

HD-SDI

8/4 Channel Standalone Digital Video Recorder



DX2 – 04M/08M, MX2 – 04M/08M

User Manual

FCC Compliance Statement

Model Name:

DX2-M Series (DX2-08M, DX2-04M)

MX2-M Series (MX2-08M, MX2-04M)

This device complies with Part 15 of the FCC Rules. Operation is Subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operations.

■ WARNING

- Unauthorized reproduction of all or part of this manual is strictly prohibited.
- The figures in this manual are for illustration purposes only (may differ from the actual product).
- The specifications and design of the product are subject to change without prior notice for purposes of quality improvement.

■ CAUTIONS

To get the best use out of the product, be sure to read the cautions before using the product. For safety, please take note of the following.

➤ Instructions before using the product

- 1 To prevent electric shock when installing, moving, or opening the DVR and peripheral devices, connect and disconnect the cables as instructed. All cables must be connected to grounded power outlets.
- 2 If the product is installed near a power outlet, make sure it can be unplugged easily.
- 3 Do not use the DVR in water or in wet places.
- 4 Keep the plastic packing materials used for the DVR or other peripheral devices out of reach of children (may cause suffocation).

➤ Installation Environment of the DVR

- 1 Maintain the following conditions: operating temperature of 5°C ~ 40°C; operating humidity of 10% ~ 80%.
- 2 Install the DVR in a safe place that is free from external vibration.
- 3 Install the DVR in a well-ventilated place.
- 4 To protect the hard disk from data loss and breakdown, install the DVR away from magnetic materials.
- 5 When using a rack other than the standard one, use a separate table with sufficient spacing, i.e., 60cm from the floor, 50cm from the ceiling, and 20cm from the side and back walls and other objects.



➤ Safety Notes on the DVR



- 1 When installing additional boards and HDD, separate the power cable and turn OFF power supplied to the DVR completely.
- 2 Keep the product away from heat-generating devices such as heaters.
- 3 Do not use a damaged power cord.
- 4 To prevent problems due to magnetic interference and electric surge, use only grounded cables and power outlets.
- 5 If the power cord is connected, do not touch the power unit. If the power cord is connected, electric current is still flowing internally even after the switch is turned OFF.
- 6 Do not place a heavy object on top of the product.
- 7 Do not drop a conductive object in the ventilation holes.
- 8 Allot sufficient space for system cabling.
- 9 Use only the parts indicated in the manual. Do not disassemble, repair, or modify the product without permission.
- 10 Incorrect system setup may cause malfunction.
- 11 Shut down the system normally as instructed in the manual.

➤ Safety Notes on the Lithium Battery

- 1 Replace lithium batteries as instructed to avoid danger.
- 2 Dispose used lithium batteries properly.

【Warnings and Cautions are indicated as follows】

 Warning	Possible injury or product damage
 Caution	Risk of minor injury or product damage

	Cautions for the usage of the product
	Information for the usage of the product

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Chapter 1. Introduction

1-1 DX2-M series Major Features



		DX2-08M	DX2-04M
System		Reliable Standalone DVR	
Channel type		8 BNC - HD-SDI	4 BNC - HD-SDI
OS		Embedded Linux - Built in Flash Memory	
Video Input		8 BNC	4 BNC
Video output		1 VGA, 1 HDMI, 1 BNC	
Audio Input		Line Input : 4 RCA	
Audio Output		Line Output : 1 RCA, 1 HDMI	
Compression Format		[Video: Standard H.264] / [Audio: G.726]	
Recording Speed		Max. 60fps@1080p	
Recording Resolution		1080p or 720p	
Recording Mode		Automatic, Continuous, Manual, Events(Sensor and Motion)/Schedule Recording	
Storage	Internal	Max. 2HDD, 4TB, 1 DVD	
	External	1 eSATA	
Video Output Resolution		HDMI : Full HD(1080p), HD(1080i), XGA VGA : Full HD(1080p), HD(1080i), XGA TV : SDTV(720 x 480/576)	
Sensor Input		4 Sensors	
Relay/TTL Output		[1ea NC/NO]	
Backup & Copy Access		DVD-RW, USB2.0, Network	
Network Access		Ethernet 10/100/1000	
PTZ / KBD		RS485 In / Out	
System Operation & Adjustment		Front Button, Mouse, IR Remote Controller, Keyboard Controller, Network	
System Upgrade		USB2.0 Memory Stick, Network	
Network		System Automation (Controlled by VMS)	
		NTP Supported	
		VMS / WEB Brower / PDA / Smart Phone	
Others		18Languages Supported, Automatic E-mail	
		Power [12V/5A] / Max. Power Consumption[60W] / Operating Temperature [5 ~ 40℃]	
		Weight without HDD [4kg] / Dimension [430 × 86 × 270mm]	

1 - 2 MX2-M series Major Features



	MX2-08M	MX2-04M
System	Reliable Standalone DVR	
Channel type	8 BNC - HD-SDI	4 BNC - HD-SDI
OS	Embedded Linux - Built in Flash Memory	
Video Input	8 BNC	4 BNC
Video output	1 VGA, 1 HDMI, 1 BNC	
Audio Input	Line Input : 4 RCA	
Audio Output	Line Output : 1 RCA	
Compression Format	[Video: Standard H.264] / [Audio: G.711]	
Recording Speed	Max. 60fps@1080p	
Recording Resolution	1080p or 720p	
Recording Mode	Automatic, Continuous, Manual, Events(Sensor and Motion)/Schedule Recording	
Storage	Internal	Max. 2HDD, 4TB, 1 DVD
	External	1 eSATA
Video Output Resolution	HDMI : Full HD(1080p), HD(1080i), XGA VGA : Full HD(1080p), HD(1080i), XGA TV : SDTV(720 x 480/576)	
Sensor Input	4 Sensors	
Relay/TTL Output	[1ea NC/NO]	
Backup & Copy Access	USB2.0, Network	
Network Access	Ethernet 10/100/1000	
PTZ / KBD	RS485 In / Out	
System Operation & Adjustment	Front Button, Mouse, IR Remote Controller, Keyboard Controller, Network	
System Upgrade	USB2.0 Memory Stick, Network	
Network	System Automation (Controlled by VMS)	
	NTP Supported	
	VMS / WEB Brower / PDA / Smart Phone	
Others	18Languages Supported, Automatic E-mail	
	Power [12V/5A] / Max. Power Consumption[40W] / Operating Temperature [5 ~ 40℃]	
	Weight without HDD [3kg] / Dimension [340 x 58 x 300mm]	

1 - 3 About the Product

As a digital image monitoring equipment that can display images inputted from up to 8/4 cameras, **DX2/MX2-M - Series** digitally records high-quality images using various video recording modes and displays them as clean quality images.

For users' convenience, front panel button, remote controller, and mouse are provided. Powerful network functions including remote monitoring and remote system setup modification are also supported.

1 - 4 Differences between DX2-M and MX2-M series

	DX2-08M / DX2-04M	MX2-08M / MX2-04M
DVD	OK	NO
Front Button	29 buttons	14 Buttons
USB port	Front Panel	Right side of the front panel
Dimension	19' RACK SIZE	COMPACT SIZE

1 - 5 Components

Please check the components after unpacking the product.

- Remote controller
- CD (CMS, CMS Manual, PDA Viewer Software)
- AAA 1.5V Batteries 2es
- Adapter (12VDC/ 5A)
- User Manual
- Rack Mounting Handle (**Only DX2-M series**)

Chapter 2. Installation and Connection

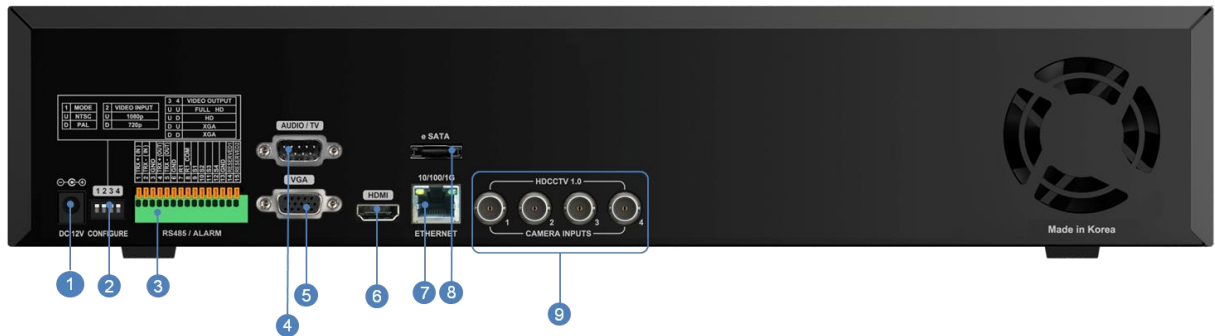
2-1 DX2-M Series Name and Features of each part

DX2-M series has buttons on the front panel and various interfaces on the rear panel. Also, it has rack handles of the left and right side for the convenience of the standard rack installation.

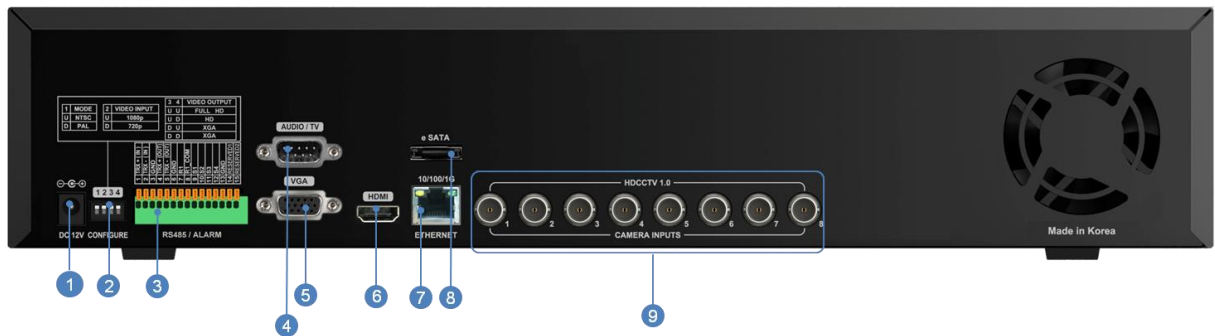
2-1-1 DX2-M Series Front Panel



2-1-2 DX2-04M Channel Rear Panel



2-1-3 DX2-08M Channel Rear Panel



No.	Name	Function	Type
1	DC-IN Power	12VDC / 5A	
2	CONFIGURE	Select the type of video input and output	Switch
3	RS485 / DIO	PTZ Camera Control Connection Sensor/ Relay Connection	Terminal Block
4	AUDIO / TV	Audio input/output connection, TV output connection	D-SUB 9P
5	VGA-OUT	VGA Monitor or LCD Monitor connection	D-SUB 15P
6	HDMI	HDMI Video output	HDMI type-C
7	Ethernet	Network connection(ADSL, Cable Modem, Ethernet 10/100/1000 Base-T)	RJ-45
8	eSATA	External SATA Storage	eSATA
9	CAMERA IN	HD-SDI Camera connection	BNC

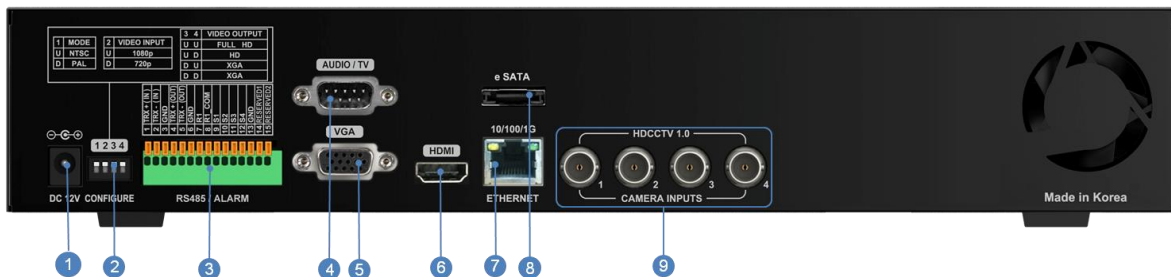
2-2 MX2-M Series Front Panel

MX2-M series has the buttons which is simple and easy and the various interfaces on the rear panel.

2-2-1 MX2-M Series Front Panel



2-2-2 MX2-04M Channel Rear Panel

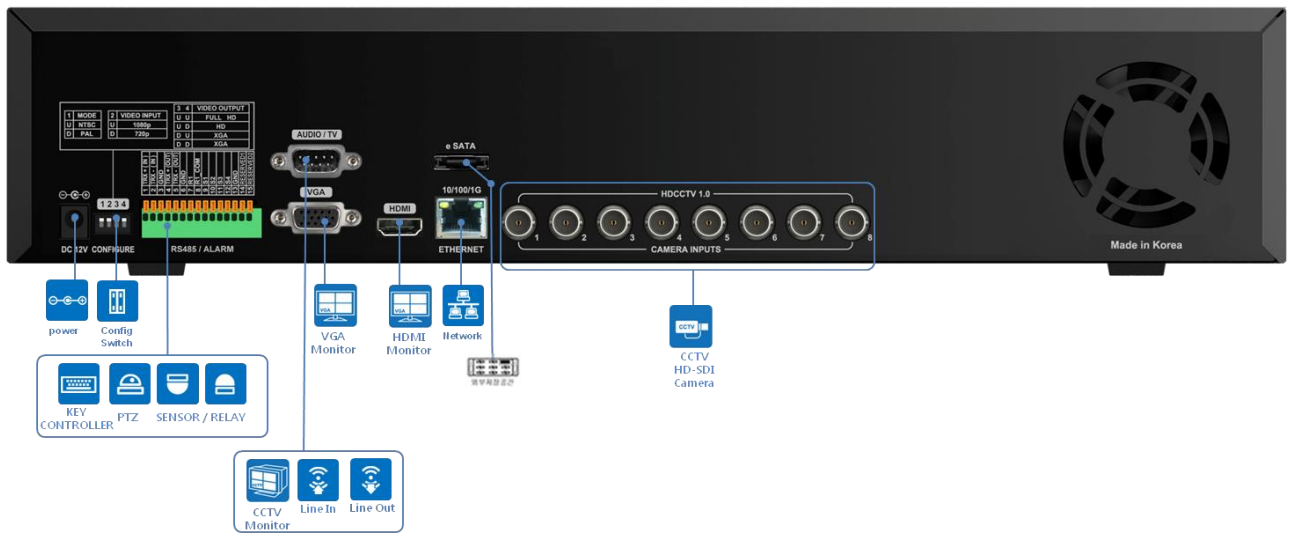


2-2-3 MX2-08M Channel Rear Panel

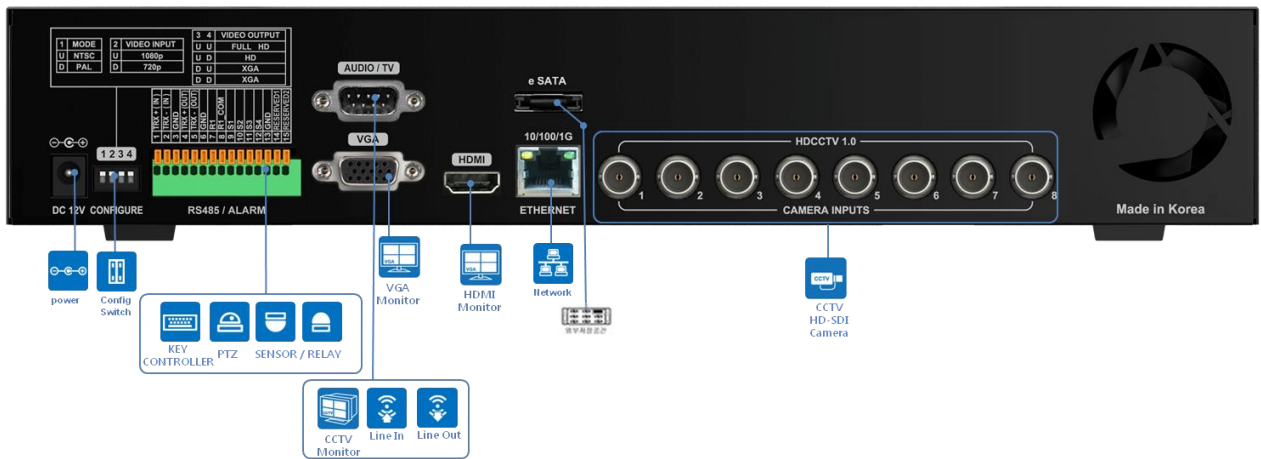


No.	Name	Function	Type
1	DC-IN Power	12VDC / 5A	
2	CONFIGURE	Select the type of video input and output	Switch
3	RS485 / DIO	PTZ Camera Control Connection Sensor/ Relay Connection	Terminal Block
4	AUDIO / TV	Audio input/output connection, TV output connection	D-SUB 9P
5	VGA-OUT	VGA Monitor or LCD Monitor connection	D-SUB 15P
6	HDMI	HDMI Video output	HDMI type-C
7	Ethernet	Network connection(ADSL, Cable Modem, Ethernet 10/100/1000 Base-T)	RJ-45
8	eSATA	External SATA Storage	eSATA
9	CAMERA IN	HD-SDI Camera connection	BNC

2-3 Installation and Connection



[Figure 2-1. DX2-08M Basic Connection and Device Connection]



[Figure 2-2. MX2-08M Basic Connection and Device Connection]

2 - 3 - 1 Basic Connection

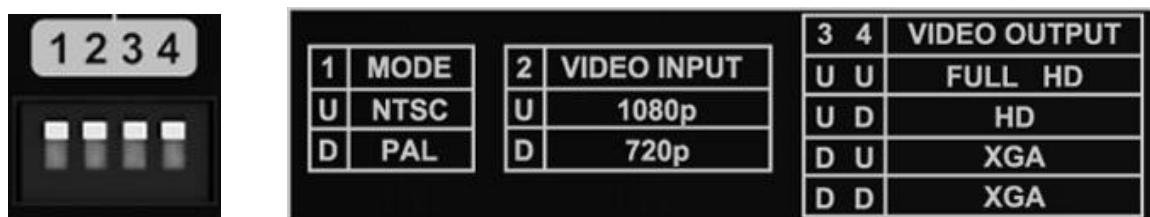
By referring to above [Figure 2-1] and [Figure 2-2], Connect the CCTV camera, CCTV monitor (or VGA monitor), and USB mouse to the DVR and set up CONFIG SWITCH.

	Connecting Device	DVR Terminal
1	CCTV camera	Rear Panel Video Input
2	HDMI monitor	Rear Panel HDMI-OUT
3	VGA Monitor / LCD Monitor	Rear Panel VGA-OUT
4	CCTV monitor	Rear Panel TV-OUT
5	Mouse	DX2-M series: on front panel / MX2-M series: on right side
6	CONFIG SWITCH	Rear Panel NTSC/PAL or VGA/TV Setup

Refer to the CONFIG SWITCH description as below.



1. The input video type must be either NTSC or PAL; these two types must not be used together.
2. Select the input video format (NTSC/PAL) using the CONFIG switch on the rear side of the product.
3. Recording resolution can depend on video resolution



2 - 3 - 2 Connection of Other Devices

Connect the PTZ controller cable, audio in/output, network and sensors as below.

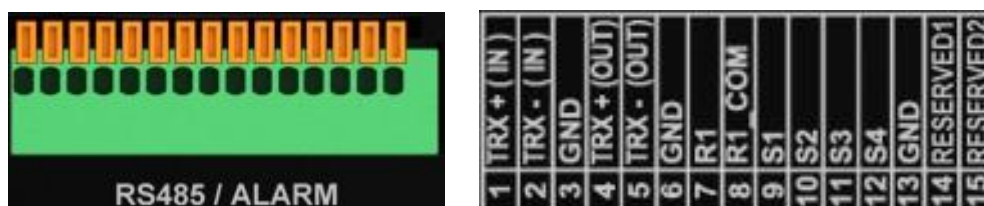
	Connecting Device	DVR Terminal
1	Mike / Speaker	Rear Panel DSUB-9P Line In/out
2	LAN Cable	Rear Panel Ethernet
3	PTZ Camera	Rear Panel Terminal Block
4	Sensor / Relay / TTL OUTPUT	Rear Panel Terminal Block)
5	Key controller	Rear Panel Terminal Block

1) Audio In/Output

Audio supports 4 inputs and 1 output.

2) Terminal Block

Terminal Block on the rear panel is for the connections of PTZ / Sensor / Relay.



[Figure 2-3. Terminal Block Description]

3) PTZ Camera/Keyboard Controller

Connect PTZ camera to TRX+(No.4) and TRX-(No.5) and GND(No.10). You may refer to APPENDIX for supported PTZ camera list in this manual. Keyboard Controller has same connection way of PTZ camera.




PTZ Camera may not be working properly if GND is not connected.

4) Sensor/Relay

Connect Sensor/Relay to Terminal Block directly.


(1) Sensor Connection

- ① Connect Sensors to the Terminal Block S1 ~ S4.
- ② Each input terminal may be connected regardless of the channel number.

	<p>Sensor has the type of NC(Normal Close) and NO(Normal Open). For Setup {Menu} → {Setup} → {Action} → {Event} → {Sensor Type} NC(Normal Close) : Normally closed; opens when a signal is received. NO(Normal Open) : Normally opened: closed when a signal is received.</p>
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(2) Relay Connection

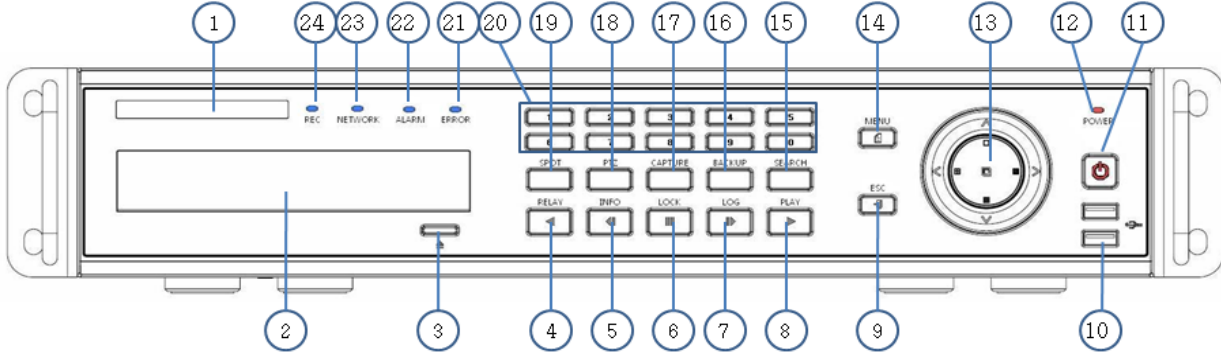
- ① Outputs alarm signals to external devices such as siren by relaying them to these external devices.
- ② Connect Relay to R1 of Terminal Block (TB1).

	<p>Relay has the type of NC(Normal Close) and NO(Normal Open). For Setup {Menu} → {Setup} → {Action} → {Alarm} → {Relay Type} NC(Normal Close) : Normally closed; opens when a signal is received. NO(Normal Open) : Normally opened: closed when a signal is received.</p>
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Chapter 3. Operation and Setup Tools

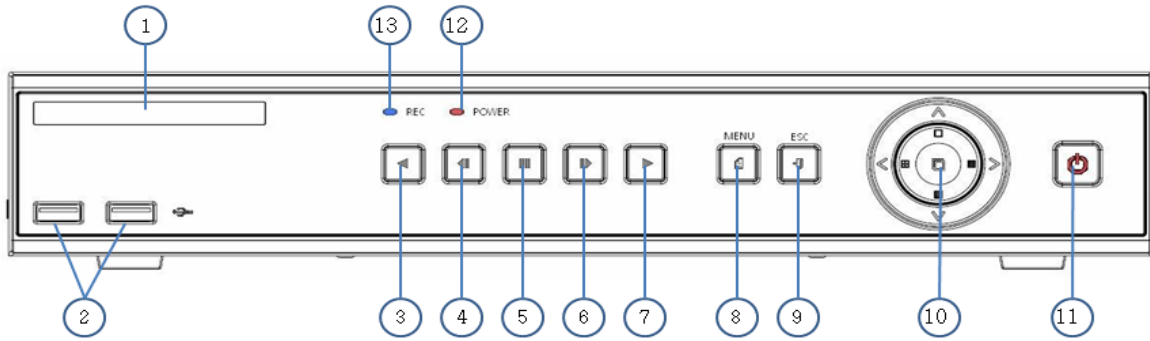
DX2/MX2-M series are conveniently operated by Front Buttons, Remote Controller and mouse.

3-1 DX2-M series Front Panel Button



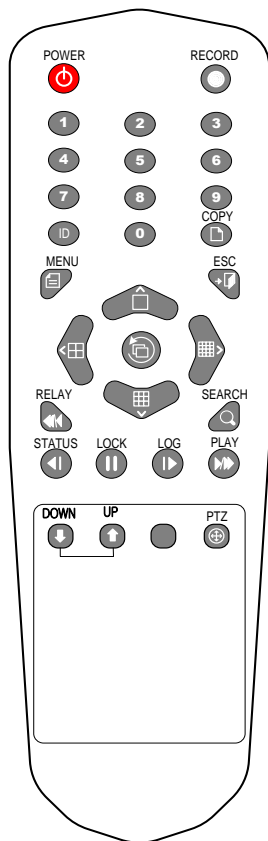
No	Name	Feature
1	LABEL	Brand Name and Model Name
2	ODD	CD-RW and DVD-RW
3	Eject	CD and DVD Media
4	Reverse Play / Fast Reverse & RELAY	Backward Playback/Rewind (in Playback mode) Relay Control (in Monitoring mode)
5	Reverse Frame by Frame & STATUS	Backward Playback Frame by Frame (in Playback mode) View System Configuration (in Monitoring mode).
6	Pause & LOCK	Pause (in Playback mode) Lock (in Monitoring mode)
7	Forward Frame by Frame & LOG	Playback Frame by Frame (in Playback mode) System Log View(in Monitoring mode)
8	Forward Play / Fast Forward & PLAY	Playback/Fast Forward (in Playback mode) Play back (in Monitoring mode)
9	ESC	Exit the current menu or selects the upper menu.
10	USB Port	Connection port to the USB mouse and USB memory stick
11	POWER	Turn the system power ON or OFF.
12	POWER LED	Power LED On/Off
13	MOVE & DISPLAY & Select	Moves from one category to another or changes the display mode.
14	MENU	Various Modes
15	SEARCH	Search Recorded Images.
16	BACKUP	Save recorded images at other media.
17	CAPTURE	Capture a playing image into USB.
18	PTZ	Change Pan/Tilt/Zoom Mode.
19	SPOT	SPOT Control (NOT used)
20	NUMBER	Channel Selection and Number Input
21	ERROR LED	Blue LED turned on upon fan defect or recording interruption.
22	ALARM LED	Blue LED turned on upon the occurrence of event or motion.
23	NETWORK LED	Blue LED turned ON during remote access.
24	RECORD LED	Blue LED turned on upon HDD operation.

3 - 1 - 1 MX2-M series Front Panel Button



No.	Name	Feature
1	LABEL	Brand Name and Model Name
2	USB Port	USB Mouse, USB Memory Stick Connection Port
3	Reverse Play	Backward Playback/Rewind (in Playback mode)
4	Reverse Frame by Frame	Backward Playback Frame by Frame (in Playback mode)
5	PAUSE	Pause (in Playback mode)
6	Frame by Frame	Playback Frame by Frame (in Playback mode)
7	PLAY	Playback/Fast Forward (in Playback mode)
8	MENU	Various Modes
9	ESC	Exit the current menu or selects the upper menu.
10	MOVE & DISPLAY & Select	Move from one category to another or changes the display mode.
11	POWER	Power On/Off
12	POWER LED	LED indicating Power On/Off
13	RECORD LED	Blue LED turned on upon HDD operation.

3 - 1 - 2 DX2/MX2-M series Remote Controller



a) Basic Control Button

	POWER	Turn the system power ON or OFF.
	RECORD	Record all channels or stops recording all channels.
	NUMBER	Input of numeric data.
	ID	Set up the remote controller ID.

b) System Operation and Setup Button











	MENU	Data, Schedule, System Set up
	ESC	Exit the current menu or Move to the upper menu.
	SEARCH	Search recorded images.
	SELECT	Select the category or execute automatic screen conversion.
	COPY	Copy recorded videos.
	PTZ	Shift to the PTZ camera control mode.
	MOVE	Move from one category to another or change to the display mode.
	UP/ DOWN	Log Page Up/Down

c) Search Button (Playback Mode)

	Play / Fast Forward	Play/Fast-forward
	Frame by Frame	Play forward frame by frame
	Pause	Pause
	Reverse Frame by Frame	Reverse play frame by frame
	Reverse Play / Fast Reverse	Reverse play/ Rewind


d) Buttons for Other Features (Monitoring Mode)

	PLAY	Play the recorded images.
	LOG	View the system log list.
	LOCK	Lock the system
	STATUS	View system information and changes the display setup.
	RELAY	View the relay status and manual operation.

※ Setting up the remote controller ID	
	<p>e.g.) To set remote controller ID as '1'</p> <p style="text-align: center;">  →  ,  →  </p> <p>Press ID button and ID number of two-digit and press the ID button again.</p> <p style="text-align: center;">  →    →  </p> <p>To control all DVR with different ID, set the remote controller's ID as '999'</p>

3 - 1 - 3 Mouse


Operate the system by using Mouse. The mouse pointer will be shown when a Mouse is connected to USB port on the front panel.

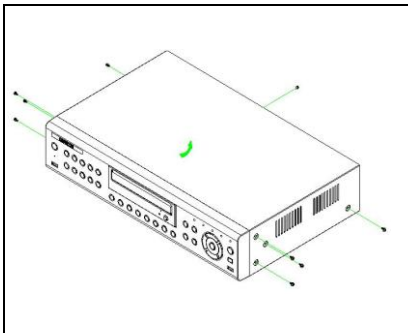
	Mouse control supports the features as below.	
	Click on the right button	Monitoring Mode / Move from Play Mode to Monitoring Menu / Pop up or remove Play Menu. Show sub-folder of the certain Menu window.
	Click on the left button	Select Menu.
	Double click on the left button	Select Menu.
	Drag the left button	Move a certain window.

Chapter 4. DVR Operation Setup

4-1 DX2-M Series Storage Installation

※ The recommended HDD specification are shown below.

	Type	Size	Capacity	Buffer	RPM
		SATA I, II	3.5" 1, 2 Flat	Max. 2TB	Over 8MB

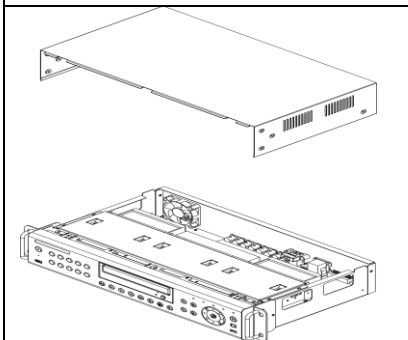


1) Open the top case by using screw driver.

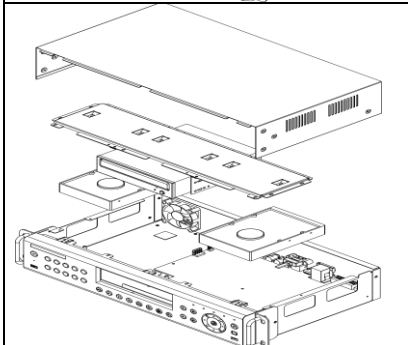


Caution

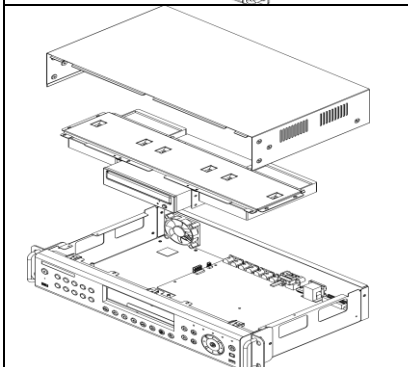
- 1) Normal termination of the system and fully unplugged power code are required before conducting HDD installation.
- 2) Touch a grounded metal substance or ground yourself before installing HDD in order to reduce static electricity. Static electricity may cause a malfunction of the product.
- 3) After installing HDD, Do not connect to power supply with the top case opened. The top case must be covered before usage.



2) Unscrew and separate the HDD bay from body.




3) As per the photo, screw the HDD bay, HDD and DVD to the top bay.

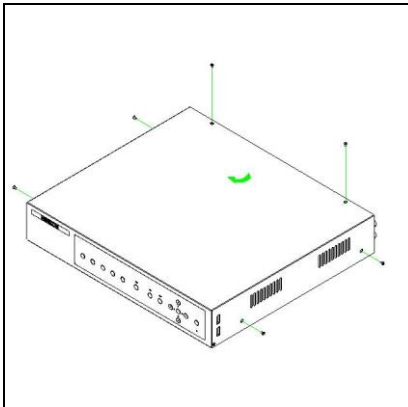


4) Connect the power cable and data cable on HDDs and then reassemble the top case by reversing 1) to finalizing HDD installation.

4-2 MX2-M Series Storage Installation

※ The recommended HDD specification are shown below.

	Type	Size	Capacity	Buffer	RPM
		SATA I, II	3.5" 1, 2 Flat	Max. 2TB	Over 8MB

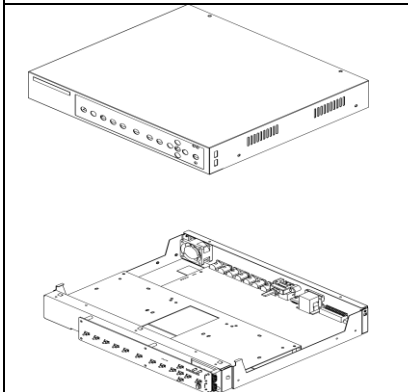


1) Open the top case by using screw driver.

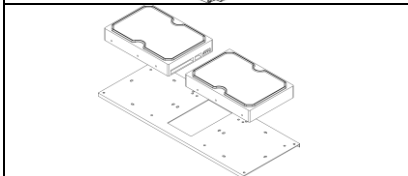


Caution

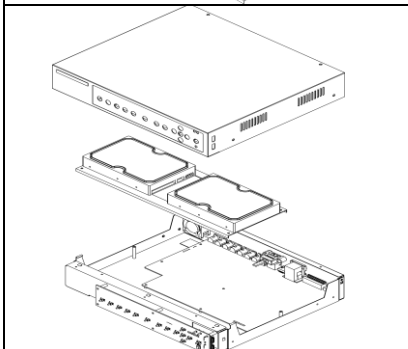
- 1) Normal termination of the system and fully unplugged power cord are required before conducting HDD installation.
- 2) Touch a grounded metal substance or ground yourself before installing HDD in order to reduce static electricity. Static electricity may cause a malfunction of the product.
- 3) After installing HDD, Do not connect to power supply with the top case opened. The top case must be covered before usage.



2) Unscrew and separate the HDD bay from body.



3) Screw the additional HDD bay to current HDD bay



4) Connect HDD to HDD connector on the main board directly without cable. Reassemble the top case by reversing 1) to finalizing HDD installation.

4-3 Power ON.

- ① Check the adapter (12VDC/5A) and connect the power.
- ② Booting will be initialized after pressing the power button on the front panel.
- ③ Live mode, channel title and clock will be on after booting.
- ④ Menu widow pops up by clicking the right button of the mouse or pressing [MENU] button in the front panel as shown below.



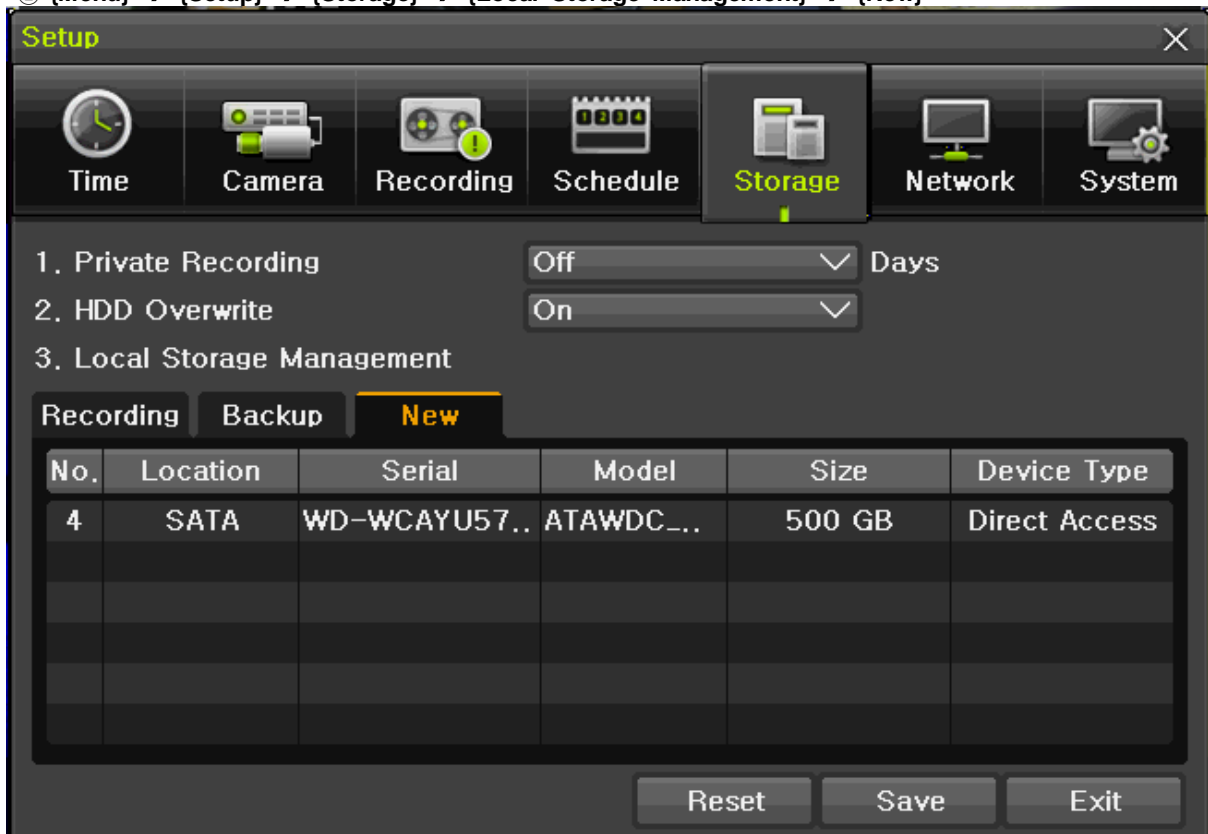
Default ID and PW is as below
[Admin : 00000]
***[user1 : 1111111] ... [user14 : eeeeeee]**



[Figure 4-4. Menu Window]

4-4 Storage Setup

- ① {Menu} → {Setup} → {Storage} → {Local Storage Management} → {New}

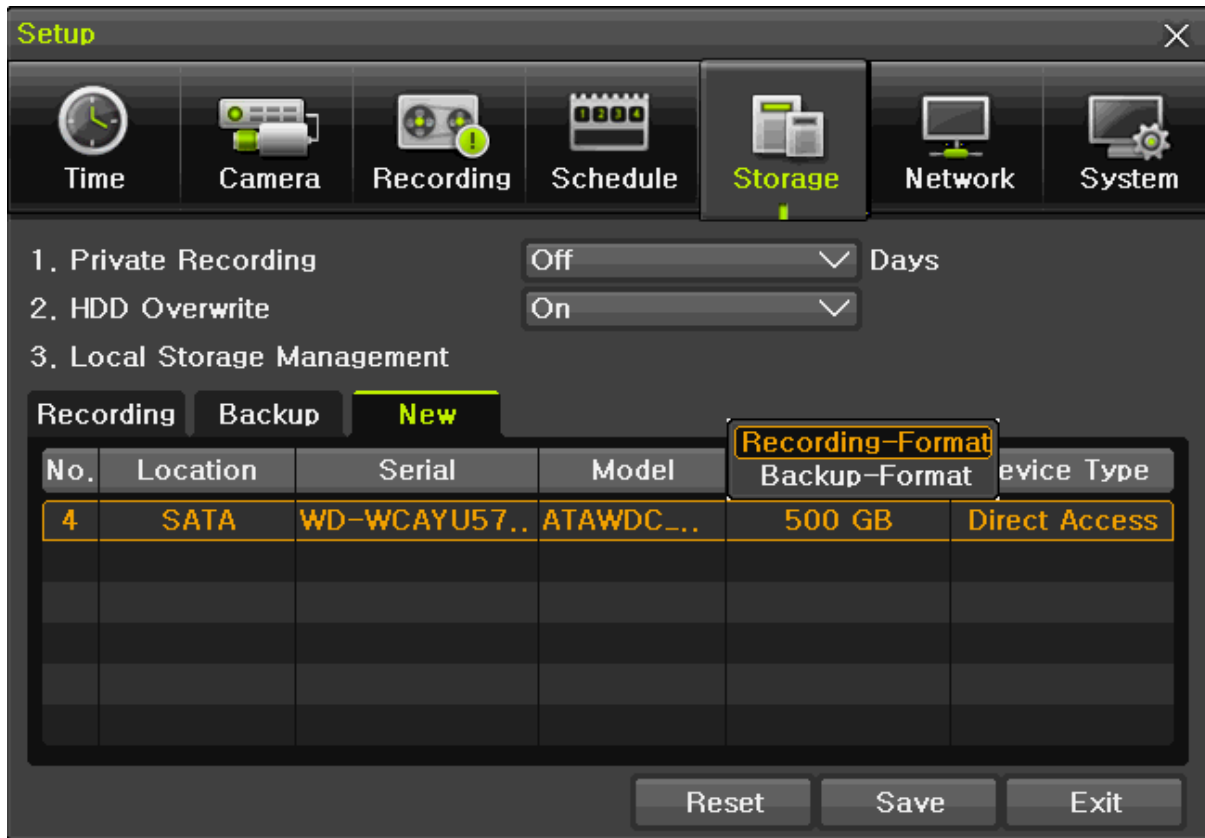


[Figure 4-5. Storage Device New Tab menu]



All data storages initially plug into DVR is appeared on {New}tab. You can choose the storage for {Recording} or {Backup}

② Select {New} tab and HDD



[Figure 4-6. Storage Device New Tab menu]

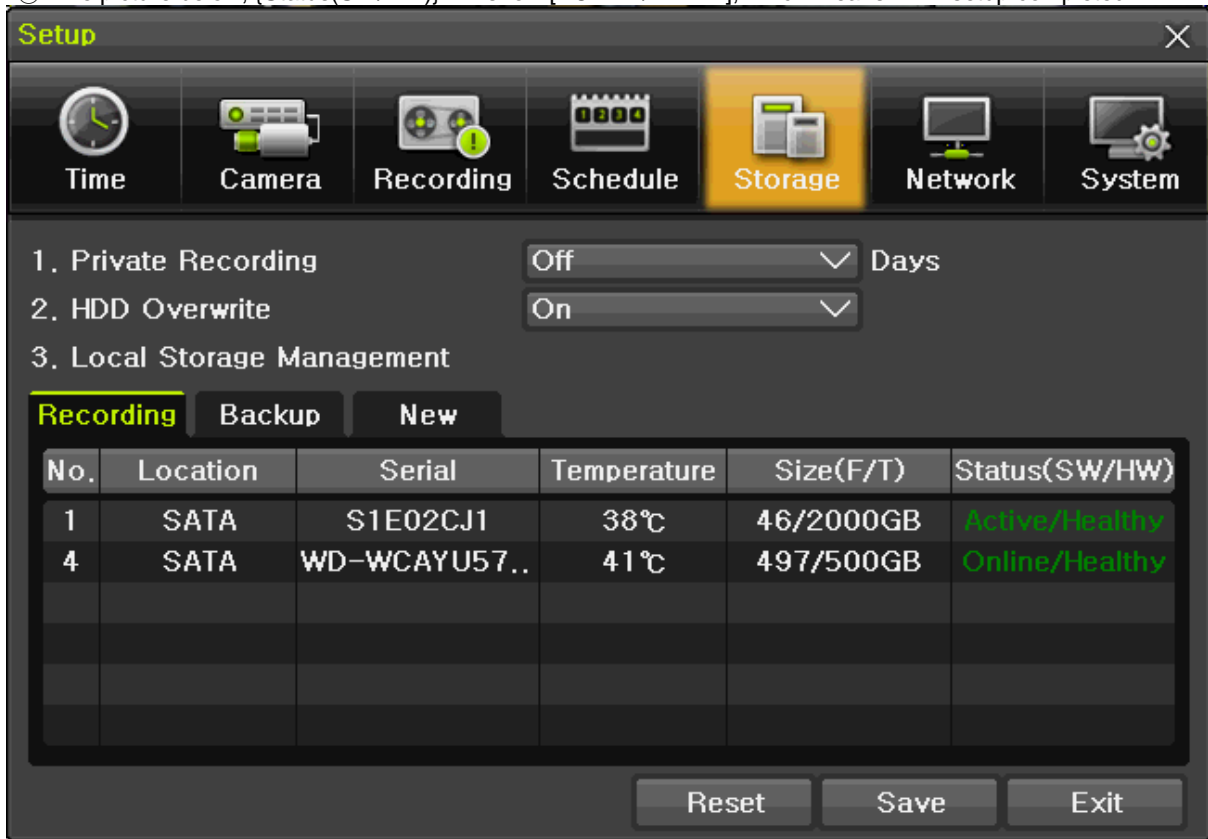
Recording Format	Transforming selected storage for recording device
Backup Format	Transforming selected storage for backup device
 Caution	At least more than one storage must be selected as recording device among recognized storage from {New} tab. Otherwise (without recording device) data cannot be saved.

③ Select {Recording-Format}, format will be in progress.



{Recording-Format} procedure may take time than you expect.

- ④ After initializing done, HDD on New tap will be moved to Recording tap.
- ⑤ Move to {Recording} tab.
- ⑥ Like picture below, {Status(SW/HW)} will show [ACTIVE/HEAL..], which means HDD setup completed.



[Figure 4-7. Storage Recording Tab menu]



Refer to [6-5 Storage] for better understanding about storage.

4-5 Recording Setup

- ① {Menu} → {Setup} → {Action} → {Recording}
- ② Setup for [Recording Resolution]/[Continuous Recording]/[Event Recording/[Audio] available.



Default recording option is [Recording Quality: High][Continuous Recording: 1][Event Recording: 8(NTSC)/6(PAL)][Event: Motion] With this option DVR records connected video image from cameras. For more detail please refer to [6-3 Recording].

4-6 Date/Time Setup

- ① {Menu} → {Setup} → {Time}
- ② Set [Time Sync]/[Date & Time]/[Time Zone]



Caution

For better understanding please refer to explanation below

Chapter 5. System Operation

5-1 Starting System and Exiting the System

5-1-1 Starting System

- ① Press the power button with the power connected.
- ② All channels connected to cameras will be displayed after booting is completed.

5-1-2 Exiting the System



- ※ Default password for Admin account is "00000."
- ※ Password can be changed {Menu} → {Setup} → {System} → {4. Users}.

- ① Press the power button.
- ② Input password for Admin account.
- ③ When password is corresponded, system will be terminated.

5-2 Monitoring

- Support various display modes and Auto Sequence
- Menu control on monitoring mode

5-2-1 Screen Division and Auto Sequence

 Full Screen(8 groups)										
Use the Full Screen mode button or double click the channel you want										
 4Sub-Screen (2 groups)	<table border="1" style="display: inline-table; margin-right: 20px;"> <tr><td>1</td><td>2</td></tr> <tr><td>3</td><td>4</td></tr> </table> <table border="1" style="display: inline-table;"> <tr><td>5</td><td>6</td></tr> <tr><td>7</td><td>8</td></tr> </table>	1	2	3	4	5	6	7	8	
1	2									
3	4									
5	6									
7	8									
Use the 4Sub-Screen button.										
 9Sub-Screen (1 group)	<table border="1" style="display: inline-table;"> <tr><td>1</td><td>2</td><td>3</td></tr> <tr><td>4</td><td>5</td><td>6</td></tr> <tr><td>7</td><td>8</td><td></td></tr> </table>	1	2	3	4	5	6	7	8	
1	2	3								
4	5	6								
7	8									
Use the 9Sub-Screen button.										
Auto Sequence <ol style="list-style-type: none"> ① Rotating images (channels) with the certain time. ② Select the certain time (1 sec.-10 sec.) on {Menu} → {Miscellaneous} → {Setup} ③ Auto sequence is starting after pressing the {select} button on front panel, {select} button on remote controller and arrow icon on the status bar as below. 										

5-2-2 Zoom (x16)

Zoom in & out for specific zone on live display.



- ① Move to the Zoom mode by selecting the icon on the status bar thru Mouse or {Menu} → {Zoom}
- ② Control the Zoom by using the up/down buttons or Mouse.
- ③ Zoom menu will disappear after pressing ESC button or the left button of the Mouse.

5 - 2 - 3 Menu on live monitoring mode

You can control every function on {Menu} on live monitoring mode.

- ① You will see Menu with Menu button or right button of the mouse.
- ② Select a category with direction button or right button of the mouse.
- ③ Click ESC button or right button of the mouse in order to exit the menu.

5 - 3 System Login

5 - 3 - 1 User Account and Authorization

Local Admin	The local administrator has all authorities. (But, remote access is not available) Default password is [00000]
User	Up to 15 users are allowed. Each user can access the functions depending on the given authorities. For Authorization Setup, Move to {Monitoring Menu} → {Setup} → {System} → {4. User Registration} .

5 - 3 - 2 Login

For security purpose, user must log in first.

- ① Select **{Menu} → {Login}** on the live display.
- ② Input password and and click OK or cancel.
- ③ Password for English can be shown after selecting the space of password.

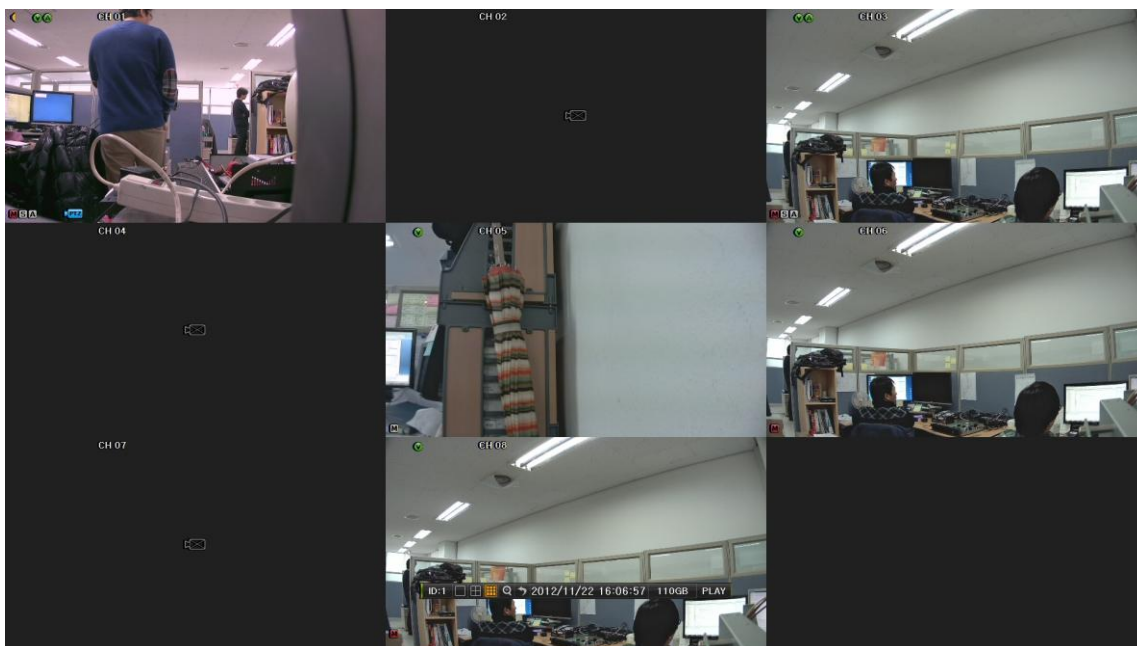
5 - 3 - 3 Logout

After logout, user can't use menu.

- ① Select **{Menu} → {Logout}** on the live display.

5-4 System Information View and Display Setup Change

Audio/Recording Status/Channel Title/Connection Indicator/Time/HDD status are displayed as shown below.



[Figure 5-6. Recording Status Window]

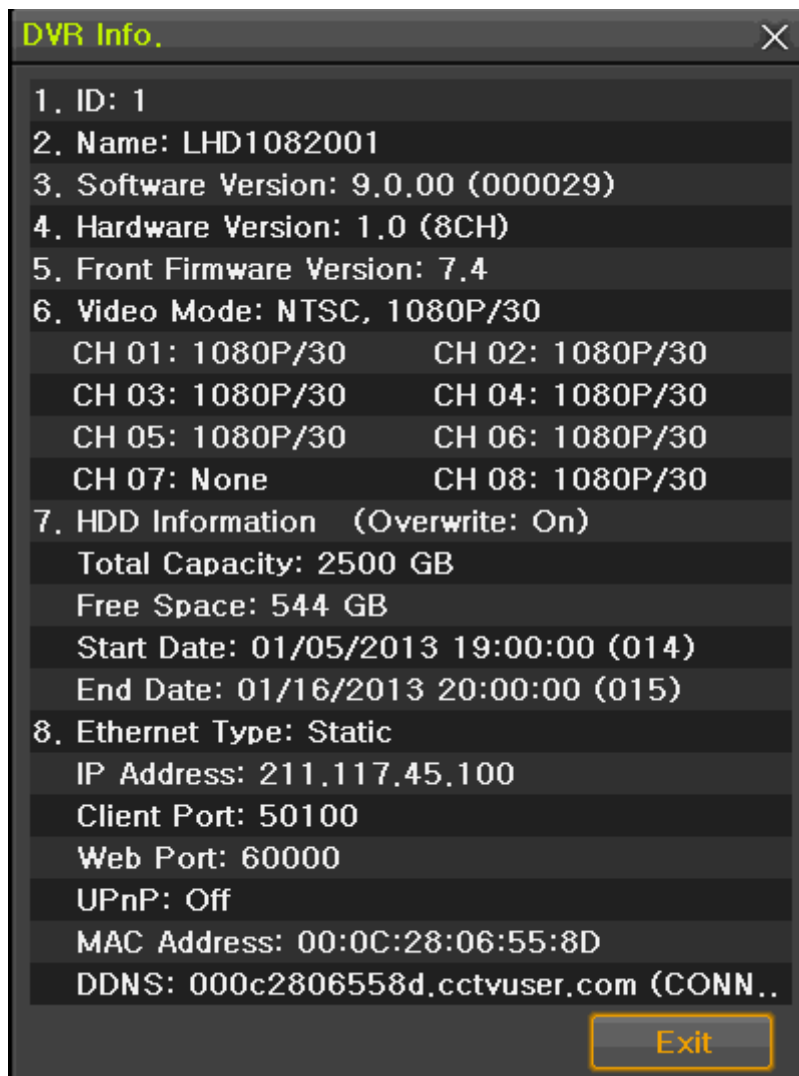
※ Recording Event / Recording mode display ※		
Recording Event		Motion recording
		Sensor recording
Recording Mode		Video recording
		Audio recording

※ Live Display ※	
	Video is not connected or Video is covert
	Audio is set activated
No Signal	Camera has been disconnected
	The channel for PTZ setup

※ Control Bar※	
①	DVR ID
②	1Ch display mode
③	4Ch display mode
④	8Ch display mode
⑤	Zoom
⑥	Auto Sequence
⑦	Date / Time
⑧	HDD Status
⑨	Playback

5-5 System Information

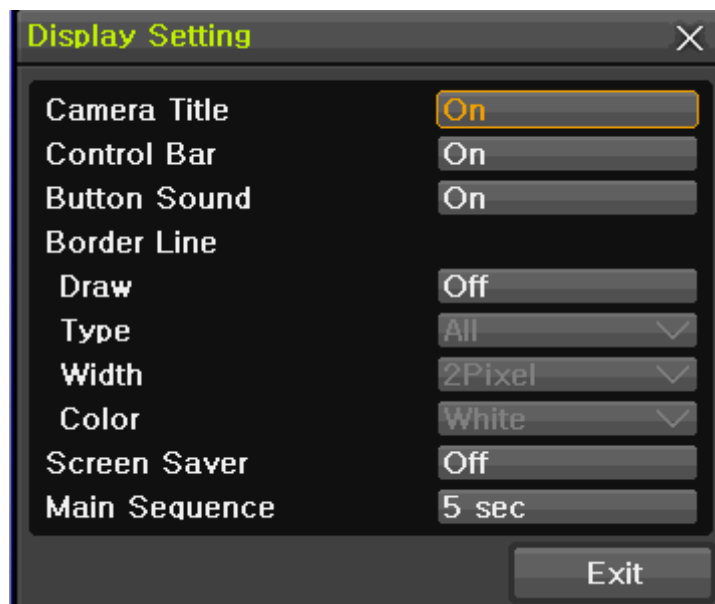
- ① Select {Menu} → {Miscellaneous} → {DVR info.}
- ② DVR info. Will be displayed as shown below.



[Figure 5-7. DVR Information]

5-6 Display Setup

- ① Select {Menu} → {Miscellaneous} → {Display Setup}
- ② You can set display setup as show below.



[Figure 5-8. Display Setup]

(1) Camera Title, Control Bar, Button Sound
Set the title of camera and control bar, button sound.

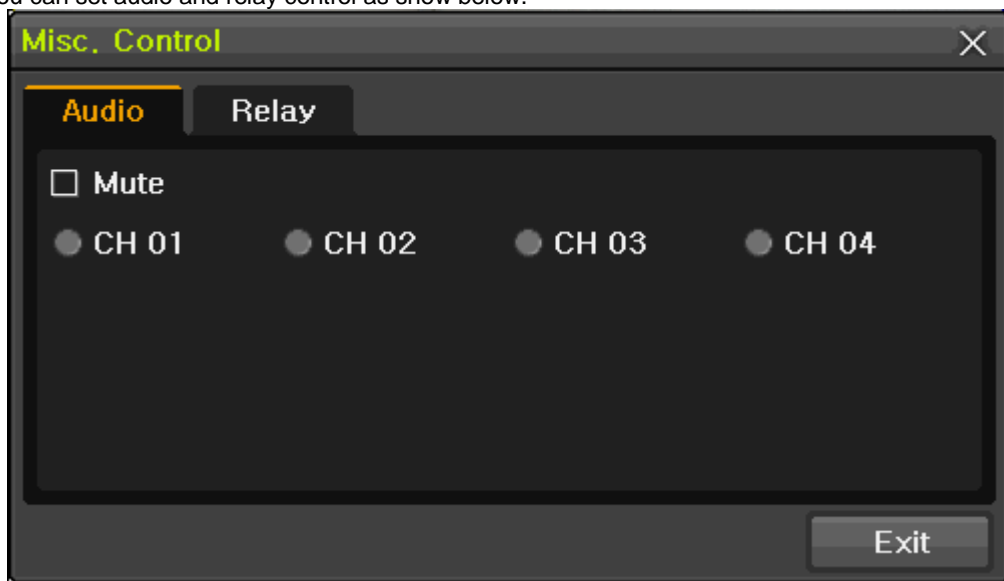
(2) Border Line
Set the border line between channels.

(3) Screen Saver
Set Monitor saver.

(4) Main Sequence
Set sequence duration, sequence order and on/off for event.

5-7 Audio, Relay control

- ① Select {Menu} → {Miscellaneous} → {Control}
- ② You can set audio and relay control as show below.



[Figure 5-9. Miscellaneous Control]

(2) Audio

Setup for Audio channel and mute.

(3) Relay

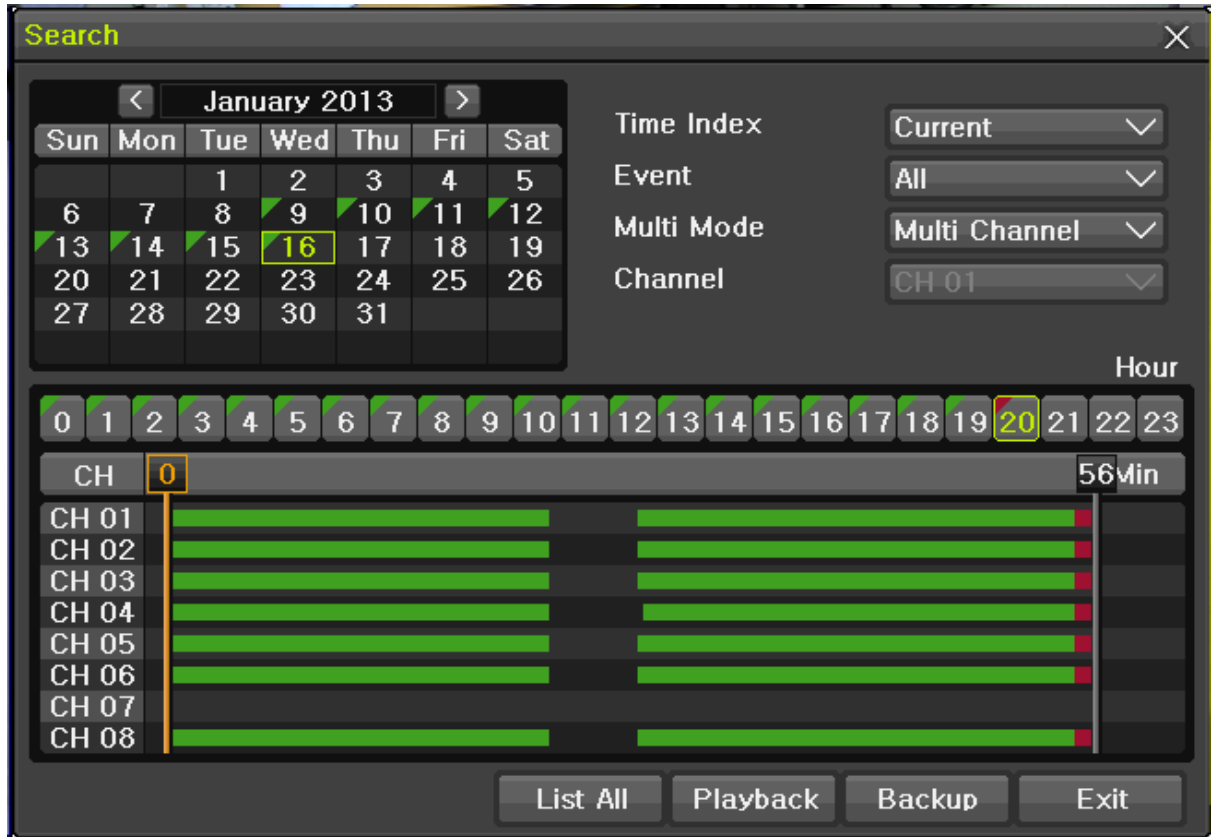
Setup for Reply out or cancellation

5-8 Search




Calendar Search	Search the recording data by year/month/day/time.
Go To The Last	Playback the last recorded data by multi-channel mode.
Go To The First	Playback the first recorded data by multi-channel mode.
Go To the Last Played Time	Playback the last played time by multi-channel mode.

5 - 8 - 1 Calendar Search

Select {Menu} → {Search} → {Calendar Search} on the live display mode and then a searching window pops up as shown below.




[Figure 5-10. Search Window]

	Green	Continuous recording is in progress
	Red	Motion recording is in progress
	Blue	Sensor recording is in progress

5 - 8 - 2 Time Index

- ① New folders (directories) are created every time when the time is changed on {Menu} → {Setup} → {Time} → {Date/Time}.
- ② Many Time Indexes come out when you select the menu for Time Index on the right side of search mode.

	
Current	Recorded image files with the current set time.
Old_Number	Recorded image files before the time change.

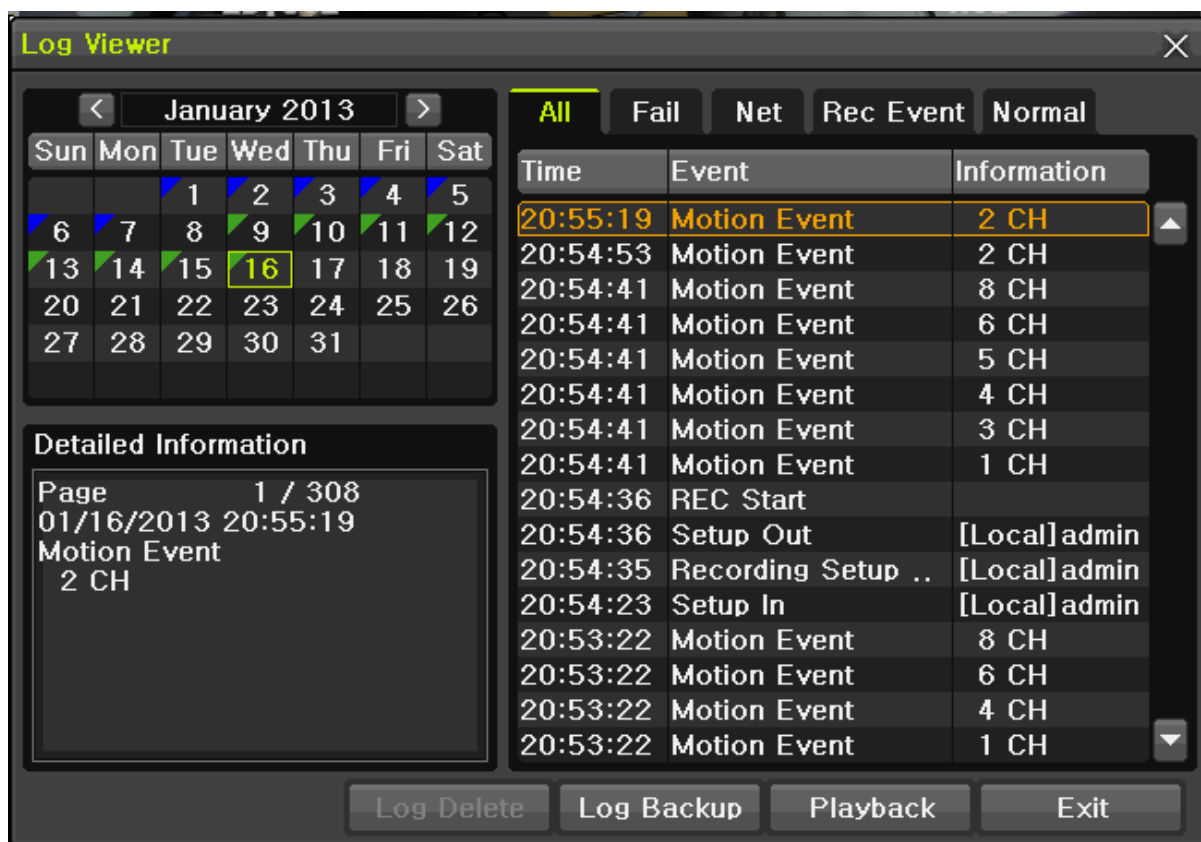
5 - 8 - 3 List All

Current recording time list is showed regardless how many times system time has been changed.

- ① All list comes out after selecting {List All} on the bottom of search mode.

5-9 Log Viewer

DVR records all Log information over the system operation including Power on/off, System Setup and Network Access. Move to {Menu} → {Miscellaneous} → {Log Viewer} to see the logs.

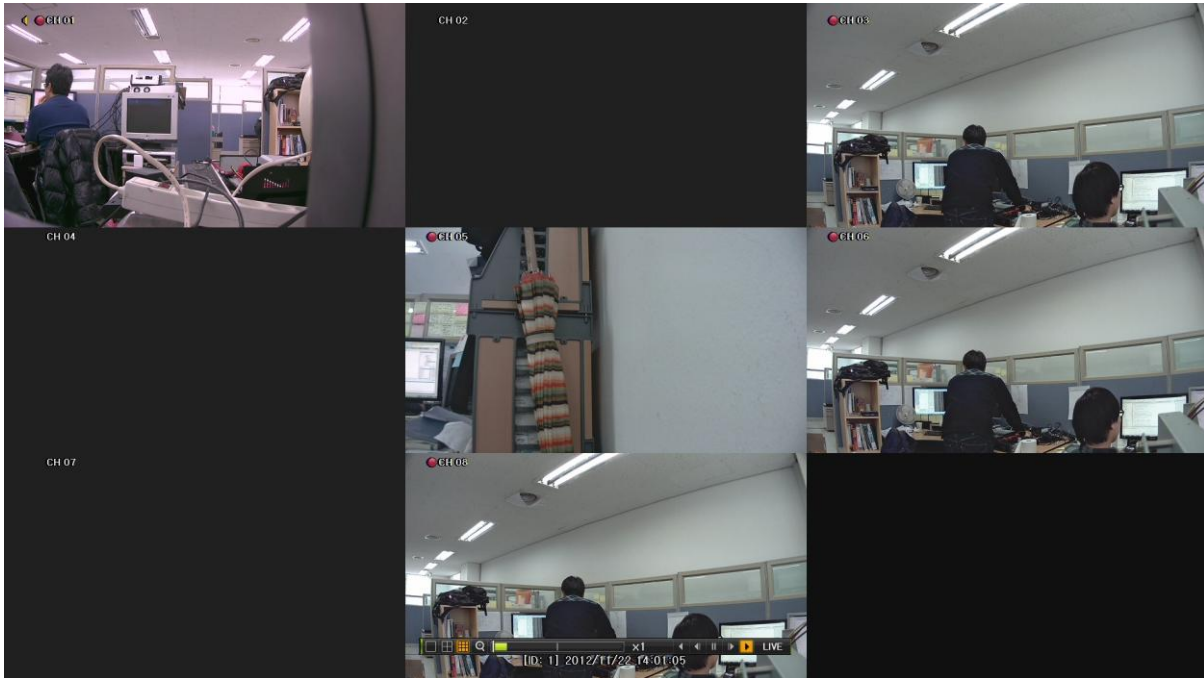


[Figure 5-11. Log Viewer]

All	Logs related to all system operations.
Fail	Logs related to system operation failures, e.g., signal loss and network connection failure.
Network	Logs related to network operations e.g., network login, network logout, and network live.
Recording Event	Logs related to recording, e.g., motion detection and sensor detection.
General	Logs related to power ON/OFF, file copy/backup failure, setup start/end, playback, and other basic system operations.

5-1 0 Playback

There are three routes {Live Monitoring}, {Search}, {Log Viewer} to playback on DVR.
 On Live display(monitoring), select {Menu} → {Search} → {playback}.



[Figure 5-12. Playback Screen]

5-1 0-1 Playback status and Playback Speed Control



[Figure 5-13. Playback Status and Control bar]

Description of the Search Buttons		
Button	Name	Features
	Forward Play / Fast Forward	x1 → x2 → x4 → x8 → x16 → x32 → x300 → x1
	Forward Frame by Frame	Playback frame-by-frame Pause
	Pause	Pause
	Reverse Frame by Frame	Reverse playback frame by frame Pause
	Reverse Play / Fast Reverse	reverse x1 → x2 → x4 → x8 → x16 → x32 → x300 → x1
	ESC	Escape playback mode
		Status bar shows recoded video data per hour and speed status.

5 - 1 0 - 2 Smart Search

This function is for search an image with the object movement at a specific zone as fast as it can. Searching by each channel is available.

5 - 1 0 - 3 MULTI TIME

Multi-Time is to play the recorded image of the different time over a certain designated channel. The lineup of the recorded image of the different time is the most recent-bottom.

5 - 1 0 - 4 MULTI DAY

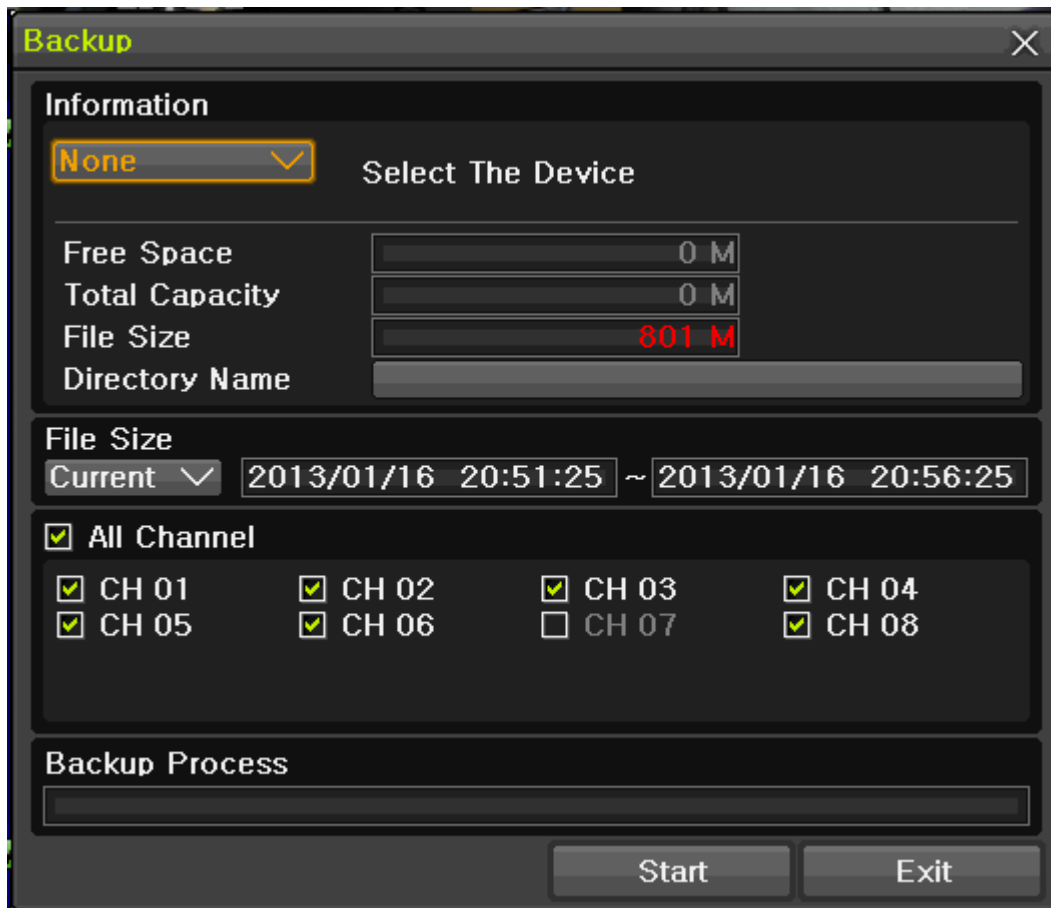
Multi-Day is to play the recorded image of the different day over a certain designated channel. The lineup of the recorded image of the different time is the most recent-bottom.

5 - 1 0 - 5 Event

Event is to play the recorded image with [All/Motion/Sensor/Audio].


5 - 1 1 Backup

Before backup process, CD/DVD or external HDD, CD, DVD supporting USB2.0 should be connected to the DVR. Refer to Appendix on the last page of this manual to get information of compatible list. There are three routes to backup on DVR.



[Figure 5-14. Backup]

- ① In real-time monitoring mode, select **{Menu} → {Backup} → {Backup}**. The backup menu will then appear.
- ② Show the free and total space, after selecting backup device.
- ③ Check the time/date and channel.
- ④ Backup will be progressing after click the start button.

	<p>If the total size is smaller than backup size, it shows as red and not allowed to backup.</p> <p>If the backup storage device is not formatted, in case the box displaying the size of the file to be backed up is displayed in yellow, and if backup is executed by pressing the Copy (Backup) button, a prompt asking whether to erase the device will appear as shown below. Selecting [YES] causes the storage medium for the selected device to be erased.</p>
---	--

5-1 2 Snapshot

The Snapshot function lets the user create a JPG file in live monitoring, playback.

On the live monitoring, Select **{Menu} → {Backup} → {Snapshot}** and then directly move to Snapshot menu.

- ① Will see the storage selection window. After selecting storage, backup will be done.

5-1 3 Log Backup

All of recorded log data such as Normal/ Recording Event/ Network/ Failure could be backed up.

- ① Select **{Log Viewer} → {Log Backup}** or **{Menu} → {Backup} → {Log Backup}**.
- ② Setup after checking device, time and event. .
- ③ Backup is started after selecting start button.



Log file is text format so the file could be open easily.

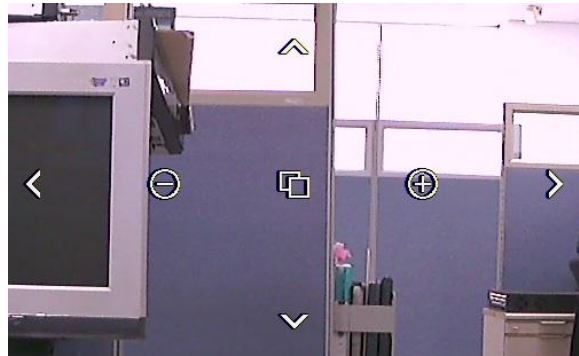
5-1 4 Setup Backup

Backup all setup data which is applied to the DVR.

- ① Select **{Menu} → {Backup} → {Setup Backup}**.
- ② After selecting storage, backup will be done.
- ③ The file from Setup Backup can be applied to another DVR with **{Menu} → {Setup} → {System} → {Upgrade}**.

5-1 5 PTZ Camera Control

- ① PTZ camera setup should be correct on here {Menu} → {Setup} → {Camera} → {PTZ}.
- ② In real-time monitoring mode, select {Menu} → {PTZ Control}.
- ③ PTZ Full control window is coming out after selecting MENU button or the right button of the Mouse. If you are okay with PTZ Simple control window, selecting ESC button or the right of the Mouse just after that.



<PTZ Simple Control Window>



<PTZ Full Control Window>

- (1) **Camera**
Select PTZ to be controlled.
- (2) **Speed**
PTZ camera speed is adjustable.
- (3) **Tour**
To use this feature, it should be setup with {Menu} → {Setup} → {PTZ} → {Tour}.
- (4) **Left,right/up,down/zoom**
Control the Left/Right/Up/Down/Zoom of PTZ camera.

(5) Preset

Using Left/Right/Zoom movement of PTZ Camera, zoom or focus a certain spot of the image by designating the coordinates and move to the designated coordinates quickly.

(6) Home Position Time

If there are no controlling signals to PTZ camera after a certain time, it goes automatically to the Preset No.1 position as Preset No. 1 is designated as Home Position.

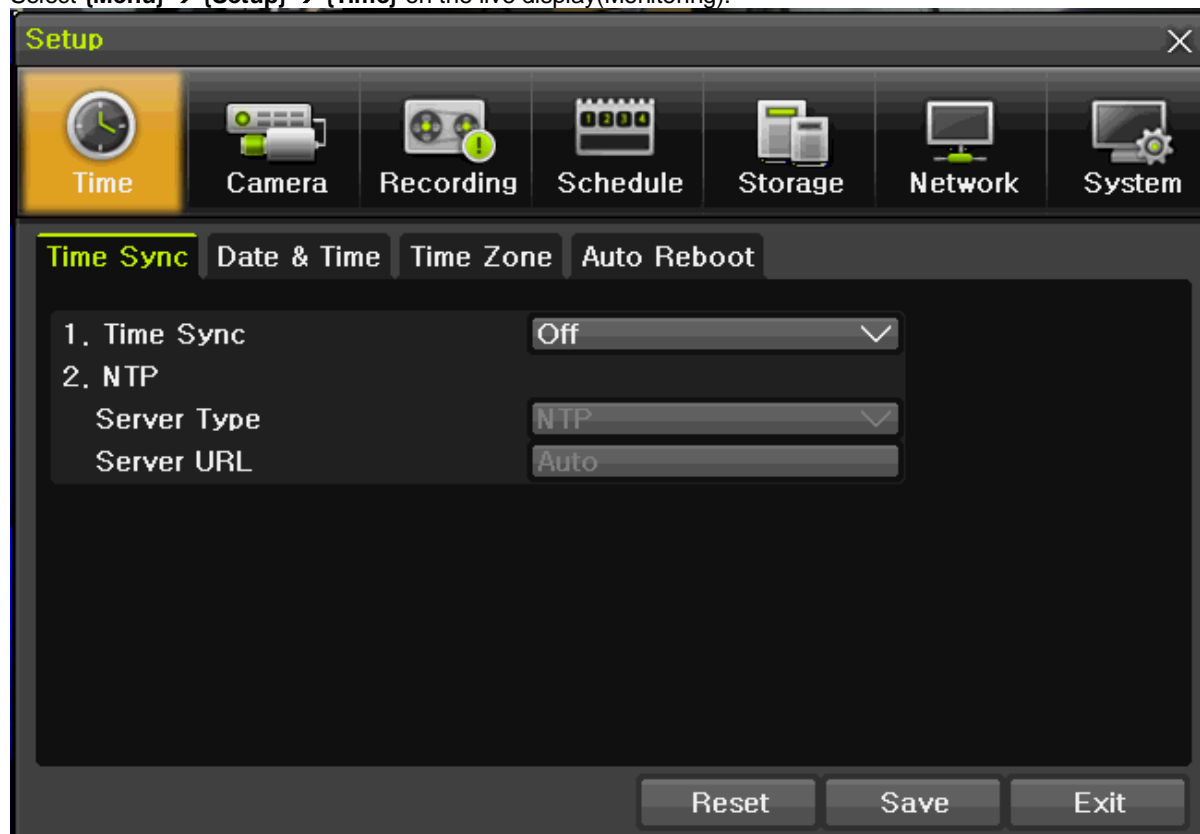
(7) Menu

Control PTZ Menu directly.

Chapter 6. Setup

6-1 Time

Select {Menu} → {Setup} → {Time} on the live display(Monitoring).



[Figure 6-15. Date and Time Window]

(1) NTP Sync

Synchronize DVR time with NTP Server time at one time in hour.

(2) Date and Time

Change the system date/time and the time format.

(3) Standard Time Zone

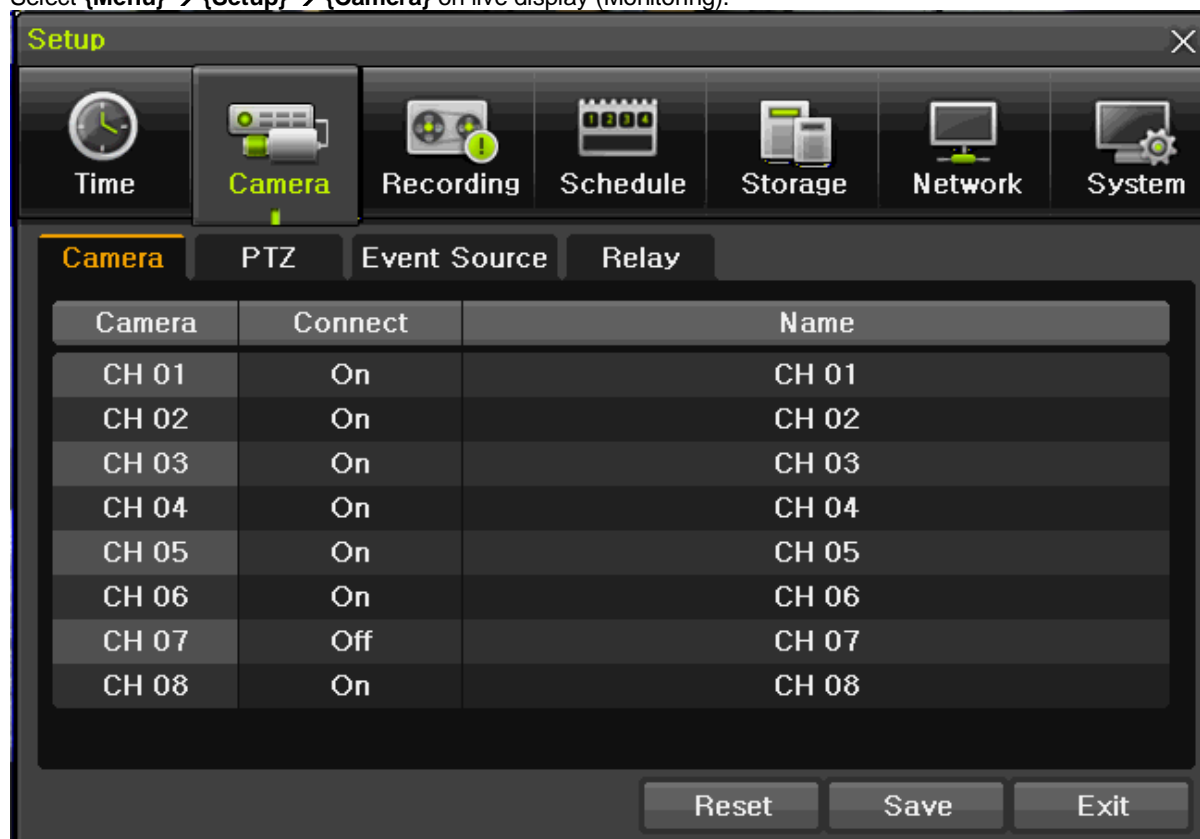
Select {Standard Time Zone}, {Daylight Saving Time}, {Start/End time}.

(4) Auto Rebooting

Select the period for auto rebooting of DVR system.

6 - 2 Camera

Select {Menu} → {Setup} → {Camera} on live display (Monitoring).



[Figure 6-16. Camera Window]

6 - 2 - 1 Camera

(1) Connect

Set on/off of the camera.

(2) Title

Set the name of each camera up to 20 characters.

6 - 2 - 2 PTZ

Set the Tour, Protocol, ID, Baudrate of PTZ camera.

6 - 2 - 3 Event Source

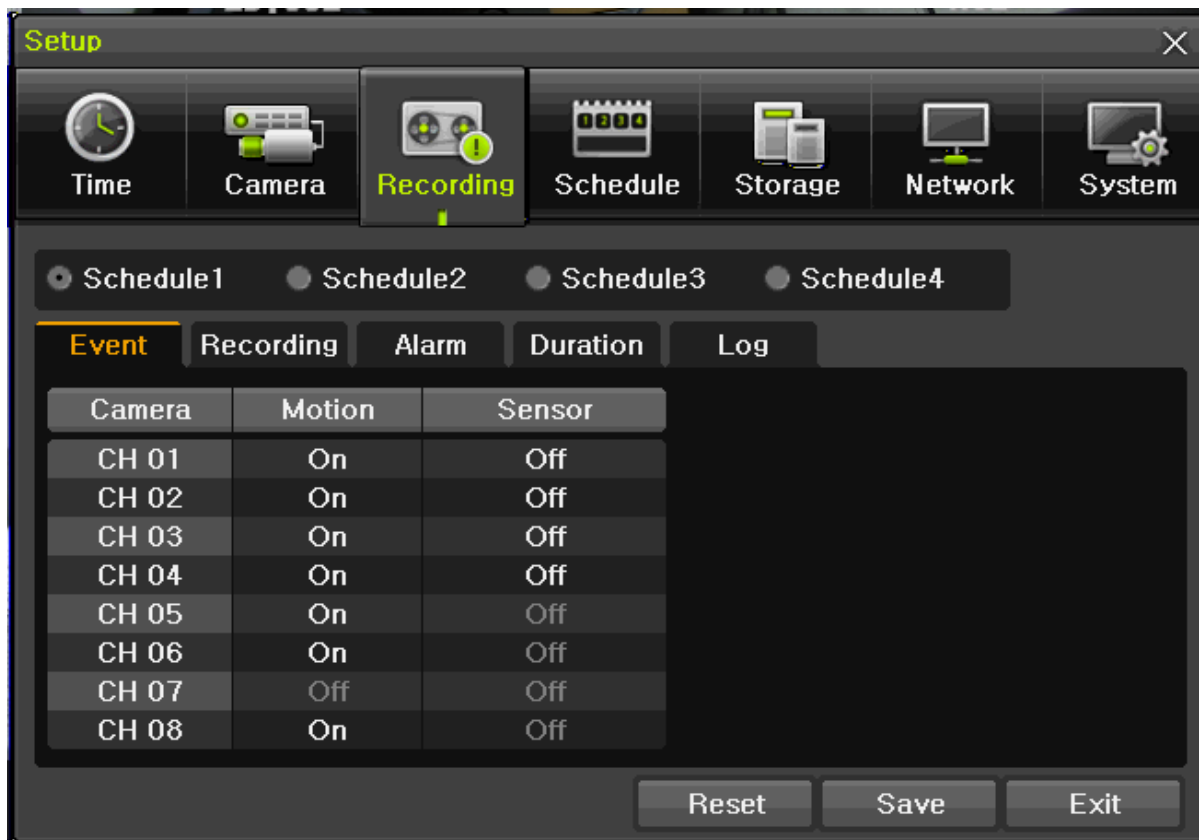
Set the Motion Area, Motion Sensitivity, Sensor Type.

6 - 2 - 4 Relay

Set the type of Relay.

6-3 Recording

Set recording, system, main features. {Menu} → {Setup} → {Recording}



[Figure 6-17. Action Window]

6-3-1 schedule (schedule1 - schedule4)

4 different settings can be applied by time and date on schedule table for user convenience. Please go to menu/schedule after setting up schedule1, schedule2, schedule 3, schedule 4 differently.

6-3-2 Event

Set the motion, Sensor.

6-3-3 Recording

Set the Resolution, Frame, Quality, Audio.

Resolution	NTSC recording resolution	PAL recording resolution
720p	1280 x 720	
1080p	1920 x 1080	

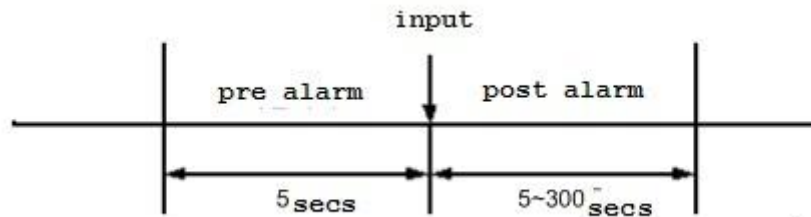
Recording frame rate	
Normal Speed	when record continuously
Event Speed	When record by motion, sensor.

6-3-4 Alarm

Set the Alarm action Buzzer, PTZ Preset, E-mail, Relay, Popup and Callback when event comes out.

6 - 3 - 5 Duration

Pre alarm(On / OFF), post alarm(5sec / 10sec / 15sec / 20sec / 60sec / 150sec / 300sec)



[Figure 6-18. Pre/post alarm]

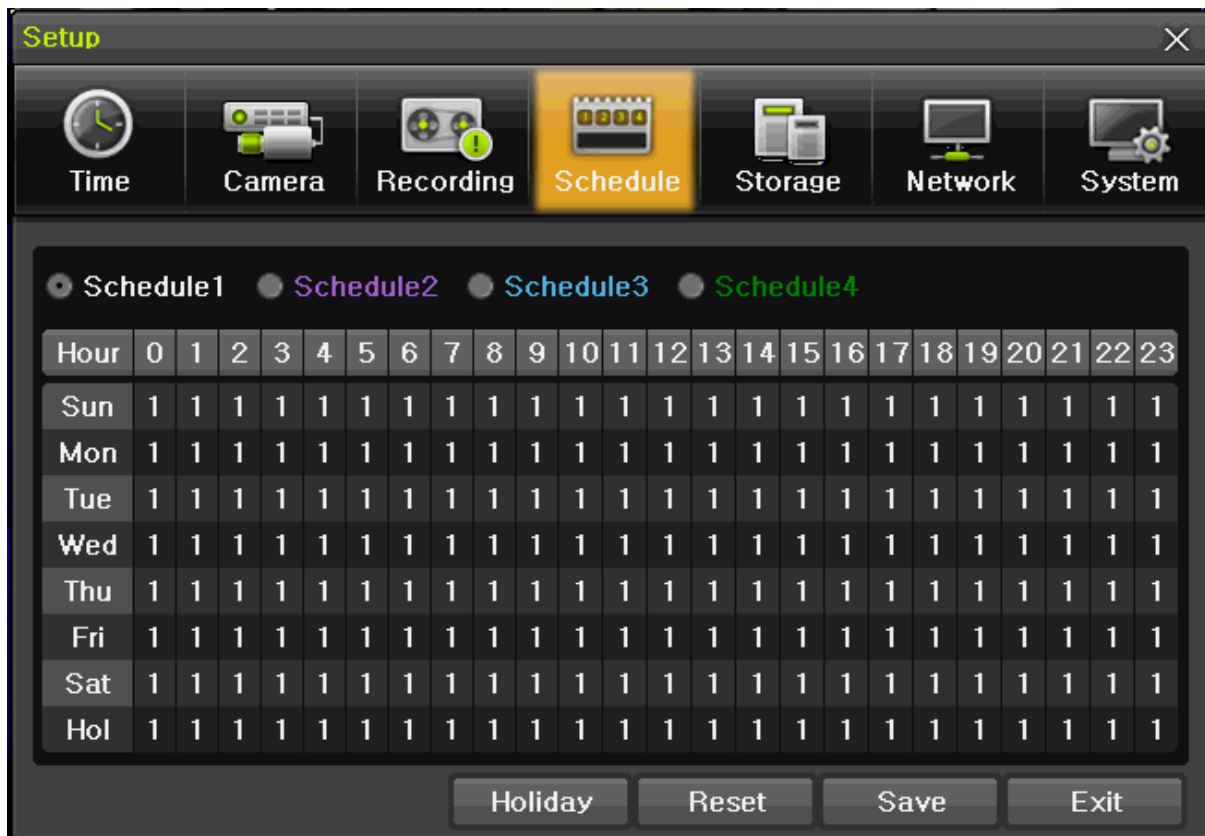
6 - 3 - 6 Log

Set On/off of log by motion detection / sensor input.

6 - 4 Schedule

Select {Menu} → {Setup} → {Schedule} on the live display.

{Schedule} is used to save the system configuration as data from {Schedule 1 ~ 4} and to make a recording based on the system configuration for each day/time zone.



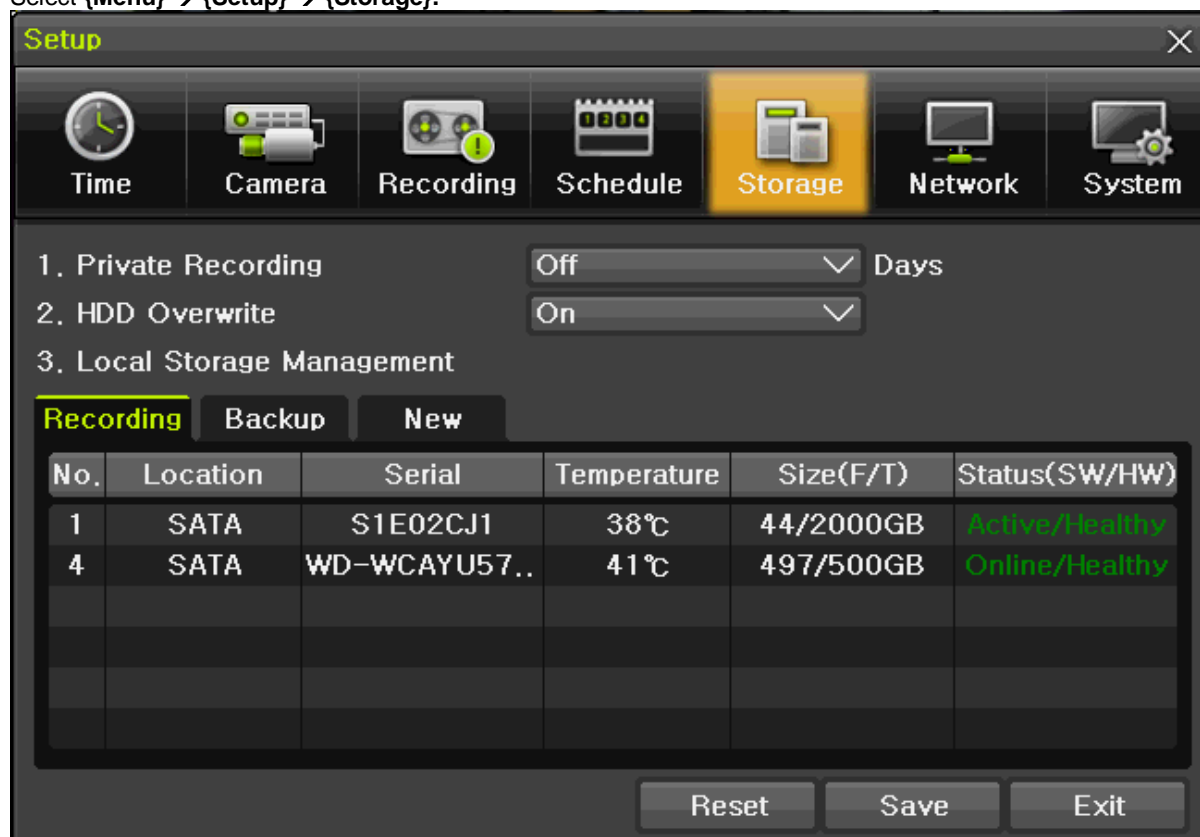
[Figure 6-19. Schedule Window]

6 - 4 - 1 Holiday setup

Set the Holiday for recording schedule.

6 - 5 Storage

Select {Menu} → {Setup} → {Storage}.



[Figure 6-20. Storage Window]

6 - 5 - 1 Max. Recording Days

This is to limit the recording days. You can set None/1day/7days/30days/User setting (1-99).

6 - 5 - 2 HDD Overwrite

Set On/Off for HDD Overwrite.


On	If there is no more hard disk space left, the existing files will be overwritten starting with the oldest.
Off	If there is no more hard disk space left, further recording will not be executed.


6 - 5 - 3 Local Storage Management

(1) Local Storage Management Function

New	All initially detected storages are displayed as New Recording Initialize – Changed it for Recording Backup Initialize – change it for Backup
Recording	Storage list for Recording ※ At least, one storage shall be selected as a dedicated storage. Otherwise, the data cannot be stored in real time. New – Returns the status of the selected storage device to New Format – Format the selected storage. (Available only in Offline.)
Backup	Storage list for Backup

(2) Configuration of the local storage device

	※ There are three software status types.
Active	Connected to storage or backup device; currently saving the data.
Online	Only connected to storage or backup device.
Offline	Not connected to storage or backup device.

	※ There are three hardware status types.
Healthy	Connected to storage or backup device; functions normally.
Warning	Connected to storage or backup device, but error was detected; in this case, data storing or backup cannot be made (for more information, see the description below).
Fault	Not connected to storage or backup device; cannot perform data saving or backup.

-
1. **Fault State:** The storage device is completely damaged, and none of the S/W operations can be performed. The fault state is not related to a DVR problem. The DVR has detected the fault and stopped the recording.

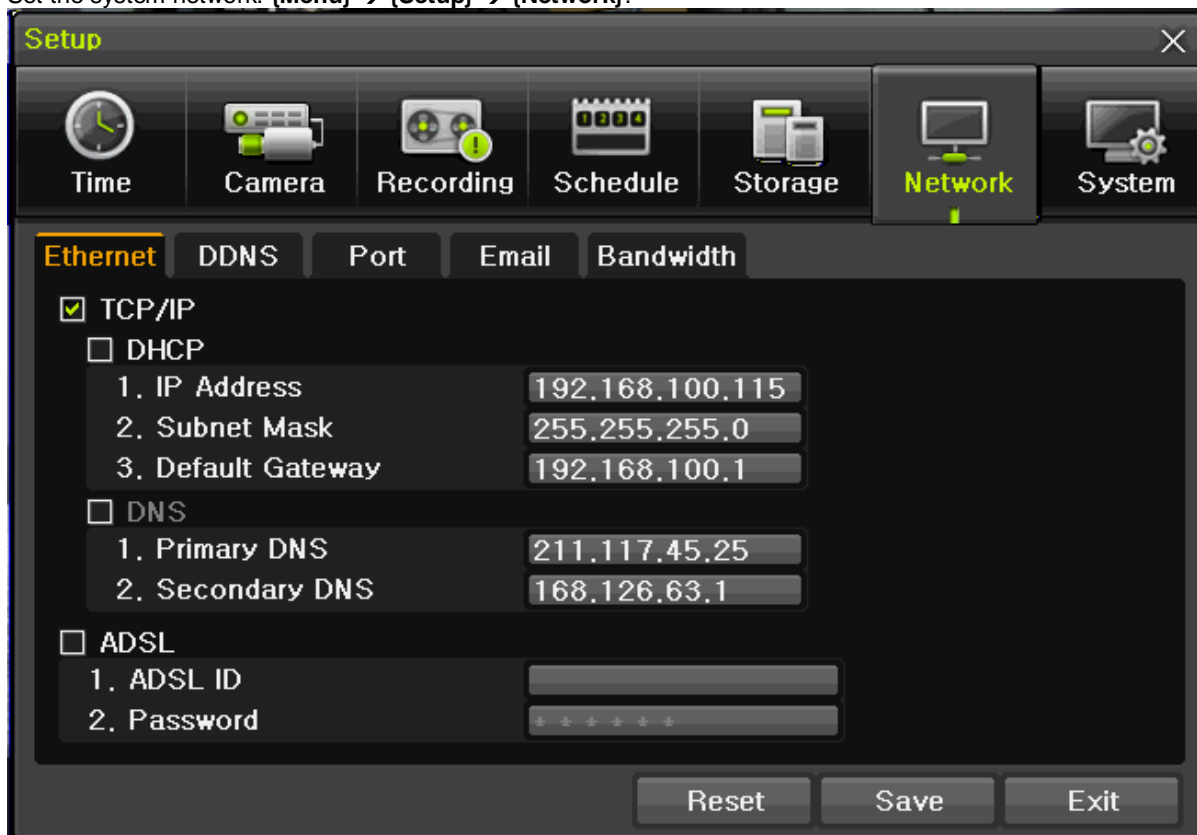


2. **Warning State:** The storage device has a physical error that can be corrected by the storage device or by the DVR. If the error is not taken care of, however, the storage device is likely to be damaged (and shift to fault state). Backing up data in the corresponding storage device and replacing the device with a normal one are strongly recommended.

3. If there is an active storage device with a warning or a fault, a message is displayed on the upper left part of the screen.
-

6 - 6 Network

Set the system network. {Menu} → {Setup} → {Network}.



[Figure 6-21. Ethernet Window]

6 - 6 - 1 Ethernet

Set the IP, ADSL, Gateway and DNS as above.

6 - 6 - 2 DDNS

As part of the DNS system, the Dynamic Domain Name System (**DDNS**) service updates the IP addresses of host names in real time and allocates fixed domain names to systems linked to dynamic IP addresses to allow users to use the same DNS name regardless of the changes in the IP address. It provides dynamic DNS to ensure URL access in the dynamic IP environment.

User can monitor the remote place thru internet with web server functions which is equipped in DVR.

	<ul style="list-style-type: none">※ Access to DynDDNS sever(http://www.dyndns.org) and apply for the user account then, register the domain name to use and enter URL.※ For more information, please access to the sever.
--	--

6 - 6 - 3 Port

Set the port for network.

UPnP function will be available on the selection of On. On UPnP, 'Success' will be popped up on the port registration at Router. Otherwise, 'Failure' will be popped up instead.

6 - 6 - 4 E-mail

Automatic E-mail transmission service when an event occurs.

6 - 6 - 5 Bandwidth

This sets up the limit of the bandwidth to be used when bringing the live image, adjust resolution/quality and transmitting the data by using the network.

6-7 System

{Menu} → {Setup} → {System}




[Figure 6-22. System Setup Window]

DVR Name	MAC address for DVR. Available to change whatever user wants.
ID for Remote Controller	Set the identify no. of remote controller.
ID for Key Controller	Set the identify no. of key controller
Users	Adds, edits, or deletes the users who will operate the system.
Admin. Password	Set the password for the Local Admin.
Upgrade	Firmware – Firmware upgrade Setup – Change the setup of DVR
Factory Setup	Initializing it as setup (Except Network setup)
Error Alarm Action	Alarm is to notify system incidents [Video Signal loss/ HDD full/ FAN fail/ HDD fail/ HDD warning] to [Alarm/ E-mail/ Relay01/ System check].
Error Alarm Duration	Set the alarm duration
Menu Time Out	If no input is made in the System Setup menu using the front buttons, remote controller, or mouse, the system automatically shifts to real-time monitoring mode.
Language	Set the system language.
Video Loss Event Delay Time	Set video loss detection duration.

APPENDIX

A/P/P/E/N/D/I/X

(1) Recommended HDD

	Type	Size	Capacity	Buffer	RPM
	SATA I, II	3.5" 1, 2 Flat	Max. 2TB	Over 8MB	Over 7200

(2) Recommended PTZ Camera Protocol.

NO	Vendor	Protocol
1	A.D.	SENSORMATIC
2	CHOU	COHU
3	Dongyang	DRX-500
		DY-255
4	DYNACOLOR	DSCP
5	EYE VIEW	EYE VIEW
6	FINE SYSTEM	CRR-1600i/s
7	GE	GE_KARATEL
8	GSP	CYBERSCAN_1
9	HITRON	FASTRAX2
10	HONEYWELL	HSDN-251
11	LG	LG_MULTIX,
		LG_OLD
12	MIKAMI	MIKAMI
13	ORIENTAL	ORX-1000
14	PANASONIC	WVCS854
15	PELCO	PELCO – D
		PELCO - P
16	PHILIPS	PHILIPS
17	PROLINE	PROLINE_UK
18	RIFATRON	RIFATRON
19	SAMSUNG TECHWIN	SPD-1600
		SCC641
20	SUNJIN	SUNJIN
21	VICON	VICON
22	YOKO	YOKO

(3) Recommended USB2.0 Device

USB2.0 Device	Media	File System
Memory Stick	Flash Type	FAT32
2.5" Portable USB HDD	HDD Type	FAT32
CD	CD R, R/W	ISO9660
DVD	DVD +R, +R/W	ISO9660