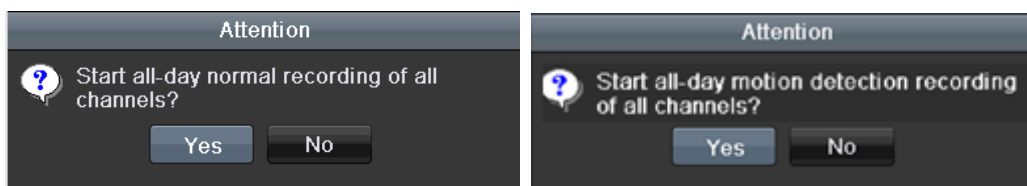
Record

You can use the right-click menu in live view mode to configure recording for all channels.

1. In the live view mode, use the mouse to right-click on the window to access the following menu:



2. Click the **Start Recording** submenu and select the recording mode to **Normal Record** or **Motion Detection Record**.
3. In the pop-up message box, click **Yes** to finish the quick recording settings for all channels.




Note: The full-screen motion detection triggered recording is configured by default in this mode.

Playback

Play back the record files of a specific channel in the live view menu.

Instant playback by channel

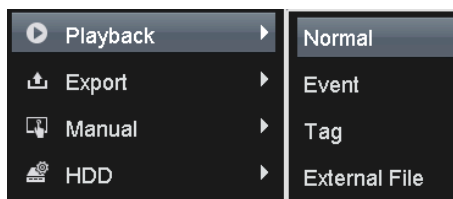
Choose a channel under live view using the mouse and click the  button in the shortcut operation menu.

Note: Only record files recorded during the last five minutes on this channel will be played back.



All-day Playback by channel

1. Enter the All-day Playback menu.
Mouse: right click a channel in live view mode and select All-day Playback from the menu.



Front Panel: press PLAY button to play back record files of the channel under single-screen live view.

Under multi-screen live view, record files of the top left channel (not masked) will be played back.

Note: pressing numerical buttons will switch playback to related channels during playback process.

2. Playback management.

The toolbar in the bottom part of Playback interface can be used to control playing process.



The channel and time selection menu will display by moving the mouse to the right of the playback interface. Just tick the channel or channels if you want to switch playback to another channel or execute simultaneous playback of multiple channels.

Backup

Recorded files can be backed up to various devices, such as USB flash drives, USB HDDs or USB DVD writers. To export recorded files:

1. Enter Video Export interface.

Choose the channel(s) you want to back up and click the **Quick Export** button.



2. Enter Export interface, choose backup device and click the **Export** button to start exporting.



3. Check backup result.

Choose the record file in Export interface and click  button to check it.

