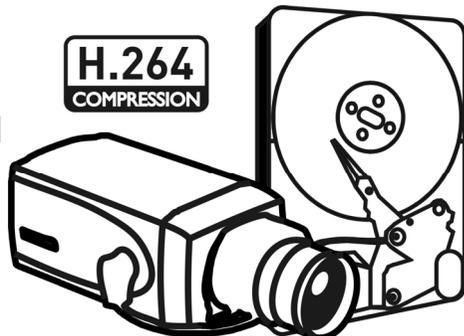


H.264 4-Channel Mobile DVR

User's Manual

- H.264 4-Ch. Mobile DVR
- Anti Shock & Vibration control
- Built-in Heating System
- 2.5" Mobile HDD & SD Card
- GPS, G-Sensor



Preface

We welcome you as a new user of the world's best digital video recorder (DVR), and the leading Digital Video Surveillance System. For effective usage, please read this manual carefully. For future reference, please keep this manual close to hand.

Copyright/Authentication/Trademark/Limited Warranty

Copyright

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Authentication

CE, FCC, KCC

Trademark

Ethernet(TM) is the trademark of Xerox Corporation.

Microsoft(TM), MS-DOS(TM), Windows(TM logo), Windows(TM) and Windows NT(TM) are the trademarks of Microsoft Corporation, used in the United States and elsewhere.

Limited Warranty

- The manufacturer, importer and agent shall not be responsible for accidental damage (including injury) and other damage caused by inappropriate use or operation of this product.
- The information in this manual is prepared based on the current specifications for the product. The manufacturer is currently adding new functions and will continue to upgrade the product with new technology. All specifications may be changed without notice to individual users.

Cautions

We strongly recommend that users read all safety cautions carefully before operating the product, to operate the product appropriately.

Since the indicated cautions contain critical safety information, they must be fully complied with. The cautions are categorized into Danger, Warning, Caution and Important.

 Danger	Risk of death or serious injury. This is the highest priority danger warning.
 Warning	Risk of serious or lesser degree of injury. May also cause damage to the product or to property.
 Caution	Risk of minor injury or damage.
 Important	Requirements or limitations regarding operation. Users are recommended to read the relevant details carefully so as to operate the product properly and without harm.

The above cautions indicate the degree of damage that may occur due to inappropriate use of the system.



Risk of death or serious injury.
This is the highest priority danger warning.

- RISK OF EXPLOSION IF BATTERY IS REPLACED BY INCORRECT TYPE. DISPOSE OF USED BATTERY ACCORDING TO THE INSTRUCTIONS.
- THIS EQUIPMENT IS INDOOR USE AND ALL THE COMMUNICATION WIRINGS ARE LIMITED TO INSIDE OF THE BUILDING.
- Please connect the power cord only to the type of AC outlet indicated in the manual or product specification. If connected to other types of power outlet, fire and electric shock may result.
- Do not expose the product to moisture and dampness. Doing so may result in fire and electric shock.
- Do not place heavy objects on top of the power cord. Damage to the power cord may result in fire and electric shock.
- Do not place containers with liquid or small metal objects on top of the product. Liquid or small metal objects getting into the unit may lead to fire and electric shock.
- Do not score, bend, twist, pull or heat the power cord. Damage to the power cord may lead to fire and electric shock.
- Do not remove the top casing of the product. Doing so may result in electric shock. If internal examination and maintenance are deemed necessary, contact the authorized system vendors or installers.
- Do not modify the product in any way. Doing so may lead to fire and electric shock.
- In case of lightning, immediately turn off the power switch and remove the power cord from the power outlet. Failure to do so may result in fire and electric shock.
- Please use only the power cord supplied with the product. Use of other power cords may result in fire and electric shock.
- In case of smoke, smell or noise, immediately turn off the power switch and remove the power cord from the power outlet. Continued operation of the product may result in fire and electric shock. Request a maintenance service from the authorized system vendors or installers.
- If the product is dropped or damaged, turn off the power switch and remove the power cord from the power outlet. Continued operation of the product may result in fire and electric shock. Users should request a maintenance service from the authorized system vendors or installers.
- Do not touch the product with wet hands. Doing so may result in electric shock.



Risk of serious or lesser degree of injury.
May also cause damage to the product or to property.

- Do not leave the power cord or other cables in passageways. Passers-by may trip and fall.
- Avoid contact with water or beverages. Contact with water or beverages may result in damage that cannot be repaired.
- In case of lightning, immediately turn off the power switch and remove the power cord from the power outlet. The product may otherwise be damaged.
- Excessive current from the product and the camera may result in an electric shock. Connect the power cord to an external device only when the products themselves are disconnected from their power supply.



Risk of minor injury or damage.

- If a foreign substance is stuck to the product, remove it using a soft cloth or tissue. Do not use chemical agents (thinner, solvent, etc.) to remove the substance.
- Do not operate or store the product in the following places.
 - An area that is either too cold or too hot
 - An area of high humidity, or in front of an air-conditioner, or in places subject to sudden temperature changes
 - An area where there is excessive dust
 - Areas where heat from the product cannot be emitted through both of the product's side ventilation openings
- Do not place credit cards/telephone cards/bank account books/tickets and other objects with magnetic properties near the product.
- Static electricity may cause damage to the internal parts of the product. Please remove static electricity from your body before touching the rear panel and internal electronic parts of the product.
- If this product is damaged beyond repair or reaches its maximum service life, dispose of it in compliance with local laws and regulations regarding the disposal of lead and plastic waste.



Requirements or limitations regarding operation. Users are recommended to read the relevant details carefully so as to operate the product properly and without harm.

- The product may not work properly if the power source is unstable or and if electric shock occurs. Make sure the correct rated power is available.
- The product is designed to be proof against electric power failures; however, damage may occur as a result of power failure. Current data may be damaged or data might not be recorded. Make sure to use an Uninterruptible Power Supply (UPS).
- Since the product is designed to record video data on the hard disk, an error in the hard disk or other miscellaneous errors might prevent the product from recording properly. Periodic maintenance is required for proper operation of the product.
- The product is designed for users to configure their own interface. However a user configuration error could lead to operation malfunction. This product should be set up by certified installers only.
- Since the product is connected - and tightly coupled - to exterior accessories (camera, sensor, LAN, Hard Disk, etc.), there is a risk of malfunction from external causes. Ensure periodic maintenance by the certified installers.
- Use the rack mounting handle provided with the product for installation.
- In this product, 1 Kbyte equals 1,024 bytes, 1 Mbyte equals 1,024,000 bytes and 1 Gbyte equals 1,024,000,000 bytes.

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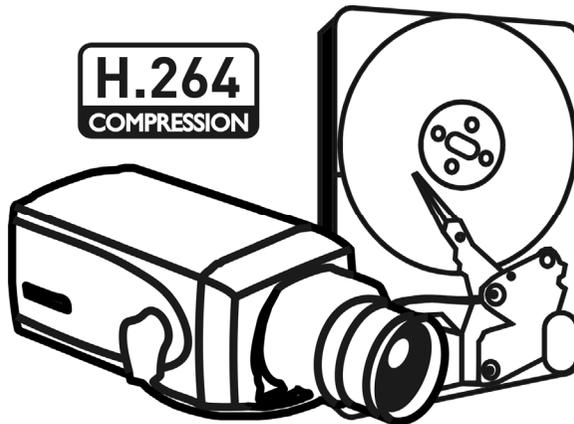
Chapter 1. Introduction

1. The System

This DVR provides the cutting edge of mobile solutions for any types of mobile transportations. This DVR was built upon industrial specification that offers the most reliable mobile solutions ever. Its industrial specification allows withstanding any harsh conditions of shock, vibration and temperature. Explore our new mobile DVR and being protected by the most reliable in-vehicle device.

2. General Features

- True H.264 Standard Video Compression
- Embedded Linux System to give you the Ultimate Reliability
- Dedicated DB Structure for Stability
- Compact Size For In-Vehicle Installation
- Multi Storage Support – 2.5” Removable HDD, SD Card and USB
- Built-in GPS for E-Map Application
- Industrial Standard to Stand Harsh Temperatures without Additional Enclosures
- Various and Most Useful I/Os
- Additional Power Supply for Cameras and Monitor
- Anti-Shock and Vibration Tests upon Military Specification
- Various Event Detections Using Built-in G-Sensor



3. Specification

Model		4 Channel Mobile DVR
Video	In	4 Ch
	Out	1 CVBS
Audio	In	4 Mic-in
	Out	1 Line-out
Device	Sensor In	2 TTL
	Alarm Out	2 Relay
	I/O Interface	RS232, RS485, USB2.0 x 1, USB1.1 x 1 for Mouse
Display	Speed	Real Time
	Resolution	720 x 480 (NTSC), 720 x 576 (PAL)
	Split Screen	1, 4, PIP, Digital Zoom
Recording	Compression	H.264 Codec
	Speed / Resolution	120fps@CIF(NTSC) 100fps@CIF(PAL) 60fps@Half D1(NTSC) 50fps@Half D1(PAL) 30fps@D1(NTSC) 25fps@D1(PAL)
	Picture Quality	Very High, High, Standard, Low
	Mode	Time-lapse, Event, Time & Event
Playback	Display	1, 4, Digital Zoom
	Search Mode	Calendar Search, Event Search, Text-In Search, Go to Time
	Playback Mode	Multi Channel Normal & Reverse Play, RW & FF (x2, x4, x8, x16, x32), Frame to Frame, Pause
	Map	Associated Google Map
Network	Interface	Ethernet (10/100 Base)
	Protocol	TCP/IP, HTTP, DHCP, ADSL(PPPoE)
	Application	Live, Playback, Setup, Notification (Callback, E-Mail)
	Web Browse	Internet Explorer 7 or higher
Storage	Removable Rack (2.5" SATA HDD or SSD & SD Card)	
Backup	External HDD, USB Memory	
Control	USB Mouse, IR Remote Controller, Joystick Controller	
OSD	Graphic User Interface (Multilingual)	
Approval	FCC, CE, KCC	
ROHS	ROHS Compliance	
Power Consumption	DC12V~36V, max 64W	
Operating Temperature	-20°C ~ 50°C / -4°F~122°F (Built-in Heating System)	
Operating Humidity	0%~80% / non-condensing	
Dimension	225.5(W)x59(H)x245.2(D)mm / 8.87(W)x2.32(H)x9.65(D)inch	
Weight	1.63Kg / 3.6lbs (with 250G HDD)	

Chapter 2. System Installation

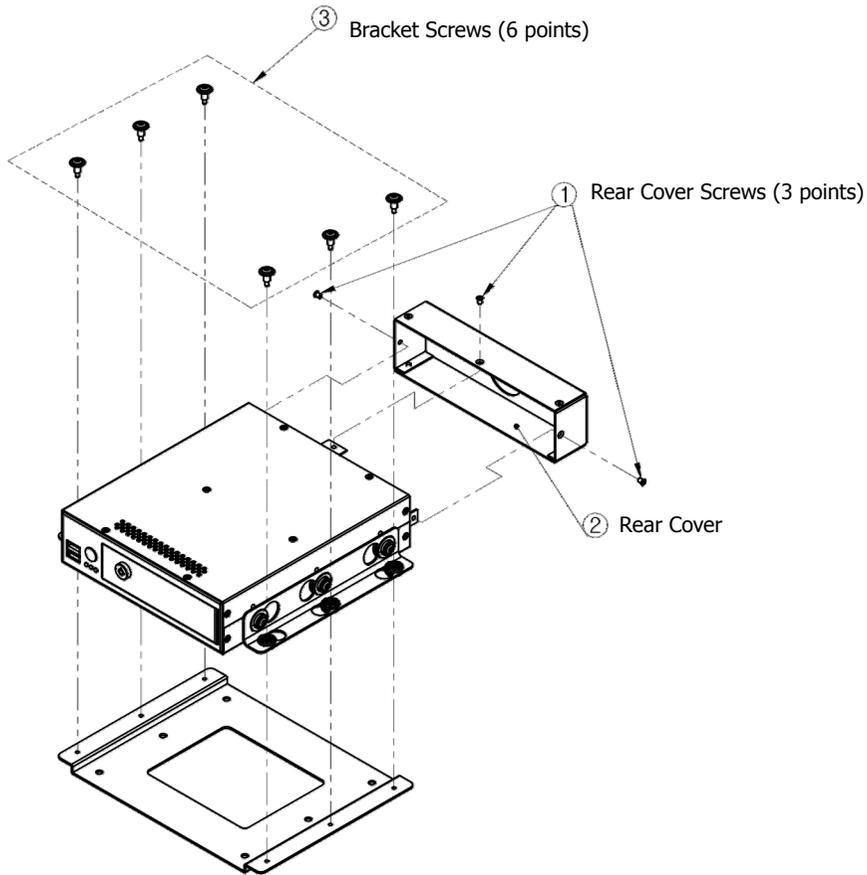
1. Package Contents

The following components are included in the product:

DVR Unit	
Harness & Terminal Block	
Remote Controller	
CD (User's Manual & Network S/W)	
Quick Guide	
Bracket Screws & Keys	
GPS Antenna (Option / SMA type connector)	

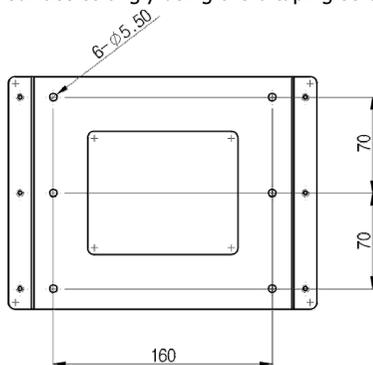
2. Installation

2-1. Bracket Disassembly

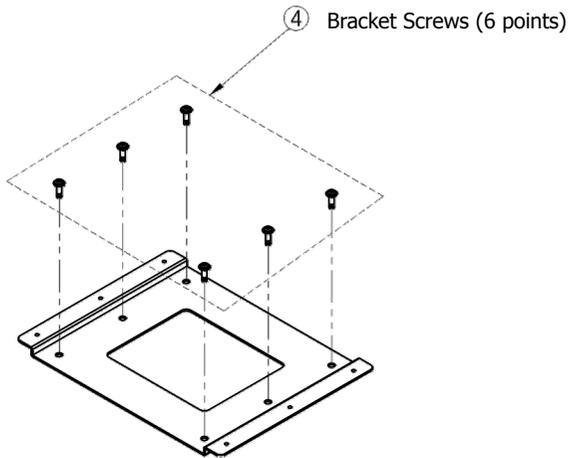


Take the unit out of the box and disassemble the brackets as follow:

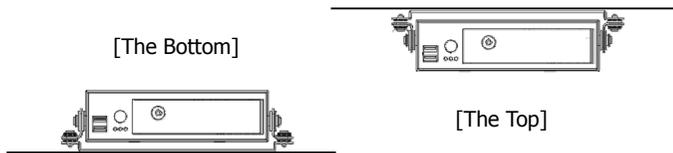
- Unscrew Rear Cover Screws to remove Rear Cover
- Unscrew Bracket Screws to remove installation (bottom) bracket.
- The installation bracket has following sizes, and it must be bolt down on the bottom or top surface strongly using the 6 tapping screws.



2-2. Unit Installation

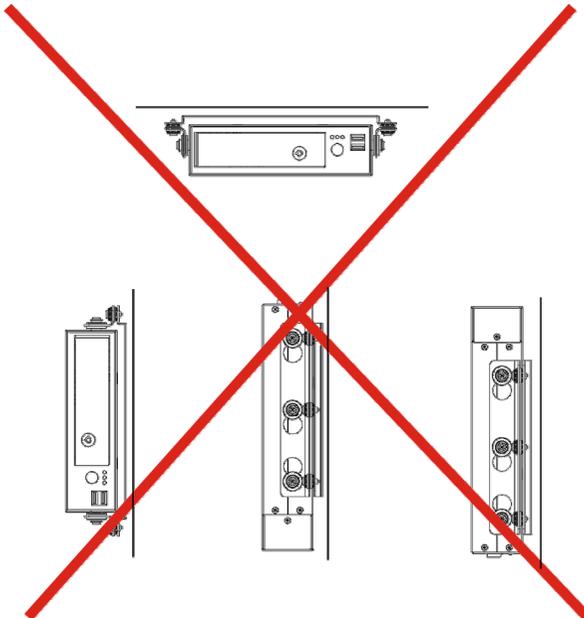


Bolt Down Installation Bracket on the bottom or top surface using bracket screws.



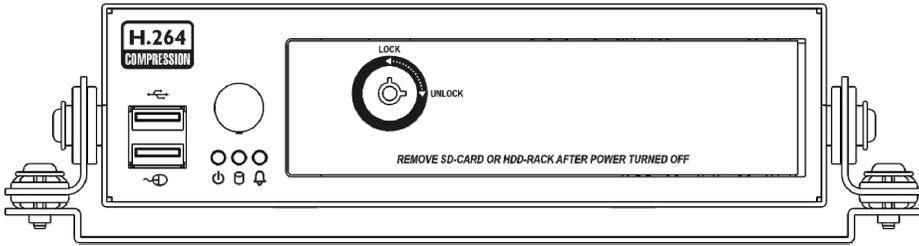
- To install the unit on the bottom, just use the bracket screws to bolt down the unit with the installation bracket as it is.
- To install the unit on the top, turn the side bracket upside and bolt down the unit with the installation bracket.

Note: Please do not install DVR as shown below. Inappropriate installation of DVR will affect HDD's stability or operation.

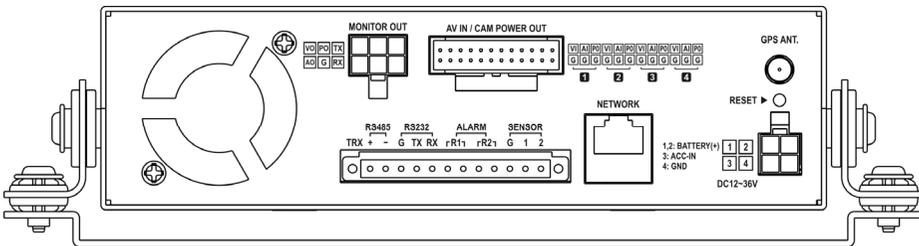


2-3. Connection Devices

The front & rear panel of the 4 channel premium DVR comprises the following:

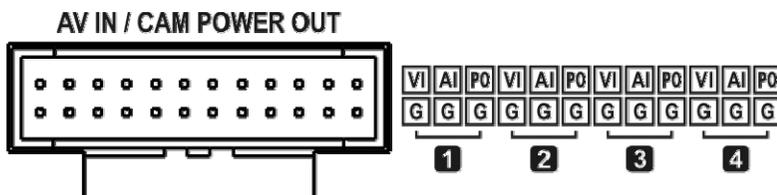


- **Front USB:** Two USB ports are provided to connect external devices like HDD, Flash memory for Backup, System upgrade or USB mouse on the front panel. A USB mouse can be connected only front panel USB port dedicated only for mouse.



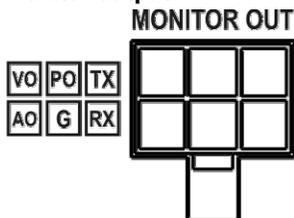
Note: To connect the cables/connectors, makes sure they are all through the Rear Cover Hole first before connecting them and lock the Rear Cover for easy arrangement.

Video/Audio Input, Camera Power Output



The unit has group of 4ch Video Input(VI), Audio Input(AI), Camera Power Output(PO) as shown above. Use 24pin connector included in a box to connect cameras.

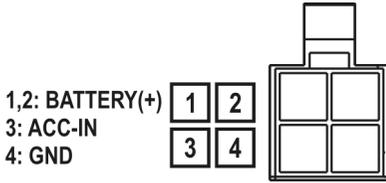
Monitor Output



The connector for CVBS(NTSC or PAL) monitor. VO refers to Video Out, AO refers to Audio Out, and The Monitor power (12V) needs to be connect to PO. G(Ground) Pin is general for all outputs. 12V Monitor power is only supportable for max. 7" LCD monitor (TX/RX is not in any usage on this unit)

Notice: The total 12V/1.6A is supportable for 4 cameras and 1 monitor.

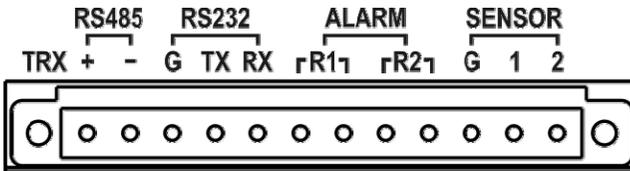
Power In



DC12~36V

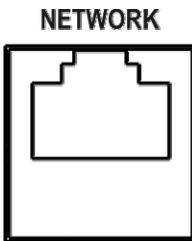
The DVR will operate on both 12V and 24V systems. Pins 1 and 2 should be connected directly to the positive (+) battery. Pin 3 should be connected to the positive (+) power bus bar that is turned on when the ignition switch is in the Accessory position. Pin 4 should be connected directly to ground.

I/O Terminal Block



- **RS232C:** An RS-232C connector is provided to connect external devices such as ATM or POS machine for Text-In function.
- **RS485:** The RS485 connector can be used to control PTZ cameras. The DVR can also be controlled remotely by a control keyboard.
- **Alarm:** alarm output connectors are provided to connect external alarms such as sirens or lights. 2 alarm output connectors have internal relays.
- **Sensor:** 2 sensor input connectors are provided to connect external devices. You can use sensors to signal the DVR with event.

Network Port



Connect a Cat5 cable with an RJ-45 connector to the DVR connector for remote monitoring, remote playback, remote setup. See **Chapter 3-2. DVR Configuration** for configuring the Network connections.

3G (GPRS) Router can be used for the wireless network connection. Connect 3G (GPRS) Router on the network port. For the detail usage of 3G (GPRS) Router, please contact the service provider of 3G networks or 3G (GPRS) Router manual.

ETC

GPS ANT.



RESET ► 

- **GPS Antenna:** The unit has built in GPS. SMA type GPS antenna needs to be set up separately for the proper reception of GPS data.
- **Reset:** The DVR has a Reset switch that will only be used to return all the settings to the original factory settings. To reset the unit, turn the DVR off first. Turn it on again while poking the straightened paperclip in the reset hole. Hold the switch until the DVR is initializing.

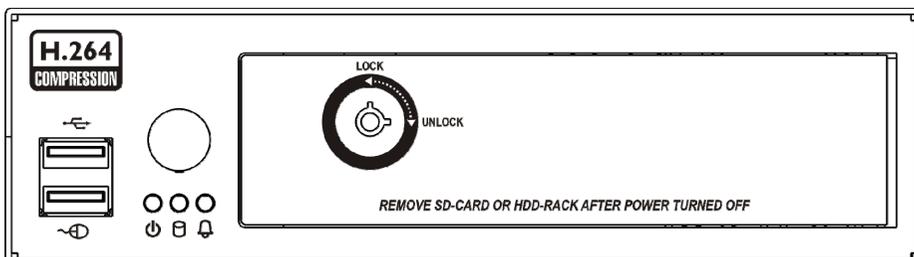
3. Cautions

- Avoid installing the product where there are direct rays or it is hot by locating near from heat generator. (May cause fire)
- Do not put vase, flowerpot, cup, cosmetics, drug, and anything the contain water on product. (May cause fire or electric shock, and it may injure people by falling)
- Do not insert or drop any metal object (coin, hair pin) or flammable object (match, paper) into air hole. (May cause fire or electric shock)
- Do not put any heavy object on it. (May injure people by being fell or destroyed.)
- Put power plug surely not to be moved. (If not, this may cause fire.)
- Unplug power plug and antenna when there are thunders and lightening. (May cause fire.)
- For cleaning the product, wipe surface with dry towel. Using chemical agent or cleaner may change the color and unpeel paint.
- Do not put several plugs at same time. (May cause electric shock.) If there is smoke or strange smell, stop operation. In this case, turn the power off and unplug it, and then contact our service center. (If you keep using it, this may cause fire or electric shock.)
- Do not unplug by pulling cord. (If cord is damaged, it may cause fire or electric shock.)
- Do not plug or unplug with wet hands. (May cause electric shock.)
- Keep the power cord untwisted. (May cause fire or electric shock.)
- Use proper adapter. (Using too much electric power may cause fire or electric shock.)
- Do not install it at where exposed to rain and wind and water drop. (May cause fire, electric shock and transformation.)
- Keep away from fire. (May cause fire.)
- Do not disassemble or remodel on your own. (May cause malfunction or electric shock.)
- Do not put next to flammable materials like flammable spray. (May cause fire.)
- Do not install it at a place with too much dirt. (May cause fire.)
- Do not install it on unstable places like shaking table and inclined place or shaking place. (May injure users by falling down or being upside down.)
- Do not put an heavy object on power cord or avoid it from being pressed by the device. (May cause fire or electric shock.)
- In case of using extension cord, do not use several devices at same time. (May cause fire with abnormal heating of extension.)
- When there are dirt on power plug pin or power outlet, clean it nicely. (May cause fire.)
- Do not damage on power cord or plug, and bend or twist or pull too much, and put it between other objects or heat. If power outlet insertion part is not tight, do not use it. (May cause fire or electric shock.)
- Do not drop or give a shock to the product. (May injure people or cause malfunction.)
- Do not touch power adaptor or signal controller. (May cause electric shock.)
- Do not put any object too close to block cooling fan. (May cause fire.)
- In case of exchanging batteries with improper type, there might be danger of explosion.
- For used batteries, throw away separately from other garbage.
- When you take out batteries, avoid children from eating them by mistake. Keep them away from children. (If a child ate them, contact a doctor right away.)

Chapter 3. Using DVR

1. Basic Operation

1-1. Front Panel & IR Remote Controller



Front Panel	Description
USB Port	Two USB ports are located on the front panel. A USB mouse can be connected USB port dedicated only for mouse as picture directed.
Status LED	<p> Power, HDD, Alarm > > : Indicates Normal system booting Blink: Indicates Front Cover is not closed properly On/ Blink: Indicates the heater is on due to low temperature and needs to wait until it reaches operating temperature level. </p>
Lock Key	Use a key included in the box to open the door to install or uninstall the HDD rack. To remove the HDD rack while the system is running, open the door and wait for about 10 seconds until the Power LED starts flickering for the safe removal of HDD rack.

Remote Control Button	Description
Camera Buttons (1~0)	Pressing camera buttons and Enter button will cause the selected camera to display full screen. Buttons are used to enter passwords.
MENU / EXIT Button	Enters the Setup Menu. User will need to enter the authorized password to assess Setup. In Playback mode, MENU button displays the Playback Menu.
DISPLAY Button	Changes the screen display mode in the current screen or playback screen.
SEQUENCE Button	Displays live channels sequentially.

Up, Down, Left, Right Arrow, ENTER Buttons	These are used to change settings for the product in MENU mode or used in PTZ control mode. (pan, tilt)
BACKUP Button	Copies recorded data to an external storage device.
PLAYBACK Button	Changes to the playback mode from the live mode.
▬ PAUSE Button	Under playback mode, the button can be used to pause the playback screen. - Display menu to save PTZ preset under PTZ mode.
▶ PLAY Button	Plays the video forward. Press the button repeatedly to increase play speed up to max 32 times (1, 2, 4, 8, 16, 32 times) faster. Use this button to move right when setting the menu. - Focus on far distance under PTZ mode.
◀ R.PLAY Button	Plays the video backward. Press the button repeatedly to increase play speed up to max 32 times (1, 2, 4, 8, 16, 32 times) faster. Use this button to move right when setting the menu. - Zoom Out under PTZ mode.
▬▶ STEP FORWARD Button	Move forward by one frame under Pause. Use this button to move up when setting the menu. - Focus on near distance under PTZ mode.
◀▬ STEP BACKWARD Button	Move backward by one frame under Pause. Use this button to move down when setting the menu. - Zoom In under PTZ mode.
PTZ Button	Changes to the PTZ control mode from the live mode.
ZOOM Button	Zooms the current image on the screen.
PIP Button	Changes to PIP screen mode from live screen.
AUDIO Button	Selects a camera for live & playback audio output.
OSD Button	Turns on/off the OSD display.
LOG Button	Checks the system's log information.
ID Button	Selects the DVR system ID. (Remote controller only)
E.REC Button	Pressing the E.REC button stars Emergency Recording Mode of all camera channels, and displays "!" on the screen. Pressing the button again will stop E.REC mode.

1-2. Turning on the System

The unit will start and run automatically when turn on the ignition if it is installed properly. It will take about 20-30 seconds for the boot up and start recording based on the pre set up options. If the temperature below -0°C (32°F), the unit will start recording after HDD is heat up by our built in heating sensor.

If SD card is installed with HDD. It will start recording on SD Card while HDD is being heat up. Once HDD is ready to record the data, it will stop the recording on SD and automatically starts recording data on HDD.

The unit will stop recording automatically once turn off the ignition. The unit only runs while the ignition is on.

Note: The HDD Rack can be removed and played on PC. It is recommended to remove the HDD Rack once the unit is turned off safely. But, to remove the HDD rack while the system is running, open the door and wait for about 10 seconds until the Power LED starts flickering for the safe removal of HDD rack.

Note: When installing the HDD for the first time, the HDD should be formatted first.
 "MENU > RECORD > Storage > HDD format"

1-3. Menu Bar

The menu bar will appear on the bottom of the screen as shown below.



	Pressing the Menu will bring up the main menu list.
	Shows the % of HDD being used.
	Turns on when the HDD is set to be overwritten.
	Receiving GPS data
	Turns on when the system is connected to the network.
	Turns on when the Alarm is being activated.
	G-Sensor is detected
	E.REC (Emergency Recording) Mode.
	Displays date & time.
	IR Remote Controller

1-4. Display Icons

	No Recording
	Recording (Red)
	E.REC (Emergency Recording)
	Event Recording (Red)
	Pre Event Recording (Blue)
	Motion Detection
	Sensor Detection
	Text In
	PTZ Camera
	Instant Backup
	Clip Maker (Blue)
	Backup (Red)
	Video Loss

1-5. User or Admin Login

Login

ID :

Password :

0123456789

Press MENU to enter main menu screen. Login in screen appears to enter ID (Administrator or User) and Password. Password can be set up to 8 numbers by the combination of numbers from 0 to 9. The factory default password is 'none' so press OK to log in to the system for a first time log in. Password can be set under password set up option (MENU > SYSTEM > User). System will be automatically log out if it is not in-use for sometime. This "Auto Logout Time" can be set under password set up option (MENU > SYSTEM > User).

1-6. The Main Menu

The Main Menu of DVR consists of SYSTEM, DEVICE, DISPLAY, RECORD, NETWORK and EVENT. And each menu consists of various sub menus that allow detail set up of the system. Use Mouse, Remote Controller or Front Buttons to access to each menu.

Note: Please make sure the system log out is done when the system setting or operation completed to prevent any unauthorized changes of system settings or operations.

MAIN MENU	SYSTEM	Information
		Date & Time
		User
		Quick Setup
		System Log
	DEVICE	Camera
		Audio
		Alarm
		Keyboard
	DISPLAY	RS232 & RS485
		Display
	RECORD	Monitoring
		Storage
		Record
	NETWORK	Record Tools
		Address
		DDNS
		Notification
	EVENT	Transmission
		Sensor
		Motion
		Video Loss
		Text-In
		System
	G-Sensor	
	LOGOUT	
	SHUTDOWN	

1-7. Contextual Menu

Camera	>
OSD	>
Text-In Info.	
Freeze	
Sequence	
Zoom	
PIP	
Audio	
PTZ	
Backup	
Playback	>
Emergency Record	
Log	
Setup Menu	

Additional Contextual Menu screen appears by pressing right button on the Mouse. Layout option allows changing Camera on the monitor. Select preferred camera display option on the monitor.

- Camera** : Select camera no.
- Layout** : Select display mode (8/16 ch. DVR Only)
- OSD** : Select OSD display option
- Text-In Info.:** On/Off Text-In OSD.
- Freeze** : Pause current image display
- Sequence**: Begin sequence display
- Zoom** : Zoom in image by X2
- PIP** : Select PIP mode and camera
- Audio** : Select Audio outs
- PTZ** : Select PTZ options
- Backup** : Select backup options
- Playback** : Playback recorded data
- Emergency Record** : Start Emergency Recording
- Log** : Select System/Event log
- Setup Menu**: Enter Main setup menu

For more information on Contextual Menu please refer to 2. DVR Configuration.

2. DVR Configuration

2-1. SYSTEM

Under SYSTEM menu, System configuration options for general Information, Date &Time, User, Quick Setup and System Log can be selected.

2-1-1.MENU>SYSTEM>Information

The image shows two screenshots from a DVR configuration interface. The left screenshot is titled 'SYSTEM: Information' and contains the following fields and options: 'DVR Name' (text input), 'MAC Address' (00:08:9F:F4:AC:55), 'Version' (1.1.0) with an 'Upgrade' button, 'Vehicle Information' (text input), 'Remote Controller ID' (0), 'Video Type' (AUTO), 'Shutdown Delay(min.)' (5), and 'Configuration' (Export, Import, Default) buttons. At the bottom are 'O K' and 'Cancel' buttons. The right screenshot is a virtual keyboard titled 'DVR Name' with a grid of characters (1-0, A-M, N-Z, Del, Space, arrows, /, ., ?) and 'O K' and 'Cancel' buttons at the bottom.

In the Information screen, DVR Name, System Version, Upgrade, Mac Address and Configuration options can be selected. Highlight and press DVR Name to enter or change DVR name. Name the DVR by using the virtual keyboard.

To Upgrade the system, save the upgrade file to USB Flash Memory and connect it to DVR. Once the Device is connected, press Upgrade button to execute system upgrade.

Upgrade will take approximately 5 minutes. DVR will reboot automatically when the upgrade is completed.

Note: DO NOT remove USB Flash Memory or turn off the system during the upgrade. Removing USB Flash Memory or Turning off the system during the upgrade may cause system malfunctioning.

Vehicle Information

The image shows a screenshot of the 'Vehicle Information' menu. It contains the following fields: 'Company Name' (ABC TAXI), 'Vehicle Maker' (WM), 'Vehicle Model' (Kw777), 'Registration Number' (123456), 'License' (54545_0976_87), and 'Driver Name' (JOHN). Each field has a text input box with a cursor and a small arrow icon. At the bottom are 'O K' and 'Cancel' buttons. The status bar at the bottom shows 'MENU', a battery icon, a signal strength icon, a clock icon, and the date/time '2010-10-16 01:25:26 PM'.

Enter Company Name, Vehicle Maker, Vehicle Model, Registration Number, License, Driver Name.

Remote Control ID

Enter Remote Control ID to control multiple DVRs individually. If Remote Control ID remains as 0, Remote ID does not have to be selected when using remote controller. It will work as general ID for any remote controls and a remote control will communicate with any DVRs with ID 0.

Video Type

The system automatically detects camera signal types as NTSC/PAL. But the system also offers manual selection options for different signal types.

Shutdown Delay(min.)

Set Shutdown Delay time after Ignition is off. The system power will be stayed on according to the Shutdown Delayed time set in the menu. The time can be set from 5 to 60 minutes.

Configuration

System settings can be saved and loaded using Configuration option

Export: Save settings to USB Flash Memory

Import: Load saved settings from USB Flash Memory

Default: Load factory default settings

Note: Configuration Import does not affect or changes system and network settings.
Network settings will also not be changed when selecting Default option.

2-1-2. MENU > SYSTEM > Date & Time

	Month	Week	Day	Time
Begin	3	5	SUN	02:00:00 AM
End	10	5	SUN	03:00:00 AM

Date: 2009-04-04 Format
Time: 04:50:46 PM Format

In the Date & Time, Time Zone, Date, Time, NTP Server, Holiday options can be selected.

Highlight and press Time Zone to select right Time Zone.

Select 'Use Daylight Saving Time' if it is applicable. Enter start and end date/time for local 'Daylight Saving Time'.

Press button to set up Date and Time. Press button to select a date & time display format.

NTP Server: EXAMPLE.NTP.ORG
Interval: 1 day Update

Select 'Use NTP' to enter Time Servers to be synchronized with DVR. Highlight and press to enter Time Server using the virtual keyboard. Press 'Update' to synchronize the DVR time with the registered time server.

Note: NTP is not essential for DVR operation. Any type of Standard Time Server can be used (e.g. time.windows.com). Time Synch might not be completed due to heavy traffic or delays

from the Time Synch server.

	From	To	X
1	xxxx-01-01	xxxx-01-03	X
2	xxxx-03-01	xxxx-03-01	X
3	xxxx-04-01	xxxx-04-01	X
4			X
5			X
6			X
7			X
8			X
9			X
10			X

1/5

Press Holiday to set specific dates for Holiday setup. Set specific date by pressing button. Change and delete dates using and buttons.

Note: There are some Holidays fall on different days. Therefore, they have to be updated every year.

Note: When the DVR receives GPS after booting up, it updates the time and date automatically using GPS information.

2-1-3. MENU > SYSTEM > User

	User	Group	X
1	Administrator	Administrator	X
2	User	User	X
3			X
4			X
5			X
6			X

1/2

User Name:
Group: Administrator
Password: Setup

Press User Tab to enter/add a new user.

Auto Login: It allows a user to log in right after the system boots up automatically. As a system allows auto log in without the authentication process please make sure DVR has a limited access by non authorized personnel.

Auto Logout: Turn On or Off Auto Logout option.

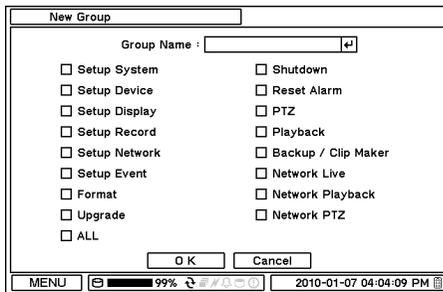
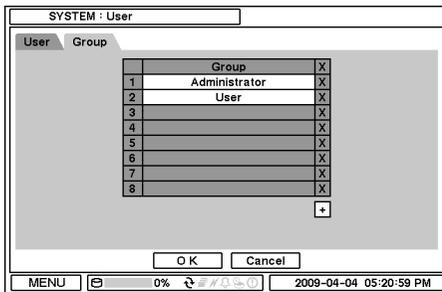
Press **[+]** to add a new user. To remove an existing user, press **[X]** next to it.

User Name: Enter a user name

Group: Select a Group which a new user will belong to

Password: Set a new password or change a password.

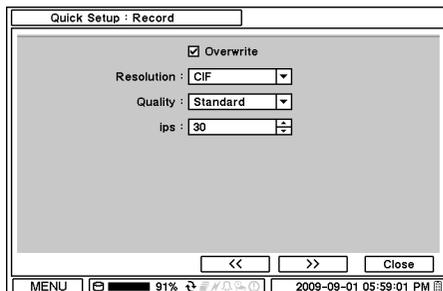
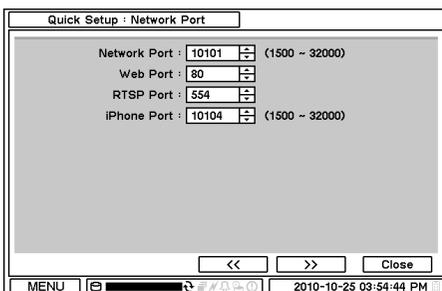
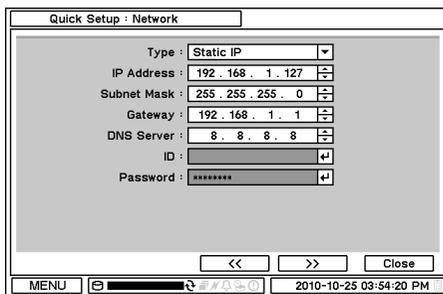
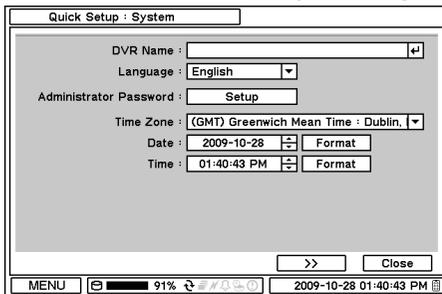
Note : DO NOT have to enter Current password when setting password for the first time as there is no default password for Administrator/User.

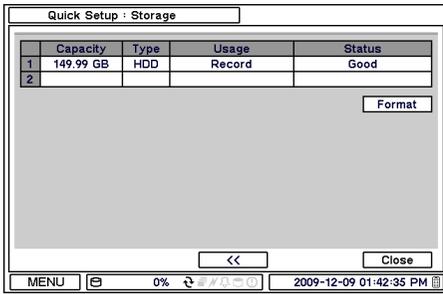


Set user registration and access rights for the system. Press Group tap to add and set group.

Press **[+]** to add a new group. Enter a group name and select access rights for a group. To remove an existing Group, press **[X]** next to it.

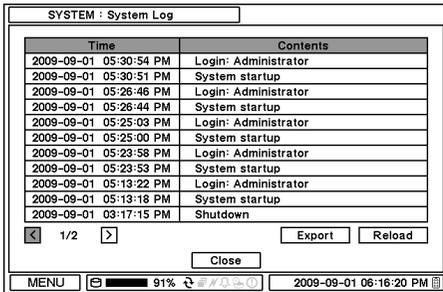
2-1-4. MENU > SYSTEM > Quick Setup





Quick Setup Menu allows easy and basic setup for main menu settings.

2-1-5. MENU > SYSTEM > System Log



In the System Log, full list of system logs can be searched.

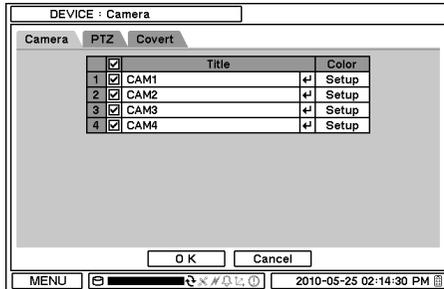
Press **Reload** button to refresh log list. USE **<** **>** button to search log list page by page.

Log list can be export in txt format.

2-2. DEVICE

Under Device menu, Device configuration options for Camera, Audio, Alarm, Keyboard and RS232 & RS485 (POS/PTZ) can be selected.

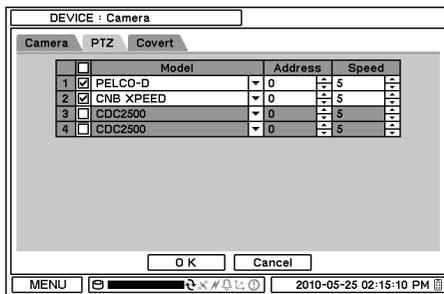
2-2-1. MENU > DEVICE > Camera



Set Camera display option. Camera display (video loss display) can be disabled by unmarking the box next to it if there is no camera connected. Press to change Camera title.

Press Setup button under Color to adjust video color. Click or drag a control box to adjust each color level.

PTZ Control



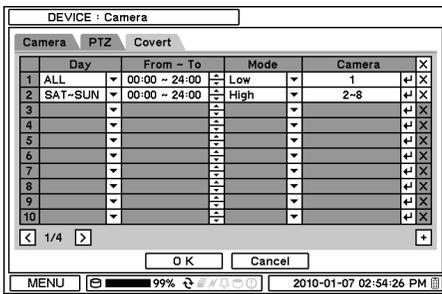
Select channel connected with PTZ camera. Select PTZ from the contextual menu appears by pressing right mouse button.

Note: PTZ can only be controlled in single screen mode.

Use icons on screen to control PTZ. By using a mouse, click arrows to move around PTZ and click icons for each functions of PTZ camera.



	Zoom Out
	Zoom In
	Focus on near distance
	Focus on far distance
	Save Presets
	Load Presets



Covert Setting

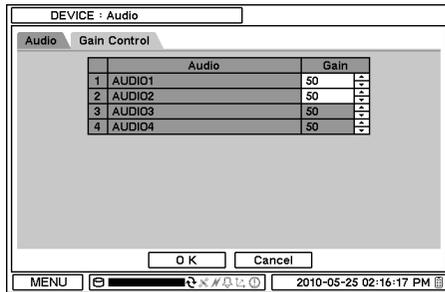
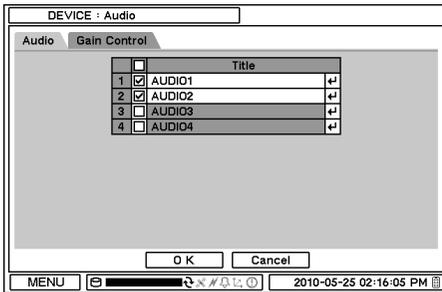
Covert setting allows the privacy on monitoring. If Covert is set, live image will not be displayed. Covert can be scheduled by day, time and mode by cameras.

Covert Low Mode: No display of video image on screen but OSD still remains on screen.

Covert High Mode: Neither of video image or OSD will be displayed on screen.

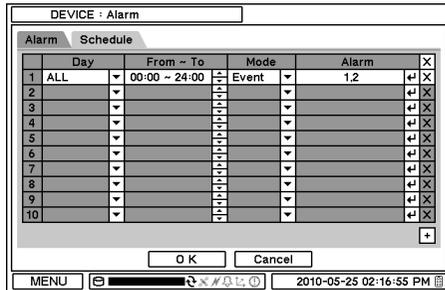
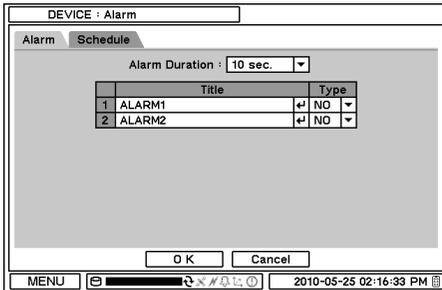
Note: Any Covert options will not affect recording data as it only changes monitoring conditions.

2-2-2. MENU > DEVICE > Audio



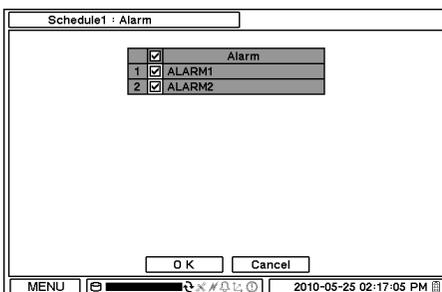
Select Audio for Audio recording. Gain Control Menu is available for Mic-In inputs only. (8/16 ch. DVR Only) Control Gain value using \uparrow/\downarrow button.

2-2-3. MENU > DEVICE > Alarm



Alarm duration: Set Alarm activation time from 5 seconds to 10 minutes.

Select Schedule tap to schedule Alarm operation. Alarm can be set by day, time, mode and inputs (camera).



Press \leftarrow to choose Alarms and set Buzzer with Alarm activation.

2-2-4. MENU > DEVICE > Keyboard

DEVICE : Keyboard

Keyboard Model : TB-CN3R1

DVR ID : 0

OK Cancel

MENU 0% 2009-04-04 07:58:26 PM

Press to find and select keyboard from the list.

2-2-5. MENU > DEVICE > RS232 & RS485

DEVICE : RS232 & RS485

	bps	Data Bit	Stop Bit	Parity	Usage
RS232	9600	8	1	None	Text-In
RS485	9600	8	1	None	PTZ

OK Cancel

MENU 0% 2009-04-04 08:00:44 PM

Press to select a device for each ports.

RS232: Supports Text In (POS) device. PTZ and Keyboard

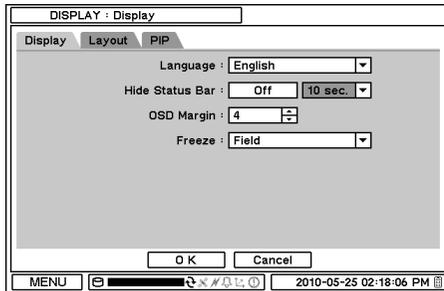
RS485: Supports Text In (POS) device ,PTZ and Keyboard.

Note: Text In devices (e.g. Cash Register) needs to use ASCII code for Text In info on DVR

2-3. DISPLAY

Under Display menu, Display configuration options for OSD and Monitor can be selected.

2-3-1. MENU > DISPLAY > Display

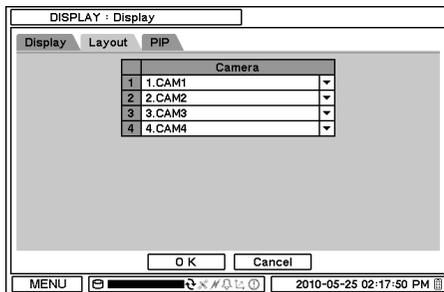


Language: Select system language. Press to find available language options.

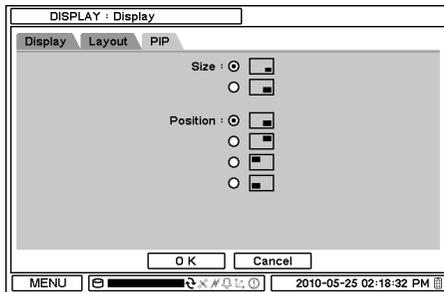
Hide Status Bar: Select On/Off and time to hide Status Bar when system is not in use.

OSD margin: Set OSD margin (position) using .

Freeze: Display an image in either Field or Frame format when it is in still (freeze) mode.

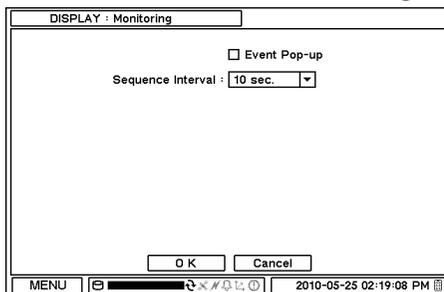


Layout: Allows to change or reallocate video inputs' (cameras) displays.



PIP (Picture In Picture) size and its display positions can be selected under PIP menu. Please select desired size and positions of PIP display.

2-3-2. MENU > DISPLAY > Monitoring



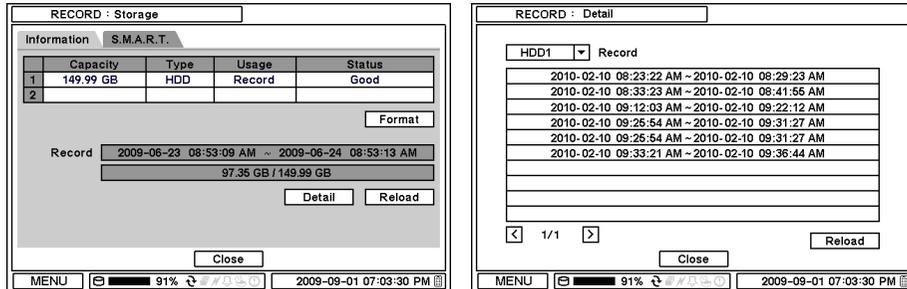
Event Pop-up: Pops up the camera image in full screen when pre-set event occurs.

Sequence Interval: Set time interval between cameras under sequence mode.

2-4. RECORD

Under Record menu, Record configuration options for Storage, Record and Record Tools can be selected.

2-4-1. MENU > RECORD > Storage



In Storage, it displays the installed/connected storage status such as Capacity, Type, Usage and Status.

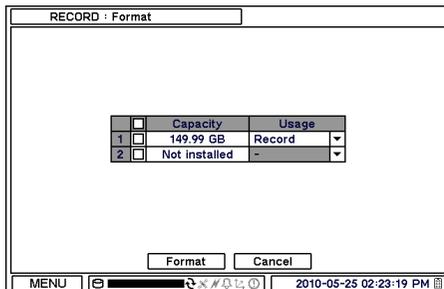
Format: Press Format to format selected HDD.

Record: Displays the recording period and data stored on HDD.

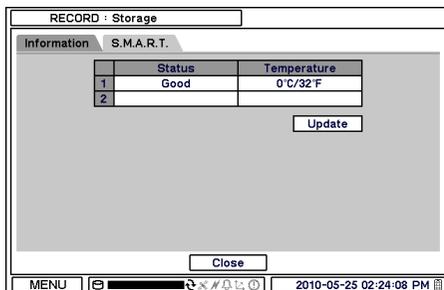
Detail: Displays the detail information of data stored on HDD

Note: The unit will start and record automatically when turn on the ignition if it is installed properly. It will take about 20-30 seconds for the boot up and start recording based on the pre set up options.

If the temperature below -0°C (32°F), the unit will start recording after HDD is heat up by our built in heating sensor. If SD card is installed with HDD. It will start recording on SD Card while HDD is being heat up. Once HDD is ready to record the data, it will stop the recording on SD and automatically starts recording data on HDD.



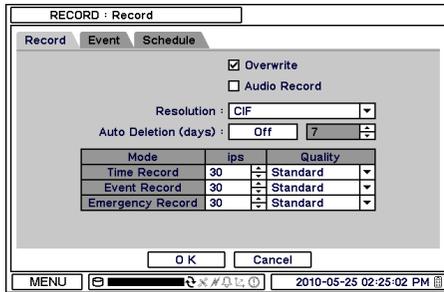
Note: Any changes or mis-installation of HDDs will stop mirroring and turn the system into recording only mode.



In S.M.A.R.T, HDD status are being displayed including its temperature. Click Update to get the latest status.

Mirroring allows recording data on two HDDs simultaneously. This will prevents unexpected lose of recording data due to HDD or system failure.

2-4-2. MENU > RECORD > Record



In Record, general recording options can be selected including overwrite, resolution, speed, recording quality and etc.

Overwrite: Select Overwrite to overwrite recorded HDD data when it is full.

Audio Record: Select Audio Record to record audio with video image.

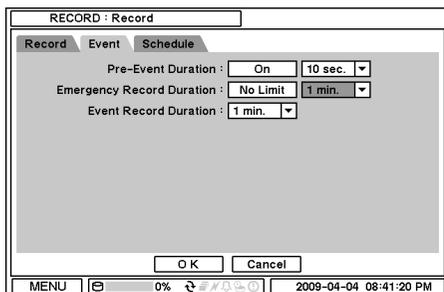
Resolution: Select recording resolution.

Auto Deletion(days): Turn on Auto Deletion to delete any data older than the defined days automatically.

Time Record: Set ips/quality for continuous recording

Event Record: Set ips/quality for event recording

Emergency Record: Set ips/quality for emergency recording mode.

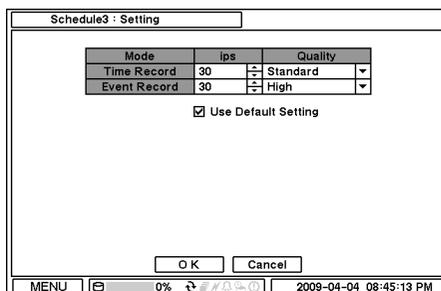
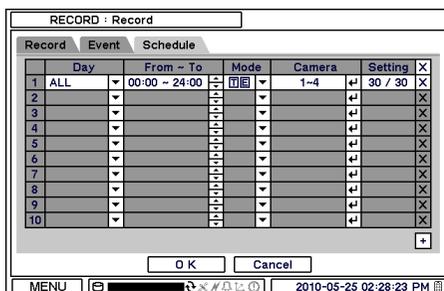


In Event, pre and post recording options for Event can be set.

Pre-Event Duration: Video Images occurred right before an Event can be recorded by setting Pre-Event under Event Mode. Duration Pre-Event recording can be set using Pre-Event(sec) upto 30 seconds.

Emergency Record Duration: Time duration can be set for Emergency recording from 5 seconds to 30 minute or continuously by selecting No Limit option.

Event REC Duration: Set recording duration for events up to 30 minutes.

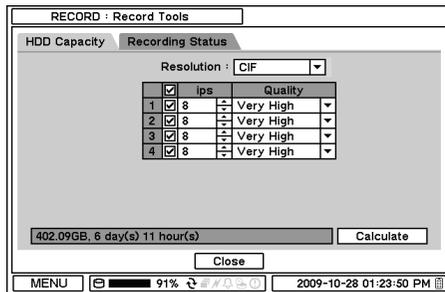


In Schedule, fully detailed and specified recording schedules can be set by day, time, modes, cameras and recording options.

Press **[+]** to add a new schedule. To remove an existing schedule, press **[X]** next to it. Press Setting to set recording options.

Use Default Setting: Check Use Default Setting to follow main recording setting under Record menu.

2-4-3. MENU > RECORD > Record Tools



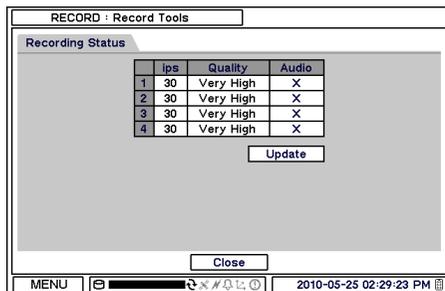
In Record Tools, estimated HDD usage and recording period can be calculated. Press Calculate once resolutions, ips, number of cameras and quality are set. The recording period is calculated based the size of HDD installed.

The GB size shows the HDD size requires for a day recording. Day and Hours shows the period can be recorded based on the installed HDD size.

Note: The calculation results show approximate data only. Same frame rate and video quality does not guarantee same storage size and recording duration. This is due to the variety of conditions on images such as more/less colors or more/less movements. This situational variance will affect the file sizes more at lower frame rate settings.

Note: Changes Ips manually. It does not change Ips according to the change of resolution.

Note: approximate size for each resolution – CIF: 360X240, Half D1: 720x240, D1: 720x480



In Recording Status, current recording options and status are displayed.

2-5. NETWORK

Under Network menu, Network configuration options for network Address, DDNS, Remote Notification and Transmission can be set up.

2-5-1. MENU > NETWORK > Address

	Live	Playback	Setup
Port	10101	10102	10103

	Web	RTSP	iPhone
Port	80	554	10104

In Address, Information such as Type, IP address, Subnet Mask, Gateway Port and DNS can be set for network connections.

Type: Select the type of network configuration from: Static IP, DHCP and ADSL(with PPPoE).

IP Address: Enter IP address using button.

Subnet Mask: Enter Subnet Mask using button.

Gateway: Enter Gateway using button.

DNS: Set up the IP address of the DNS server. If you set up the DNS Server, the domain name of the DVRNS server instead of the IP address can be used during the DVRNS Server setup.

In Port, Select appropriate port number for external access to the system. The port list shows necessary ports to be opened for each operations.

Network Port: Set port for DVR Remote Client.

Web Port: Set port for Web Remote Client.

RTSP Port: Set port for Android based devices.

iPhone Port: Set port for iPhone.

Note: ID and Password are required in ADSL(with PPPoE) type.

Note: Default TCP port is 10101 but it can be set from 1500 to 32000 if it is necessary.

2-5-2. MENU > NETWORK > DDNS

In the DDNS, network options for DDNS can be selected.

DDNS: Dynamic Domain Name Server allows dynamic network connections.

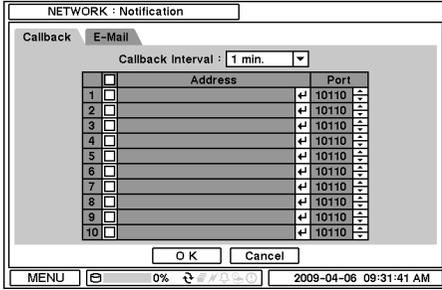
Note: "dvr-ddns.com" and "www.dyndns.org" offer free registrations for DDNS service. Please refer to the appendix for DDNS set up page.

Host Name: Name the DVR or site where it is located using the virtual keyboard by pressing .

ID/Password: ID and Password are required for Authentication.

Note: Use ID/Password registered in DDNS.

2-5-3. MENU > NETWORK > Notification

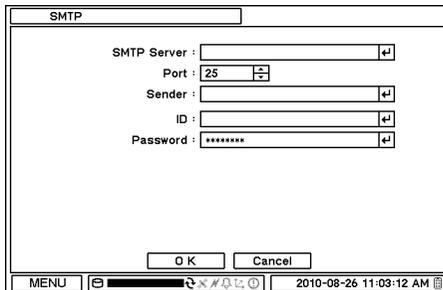
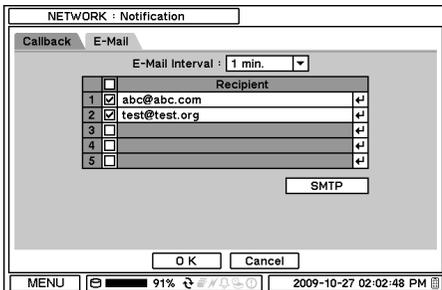


In Callback, set up IP addresses of client sites so that Events detected in local system can be notified to multi remote client sites simultaneously. Enter IP addresses of client sites to receive events notifications on remote sites. Press to pop up the virtual keyboard.

Callback Interval: Select Callback Interval to set time interval between consequential events

being sent to remote site.

Note: Any events occur between the pre-set interval time will not be sent to remote site. e.g. If the interval is set as 30 seconds, only the events occur every 30 seconds since the first event will be sent to remote site.



In Email, Events can be notified to personal email addresses by text message.

E-Mail Interval: Select E-Mail Interval to set time interval between consequential events being sent to remote site via email.

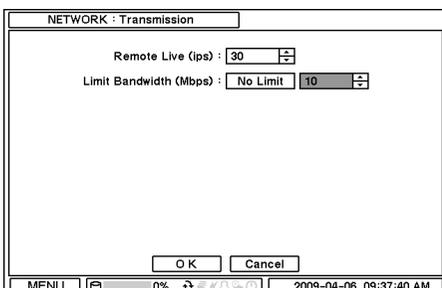
Recipient: Enter the email address of a recipient. Up to 5 recipients can be entered.

Note: Any events occur between the pre-set interval time will not be sent to remote site. e.g. If the interval is set as 30 seconds, only the events occur every 30 seconds since the first event will be sent to remote site via email.

SMTP Server: Enter SMTP server using the virtual keyboard. SMTP server information can be obtained from a system administrator.

Sender: Enter the address/name where the email is being sent from.

2-5-4. MENU > NETWORK > Transmission



In Transmission, Network transmission can be controlled with ips and bandwidth.

Note: Max. ips on Network transmission is 60ips(NTSC)/50ips(PAL)

2-6. EVENT

Under Event menu, events can be set in synchronization with Sensor, Motion, Video Loss, Text-In, System,

2-6-1. MENU > EVENT > Sensor

	Title	Type
1	SENSOR1	NO
2	SENSOR2	NO

In Sensor, each sensor can be selected for activation and its type. Select Sensor Type using button.

NC: Normally Closed

NO: Normally Opened

	Sensor	Record
1	SENSOR1	1
2	SENSOR2	2

	Camera
1	<input checked="" type="checkbox"/> CAM1
2	<input type="checkbox"/> CAM2
3	<input type="checkbox"/> CAM3
4	<input type="checkbox"/> CAM4

In Record, each sensor can be synchronized with single and multi cameras. Press to select cameras to be synchronized with sensors.

	Sensor	Alarm
1	SENSOR1	1
2	SENSOR2	1

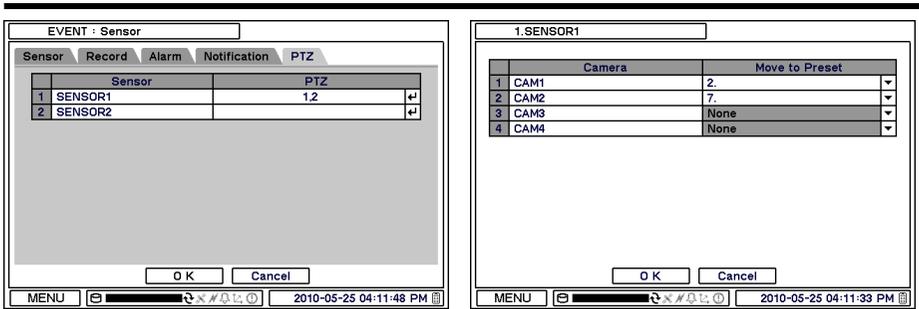
	Alarm
1	<input checked="" type="checkbox"/> ALARM1
2	<input type="checkbox"/> ALARM2

In Alarm, each sensor can be synchronized with single and multi alarms. Press to select alarms to be synchronized with sensors.

	Sensor	Notification
1	SENSOR1	2.11
2	SENSOR2	2.11

	Callback	E-Mail
1	abc.com	<input checked="" type="checkbox"/> abc@abc.com
2	123.123.45.231	<input type="checkbox"/>
3		<input type="checkbox"/>
4		<input type="checkbox"/>
5		<input type="checkbox"/>
6		<input type="checkbox"/>
7		<input type="checkbox"/>
8		<input type="checkbox"/>
9		<input type="checkbox"/>
10		<input type="checkbox"/>
11		<input checked="" type="checkbox"/> abc@abc.com
12		<input type="checkbox"/>
13		<input type="checkbox"/>
14		<input type="checkbox"/>
15		<input type="checkbox"/>

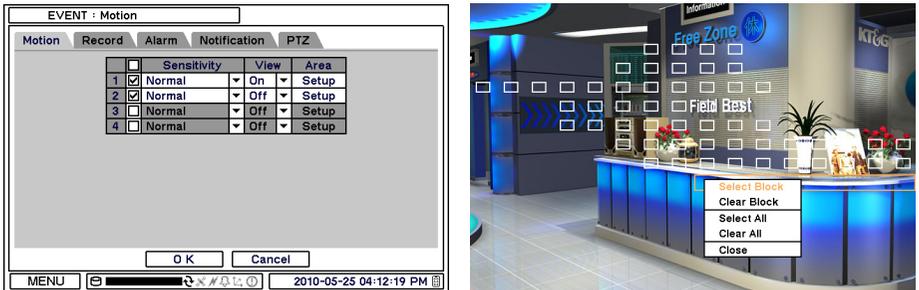
In Notification, each sensor can be synchronized with single and multi callback or emailing sites. Press to enter callback or email address to be synchronized with sensors.



PTZ can be sync with Event using its preset function. If Event occurs, PTZ moves to the position where event and positions are pre set. The above menu shows, Sensor 1 is set to sync to cameras 1,2. If you click PTZ section, PTZ preset (position) can be set for cameras in the event of Sensor activation.

PTZ event related preset can be synch only with Sensor/Motion/Video Loss events. If there are multi events occur to a camera at same time, it takes events in order of Sensor > Motion > Video Loss.

2-6-2. MENU > EVENT > Motion



In Motion, system provides Motion Detection function. Set Motion Detection using Sensitivity, View and Area options.

Sensitivity: Select motion sensitivity from Very Low to Very High.

View: On or Off the appearance of motion zones on screen when motions is detected.

Area: Define the area for motion detection.

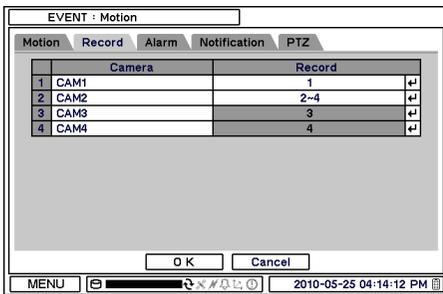
Press Setup under Area to define motions detection areas. The blocks indicate the area where is defined for motion detection

Select Block: Use arrow keys to move around a box. Select individual blocks to set motion zones. Use number keys to select and unselect blocks (When using a mouse, use a left button).

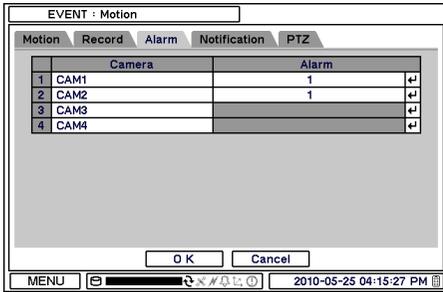
Clear Block: Unselect all blocks inside a box

Select All: Select blocks on entire screen.

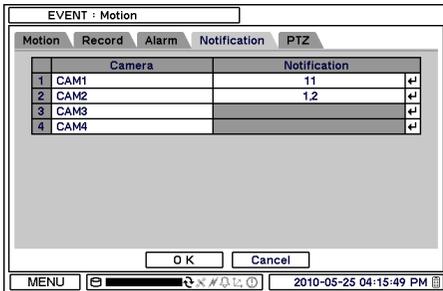
Clear All: Unselect blocks on entire screen.



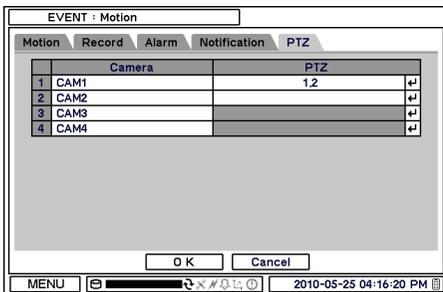
In Record, each camera can be synchronized with single and multi motion detections from other cameras. Press **[↔]** to select cameras to be synchronized with motions detections.



In Alarm, each camera with motion can be synchronized with single and multi alarms. Press **[↔]** to select alarms to be synchronized with cameras for motion events.



In Notification, each camera with motion can be synchronized with single and multi callback or emailing sites. Press **[↔]** to enter callback or email address to be synchronized with cameras for motion events.



PTZ can be sync with Motion event using its preset function. If Motion is detected, PTZ moves to the position where event and positions are pre set.

2-6-3. MENU > EVENT > Video Loss

EVENT : Video Loss

Record Alarm Notification PTZ

	Camera	Record	
1	CAM1	2,3	↵
2	CAM2	1	↵
3	CAM3		↵
4	CAM4		↵

O K Cancel

MENU [Icons] 2010-05-25 04:17:22 PM

In Video Loss, single or multi cameras can be synchronized for event recording when there is a video loss. Press to select single or multi cameras to be synchronized with cameras for video loss.

EVENT : Video Loss

Record Alarm Notification PTZ

	Camera	Alarm	
1	CAM1	1	↵
2	CAM2	1	↵
3	CAM3	2	↵
4	CAM4		↵

O K Cancel

MENU [Icons] 2010-05-25 04:17:47 PM

In Alarm, each camera with video loss can be synchronized with single and multi alarms. Press to select alarms to be synchronized with cameras for video loss.

EVENT : Video Loss

Record Alarm Notification PTZ

	Camera	Notification	
1	CAM1	1	↵
2	CAM2	11	↵
3	CAM3		↵
4	CAM4		↵

O K Cancel

MENU [Icons] 2010-05-25 04:18:12 PM

In Notification, each camera with video loss can be synchronized with single and multi callback or emailing sites. Press to enter callback or email address to be synchronized with cameras for video loss.

EVENT : Video Loss

Record Alarm Notification PTZ

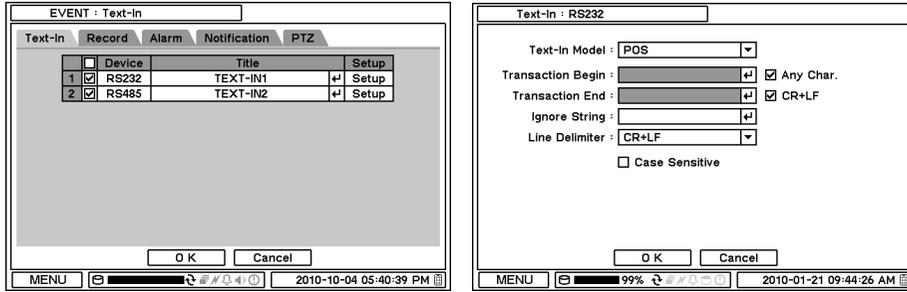
	Camera	PTZ	
1	CAM1	1,2	↵
2	CAM2		↵
3	CAM3	2	↵
4	CAM4		↵

O K Cancel

MENU [Icons] 2010-05-25 04:18:38 PM

PTZ can be sync with Video Loss event using its preset function. If Video Loss occurs, PTZ moves to the position where event and positions are pre set.

2-6-4. MENU > EVENT > Text-In



The system allows Text In from POS/ATM machines.

Note: For use of POS/ATM, the system must support general ASCII code.

Text-In Model: Select Text-In model from the list

Transaction Begin: Enter a word which the transaction info to be displayed on screen as a start.

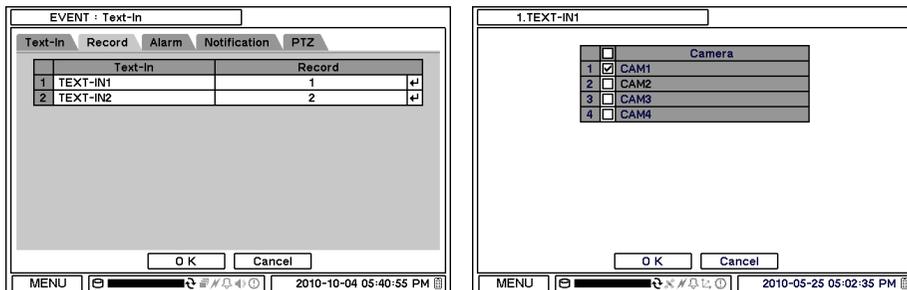
Any Character: Check Any Character to start display a text with any character as a start.

Transaction End: Enter a word of last line where the transaction info to be displayed on screen as the end. If you want additional lines to be displayed after the transaction end, select more line options.

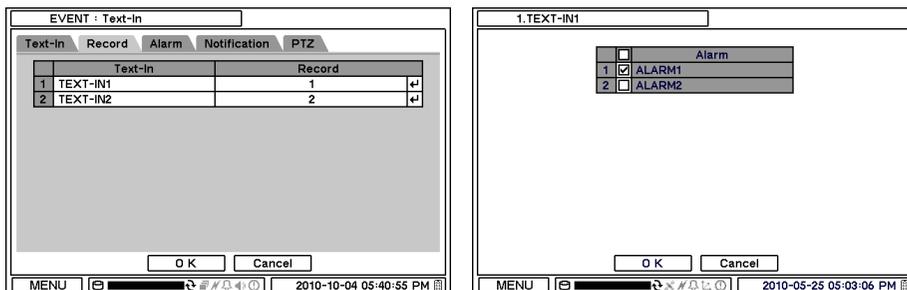
Ignore String: Enter a word to ignore strings includes selected word.

Line Delimiter: Enter a symbol or a word to distinguish the end of lines.

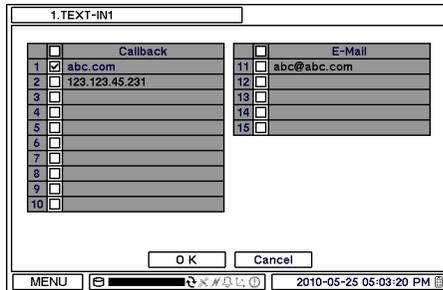
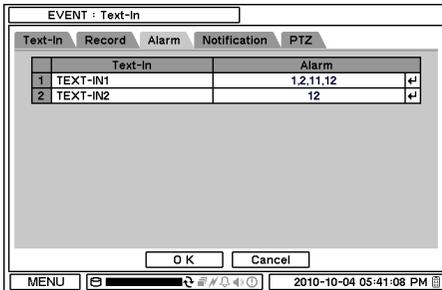
Case Sensitive: Select Case Sensitive option if distinguish a word with case sensitivity.



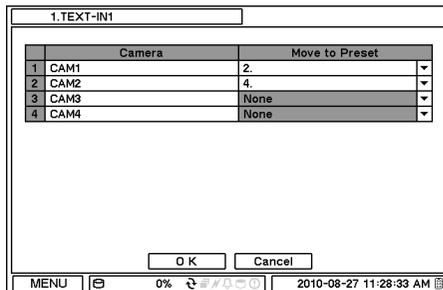
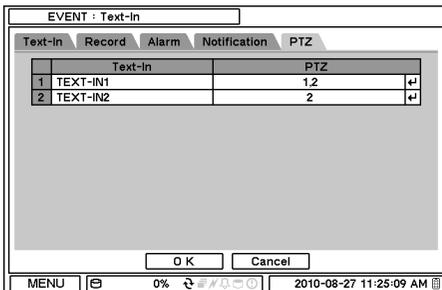
In Record, text event can be synchronized with single or multi camera record. Press to select camera(s) to be synchronized with text event. If RS232/RS485 Port are being used at the same time, it has to be used for different cameras. For example, if RS232 is set for cameras 1~12, RS485 should be set with 13~16. They can't share same cameras.



In Alarm, text event can be synchronized with single or multi alarms. Press to select alarms to be synchronized with text event. If B is selected, system will buzz on alarm detections.

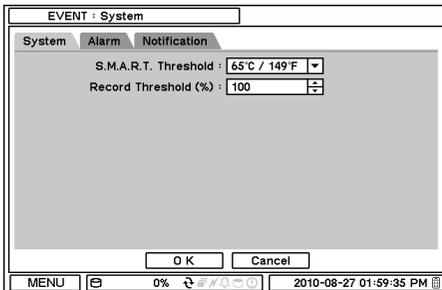


In Notification, text event can be synchronized with single and multi callback or emailing sites. Press to enter callback or email address to be synchronized with text event.



In Text In, each text input can be synchronized with single and multi cameras. Press to select cameras to be synchronized with text inputs.

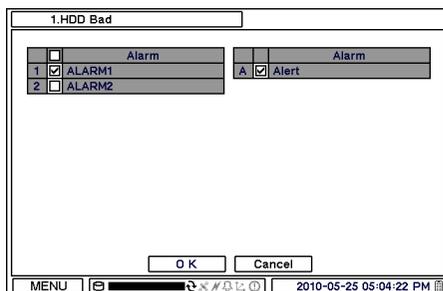
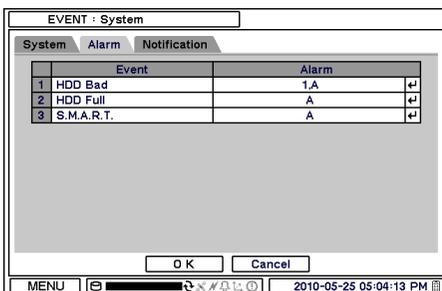
2-6-5. MENU > EVENT > System



In System, S.M.A.R.T function monitors storage conditions such as Temperature, Conditions and Recording.

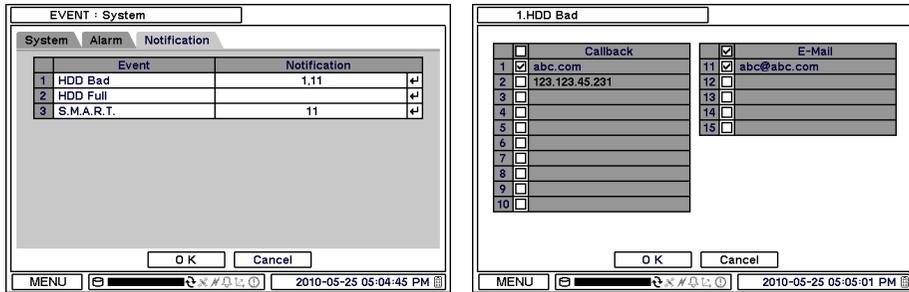
S.M.A.R.T Threshold allows to pre set tolerable temperature level of storage. If HDD temperature increases over pre set temperature, it will notify a user in various ways according to following settings.

Record Threshold option can be set to notify a message for the indication of HDD storage usage level. Warning message can be notified in various ways as described below.



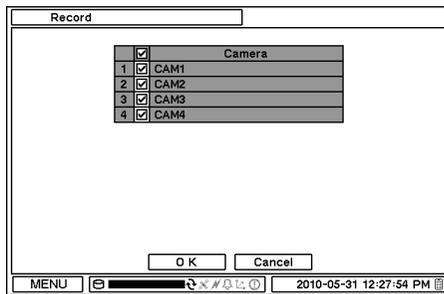
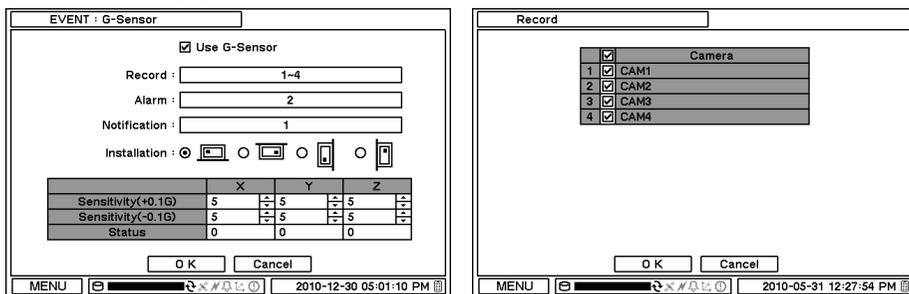
In Alarm, each system event can be synchronized with single and multi alarms. Press to select alarms to be synchronized with each event. If Alert is selected, system will pop up a

warning message on screen.



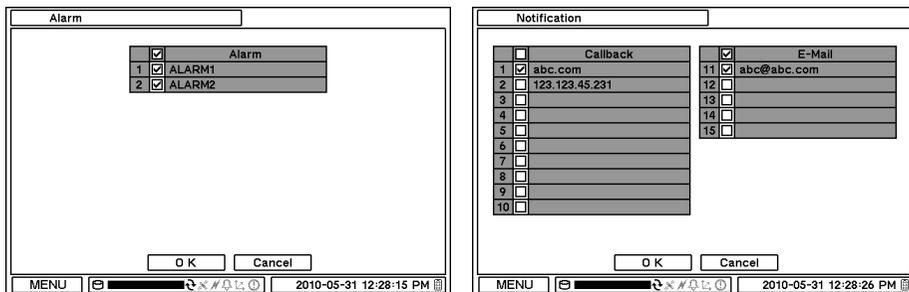
In Notification, each system events can be synchronized with single and multi callback or emailing sites. Press to enter callback or email address to be synchronized with system events.

2-6-6. MENU > EVENT > G-Sensor



Built-in G-Sensor, it detects, Quick Start, Quick Stop and Traffic Accident.

It allows to associate with Recording, Alarm and Event Notification using detected information.



Use G-Sensor : Enable or Disable to use G-Sensor

Record: Associate with G-Sensor, select the camera that you will record.

Alarm: Associate with G-Sensor, select the Alarm that you will output

Notification: Associate with G-Sensor, select the Address that you will send.

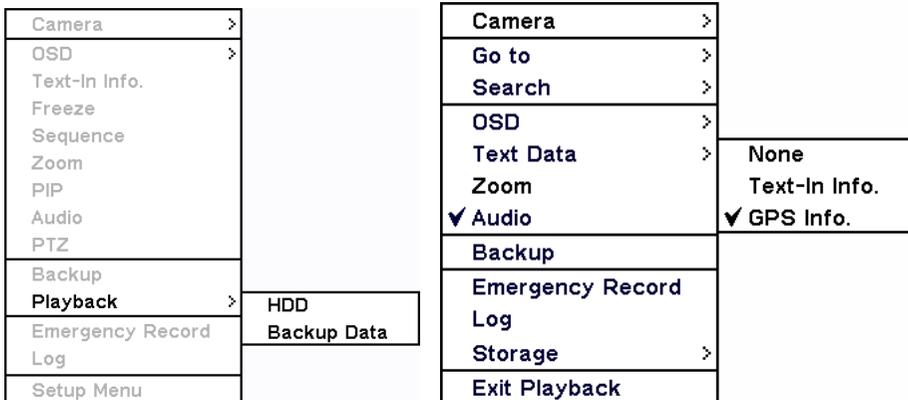
Installation: DVR needs to be installed as shown in the first image. **Following other reference images, only if SD or SSD is being installed.**

Sensitivity: Set G-sensor's sensitivity level from $\pm 0.1G$ to $\pm 3G$ (1 to 30 under menu option) for each X, Y, Z axis. The default sensitivity level is $5(\pm 0.5G)$.

Any shocks or vibration bigger than the pre set G sensor sensitivity level will be detected and recorded as an event. This G-sensor related event can also be sync with Recording, Alarm and Remote Notification as any other events options.

3. Playback

The system provides various playback menu to search recorded data. Please click right Mouse button on Search Mode and select the storage type. If backup data is selected, the data on external HDD can be searched.



Note: To see the GPS information during playback, Contextual Menu -> Text Data -> Select GPS Info.

Camera : Select camera no.

Go to : Search recorded data by time/date. Move to the beginning or end of recorded data. Also search data by 5/10/15/30/60 seconds backward from the current time of search.

Search : Select Calendar Search, Event Search and Text In Search

OSD : Select OSD display option

Text Data: Select Text display option for Text-In Info. and GPS Info.

Zoom : Zoom in image by X2

Audio : Select Audio outs

Backup : Select backup or Clip Copy option

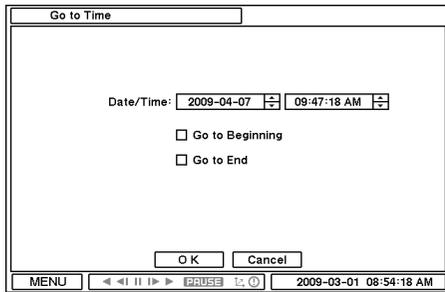
E. Record : Start Emergency Recording

Log : Select System/Event log

Storage : Select playback storage option

Exit Playback: Exit Search Mode and return to Live Mode

3-1. Go to Time

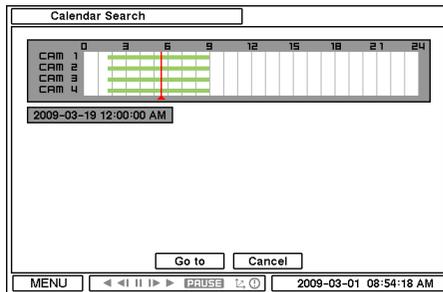
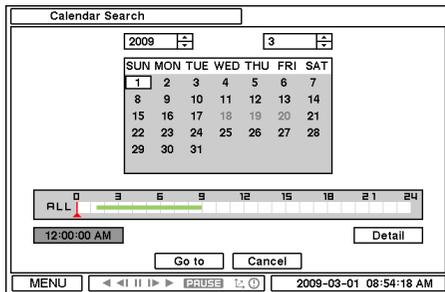


Select Go to Time to search recorded data by time/date. Set time/date using [F5] button. Go to Beginning and End options are selectable to search the very first and last data recorded. Once desired settings are completed, press OK to begin playback.

Go to Beginning : Move to the very first recorded data.

Go to End : Move to the latest recorded data.

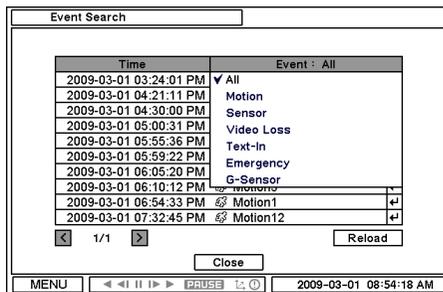
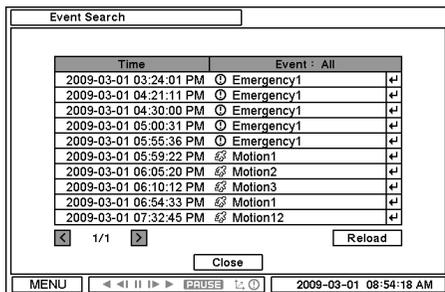
3-2. Calendar Search



Calendar Search provides easy graphical search by displaying numbers (dates). Dates with recorded data will be highlighted. Once you select the date, it will display record time table below. The numbers on the top of the table shows the time frame in 24hours format, and titles on the left indicate cameras numbers. The color bar shows the full information of recorded data on the selected date. Move the indicator (line) to select specific recorded time of the selected date. For a detail display of recorded data please press Detail.

Once desired settings are completed, press Go To to begin playback.

3-3. Event Search



Event Search provides easy search by event list recorded. Select the date and type of event to find specific data. Press Event: All section on the top of the list to display event search options.

All: System displays every event

Motion: System displays every events related to Motion

Sensor: System displays every events related to Sensor

Video Loss: System displays every events related to Video Loss

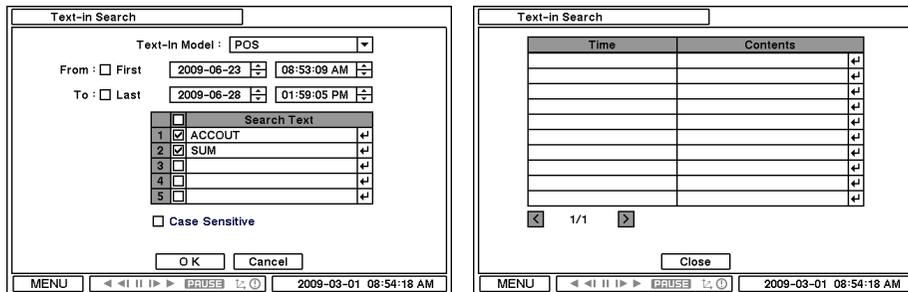
Text-In: System displays every events related to Text In

Emergency: System displays every events related to Emergency Recording

G-Sensor: System displays every events related to G-Sensor

Once find specific list of event, move up and down button to highlight the log and press it to playback the event data.

3-4. Text-In Search



Text In Search provides easy search by transactions. Search for Time and Transaction information. Press Search for detail information.

Text In Model: Select a model type for Text In

From: Set beginning time to start search or select First for search from the first data.

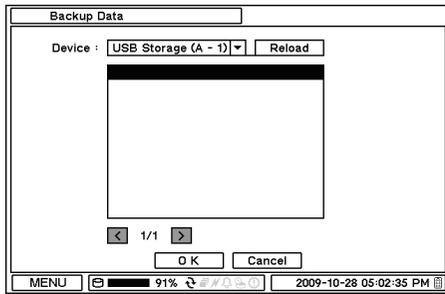
To: Set end time to end search or select Last for search to the last data.

Search Text: Enter any words to search text data include the words.

Case Sensitive: Select Case Sensitive option if distinguish a word with case sensitivity.

Once entering all the search information, press OK to start Text In search.

3-5. Backup Data Playback



Backup files on backup medias can be played on DVR. Insert the media with backup files and select a file to playback it on DVR.

3-6. Playback Control



R.Play: Reverse Playback

Step Backward: Go to the previous image

Pause: Freeze or Stop current image

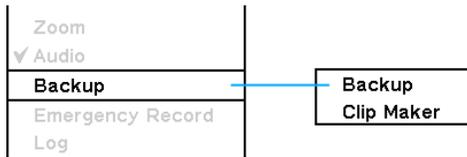
Step Forward: Go to the next image

Play: Play the data at normal speed

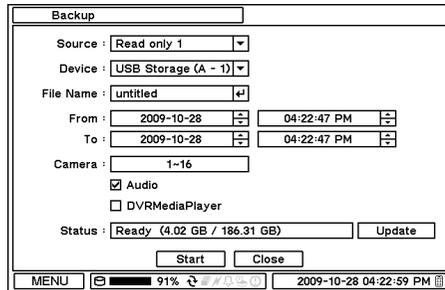
To control the backward and forward playback speed, press on ◀ or ▶ repeatedly. Playback speed can increase up to x32.

4. Backup

Recorded data can be backed up on USB Flash memory. Select backup or Clip Copy option during Search or Live mode by selecting Backup.



4-1. Backup



In the BACKUP, the recorded data can be selected for backup to USB devices.

Press USB Device to select the type of USB Device connected to the system.

Select date & time period of data to be backup using button.

Select Camera number to be backup or All to backup all the data recorded during the selected period. To back up recorded Audio with video data together select Audio.

Status shows capacity of the device being prepared for backup, and it will show backup progress during backup.



The files saved (backup) in DVRMediaPlayer (.exe) format allows multi camera backup and the files would not require any specific codec for playback on PC. To open and play a file saved in DVRMediaPlayer (.exe), double click the file and it will automatically be played on Internet Explore window. This fuction is supported only on Internet Explorer 7.0 or above.

Note: The backup process could be slowdown if the system is being monitored/playback on the remote using the client program during the backup process.

Note: "DO NOT remove the back up media while the data backup is being processed. It may cause critical damage to either the media or system if the backup media is removed during the backup process."

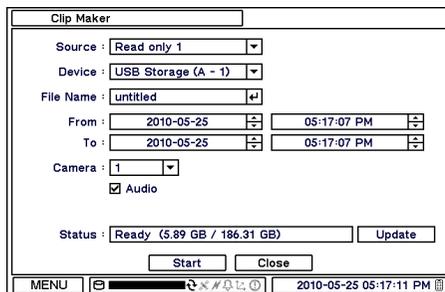
4-2. Instant Backup

Press backup button to start Instant Backup during the playback. Instant Backup window will appear when press backup button during the normal playback mode. Select Device, File Name, Audio and press Start to continue the playback and backup. The Backup Icon will appear on the screen during the Instant Playback. Press backup button one more time to stop and complete Instant Backup.

Note: "DO NOT remove the back up media while the data backup is being processed. It may cause critical damage to either the media or system if the backup media is removed during the backup process."

Note: Playback speed will be slower than usual while instant back up is processing.

4-3. Clip Maker



Clip Maker allows to create single channel backup file which can be played on PC. Select Clip Maker option on the pop up menu during the live or pause mode on the playback.

Select the backup option for Clip Maker. Press **Start** button to create Clip Maker. Use Quick Time player to play the file created using Clip Maker

Note: The Clip Maker file can not be played on other programs such as Window Media Player.

Chapter 4. Remote Software NEMON

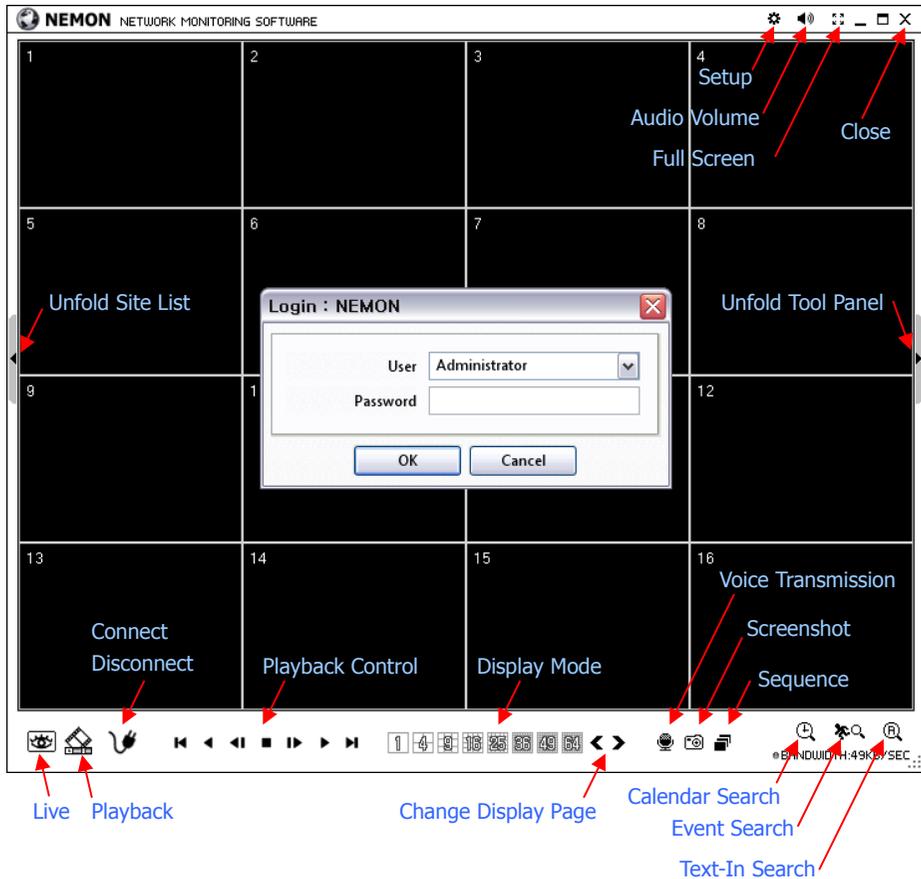
1. Using NEMON

1-1. Starting the Software

Double click on 'Nemon2' icon on PC to run the software.

Main screen of the remote software appears as shown below.

Note: A minimum resolution should be more than 1024 x 620; and a recommendable one is over 1280 x 1024.



The Log In window will appear when Nemon program starts. Select user level as each user will have different authority level over the system control depend on the pre set up. Enter OK once the user level is selected as the default password is 'none'.

Live: Click the image to enter the live mode.

Playback: Click the image to enter the playback mode.

Connect / Disconnect: Click button to connect a site as live or playback mode.

Playback Control: Use buttons to control playback images. (Stop, Move by Image, Play, Rewind/Forward, and Move to First/End)

Display Mode: Select display modes. (single screen, 4, 9, 16, 25, 36, 49, 64 and full screen)

Change Display Page: Change Display Mode to Previous or Next page in camera order.

Voice Transmission: Click button to transmit remote voice to the local DVR.

Screenshot: Capture the current screen and save it as a image file.

Sequence: Display images on pre selected sites in sequence mode.

Setup: To change set up on Nemon S/W or a remote DVR.

Audio Volume: Click Audio icon to select audio volume and mute options.

Select a camera to receive Audio of the selected camera (highlighted in border lines).

Full Screen: Display image on full screen mode.

Close: Click the icon to close the software

The below options are only selectable under playback mode.

Calendar Search: Search data on a graphic calendar and time table.

Event Search: Search data using recorded event logs.

Text-In Search: Search data using recorded Text-In data from POS/ATM device.



Backup: Shows backup options as below:

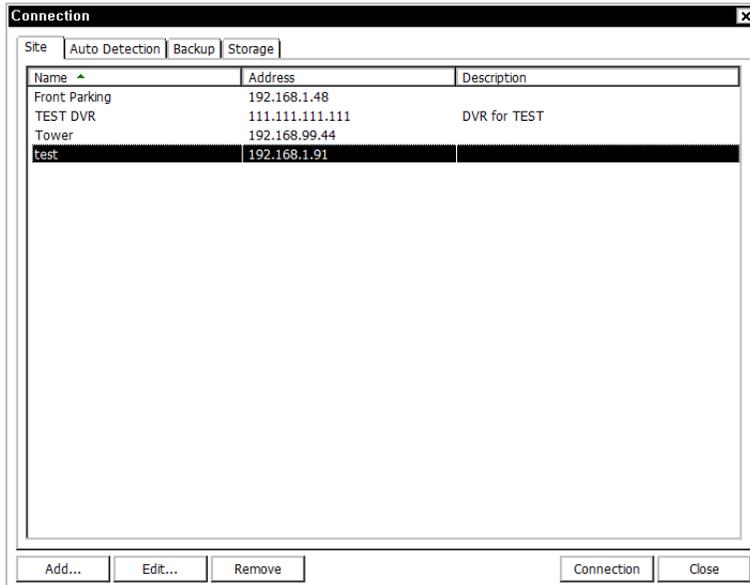
- **Save as MP4:** Save the recorded data in MP4 file format.
- **Backup:** Backup the recorded data.



Storage: Select a storage type installed in the connected DVR. Either recording HDD or Archiving HDD can be selected for playback.

1-2. Site Set Up

Click **Connect** button to display registered remote locations or add new locations.



Click **Add** button to add remote location and required information.

The screenshot shows a window titled "Add Site" with a close button (X) in the top right corner. The form contains the following fields and options:

- Name: TEST DVR
- Address: 111.111.111.111
- Port: 10101
- Description: DVR for TEST
- Auto Login
- User: Administrator (dropdown menu)
- Password: (empty text field)
- Layout: No Change (dropdown menu)

At the bottom of the window, there are buttons for "OK" and "Cancel".

Name: Enter Site Name

Address: Enter IP address or domain name of the site

Port: Enter port number if there is a specific port to be set for the software

Description: Enter the description of the site

Auto Login: If do not want the Log In window to be popped up every time starting the remote S/W, check Auto Login to skip User/Password authentication process

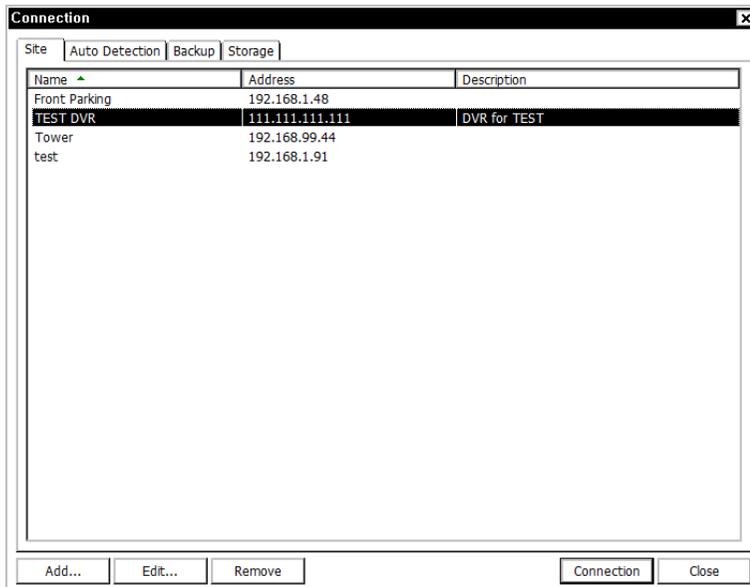
User: Select the type of user from the list

Password: Enter the password of DVR

Layout: Select desired display layout for the site when it is connected

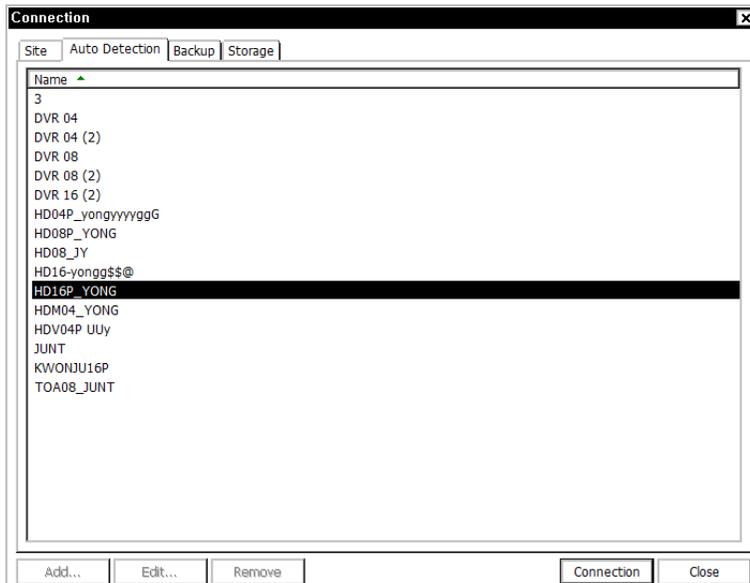
Note: Layout can be changed after begin connected using the display option on the menu.

Click **OK** to save information and complete the registration. Double click the location or Highlight it and click **Connection** button to get connected to the site.



The DVR and Client program on PC start searching each other once they are on the same local network. The Auto Detection menu shows the DVRS detected on the same local network.

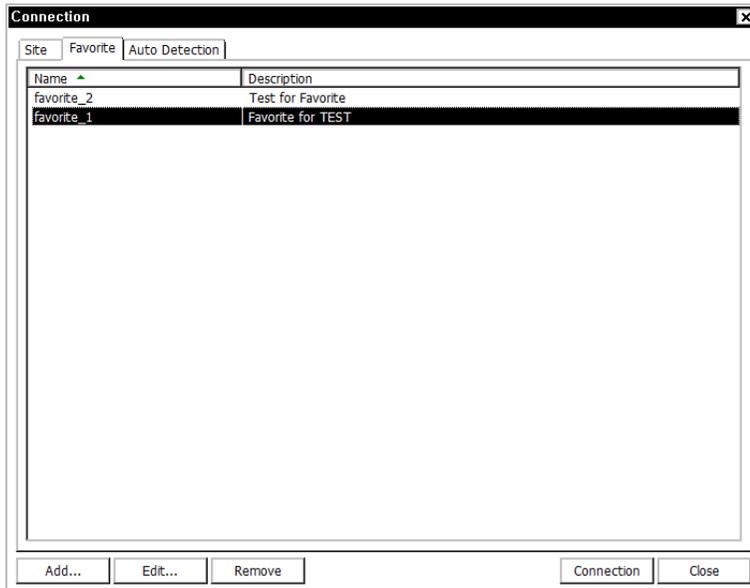
Note: This function is only available on local networks. No settings are required if both DVR and PC use DHCP. But if the Static IPs are used, DVR and PC need to have same subnet info and with different static IP addresses.



Note: Auto Detection finds DVRs on the local network automatically. To use this function, Apple® Bonjour® needs to be installed in PC. Please refer to <http://www.apple.com/bonjour> for more details and download.

1-3. Favorite Set Up

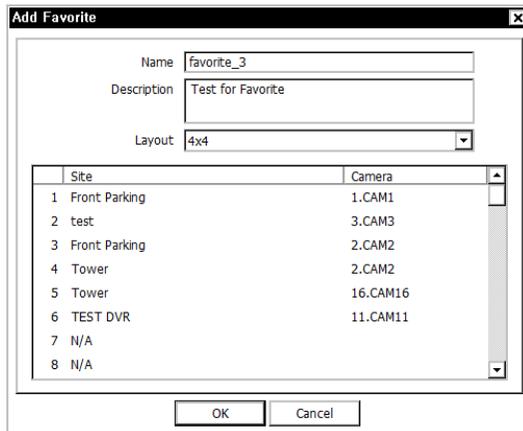
Favorite function allows multi site management. Up to 64 different cameras and sites can be monitored and managed on one screen. Select **Favorite** tap.



Click **Add** button to group multiple sties as one favorite group.

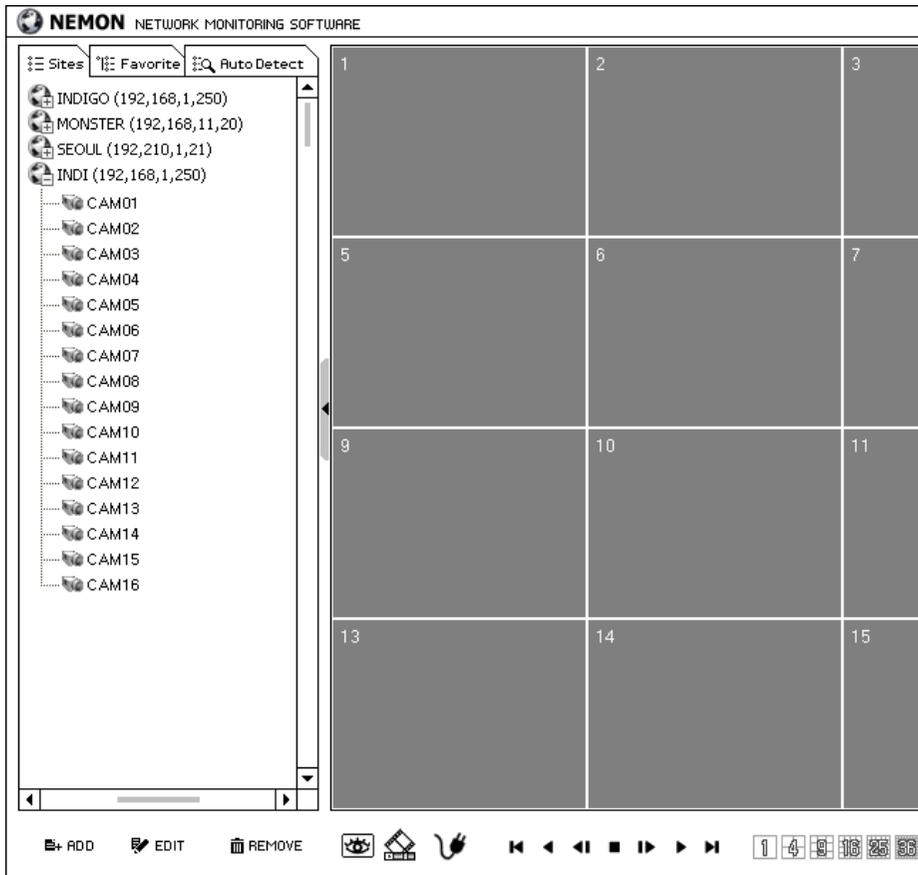
Enter the group name and description. Up to 64 different cameras or sites can be grouped and displayed together. Select sites and cameras from the drop down list by clicking button.

Note: Sites should be registered under 'Site' menu before setting the favorite.



1-3. Site List Panel

The remote sites also can be registered on Site List Panel. Use **ADD** , **EDIT** , **REMOVE** buttons on the bottom to register and managed the remote sites and favorite sites.



Drag and Drop the listed sites on to the display section to connect the sites. Each camera can be dragged and dropped to arrange independent displays. This allows making a display by a group of cameras from the different sites.

Once the group of cameras from the different sites has been set, move Favorite tap to save this new setting as a new Favorite site.

Note: Each camera can be dragged and dropped onto displays only in Sites. (not Favorites and Auto Detection)

Note: Camera positions (CH locations) can be exchanged or move around by Drag & Drop.

1-4. Tool Panel

1-4-1. DVR Status

DVR tap shows Video Loss, Motion Detection, Sensor Detection status of currently connected remote site. User can activate a remote alarm on DVR Status options.

 **Reload:** Refresh the latest DVR status info.

 **Reset Alarms:** Turn off activated Alarms on the DVR.

Event Pop-up: Set event pop up option. A camera will be displayed in full screen mode in case of event. Set Pop up duration at Setup > System > Event Pop-up Duration.

Note: Event Pop-up will not be activated even it is checked when DVR status menu is hidden or other menu options (e.g. PTZ control) are being used.

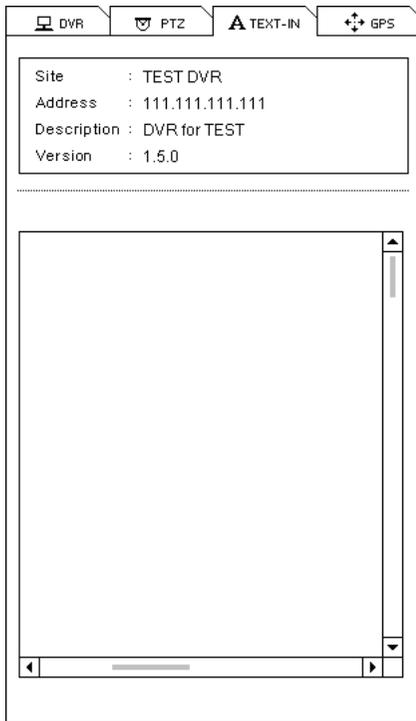
1-4-2. PTZ

The second tap of Tool Panel is PTZ controller. Once DVR is connected in Live mode and select the PTZ view CH, it will display the site info and activate the PTZ controllers.

 **Set Preset:** Save PTZ camera's current location. Up to 16 Presets can be saved

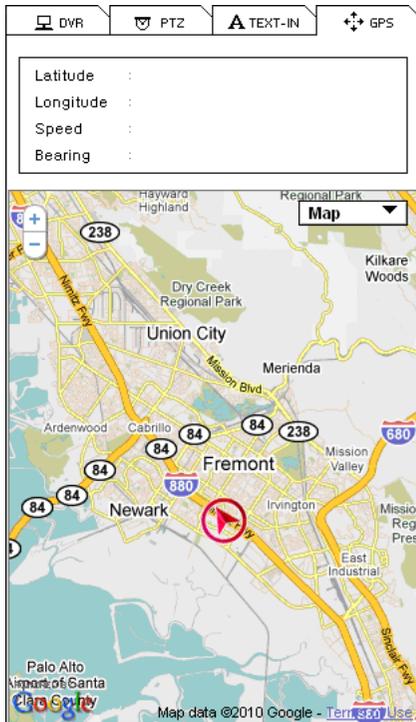
 **Move to Preset:** Move PTZ cam based on the preset settings.

1-4-3. TEXT-IN



Displays recorded TEXT-IN info. TEXT-IN tap is activated under playback mode only.

1-4-4. GPS

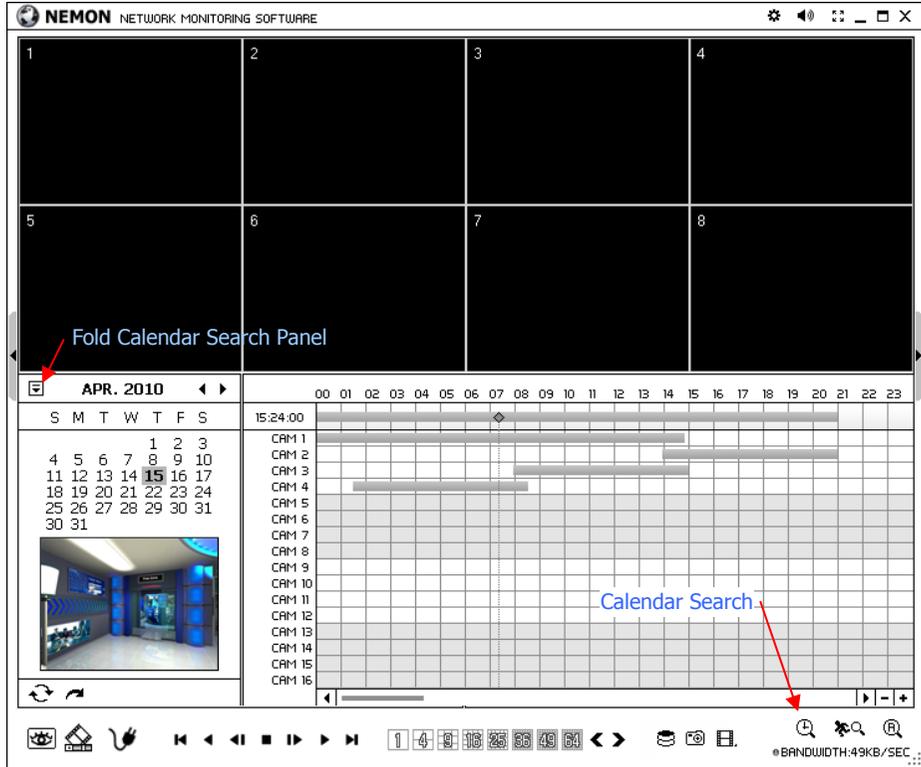


GPS is for Mobile DVR tracking under playback mode. GPS data is recorded with images using built in GPS on Mobile DVR. This data will be displayed on Google Map under playback mode.

2. Remote Playback

2-1. Calendar Search

Calendar Search Panel appears when a site is connected under playback mode as shown below. Time bar will appear once the date is selected and the image preview will appear when the specific time is selected on the time bar.



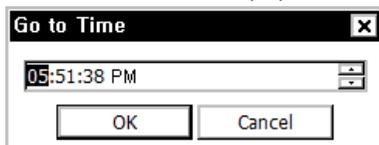
Use below buttons to control the playback image.

Playback Control Button

-  Beginning
-  Reverse Play / Rewind
-  Step Backward
-  Stop
-  Step Forward
-  Play / Fast Forward
-  End

Go To Time

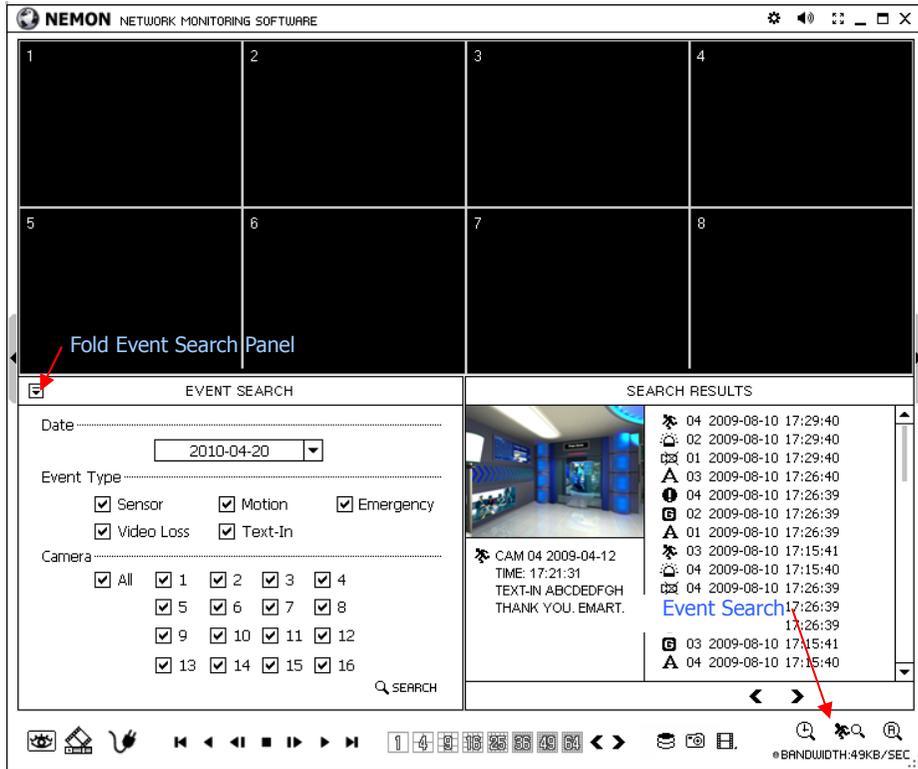
- Click on  icon to display time search window. Enter specific time to search the data



- Click on  icon refresh and update the calendar info.

2-2. Event Search

Select Event Search on the bottom of the screen to open Event Search Panel. Enter Date, Event Type and etc and select **SEARCH** button to retrieve the search results.

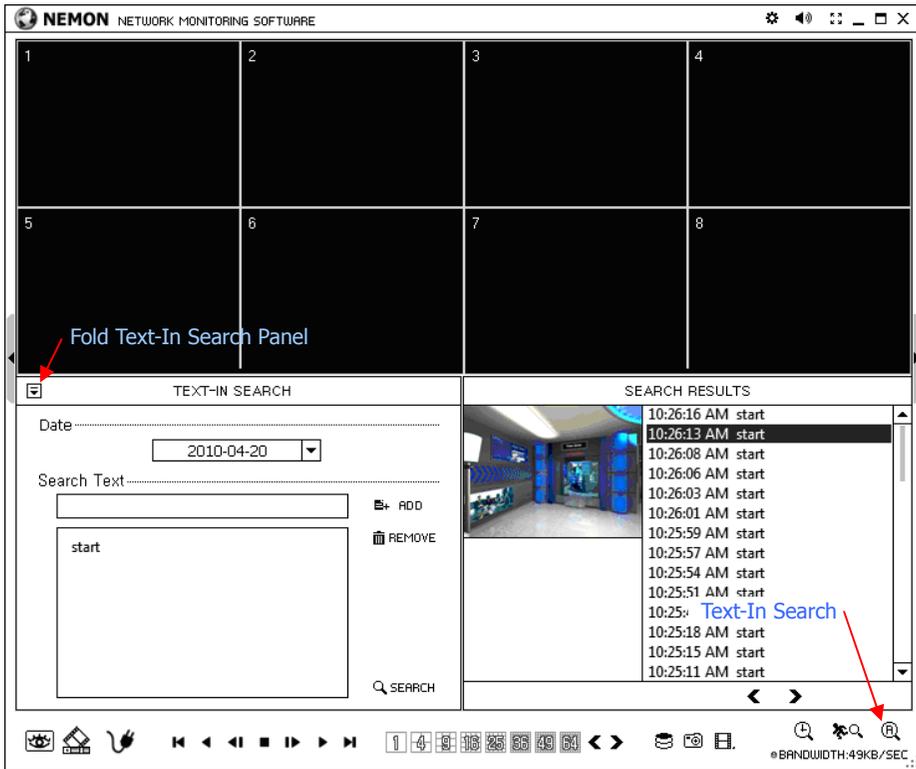


Select an event from the list for playback. Search through the list using < > buttons.

Select the date of event search for from the Date list. Select All or specific camera numbers for related event search. Type of events can be selected from the list for detail and effective search.

3-3. Text-In Search

Select Text-In Search on the bottom of the screen to open TEXT-IN Search Panel. Enter Date and Text and select **SEARCH** button to retrieve the search results.



Select an text-in event from the list for playback. Search trough the list using < > buttons.

3-4. Saving the recorded data

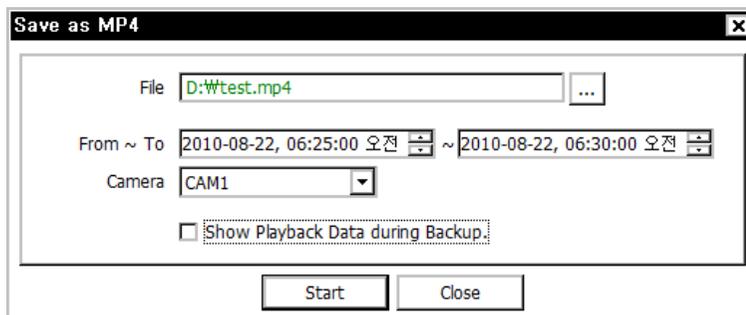
Screenshot

Select  button to capture the current image during the playback as show below. Select  button to save the image. The Image can be saved in JPEG, BMP and PNG format.



Save as MP4

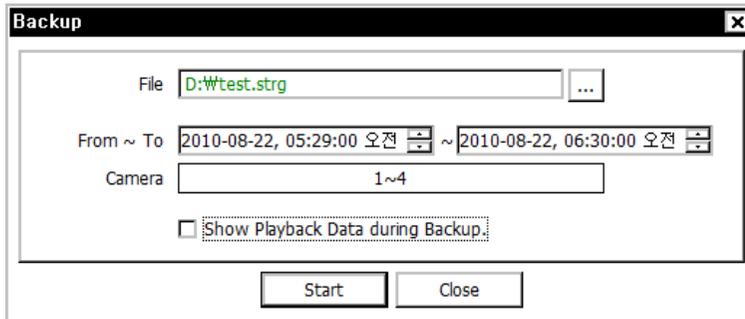
Select  button during the playback and select "Save as MP4" to open the window as shown below to save data in MP4 format.



- Enter file name and select Location.
- Select the time period.
- Select Camera number. Press Start to create MP4 file.

Backup

Select  button during the playback and select "Backup" to open the window as shown below to save data in own video format.



Backup

File: D:\test.strg

From ~ To: 2010-08-22, 05:29:00 오전 ~ 2010-08-22, 06:30:00 오전

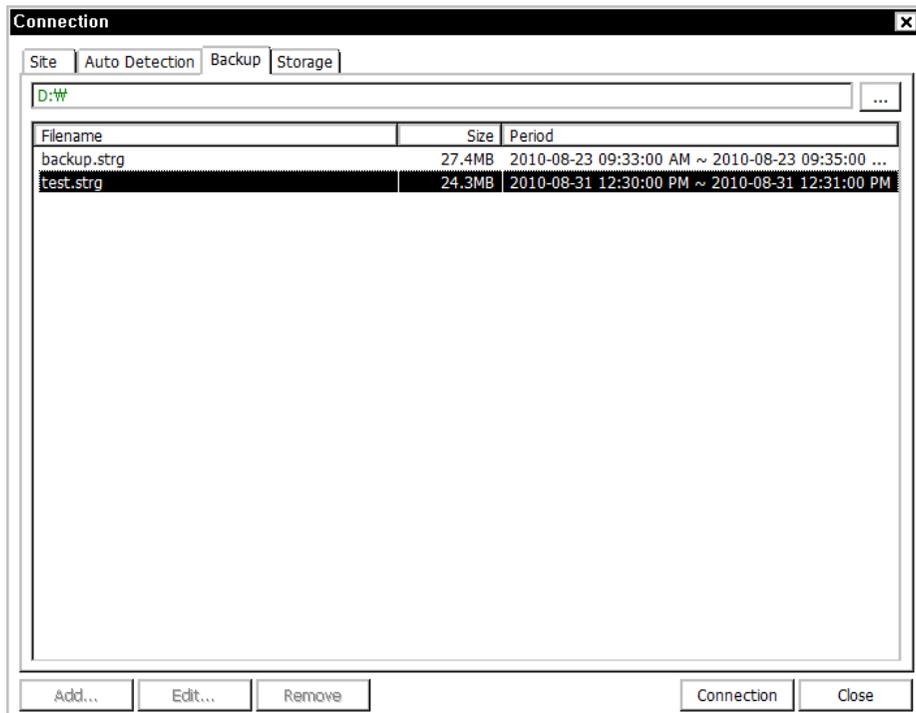
Camera: 1~4

Show Playback Data during Backup

Start Close

- Enter file name and select Location.
- Select the time period.
- Select Camera number. Press Start to create Backup file.

3-5. Play Backup Data



Connection

Site | Auto Detection | Backup | Storage

D:\

Filename	Size	Period
backup.strg	27.4MB	2010-08-23 09:33:00 AM ~ 2010-08-23 09:35:00 ...
test.strg	24.3MB	2010-08-31 12:30:00 PM ~ 2010-08-31 12:31:00 PM

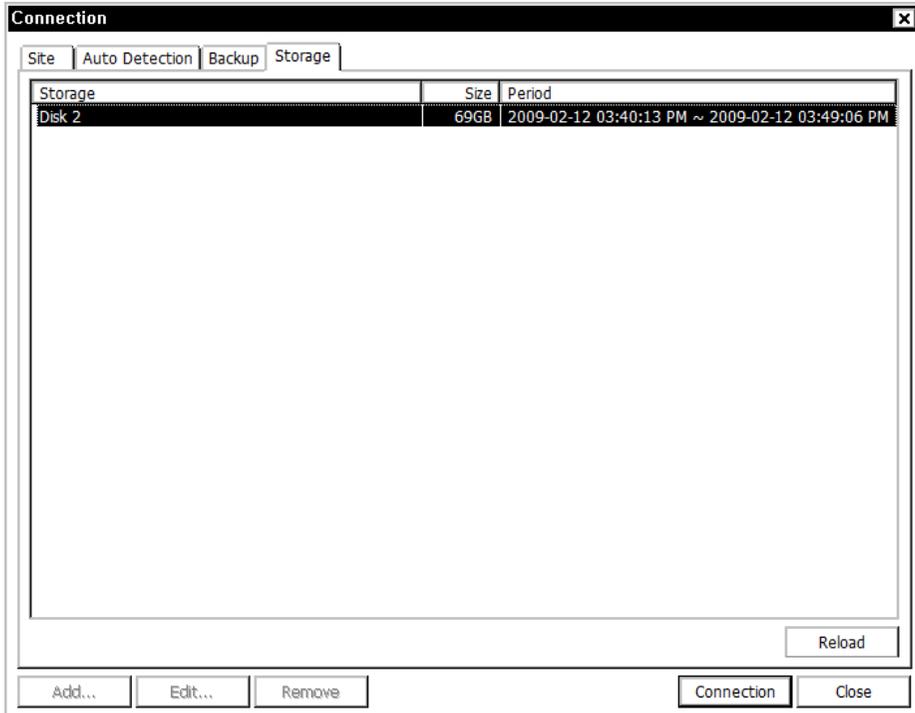
Add... Edit... Remove Connection Close

Backed up data from the local site can be played on the Nemon software.

Select  button during the playback and above window will appear. Select the location where the data is saved. Select the file and click **Connection** to play the video.

Note: Recorded Audio can be played on single screen only.

3-6. Play Independent HDD Data on PC



Independent HDD (removed from a DVR) data can be played on PC using Nemon S/W. Have the HDD connected to PC using a SATA to USB connector cable. Make sure the HDD is connected to PC properly

Select  button during the playback. Click **Storage** tap to display HDD information (if HDD is not shown please click **Reload** button to refresh the list). Double click the list or highlight and click **Connection** button.

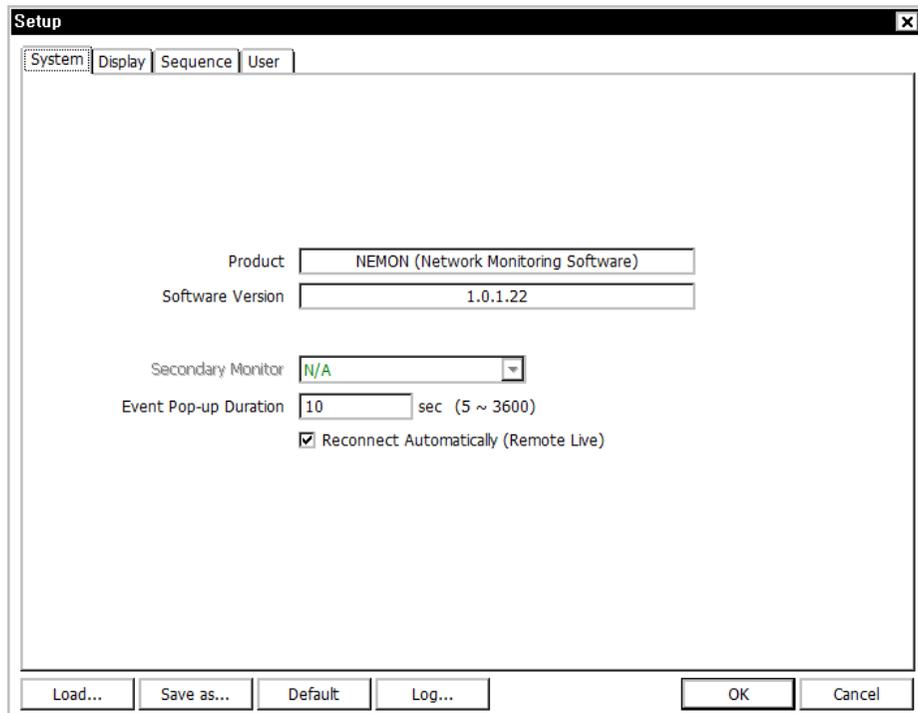
Note: When connect the HDD rack to the PC, please connect both USB connectors as following picture to supply enough power for the HDD rack.



4. Setup

4-1. Nemon Setup

Click on  and to enter Nemon setup menu.



Setup

System | Display | Sequence | User

Product: NEMON (Network Monitoring Software)

Software Version: 1.0.1.22

Secondary Monitor: N/A

Event Pop-up Duration: 10 sec (5 ~ 3600)

Reconnect Automatically (Remote Live)

Load... Save as... Default Log... OK Cancel

Product: Displays general information of the S/W

Software Version: Displays current S/W version

Secondary Monitor: Select the secondary monitor when using multi monitors on PC

Event Pop-up Duration: Set the time duration for a camera display when it is displayed in full screen mode in case of event.

Reconnect Automatically: Set auto reconnection on Live if the connections is ended by any chances.

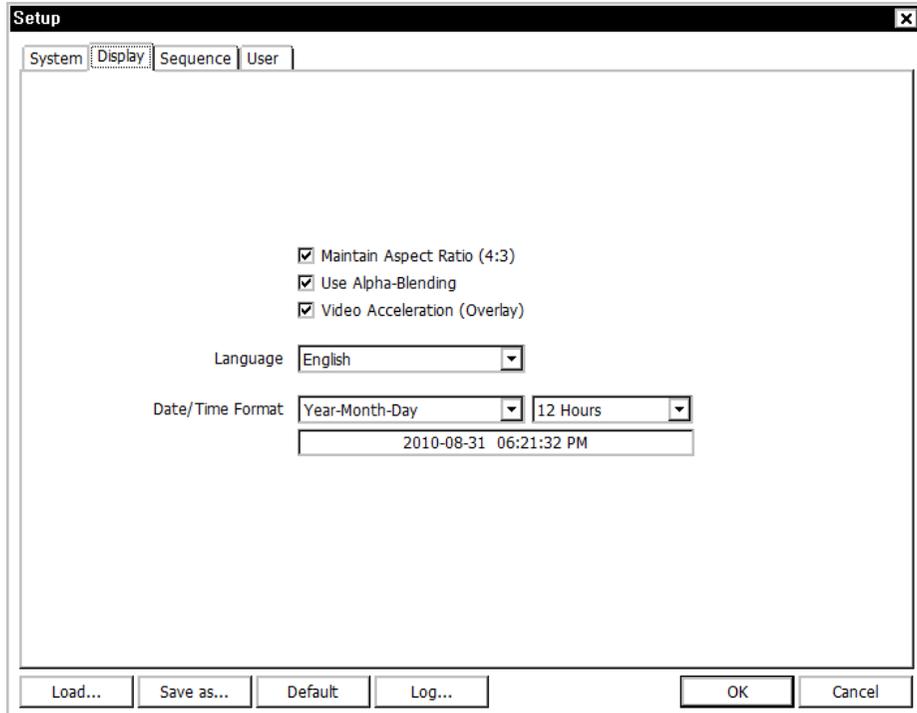
Load: Load saved data for settings for remote software

Save as: Save current settings of remote software

Default: Set default settings of remote software

Log...: Displays the history of S/W usage

Click on Display tap to enter display setup menu.



Maintain Aspect Ration (4:3): Keep 4:3 ration on Nemon display screen

Use Alpha-Blending: Enables alpha-blending effect to S/W UI

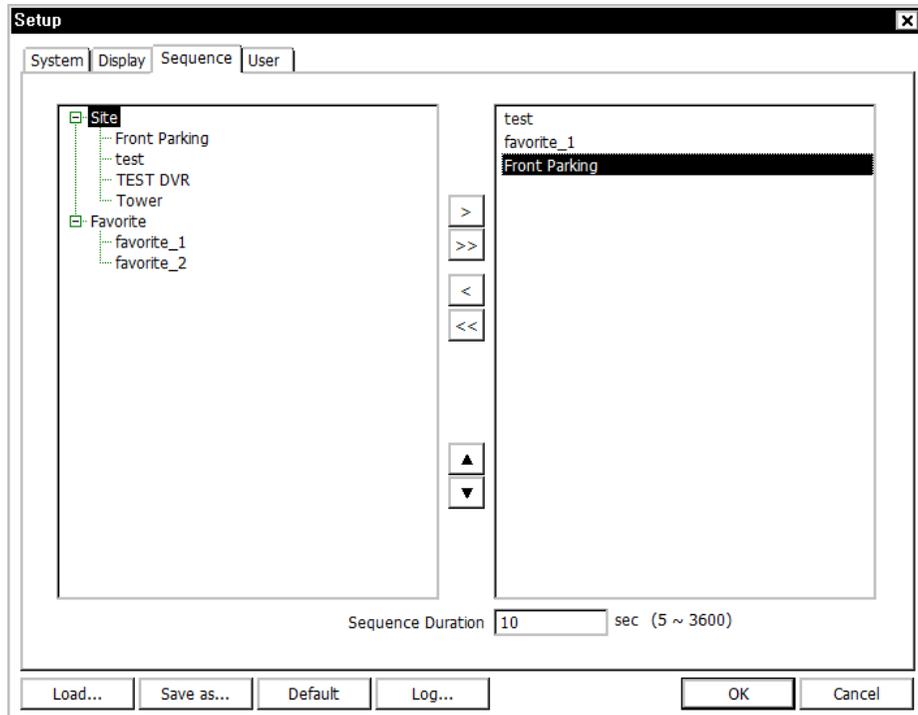
Video Acceleration: Video Acceleration option enhances natural live image display on the client S/W. Please do not select this option as it may cause improper live image display. Some PC graphic card does not support and comparable with Video Acceleration option.

Note: There are some graphic cards do not support such functions. In this case, unselect the option as it might result in abnormal system operation

Language: Select language option for the remote software

Date/Time Format: Select Date/Time Format for the remote software

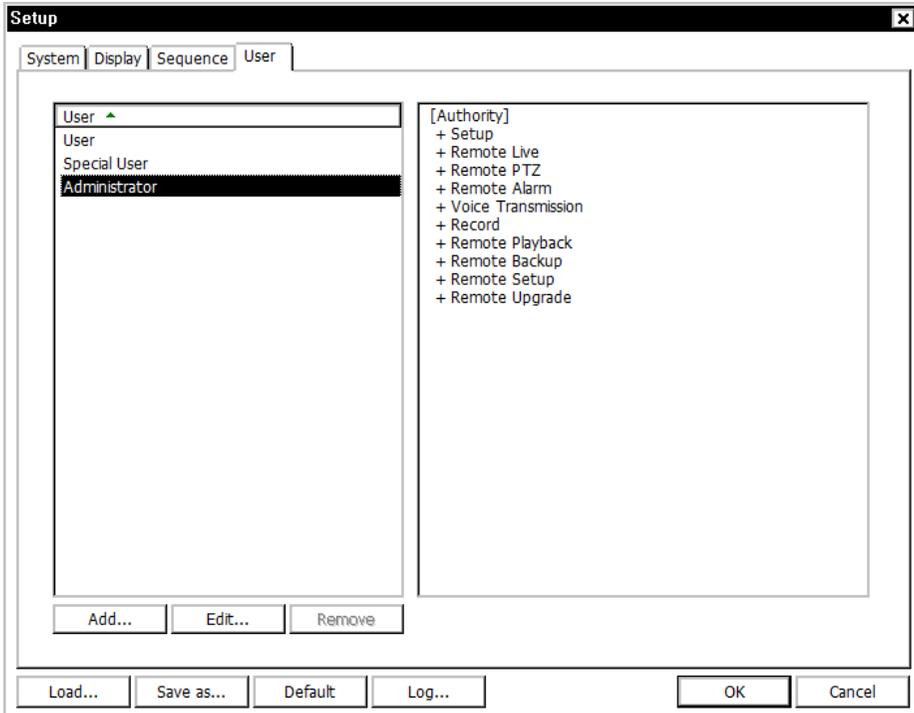
Click on Sequence tap to enter sequence setup menu.



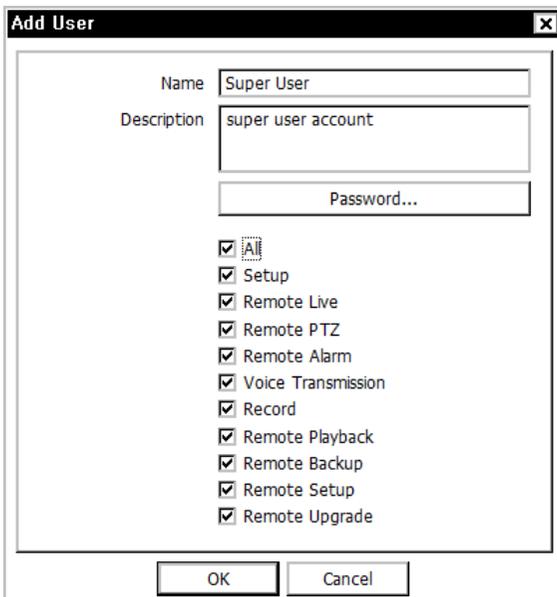
Set sequence mode and sequential sites from registered individual or Favorite sites. Click the site and select button to add the site into the sequencing list. button will move the all sites to into the sequencing list.

Sequence Duration: Set sequence interval time.

Click on User tap to enter user setup menu.

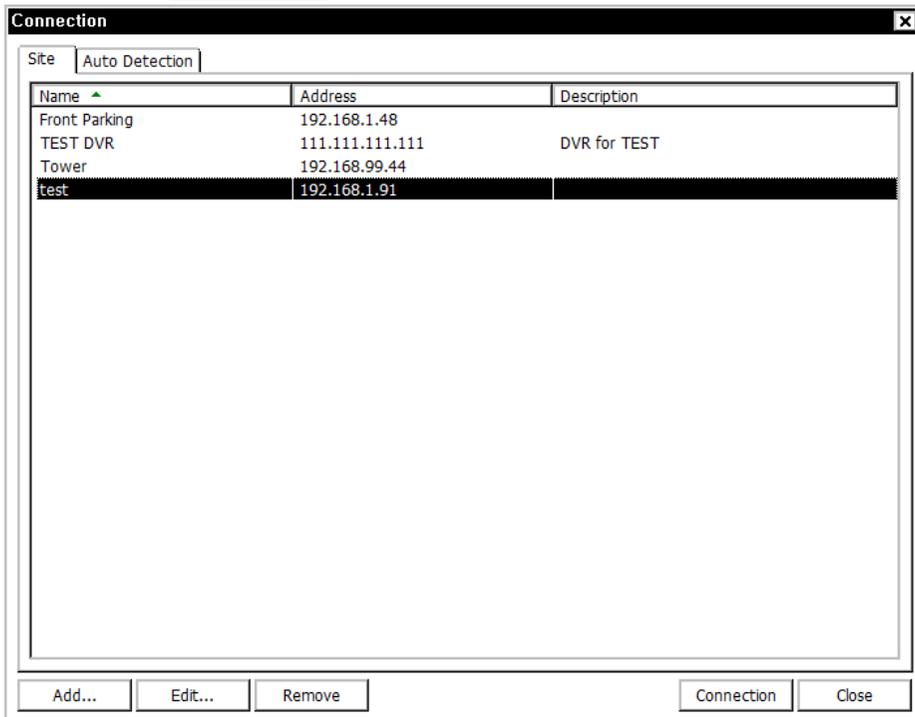


Register Nemon Software users. Each user needs to use the password they set in registration when they log in. Select **Add** to start new user registration.

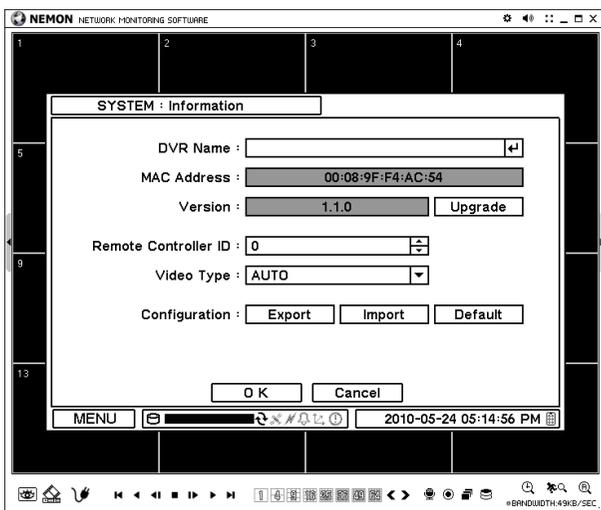


4-2. Remote Setup

Click on  and **Remote Setup** to enter remote setup menu.



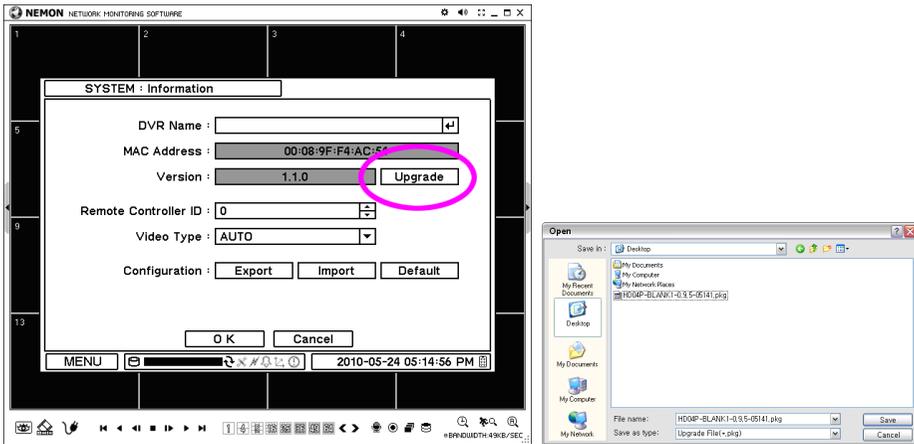
Select a DVR for setup and select Connection button. Setup menu will appear as show below once it is connected



Note: The remote software provides interactive setup system that allows easy local DVR settings from remote sites. It gets exactly same menu and options as the local system.

4-3. Remote Upgrade

The system upgrade can be done through Nemon program on PC.

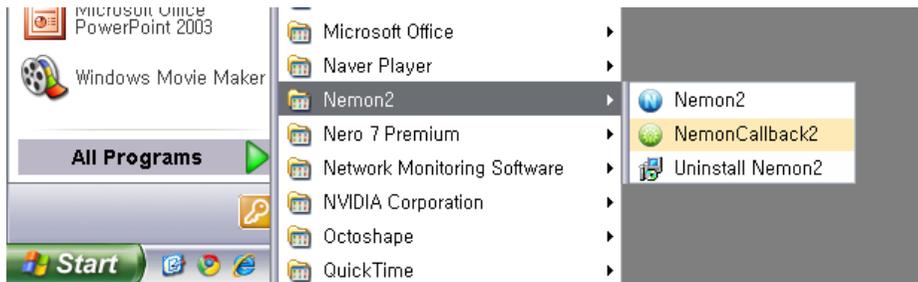


- Click on  and **Remote Setup** to enter remote setup menu.
- Select Information under System.
- Click **Upgrade** next to S/W version to find a file for upgrade
- Select the file location and the file to upgrade the system.

Note: Please do not close down Nemon S/W or power off a computer until the system upgrade is completed.

5. Nemon Callback

Start-> Program -> Nemon2 -> Nemon Callback2

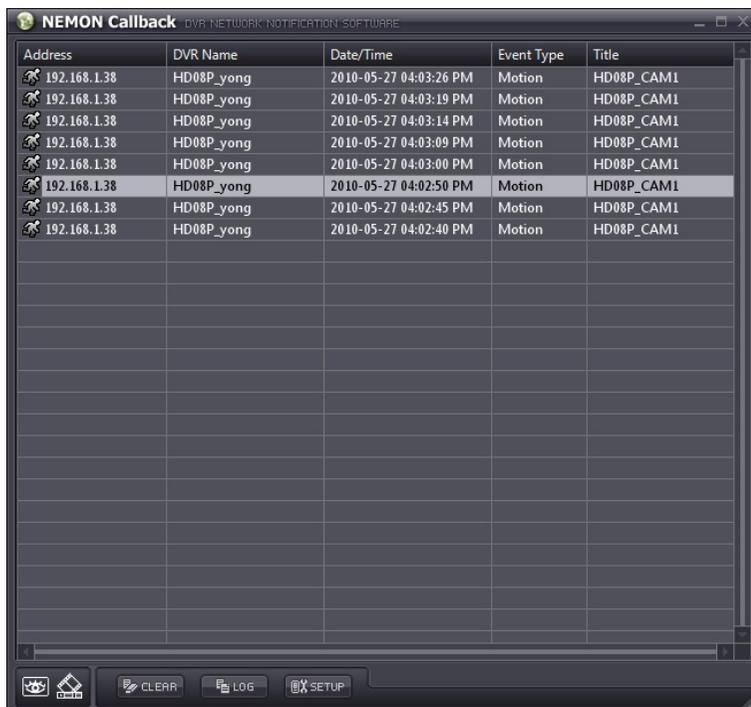


Nemon Callback icon will be displayed on the bottom right of Window once the program starts.



Callback message will be displayed/notified as shown above.

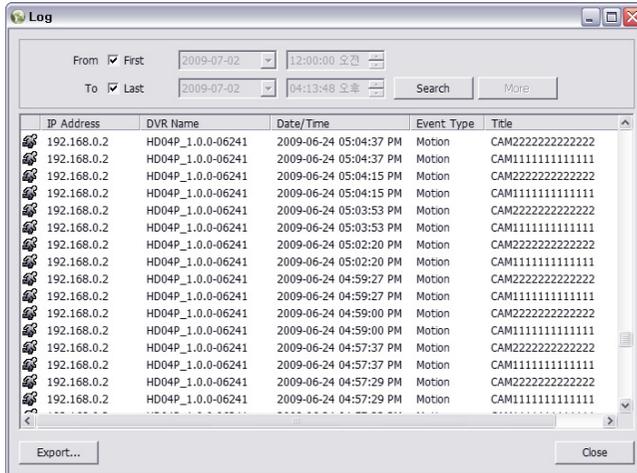
Click Nemon Callback icon to display main window of Callback as shown below.



Select a log from the list and click Live or Playback icon image to connect related DVR.

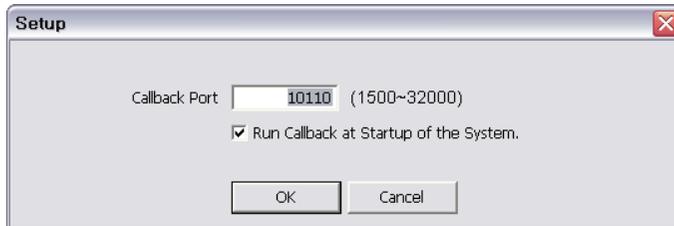
Clear: Clear all the logs listed on Nemon Callback window

Log: Click Log button to display log search window as shown below.



Up to 100,000 log can be saved. 1,000 log lists will be displayed per search. Click More button to display next 1,000 logs. Click Export button to save searched logs in either txt or csv format.

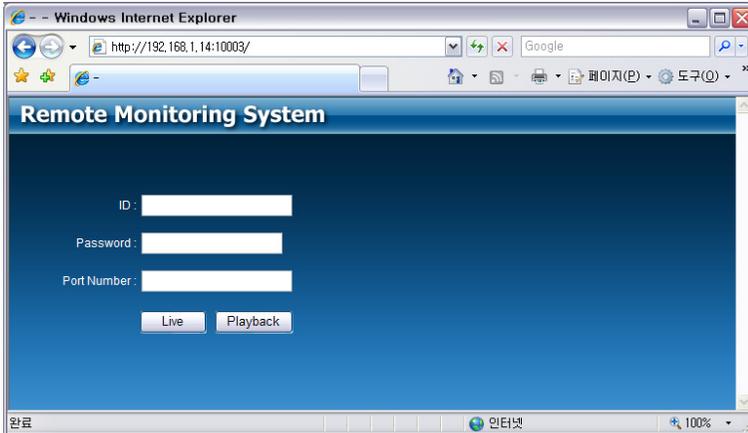
Setup: Click Setup button to set a port for Callback. Check Run Callback at Startup of the System box to start Callback program automatically with Window.



Note: UDP port needs to be set (open) to transmit Callback if Firewall is being used.

Appendix A. Remote Access Using I.E.

DVR can be accessed remotely using Internet Explorer. Execute internet explore program and enter DVR address (e.g. IP) to get connected.



Remote Log In page appears once connected to DVR. Enter ID, PW and Port information, and select Live or Playback mode to display desired remote control option. Please install Active X when Internet Explorer displays Active X installation message.



Remote Monitoring



Remote Playback

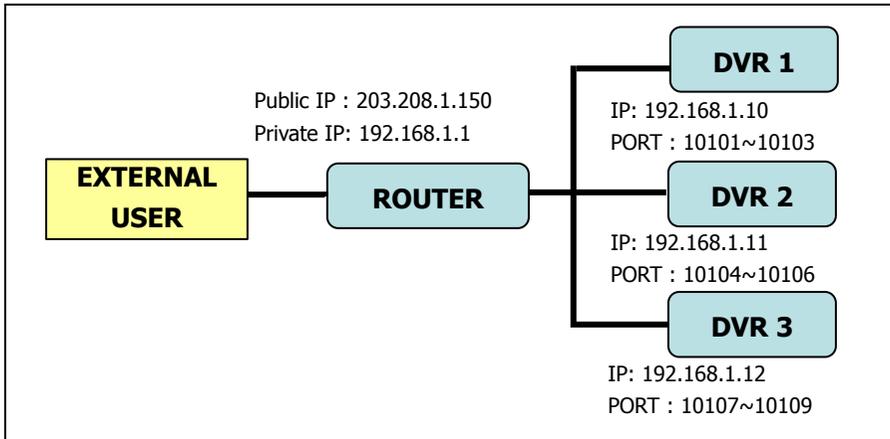
Please refer to the remote program 'Nemon' manual if further instructions on the control option are needed.

Note: Web is supported only on Internet Explorer 7.0 or above.

Appendix B. How to set DDNS using router

(Except using public IP or connect with ADSL directly)

Make it easy to understand through the example as below. Please refer the Diagram and follow this instruction. For example, If you connect 3 DVRs through local Network.



1. Domain Name Creation

- Go to <http://www.dvr-ddns.com/>
- Click 'Sign up!' to make the Account.

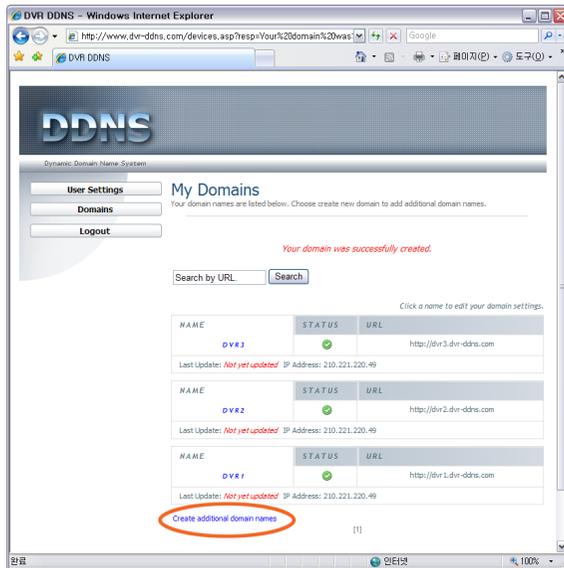


- Fill out the registration information as below.
- Click 'Submit' to make the account.

- Enter your domain name and click 'Request Domain' to create the domain name.

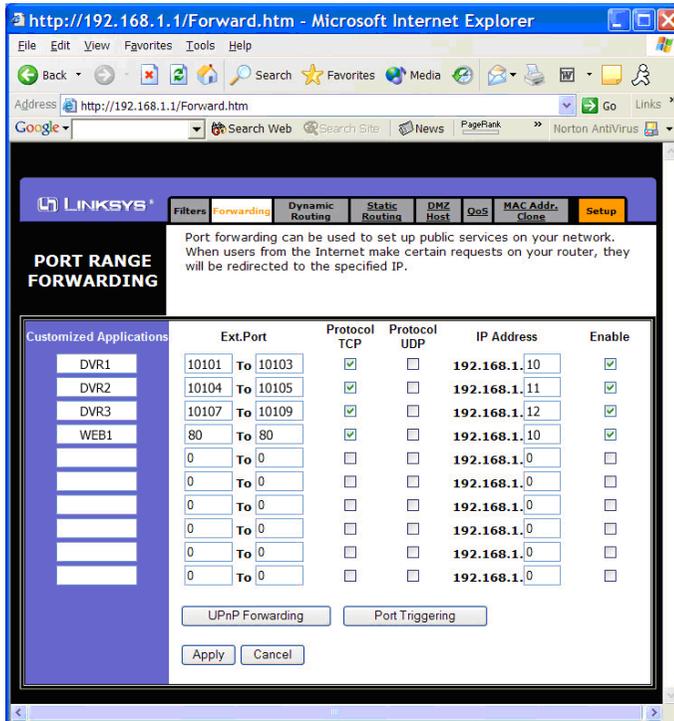
- You can see the registered dome name "dvr1.dvr-ddns.com"

- You can create 3 domain names for one account.
- Click "Create additional domain names" to make another domain name.



2. Router Configuration

- Insert the gateway address on the explorer to connect the homepage for the Router.
- Go to "Port Forwarding" Menu. (The picture below is for particular Router.)



- Please insert the IP address and Port number for DVR in the Port Forward menu.
- The Port number which you insert at this point make it possible to distinguish each of DVRs
- Specify the WEB port number to access the DVR with Internet Explorer. Default port number is 80.

3. DVR Configuration

Example of DVR Network setting.

NETWORK : Address

Address Port

Type : Static IP

IP Address : 192 . 168 . 1 . 10

Subnet Mask : 255 . 255 . 255 . 0

Gateway : 192 . 168 . 1 . 1

DNS Server : 8 . 8 . 8 . 8

ID :

Password : *****

OK Cancel

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Select Static IP option and enter following options accordingly. The system should be allocated with individual IP address.

NETWORK : Address

Address Port

Network Port : 10101 (1500 ~ 32000)

Web Port : 80

	Port
Live	10101
Playback	10102
Setup	10103
Web	80

OK Cancel

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Make sure the ports for DVR are all set accordingly or set network ports according to DVR port settings.

NETWORK : DDNS

Use DDNS

DDNS Server : dvr-ddns.com

Hostname : dvr1.dvr-ddns.com

Use ID

ID : tester@abc.com

Password : *****

Update

OK Cancel

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DDNS can be used once the system is registered on DDNS server. ID and PW are required for the registered server authentication.

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.

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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.

ROHS Compliance

