IDIS

Hybrid Digital Video Recorder

ID3916H, ID3932H

User's Manual

WARNING

RISK OF ELECTRIC SHOCK
DO NOT OPEN

WARNING: TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK).
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED
SERVICE PERSONNEL.

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

COMPLIANCE NOTICE OF FCC:

THIS EQUIPMENT HAS BEEN TESTED AND FOUND TO COMPLY WITH THE LIMITS FOR A CLASS 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 USERS WILL BE REQUIRED TO CORRECT THE INTERFERENCE AT THEIR OWN EXPENSE.

WARNING: CHANGES OR MODIFICATIONS NOT EXPRESSLY APPROVED BY THE PARTY RESPONSIBLE FOR COMPLIANCE COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.

THIS CLASS OF DIGITAL APPARATUS MEETS ALL REQUIREMENTS OF THE CANADIAN INTERFERENCE-CAUSING EQUIPMENT REGULATIONS.

The information in this manual is believed to be accurate as of the date of publication. We are not responsible for any problems resulting from the use thereof. The information contained herein is subject to change without notice. Revisions or new editions to this publication may be issued to incorporate such changes.

The software included in this product contains some Open Sources. You may obtain the complete corresponding source code from us. See the Open Source Guide on the software CD (OpenSourceGuide\OpenSourceGuide.pdf) or as a printed document included along with the User's Manual.

Important Safeguards

1. Read Instructions
All the safety and operating instructions should be read before the appliance is operated.

2. Keep Instructions
The safety and operating instructions should be kept for future reference.

3. Cleaning
Unplug this equipment from the wall outlet before cleaning it. Do not use liquid aerosol cleaners. Use a damp soft cloth for cleaning.

4. Attachments
Never add any attachments and/or equipment without the approval of the manufacturer as such additions may result in the risk of fire, electric shock or other personal injury.

5. Water and/or Moisture
Do not use this equipment near water or in contact with water.

6. Accessories
Do not place this equipment on an unstable cart, stand or table. The equipment may fall, causing serious injury to a child or adult, and serious damage to the equipment. Wall or shelf mounting should follow the manufacturer's instructions, and should use a mounting kit approved by the manufacturer.

This equipment and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the equipment and cart combination to overturn.

7. Ventilation
Slots and openings in the cabinet and the back or bottom are provided for ventilation, and to ensure reliable operation of the equipment and to protect it from overheating. These openings must not be blocked or covered. Do not block these openings or allow them to be blocked by placing the equipment on a bed, sofa, rug, or bookcase. Ensure that there is adequate ventilation and that the manufacturer's instructions have been adhered to.

8. Power Sources
This equipment should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power, please consult your equipment dealer or local power company. You may want to install a UPS (Uninterruptible Power Supply) system for safe operation in order to prevent damage caused by an unexpected power stoppage. Any questions concerning UPS, consult your UPS retailer.

9. Power Cords
Operator or installer must remove power and other connections before handling the equipment.

10. Lightning
For added protection for this equipment during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the equipment due to lightning and power-line surges.

11. Overloading
Do not overload wall outlets and extension cords as this can result in the risk of fire or electric shock.

12. Objects and Liquids
Never push objects of any kind through openings of this equipment as they may touch dangerous voltage points or short out parts that could result in a fire or electric shock. Never spill liquid of any kind on the equipment.

13. Servicing
Do not attempt to service this equipment yourself. Refer all servicing to qualified service personnel.

14. Damage requiring Service
Unplug this equipment from the wall outlet and refer servicing to qualified service personnel under the following conditions:

A. When the power-supply cord or the plug has been damaged.
B. If liquid is spilled, or objects have fallen into the equipment.
C. If the equipment has been exposed to rain or water.
D. If the equipment does not operate normally by following the operating instructions, adjust only those controls that are covered by the operating instructions as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the equipment to its normal operation.
E. If the equipment has been dropped, or the cabinet damaged.
F. When the equipment exhibits a distinct change in performance — this indicates a need for service.

15. Replacement Parts
When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or that have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock or other hazards.

16. Safety Check
Upon completion of any service or repairs to this equipment, ask the service technician to perform safety checks to determine that the equipment is in proper operating condition.

17. Field Installation
This installation should be made by a qualified service person and should conform to all local codes.

18. Telnet Communication Cable
Caution: To reduce the risk of fire, use only No. 26 AWG or larger telecommunication line cord.

19. Danger of explosion if battery is incorrectly replaced. Replace only with same or equivalent type recommended by manufacturer. Discard used batteries according to the manufacturer's instruction.

20. Elevated Operating Ambient
If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature (Tma) specified by the manufacturer.

21. Reduced Air Flow
Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.

22. Mechanical Loading
Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.

23. Circuit Overloading
Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

24. Reliable Earthing
Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g. user of power strips).

WEEE (*Waste Electrical & Electronic Equipment*)

Correct Disposal of This Product
(Applicable in the European Union and other European countries with separate collection systems)

This marking shown on the product or its literature, indicates that it should not be disposed with other household wastes at the end of its working life. To prevent possible harm to the environment or human health from uncontrolled waste disposal, please separate this from other types of wastes and recycle it responsibly to promote the sustainable reuse of material resources.

Household users should contact either the retailer where they purchased this product, or their local government office, for details of where and how they can take this item for environmentally safe recycling.

Business users should contact their supplier and check the terms and conditions of the purchase contract. This product should not be mixed with other commercial wastes for disposal.

Table of Contents

Chapter 1 — Product Information 1
FEATURES 1
SYSTEM DIAGRAM 1
FRONT PANEL 2
REAR PANEL 2
TURNING ON THE DVR 4
TURNING OFF THE DVR 4
Chapter 2 — SmartGuard 5
OVERVIEW 5
FEATURES 5
MAIN GUI 6
Screen Group Edit 8
Instant Play 8
Fisheye Dewaraping 8
PTZ 9
SmartGuard SETUP 10
Setting Up the System 10
Set up General 11
Network 12
Dual Display 14
System alert 15
Time sync 18
OSD 19
Archive 20
System authority 22
Setting Up the Camera 23
Channel status 25
Assign camera 26
Firmware Upgrade 28
Channel 29
Setting Up the Alert 30
Alarm Out 32
User Define Alarm Out 33
NetCam Alarm Out 34
Email 35
Callback 36
Push 37
Setting Up the Event 38
Motion 41
Object 42
Video Loss 43
Alarm In 44
User Define Alarm In 44
Text In 45
Audio Detection 46
NetCam Alarm In 46
Tampering 46
Tripzone 46
Setting Up the Schedule 47

Schedule Setup 50
Setting Up the SPOT 51
Multi Channel 52
Setting Up the User 54
Chapter 3 — SmartSearch 55
OVERVIEW 55
FEATURES 55
MAIN GUI 56
SEARCH AND PLAYBACK OF RECORDED VIDEO 58
Condition Search 58
Time-Lapse Search 61
SAVING OF RECORDED VIDEO 64
Save As Clip File 64
Clip Player 65
AUDIO PLAYBACK 69
Checking Audio Recording Configuration 69
Playing Recorded Audio 69
External Saving 70
Appendix 1 — Network Setup (LAN) 71
Appendix 2 — IDIS Web 73
Appendix 3 — Text-In Query 79
Appendix 4 — Connector Pin Outs 81
Appendix 5 — Troubleshooting 85
Appendix 6 — Specifications 87

Chapter 1 — Product Information

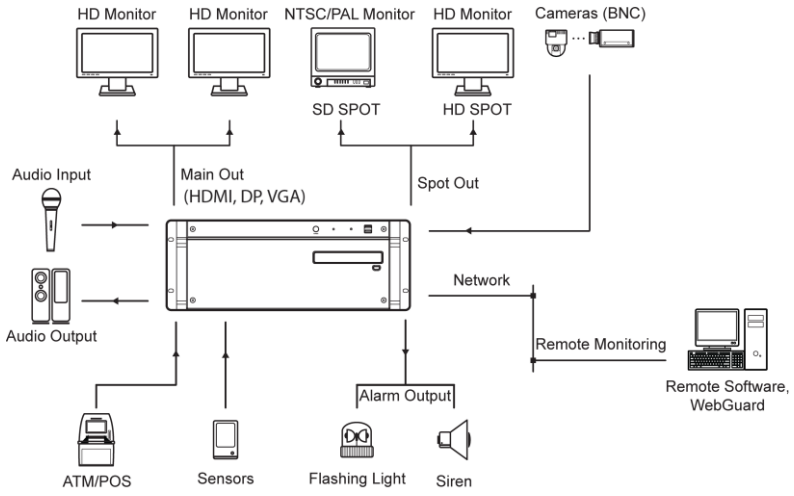
FEATURES

- Compatible with color cameras and other standard video sources
- Video input from network cameras (Hybrid model only)
- H.264, H.265 codec
- Video synchronization not required
- Simultaneous recording, multi-screen viewing, playback, remote monitoring and archiving
- Video recording and archiving via eSATA interface
- Versatile display formats for convenient user interface
- Main and Spot monitor outputs
- On-screen graphic display including camera title, time and event detection block
- Sequence mode available in all screen formats
- Hardware watchdog timer function
- Programmable motion detection for each camera input using graphic user interface
- Various image enhancement functions
- Remote monitoring, playback and control by using a remote program
- User-friendly interface
- 32-channel alarm input and 32-channel alarm output
- Network camera alarm and audio association (32-channel each for input and output) (Hybrid model only)

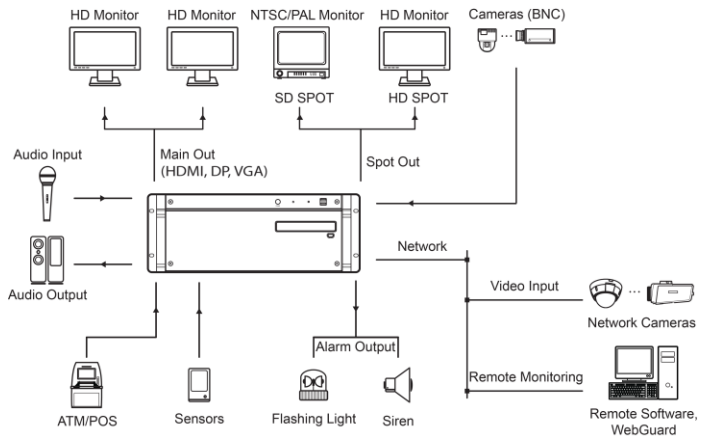
NOTE: This manual covers the 16- and 32-channel digital video recorders. For simplicity, the illustrations and descriptions in this manual refer to the 32-channel model. Refer to *Appendix 6 — Specifications* for the system specifications.

SYSTEM DIAGRAM

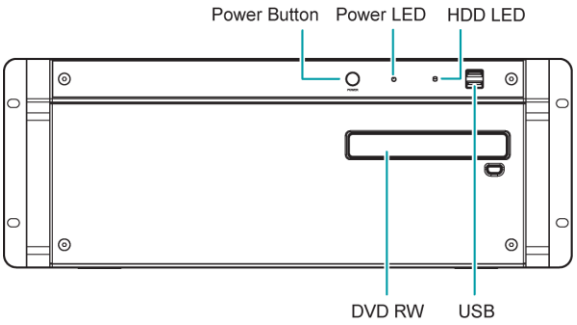
Non-Hybrid Model



Hybrid Model



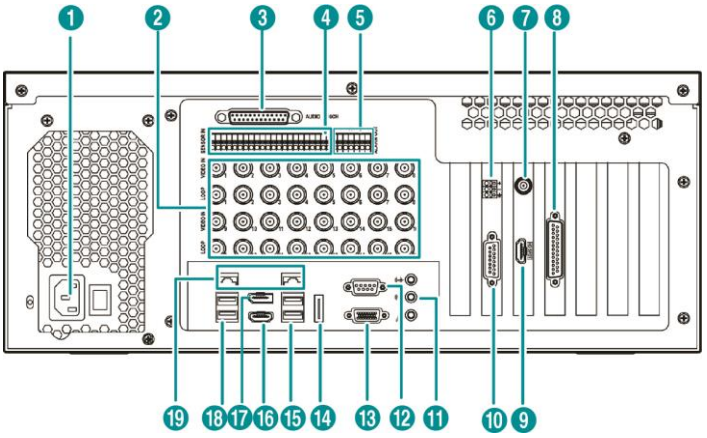
FRONT PANEL



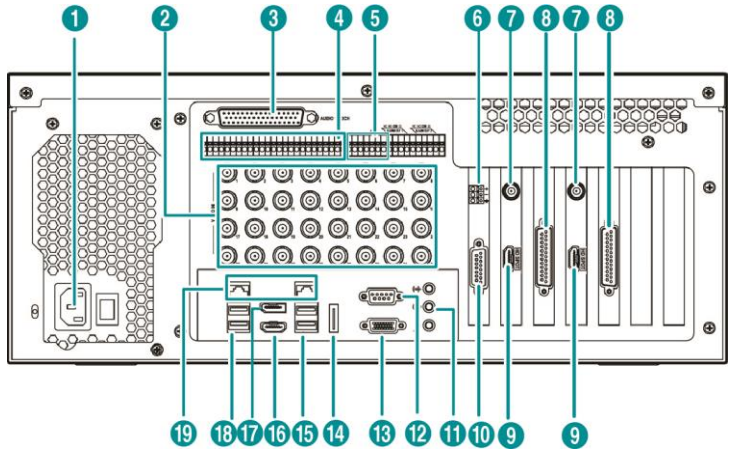
- Power Button: Turn the system on or off.
- Power LED: Is lit when the unit is turned on.
- HDD LED: Flickers when the unit accesses to the hard disk drive.
- DVD RW: Use to export recorded data to the DVD RW media.
- USB: Connect USB devices such as a mouse, keyboard, USB storage device or printer.

REAR PANEL

16-Channel Model



32-Channel Model



① Power In ② Video In (BNC) ③ Audio In ④ Alarm In ⑤ Alarm Out (Relay)
⑧ Alarm Out ⑨ HD SPOT (Multi-Channel Display)
⑥ RS485 ⑦ SD SPOT (Multi-Channel Display)
⑩ SD SPOT (Sequence Display) ⑪ Audio Out
⑫ RS232 ⑬ VGA (D-Sub) ⑭ E-SATA ⑮ USB 3.0 ⑯ HDMI
⑰ DP ⑱ USB 2.0 ⑲ Network

- Power In: Connect a power cord.
- Video In (BNC): Connect BNC cameras.
- Audio In: Connect audio sources (Line-in).
- Alarm In: Connect external alarm-in devices.
- Alarm Out (Relay): Connect external alarm-out devices such as buzzers or lights.
- RS485: Connect a remote control device for RS485 communication.
- SD SPOT (Multi-Channel Display): Connect a spot monitor which supports a BNC interface for the multi-channel display. The multi-channel display settings are available at the SPOT – Multi Channel menu of SmartGuard.
- Alarm Out : Connect external alarm-out devices such as buzzers or lights.
- HD SPOT (Multi-Channel Display): Connect an HD (high-definition) PC monitor which supports an HDMI interface for the multi-channel display. The multi-channel display settings are available at the SPOT – Multi Channel menu of SmartGuard.

  ☞ **SD SPOT (Multi-Channel Display), Alarm Out** and **HD SPOT (Multi-Channel Display)** on the left are supported for Channel 1 to Channel 16 and **SD SPOT (Multi-Channel Display), Alarm Out** and **HD SPOT (Multi-Channel Display)** on the right are supported for Channel 17 to Channel 32. (Only 32-Channel model)
- SD SPOT (Sequence Display): Connect a spot monitor which supports a BNC interface for the sequence display. The sequence display settings are available at the SPOT – Sequence menu of SmartGuard.
- Audio Out: Connect an amplifier (Line-out). The DVR does not have amplified audio output, so you will need a speaker with an amplifier.
- RS232: Connect a remote control device for RS232 communication.
- VGA (D-Sub): Connect an HD (high-definition) PC monitor which supports a D-Sub interface. Connect a monitor before turning on the system. Video might not be displayed on the monitor when connecting a monitor after turning on the system.
- E-SATA: Connect an external hard disk drive which supports an eSATA interface.
- USB: Connect USB devices such as a mouse, keyboard, USB storage device or printer.
- HDMI: Connect an HD (high-definition) PC monitor which supports an HDMI interface.

- DP: Connect an HD (high-definition) PC monitor which supports a DVI interface.
- Network : Connect a CAT 5e or higher cable with an RJ-45 connector. The network settings are available at the SYSTEM – Network menu of SmartGuard.

NOTE: SPOT display is not supported for network cameras.

NOTE: The location of ports in slots can be different from the image above. Refer to *Appendix 4 — Connector Pin Outs* for connection of the ports located in slots.

NOTE: VGA, DP and HDMI main out supports dual display (SmartGuard, SmartSearch on the primary display and SmartSearch, Extended spot, Secondary Live Screen on the additional display) and not triple display.

NOTE: Windows may not operate properly when using the USB connectors on the front panel of the DVR, depending on the model type of the USB device. In this case, connect the USB device after Windows boots properly or use the USB connectors located on the rear panel.

NOTE: If the LAN 1 and LAN 2 is connected to the same network, the system may malfunction.

NOTE: When mounting the DVR on a rack, comply with the following instructions.
- Ensure that the rack inside is not sealed.
- Ensure the air is circulated through the inlet/outlet.
- If you pile up DVRs or other rack-mount devices, secure room for ventilation or install a vent.
- For natural air convection, place the inlet at the bottom of the rack and the outlet on top.
- It is strongly recommended that a fan motor is installed at the inlet and the outlet for air circulation and fit a filter at the inlet to screen dust or foreign substances.
- Maintain the temperature inside the rack or surrounding areas between 41°F to 104°F (5°C to 40°C).

TURNING ON THE DVR

Press the power button located on the front panel to turn the system on. The system goes into the SmartGuard mode as soon as it finishes its boot process.

NOTE: Connect a monitor before turning on the system. Video might not be displayed on the monitor when connecting a monitor after turning on the system.

CAUTION: The 16, 32-channel model requires at least 1280 x 1024 resolution. The SmartGuard program will not run if the monitor does not have the resolution that fits for each model.

TURNING OFF THE DVR

Click the (Menu) button and System Shutdown menu of SmartGuard or press the power button on the front panel to turn the system off.

NOTE: When turning off the system, you must confirm that you want to turn off the unit. Turning off the system is allowed to only authorized users for the *Shut down* option during the at the USER menu of SmartGuard.

CAUTION: The system can be shut down by force by pressing the power button on the front panel over 10 seconds. However, follow the normal shutdown procedures as mentioned above when the system is operating normally. Turning off the DVR without shutdown procedures can cause damage to the system.

Chapter 2 — SmartGuard

OVERVIEW

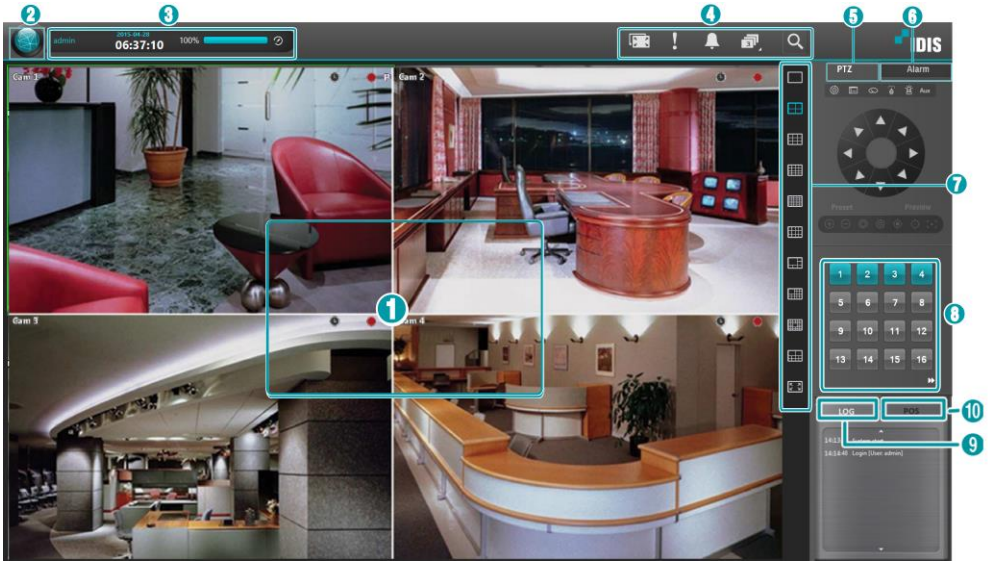
SmartGuard is powerful surveillance software. It provides multiplexer functions, digital time-lapse recording and event-driven recording. SmartGuard also provides motion detection, PTZ control and various image enhancement functions.

FEATURES

- Max. 32 channels
- Max. 960 images/sec recording (Reference: BNC camera 704 x 480 resolution, network camera 1920 x1080 resolution)
- User-friendly interface
- Scheduling by camera and time
- Time-lapse or event-driven recording
- Panic recording
- Motion detection and object detection function
- Audio recording
- PTZ control

MAIN GUI

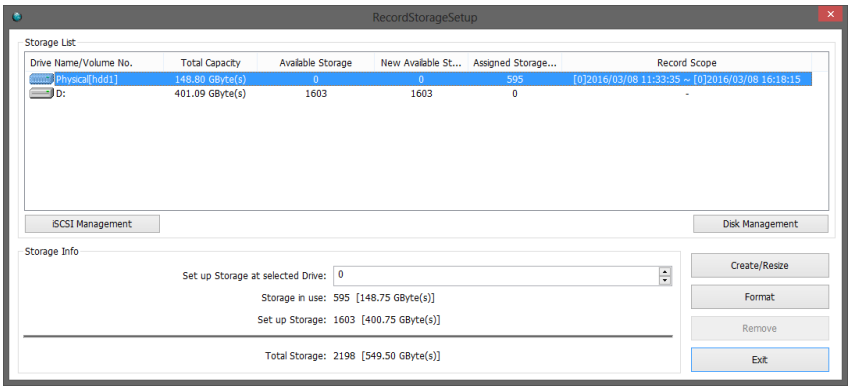
16-Channel / 32-Channel Model



① Monitoring Screen ② Menu Button ③ System Status ④ Utility Buttons
⑤ PTZ Control Panel ⑥ Alarm Control Panel ⑦ Screen Mode Buttons ⑧ Camera Buttons
⑨ Log Panel ⑩ POS Panel

- Monitoring Screen: Displays monitoring video.
  - OSD Display: Go to System – OSD menu of SmartGuard, and enable OSD display to display the OSD information.
    - / / : Recording schedule (time-lapse recording / event recording / time-lapse and event recording)
    - : A motion detection, object detection or video loss event has been detected.
    - / / : Recording status (time-lapse recording / pre-event recording / event recording)
    - : PTZ enabled.
  - Hover Menu: Controls each camera. Selecting a camera screen displays the button beside the camera title. Clicking the button displays the hover menu.
    - (Zoom): Zooms in the image.
    - (Color Control): Adjusts the brightness, contrast, saturation and hue of the current video. Clicking the button cancels the adjustment and reloads the original image.
    - / (Audio Out): Controls audio out.
    - / (Local Microphone): Transmits audio through microphone connected to DVR. This is supported for network cameras that support two-way audio function.
    - (Instant Play): Allows you to play back video on the camera screen. See the Instant Play section (p. 8) for details.
    - (PTZ Control): Controls PTZ.
    - / (Fit to screen / Original ratio): Changes the image aspect ratio.
- Menu Button: Displays the SmartGuard menu.
  - Login/Logout: Logs in or logs out the system. When Use local login is disabled in the SmartGuard program (SYSTEM – System Authority menu), the DVR does not ask login procedure. When you forgot the password, ask your dealer or distributor. When Use password expire is enabled in the SmartGuard program (SYSTEM – System Authority menu), you will be asked whether or not to renew the password when you log in if the password has not been changed during the password expiration period.
  - SmartSearch: Runs the SmartSearch program. This function will be disabled during dual display.

- Setup: Displays a SmartGuard Setup screen. It allows you to change the settings of SmartGuard program.
- About: Displays the information of the installed cards, driver, software, hard disk drive, OS and MAC address on the system.
- Help: Displays the electronic file of user's manual.
- Log: Displays system log list.
- Record Storage Setup: Click the Record Storage Setup to add the HDD or change or reset storage settings. Running the record storage setup displays the message that the SmartGuard program will exit. When record storage setup is complete, the SmartGuard program will run automatically.



- Storage List: Displays a list of connected storage devices that is available for recording.
  - Drive: Displays a name of the device.

NOTE: It supports Physical Drive that is not initialized. Physical Drive is displayed as "Physical[hdd(number)]." It is possible to either assign available storage entirely or not to assign. Physical Drive exists in storage device but the one that is already assigned as an archive is not displayed in recording setup.

  - Total Capacity: Displays the total capacity of the device.
  - Available Storage: Displays the number of storages that is available for recording. The storage is the basic unit of 256MB for the database used by the DVR.
  - New Available Storage: Displays the number of storages to be allocated for recording.
  - Assigned Storage Count: Displays the number of storages currently allocated for recording.
  - Record Scope: Displays the date and time period of recorded video to be recorded.
  - iSCSI Management: Connects an iSCSI device to DVR to use local HDD together. Clicking iSCSI management displays iSCSI screen. When setting an iSCSI setup and registering HDD, the storage list will be updated.
  - Disk Management: Clicks the button to format local HDD or to change the settings. Clicking disk management displays disk related setup screen. When setting is complete, the storage list will be updated.
- Storage Info: Displays a list of connected storage devices that is available for archiving.
  - Set up Storage for selected Drive: Set the number of storages to be used for recording in the selected device.
  - Storage in use: Displays the total number of storages allocated to all devices in Storage List.
  - Set up Storage: Displays the total number of storages to be allocated to all devices in Storage List.
  - Total Storage: Displays the total number of storages allocated and to be allocated to all devices in Storage List.
  - Create/Resize: Clicking the button creates or adds storage depending on the number of storages to be allocated in the selected device.
  - Format: Clicking the button deletes recorded video saved in the selected device.
  - Remove: Clicking the button deletes all storage folders allocated in the selected device. Recorded video will be deleted when the storage folders are deleted.
  - Exit: Clicking the button closes the setup screen.

NOTE: The *RecordStorageSetup* option can be activated only for the user who has a system authority.

NOTE: It supports RAW Volume partition of GPT way. RAW Volume partition is displayed as "Raw[hdd:(number), p:(partition number)]" in the hard disk driver. It is possible to either assign available storage entirely or not to assign. RAW Volume partition exists in storage device but the one that is already assigned as an archive is not displayed in recording setup.

- Language: Supports English/Español.

NOTE: It is supported only at WES8 v1.3.0 or higher. It is disabled at a lower operating system.

  - System shutdown: Shuts down the system.
- System Status: Displays user ID, date and time, the remaining hard disk space and the type of hard disk usage. Clicking the right mouse button allows you to change the time. If you change the time, the SmartGuard program restarts and recording stops during the time.
- Utility Buttons
  - (Secondary Live Screen On/Off): Clicking the button displays a camera screen to an additional connected monitor (secondary monitor). It is not supported for secondary monitor that has less than 1024 x 768.
  - ((Panic Recording): Starts recording video from all cameras\ regardless of the recording schedule. It may be used when you want to record manually during monitoring. Clicking the button again releases the panic recording. Recording speed for the panic recording is the same as that of the time-lapse recording.
  - (Manual Alarm Output): In general, the alarm out is activated automatically when any event is detected if the event is associated with alarm out. However, the user can activate all the alarm out manually by clicking this button while it is released or deactivate all the alarm out by clicking this button while it is pressed.
  - (Auto Sequencing): Starts sequencing the cameras in order. Clicking the button again releases the auto sequencing. Clicking the arrow button at the bottom-right allows you to change a sequence dwell time.
  - (SmartSearch): Runs the SmartSearch program. This function will be disabled during dual display.
- PTZ Control Panel: Displays a PTZ control buttons. Refer to the PTZ section (p. 8) for details.
- Alarm Control Panel: Displays alarm control buttons. You can check the alarm status and control the alarm out. The user can activate or inactivate alarm out manually by clicking the button when it is released or pressed. You can change the alarm out setting values at the ALERT – Alarm Out menu of SmartGuard.
- Screen Mode Buttons: Click the desired screen mode. Double clicking the left mouse button over a camera screen displays video from the camera in the single-screen mode and double clicking the left mouse button again returns to the previous screen mode. You can change the camera arrangement manually for each screen mode. Refer to Screen Group Edit section (p. 8) for details.
- Camera Buttons: Clicking an individual camera button displays video from the camera.
- Log Panel: Displays system log list.
- POS Panel: Displays text-in data from a text in device.

Screen Group Edit

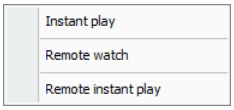
You can change the camera arrangement manually for each screen mode. In case of secondary live screen, camera arrangement is maintained even if screen mode is changed.

Changing the location of two channels on the monitoring screen: Clicking a camera screen and dragging it over another camera screen switches the location of the two camera screens.

Changing the location of the channel hidden from the mongering screen: Clicking a camera button of the hidden channel and dragging it over a camera screen on the monitoring screen switches the location of the hidden channel and the previously displayed channel on the camera screen. This is not supported for the secondary live screen.

Instant Play

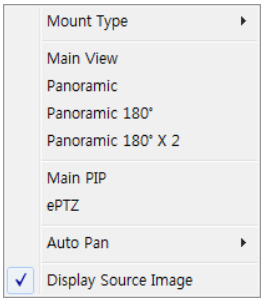
It allows you to play back video on the camera screen.



- Instant play: Allows you to play back recently recorded video if there are any video recorded.
- Remote watch: Allows you to watch live video of another DVR.
- Remote instant play: Allows you to play back recently recorded video of another DVR.

Fisheye Dewaraping

Click on the right mouse button and select Fisheye Dewarping from the context menu.



- Mount Type: Chooses a position that the camera is mounted. The available Screen Type changes depending on this setting.
- Main View: Displays the original fisheye dewarping video. When ePTZ is on, you can control Pan, Tilt and Zoom by clicking the left/right mouse button. The Main PiP is selected as a default.
- Panoramic/Panoramic 180/Panoramic 180 * 2: Selects the panoramic Mode.
- Main PIP: Displays PiP (Picture in Picture) view to select the area easily in the main view screen.
- ePTZ: Controls Pan, Tilt, and Zoom function. Dragging the mouse, the size of dragging indicates the speed of PTZ. The left button drag controls Left/Right (Pan) and Up/Down (Tilt). The right button drag controls Zoom.
- Auto Pan: Set to pan the camera automatically. +, - for direction and numbers for speed.
- Display Source Image: Cancels the adjustment and reloads the original image.

NOTE: This function is supported only for fisheye cameras.

PTZ

The DVR provides transmission functions, and you can control popular PTZ devices and cameras. Clicking the PTZ panel PTZ button displays the PTZ control buttons as shown below.

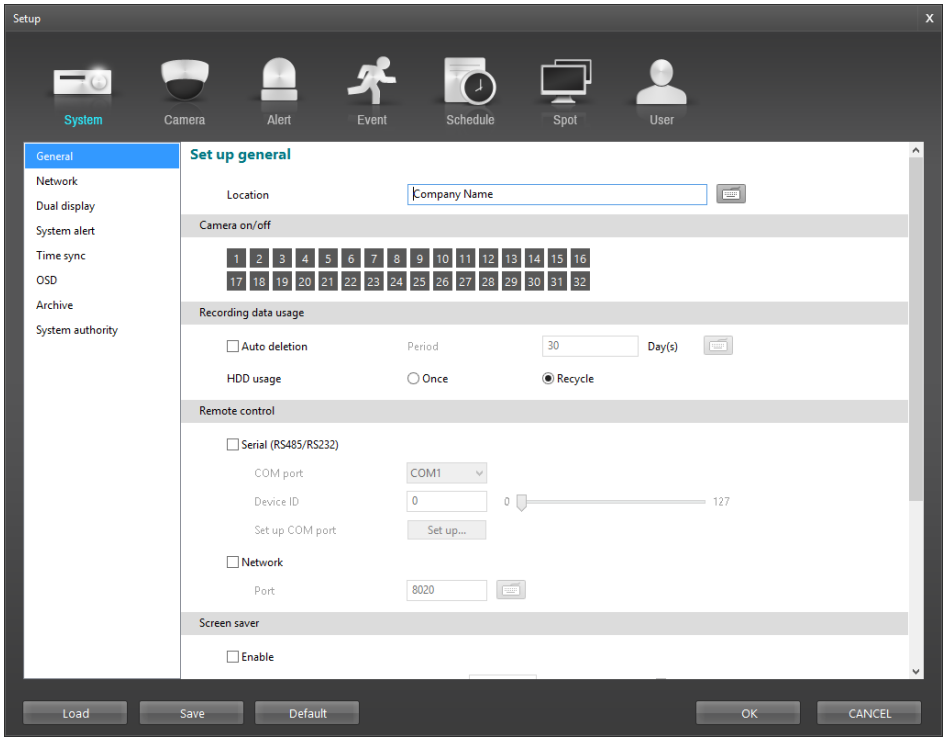
- (Auto Panning, Menu, Wiper, Pump, Light, Aux): Displays the On/Off status of each function. Hovering the mouse cursor over any button displays a setup screen and allows you to enable or disable each function and change the advanced settings of the PTZ camera.
- (Direction Control): Controls the direction of the PTZ camera.
- Preset (Set Preset), Preview (View Preset): Saves camera directions as a Preset so that you can move the camera directly to a saved direction.
- (Zoom In/Out): Zooms the camera lens in or out.
- (Iris Close/Open): Closes or opens the iris of the camera lens.
- (Focus Near/Far): Focuses on near or far objects.
- (One Push): Press this button to find the optimum focus automatically. It is recommended to get an approximate focus using the manual focusing button before pressing the one push button for fast and efficient focusing. This button is not supported in the Onvif protocol.

NOTE: Presets can be set, depending on the specification of installed PTZ devices or PTZ cameras. Make sure available preset numbers first to make the PTZ preset function work properly.

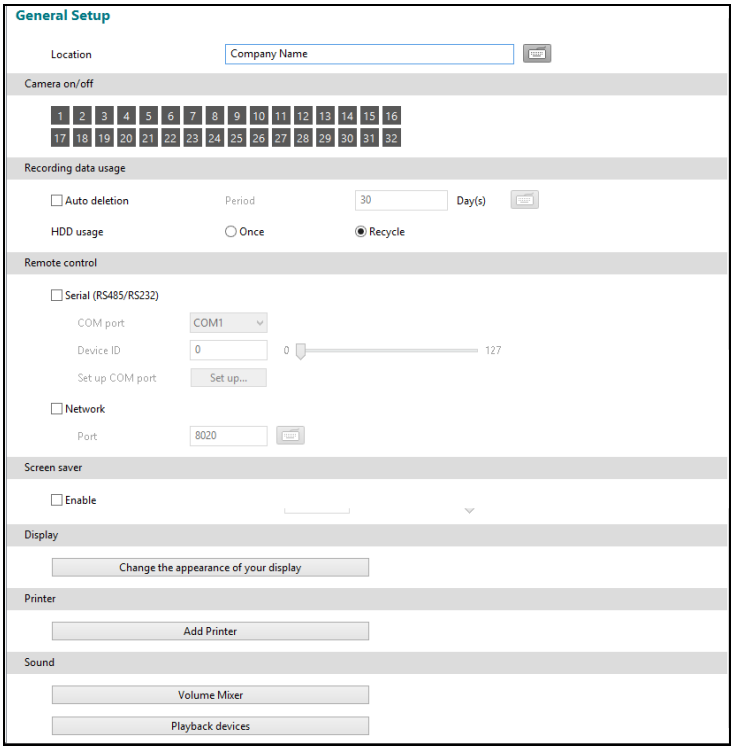
SmartGuard SETUP

- Load: Loads a saved setting and apply it to the DVR.
- Save: Saves the current setting.
- Default: Loads the factory default setting and apply it to the DVR.

Setting Up the System

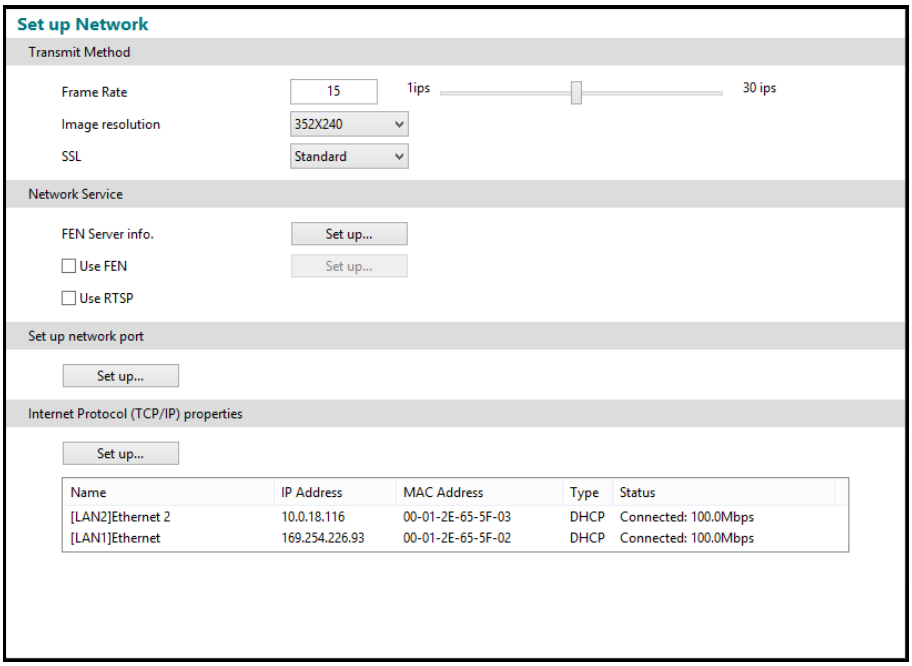


Set up General



- Location: Enter a DVR name. If you do not have a keyboard connected to the unit, clicking the keyboard icon will display a virtual keyboard on which you can type by clicking the letters.
- Camera On/Off: Enables or disables the camera by clicking each camera button.
- Recording data usage
  - ☑ Auto deletion: Deletes the video recorded earlier than user-defined period. e.g. If you check the Auto deletion box, and set 30 days in the Period box, the DVR will automatically delete the video which is older than 30 days from the current day.
  - HDD usage: When Once is selected, the DVR stops recording when the hard disk drive is full. When Recycle is selected, the DVR continues recording when the hard disk drive is full by overwriting the oldest video.
- Remote Control
  - ☑ Serial (RS485/RS232): Controls the SmartGuard program with the remote control device connected to the serial.
    - COM port: Set the connected serial's COM port.
    - Device ID: Set the remote control device's Device ID.
    - Set up COM port: Set the COM port's Set the baud rate, parity, data bit and stop bit.
  - ☑ Network: Controls the SmartGuard program with the remote control device connected to the network.
    - Port: Set the port to allow connect the network remote control device.
- ☑ Screen saver: Set the screen saver dwell time for the display image. The screen saver will be activated if there is no keyboard or mouse operation during the dwell time.
- Display: Allows you to change the display setting of the connected monitors.
- Printer: Allows you to add a printer.
- Sound: Allows you to change the settings of audio out.

Network



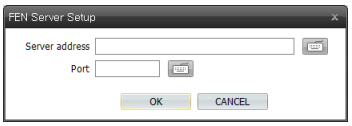
- Transmit Method
  - Frame Rate, Image resolution: Set the transmit speed and resolution of video to be transferred to remote system from the DVR. Transmit speed is the number of images transferred during one second. The higher the transmit speed is, the more images are transferred. For example, 30 means 30 images will be transferred during one second, and 5 means 5 images will be transferred during one second. This is supported for analog cameras only.
  - SSL: Using the SSL function enhances the security of outgoing data from the DVR by using the SSL (Secure Sockets Layer) protocol when connecting to the DVR remotely. When using the SSL function, the DVR cannot be connected with a program or a system that does not support the SSL function. Selecting Standard does not use the SSL protocol for video and audio data, selecting High uses the SSL protocol for all data.

NOTE: The remote setup to the DVR will be released when changing the SSL setting.

NOTE: Using the SSL function might cause congestion in the system receiving data from the DVR depending on the security level.

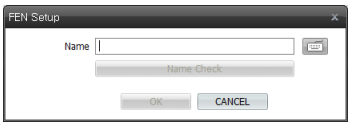
NOTE: This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit (*http://www.openssl.org/*).

- Network Service
  - FEN Server Info.: Clicking the Set up… button allows you to enter the FEN server information.



- Server, Port: Enter the IP address (or domain name) and port number of the FEN server.

  - ☑ Use FEN: Enables the FEN function. Clicking the Set up… button allows you to register the DVR on the FEN server.



- Name: Enter the DVR's name to be registered on the FEN server. Click the Name Check button to check if the name you entered can be used. Clicking the OK button registers the name as a FEN name of the DVR.

NOTE: The FEN function allows you to connect to the DVR from remote sites using either the dynamic IP addresses or the domain name. For the FEN function to work properly, the DVR's FEN name should be registered on the FEN server, and the FEN server settings should match the settings registered on the FEN server. Any changes on the FEN server might cause improper operation.

NOTE: The FEN registration is limited to only one FEN server. The DVR cannot be registered to multiple FEN servers.

NOTE: When FEN function is enabled, it is not necessary to set up port forwarding manually. However, remote connection to the DVR might not be available depending on the network connection environment of the DVR or remote system when the FEN function is enabled. If it is the case, you should set up port forwarding for the DVR manually in the NAT (Network Address Translation) device to which the DVR is connected.

  - ☑ Use RTSP: Enables the RTSP service.

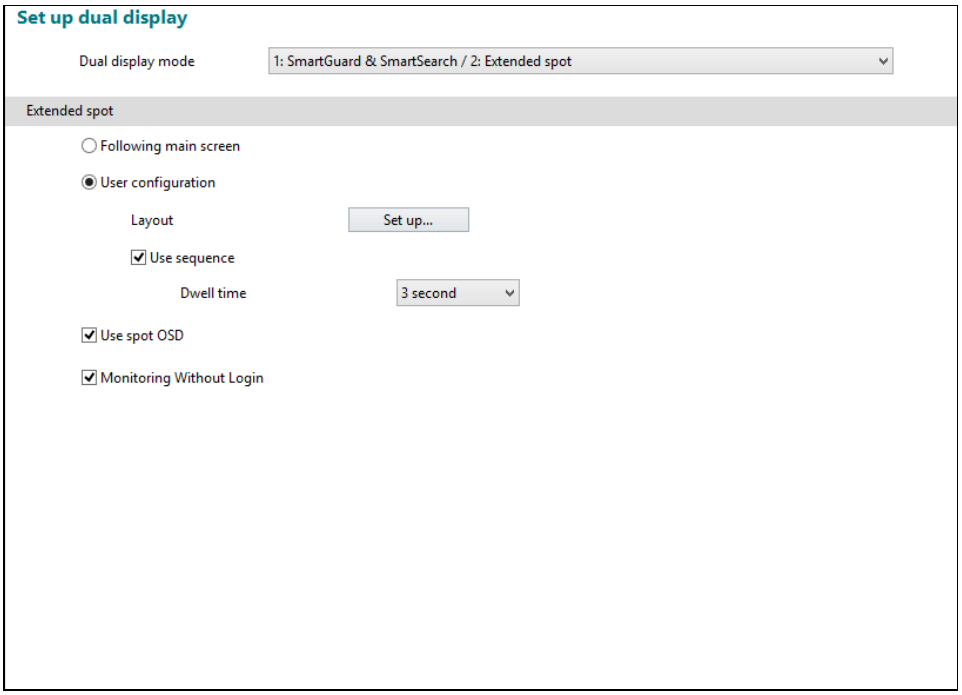
NOTE: You can access a remote NVR and monitor live video images using media players, such as VLC Player, supporting RTSP service. Start
the media player on your local PC and enter "rtsp://ID:Password@IP address:RTSP port number/trackID=channel number" (e.g.: rtsp://admin:@10.0.152.35:554/trackID=1).

NOTE: Video display on certain media players may not be smooth depending on the network status.

NOTE: RTSP service might not be supported, depending on the type of media player.

- Set up network port: Click the button and set up network port number.
- Internet Protocol (TCP/IP) properties: See Appendix 1 — Network Setup.

Dual Display

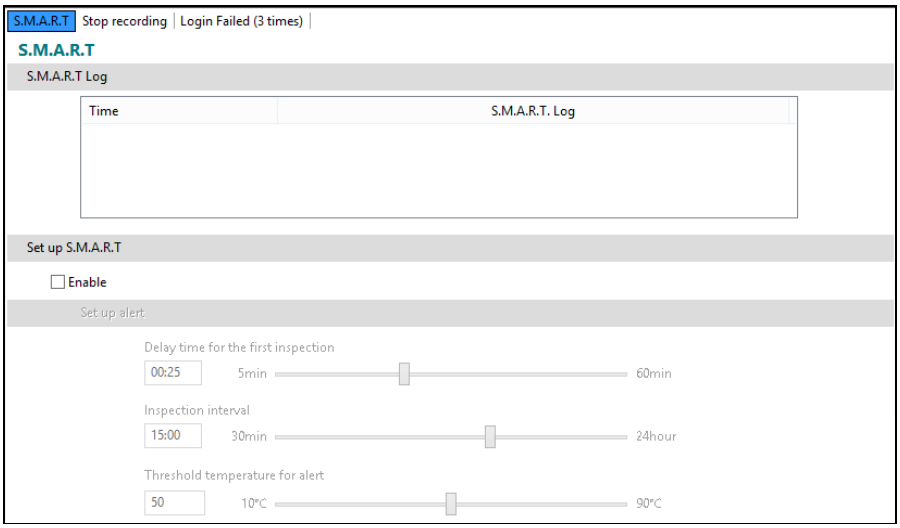


- Set up dual display: Sets the mode for the additionally connected monitor (secondary monitor).
  1. Main Monitor: SmartGuard & SmartSearch / Secondary Monitor: Extended spot
  2. Main Monitor: SmartGuard / Secondary Monitor: SmartSearch & Secondary Live Screen
  3. Main Monitor: SmartGuard & SmartSearch / Secondary Monitor: Secondary Live Screen
- Extended Spot
  - Following main screen: Displays the main screen of SmartGuard identically.
  - User configuration: Sets the user specific configuration (layout, sequence).
  - ☑ Use spot OSD: Displays OSD.
  - ☑ Monitoring Without Login: Displays video even while you are logged out.

System alert

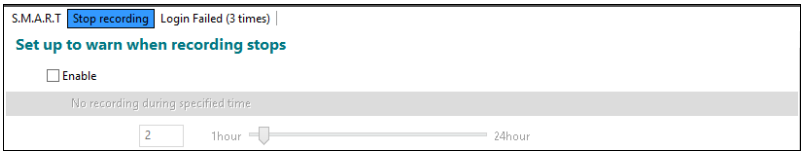
Clicking each tab of S.M.A.R.T., Stop recording and Login Fail (3 times) and enabling each function causes the system alert as follows:

- S.M.A.R.T. tab – Set up alert, S.M.A.R.T. Log: Causes the system alert when S.M.A.R.T. log occurs. This is supported only when the installed hard disk drives support S.M.A.R.T. (Self-Monitoring, Analysis and Reporting Technology) Monitoring program (Internal hard disk drives only)



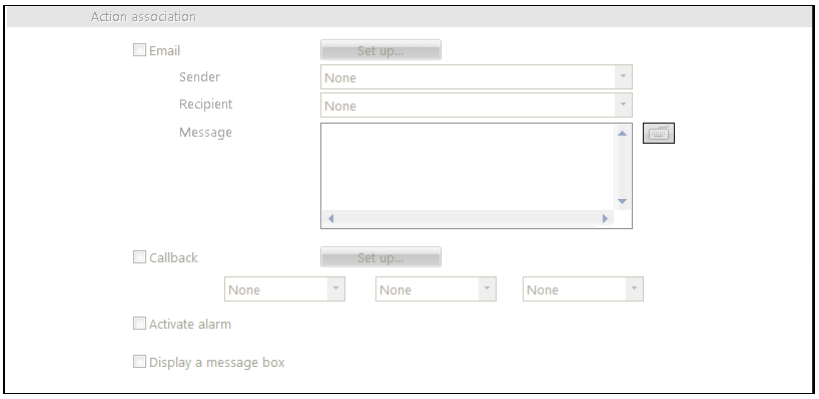
- S.M.A.R.T. Log: Displays the list of S.M.A.R.T. log.
- Delay time for the first inspection after system starts: Set the standby time until the system performs the first inspection after setting the function.
- Inspection Interval: Set the inspection interval.
- Threshold temperature for alert: Set the threshold temperature of hard disk drives. The DVR leaves S.M.A.R.T. log when the temperature of hard disk drives exceeds the defined threshold.

• Stop recording tab – No recording during specified time: Causes the system alert when panic recording has been stopped by clicking the panic recording button or when recording has not been made during the predefined time.

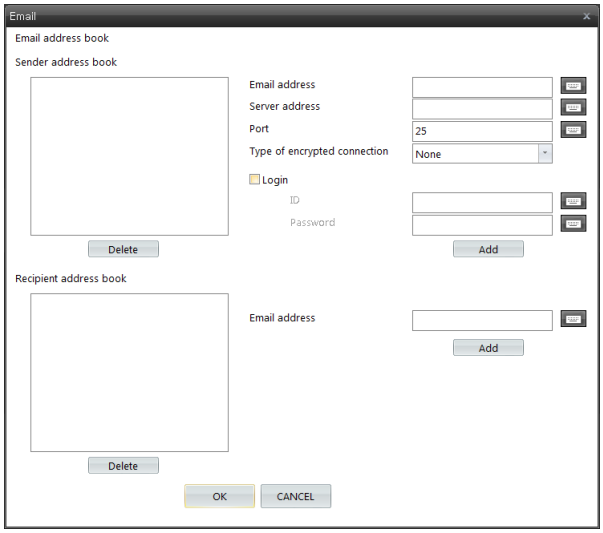


• Login Fail (3 times) tab: Causes the system alert when login fails 3 times.

• S.M.A.R.T. / Stop recording / Login Fail (3 times) tab – Action association

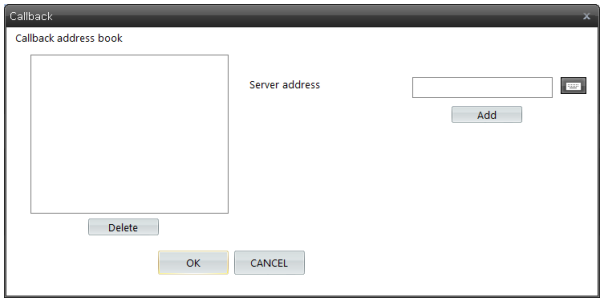


– ☑ Email: Sends an email when system alert occurs. Select a sender and recipient from the drop-down menu below the Set up... button and enter the message. If any sender or recipient is not registered, click the Set up... button.



- Sender address book: Enter the email address and SMTP server address and port number. Select a type if the SMTP server uses the type of encrypted connection. Check the Login box if you want to connect to the SMTP server that requires login procedure, and enter the ID and password for login. Clicking the Add button adds the sender to the sender address book.
- Recipient address book: Enter the email address. Clicking the Add button adds the recipient to the recipient address book.

– ☑ Callback: Sends a message to predefined callback servers when system alert occurs. Select a callback server from the drop-down menu below the Set up... button. If any callback server is not registered, click the Set up... button.



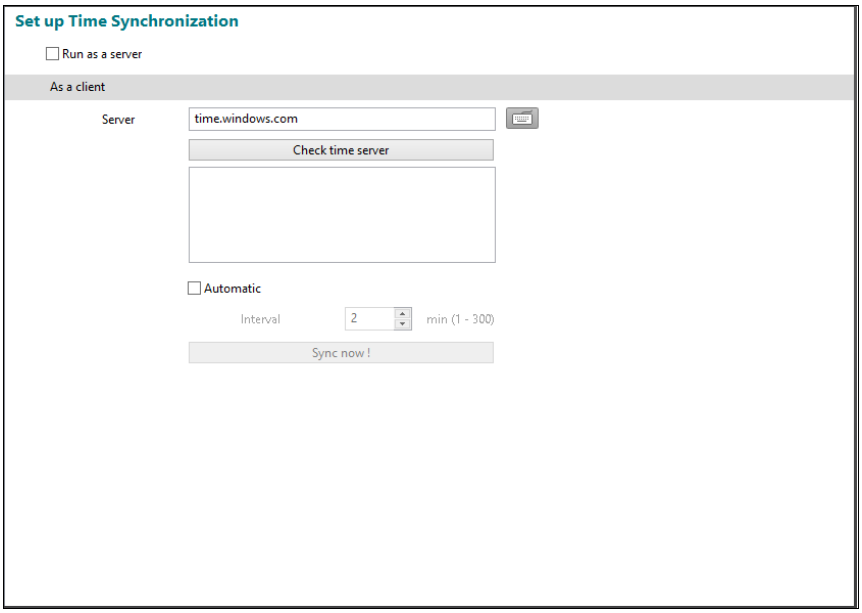
Enter the IP address of the callback server and click the Add button.

– ☑ Activate alarm: Sounds beep through the connected speaker when system alert occurs.
– ☑ Display a message box: Displays a message box in SmartGuard when system alert occurs.

Time sync

In general, each DVR system may have a different time because of the accuracy of its internal clock. The Time Synchronization function synchronizes the time between a DVR and any time server when they are networked. Any DVR can run as a time server. Also you can use a standard time server provided by each country.

CAUTION: The time synchronization might not be done properly depending on the time server or network conditions. Check the time server and network conditions, first.

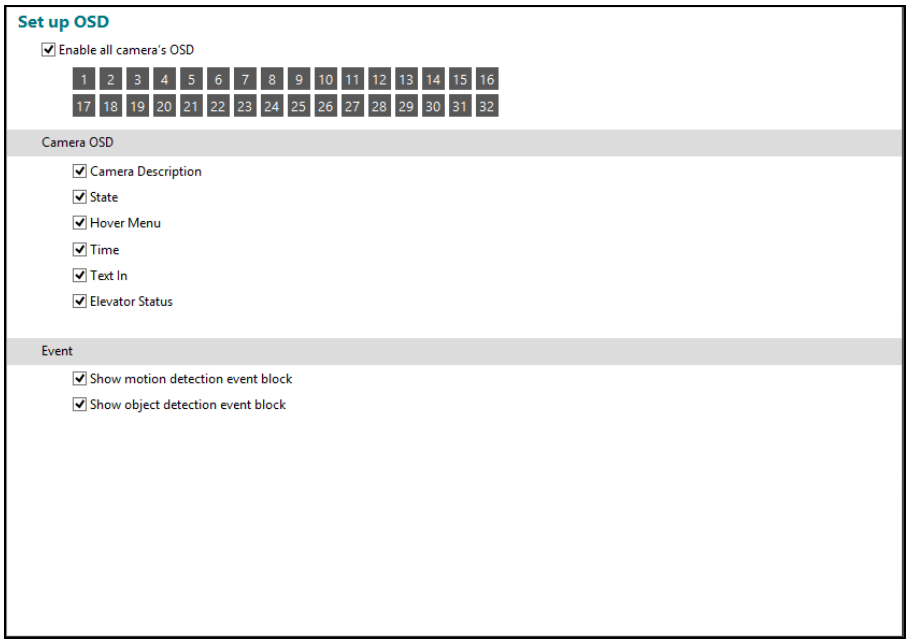


- ☑ Run as a server: Runs the DVR as a time server.
- As a client: Synchronizes the time between a DVR and a time server when they are networked.
  - Server: Enter the IP address (or domain name) of target time server.
  - Check Time Server: Tests the synchronization with the time server.
  - ☑ Automatic: Synchronizes the time automatically at the predefined interval.
  - Sync now!: Synchronizes the time when you click the button.

NOTE: When setting up time synchronization for the first time, set the time between the DVR and the time server manually because the DVR and the time server might have wide time gap.

OSD

You can set up to display OSD information on the image when monitoring video on a main monitor. OSD (On Screen Display) information includes camera title, time, event detection block, etc.

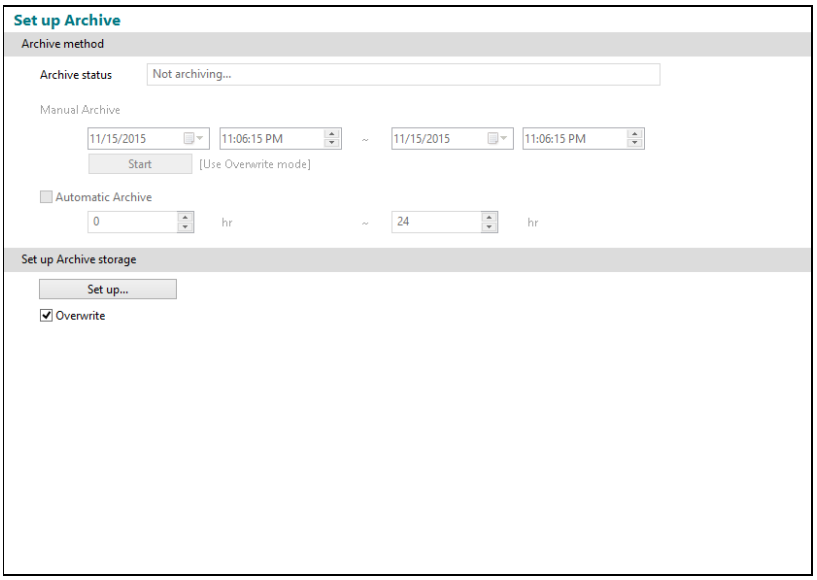


- Enable all camera's OSD: Enables OSD display for all cameras. If you disable it, you can enable or disable OSD display for each camera by clicking each camera button.
- Camera OSD: Enables or disables camera OSD display.
  - Camera Description: Displays a camera name which is set at the Location setting of the CAMERA menu.
  - State: Displays the recording schedule, event detection, recording status, and PTZ on or off.
  - Hover Menu: Displays the hover menu.
  - Time: Displays the recorded time of playback video.
  - Text In: Displays text-in data from a POS.
  - Elevator Status: Displays the elevator status from the outside.
- Event: Enables or disables event detection area display.
  - Show motion detection event block: Displays motion detection area when a motion detection event occurs.
  - Show object detection event block: Displays object detection area when an object detection event occurs.

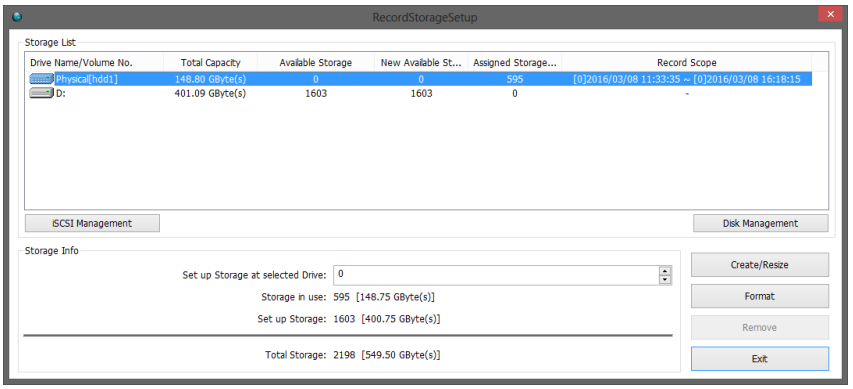
Archive

You can back up recorded video to a hard disk drive and eSATA.

NOTE: Use a hard disk drive formatted beforehand when you back up data to hard disk drives.



- Archive method: Manual and automatic archives are supported.
  - Archive status: Displays backup status.
  - Manual Archive: Set the date and time period of recorded video to back up. Clicking the Start button starts backup manually.
  - ☑ Automatic Archive: Starts backup automatically at the predefined time.
- Set up Archive storage: Click the Set up... button and set up the storage for archiving. Enabling Overwrite makes the DVR continue recording when the hard disk drive is full by overwriting the oldest video. Disabling Overwrite makes the DVR stop recording when the hard disk drive is full.



  - Storage List: Displays a list of connected storage devices that is available for archiving.
    - Drive: Displays a name of the device.

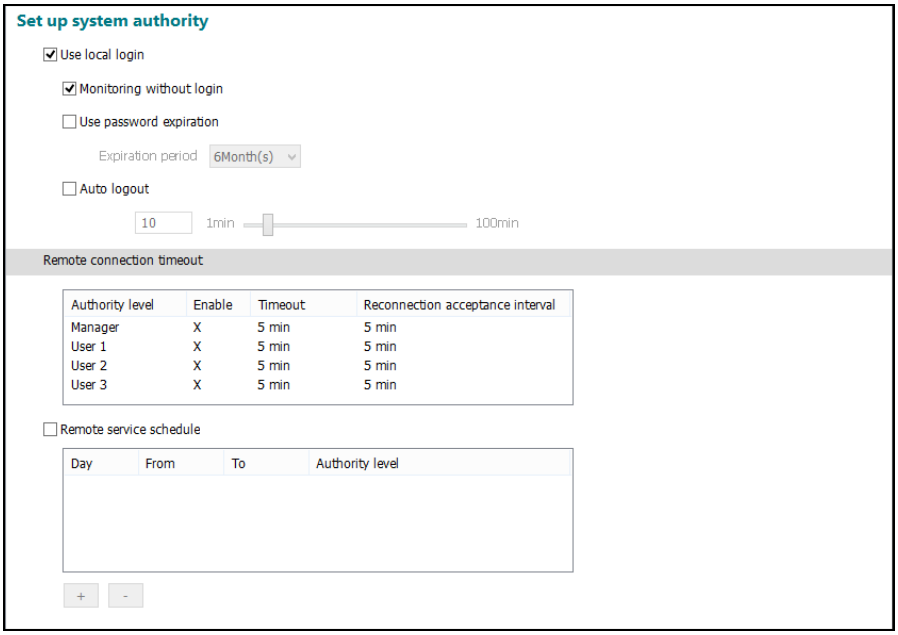
NOTE: It supports Physical Drive that is not initialized. Physical Drive is displayed as "Physical[hdd(number)]." It is possible to either assign available storage entirely or not to assign. Physical Drive exists in storage device but the one that is already assigned as an archive is not displayed in recording setup.

- Total Capacity: Displays the total capacity of the device.
- Available Storage: Displays the number of storages that is available for archiving. The storage is the basic unit of 256MB for the database used by the DVR.
- New Available Storage: Displays the number of storages to be allocated for archiving.
- Assigned Storage Count: Displays the number of storages currently allocated for archiving.
- Scope of Archive: Displays the date and time period of recorded video to be archived.

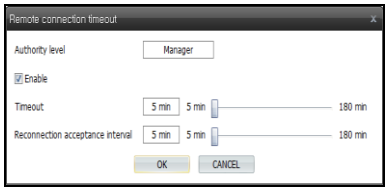
– Storage Info: Displays a list of connected storage devices that is available for archiving.
- Set up Storage for selected Drive: Set the number of storages to be used for archiving in the selected device.
- Storage in use: Displays the total number of storages allocated to all devices in Storage List.
- Set up Storage: Displays the total number of storages to be allocated to all devices in Storage List.
- Total Storage: Displays the total number of storages allocated and to be allocated to all devices in Storage List.
- Create/Resize: Clicking the button creates or adds storage depending on the number of storages to be allocated in the selected device.
- Format: Clicking the button deletes archived video saved in the selected device.
- Remove: Clicking the button deletes all storage folders allocated in the selected device. Archived video will be deleted when the storage folders are deleted.
- Exit: Clicking the button closes the setup screen.

NOTE: The user can archive recorded video when the user has an authority for *Archive*. The *Archive* option should be selected at the *USER* menu.
NOTE: It supports RAW Volume partition of GPT way. RAW Volume partition is displayed as "Raw[hdd:(number), p:(partition number)]" in the hard disk driver. It is possible to either assign available storage entirely or not to assign. RAW Volume partition exists in storage device but the one that is already assigned as an archive is not displayed in recording setup.

System authority



- ☑ Use local login: Login procedure is required to run SmartGuard program.
  - ☑ Monitoring Without Login: It is allowed to monitor video even while you are logged out.
  - ☑ Use password expiration: Set the password expiration period. If the password has not been changed during the password expiration period, you will be allowed to change the password after you log on. The changed password will be used from the next login. This function is supported only for the users under the authority level of Administrator (the default user ID is admin and password is 12345678 under the authority level of Administrator).
  - ☑ Auto logout: Logs out the DVR automatically when there is no keyboard or mouse operation during the predefined dwell time below.
- Remote connection timeout: Clicking each authority level (Manager, User 1 to 3) displays the Remote connection timeout screen and then you can set the DVR's connection time settings from remote locales.



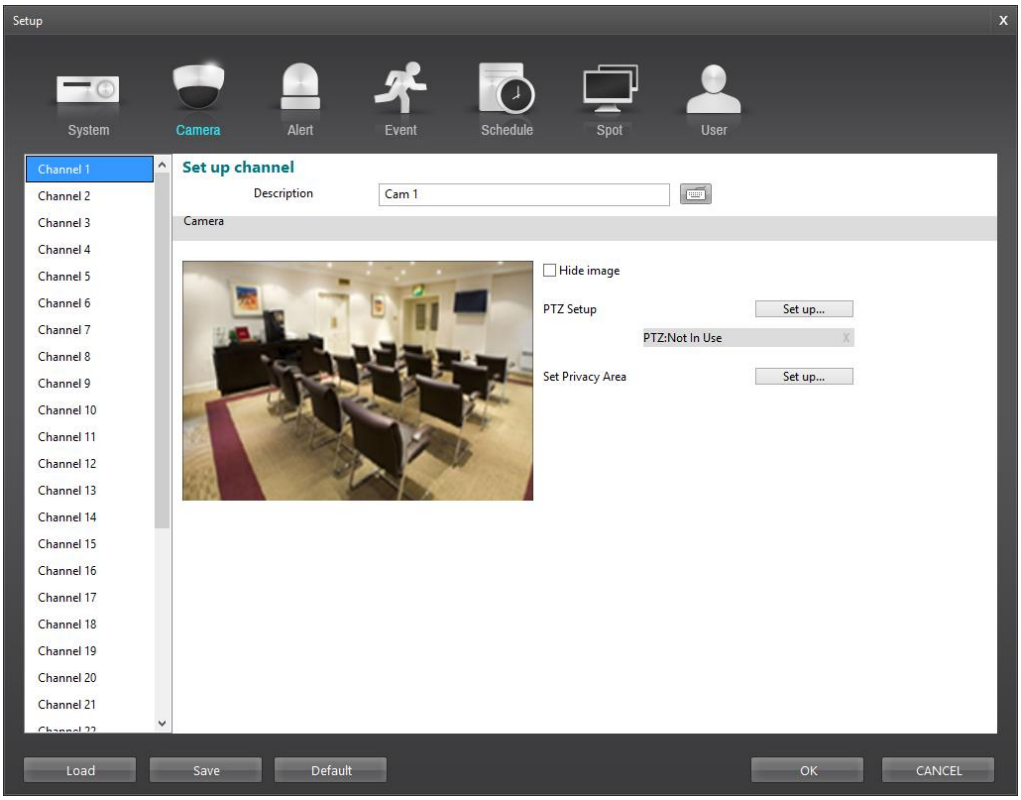
  - Timeout: It is allowed to connect during remote connection period you set. After time to keep connection, the remote connection is disabled automatically.
  - Reconnection acceptance interval: Set the waiting period after the auto expiration ends.

- ☑ Remote service schedule: Set the service schedule. When the specific time or authority level is set, the remote connection is allowed for the selected time or authority level.

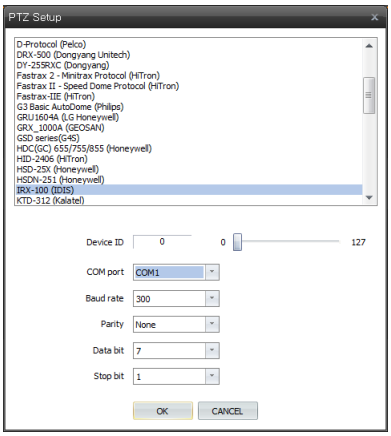
NOTE: Remote connection timeout and remote service schedule function do not apply to the changed settings when the users is logged in as authority level of Administrator.

Setting Up the Camera

Non-Hybrid Model

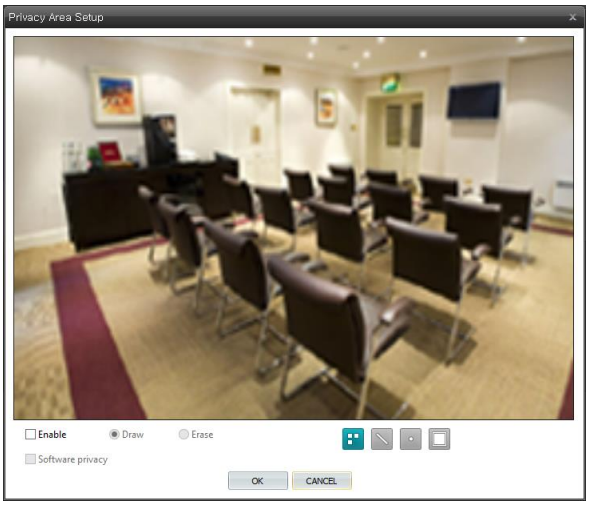


- Channel 1 to Channel 32: Indicates the camera number. ◄ or ► buttons are supported for 32-channel model only.
- Description: Enter a camera name.
- ☑ Hide Image: Hides the image of the selected camera on the monitor. The selected camera will not be displayed on the monitor, however, the images from the camera will be recorded while in the record mode.
- PTZ Setup: Click the Set up... button if the camera is a PTZ camera.



- Device ID: Set the device ID number using the slide bar.
- COM port: Select the COM port to use. When using the RS232 port, select COM 1. When using the RS485 port, select the given COM port number. To check the given COM port number, please refer to the installed card information displayed on the About dialog box by clicking the (Menu) button of SmartGuard.
- Baud rate, Parity, Data bit, Stop bit: Set the baud rate, parity, data bit and stop bit.

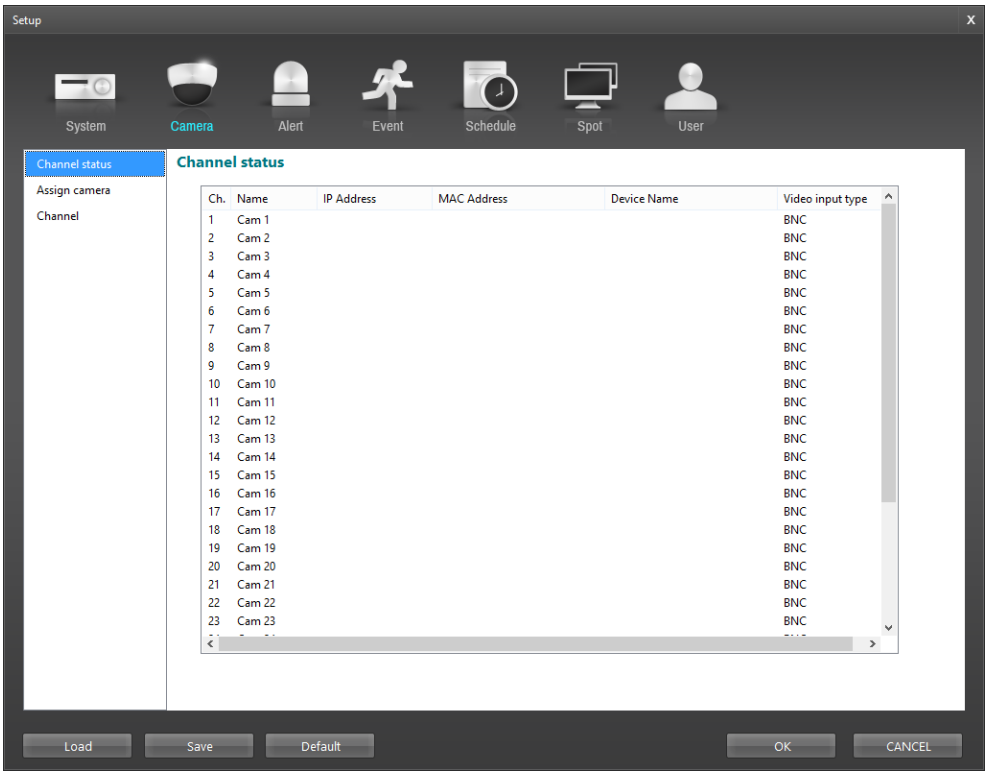
- Set Privacy Area: Set up the privacy area on the image. The selected area set as Privacy Area will NOT be displayed either in the live mode or playback mode. The DVR will display the selected areas in black, and also does NOT react to events detected within the area set as Privacy Area. Click the Set up... button and then set the privacy area zone.



Enable Enable option. The setup screen is made up of a grid. First, click the Draw or Erase radio button and select a tool to use, and then set up the privacy area on the image. Use the tools as follows:

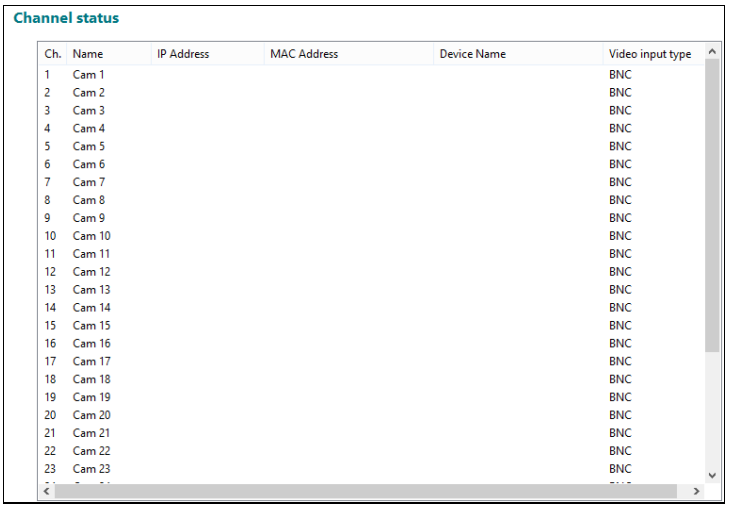
– (Point): Place the cursor on the image and click the left mouse button. A single box appears where the cursor is.
– (Line): This tool can be used to draw irregular shapes. Place the cursor where you want to start the line. Hold down the left mouse button and drag the cursor to where you want the end of the line. Release the mouse button and a group of boxes appears along the line you drew. You can draw lines around shapes by repeating this process.
– (Rectangle): Hold down the left mouse button and drag the cursor in any direction. A rectangle appears. Once the rectangle is the size you want, release the mouse button and the rectangle fills with boxes.
– (Fill): When using the fill tool, clicking the mouse will fill that area of the image with boxes. If a shape has been drawn with the line tool, clicking inside will fill the area with boxes. Clicking outside the area will fill the outer area with boxes. If no shapes have been drawn, the entire screen will fill with boxes.
– Software privacy: Use the software privacy. If it is not selected, the hardware privacy is enabled. System load of the hardware privacy is lower than the software privacy.

Hybrid Model



Channel status

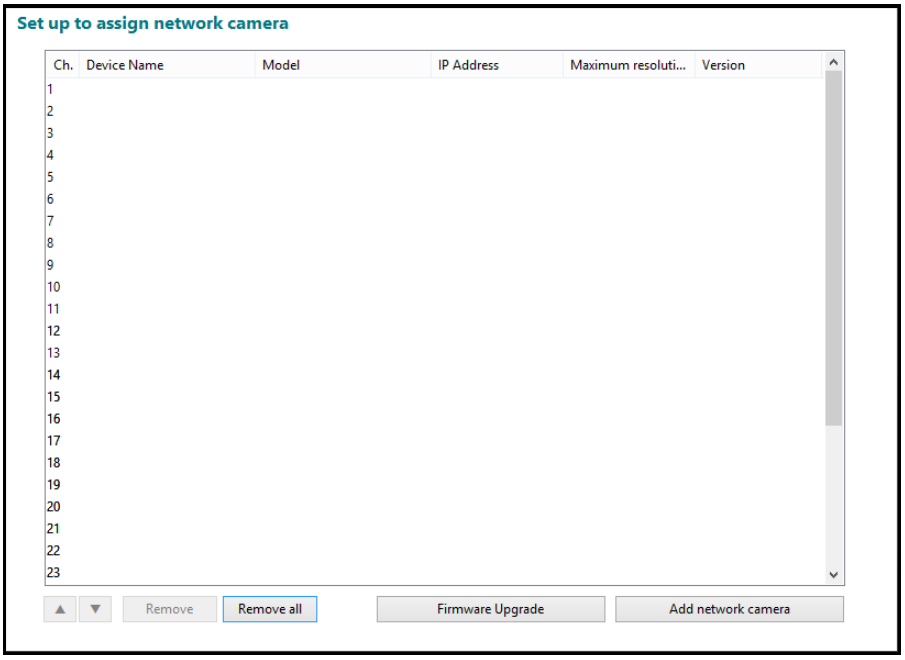
It displays camera information such as IP address, video input type, etc.



- CH.: Displays a camera number.
- Name: Displays a camera name set in the DVR.
- IP address: Displays a camera's IP address (supported for a network camera only).
- MAC Address: Displays a camera's MAC address (supported for a network camera only).
- Device Name: Displays a camera name set in the camera (supported for a network camera only).
- Video input type: Displays a camera's video input type.

Assign camera

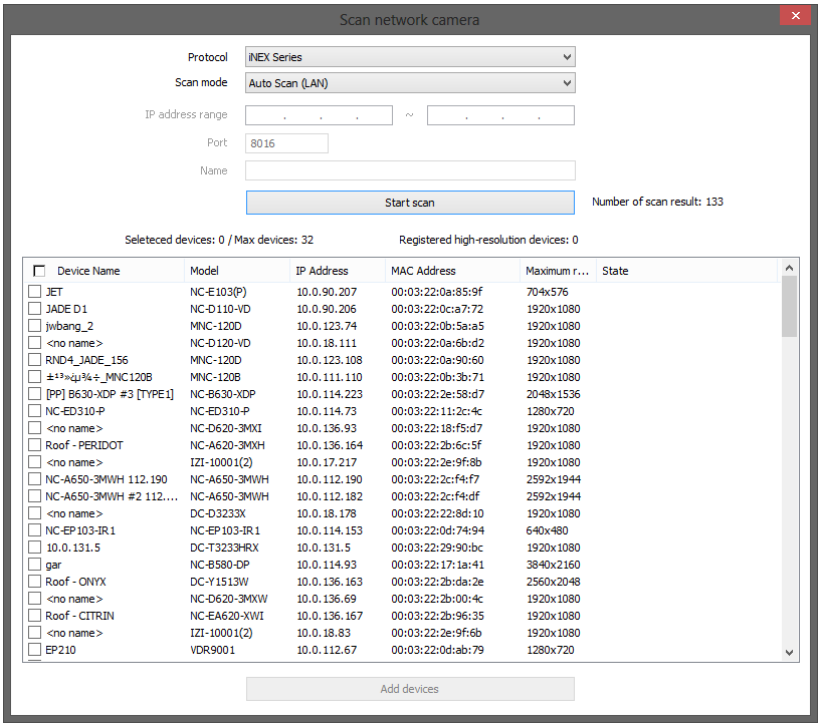
It allows you to register network cameras. This is supported for hybrid products only.



- CH.: Displays a camera number.
- Device Name: Displays a camera name set in the camera.
- Model: Displays a camera model name.
- IP address: Displays a camera's IP address.
- Maximum resolution: Displays the maximum resolution of a camera.
- Version: Displays the camera firmware version.
- ▲ ▼ (Move): Allows you to change the camera number by selecting a camera from the list and clicking the button.
- Remove, Remove All: Cancels the registration of the selected camera by selecting a camera from the list and clicking the Remove button. Clicking the Remove All button cancels the registration of all cameras in the list.

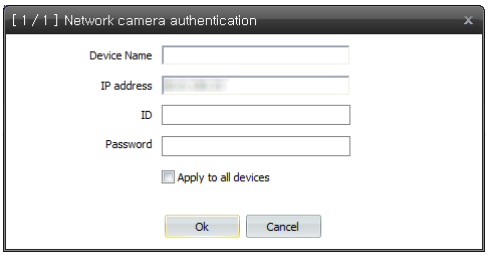
NOTE: High resolution connection is limited to Full HD (1920x1080) at most. 16-channel model is limited to 8 cameras and 32-channel model is limited to 12 cameras for registration.

Scan network camera: Allows you to search for network cameras.



- Protocol: Select the protocol or manufacturer of the device to scan.
- Scan mode: Select the scan mode. Clicking the Start scan button displays the results in the list. If the IP address range of the camera is different from that of the DVR, the DVR considers the IP address invalid. In this case, you must change the camera's IP address to register the camera.
  - Auto Scan (LAN): Lists cameras in a LAN environment. If the camera uses the ONVIF™ Conformance protocol, it is recommended that the camera not be networked via DHCP (Dynamic Host Configuration Protocol). If the camera is networked via DHCP, connection to the camera may not be made properly depending on changes in the external network environment.
  - IP Address: Searches for a camera with a camera's IP address. Enter the IP address and port number in the IP address range and Port fields. It is possible to search more than one camera at a time by entering a range of IP addresses. It is recommended that the camera not be networked via DHCP (Dynamic Host Configuration Protocol). If the camera is networked via DHCP, connection to the camera may not be made properly depending on changes in the external network environment.
  - FEN: Searches for a camera with a FEN name. Enter the camera's FEN name registered on a FEN server if the camera uses the FEN function. Ensure the FEN server information on which the camera is registered is correct (SYSTEM – Network menu → FEN Server info. settings). If the FEN server information is not correct, the camera will not be found.

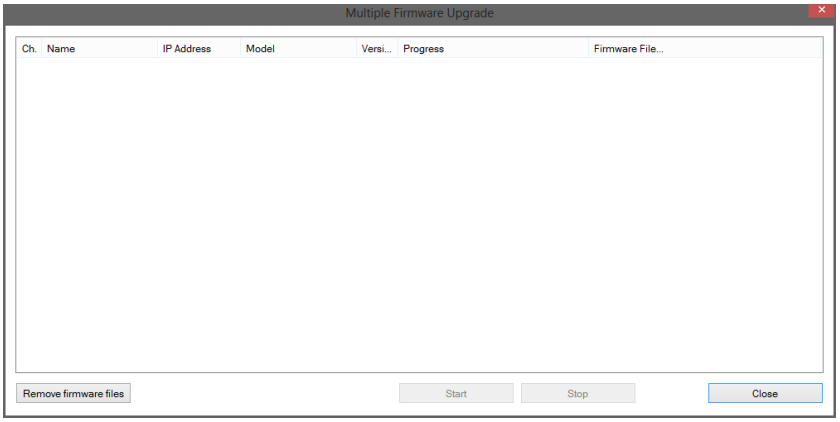
– Add devices: Select the cameras to register by checking ☑ beside each camera name in the list. Click the Add devices button.



- Device Name, IP Address: Displays the name and IP address of the selected camera. The name will be updated automatically depending on the settings of the camera.
- ID, Password: Enter the user ID and password which you set in the camera in order to connect to that camera remotely. The connection to the camera is allowed only to the users under the Administrator group of the camera. Selecting Apply to all devices applies the same user ID and password to all selected cameras if you selected more than one camera and the selected cameras have the same user ID and password.

Firmware Upgrade

It allows you to upgrade the firmware of the network camera. This is supported for the hybrid model only.

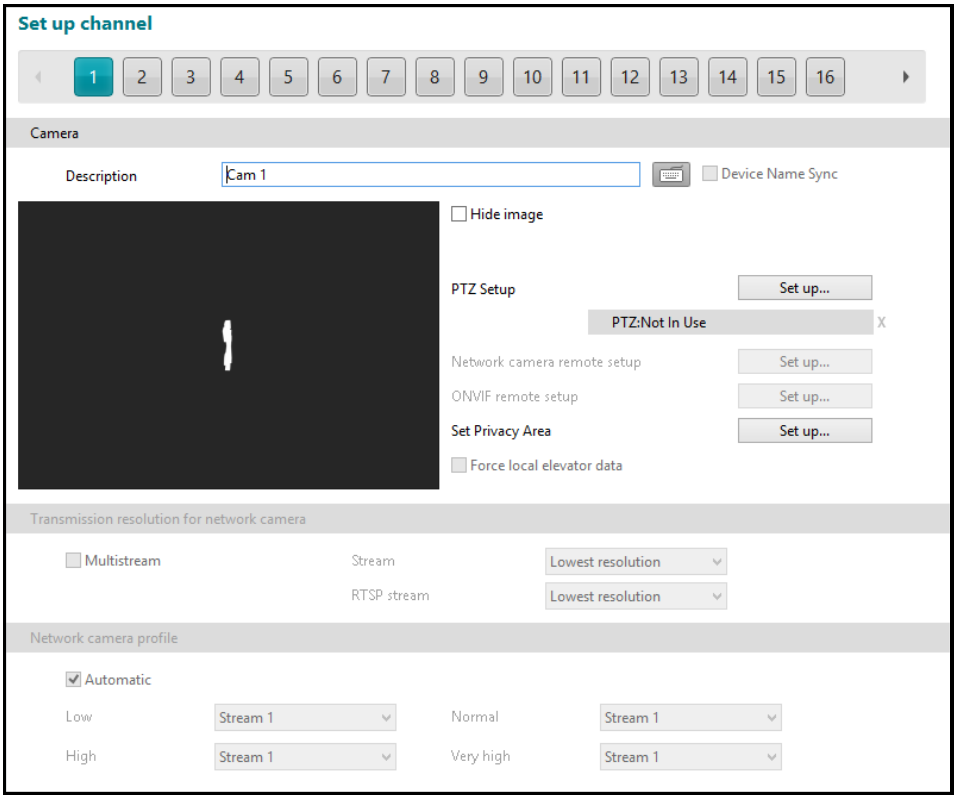


After selecting an upgrade package, select Start to upgrade the camera. Only registered network cameras appear on the list.

Note: If an upgrade attempt fails, an upgrade failure message will be displayed.
Note: The camera will reboot after the upgrade and then reconnect automatically.
Note: Current software version is not checked when upgrading a network camera.

Channel

It allows you to set up cameras.

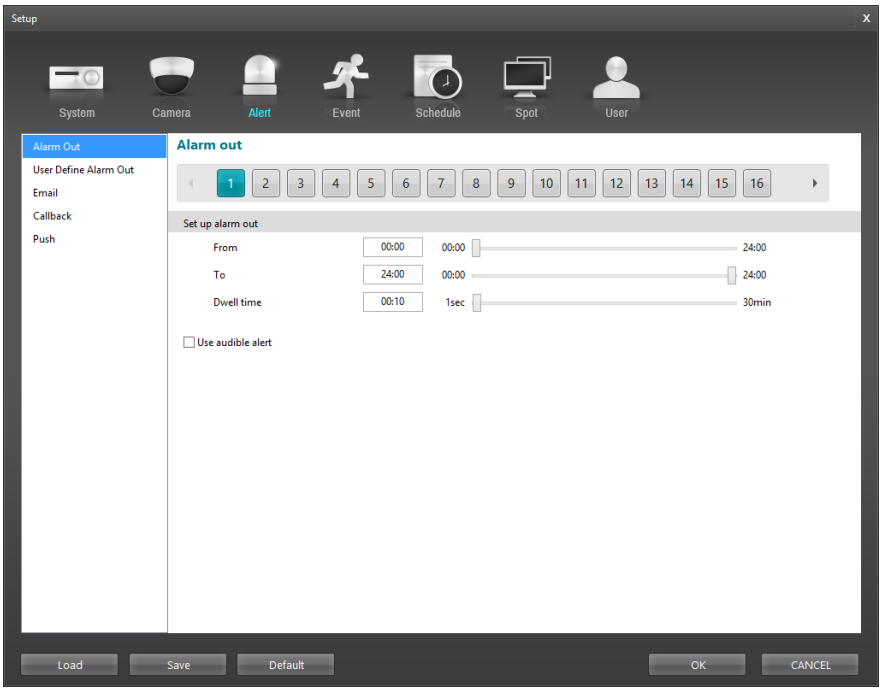


- Channel 1 to Channel 32: Indicates the camera number. ◄ or ► buttons are supported for 32-Channel model only.
- Description: Enter a camera name. Selecting Device Name Sync automatically applies the name set in the camera to the DVR (supported only for network cameras which use the iNEX Series protocol).
- Network camera remote setup: Clicking the Set up… button allows you to change the device's settings remotely (supported for network cameras only).
- Onvif remote setup: Clicking the Set up... button allows you to change the device's settings remotely (It is supported only when ONVIF™ Conformance protocol camera is registered).
- Force local elevator data: Uses the local elevator data instead of the elevator data sent from network cameras.
- Transmission resolution for network camera: Set up the transmission resolution for remote and RTSP. The following two ways are available for setting up the transmission resolution.
  - Multistream: Automatically transmits the appropriate stream for remote resolution.
  - Selecting from Lowest resolution/Highest resolution/Streams: Selecting from the lowest/highest resolution automatically transmits the stream corresponding to the lowest or highest resolution. Choosing one from the streams transmits the selected stream.

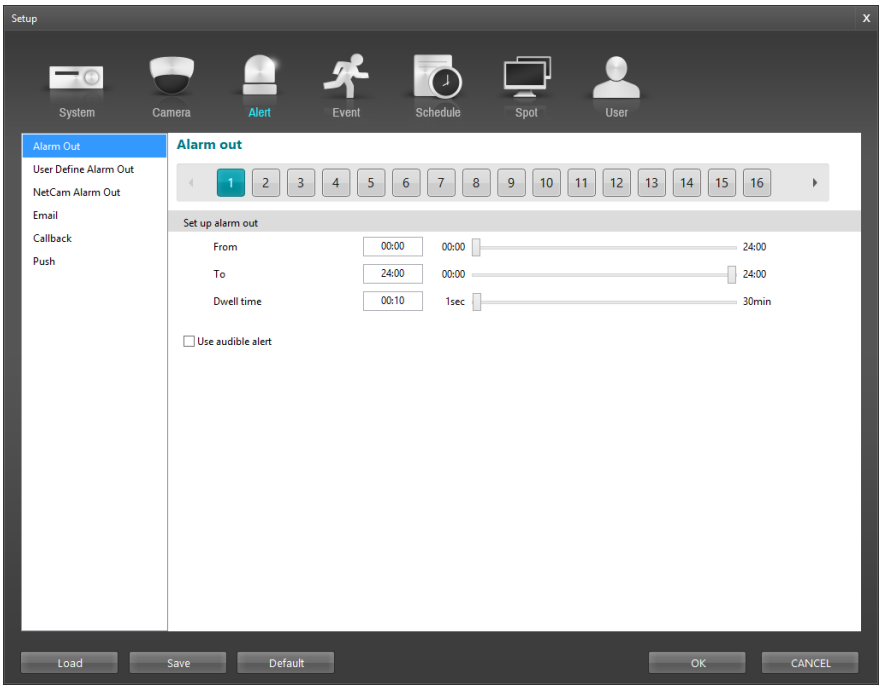
  NOTE: Remote can be used with both ways, and RTSP can be used with the second way only (The two ways cannot be used simultaneously for remote).
- Network camera profile: Set up profiles. Assign streams from the camera to each profile. Selecting Automatic makes the DVR assign streams to each profile automatically depending on the resolution, frame rate, and quality of streams. This is supported for network cameras only. If a network camera uses more than one stream, the DVR automatically chooses the proper stream based on the screen mode to reduce system load.

Setting Up the Alert

Non-Hybrid Model



Hybrid Model



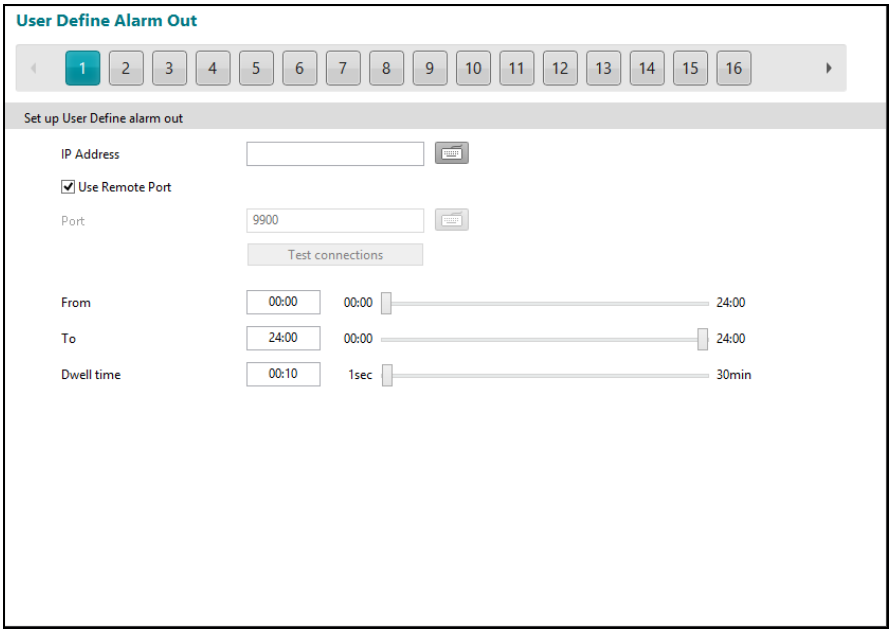
Alarm Out

You can set up the DVR to activate alarm out of the device connected to the DVR's alarm out port.

- 1 to 32: Displays alarm out number. See Appendix 4 — Connector Pin Outs for details about the alarm out number. or buttons are supported for 32-Channel model only.
- From, To: Set alarm out activation period. Alarm out is activated during the period only. If the From time is later than the To time, the alarm out will be not activated From end time(to time) to start time(to).. If you set To: 08:00 and From: 18:00, this means the alarm will be not activated at the from 8 am to 6 pm and be activated at all other times.
- Dwell time: Set the alarm out duration.
- Use audible alert: The DVR sounds beep through the connected speaker during alarm output.

User Define Alarm Out

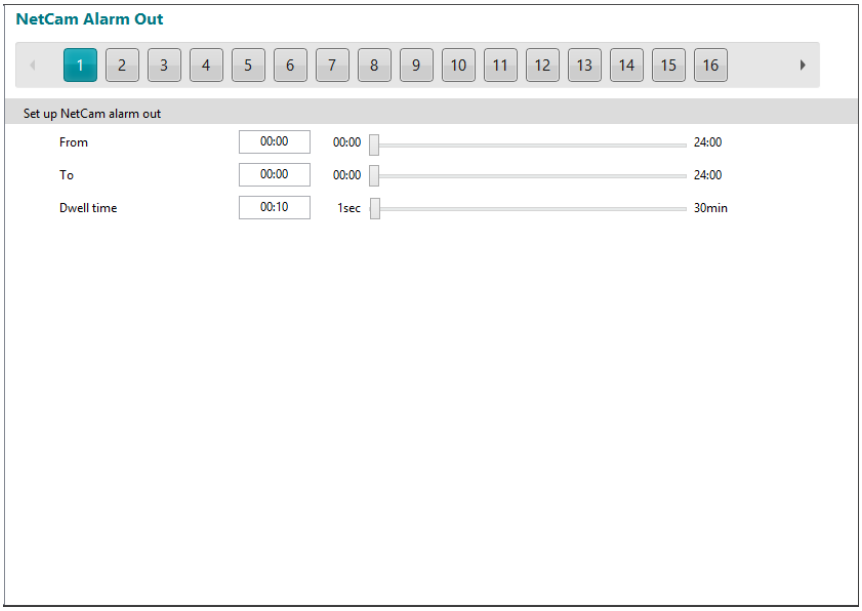
You can set up the DVR to activate user define alarm out when an event occurs.



- 1 to 32: Displays alarm out number. ◂ or ▸ buttons are supported for 32-Channel model only.
- ☑ Use Remote Port: Set the user define alarm out via remote port.
- IP address, Port: Set the IP address and port number of the device connected to the DVR via TCP networking. Click the Test connections button to test the connection to the device.
- From, To: Set user define alarm out activation period. Alarm out is activated during the period only. If the From time is later than the To time, the user define alarm out will be not activated From end time(to time) to start time(to).. If you set To: 08:00 and From: 18:00, this means the alarm will be not activated at the from 8 am to 6 pm and be activated at all other times.
- Dwell Time: Set the user define alarm out activation duration.

NetCam Alarm Out

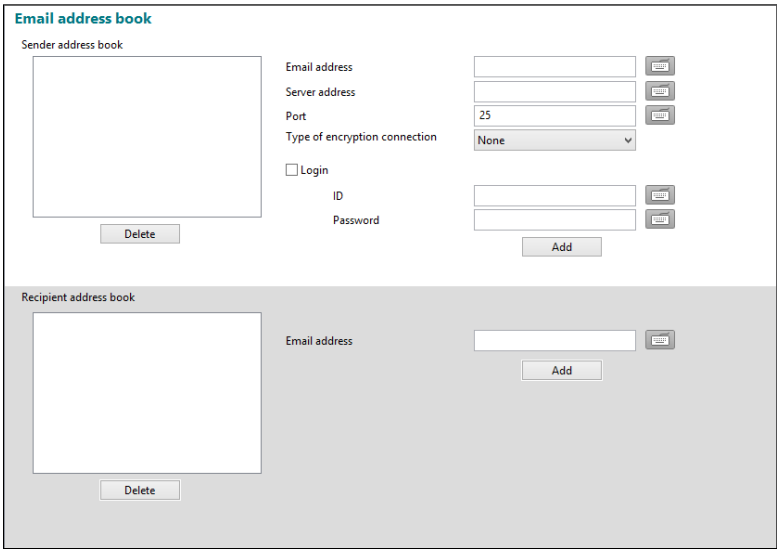
You can associate alarm out of a network camera with events if the network camera supports alarm out. This is supported for the hybrid model only.



- 1 to 32: Displays the camera number. or buttons are supported for 32-Channel model only.
- From, To: Set alarm out activation period. Alarm out is activated during the period only. If the From time is later than the To time, the alarm out will be not activated From end time(to time) to start time(to).. If you set To: 08:00 and From: 18:00, this means the alarm will be not activated at the from 8 am to 6 pm and be activated at all other times.
- Dwell Time: Set the alarm out activation duration. Alarm out activation lasts during the dwell time when an associated event occurs.

Email

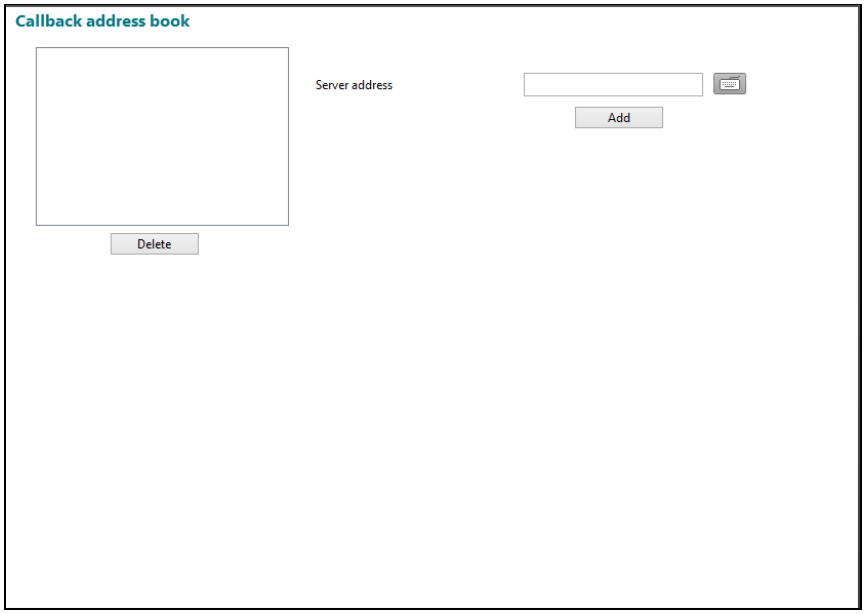
You can set up email address book.



- Sender address book: Enter the email address and SMTP server address and port number. Select a type if the SMTP server uses the type of encrypted connection. Check the Login box if you want to connect to the SMTP server that requires login procedure, and enter the ID and password for login. Clicking the Add button adds the sender to the sender address book.
- Recipient address book: Enter the email address. Clicking the Add button adds the recipient to the recipient address book.

Callback

You can set up callback address book.



- Server address: Enter the IP address of the callback server and click the Add button.

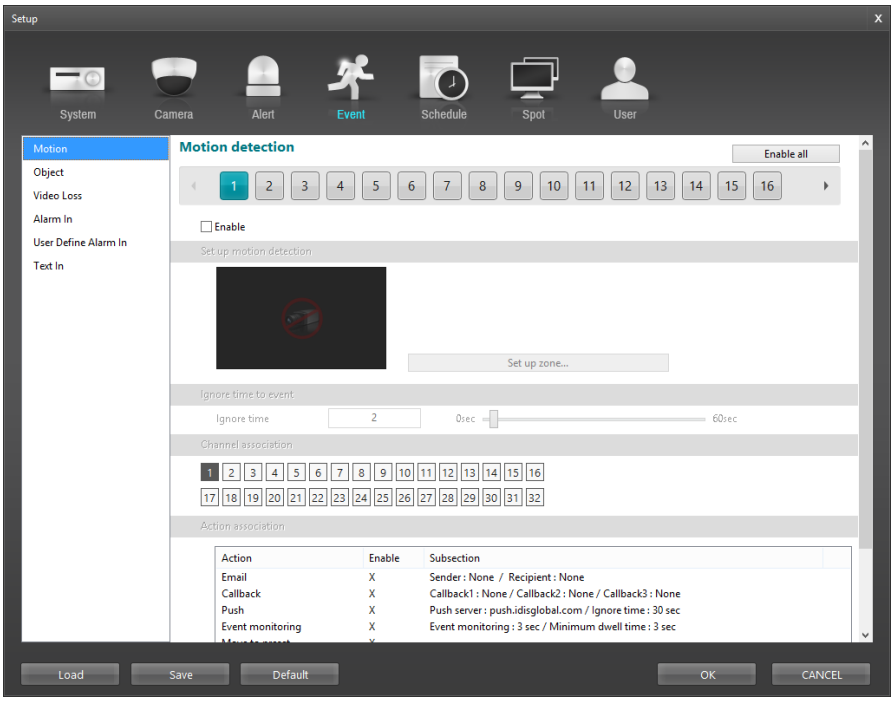
Push

You can set up push server.

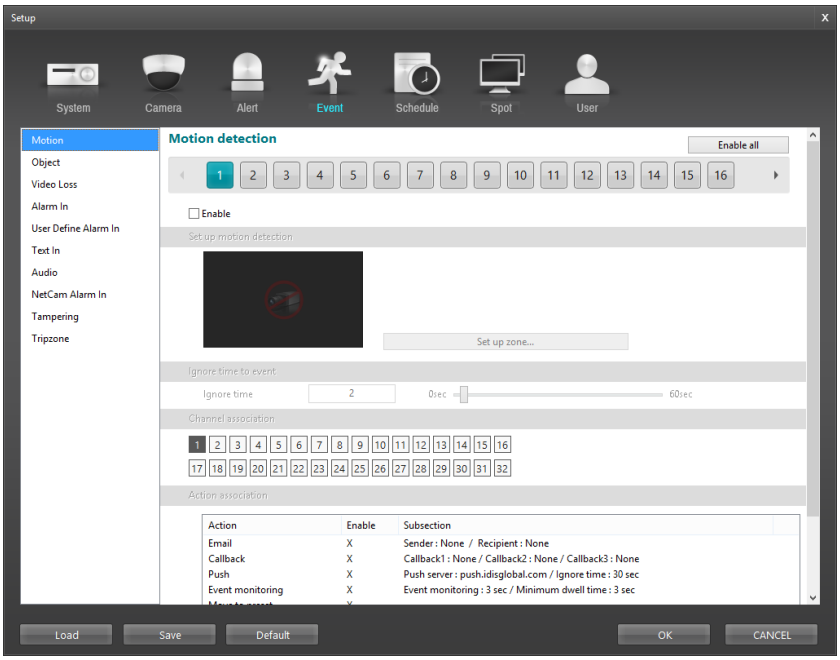
- Server address: Enter the IP address of the push server.

Setting Up the Event

Non-Hybrid Model



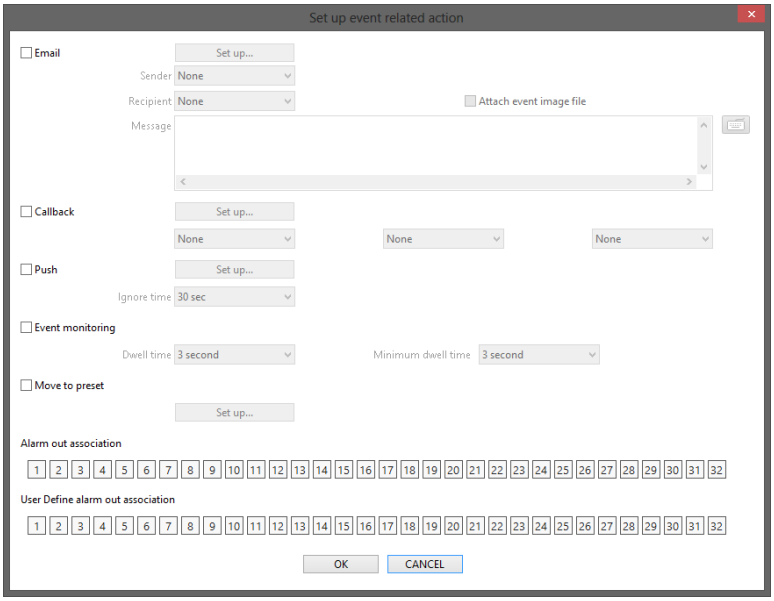
Hybrid Model



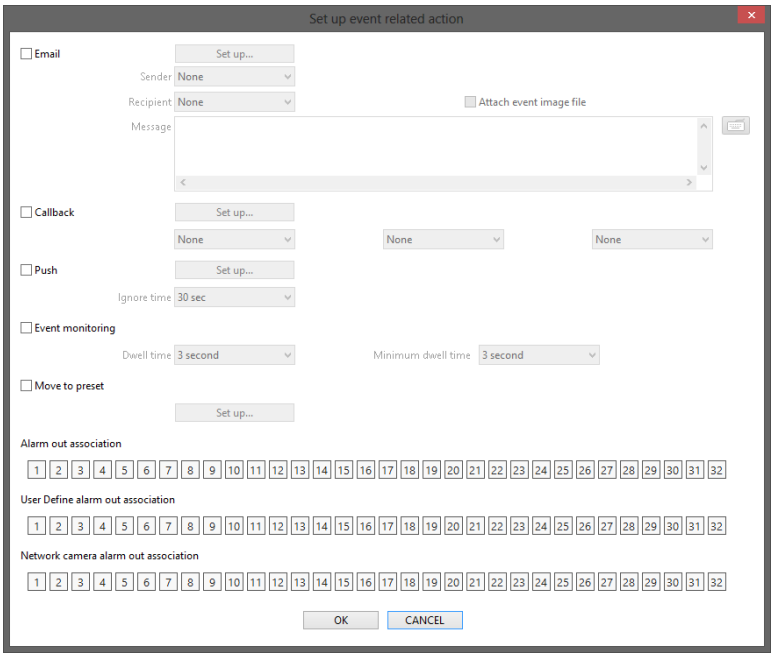
- Ignore time to event: Only the first detected event is notified by log, channel association or action association and the same type of other events detected during the dwell time will not be notified.
- Channel association: Records video from multiple cameras when an event occurs at the selected camera or other device.

- Action association: Displays actions to be done when an event occurs. Clicking the Set up... button allows you to change the settings.

  Non-Hybrid Model



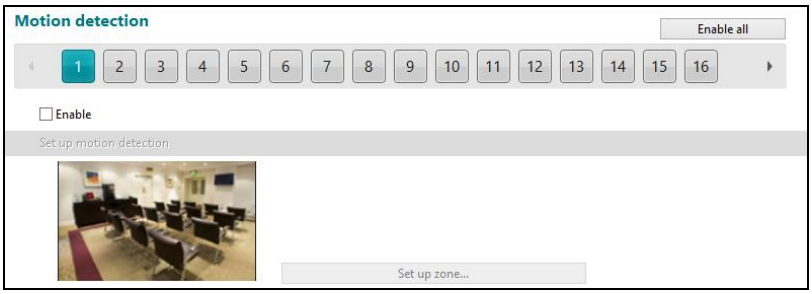
  Hybrid Model



- ☑ Email: Sends an email when an event occurs. Select a sender and recipient from the drop-down menu below the Set up... button and enter the message. Enabling Attach the event image file attaches an event detected image file (.JPG) to the email. Clicking the Set up... button loads the email address book set at the ALERT – Email menu.
- ☑ Callback: Sends a message to predefined callback servers when an event occurs (not supported for network alarm in events). Select a callback server from the drop-down menu below the Set up... button. Clicking the Set up... button loads the callback address book set at the ALERT – Callback menu.
- ☑ Push: Sends a message to predefined push serves when an event occurs. Select an ignore time from the drop-down menu below the Set up... button. Clicking the Set up... button loads the push server settings from the ALERT – Push menu.
- ☑ Event monitoring: Displays all the camera channels associated with the channels that an event occurs during the dwell time on the monitoring screen.
- ☑ Move to preset: Clicking the Set up... button displays the list of saved Preset and you can select a Preset. The PTZ camera moves to the position of the selected Preset when an event occurs. You can save Preset in the PTZ control panel of SmartGuard. This function is supported for the camera that supports the PTZ function.
- Alarm association: Activates selected alarm out when an event occurs.
- User define alarm out association: Activates selected user define alarm out when an event occurs.
- NetCam alarm association: Activates selected network camera's alarm out when an event occurs (supported for the hybrid model only).

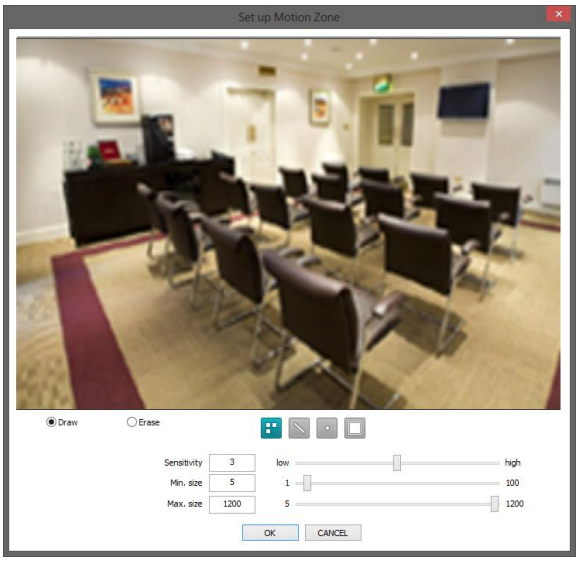
Motion

You can set up motion detection event.



- Enable all : Click Enable all to select all of the camera numbers.
- 1 to 32: Displays camera number. Clicking each button allows you to change motion detection event settings for each camera. ◄ or ► buttons are supported for 32-Channel model only.
- ☑ Enable: Enables motion detection event function. When the DVR detects a motion in a configured motion detection zone, it considers the motion as an event.

- Set up motion detection
  - Set up zone...: Set up the motion detection zone. This is not supported for network cameras and the DVR uses the settings of a network camera.

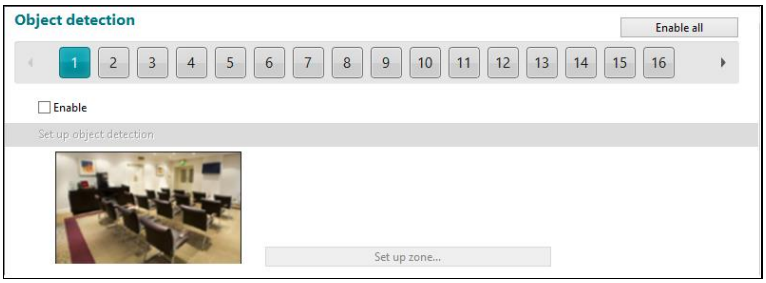


The setup screen is made up of a grid. First, click the Draw or Erase radio button and select a tool to use, and then set up the motion detection area on the image. Using the tools is identical to that of Set Privacy Area at the CAMERA menu.

- Sensitivity: Set the motion detection sensitivity. The higher the number is, the more sensitive it is.
- Min. size: Adjust the minimum number of detection blocks that must be activated in order to be considered as a motion detection event. If you set to 10, the DVR will only react to the motion when it detects motion (activity) in at least 10 connected blocks within the selected detection zone. The minimum number of blocks (Min. size) should not exceed the selected block numbers for detection. When selecting multiple detection area groups, the minimum number of blocks (Min. size) should not exceed the block numbers of the smallest detection area.
- Max. size: Set the maximum number of blocks (no less than the Min. size block). If you set the Max. size value to 100, the DVR will ignore the motion which is detected in more than 100 blocks.

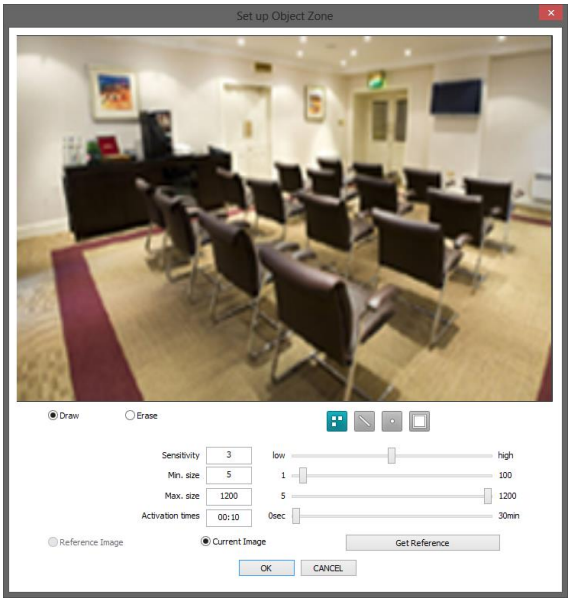
Object

You can set up object detection event.



- Enable all : Click Enable all to select all of the camera numbers.
- 1 to 32: Displays camera number. Clicking each button allows you to change object detection event settings for each camera. ◄ or ► buttons are supported for 32-Channel model only.
- ☑ Enable: Enables object detection event function. When the DVR detects the changes on the image compared to the reference image in a configured object detection zone, it considers the changes as an event.

- Set up object detection
  - Set up zone...: Set up the object detection zone. This is not supported for network cameras and the DVR uses the settings of a network camera.

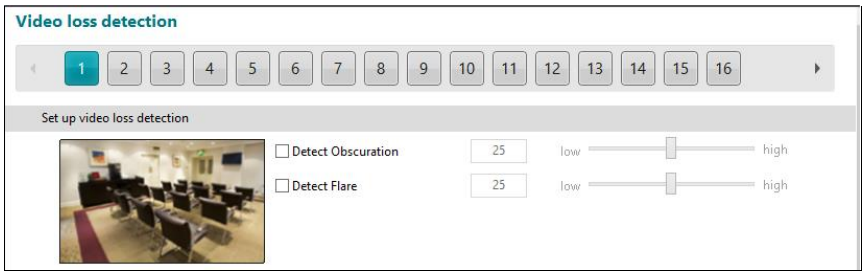


The setup screen is made up of a grid. First, click the Draw or Erase radio button and select a tool to use, and then set up the object detection area on the image. Using the tools is identical to that of Set Privacy Area at the CAMERA menu.

- Sensitivity: Set the object detection sensitivity. The higher the number is, the more sensitive it is.
- Min. size: Adjust the minimum number of detection blocks that must be activated in order to be considered as a object detection event. If you set to 10, the DVR will only react to the changes when it detects changes (activity) in at least 10 connected blocks within the selected detection zone. The minimum number of blocks (Min. size) should not exceed the selected block numbers for detection. When selecting multiple detection area groups, the minimum number of blocks (Min. size) should not exceed the block numbers of the smallest detection area.
- Max. size: Set the maximum number of blocks (no less than the Min. size block). If you set the Max. size value to 100, the DVR will ignore the changes which are detected in more than 100 blocks.
- Activation times: Set the dwell time to detect changes. The DVR will detect the change only when the change lasts over the preset dwell time.
- Reference Image: Shows the reference image.
- Current Image, Get Reference: Shows the current image. Clicking Get Reference button sets the current image as a reference image.

Video Loss

You can set up video loss event. This is not supported for network cameras and the DVR uses the settings of a network camera.

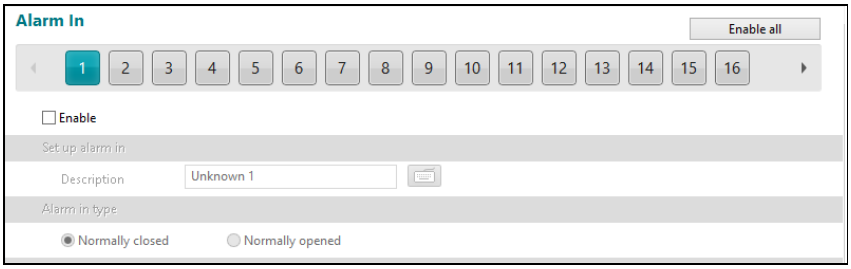


- 1 to 32: Displays camera number. Clicking each button allows you to change video loss event settings for each camera. or buttons are supported for 32-Channel model only.
- Set up video loss detection
  - Detect Obscuration: The DVR checks the obscuration of the lens and considers the obscuration on the images as a video loss event (for example, the lens is sprayed, lens is blocked, etc). Set the obscuration level by holding down and dragging the pointer. The higher the percentage, the more sensitive it is.

– ☑ Detect Flare: The DVR checks the brightness of the lens and considers the flare on the images as a video loss event (for example, light is flashed at the lens). Set the flare level by holding down and dragging the pointer. The higher the percentage, the more sensitive it is.

Alarm In

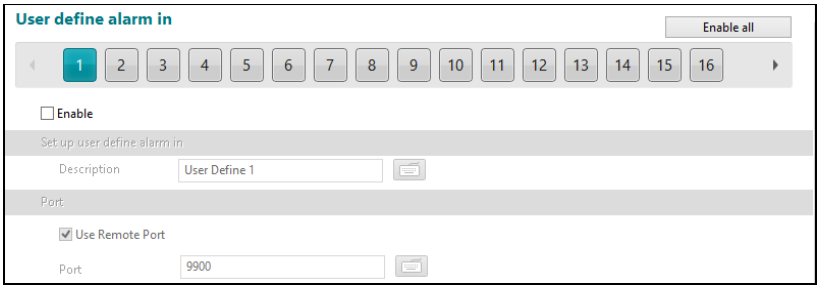
You can set up alarm in event.



- Enable all : Click Enable all to select all of the camera numbers.
- 1 to 32: Displays alarm in device number. Clicking each button allows you to change alarm in event settings for each camera. ◂ or ▸ buttons are supported for 32-Channel model only.
- ☑ Enable: Enables alarm in event function. When the DVR detects alarm in from the device connected to the DVR's alarm in port, it considers it as an event.
- Set up alarm in – Description: Enter an alarm in device name.
- Alarm in type: Enter a signal type of the alarm in device. If the signal type of the alarm in device is NC (Normally Closed), select Normally open. If the signal type is NO (Normally Open), select Normally closed.

User Define Alarm In

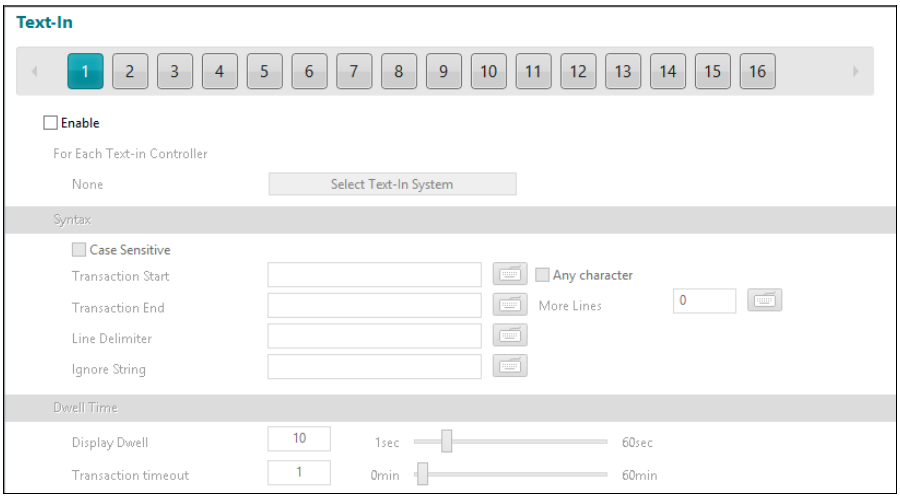
You can set up user define alarm in event.



- Enable all : Click Enable all to select all of the camera numbers.
- 1 to 32: Displays network alarm in device number. Clicking each button allows you to change network alarm in event settings for each camera. ◂ or ▸ buttons are supported for 32-Channel model only.
- ☑ Enable: Enables user define alarm in event function. When the DVR detects user define alarm in from external, it considers it as an event.
- Set up user define alarm in – Description: Enter a user define alarm in device name.
- ☑ Use Remote Port: Detects the user define alarm in via remote port.
- Port: Enter the port number of the device connected to the DVR via TCP networking.

Text In

You can set up text in event.



- 1: Displays text-in device number. Clicking each button allows you to change text-in event settings for each camera.
- ☑ Enable: Enables text-in event function. When the DVR detects text-in data from a text in device, it considers it as an event.
- For Each Text-in Controller: Click the Select Text-In System button and select the text-in product from the list.
- Syntax
  - ☑ Case Sensitive: Text strings are case sensitive. Refer to the text-in product manufacturer's user manual to determine if the text strings are case sensitive. If the text-in product distinguishes between upper and lower case letters, make certain this is enabled.
  - Transaction Start: Enter the transaction start text string. The DVR considers that a transaction starts when the start text string is entered. If Any character is enabled, you will not be able to enter a text string, and the DVR considers that a transaction starts when any text string is entered.
  - Transaction End: Enter the transaction end text string. The DVR considers that a transaction ends when the end text string is entered. Enter the number of additional text lines to be displayed after the end of the transaction in the More Lines option.
  - Line Delimiter: Enter the character(s) that the text-in product uses to indicate the end of a line. Special characters can be created using ^ and a capital letter;e.g., ^J for NL (New Line), ^M for CR (Carriage Return). Refer to the text-in product manufacturer's user manual for Line Delimiter character(s).
  - Ignore String: Enter any text strings to be ignored. Refer to the text-in product manufacturer's user manual for text strings that the text-in product sends during normal transactions so that those text strings will not be considered as text-in.
- Dwell Time
  - Display Dwell: Set the dwell time to display the text-in information.
  - Transaction Timeout: Set the length of time to wait for a new text string. The DVR will consider a transaction complete if no new text is entered during the time-out period after the last text input even though the transaction end text string is not entered.

Audio Detection

You can use the audio detection event of the network camera in the DVR if the network camera supports the audio detection event. This is supported for hybrid products only.

- Enable all : Click Enable all to select all of the camera numbers.
- 1 to 32: Displays the camera number. Clicking each button allows you to set up the audio detection event in the DVR for each network camera. or buttons are supported for 32-Channel model only.
- Enable: Enables the audio detection event function. When the network camera detects an audio detection event, the DVR also considers it as an event.

NetCam Alarm In

You can use the alarm in event of the network camera in the DVR if the network camera supports the alarm in event. This is supported for hybrid products only.

- Enable all : Click Enable all to select all of the camera numbers.
- 1 to 32: Displays the camera number. Clicking each button allows you to set up the alarm in event in the DVR for each network camera. or buttons are supported for 32-Channel model only.
- Enable: Enables the netcam alarm in event function. When the network camera detects a netcam alarm in event, the DVR also considers it as an event.

Tampering

You can use the tampering event of the network camera in the DVR if the network camera supports the tampering event. This is supported for hybrid products only.

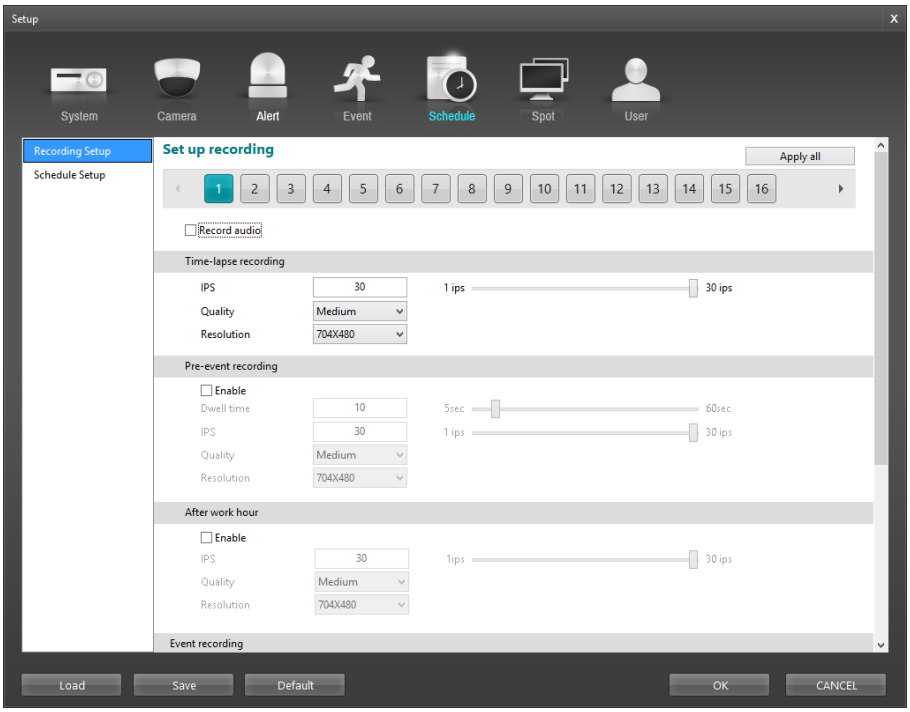
- Enable all : Click Enable all to select all of the camera numbers.
- 1 to 32: Displays the camera number. Clicking each button allows you to set up the tampering event in the DVR for each network camera.
- Enable: Enables the tampering event function. When the network camera detects a tampering event, the DVR also considers it as an event.

Tripzone

You can use the tripzone event of the network camera in the DVR if the network camera supports the tripzone event. This is supported for hybrid products only.

- Enable all : Click Enable all to select all of the camera numbers.
- 1 to 32: Displays the camera number. Clicking each button allows you to set up the tripzone event in the DVR for each network camera. ◄ or ► buttons are supported for 32-Channel model only.
- ☑ Enable: Enables the tripzone event function. When the network camera detects a tripzone event, the DVR also considers it as an event.

Setting Up the Schedule

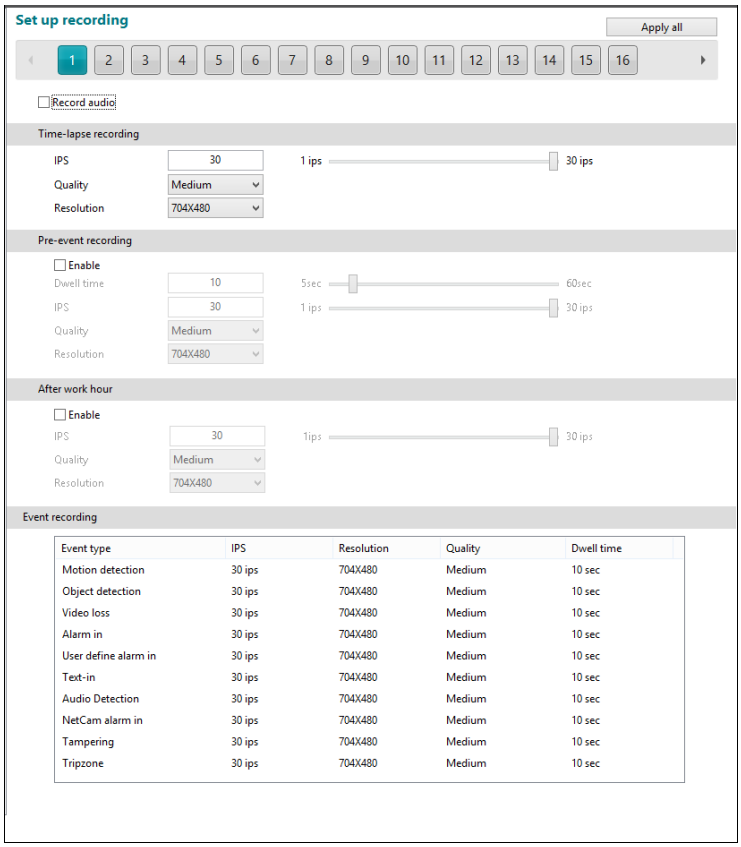


If a BNC camera is selected, clicking Apply all applies the settings to all BNC cameras identically. If a network camera is selected, clicking Apply all applies the settings to all network cameras identically.

Recording Setup

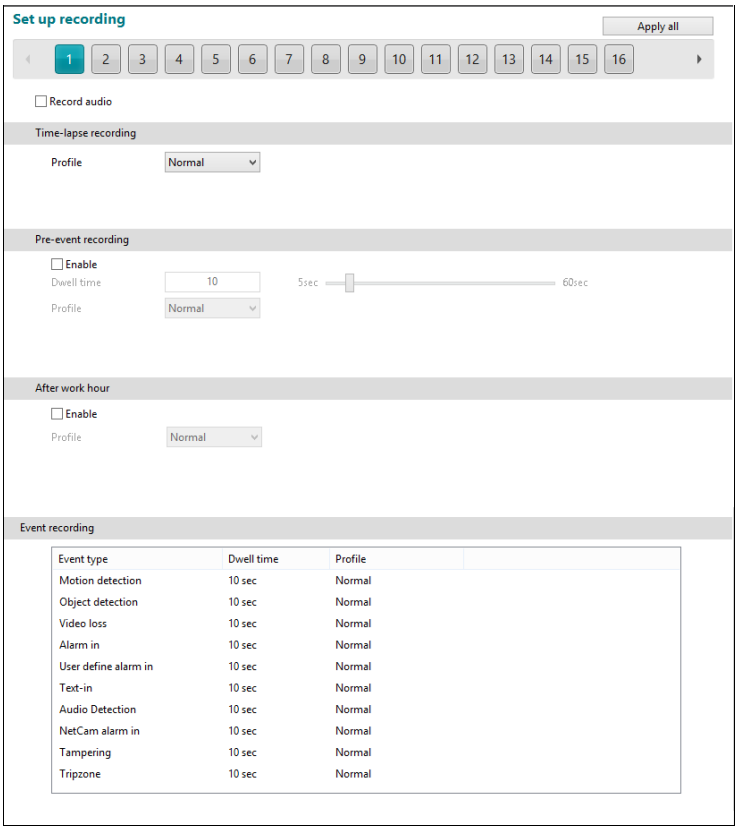
You can set up recording for each camera.

BNC Cameras



Event type	IPS	Resolution	Quality	Dwell time
Motion detection	30 ips	704X480	Medium	10 sec
Object detection	30 ips	704X480	Medium	10 sec
Video loss	30 ips	704X480	Medium	10 sec
Alarm in	30 ips	704X480	Medium	10 sec
User define alarm in	30 ips	704X480	Medium	10 sec
Text-in	30 ips	704X480	Medium	10 sec
Audio Detection	30 ips	704X480	Medium	10 sec
NetCam alarm in	30 ips	704X480	Medium	10 sec
Tampering	30 ips	704X480	Medium	10 sec
Tripzone	30 ips	704X480	Medium	10 sec

Network Cameras



- ☑ Record audio: Records audio while the DVR records video. The DVR provides two types of audio input, M icrophone and Line-in. Microphone is for an unamplified source while Line-in is for an amplified source.
- Time-lapse recording: Records video in time-lapse recording mode. In time-lapse recording mode, DVR records continuously based on this setting for the scheduled time.
  - IPS: Sets recording speed (not supported for network cameras). When the recording speed is set to lower than 2 ips, recorded audio will NOT be played. Recording speed is the number of images recorded during one second. The higher the recording speed is, the more images are recorded. For example, 30 means 30 images will be recorded during one second, and 5 means 5 images will be recorded during one second.
  - Quality: Sets the record image quality (not supported for network cameras). Higher quality images require more storage space and will reduce the recording capacity of the hard disk drive.
  - Resolution: Sets the record image size (not supported for network cameras). Higher resolution images require more storage space and will reduce the recording capacity of the hard disk drive.
  - Profile: Select one of the preset profiles (supported for network cameras only). Higher resolution, frame rate, and quality of the stream assigned to the profile require more storage space and will reduce the recording capacity of the hard disk drive.
- Pre-event recording: Records video prior to event detection when predefined events are detected.
  - ☑ Enable: Enables pre-event recording.
  - IPS: See the explanation of Time lapse recording (not supported for network cameras).
  - Dwell time: Sets the duration of recording. The DVR records video for the duration prior to event detection.
  - Quality: See the explanation of Time lapse recording (not supported for network cameras).
  - Resolution: See the explanation of Time lapse recording (not supported for network cameras).
  - Profile: Select one of the preset profiles (supported for network cameras only). Higher resolution, frame rate, and quality of the stream assigned to the profile require more storage space and will reduce the recording capacity of the hard disk drive.

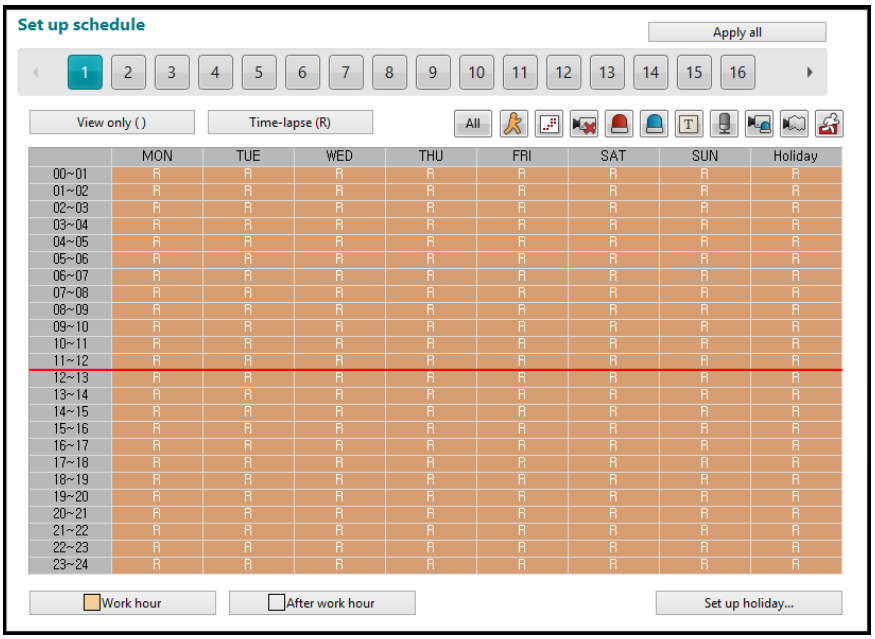
- After hour: Sets the after hour recording schedule. The DVR records video with different settings during the hours.
  - ☑ Enable: Enables after hour recording.
  - IPS: See the explanation of Time lapse recording (not supported for network cameras).
  - Quality: See the explanation of Time lapse recording (not supported for network cameras).
  - Resolution: See the explanation of Time lapse recording (not supported for network cameras).
  - Profile: Select one of the preset profiles (supported for network cameras only). Higher resolution, frame rate, and quality of the stream assigned to the profile require more storage space and will reduce the recording capacity of the hard disk drive.
- Event recording: Records video when predefined events are detected.
  - Event type: Displays the list of event types. The DVR detects events according to the each event setting at EVENT menu.
  - IPS: See the explanation of Time lapse recording (not supported for network cameras).
  - Resolution: See the explanation of Time lapse recording (not supported for network cameras).
  - Quality: See the explanation of Time lapse recording (not supported for network cameras).
  - Dwell time: Sets the duration of recording. The DVR records video for the duration from the time an event is detected.
  - Profile: Select one of the preset profiles (supported for network cameras only). Higher resolution, frame rate, and quality of the stream assigned to the profile require more storage space and will reduce the recording capacity of the hard disk drive.

NOTE: Make certain you comply with all local and federal laws and regulations when recording audio.

NOTE: Ma The recording speed of the network camera might decrease depending on the network condition.

Schedule Setup

You can set up recording schedule for each camera.

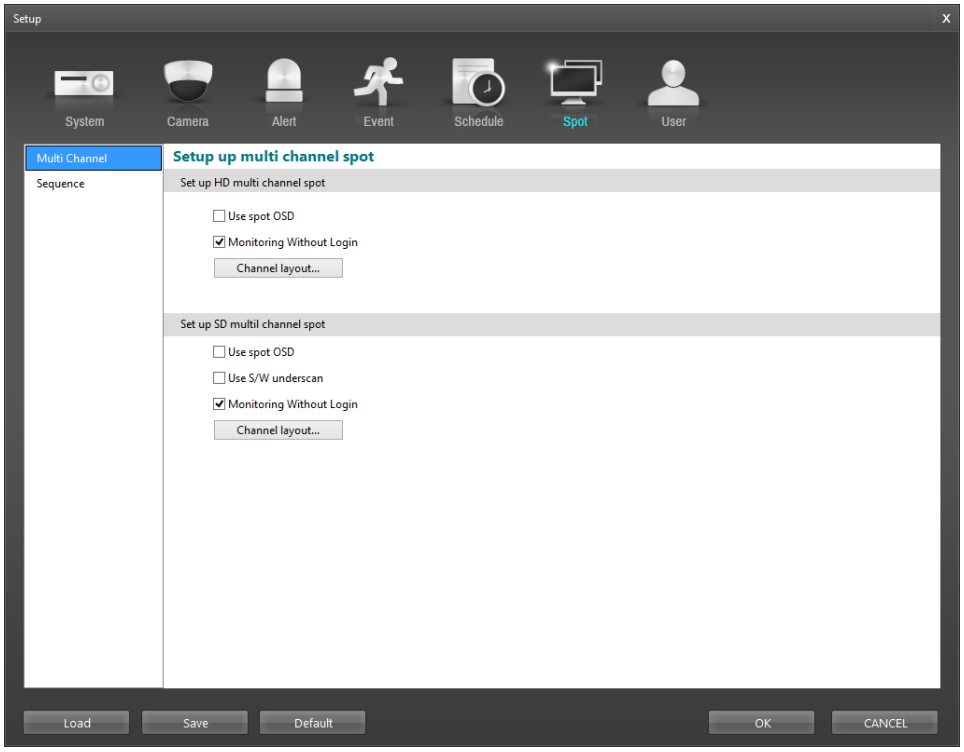


- View only (), Time-lapse (R): Enables or disables recording by clicking the button. When the recording is enabled, the recording mode is displayed in the timetable below.

- Event recording: Enable or disable event recording. When the event recording is enabled, the event type is displayed in the timetable below (m: motion detection, o: object detection, v: video loss, a: alarm in, u: user define alarm in, n: network alarm in or NetCam alarm in, t: text in, d: audio detection, p: tampering, z: tripzone, E: all events).
  - (Motion Detection): Enables motion detection event recording.
  - (Object Detection): Enables object detection event recording.
  - (Video Loss): Enables video loss event recording.
  - (Alarm In): Enables alarm in event recording.
  - (User Define Alarm In); Enables user define alarm in event recording.
  - (Text In): Enables text in event recording.
  - (Audio Detection): Enables audio detection event recording.
  - (NetCam Alarm In): Enables NetCam alarm in event recording.
  - (Tampering): Enables tampering event recording.
  - (Tripzone): Enables tripzone event recording.
  - All (All Events): Enables all events recording.
- Work hour, After hour: Enable or disable after hour recording by clicking the button. When the after hour recording is enabled, the DVR records video according to the after hour recording setting.
- Set up holiday: Set up holidays. The DVR records video according to the after hour recording setting.

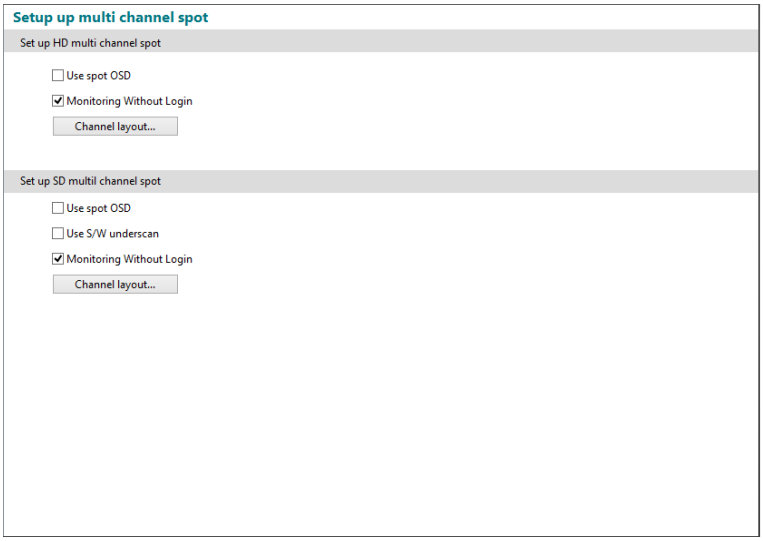
Setting Up the SPOT

NOTE: This is not supported for network cameras.

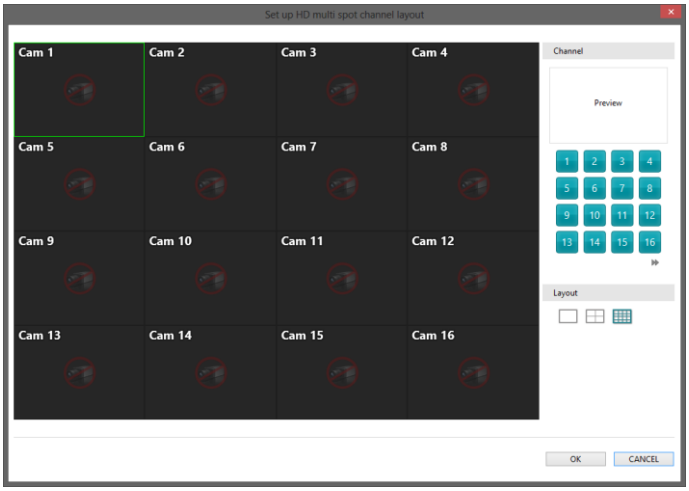


Multi Channel

You can set up the multi-channel SPOT display. The DVR displays video sequentially or displays monitoring video of SmartGuard.



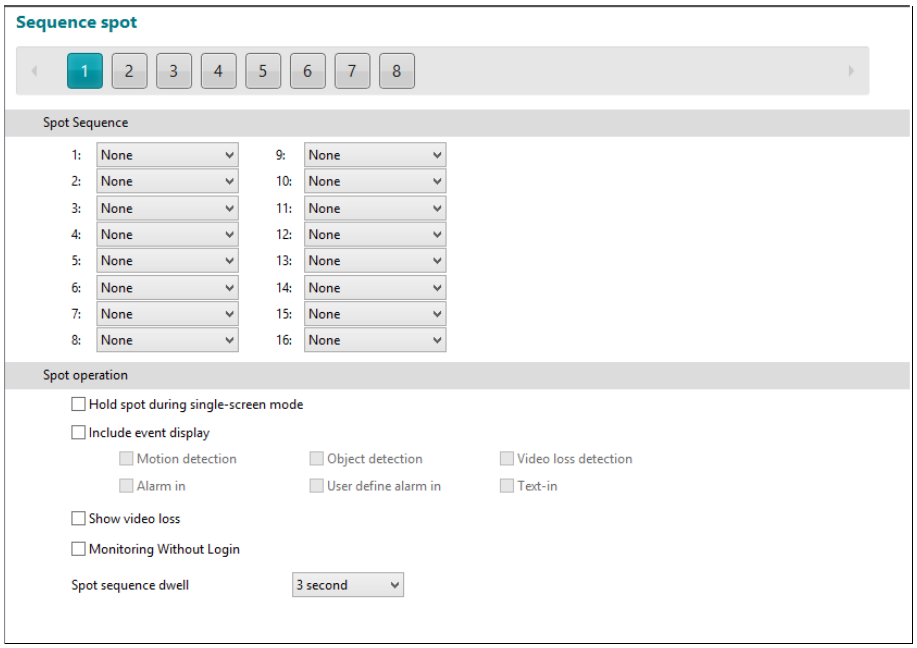
- Set up HD multi spot: Set the display on the monitor connected to the HD SPOT (Multi-Channel Display) port of the DVR rear panel.
- Set up SD multi spot: Set the display on the monitor connected to the SD SPOT (Multi-Channel Display) port of the DVR rear panel.
  - ☑ Use spot OSD: Displays OSD.
  - ☑ Use S/W underscan: Reduces the image size to fit images within the monitor screen size when the image size is bigger than the monitor screen size and some parts of the image is cropped.
  - ☑ Monitoring Without Login: Displays video even while you are logged out.
  - Assign channel: Monitors the video by arranging cameras manually at the desired location of the monitoring screen.



Click the camera button and drag the desired location on the screen. You can change screen mode system. The monitoring video of the selected screen is displayed in the single screen mode.
In case of 32 channel model, each channel within the 1- to 16- channel and the 17- to 32 channel can be selected in the camera.

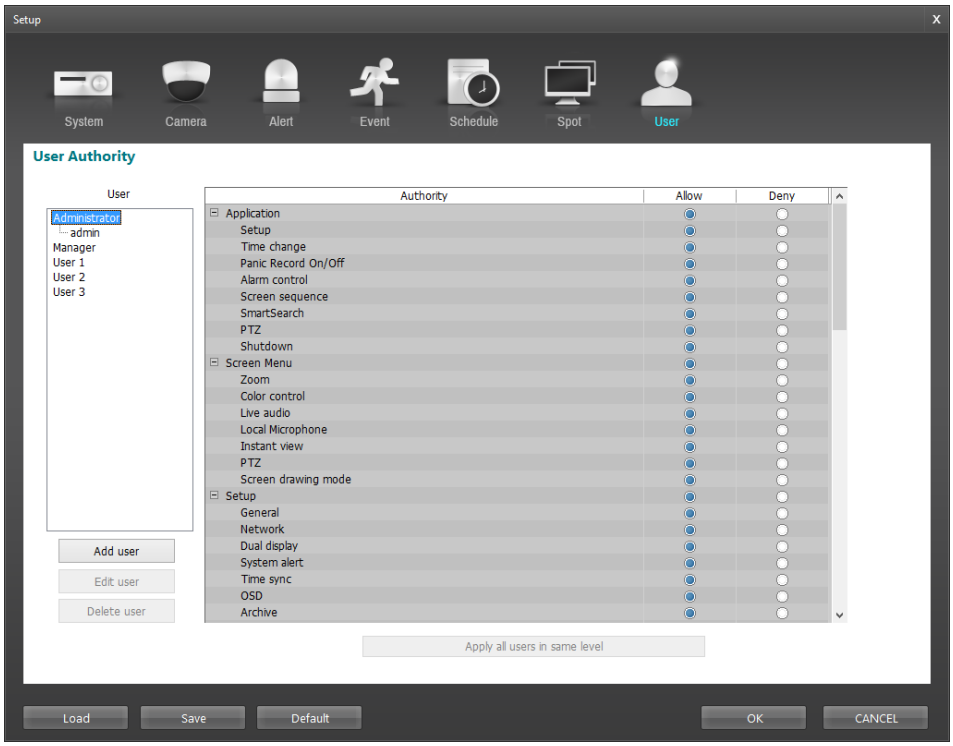
Sequence

You can set up the sequence SPOT display. The DVR displays video sequentially.

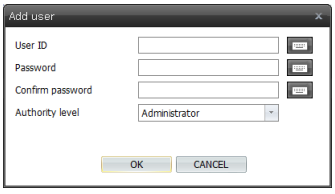


- 1 ~8: Displays the number of monitors connected to the SD SPOT (Sequence Display) port of the DVR rear panel. Clicking each button allows you to change the settings of sequence display on the monitors.
- Spot Sequence: Set the sequence order on each monitor.
- Spot operation
  - ☑ Hold spot during single-screen mode: Video is not sequenced while the screen mode of SmartGuard is set to the single-screen mode.
  - ☑ Include event display: Displays event detected image in the single-screen mode when an event occurs.
  - ☑ Show video loss: Displays video of the camera that video loss event is detected.
  - ☑ Monitoring Without Login: Displays video even while you are logged out.
  - Spot sequence dwell: Set the sequence dwell.

Setting Up the User



- Add user, Edit user: Allows you to add or edit user information. Only the administrator level user can edit the user's information and their authority setup.



  - User ID, Password, Confirm password: Set the user ID and password.
  - Authority level: Select the authority level. Only the administrator level user can edit the user's information and their authority setup. The authority setup of the Administrator cannot be edited.

- Delete user: Deletes the selected user from the user list. Only the administrator level user can delete the user.
- Authority: Set the authority of the selected user.
- Apply all users in same level: Clicking the button applies the current authority settings to all users in the same authority level.

Chapter 3 — SmartSearch

OVERVIEW

SmartSearch is a powerful tool for SmartGuard. It features playback and search functions for recorded data and consists of Playback Screen, Timetable, Status Window and Utility Buttons. Each area displays or controls recorded information. Click the (Menu) button and SmartSearch menu of SmartGuard to get into the SmartSearch mode. To return to the SmartGuard mode, click the (Menu) button and SmartGuard menu of SmartSearch.

FEATURES

- Searches by camera and time
- Provides recording status table
- Various search functions
- Zoom in/out function
- Print function
- Remote playback function
- Bookmark function
- Saves to video file
- Audio playback

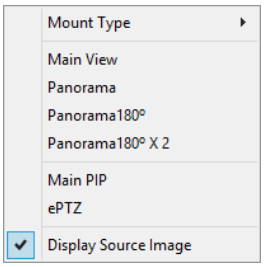
NOTE: The play speed is controlled by the system resource. The play speed can be slowed down for the efficient use of the system.

MAIN GUI

16-Channel / 32-Channel Model

① Playback Screen ② Menu Button ③ System Status ④ Playback Panel
⑤ Panorama Playback Panel ⑥ Event Search Panel ⑦ Utility Buttons ⑧ Screen Mode Buttons
⑨ Data Source ⑩ Jog Shuttle ⑪ Playback Buttons ⑫ Camera Buttons
⑬ Calendar Panel ⑭ Bookmark Panel ⑮ Search Buttons ⑯ Timetable

- Playback Screen: Displays the current playback image. Selecting a camera screen displays the ▾ button beside the camera title. Clicking the ▾ button displays the camera screen menu.
  - (Zoom): Zooms in the image.
  - (Audio Playback): Plays back audio.
  - (Aspect Ratio): Changes the image aspect ratio.
- Fisheye Dewarping: Click on the right mouse button and select Fisheye Dewarping from the context menu.



  - Mount Type: Chooses a position that the camera is mounted. The available Screen Type changes depending on this setting.
  - Main View: Displays the original fisheye dewarping video. When ePTZ is on, you can control Pan, Tilt and Zoom by clicking the left/right mouse button. The Main PiP is selected as a default.
  - Panoramic/Panoramic 180/Panoramic 180 * 2: Selects the panoramic Mode.
  - Main PIP: Displays PiP (Picture in Picture) view to select the area easily in the main view screen.
  - ePTZ: Controls Pan, Tilt, and Zoom function. Dragging the mouse, the size of dragging indicates the speed of PTZ. The left button drag controls Left/Right (Pan) and Up/Down (Tilt). The right button drag controls Zoom.
  - Display Source Image: Cancels the adjustment and reloads the original image.

NOTE: This function is supported only for fisheye cameras.

- Menu Button: Displays the SmartSearch menu.
  - Login/Logout: Logs in or logs out the system. When Use local login is disabled in the SmartGuard program (SYSTEM – System Authority menu), the DVR does not ask login procedure. When you forgot the password, ask your dealer or distributor.
  - SmartGuard: Runs the SmartGuard program. This function will be disabled during dual display.
  - About: Displays the information of the days of recorded dates, software version, etc.

  - Help: Displays the electronic file of user's manual.
  - Exit: Finishes the system.
- System Status: Displays user ID and the recorded time of playback video.
- Playback Panel: Displays the current playback image.
- Panorama Playback Panel: Displays the panorama playback image. It displays images from one camera image by image in multi-screen mode.
- Event Search Panel: Allows you to set up search condition for event search.
- Utility Buttons
  - (Save Screen Images): Saves the images currently displayed on the screen as an image file. The image can be saved only under the C:\IDR-Series\temp directory or on the USB storage. Privacy areas can be set up when saving videos.
  - (Print Screen Images): Prints the images currently displayed on the screen.
  - (Run CD-Burner): Saves the recorded data on the CD or DVD using the CD/DVD burning program. Refer to the Saving of Recorded Video section (p. 57) for details.
  - (Change SmartGuard): Runs the SmartGuard program. This function will be disabled during dual display.
- Data Source: Selects the data source to be searched.
  - Local: Searches video saved in the current DVR.
  - Remote: Searches video saved in the other DVR.
  - Archive: Searches video saved in the archive storage set up in the SmartGuard program (SYSTEM – Archive menu).
- Jog Shuttle: You can adjust the playback direction and speed by using the jog shuttle. The icon in the jog shuttle indicates the current playback direction and speed. Video is played backward when the icon is to the left of center and video is played back forward when the icon is to the right of center. The farther the position is from the center, the faster video is played back. Clicking the icon and dragging it to the desired position on the jog shuttle and holding it plays video at a constant speed. Releasing the mouse button causes the icon to return to the center position. Clicking the (Play) button plays video at normal speed. Clicking the (Shuttle Lock) button and dragging and dropping the icon to a desired position fixes the icon in that position.
- Playback Buttons: Controls playback of recorded video.

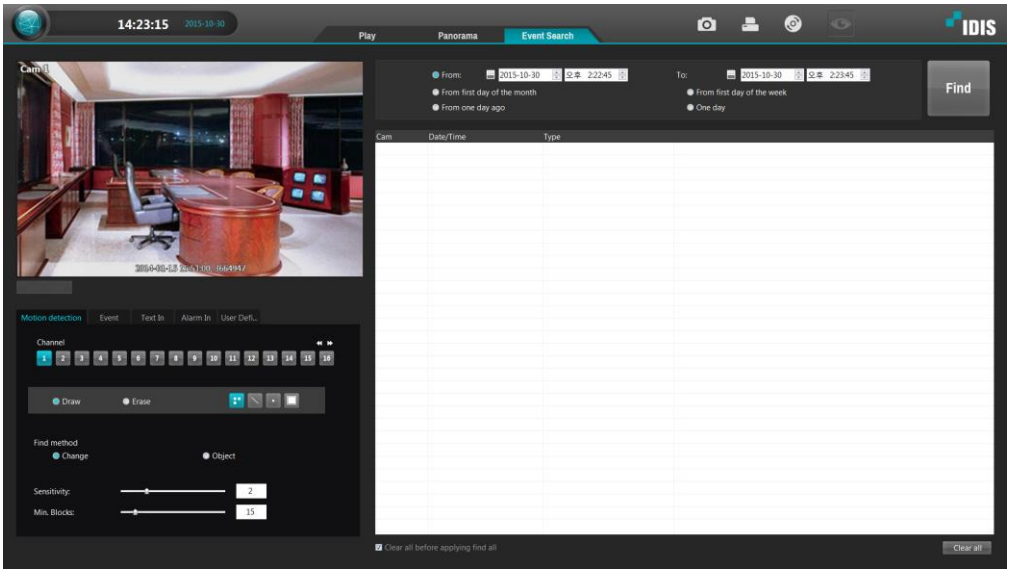
  Go to First Image Rewind One Image Play
  Forward One Image Go to Last Image

- Screen Mode Buttons: Click the desired screen mode. Select a camera button and select a desired screen mode for multi-screen playback. Then click any playback-related button.
- Camera Buttons: It indicates a camera number.
- Calendar Panel: Goes to the specific dates and times by using the calendar. Select recorded data from the calendar. The calendar provides access to single day recorded data. Click the date you want to search. Scroll through the months by clicking or .
- Bookmark Panel: You can review the specific image fast and easily by adding bookmarks for recorded images. Click the button to bookmark the currently displayed image. If you want to delete the bookmark, select the target information and then click the button. A bookmark lists the camera number, date and time, and bookmark description. The bookmark description will be shown automatically when the mouse cursor is not moving on a bookmark data for a while.
- Search Buttons
  - (Goto): Displays a time setup window. Entering a specific time moves to the image for that time.
  - (Save Video): Saves recorded video as a clip file (.exe). Refer to the Saving of Recorded Video section (p. 57) for details.
  - (Run Partial Delete Function): Deletes recorded data for a specific period.
  - (Refresh): Reloads data.
- Timetable: The timetable window consists of a record timetable, camera label. Various functions of the timetable window enable fast searches.

SEARCH AND PLAYBACK OF RECORDED VIDEO

Condition Search

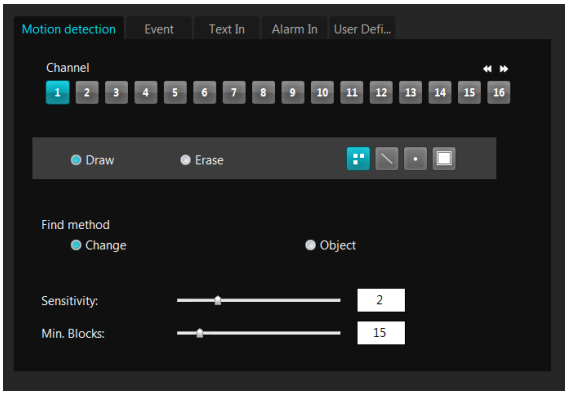
Select the Event Search tab. The following setup screen appears. Designate the find range and set up the search condition in the Motion Detection, Event, Text-In, Alarm-In tab or User Define Alarm In.



- Motion Detection / Event / Text-In / Alarm-In / User Define Alarm In: Set up the search condition. Refer to the Motion Detection, Event, Text-In, Alarm-In and User Define Alarm In sections for details.
- Search Range: Set the time range for the search of motions for the Motion Detection search or event logs for the Event, Text-In, Alarm-In or User Define Alarm In search.
  - From, To: Searches motions or event logs between user-defined periods. Set the desired find beginning and ending date/time in the From and Until boxes.
  - From the first day of month: Searches motions or event logs from the first day of this month.
  - From the first day of week: Searches motions or event logs from the first day of this week.
  - From one day ago: Searches motions or event logs from one day ago.
  - One day: Searches motions or event logs for one day.
- Find (Find): Searches all event results within established find conditions and then display them in the result list box below.
- Result: Displays the search result.
  - Save Image: Saves the current image of the result as an image file such as bitmap. Privacy areas can be set up when saving videos.
  - Video Screen: Displays the searched video at the top left in the Event Search panel. The image of the result can be displayed by clicking the target event in the Result list. You can play back searched video on the Play panel.
  - Result List: Displays the search result list below the Search Range.
  - Clear All: Removes all results in the result list.
  - Clear all before apply find all: Removes the previously searched results when clicking the Find (Find) button.

Motion Detection

Select the Motion Detection tab and then a camera number in the Channel buttons below. Clicking the Find (Find) button after setting up the search condition displays the list of recorded video of the selected camera.

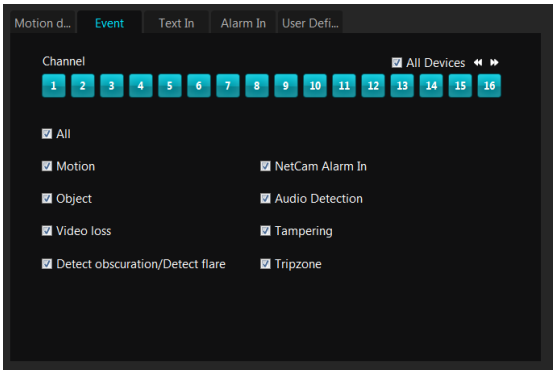


- Channel: Select a camera number.
- Motion Detection Zone: Set up the detection zone using the area setup icons. First, click the Draw or Erase radio button and select one of four tools to use, and then set up the detection area on the video screen. Use the tools as follows:
  - (Point): Place the cursor on the image and click the left mouse button. A single box appears where the cursor is.
  - (Line): This tool can be used to draw irregular shapes. Place the cursor where you want to start the line. Hold down the left mouse button and drag the cursor to where you want the end of the line. Release the mouse button and a group of boxes appears along the line you drew. You can draw lines around shapes by repeating this process.
  - (Rectangle): Hold down the left mouse button and drag the cursor in any direction. A rectangle appears. Once the rectangle is the size you want, release the mouse button and the rectangle fills with boxes.
  - (Fill): When using the fill tool, clicking the mouse will fill that area of the image with boxes. If a shape has been drawn with the line tool, clicking inside will fill the area with boxes. Clicking outside the area will fill the outer area with boxes. If no shapes have been drawn, the entire screen will fill with boxes.
- Find Method: Select either Change or Object.
  - Change: Detects changes at the user-defined motion detection zone between two consecutive images which are usually motion. For example, if you want to detect if anyone passes through a door, you can draw a Change detection around the door. The system will search through recorded data for any motion in the doorway.
  - Object: Detects changes at the user-defined motion detection zone as compared with the image displayed currently on the Video Screen when an object is removed or moved in an area where there is normally motion. For example, you can draw a box around a painting hanging in a hallway. People walking by the painting will not be listed as an event. However, if the painting is removed, this will be listed as an event.
- Sensitivity: Set the sensitivity of the motion detection by holding down and dragging the pointer.
- Min. Blocks: Set the minimum number of blocks.

NOTE: The number of minimum blocks should be set less than the number of blocks within the motion detection zone. If the user draws a rectangle with 25 blocks and sets the minimum blocks to 30, nothing will be detected even though there is motion.

Event

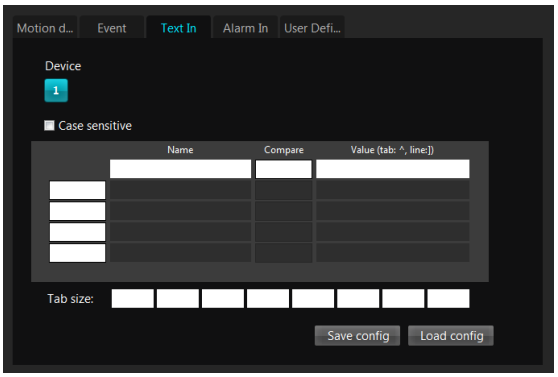
Select the Event tab and then a camera number in the Channel buttons below. Clicking the Find (Find) button after setting up the search condition displays the list of event recorded video of the selected camera. Netcam alarm in, audio detection, tampering and tripzone is supported for hybrid products only.



- Channel: Select a camera number.
- Target Event: Select a desired event type.

Text-In

Select the Text-In tab and then a device number in the Channel buttons below. Clicking the Find (Find) button after setting up the search condition displays the list of recorded video which are associated with the selected text-in device.



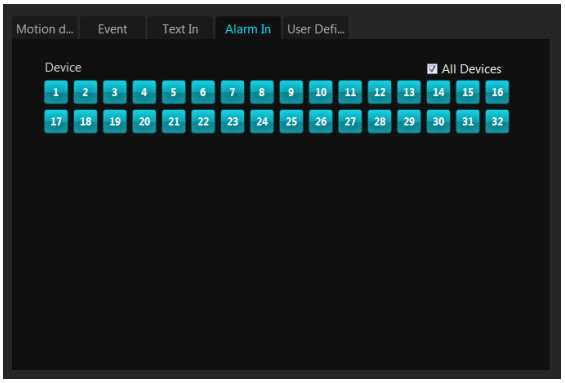
- Channel: Select a text-in device number.
- Case Sensitive: Distinguishes between capital letter and small letters entered in the Name box.
- Name: Enter the text to find.
- Comp: Enter the comparison operator.
- Value: Enter the comparison value.

NOTE: The tab and line can be used for more specific search of the text-in data. Use a symbol '^' indicating the location of each individual category, and ']' indicating the line where the category is located. Refer to *Appendix 3 — Text-In Query* for details.

- Tab size: Enter the tab size. Up to eight tabs can be set.
- Save Config: Saves the current text-in related settings.
- Load Config: Loads the saved text-in related settings.

Alarm-In

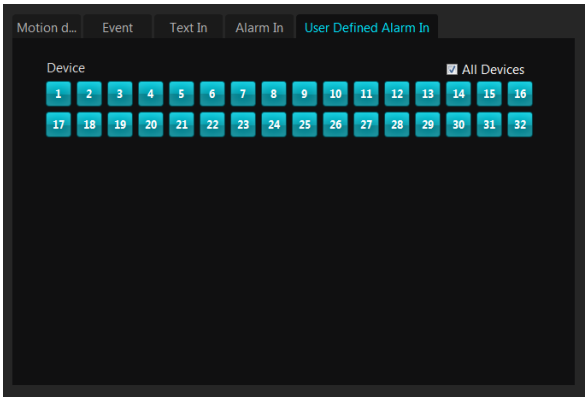
Select the Alarm-In tab and then a device number in the Channel buttons below. Clicking the Find (Find) button after setting up the search condition displays the list of recorded video which are associated with the selected alarm-in device.



- Channel: Select an alarm-in device number.

User Define Alarm In

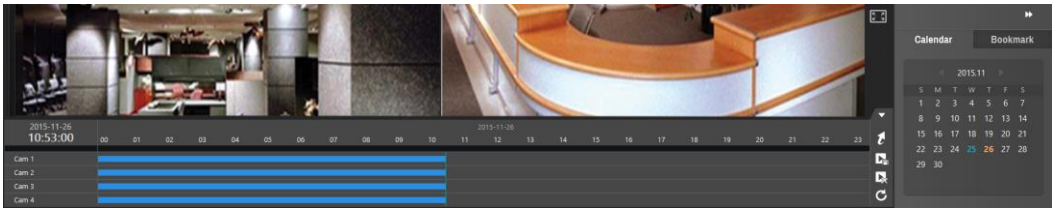
Select the User Define Alarm In tab and then a device number in the Channel buttons below. Clicking the Find (Find) button after setting up the search condition displays the list of recorded video which are associated with the selected user define alarm in device.



- Channel: Select a user define alarm in device number.

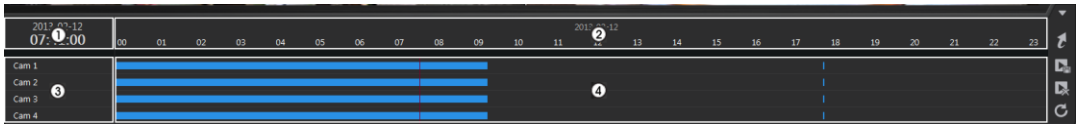
Time-Lapse Search

The timetable, (Go To) button, calendar and bookmark allows you to search for recorded video on the time basis.



Timetable Search

The timetable displays the recording information for each camera. Clicking the (Reload) in the right of the timetable button reloads data.



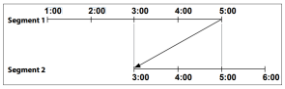
① Current Playback Date/Time: Indicates the video time for the current playback location on the timetable.

② Recorded Period: Displays the date and time period of the recorded data. Clicking anywhere in the empty space and dragging it to the left or right moves to the earlier or later date or time. Every clicking the right mouse button on the timetable zooms the record timetable in with three levels; one time in the first level, four times in the second level, and eight times in the third level.

③ Camera Title: Displays the camera title.

④ Recorded Data: Displays the recorded data by time in one minute segments.

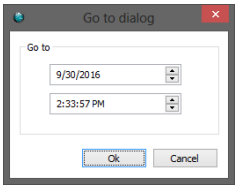
- Red vertical line: Indicates the current playback location of video on the timetable. Clicking the mouse on the desired time displays the first image recorded within the time.
- Yellow separation line: Separates segments when time overlap occurs. In this case, the recorded data in the time range located after the separation line is the latest.



Segment: making a recording from 1 o'clock to 5 o'clock, changing the system's clock at 5 o'clock to 3 o'clock, and then continuing to record until 6 o'clock produces two recordings that overlap between 3 o'clock and 5 o'clock. This results in two segments for the period between 3 and 5.

Go To Search

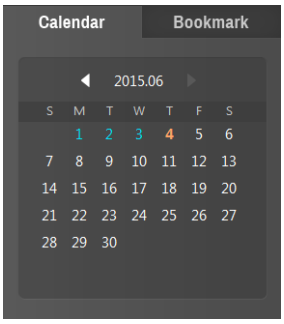
Clicking the (Go To) button displays the following screen.



Enter the date and time of video to search for and click the OK button. The video of the date and time will be displayed on the playback screen.

Calendar Search

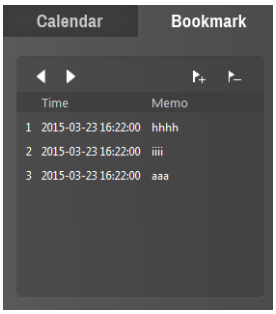
Clicking a date in the Calendar panel displays video of the date on the playback screen.



Clicking the or button moves to the previous or next month. The date with recorded video will be displayed in black color, and the date currently displayed on the timetable will be displayed in orange color.

Bookmark Search

Bookmarking a specific time in the Bookmark panel makes it easier to search for video of the specific time in the future.

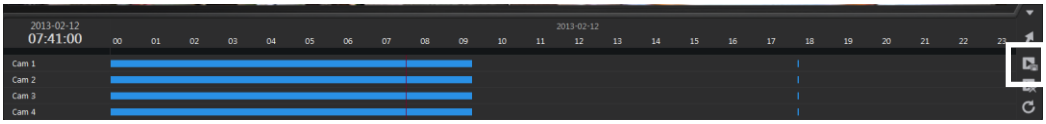


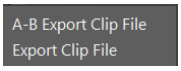
Clicking the button allows you to bookmark the current playback time and clicking the button deletes the bookmark. Clicking a bookmark and hovering the mouse cursor over the bookmark displays the bookmark information (camera number, time, etc.). Clicking the or button moves to the previous or next list.

SAVING OF RECORDED VIDEO

NOTE: The user can save recorded video when the user has an authority with *External Save*. The *External Save* option should be selected during the *SmartGuard – USER* menu. Refer to *Chapter 2 — SmartGuard*, *Setting Up the User* for details.

Clicking the (Export Video File) button in the right of the timetable displays the following menu.





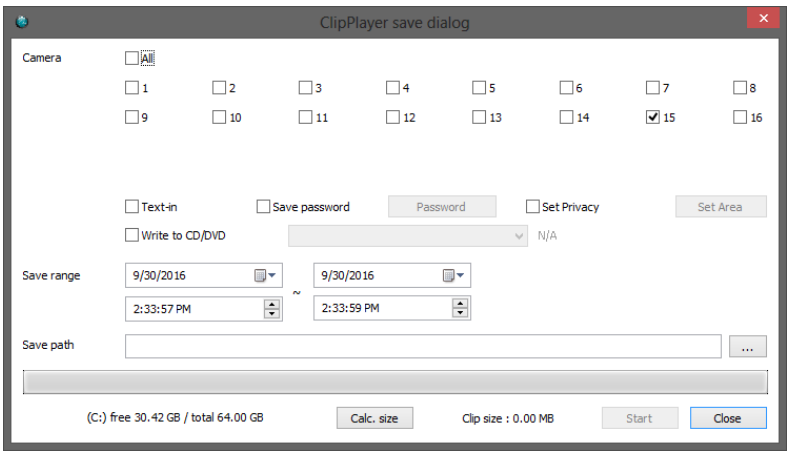
- A-B Export Clip File: Sets up the section of video to be exported by using the timetable. Select A-B Export Video File from the export menu. Click the starting point in the timetable and drag to the ending point. The Export Video File window appears and allows you to export video of the selected period as a clip file (.exe). The user can save recorded video when the user has an authority for External Save. The External Save option should be selected at the USER menu.
- Export Clip File: Saves recorded video as a clip file (.exe). The user can save recorded video when the user has an authority for External Save. The External Save option should be selected at the USER menu.

NOTE: The video file can be saved only under the "*C:\IDR-Series\temp*" directory or on the removable disk including CD-RW, DVD RW and USB storage.

NOTE: If you save video in C:, it must have 5GB or more free space excluding the video file size. For example, it must have 8GB or more free space when you save a 3GB video file.

NOTE: When the total file size reaches 4GB, you will be asked to continue saving by creating multiple files in 4GB units. If you click the *OK* button, the system will continue saving by creating multiple files in 4GB units.

Save As Clip File



- Camera: Select the camera number to save. Audio will be saved together.
- Text-In: Saves text-in data with video.
- Save Password, Password: Asks the password when you try to play back the saved video. Set up the password.
- Write to CD/DVD: Saves the video on the CD or DVD directly.
- Set Privacy: Set the privacy area when saving the video.
- Save Range: Set the period of video to save.
- Save path: Designate the folder path to save the video.

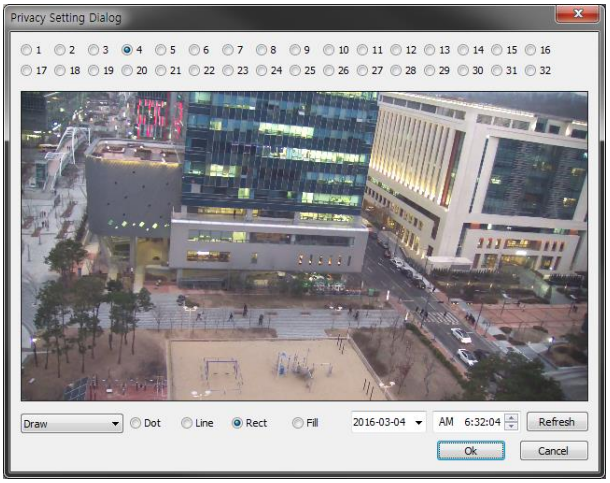
- Calc Size: Calculates and preview the size of file to save.

Clicking the Start button starts saving.

NOTE: Refer to the *Clip Player* section (p. 58) for playing back the saved video.

Set Privacy Area

After selecting Set Privacy, clicking the Set Area button displays the following dialog window. For designating privacy area, select Draw and set the area by choosing one from Dot/Line/Rectangular/Fill. In order to remove the designated area, select Delete and remove the area.

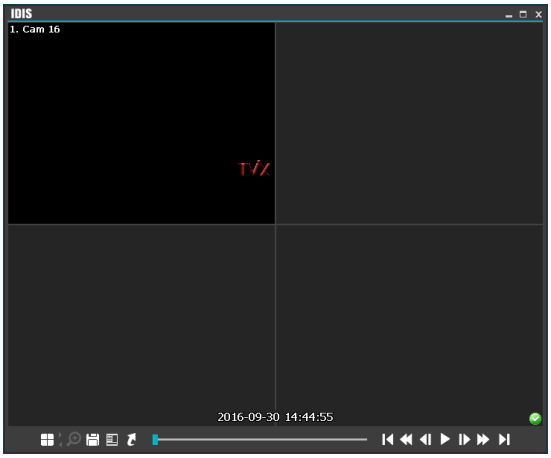


Clip Player

You do not need to install any special software on your personal computer to play back saved video. The file contains a Player program. Double-clicking the target file starts the Player program. Clicking on the top right corner of the Player prgram displays the image in the full screen. Clicking exits the Player program.

NOTE: It is suggested that the computer used for the Player program has at least an 800MHz Pentium III (Intel Pentium Dual Core 2.2GHz recommended). If your CPU is slower than this, saved video recorded at maximum speed with very high image quality will be played back slowly.

NOTE: You will be asked to enter the password to initiate the Clip Player program if you select *Save Password* option when saving recorded video.



NOTE: Proper image display depends on the display settings of your PC. If you are experiencing display problems, click the right mouse button on the background screen and select Properties → Settings then set the *Color quality* to "*32 bit*". Then select Advanced → Troubleshoot, and then set the *Hardware Acceleration* to "*Full*". Please make sure that DirectX version 9.0 or higher has been installed if the display problem continues. To check the version of DirectX, click Start → RUN and type "dxdiag" then hit the enter key which will display DirectX Diagnostic Tool dialog box. Then move to the Display tab and make sure *DirectDraw Acceleration* is set to "*Enabled*". Test DirectDraw by selecting the *DirectDraw Test* button. Please check the driver version of the video card and update it to the latest version available. If you still have display problems after changing all display settings as described above, try replacing the video card. Video cards with an ATI chipset are recommended.

- Playback Buttons: Plays back the current video on the screen.

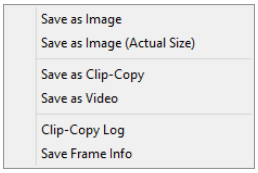
Goes to the beginning of the video clip.	Plays the video clip in fast reverse.
Goes back one frame of the video clip.	Plays the video clip.
Goes forward one frame of the video clip.	Plays the video clip in fast forward.
Goes to the end of the video clip.	

- : Cycles through the screen modes. It cycles through 2x2, 1+7, 3x3, 4x4, 4x5, 5x5 and 1+32.

NOTE: 4x5, 5x5 and 1+32 screen modes might not be supported depending on the number of saved camera channels.

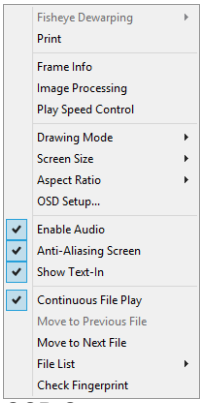
- : Select from Normal and Double screen views (Single Screen Mode Only). You can move the enlarged image by clicking the left mouse button and dragging.

- : Saves images.



- Save as Image: Saves the current image as a bitmap or JPEG file.
- Save as Image (Actual Size): Saves the current video frame as a bitmap or JPEG file in its actual size. (Single Screen Mode Only)
- Save as Clip-Copy: Saves video of desired time range as an executable file.
- Save as Video: Saves video of desired time range as an AVI file.
- Clip-Copy Log: Saves the clip copy log information as a text file. The user information about Save As Clip Copy will be logged as "Internal-Copy."
- Save Frame Info: Saves the frame information as a CSV file.

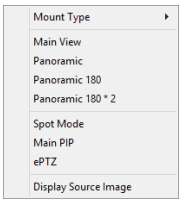
- : Sets up the Clip Player properties.



- Fisheye Dewarping: Controls Fisheye Dewarping. For more details, Please refer to the following the Fisheye Dewarping below.
- Print: Prints the current image.
- Frame Info: Displays Channel, Title, Time, Type, Size and Resolution information about the image.
- Image Processing: Controls brightness, blur and sharpness of playback images. (Single Screen Mode and Pause Mode Only)
- Play Speed Control: Changes the playback speed (Play) or fast forward/backward playback speed (FF/RW).
- Drawing Mode: Selects the draw mode level. If you are not sure about the best draw mode level for your system, try each level until the image displays properly.
- Screen Size: Changes the Clip Player screen size.
- Aspect Ratio: Changes the image aspect ratio displayed on each camera screen.
- OSD Setup…: Selects options to display on the screen.
- Enable Audio: Plays audio while playing back recorded video that has recorded audio. (Single Screen Mode Only)
- Anti-Aliasing Screen: Enhances image display quality on the screen by smoothing stair-stepping (aliasing) effects in the enlarged image. If video plays slow because of your CPU's slow speed, releasing the Anti-Aliasing Screen option might improve playback speed.
- Show Text-In: Displays video with text-in data if the video was recorded with text-in data. (Single Screen Mode Only)
- Continuous File Play: DispPlays the files that compose the split file successively. For example, if video is split to 3 files of **abc_01.exe**, **abc_02.exe** and **abc_03.exe** when it is saved, you don't need to play each file one by one manually. **abc_01.exe**, **abc_02.exe** and **abc_03.exe files** will be played successively when you play the **abc_01.exe** file.
- Move to Previous File: Moves the previous file from the currently playing file or the file to be played when playing a split file.
- Move to Next File: Moves the next file from the currently playing file or the file to be played when playing a split file.
- File List: Lists the files that compose the split file in sequence. Selecting a file from the list moves to the selected file.
- Check Fingerprint: Checks the validity of the entire file segments.

Encryption icons display in the bottom-right corner. displays when the clip file has not been tampered with, and displays and playback stops when the system has detected tampering.

- Fisheye Dewarping



- Mount Type: Chooses a position that the camera is mounted. The available Screen Type changes depending on this setting.
- Main View: Displays the original fisheye dewarping video. When ePTZ is on, you can control Pan, Tilt and Zoom by clicking the left/right mouse button. The Main PiP is selected as a default.
- Panoramic/Panoramic 180/Panoramic 180 * 2: Selects the panoramic mode.
- Spot Mode: Moves and selects the area with the dewarp finder in the main view screen.
- Main PIP: Displays PiP (Picture in Picture) view to select the area easily in the main view screen.
- ePTZ: Controls Pan, Tilt and Zoom function. Dragging the mouse, the size of dragging indicates the speed of PTZ. The left button drag controls Left/Right (Pan) and Up/Down (Tilt). The right button drag controls Zoom.
- Display Source Image: Cancels the adjustment and reloads the original image.

NOTE: If the VGA card or monitor does not support 800x600 video resolution, *Full Screen* might not display properly. If this happens, press the ESC key on your PC keyboard to return to the normal screen mode.

Click the slider bar and move it left or right to move through the video clip.

Placing the mouse cursor on an image and clicking will cause that image to display full frame.

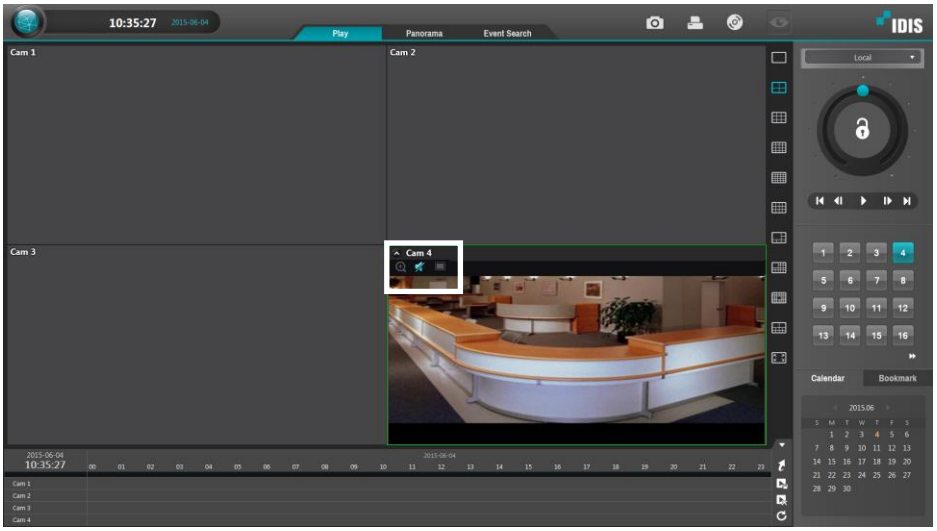
AUDIO PLAYBACK

Checking Audio Recording Configuration

1. Click the SCHEDULE menu on the main GUI of SmartGuard.
2. Click Recording Setup tab.
3. Check that Record Audio is enabled for each camera.

Playing Recorded Audio

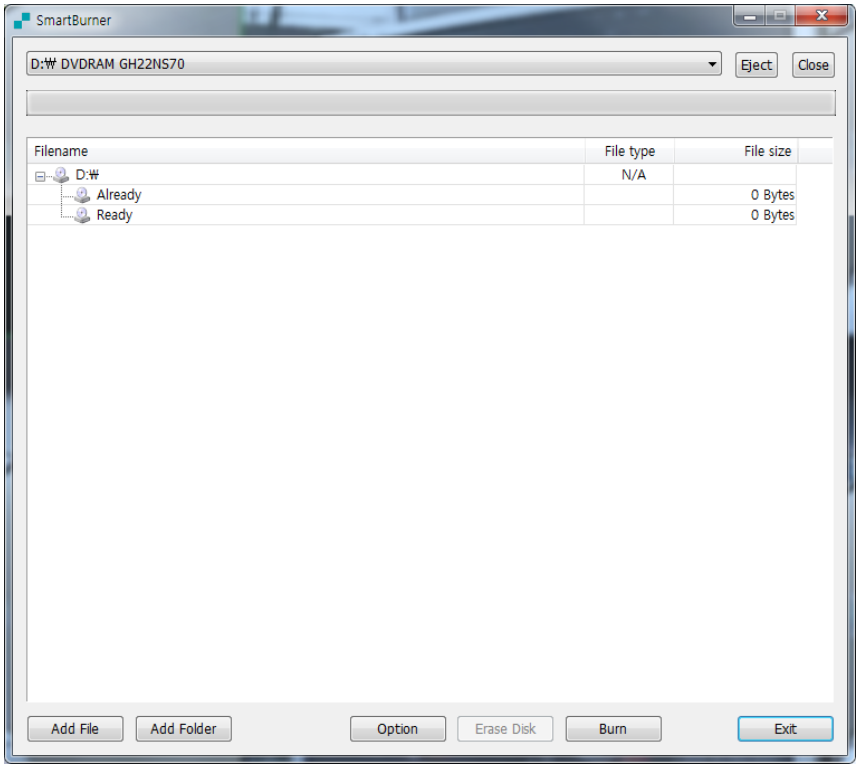
1. Selecting a camera screen in the playback screen displays the ⌄ button beside the camera title.
2. Clicking the ⌄ button displays the camera screen menu.
3. Click the (Audio Playback) button (1x1 screen format only).



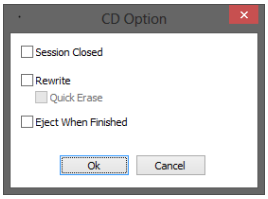
NOTE: Audio of one camera at a time is played back.

External Saving

Click the (External Saving) button at the top right of the SmartSearch.



- Eject, Close: Ejects the disk from the drive or closes the drive door.
- Add File, Add Folder: Adds a file or folder to burn on the CD/DVD.
- Option: Sets options.



  - ☑ Session Closed: Completes the burning on the CD/DVD.
  - ☑ Rewrite: Deletes previously saved files and burns newly added files only. Enabling Quick Erase deletes previously saved files more quickly.
  - ☑ Eject When Finished: Ejects the CD/DVD automatically after completing burning or erasing.

- Erase Disc: Deletes all data on the CD/DVD.
- Burn: Starts burning the selected files and folders on the CD/DVD.

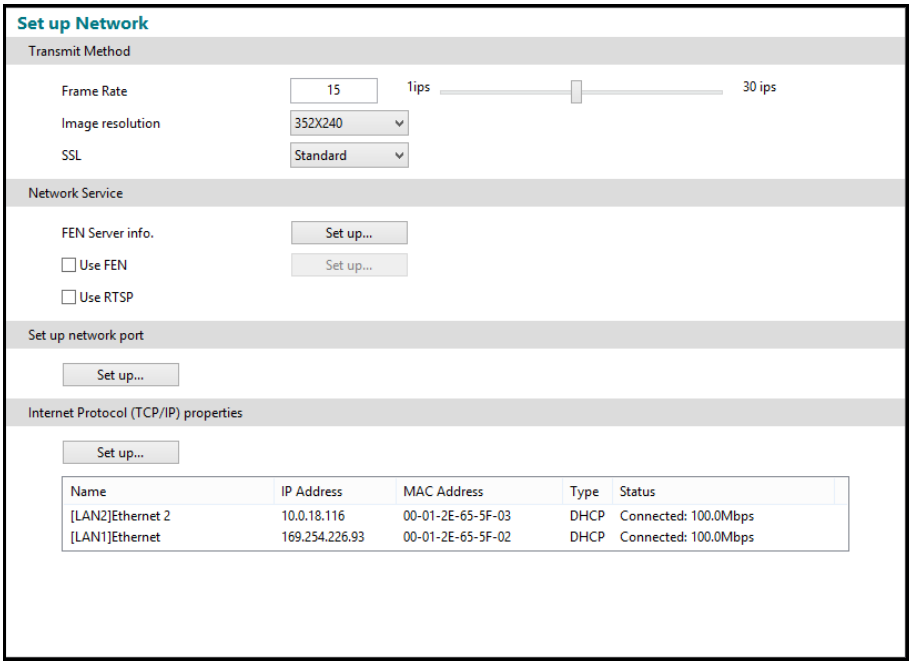
NOTE: The burning might not be successful if the remaining space of the disk is not enough when saving the new data subsequently after adding files and folders.

NOTE: Starting CD/DVD burning during recording might interrupt the recording.

NOTE: *Add File* and *Add Folder* functions are not supported for the DVD-R DL (Dual Layer) media.

Appendix 1 — Network Setup (LAN)

Run the SmartGuard program and click the (Menu) button → Setup menu → SYSTEM – Network menu on the main GUI.



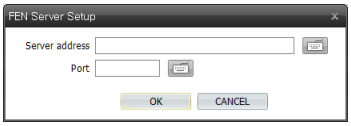
Setting Internet Protocol (TCP/IP) Properties

- Select Obtain an IP address automatically or Use the following IP address depending on your network environment.
  - When selecting Obtain an IP address automatically, the DNS server address is set up automatically.
  - When selecting Use the following IP address, enter the IP address, Subnet mask, Default gateway and DNS server address acquired from your network administrator.

Setting FEN Function

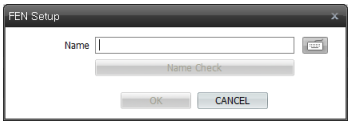
When FEN function is enabled, it is not necessary to set up port forwarding manually. However, remote connection to the DVR might not be available depending on the network connection environment of the DVR or remote system when the FEN function is enabled. If it is the case, you should set up port forwarding for the DVR manually in the NAT (Network Address Translation) device to which the DVR is connected.

- Enter the FEN server information.



- Server, Port: Enter the IP address (or domain name) and port number of the FEN server.

- Enable Use FEN function in the Network Service setting and click the Set up… button.



- Name: Enter the DVR's name to be registered on the FEN server. Click the Name Check button to check if the name you entered can be used. Clicking the OK button registers the name as a FEN name of the DVR.

NOTE: The FEN function allows you to connect to the DVR from remote sites using either the dynamic IP addresses or the domain name. For the FEN function to work properly, the DVR's FEN name should be registered on the FEN server, and the FEN server settings should match the settings registered on the FEN server. Any changes on the FEN server might cause improper operation.

NOTE: The FEN registration is limited to only one FEN server. The DVR cannot be registered to multiple FEN servers.

Appendix 2 — IDIS Web

IDIS Web allows you to access a remote DVR, monitor live video images and search recorded video using Internet Explorer web browser anytime from virtually anywhere.

Computer system requirements for using the IDIS Web program are:

- Operating System: Microsoft® Windows® XP (Service Pack 3), Microsoft® Windows® Vista (Service Pack 1), Microsoft® Windows® 7 (Home Premium, Professional, Ultimate) or Microsoft® Windows® 8 (Pro, Enterprise)
- CPU: Intel Pentium III (Celeron) 600MHz or faster
- RAM: 128MB or higher
- VGA: 8MB or higher (1024x768, 24bpp or higher)
- Internet Explorer: Version 6.0 or later 32-bit

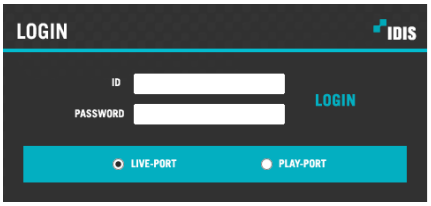
Start Internet Explorer on your local PC. You can run the IDIS Web program by entering the following information in the address field.

– "http://IP address" (The DVR IP address)
– Or, "http://fen.idisglobal.com/FEN Name" (The FEN server address and the DVR name registered on the FEN server)
– Or, "http:/web.idisglobal.com" (Entering the DVR IP address or the DVR name will be required when logging in)

NOTE: You will need to get the appropriate IP address for the DVR you want to connect from your network administrator.

NOTE: IDIS Web only works with Microsoft Internet Explorer and will NOT work with Netscape or other web browsers.

NOTE: IDIS Web does not work with Microsoft® Windows® 8 metro UI.



Select between the LIVE-PORT (Web live) and PLAY-PORT (Web search) modes. Enter ID and PASSWORD and click the [LOGIN] button.

You will need to enter the DVR IP address in the DVR ADDRESS field when running the IDIS Web program by entering http://web.idisglobal.com Selecting the Use FEN Service option allows you to enter the DVR name registered on the FEN server instead of the IP address. It is required to enter the FEN server address and port number during the SETUP setting when selecting the Use FEN option.

NOTE: When running the updated IDIS Web for the first time, Internet Explorer might occasionally load the information from the previous version. In this case, delete the temporary Internet files by selecting *Tools* → *Internet Options* → *General* tab, and then run IDIS Web again.

NOTE: Do NOT close the LOGIN window during the IDIS Web operation, otherwise, it will cause a script error when switching between Web Live and Web search modes, and you will need to restart the IDIS Web program.

NOTE: There might be a problem with the bottom of IDIS Web page being cropped caused by the address or status bars. In this situation, it is recommended that websites open windows without address or status bars by changing Internet setting. (Go to *Tools* and *Internet Options*, and then the *Security* tab → Click the Custom level… button → Select *Enable* for the *Allow websites to open windows without address or status bars* option).

NOTE: When running IDIS Web in the Microsoft Windows Vista or later operating system, it is recommended to start Internet Explorer with elevated administrator permissions. Click the right mouse button on the Internet Explorer icon and select the *Run as administrator* option from the context menu. Otherwise, some functions of the WebGuard might be limited to use.

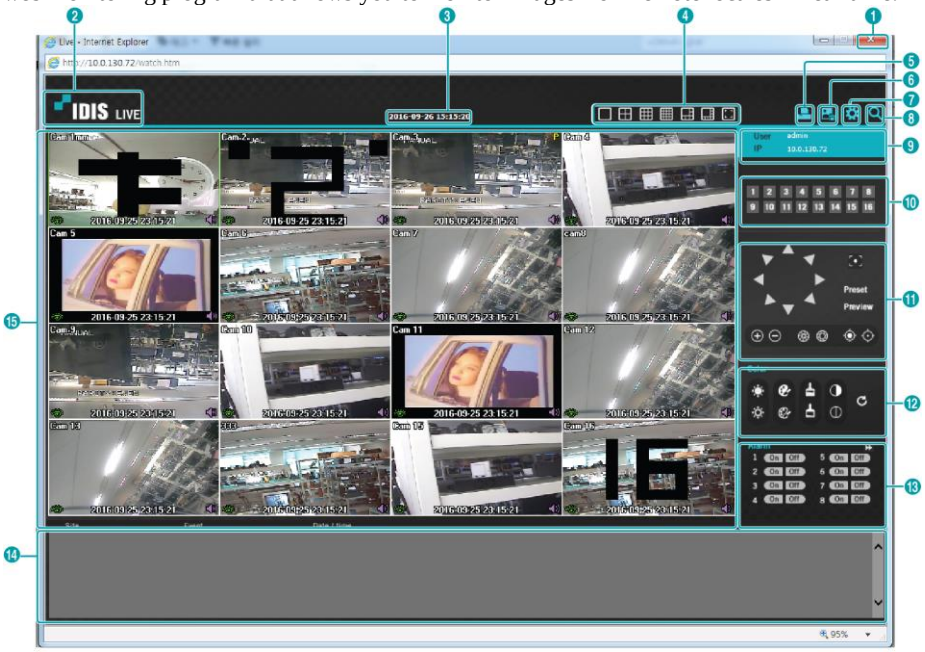
NOTE: There might be a problem with screen display or screen update due to low image transmission speed when using the Microsoft Windows Vista or later operating system. In this situation, it is recommended that you disable the Auto Tuning capability of your computer.

Run the *Command Prompt* with elevated administrator permissions (Go to the *Start* Menu and *Accessories*, and then *Command Prompt* → Click the right mouse button and select the *Run as administrator* option). Then enter "netsh int tcp set global autotuninglevel=disable" and press the enter key. Restart your computer to apply the changes.

If you want to enable the Auto Tuning capability again, enter "netsh int tcp set global autotuninglevel=normal" after running the Command Prompt with elevated administrator permissions. Restart your computer to apply the changes.

Web Monitoring Mode

A remote web monitoring program that allows you to monitor images from remote locales in real-time.



① Press X to terminate IDIS Web.

② Place the mouse pointer on the IDIS logo to check IDIS Web's version.

③ Displays the current time.

④ Select the desired mode. Changing the mode places the selected camera in the first cell of the layout that will be changed.

⑤ Click to print the current video screen using a printer connected to the computer.

⑥ Click to save the current video screen as an image file.

⑦ Click to configure rendering mode and OSD settings. Select rendering mode to adjust the video output rate or select which OSD elements to display on the screen from the OSD list.

⑧ Click to switch over to Web Search mode.

⑨ Shows login information.

⑩ Select the camera you wish to monitor. Use the arrow buttons to navigate to the previous/next camera group.

⑪ Used to control a PTZ camera at a remote location.

⑫ Used to adjust live video quality.

⑬ Controls remote alarm out devices. Use the arrow buttons to navigate to the previous/next alarm group.

⑭ Event status window at the bottom of the screen displays a list of events detected at remote locales.

⑮ Select a camera from the screen and right-click to bring up the pop-up menu.

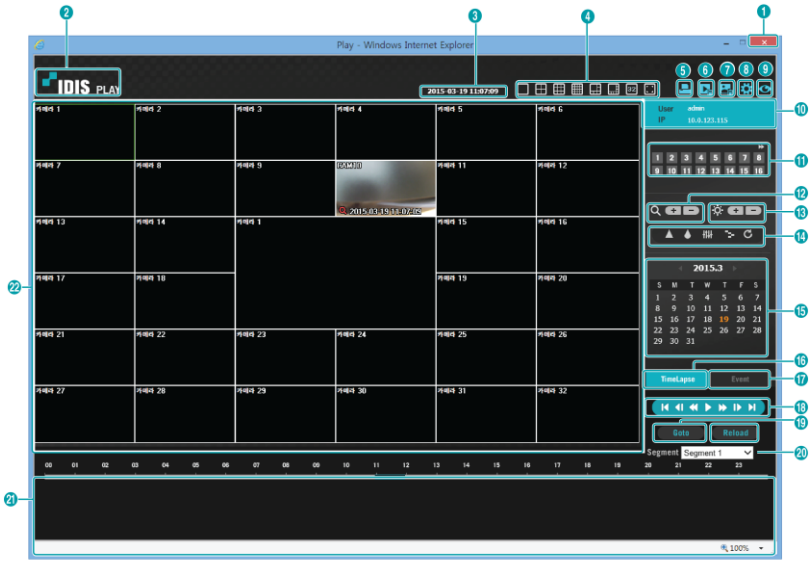
- Change Camera Title: Used to change the camera's name
- Enable Audio: Enables audio communication with the remote site. When the audio control panel displays, click the button to send audio to the connected remote site and click the button again to stop sending audio. Click the button to monitor live audio from the connected remote site through the attached speaker and click the button again stop monitoring live audio. Clicking both button and button allows two-way communication. Clicking the button disables audio communication.
- Aspect Ratio: Changes the image aspect ratio.
  - Fit to Screen: Fit the video to the size of the camera screen.
  - Fit to Aspect Ratio: Resizes camera screen to original aspect ratio of the video.
  -Half Size (x0.5) - 4 Times Bigger (x4): Displays the camera videos in the selected size based on the original size of the video. For example, original size (x1) displays the video in its original size. Half size (x0.5) through 4 times larger (x4) options are only available if there is enough space on the camera screen to accommodate the selected size.
- Anti-Aliasing Screen: Removes stair step effect (blocks) that is caused when zooming a video to improve overall quality of video output.

NOTE: Renaming the camera in Web Live mode does not affect the camera's name on the remote system. If no name is entered for the camera, the name used at the remote locale is shown on the screen.
If the remote locale connected to supports audio transmission, icon appears on the corresponding camera screen.

Web Search Mode

A remote web search program that allows you to search for recordings from remote locales in real-time.
While in Web Search mode, connection to remote locales will terminate automatically after 30 minutes of inactivity.

NOTE: While in Web Search mode, connection to remote locales will terminate automatically after 30 minutes of inactivity.



① Press x to terminate IDIS Web.

② Place the mouse pointer on the IDIS logo to check IDIS Web's version.

③ Displays time information of the video recording from the remote DVR.

④ Select the desired mode.

⑤ Click to print the current video screen using a printer connected to the computer.

⑥ Click to save the video recording as an executable file.

⑦ Click to save the current video screen as an image file.

⑧ Click to configure rendering mode and OSD settings. Select rendering mode to adjust the video output rate or select which OSD elements to display on the screen from the OSD list.

⑨ Click to switch over Web Live mode.

⑩ Shows login information.

⑪ Select the camera you wish to search. Use the arrow buttons to navigate to the previous/next camera group.

⑫ Zoom in or out on the video.

⑬ Adjust image brightness.

⑭ Apply image filters (Sharpen, Blur, Equalizer, Interpolation, and Revert) to the images.

NOTE: Image calibration is applied only during the paused state.

⑮ Use the calendar to search for video recordings by specific dates. Dates containing video recordings are highlighted in light blue. Selecting a date containing video recording data loads the earliest recording from that date(paused state). Select date is highlighted in orange.

16 Select TimeLapse to enable time lapse search mode and search/play back video recordings in chronological order. In Time Lapse Search mode, search is conducted by selecting days on the calendar. The time table at the bottom displays recording data information for the selected date. Select a point in time to display video from that moment. If multiple recordings are available for the selected point in time, you can select the desired segment.

17 Select Event to enable event search mode and search for events matching user-designated parameters.

18 Use the playback controls to play back video.

	Go to First		Play by Frame (forwards)
	Rewind		Fast Forward
	Play by Frame (backwards)		Go to Last
	Play/Pause		

19 Click Goto to designate recent recordings you wish to search and then jump to a specific point in the recording.

20 Click Reload to reload recent video recordings from remote locales.

21 Indicates the selected camera's recording data on a time bar. If the camera's system clock has been changed to a point in the past and more than one recording exists at the same point in time as a result, you will be able to choose which segment to search from the segment menu on the upper right portion of the time table.

22 Selecting a camera from the screen and right-click to bring up the pop-up menu.

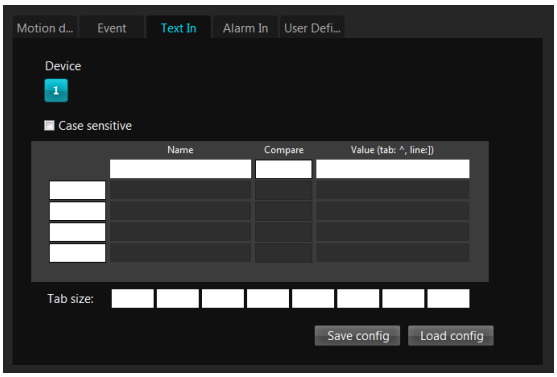
- Change Camera Title: Used to change the camera's name.

Enable Audi: If audio was recorded with the video, enabling this option plays audio upon playback (limited to single-screen playback).

- Aspect Ratio: Changes the image aspect ratio of the video displayed on the screen.
- Anti-Aliasing Screen: Removes stair step effect (blocks) that is caused when zooming a video to improve overall quality of video output..

NOTE: Renaming the camera in Web Search mode does not affect the camera's name on the remote system. If no name is entered for the camera, the name used at the remote locale is shown on the screen.

Appendix 3 — Text-In Query



Set up the find condition of text-in.

- ☑ Case Sensitive: Distinguishes between capital letter and small letters entered in the Name box.
- Name: Enter the text to find.
- Comp: Enter the comparison operator.
- Value: Enter the comparison value.

NOTE: The tab and line can be used for more specific search of the text-in data. Use a symbol '^' indicating the location of each individual category, and ']' indicating the line where the category is located. See the following examples for details.

- Tab size: Enter the tab size. Up to eight tabs can be set.

Query Example I

```
         1         2         3         4         5         6
12345678901234567890123456789012345678901234567890123456789
```

```
    Item        Unit price      Qty        amount
================================================
 Coke          | $     2.20 |      1(s) | $       2.20
 Fanta         | $     2.20 |      1(s) | $       2.20
 Hotdog        | $     3.50 |      3(s) | $      10.50
 Pepsi         | $     1.95 |      1(s) | $       1.95
================================================
                             total : $        16.85
Thank you~~
```

In the above text-in data, you can find that the comparison value is located at 17th (Unit price, $ mark will be ignored automatically), 28th (Qty) and 40th (amount) characters (including spaces) from the left. In this case, you can enter "17", "28" and "40" in each Tab size box, and enter the tab symbol "^" in the Value box (^ for Unit price, ^^ for Qty, and ^^^ for amount).

For example, if you want to search for Coke with a Qty(Quantity) of more than 1 and Hotdog with an amount totaling over $8, the following find condition can be set.

```
        Coke      >     ^^1
and     Hotdog    >     ^^^8
```

Query Example II

```
         1         2         3         4         5         6
12345678901234567890123456789012345678901234567890123456789012345678901234567890

    Item        Unit price      Qty        amount
================================================
 Coke          | $    2.20 |     1(s)
                                          $      2.20
 Fanta         | $    2.20 |     1(s)
                                          $      2.20
 Hotdog        | $    3.50 |     3(s)
                                          $     10.50
 Pepsi         | $    1.95 |     1(s)
                                          $      1.95
================================================
                              total : $       16.85
Thank you~~
```

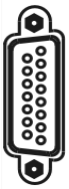
In the above text-in data, you can find that the comparison value is located at 17th (Unit price, $ mark will be ignored automatically), 28th (Qty) and 40th (amount) characters (including spaces) from the left, but the value of amount category is located at the different line from Item. In this case, you can enter "17", "28" and "40" in each Tab size box, and enter the tab symbol "^" and line symbol "]" in the Value box (^ for Unit price, ^^ for Qty, and ^^^ for amount /] for the next line).

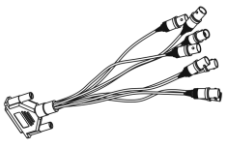
For example, if you want to search for Coke with a Qty(Quantity) of more than 1 and Hotdog with an amount totaling over $8, the following find condition can be set.

```
       Coke      >    ^^1
and    Hotdog    >    ]^^^8
```

Appendix 4 — Connector Pin Outs

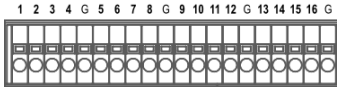
SPOT Monitor Output (Sequence Display)





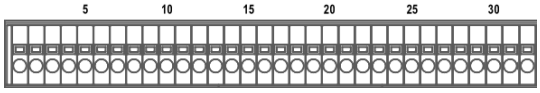
Alarm Input

16-Channel Model



No.	Connector	No.	Connector
1	S1 (Sensor 1)	9	S9 (Sensor 9)
2	S2 (Sensor 2)	10	S10 (Sensor 10)
3	S3 (Sensor 3)	11	S11 (Sensor 11)
4	S4 (Sensor 4)	12	S12 (Sensor 12)
G	G (Ground)	G	G (Ground)
5	S5 (Sensor 5)	13	S13 (Sensor 13)
6	S6 (Sensor 6)	14	S14 (Sensor 14)
7	S7 (Sensor 7)	15	S15 (Sensor 15)
8	S8 (Sensor 8)	16	S16 (Sensor 16)
G	G (Ground)	G	G (Ground)

32-Channel Model

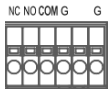


No.	Connector	No.	Connector
1	S1 (Sensor 1)	17	S17 (Sensor 17)
2	S2 (Sensor 2)	18	S18 (Sensor 18)
3	S3 (Sensor 3)	19	S19 (Sensor 19)
4	S4 (Sensor 4)	20	S20 (Sensor 20)
5	S5 (Sensor 5)	21	S21 (Sensor 21)
6	S6 (Sensor 6)	22	S22 (Sensor 22)
7	S7 (Sensor 7)	23	S23 (Sensor 23)
8	S8 (Sensor 8)	24	S24 (Sensor 24)
9	S9 (Sensor 9)	25	S25 (Sensor 25)
10	S10 (Sensor 10)	26	S26 (Sensor 26)
11	S11 (Sensor 11)	27	S27 (Sensor 27)
12	S12 (Sensor 12)	28	S28 (Sensor 28)
13	S13 (Sensor 13)	29	S29 (Sensor 29)
14	S14 (Sensor 14)	30	S30 (Sensor 30)
15	S15 (Sensor 15)	31	S31 (Sensor 31)
16	S16 (Sensor 16)	32	S32 (Sensor 32)

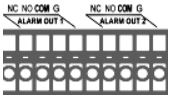
Alarm Output

Relay Output

16-Channel Model



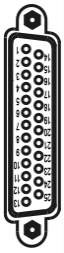
32-Channel Model



No.	Connector
NC	NC (Normal Close)
NO	NO (Normal Open)
COM	COM (Common)
G	GND (Ground)

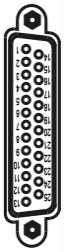
TTL Output

16-Channel Model

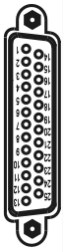


No.	Connector	No.	Connector
1	AOUT1 (Alarm Out 1)	14	AOUT2 (Alarm Out 2)
2	AOUT3 (Alarm Out 3)	15	AOUT4 (Alarm Out 4)
3	AOUT5 (Alarm Out 5)	16	AOUT6 (Alarm Out 6)
4	AOUT7 (Alarm Out 7)	17	AOUT8 (Alarm Out 8)
5	GND (Ground)	18	GND (Ground)
6	AOUT9 (Alarm Out 9)	19	AOUT10 (Alarm Out 10)
7	AOUT11 (Alarm Out 11)	20	AOUT12 (Alarm Out 12)
8	AOUT13 (Alarm Out 13)	21	AOUT14 (Alarm Out 14)
9	AOUT15 (Alarm Out 15)	22	AOUT16 (Alarm Out 16)
10	GND (Ground)	23	GND (Ground)
11	DO NOT CONNECT	24	DO NOT CONNECT
12	DO NOT CONNECT	25	DO NOT CONNECT
13	GND (Ground)		

32-Channel Model



No.	Connector	No.	Connector
1	AOUT1 (Alarm Out 1)	14	AOUT2 (Alarm Out 2)
2	AOUT3 (Alarm Out 3)	15	AOUT4 (Alarm Out 4)
3	AOUT5 (Alarm Out 5)	16	AOUT6 (Alarm Out 6)
4	AOUT7 (Alarm Out 7)	17	AOUT8 (Alarm Out 8)
5	GND (Ground)	18	GND (Ground)
6	AOUT9 (Alarm Out 9)	19	AOUT10 (Alarm Out 10)
7	AOUT11 (Alarm Out 11)	20	AOUT12 (Alarm Out 12)
8	AOUT13 (Alarm Out 13)	21	AOUT14 (Alarm Out 14)
9	AOUT15 (Alarm Out 15)	22	AOUT16 (Alarm Out 16)
10	GND (Ground)	23	GND (Ground)
11	DO NOT CONNECT	24	DO NOT CONNECT
12	DO NOT CONNECT	25	DO NOT CONNECT
13	GND (Ground)		



No.	Connector	No.	Connector
1	AOUT1 (Alarm Out 17)	14	AOUT2 (Alarm Out 18)
2	AOUT3 (Alarm Out 19)	15	AOUT4 (Alarm Out 20)
3	AOUT5 (Alarm Out 21)	16	AOUT6 (Alarm Out 22)
4	AOUT7 (Alarm Out 23)	17	AOUT8 (Alarm Out 24)
5	GND (Ground)	18	GND (Ground)
6	AOUT9 (Alarm Out 25)	19	AOUT10 (Alarm Out 26)
7	AOUT11 (Alarm Out 27)	20	AOUT12 (Alarm Out 28)
8	AOUT13 (Alarm Out 29)	21	AOUT14 (Alarm Out 30)
9	AOUT15 (Alarm Out 31)	22	AOUT16 (Alarm Out 32)
10	GND (Ground)	23	GND (Ground)
11	DO NOT CONNECT	24	DO NOT CONNECT
12	DO NOT CONNECT	25	DO NOT CONNECT
13	GND (Ground)		

Remote Control Device (RS-485)

No.	Connector
+	TRX+
–	TRX-
⏚	GND (Ground)

Appendix 5 — Troubleshooting

Following are some frequent problems and solutions related to the DVR. Read this section before calling the dealer or installer.

Problem: There is no image on the screen.

Solution: Check the camera cables. If the Video Loss image is displayed, something is wrong with the camera cable or power.

Solution: Video might not be displayed on the monitor when connecting a monitor after turning on the system. Reboot the DVR.

Problem: How do I access Windows?

Solution: To protect unnecessary system crashes, Windows is blocked. Ask your dealer or distributor.

Problem: The logo appears and then freezes. Sometimes the screen is black.

Solution: There is a problem with the Main Board. Reboot the DVR. If it happens often, call your dealer or installer.

Problem: The USB-serial converter has been connected to the DVR for the POS installation, however, the dialog box asking the device driver appears.

Solution: When connecting the POS device to the DVR using the USB-serial converter, connect the converter while the DVR is operating. If not, the converter driver may not be operating properly and display the dialog box asking the device driver during the system boot. However, it does not have any effect on the DVR operation. Remove the converter, and reboot the DVR and then connect the converter again.

Appendix 6 — Specifications

16-Channel Model

VIDEO	
Signal Format	NTSC or PAL (programmable)
Video Input	Composite: 1 Vp-p, 16 looping, auto-terminating
	Network camera: max. 16 channels (Hybrid model only)
Monitor Outputs [i]	One HDMI, One DP, One VGA, 10 SPOT (One HD SPOT, 9 SD SPOT)
Recording Resolution	704x480 (4CIF), 704x240 (2CIF), 352x240 (CIF) (704x576, 704x288, 352x288 for PAL)
	Max. 3840x2160 4k (UHD) for network cameras of hybrid model only
Decompression	BNC cameras: H.264
	Network cameras: H.264, H.265, M-JPEG
Display / Record Speed (images per second)	max. 480ips @ CIF / 480ips @ 4CIF (400ips / 400ips for PAL)
	max. 480ips @ Full HD / 480ips @ Full HD (for network cameras of hybrid model only)

[i] VGA, DP and HDMI main out supports dual display (SmartGuard, SmartSearch on the primary display and SmartSearch, Extended spot, Secondary Live Screen on the additional display) and not triple display.

INPUTS/OUTPUTS	
Alarm Input	16 TTL, NC/NO programmable
	Network camera alarm in: max. 16 channels (for network cameras of hybrid model only)
	Network alarm in: max. 16 channels (for non-hybrid model only)
Alarm Output	1 relay, 1A@5V
	16 TTL, 25mA@5V
	Network camera alarm out: max. 16 channels (for network cameras of hybrid model only)
	Network alarm out: max. 16 channels (for non-hybrid model only)
Audio Input	16, "line in", 1 Vp-p
	Network camera audio in: max. 16 channels (for network cameras of hybrid model only)
Audio Output	One, "line"
	Network camera audio out: max. 16 channels (for network cameras of hybrid model only)

CONNECTORS	
Video Input	Composite: 16 BNC
	Network camera: max. 16 channels (Hybrid model only)
Monitor Output [i]	1 HDMI, 1 DP, 1 VGA, 10 SPOT (1 HD SPOT, 9 SD SPOT)
Audio In	Line in: 16 RCA
	Network camera audio in: max. 16 channels (for network cameras of hybrid model only)
Audio Out	Line out
	Network camera audio out: max. 16 channels (for network cameras of hybrid model only)
Alarms	Terminal block
	Network camera alarms: max. 16 channels each for input and output
Ethernet Port [ii]	Two RJ-45 (1 Gbps Ethernet)
eSATA Port	eSATA
RS232 Serial Port	DB9 (P)
RS485 Serial Port	1 Half Duplex
USB Port	USB 2.0 connectors (Front: 2, Rear: 2), USB 3.0 connectors (Rear: 2)

[i] VGA, DP and HDMI main out supports dual display (SmartGuard, SmartSearch on the primary display and SmartSearch, Extended spot, Secondary Live Screen on the additional display) and not triple display.

[ii] The network connector is not designed to be connected directly with cable or wire intended for outdoor use.

Specifications are subject to change without notice.

STORAGE	
Primary Storage	SATA hard disk drive (Expandable up to 5)
Secondary Storage	eSATA HDD
Backup Storage	DVD RW

GENERAL	
Dimensions (W x H x D)	17.3" x 7.0" x 18.2" (440mm x 177mm x 462mm)
Unit Weight	35.7 lbs. (16.2kg)
Shipping Weight	43.6 lbs. (19.8kg)
Shipping Dimensions (W x H x D)	23.2" x 13.7" x 27.6" (590mm x 350mm x 700mm)
Operating Temperature	41°F to 104°F (5°C to 40°C)
Operating Humidity	0% to 90%
Power	AC 100-240V~, 50/60 Hz, 3.0-1.5A
Approvals	FCC, CE, CB, UL[iii]

[iii] CAUTION: Risk of Explosion if Battery is replaced by an Incorrect Type. Dispose of Used Batteries According to the Instructions. This equipment is indoor use and all the communication wiring are limited to inside of the building.

Specifications are subject to change without notice.

32-Channel Model

VIDEO	
Signal Format	NTSC or PAL (programmable)
Video Input	Composite: 1 Vp-p, 32 auto-terminating
	Network camera: max. 32 channels (Hybrid model only)
Monitor Outputs [i]	One HDMI, One DP, One VGA, 12 SPOT (2 HD SPOT, 10 SD SPOT)
Recording Resolution	704x480 (4CIF), 704x240 (2CIF), 352x240 (CIF) (704x576, 704x288, 352x288 for PAL)
	Max. 3840x2160 4k (UHD) for network cameras of hybrid model only
Decompression	BNC cameras: H.264
	Network cameras: H.264, H.265, M-JPEG
Display / Record Speed (images per second)	max. 960ips @ CIF / 960ips @ 4CIF (800ips / 800ips for PAL)
	max. 960ips @ Full HD / 960ips @ Full HD (for network cameras of hybrid model only)

[i] VGA, DP and HDMI main out supports dual display (SmartGuard, SmartSearch on the primary display and SmartSearch, Extended spot, Secondary Live Screen on the additional display) and not triple display.

INPUTS/OUTPUTS	
Alarm Input	32 TTL, NC/NO programmable
	Network camera alarm in: max. 32 channels (for network cameras of hybrid model only)
	Network alarm in: max. 16 channels (for non-hybrid model only)
Alarm Output	2 relay, 1A@5V
	32 TTL, 25mA@5V
	Network camera alarm out: max. 32 channels (for network cameras of hybrid model only)
	Network alarm out: max. 16 channels (for non-hybrid model only)
Audio Input	32, "line in", 1 Vp-p
	Network camera audio in: max. 32 channels (for network cameras of hybrid model only)
Audio Output	One, "line"
	Network camera audio out: max. 32 channels (for network cameras of hybrid model only)

CONNECTORS	
Video Input	Composite: 32 BNC
	Network camera: max. 32 channels (Hybrid model only)
Monitor Output [i]	1 HDMI, 1 DP, 1 VGA, 12 SPOT (2 HD SPOT, 10 SD SPOT)
Audio In	Line in: 32 RCA
	Network camera audio in: max. 32 channels (for network cameras of hybrid model only)
Audio Out	Line out
	Network camera audio out: max. 32 channels (for network cameras of hybrid model only)
Alarms	Terminal block
	Network camera alarms: max. 32 channels each for input and output
Ethernet Port [ii]	Two RJ-45 (1 Gbps Ethernet)
eSATA Port	eSATA
RS232 Serial Port	DB9 (P)
RS485 Serial Port	1 Half Duplex
USB Port	USB 2.0 connectors (Front: 2, Rear: 2), USB 3.0 connectors (Rear: 2)

[i] VGA, DP and HDMI main out supports dual display (SmartGuard, SmartSearch on the primary display and SmartSearch, Extended spot, Secondary Live Screen on the additional display) and not triple display.

[ii] The network connector is not designed to be connected directly with cable or wire intended for outdoor use.

Specifications are subject to change without notice.

STORAGE	
Primary Storage	SATA hard disk drive (Expandable up to 5)
Secondary Storage	eSATA HDD
Backup Storage	DVD RW

GENERAL	
Dimensions (W x H x D)	17.3" x 7.0" x 18.2" (440mm x 177mm x 462mm)
Unit Weight	36.8 lbs. (16.7kg)
Shipping Weight	44.7 lbs. (20.3kg)
Shipping Dimensions (W x H x D)	23.2" x 13.7" x 27.6" (590mm x 350mm x 700mm)
Operating Temperature	41°F to 104°F (5°C to 40°C)
Operating Humidity	0% to 90%
Power	AC 100-240V~, 50/60 Hz, 3.0-1.5A
Approvals	FCC, CE, CB, UL[iii]

[iii] CAUTION: Risk of Explosion if Battery is replaced by an Incorrect Type. Dispose of Used Batteries According to the Instructions. This equipment is indoor use and all the communication wiring are limited to inside of the building.

Specifications are subject to change without notice.