

UDR-816/808 FULL MANUAL

(H.264 FULL D1 REAL TIME DVR)



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Chapter 1 Functions of Product

Some products may not offer certain functions.

1.1 Function of DVR Front Side



1. Number Buttons: These are used when a channel is selected in the live mode or the video-recorded image playback mode, when the password is entered in the dialogue box and when the IP is entered in the network-setting mode.

2. LED DISPLAY

- POWER: When power supplied, the green light turns on.
- REC: When video recording is at work, the red light turns on.
- NETWORK: When connected to the network, the green light turns on.

3. USB (2EA): This terminal is used to backup images in the HDD and captures still images are made. A USB mouse can be used for convenient DVR operation.

4. Function Buttons

- LOCK: This function is to prevent an unlicensed person from performing system operation. If it is pressed one time, the DVR is converted into "Lock". After converting, if any key is pressed, the window for entering the password will open. Only when the password is completely entered will the key unlocked.
- FRZ (FREEZE): This is used to temporarily pause the screen during live mode. If the button is pressed back, the state of the temporary pause will be unlocked.

- PTZ (Pan/Tilt/Zoom): This is used to move in the PTZ mode for operating Pan/Tilt/Zoom/Focus in the live mode. If the button is pressed back one time, the mode of live image monitoring will be recovered.
- ZOOM: This is used to zoom in or zoom out a particular area of the screen in the live mode.
- SEARCH: This is used to search motion pictures and images in the HDD.
- MULTI: This is a button for deciding what type to use to show 16CH/8CH DVR. The method of live image playback is the same as that of when playing back images. Whenever the key is pressed, the images are changed into 1-Partition/4-Partition/9-Partition/13-Partition/16-Partition.
- SEQ (SEQUENCE): The channels will be shown in sequence according to the setting value of Camera-Sequence in the live mode. They are converted in sequence in the mode of screen partition (1-partition/4-partition/9-partition/13-partition). If the button "Page Sequence" is pressed back, it is converted into CAM Sequence.

5. Buttons for Selection of the Direction

- UP: This is used to move the cursor upward to select the detailed items to be controlled in the state of Menu and to move the camera upward in the state of PTZ control. It performs the function of changing the channel in the state of Playback.
- DOWN: This is used to move the cursor downward to select the detailed items to be controlled in the state of Menu and to move the camera downward in the state of PTZ control. It performs the function of changing the channel in the state of playback.
- LEFT: This is used to perform the function of changing the setting value in the state of Menu. It is also used to move the camera leftward in the state of PTZ control and to reduce the speed in the state of Playback.
- RIGHT: This is used to perform the function of changing the setting value in the state of Menu. It is also used to move the camera rightward in the state of PTZ control and to increase the speed in the state of Playback.
- OK: This is used to apply the selected items in the state of Menu. If the button "OK" is pressed in the state of live, it will change the Channel Selection mode; if the button "OK" is pressed after a

channel is selected, the menu of Camera Change will appear. See the "[3.12 Camera Change setting Menu](#)" for details of the "Camera Change Menu"

6. Buttons Related to Video Recording

- RECORD (●): This is a button to start the video recording except when doing a continuous video recording.
- PLAY (▶): This button starts the playback; if the button is pressed during the state of Live, the playback will start whether or not the advanced designated channels, start files, or audios are set.
- R.PLAY (◀): This button makes it possible to start playback while playback is in the progressive direction or is in progress.
- PAUSE (II): This button temporarily freezes the playback if the button is pressed during the state of Playback.
- EXIT: This conducts the function of exiting in the state of Menu. If the button Exit is pressed while playback is in progress, it is converted into live images.
- MENU: This button starts the menu and plays the role of returning it into a higher-stage menu during the state of Menu Control.

7. Jog/Shuttle

- JOG: This is used to do precise search, watching saved images one by one in the progressive or reverse direction.
- SHUTTLE: This performs the function of playback at double speed in the progressive or reverse direction.

8. IR Reception Part: This is a terminal through which the IR data in the remote controller is received.

1.2 Function of DVR Back Side



1. VIDEO IN

- IN: This is a terminal of CAMERA INPUT. (CVBS signals are used as Input)
- OUT: This is a terminal for Loop Out of input images. It can be used as Input of other DVR or channels.

2. VIDEO OUT

- HD Out (1EA), VGA Monitor Out (1EA), MAIN (1EA) _CVBS, SPOT (3EA) _CVBS

3. POWER

- Power ON/OFF Switch

4. AC Inlet

- AC 100V ~ 220V (50 Hz~60 Hz) / 60W

5. Ethernet

- (10/100/1000 Mbps) RJ-45 Connector

6. ALARM Output (NO, COM, NC)

- This provides four alarm outputs in total. It uses a relay to provide contact outputs while an alarm is off. The user can select NO, COM, or NC contacts to use according to the methods of operating the connected alarm devices. NO (Normal Open) is a contact where it is separated from COM (Common) in the normal state and is linked with it when an alarm is off; NC (Normal Close)

is a contact where it is connected with COM in the normal state and is separated from it when an alarm is off.

7. ALARM IN (16CH: 1~16, 8CH: 1~8)

- ALARM IN makes it possible to connect up to 16 sensors (8CH DVR has 8 sensors), two types of sensors (NO and NC), select modes in Menu and establish a relationship of connect input channels.

8. RS-232

-RS-232 SERIAL TYPE: This can use RS-232 SERIAL communications to control the outer controller.

9. RS-485

-RS-485 SERIAL TYPE: This can use RS-485 SERIAL communications to control the outer controller.

10. AUDIO Input (16CH: 1~16, 8CH: 1~8), AUDIO Output 1EA

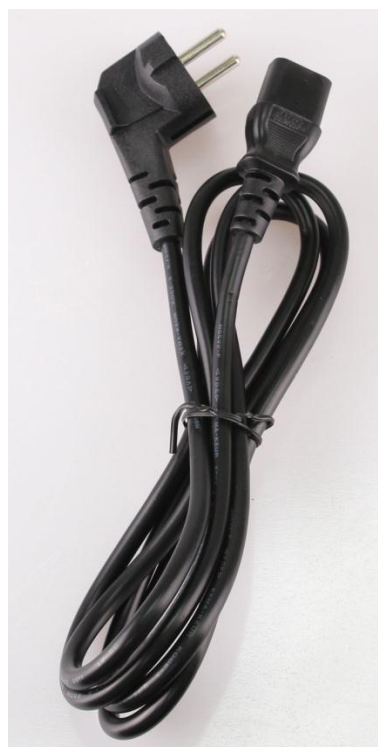
- INPUT (16CH: 1~16, 8CH: 1~8) and one OUTPUT is provided through an extension port

11. E-SATA

- E-SATA connector for outer HDD expansion is provided.

1.3 Remote Controller and Accessories

- The remote controller and accessories are as follows:



1.3.1 Method of Using the Remote Controller

- ID: It is possible to set a DVR ID and control the DVR according to the setting of the remote controller. The methods of use are as follows:

1. The SYSTEM_GENERAL Unit address should be set in the DVR before the ID is set (default 0).

2. When the button "Remote Controller ID" is pressed, the setting of ID is completed, if the remote controller is used to enter ID numbers in DVR, the Button ID should be left untouched (2-digit).

EX) If the DVR unit address is "1" ID "01" should be entered with the remote controller.

3. The remote controller ID can be independently used, up to 20 DVRs (0~19)

- REC: This button is for forcible video recording during emergencies.
- LOCK: This is to lock the DVR. It functions as a button Lock on the front side of the DVR. Press any button and then enter the password to unlock the DVR.
- FRZ: This button is used to temporarily watch still images in the DVR. It functions as the button "FRZ" on the front side of the DVR. Press the button "FRZ" to unlock the state of FRZ.
- PTZ: This button is used to activate the FRZ camera. The function of PTZ should be set on the DVR camera.
- ZOOM: This button is used to enlarge the images in a selected channel. It functions as the button "Zoom" on the front side of the DVR.
- SEQ: This has the same function as the button "SEQ" on the front side of the DVR.
- MULT: This has the same function as the button "Multi" on the front side of the DVR.
- SEARCH: This is used to search video-recorded data or captured still images in the HDD. It has the same function as the button "Search" on the front side of the DVR.
- MENU: This button shows the Menu. It is used to select a variety of sub-menus.
- EXIT: This is used to escape from the menu or change the screen in the live mode during the process of playback.
- PLAY Group: This has the same function as the keys like Group: Playback Start, Stop, Pause, and R.PLAY on the front side of the DVR.

Chapter 2 Basic Methods of Operation

2.1. Power Supply ON/OFF

2.1.1 Power Supply ON

- Connect the electrical cable to switch the "Power" on at the backside of the DVR, turning on the green light of the Power LED, which shows that the power supply is being stably provided. There may be a gap in the time of booting according to the capacity of the HDD. During the booting, the bar "Progress" on the lower part shows the situation of booting. After the booting is finished, the OSD (On Screen Display, letters are displayed on the screen) will be in view, a sign that the booting has been successfully completed. Then, the user can now operate the DVR freely.

2.1.2 Power Supply OFF

- In order to end the DVR, press the button "Shutdown" in the menu "Setup" and the window for entering the password will open. Enter the user-set password (Default value: 111111) and the DVR will end normally. After the message 'Normally ended' is in view, turn off the "Power Switch" at the backside.

2.1.3 Setting time (date and time)

- Enter the date and time on the DVR. After setting the time, move to the item on applying date and time and press the button "OK" to apply the new time.

2.1.4 Setting ID and password

- This is used to change user ID and password on the DVR.

2.1.5 Setting network

- Select the setting of Network Time in the "Setting of Network" in the menu. It supports STATIC, DHCP, and DDNS.

2.2 Recording

2.2.1 Setting the recording-related menu

- This is used to set the detailed items in the menu when setting the recording. Select one of the resolutions. It is possible to select among 720 X 480 (D1), 720 X 240 (Half D1), 360 X 240 (CIF), in case of NTSC and among 720 X 576 (D1), 720 X 288 (Half D1), and 360 X 288 (CIF), in case of PAL. It is possible to set the quality of video recording in each channel by deciding which channel of the input images to connect the audio with. The quality of video recording includes four stages: NORMAL, LOW, HIGH and HIGHEST. It is possible to set the quality within this scope by channels or in the same way for the users' convenience. And finally, it is possible to select the condition of the video recording. See the [3.2 Record-setting Menu](#) for details.

2.2.2 Setting the recording conditions

- You have 4 choices of REC1, REC2, REC3, NONE for recording condition according to the setting value of SCHEDULE ting. See the [3.2 Record-setting Menu](#) for details.

2.3 Playback

2.3.1 Direct playback by using the button Play

- Press the button "Play" for playback. The playback starts to work depending on the set channel; playback's starting point or audio playback.

2.3.2 Audio playback

- In order to play the recorded files with audio link, use the mouse to select a channel and click the right button of the mouse and the audio-related menu will be viewed. After the audio is turned on, click the button "Play" to playback. Press the button "OK" to use the keys on the front side of the DVR and press the button "OK" again to view the audio-related menu. After the audio is turned on, click the button "Play" for audio playback.

2.4 Search

The DVR has 4 search modes:

2.4.1 Search mode

- Quick search: Enter the information on Year, Month, and Date for quick search.
- Calendar search: The search conditions for calendar type search are provided to give at-a-glance information of recorded data.
- Event search: This shows the list of recorded data created by events such as ALARM, MOTION, and VIDEO LOSS.
- OVERLAPPED LIST: This shows the list of data recorded in an overlapped way according to temporal changes.

2.4.2 Search methods

- Quick search: Click on the button "Search" and the four search modes will come into view. Select "Time" on the menu and enter YY/MM/DD then press "OK", and the channels will work at the set time.
- Calendar search: Press the button "Search", and the four search modes will be viewed. Select "Calendar" on the menu and the window for selecting 'Year', 'Month', and 'Date' will be viewed. Select it and the screen will move to the other screen to select 'time' and 'minute'. Finally, select 'time' and 'minute' and the channels will work at the set time.
- Event search: Press the button "Search", and the four search modes will be viewed. Select "Event" on the menu and turn ON or OFF the event search conditions. Select the LOG list and the list of events will be viewed. Select your favorite event list and the playback will work at the set time.
- OVERLAPPED LIST: Press the button "Search" and the four search modes will be viewed. Select "OVERLAPPED LIST" out of the modes and the list will be shown that were overlapped according to temporal changes. Select one of them for playback.

2.5 Backup

2.5.1 DVD-RW

- Mount a DVD-RW driver, insert a CD-ROM/DVD-ROM and press the button Menu; use the menu "Backup" to make a backup of images or motion pictures recorded during a specific period of time in CD-RW/DVD-RW from the HDD.
- Select the target in DVD/RW in the menu "Backup" and write after selecting Backup time, Backup file name, and Backup channel, the backup will be made (If the button "Estimate" is pressed, the capacity of backup is calculated).
- A backup CD/DVD includes our company's Uniplayer PRO, which makes it easy to play in other PCs.
- A backup file can be played in the Uniplayer PRO provided by our company (included in the CD enveloped with the DVR).

2.5.2 USB memory stick

- The backup can be made by connecting the USB memory stick with the USB terminal. After a user can connect the USB device with the terminal, he or she can set the system and use the backup menu to make a backup of motion pictures in the USB device from the HDD (the USB can recognize up to 32G).
- Connect the USB memory stick on the USB port and then select the target in USB on the menu "Backup"; select Backup time, Backup file name, and Backup channel then write for the backup to be made (If the button Estimate is pressed, the capacity of backup is calculated).
- A backup CD/DVD includes our company's Simple player PRO, which makes it easy to play in other PCs.
- A backup file can be played in the Uniplayer PRO provided by our company (included in the CD enveloped with the DVR).

2.5.3 Network

- It is possible to use the network at a remote place to make a backup of motion pictures and audio data in the DVR HDD into the user's PC.

2.6 Client Program

2.6.1 RAMS PRO

- This is a program that has the function of searching, playing and making a backup of the data in the DVR to the client's PC by using the network to have access to the DVR and do live monitoring.
- This can upgrade S/W in the DVR.
- Execute the program RAMS PRO and then press the button and the screen for DVR list management will be viewed. After generating a group to Connect, enter DVR Name, Address, Port, ID and Password then press the button for storing.
- The default values are as follows: "PORT: 7000, ID: ADMIN, PASSWORD: 111111".

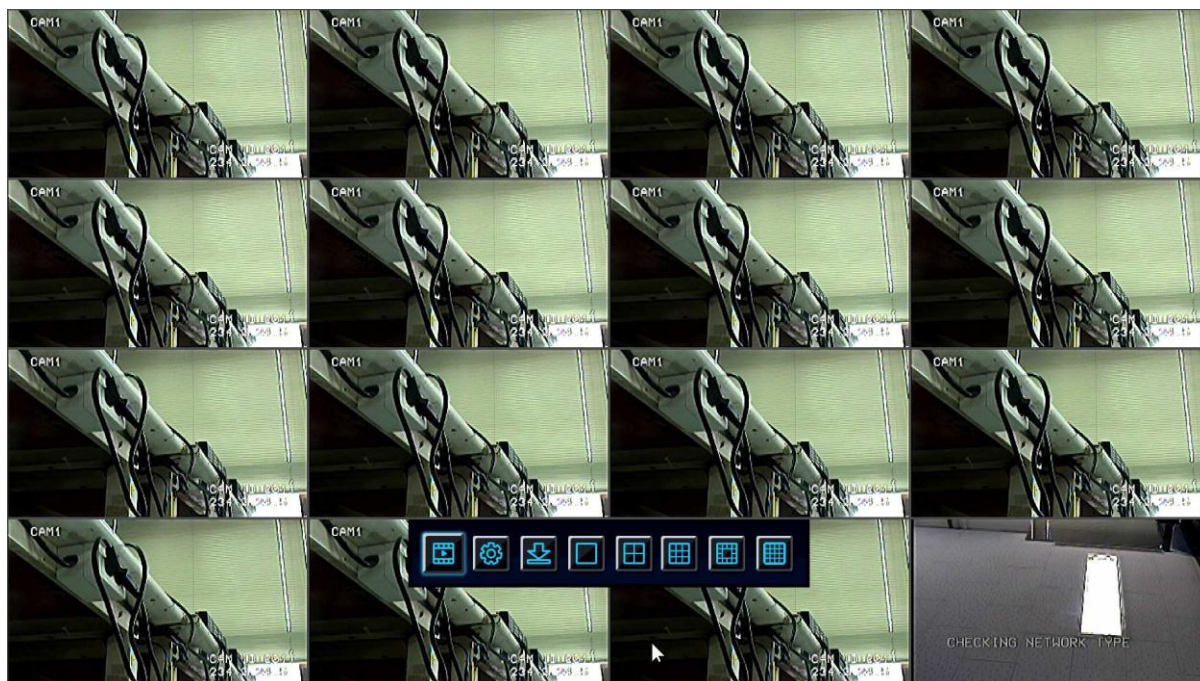
2.6.2 Uniplayer PRO

- This is a program that has the function to playback files recorded in RAMS PRO or captured in the backup files.

2.6.3 Mobile viewer

- This is a program that uses wireless Internet-based mobile devices like a PDA and a smart phone to do real-time monitoring of the state of the DVR and images.
- i-RAMS pro: This is a program that uses iPhone to do real-time monitoring of the state of the DVR and images.
- a-RAMS pro: This is a program that uses an Android phone to do real-time monitoring of the state of the DVR and images.

Chapter 3 Main Menu Configuration



- Put the mouse cursor at the end downward or press the button "Down" on the front side of the DVR, and the following menus will come into view:



SEARCH

SETUP

BACKUP

1CH

4CH

9CH

13CH

16CH

-SEARCH: This is an icon for recorded data search.

-SETUP: This is an icon for DVR setting.

-BACKUP: This is an icon for Backup setting.

-1CH: This is an icon to display Channel 1.

-4CH: This is an icon to display Channel 4.

-9CH: This is an icon to display Channel 9.

-16CH: This is an icon to display Channel 16.

3.1 Camera-setting Menu



Fig. 3.1 Screen of Camera Menu

3.1.1 Setting the camera



Fig. 3.1.1 Screen of Camera setting

- CAMERA LABEL: This performs the function of displaying the camera label (selecting among ALL, NAME, NUMBER, OFF).
- NIGHT MODE: This performs the function of using as little capacity of record files as possible at night when it is not in use.
- NAME: This performs the function of changing the camera name of each channel.
- INSTALL: This performs the function of turning off the camera of each channel (turning off the camera).
- HIDDEN: This performs the function of hiding the camera of each channel (with the camera "ON", but the function is hidden).

3.1.2 Setting the PTZ



Fig. 3.1.2 Screen of PTZ setting



PTZ PORT

BAUD RATE	DATA BIT	PARITY	STOP BIT
9600	8	NO	1

OK CANCEL

- PORT: This performs the function of RS-485 setting to control PTZ. It makes it possible to set Baud Rate/ data bit/ parity bit/ stop bit.

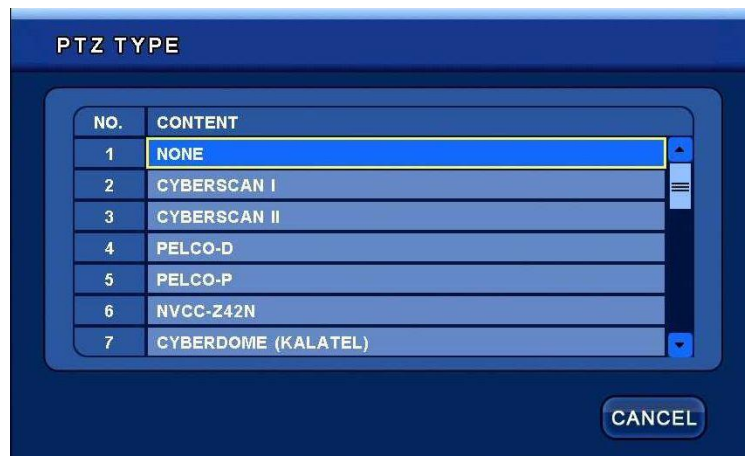


PTZ ID

1 ◀ 1 ▶ 256

OK CANCEL

- ID: This makes it possible to select the number of the device in the values 0 to 256. It can identify this number internally when the PTZ is controlled; and only when the ID and the PTZ device coincide with each other then it is possible to delete it.



PTZ TYPE

NO.	CONTENT
1	NONE
2	CYBERSCAN I
3	CYBERSCAN II
4	PELCO-D
5	PELCO-P
6	NVCC-Z42N
7	CYBERDOME (KALATEL)

CANCEL

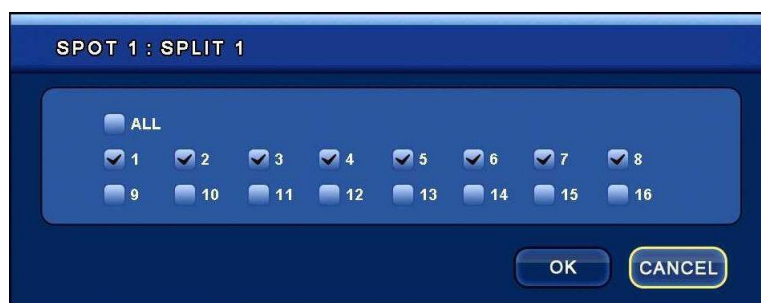
- TYPE: Select a PTZ model if you want to use it, but select "None" if you don't want to use it.

3.1.3 Setting the SPOT



Fig. 3.1.3 SPOT

-SPOT: This supports 3 SPOTs in total.



-DEFAULT: It is possible to select one of the channels when Sequence is set as OFF and Split 1.

-CAMERA: It is possible to select a channel concerned at each SPOT monitor.

-SPLIT: It is possible to view a selected channel in 1-partition screen or in 4-partition screen.

-SEQUENCE: It is possible to view selected channels by converting them in sequence.



-INTERVAL: It is possible to view the screen at intervals by setting the delayed time (up to 256 seconds).

-POPUP: This gives popup information on an event on the SPOT monitor.

3.1.4 Setting the SEQUENCE

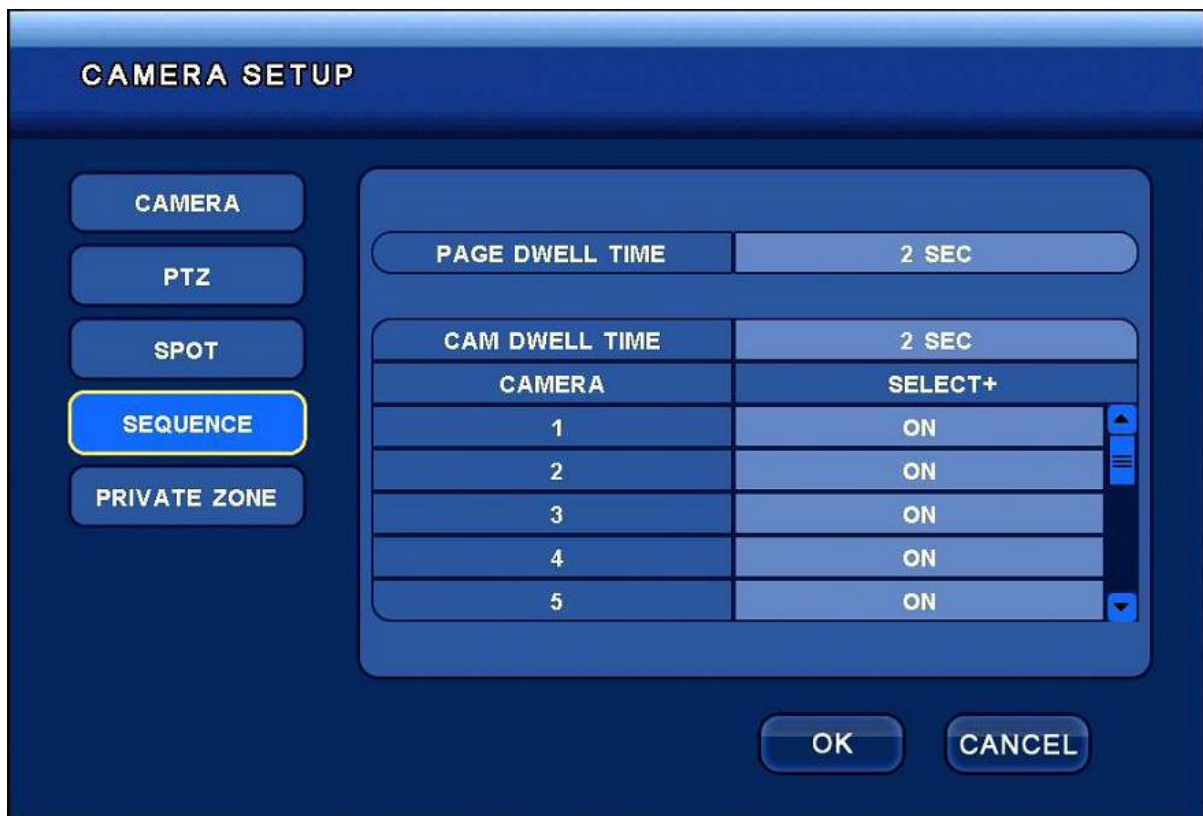


Fig. 3.1.4 SEQUENCE

-PAGE DWELL TIME: It is possible to turn the screen to all channels in a unit of pages; the time delays if the set period of time delayed.

-CAM DWELL TIME: The time delays if the set period of time and the screen alone of the selected channel is converted.

3.1.5 Setting the PRIVATE ZONE

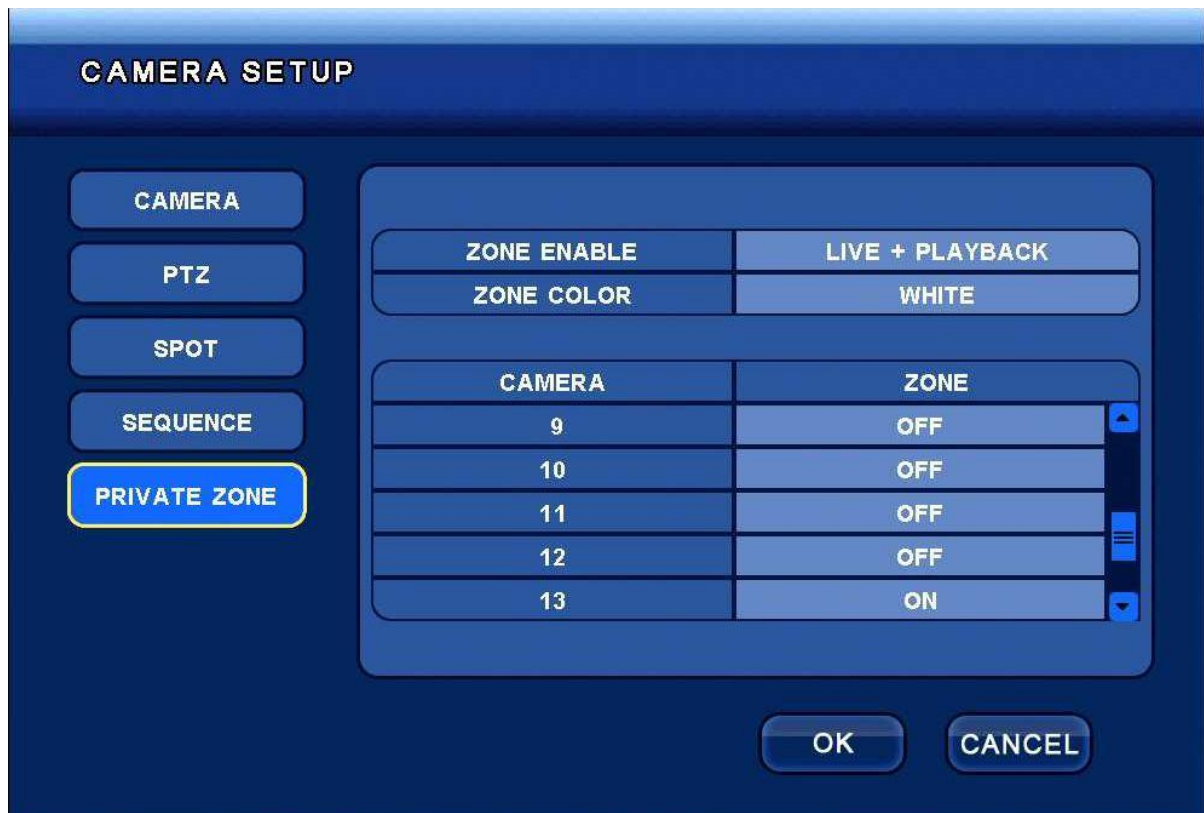
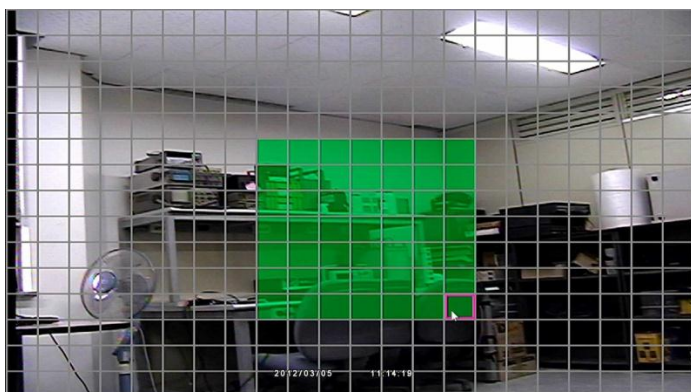


Fig. 3.1.5 PRIVATE ZONE

-ZONE ENABLE: It is possible to set LIVE/PLAYBACK/LIVE+PLAYBACK.

-ZONE COLOR: This performs the function of selecting a color that shows a zone that is to be hidden.



EX) After clicking on a zone, use the mouse or the front direction key to set the zone to be hidden. Then, use the right mouse key or the front menu key to save.

3.2 Record-Setting Menu



Fig. 3.2 Screen of RECORD menu

3.2.1 Setting the RESOLUTION



Fig. 3.2.1 RESOLUTION

-RESOLUTION: This makes it possible to set the resolution of an individual channel or all channels.

NTSC: CIF (360 x 240), Half D1 (720 x 240), D1 (720 x 480)

PAL: CIF (360 x 288), Half D1 (720 x 288), D1 (720 x 576)

3.2.2 Setting the SCHEDULE



Fig. 3.2.2 SCHEDULE

- REC1: It is possible to use the mouse to click on and drag REC1 to select what you want; or it is possible to select a zone that you want by using the direction key or the remote controller to select REC1. (The recording is made in FPS and picture quality set in REC1 is in Record).
- REC2: It is possible to use the mouse to click on and drag REC2 to select what you want; or it is possible to select a zone you want by using the direction key or the remote controller to select REC2. (The recording is made in FPS and picture quality set in REC2 is in Record).
- REC3: It is possible to use the mouse to click on and drag REC3 to select what you want; or it is possible to select a zone you want by using the direction key or the remote controller to select REC3. (The recording is made in FPS and picture quality set in REC3 is in Record).

3.2.3 Setting the RECORD



Setting a RECORD in case of selection of [SCHEDULE]

-REC1: It is used for setting Record in Schedule REC1.

TIME-> (It is possible to set FPS and picture quality at a set time in REC1.)

EVENT-> (It is possible to set FPS and picture quality when an event takes place in REC1.)

-REC2: It is used for setting Record in Schedule REC2.

TIME-> (It is possible to set FPS and picture quality at a set time in REC2.)

EVENT-> (It is possible to set FPS and picture quality when an event takes place in REC2.)

-REC3: It is used for setting Record in Schedule REC3.

TIME-> (It is possible to set FPS and picture quality at a set time in REC3.)

EVENT-> (It is possible to set FPS and picture quality when an event takes place in REC3.)

3.2.4 Setting the MANUAL



Fig. 3.2.4 MANUAL

[MANUAL]: This is used to set the Default value when it is set as "None" in the Schedule.

-FPS: This is used to set the frame in each channel. (It is possible to set 1, 2, 3, 4, 5, 6, 7.5, 10, 15, 30 FPS.)

It is possible to record up to 480 frames in case of 16-channel DVR. (8-channel: 240 frames)

-QUALITY: This is the function of setting a record quality to each channel as NORMAL, LOW, HIGH, HIGHEST, and so on.

It is possible to set 4-stage quality.

-AUDIO: This is used to set the audio to ON/OFF for each channel.

3.2.5 Setting the AUDIO



Fig. 3.2.5 AUDIO

[AUDIO]: This is used to select the audio record to ON/OFF for each channel.

The audio will not be included in the recorded file, if it is turned "OFF."

3.2.6 Setting the PRE/POST



Fig. 3.2.6 PRE/POST

[PRE/POST]

-PRE RECORD: It performs the function of "do recording before the set time begins" if each channel has a recording condition.

-POST RECORD: It performs the function of "do recording in each channel from a time when recording ends" when the set time passes.

3.3 Event-Setting Menu



Fig. 3.3 Screen of EVENT Menu

3.3.1 Setting the MOTION



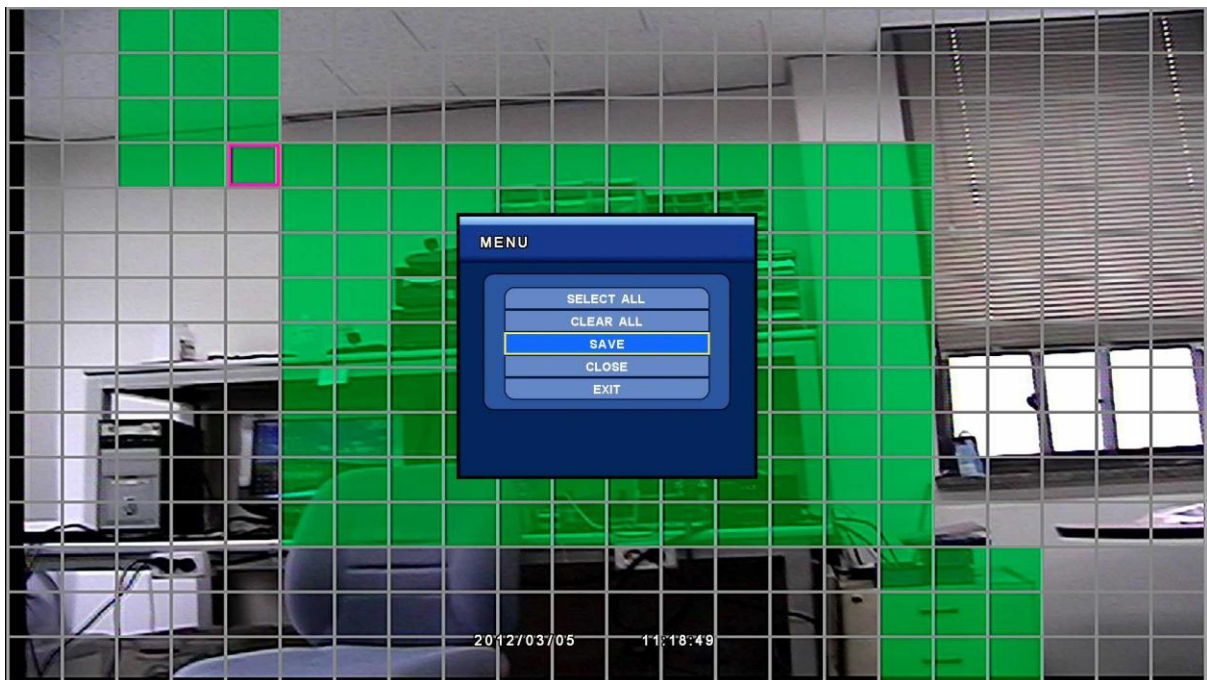
Fig. 3.3.1 MOTION

[MOTION]

- ACTIVE+: This performs the function of ON/OFF that can sense the motion.



-LEVEL+: This is used to set motion sensitivity. It is possible to set it in five stages: 1st stage to 5th stage.



-AREA+: This is used to select the zone of motion sensitivity. Press the left key of the mouse and drag it to set it; or use the direction key on the front side to set it. Save it and the motion zone is set.

EVENT SETUP

MOTION

ALARM IN

VIDEO LOSS

SYSTEM

DISPLAY

INPUT **ACTION**

	RECORD	ALARM	BUZZER	PRESET	E-MAIL
1	ON	OFF	OFF	OFF	OFF
2	OFF	OFF	OFF	OFF	OFF
3	OFF	OFF	OFF	OFF	OFF
4	OFF	OFF	OFF	OFF	OFF
5	OFF	OFF	OFF	OFF	OFF
6	OFF	OFF	OFF	OFF	OFF
7	OFF	OFF	OFF	OFF	OFF

OK **CANCEL**

Fig. 3.3.1-1 MOTION_ACTION

[ACTION]: It is possible to interlock when an event takes place at a position where Motion is set.

MOTION EVENT RECORD

☐ ALL

☐ 1 ☐ 2 ☒ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8

☐ 9 ☐ 10 ☐ 11 ☒ 12 ☐ 13 ☐ 14 ☐ 15 ☐ 16

OK **CANCEL**

-RECORD: It performs the function of "do recording in the selected channel when an event takes place at a position where Motion is set".

ALARM OUT	DELAY	DURATION
OFF	1 SEC	2 SEC

OK CANCEL

-ALARM: It performs the function of executing one out of 4 ALARM OUTs (1st to 4th) if an event takes place at a position where Motion is set.

-BUZZER: The buzzer can be turned ON or OFF if an event takes place at a position where Motion is set.

SET	PTZ CAMERA	PRESET
OFF	CAMERA1 - NONE	1

OK CANCEL

-PRESET: This is used to move the camera to the designated place in the SET Preset if an event takes place at a position where Motion is set.



-E-MAIL: This is used to send log to the selected e-mail address if an event takes place at a position where Motion is set.

3.3.2 Setting EVENT ALARM IN



Fig. 3.3.2 ALARM IN

[INPUT]

-ACTIVE+: It performs the function of ALARM INPUT ON/OFF.

-NAME: It performs the function of setting the name to ALARM IN.

-TYPE+: It performs the function of setting the type of ALARM INPUT. (NO: Normal Open / NC: Normal Close)



Fig. 3.3.2-1 ALARM IN_ACTION

[ACTION]

It provides the same function as Motion Action, interlocking if an event takes place in a position when Alarm Input is set.

3.3.3 Setting VIDEO LOSS



Fig. 3.3.3 VIDEO LOSS

[INPUT]

- ACTIVE+: It performs the function of turning ON or OFF the functions in an event when Video loss takes place.



[ACTION]

It provides the same function as Motion Action, interlocking if an event set is in Video loss takes place.

3.3.4 Setting the SYSTEM

EVENT SETUP

MOTION
ALARM IN
VIDEO LOSS
SYSTEM
DISPLAY

WARNING **DISK** **E-MAIL**

CHECK INTERVAL 1 HOUR

DISK WARNING POPUP

THRESHOLD 54 C

CURRENT TEMP 39 C

FAN SPEED WARNING POPUP

THRESHOLD 1500 RPM

CURRENT SPEED 7020 RPM

OK **CANCEL**

Fig. 3.3.4 SYSTEM

[WARNING]

-CHECK INTERVAL: This is a cycle of checking the environment of the SYSTEM (selecting one from 1 hour to 24 hours).

-DISK WARNING: This performs the function of giving a warning when a problem takes place in the disk (selecting one among POPUP+BUZZER, POPUP, OFF)

-THRESHOLD: It performs the function of setting temperature for warning (C: 0~100, F: 32~212)

-CURRENT TEMP: It shows the current temperature.

-FAN SPEED WARNING: It performs the function of giving a warning when a problem takes place in the fan (selecting one among POPUP+BUZZER, POPUP, OFF).

-THRESHOLD: It performs the function of setting the speed of warning. The alarm goes off when it is lower than the designated speed.

3.3.5 Setting the DISPLAY

EVENT SETUP

MOTION

ALARM IN

VIDEO LOSS

SYSTEM

DISPLAY

CAMERA	DISPLAY+
1	2 SEC
2	2 SEC
3	2 SEC
4	2 SEC
5	2 SEC

EVENT ICON: ON

EVENT POPUP: OFF

OK CANCEL

Fig. 3.3.5 DISPLAY

-DISPLAY+: It performs the function of showing Popup or icons at an intervals in a designated period time.

-EVENT ICON: It performs the function of selecting ON/OFF in showing icons when an event takes place.

-EVENT POPUP: It performs the function of setting Popup ON/OFF when an event takes place.

3.4 PLAYBACK-Setting Menu



Fig. 3.4 Screen for PLAYBACK Menu

3.4.1 PLAYBACK SETUP

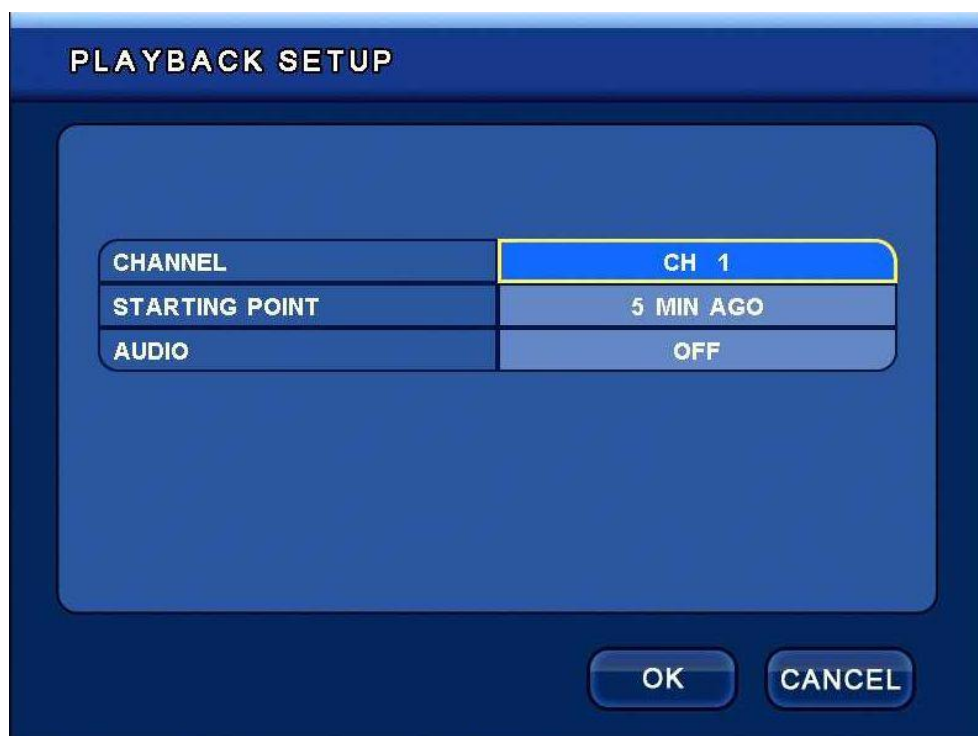


Fig. 3.4.1 Playback

-CHANNEL: It is possible to select a channel to play if the button "Play" is pressed on the front side of the DVR and also when the button "Play" on the remote controller during the state of Live. Selecting ALL will allow all channels to play at the same time but would not allow the audio to be set.

- STARTING POINT: It is possible to set a place in which the play starts in case of direct playback. You can select the following items: (before 5 minutes, 30 minutes, 1 hour, 6 hours, 12 hours, 24 hours)

-AUDIO: This is used to decide whether or not to play the audio in case of direct playback. It is possible to select either ON or OFF. If it is ON, it is possible to play along with the audio; but if it is OFF, the audio will not be played. At this time, it is possible to play the audio only when the recorded data has an audio file along with it.

3.5 DISPLAY-Setting Menu



Fig. 3.5 Screen of DISPLAY Menu

3.5.1 Setting the DISPLAY



Fig. 3.5.1 DISPLAY

-DISPLAY SETUP: This has the function of setting RESOLUTION, BORDER COLOR, and ALPHA BLENDING.



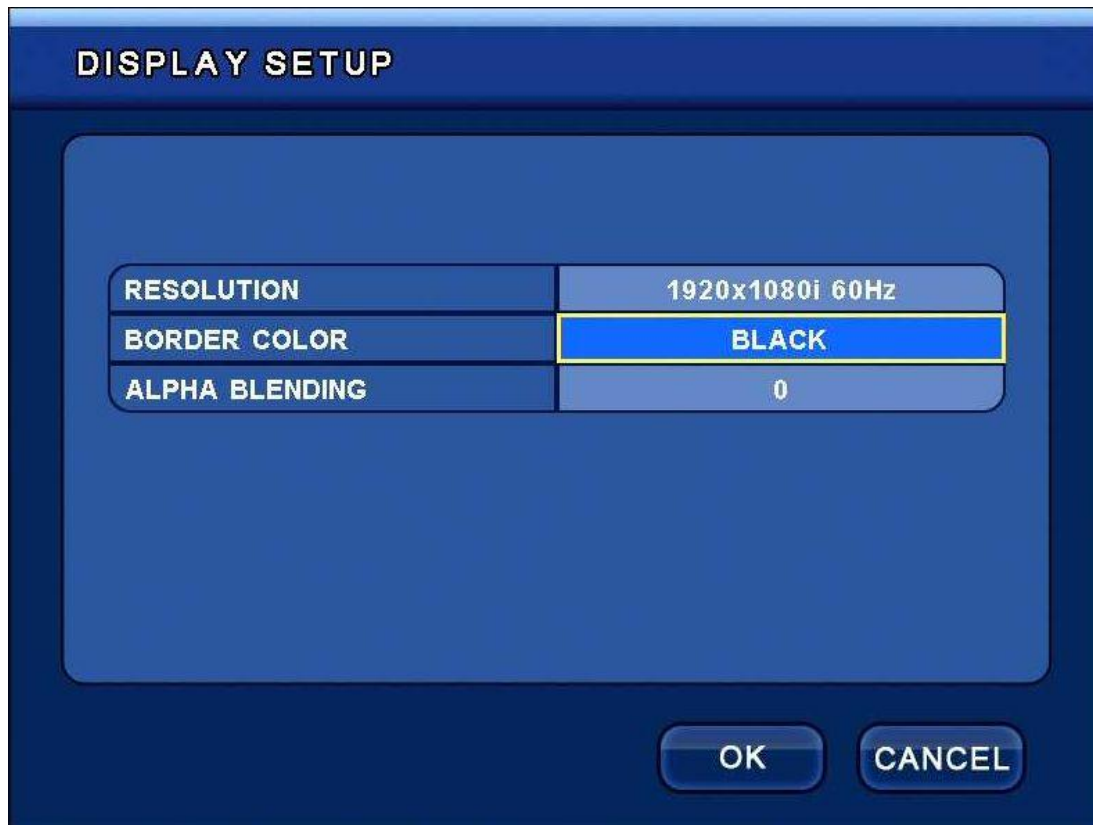
-RESOLUTION: It is possible to set the resolution on the main monitor. The resolutions to be selected are as follows:

NO.	CONTENT
1	1280*1024P 60Hz
2	1280*1024P 50Hz
3	1440*900P 60Hz
4	1920*1080i 60Hz
5	1920*1080i 50Hz
6	1920*1080p 60Hz
7	1920*1080p 50Hz

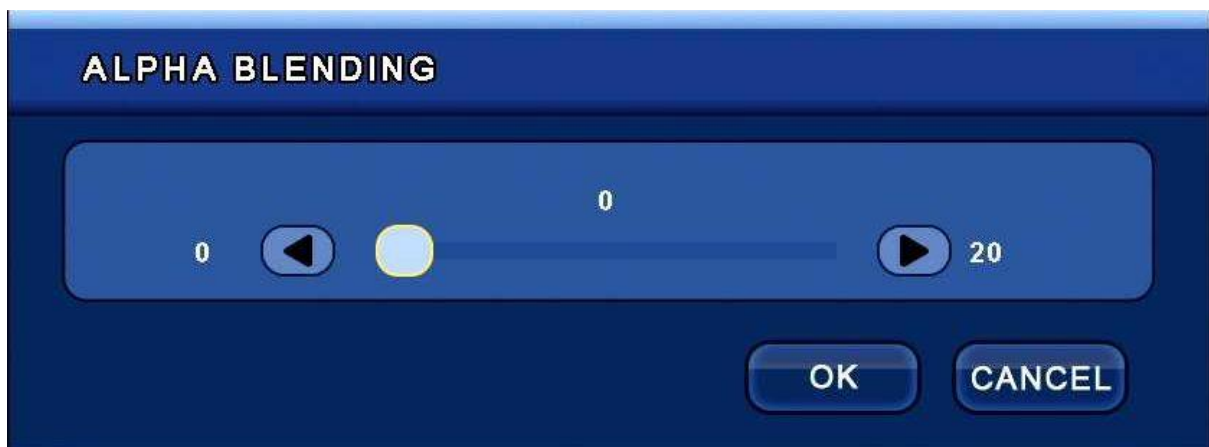


WARNING

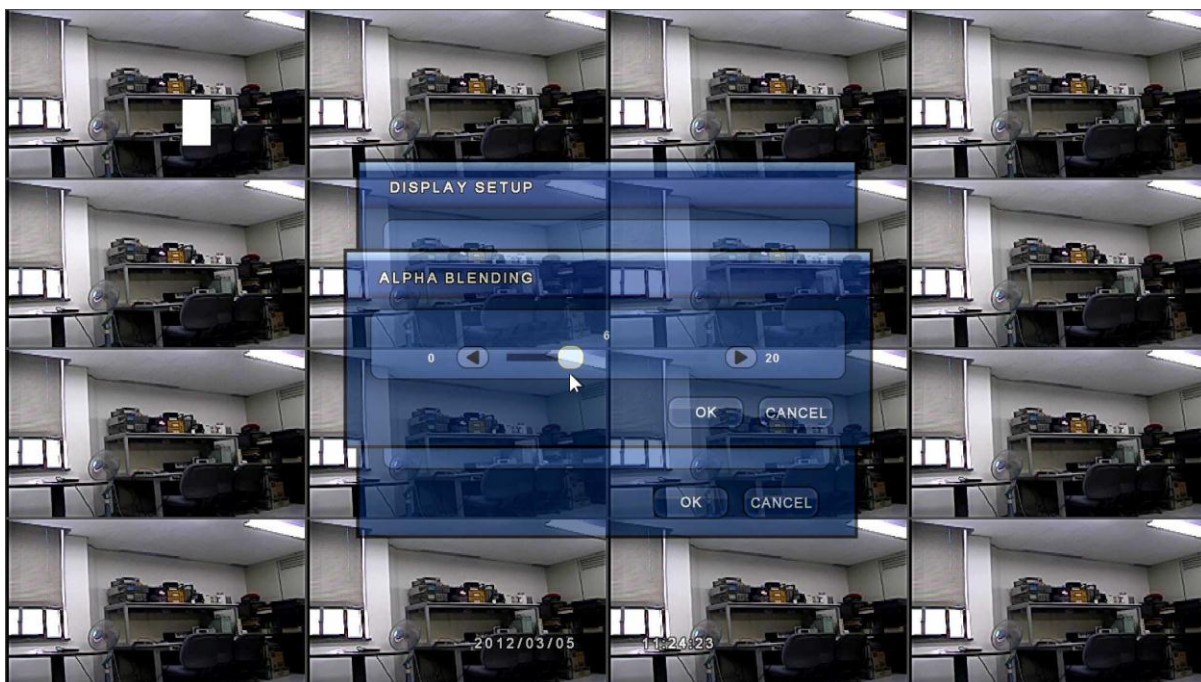
- A monitor with low resolution will fail to show images with high resolution although the resolution of the DVR is set as high. In this case, press the keys ("123+123+123") on the front side and at the same time press the key OK, and it will be changed as Default 1280*1024P 60Hz to show high-resolution images.



-BORDER COLOR: It designates the line colors of the channel-partition screen. (GRAY/BLACK)



-ALPHA BLENDING: This is used to control transparency on the menu screen.



3.6 NETWORK-Setting Menu



Fig. 3.6.1 Screen of NETWORK Menu

3.6.1 Setting the NETWORK



Fig. 3.6.1-1 NETWORK_ETHERNET

This is a menu for setting {ETHERNET}.

-DYNAMIC IP: This performs the function of selecting either dynamic IP or stable IP (in case of OFF, stable IP used)

-HOST NAME: This is used to designate the host name (for users' convenience)

-IP ADDRESS: This is used to set IP address when the stable IP is used.

-SUBNET MASK: This is used to set Subnet Mask when a stable IP is used.

-GATEWAY: This is used to set Gateway when a stable IP is used.

-DNS SERVER: This is used to set DNS when a stable IP is used.

-CHECK INTERNET: This performs the function of checking if the network is normally connected.

(But, check it after saving the information set on the DNS Server.)

NETWORK SETUP

NETWORK (selected) | SERIAL | DDNS | E-MAIL | NET FRAME

ETHERNET | **CLIENT** (selected)

CLIENT ACCESS	ALL	
BEGIN ADDRESS	END ADDRESS	
0.0.0.0	0.0.0.0	
0.0.0.0	0.0.0.0	
0.0.0.0	0.0.0.0	

CMS PORT (TCP)	7000	
WEB PORT (TCP)	ON	80
REMOTE RESTART	OFF	
REMOTE CONFIG	ON	

OK CANCEL

[CLIENT]: This is a menu that is used to set Client.

-CLIENT ACCESS: This is used to set the authority for client address access (ALL/RANGE)

It is possible to have access to all addresses when ALL is selected without limitation.

This is used to set the scope of selection in the IP addresses when RANGE is selected.

-BEGIN ADDRESS: This is used to set IP address at the starting point when RANGE is selected (when ALL is selected, this is not used).

-END ADDRESS: This is used to set IP address at the ending point when RANGE is selected (when ALL is selected, this is not used).

-CMS PORT: This is used to set the RAMS access port number.

-WEB PORT: This is used to set Web port.

-REMOTE RESTART: It is used to restart DVR in a remote condition (ON/OFF).

-REMOTE CONFIG: This is used to view DVR information in a remote condition (ON/OFF).

3.6.2 Setting the SERIAL

The screenshot shows a 'NETWORK SETUP' window with a sidebar on the left containing buttons for 'NETWORK', 'SERIAL' (highlighted), 'DDNS', 'E-MAIL', and 'NET FRAME'. The main area is divided into two sections: 'RS-232 INPUT SETUP' and 'RS-485 INPUT SETUP'. Each section contains a table with three rows: 'SERIAL TYPE', 'MODEL', and 'PORT'. The 'SERIAL TYPE' and 'MODEL' fields are set to 'NONE', and the 'PORT' field is set to '9600-8N1'. At the bottom right are 'OK' and 'CANCEL' buttons.

RS-232 INPUT SETUP	
SERIAL TYPE	NONE
MODEL	NONE
PORT	9600-8N1

RS-485 INPUT SETUP	
SERIAL TYPE	NONE
MODEL	NONE
PORT	9600-8N1

Fig. 3.6.2 SERIAL

-RS-232 SERIAL TYPE: This is used to control the outer controller by means of RS-232 SERIAL communications.

-MODEL: This is used to select protocol of the outer controller.

(GSC-3000J, HITRON HID2404CEN, HUNT HKB-300, 7323 DKB-06, 05-255, VIDO KB3N, TV+KBD1000)

-PORT: This is used to select communications BAUD RATE/ DATA bit /Parity/ STOP bits.

-RS-485 SERIAL TYPE: This is used to control the outer controller by means of RS-485 SERIAL communications.

-MODEL: This is used to select protocol of the outer controller.

(GSC-3000J, HITRON HID2404CEN, HUNT HKB-300, 7323 DKB-06, 05-255, VIDO KB3N, TV+KBD1000)

-PORT: This is used to select communications BAUD RATE/ DATA bit /Parity/STOP bits.

3.6.3 Setting the DDNS

The screenshot shows a 'NETWORK SETUP' window with a sidebar menu on the left containing 'NETWORK', 'SERIAL', 'DDNS', 'E-MAIL', and 'NET FRAME'. The 'DDNS' option is selected. The main area contains the following fields:

DDNS SERVER	ddnsdvr.com	
HOST NAME	unimocnc.ddnsdvr.com	
USER NAME	unimocnc	
PASSWORD	****	
ROUTER IP	OFF	
STATUS	UNCHECKED	CHECK

At the bottom right are 'OK' and 'CANCEL' buttons.

Fig. 3.6.3 DDNS

-DDNS SERVER: is used to set DDNS server.

(dyndns.com, changeip.com, ddnsdvr.com, videotrend.eu, exddns.com, no-ip.com)

-HOST NAME: This is used to enter the Host name that the user visits on the DDNS server website to register.

-USER NAME: This is used to enter the User name that the user visits on the DDNS server website to log in.

-PASSWORD: This is used to enter Password that the user visits on the DDNS server website to log in.

-ROUTER IP: This is used to send IP information to the DDNS server website (ON/OFF).

(If a router is used, select as ON.)

-STATUS: This is used to check whether the network is normally linked.

(But, it is necessary to check it after saving the set of information.)

3.6.4 Setting the E-MAIL

NETWORK SETUP			
ADDRESS			
SEND MAIL	SCHEDULE	FROM	TO
ON	ON	00:00:00	23:59:59
NO.	E-MAIL ADDRESS		
1	unimocnc@gmail		
2	unimocnc@naver.com		
3			
4			
5			
6			

Fig. 3.6.4 E-MAIL

[ADDRESS]: This is a menu to set an E-mail.

-SEND MAIL: It is possible to decide whether or not to send an e-mail (ON/OFF).

-SCHEDULE: This is used to set the time in which an e-mail is sent (ON/OFF).

-E-MAIL ADDRESS: This is used to enter information on receivers' e-mail addresses.

The screenshot shows a 'NETWORK SETUP' interface. On the left is a vertical menu with buttons: NETWORK, SERIAL, DDNS, E-MAIL (highlighted in blue), and NET FRAME. The main area has two tabs: ADDRESS and SERVER (selected). Below the SERVER tab is a table with the following fields and values:

MAIL SERVER	DVR SYSTEM
USER NAME	unimocnc
USER E-MAIL	unimocnc@gmail
SERVER ADDRESS	smpt.gmail.com
SERVER PORT	587
LOGIN ID	unimocnc
LOGIN PASSWORD	****

At the bottom right of the main area are 'OK' and 'CANCEL' buttons.

[SERVER]: In case of setting an E-mail Server in the DVR system

-MAIL SERVER: This is used to select the e-mail server.

MAIL SERVER		SMTP SERVER	
USER NAME	unimocnc		
USER E-MAIL	unimocnc@gmail		
SERVER ADDRESS	smpt.gmail.com		
SERVER PORT	587		
LOGIN ID	unimocnc		
LOGIN PASSWORD	****		

[SERVER]: In case of setting E-mail Server in the SMTP SYSTEM

-MAIL SERVER: This is used to set SMTP SERVER

-USER NAME: This is used to set user name.

-USER E-MAIL: This is used to set users' e-mail addresses.

-SERVER ADDRESS: This is used to set the address of SMTP server.

-SERVER PORT: This is used to set SMTP server port.

-LOGIN ID: This is used to set user ID.

-LOGIN PASSWORD: This is used to set user password.

3.6.5 Setting the NET FRAME

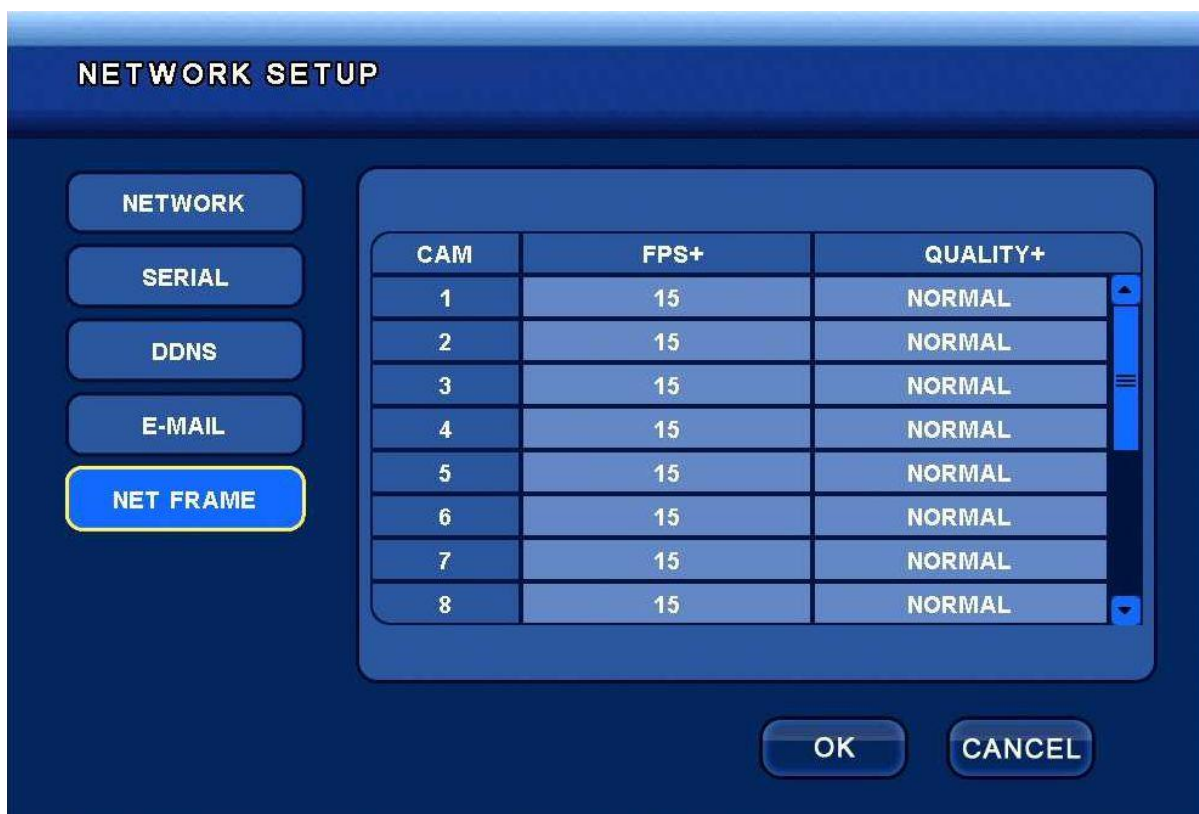


Fig. 3.6.5 NET FRAME

-FPS: This is used to set network transmission FPS by channels.

(It is possible to set 1, 2, 3, 4, 5, 6, 7.5, 10, 15, 30 FPS.)

- QUALITY+: This performs the function of setting transmission quality by channels.

(It is possible to set four stages: NORMAL, LOW, HIGH, and HIGHEST)

3.7 SYSTEM-Setting Menu



Fig. 3.7 Screen of SYSTEM Menu

3.7.1 Setting the GENERAL



Fig. 3.7.1 GENERAL

[SYSTEM] This is the general menu for setting.

-VIDEO FORMAT: This is used to set the type of camera (NTSC/PAL/AUTO).

If it is set as AUTO, the DVR can recognize the type of camera automatically.

-LANGUAGE: This is used to select language.

(English, Korean, Japanese, Chinese, Russian, French, German, Italian, Taiwan, Spanish, Portuguese)

-KEY TONE: KEY TONES (a buzzer for ON/OFF)

-UNIT ADDRESS: This is used to set DVR ID.

-BASE CAMERA NO: This is used to set the number of starting camera used at an early time (a setting domain: No. 1 ~ No. 84)

-MENU TIME OUT: This is used to set the time of menu expression (setting a domain: 1 minute ~ 10 minutes)

-Forced Deletion: This is used to select the day when the recorded data is saved (setting a domain: 0 day ~ 99 days)

EX) it is impossible to play back data that were recorded 3 days earlier if the domain was set for 3 Days.

-BACKUP CONFIRM: This performs the function of checking whether or not to confirm a user when a backup is made (ON/OFF).

-HDD OVERWRITES: This performs the function of ON/OFF for overwriting in the HDD.

In case if it's ON: If the HDD is full, the oldest recorded image is overwritten and then the recording continues.

In case if it's OFF: The recording continues till the HDD is full, and then the recording discontinues.

-PLAYBACK MODE: This is an option that makes it possible to enhance picture quality when D1 is set as resolution.

FRAME: One-source image playback

FIELD: Deinterlace image playback



[DATE/TIME] Menu for setting date/time/form

-DATE FORMAT: This is used to set date (MM/DD/YYYY, DD/MM/YYYY, and YYYY/MM/DD).

-TIMEZONE: This is used to set the standard time zone in DVR.

(It is automatically set as OFF in a city where DST is not used.)

-DATE DISPLAY: This is used to turn ON or OFF the function of showing date and time.

-DATE/TIME: This is used to set the date and time.

-NTP: This is used to set whether or not to use NTP.



NTP(Network Time Protocol) SETUP

SERVER	time.nuri.net
AUTO SYNC	OFF

SYNC NOW

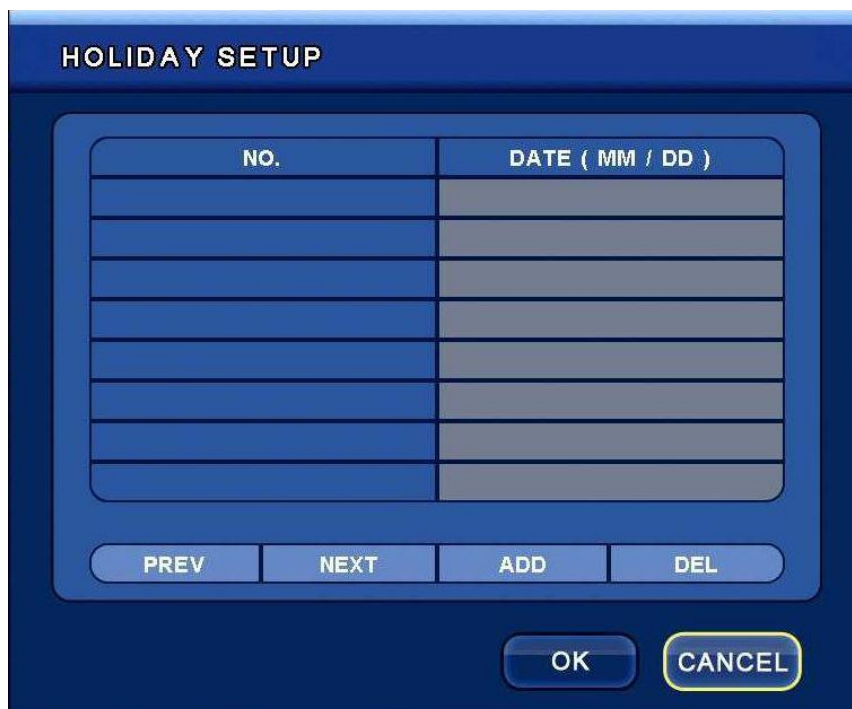
OK CANCEL

[Menu of in case of use of [NPT]

-SERVER: The server of 'time.nuri.net' is used as the basic server.

-AUTO SYNC: It performs the function of automatic synchronization every day.

-SYNC NOW: This performs the function of immediate synchronization.



HOLIDAY SETUP

NO.	DATE (MM / DD)

PREV NEXT ADD DEL

OK CANCEL

-ADD: This performs the function of setting the date of holidays.

-DEL: This performs the function of deleting the date of holidays.

3.7.2 Setting the ALARM OUT



Fig. 3.7.2 ALARM OUT

[ALARM OUT]: 4EA ALARM OUT-Setting Menu

-SIGNAL+: This is used to turn on or off the designated Alarm Out.

-ALARM TEST ON: This is used to set and test the device linked with Alarm Auto.

-ALARM TEST OFF: This is used to clear and test the device linked with Alarm Auto.

3.7.3 Setting the DISK



Fig. 3.7.3 DISK_INSTALL

[DISK]

-INSTALL: This is used to install while showing the state of the device linked with DVR.



[CHECK/USB]

-DISK CHECK: When the button "Start" is pressed, it shows the first and last recorded information in the disk.

-USB RESET: This performs the function of resetting the USB link.

-USB FORMAT: This performs the function of formatting what is contained in the USB.



[RAID]

-RAID SETUP: This is used to select the level for using the RAID function (RAID 0/ RAID 1/ RAID 5).

-RAID: This is used to display the state of RAID and ON/OFF.

-DISK STATUS: This is used to display the state of HDD.

-RAID STATUS: This is used to display the state of RAID.

-RATE: This is used to display the rate of progress.



WARNING

- At least 2~3 HDDs are necessary according to the RAID levels.
- It is necessary to use the same model of HDD of the same size.
- If the HDD is different in size and model, there appears a Disk error.

- If the RAID level is changed during the use of DVR, the system is re-booted and the existing data are all deleted.
- It is necessary to make a backup of the existing data before changing the RAID level.
- If the function of RAID is used, it takes longer than usual to boot it up.

3.7.4 Setting the ACCOUNT



Fig. 3.7.4 ACCOUNT

[DVR]: Each user can set an access authority.

ADMIN: The ADMIN user has all DVR authorities. (The initial password of ADMIN is "111111.")

USER: The user has a limited DVR authority.



WARNING

- It is possible to revise the initial user name but impossible to delete it.

- If a new ADMIN user deletes the initial ADMIN user, it is impossible to have access to the SETUP menu.

3.7.5 Setting the CONFIG

SLOT	DATE	LOAD	SAVE	DEL
DEFAULT	NONE	LOAD	SAVE	DEL
NONE	NONE	LOAD	SAVE	DEL
NONE	NONE	LOAD	SAVE	DEL
NONE	NONE	LOAD	SAVE	DEL
NONE	NONE	LOAD	SAVE	DEL

EXPORT START

IMPORT START

CANCEL

Fig. 3.7.5 CONFIG

-SLOT: It is possible to save and read a set value in the DVR memory (It is possible to save up to 4 memories).

-EXPORT: It is possible to use an outer device (USB) to save the set value of the DVR.

-IMPORT: It is possible to read in the set value of the DVR from an outer device (USB).

3.7.6 Setting the SHUTDOWN



Fig. 3.7.6 SHUTDOWN

-RESTART: This performs the function of re-booting the DVR.

-SHUTDOWN: This performs the function of turning off the DVR.

3.8 BACKUP-Setting Menu



Fig. 3.8 Screen of BACKUP Menu

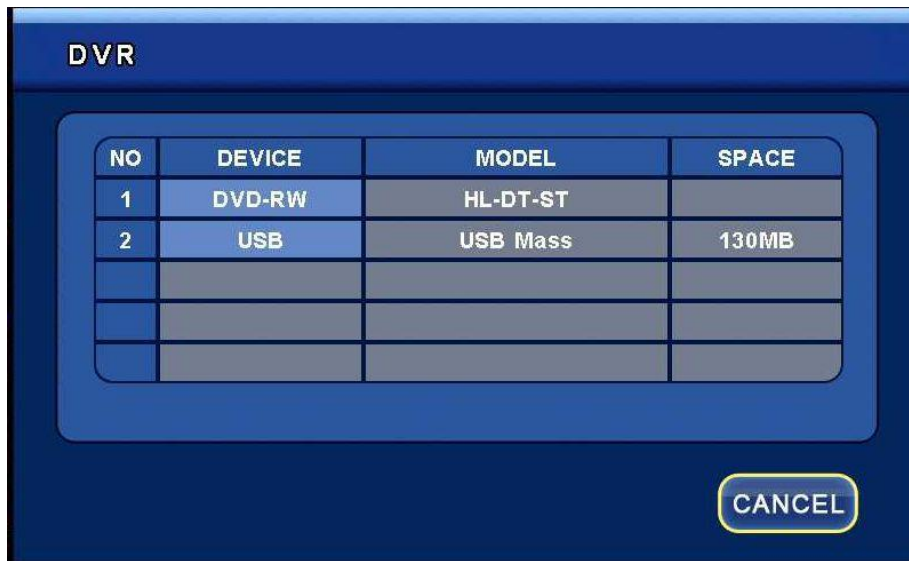
BACKUP

TARGET	NONE	NONE
FROM	2012/02/09	18:24:17
TO	2012/02/15	13:41:55
BACKUP TITLE	backup	
SELECT CAMERA	ON	
EARLIEST RECORD	2012/02/09 18:24:17	
LATEST RECORD	2012/02/15 13:41:55	
REQUIRE SPACE	ESTIMATE	0.00MB

WRITE

CANCEL

Fig. 3.8.1 BACKUP



-TARGET: This is used to select a device in which to make a backup.

The device to be used for setting is USB memory stick/DVD-RW.

-FROM/TO: Enter the time and date when a backup is made.



-BACKUP TITLE: This is used to set the name in the backup file.

-SELECT CAMERA: This is used to select a channel whose backup is made.

-REQUIRE SPACE: This is used to calculate the capacity of the set backup data.



-WRITE: This is used to make a backup.

-HIDE: If the button is pressed, the menu bar in progress is hidden. If it is converted into a small icon on the wallpaper, it is possible to perform another work at the same time.

3.9 SYSTEM LOG-Setting Menu



Fig. 3.9 Screen of SYSTEM LOG Menu



-SYSTEM LOG: This is the function of displaying important things that happened in the system.

The things that are left in the System Log are as follows:

No.	Log	Remark
1	DVR System Started	
2	DVR System Shutdown	
3	Login Success (ID)	
4	Login Failed (ID)	
5	Logout	
6	Password Changed	
7	Recording Start	
8	Recording Stop	
9	General Setup Changed	
10	Monitor Setup Changed	
11	Resolution Setup Changed	
12	Raid Setup Changed	
13	Record Setup Changed	
14	Schedule Changed	
15	Camera Setup Changed	
16	IP Camera Setup Changed	
17	Spot Setup Changed	

18	PTZ Setup Changed	
19	Motion Setup Changed	
20	Video Loss Setup Changed	
21	Audio Record Setup Changed	
22	Alarm In Setup Changed	
23	Ethernet Setup Changed	
24	DDNS Setup Changed	
25	Serial Setup Changed	
26	Client Setup Changed	
27	E-Mail Setup Changed	
28	E-Mail Server Setup Changed	
29	S/W Auto Upgrade	
30	S/W Manual Upgrade	
31	Time Zone Changed	
32	Time Changed YY/MM/DD Hour: Min: Sec	
33	Playback YY/MM/DD Hour: Min: Sec	
34	Config Upgrade: Time Zone Changed	
35	Config Upgrade: Config Changed	
36	HDD-Num FS Repair Fail!	
37	HDD-Num FS Repair Success!	
38	HDD-Num There was bad sectors! (Bad sector Count)	
39	HDD Format. (Disk Num)	
40	SATA ERROR!!!!	
41	Disk Fault: HDD-Num unmounted due to I/O error	
42	INFO DISK IS FULL: Num	
43	RAID INIT COMPLETED	
44	USB Backup Failed	
45	erase CD	
46	Erase CD complete.	
47	Erase CD fail. (RETURN CODE : Result)	
48	Backup Start Image of Count	
49	Backup Done: Ok or Fail	
50	Protect: Date Time(DST)	
51	Camera Screen Sequence Changed	
52	Video Loss Camera Num	
53	No System Time zone	
54	Invalid System Time zone	
55	Disable WDT ...	
56	Enable WDT!!!	
57	Sync NTP Fail.	
58	Save Conf File	
59	IP Installer Address scanned	
60	IP Installer Address set up	
61	U/I Message Request is failed (message)	
62	E-Mail Queue Full: Discard Previous Mail, Type	
63	Net Info is changed by IP Installer	
64	NET IP Installer failed (No Memory)	
65	NET Invalid IP Host	

66	NET ID(Host)	
67	NET Reject reloading configuration	
68	NET remote config is applied	
69	NET Restart DVR	
70	NET Reject Restart Request	
71	E-Mail: Address does not respond	
72	Message Failed : Address	
73	E-Mail Failed: Invalid Addr Domain	
74	E-Mail Failed: Check Domain or DNS	
75	Load Slot Num Config File	
76	Weak Camera Signal Num	

3.10 INFO-Setting Menu



Fig. 3.10 Screen of INFO Menu

3.10.1 Setting the DISK



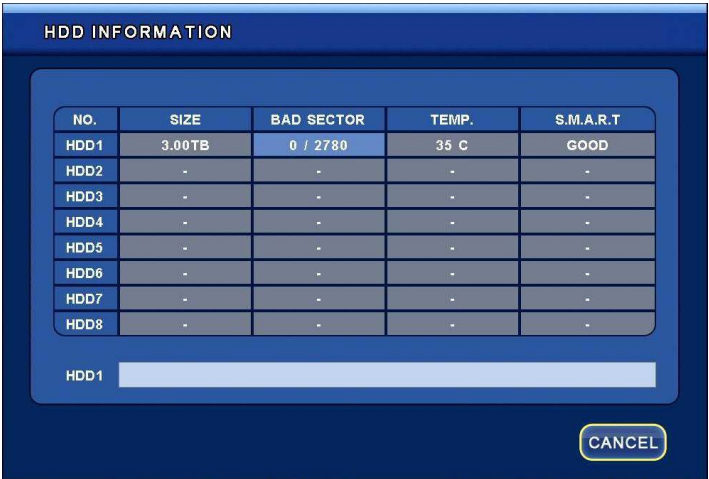
Fig. 3.10.1 DISK

-DISK: This is used to display user information in the Disk.

(EARLIEST RECORD, LATEST RECORD, DISK CAPACITY, USED SPACE, AVAILABE SPACE, HDD OVERWRITE)

[HDD INFORMATION]

- This displays the environment of HDD disk: HDD size, bad sectors, temperature, and usability.



3.10.2 Setting the RECORD



Fig. 3.10.2 RECORD

-RECORD: This is used to display the state of recording in use.

3.10.3 Setting AUDIO



Fig. 3.10.3

-AUDIO: This displays the state of Audio in use.

3.10.4 Setting the VERSION

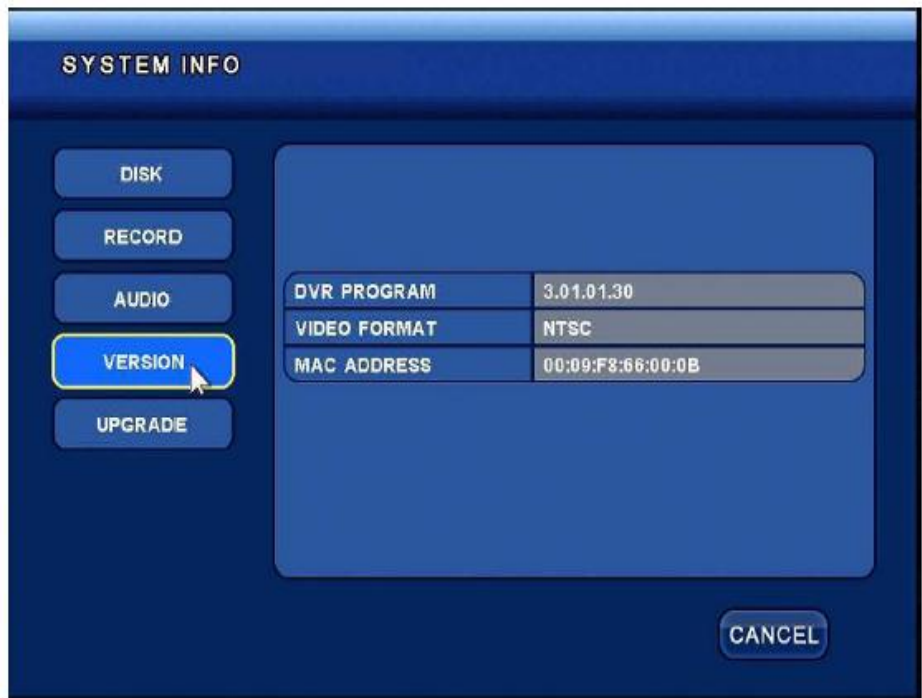
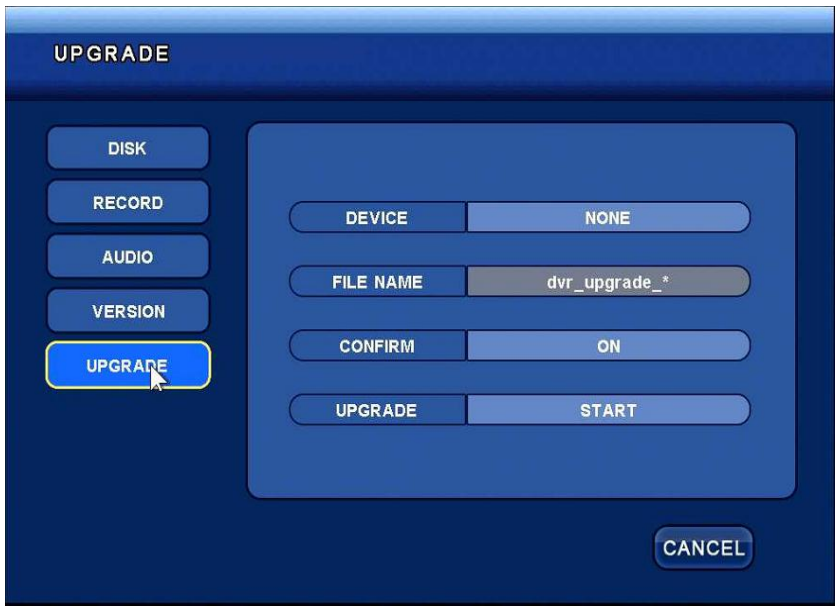


Fig. 3.10.4

- VERSION: This displays VERSION, Video Format, and MAC address.

3.10.5 Setting the UPGRADE



- UPGRADE: This is for setting DVR S/W upgrade. Select the device that includes the S/W, and then press the button <Start>, and the upgrade will be conducted. *Notice: Re-booting after upgrading S/W means that the system works well.

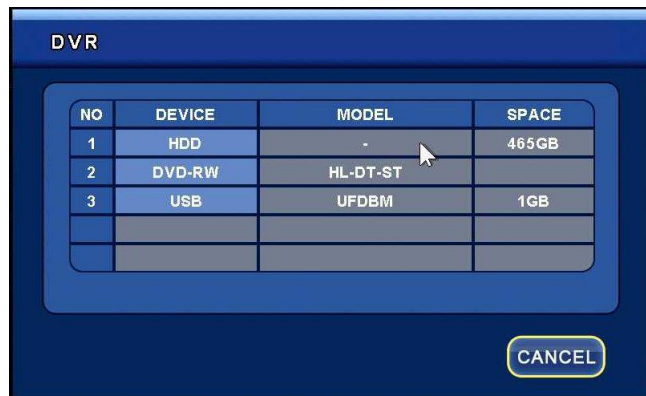
3.11 SEARCH-Setting Menu



Fig. Screen of SEARCH Menu

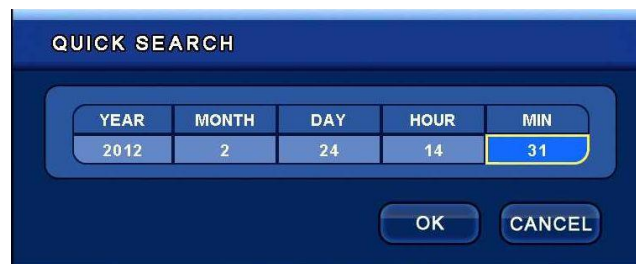


If the buttons "Search Button" and "DVR Front Button" of the main icons and the button "Search Button" on the remote controller are pressed, the following screen is in view.



-HDD: This is used to select the device to be searched.

3.11.1 Setting the TIME SEARCH

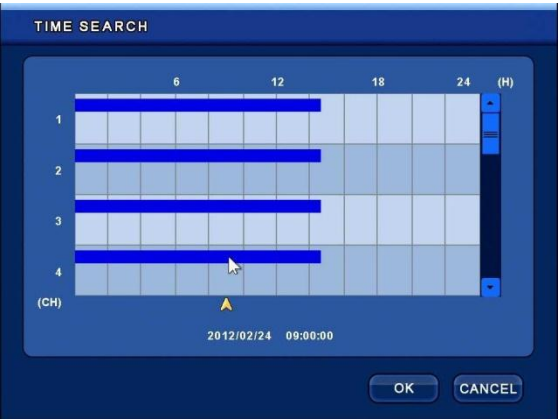


-QUICK SEARCH: If the Time is selected in the higher menu, it is possible to enter YY/MM/DD and to do quick search.

3.11.2 Setting the CALENDAR SEARCH



-CALENDAR: This is used to display the date when the recording is made. If the date to be searched for is selected, it displays the recorded data of the day.



If the time and minute when data that you want to search for is selected, it can display the information you want.

3.11.3 Setting the EVENT SEARCH

The screenshot shows a menu titled "EVENT SEARCH" with a table of settings and a "VIEW SEARCH LOG" button. The table has two columns: the left column lists search criteria, and the right column shows their current values. The values for "MOTION", "ALARM IN", "VIDEO LOSS", and "SELECT CAMERA" are all set to "ON".

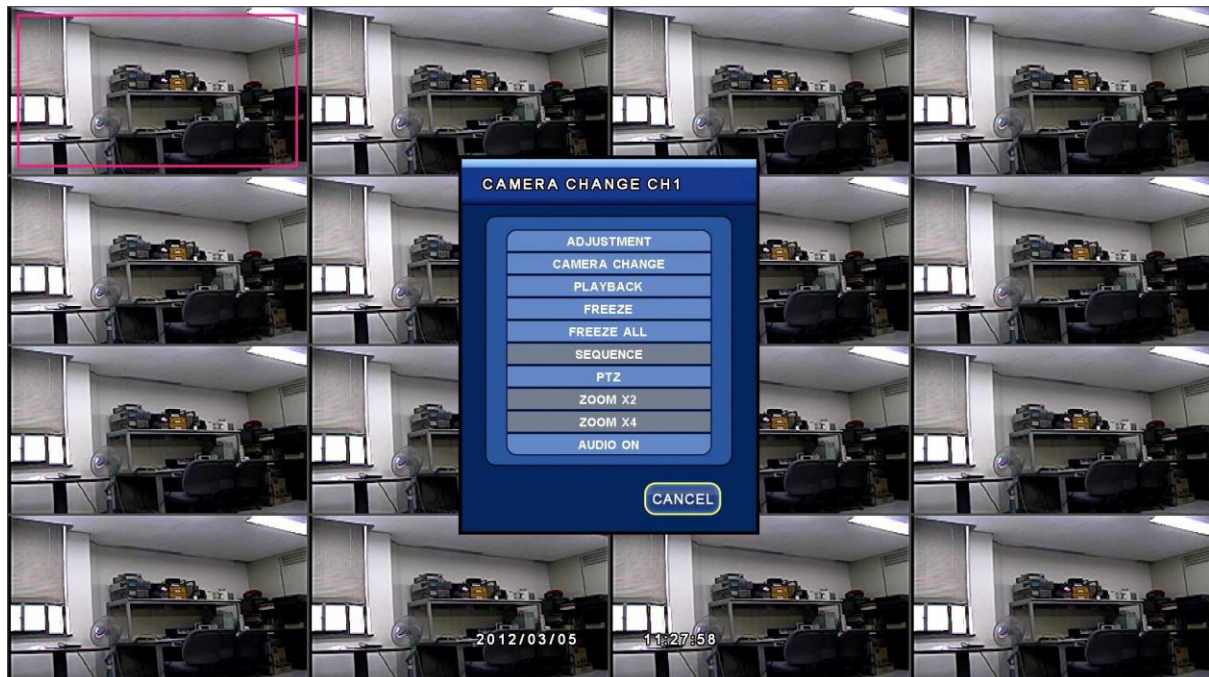
EVENT SEARCH	
EARLIEST RECORD	2012/02/23 06:00:00
LATEST RECORDING	2012/02/24 14:32:27
DATE	2012/02/24
MOTION	ON
ALARM IN	ON
VIDEO LOSS	ON
SELECT CAMERA	ON
VIEW SEARCH LOG	
CANCEL	

-EVENT SEARCH: If an event in the higher menu is selected, it is possible to search according to MOTION/ALARM IN/VIDEO LOSS selection (ON). And it is possible to play the searched event.

3.11.4 Setting the OVERLAPPED SEARCH

-OVERLAPPED LIST: It is possible to search for overlapped data according to temporal change.

3.12 CAMERA CHANGE-Setting Menu



CAMERA CHANGE: This is the function that makes it possible to turn the screen in a channel which the user wants.

If the mouse is put on the selected channel and the right key is pressed, it displays the menu window of Camera Change.

If the Front key and Remote Key are in operation, the channel is selected; then, press the key OK and the same window will be viewed.

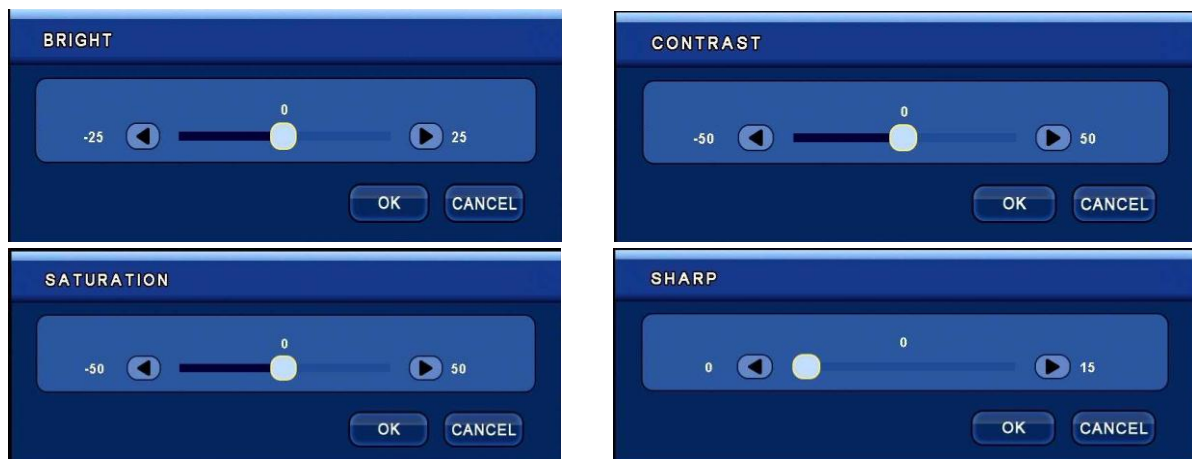


3.12.1 Setting the ADJUSTMENT



-ADJUSTMENT: It is possible to adjust brightness, contrast, saturation, and sharpness of the selected channel. If ALL APPLICATION is pressed, it is possible adjust in all channels at the same time.

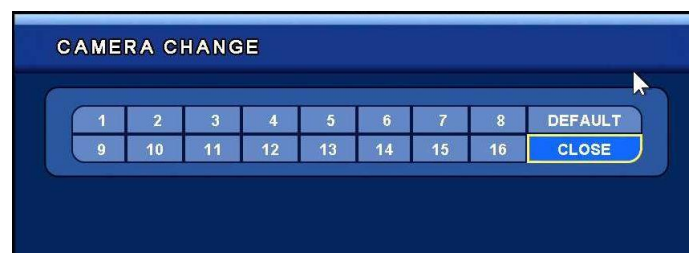
-SCREEN: If it is in the live mode, it is possible to view the changed screen; if it is changed into REC, it is saved in the changed condition (brightness, contrast, saturation, and sharpness).



3.12.2 Setting the CAMERA CHANGE

- CAMERA CHANGE: It is possible to replace the camera in the selected channel with a camera on other place.

(If you are to change back into the initial state, press DEFAULT.)



3.12.3 Setting the PLAYBACK

-PLAYBACK: This is the function to play the selected channel. The playback is in operation from the set time of Playback, while other channels are in the live mode.

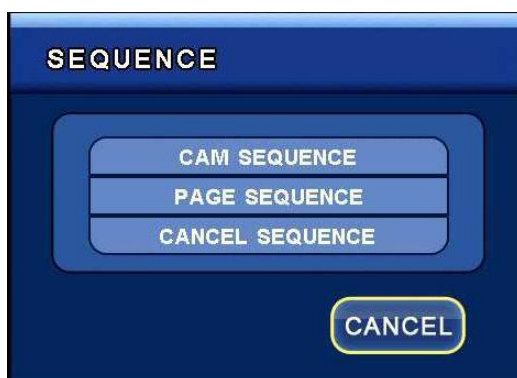


3.12.4 Setting FREEZE

-FREEZE: This performs the function of bringing a temporary pause to the selected channel.

-FREEZE ALL: This performs the function of bringing a temporary pause to all channels.

3.12.5 Setting the SEQUENCE



-SEQUENCE: This performs the function of converting in sequence, depending on the setting value of CAMERA_SEQUENCE.

CAM SEQUENCE: This performs the function of converting cameras in sequence, depending on the setting value of CAMERA_SEQUENCE (ON)

PAGE SEQUENCE: This performs the function of converting a unit of page, depending on the setting value of CAMERA_SEQUENCE (ON).

CANCEL SEQUENCE: This performs the function of cancelling the function of SEQUENCE (OFF).

3.12.6 Setting the PTZ



-PTZ: This performs the function of activating PTZ in the set channel depending on the setting of CAMERA_PTZ (ON)

(Press the key PTZ on the front side of the selected channel to activate it.)

- It is possible to use the Front Direction Key and the mouse to move upward, downward, leftward, and rightward, after activation; press the key Menu to control PTZ.

-Z+, Z-: It is possible to use ZOOM IN/OUT to control the camera.

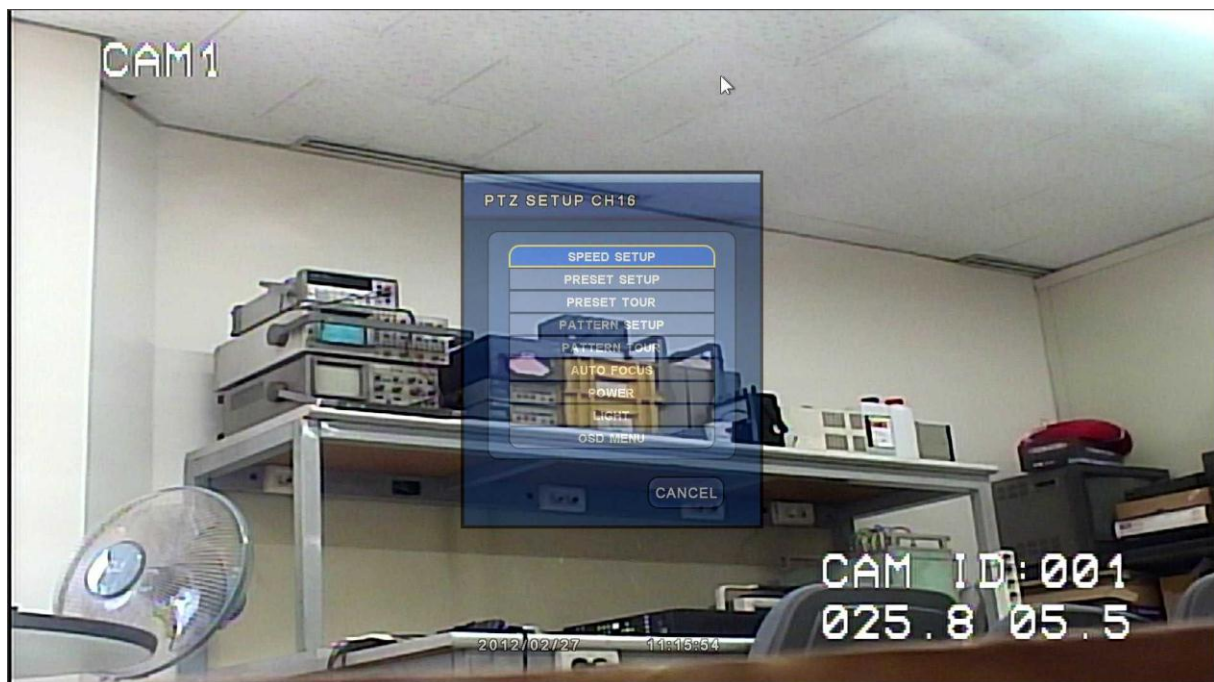
-F+, F-: It is possible to use FOCUS IN/OUT to control the camera.

-I+, I-: It is possible to use Iris IN/OUT to control the camera.

-EXIT: The user can exit after finishing PTZ.

-CANECEL: The user can exit to the window of PTZ.

-PTZ MENU: It is possible to control additional functions of the PTZ camera.



-SPEED SETUP: It is possible to control the speed of a camera (from 1st stage to 8th stage).

-PRESET SETUP: This performs the function of designating the position of PAN/TILT in advance. It is possible to save from 1 to 50 and move to a set place.

-PRESET TOUR: It is possible to make a list of the presets and make a PRESET TOUR depending on the ON/OFF function.

-PATTERN SETUP: This performs the function of saving the patterns the user wants.

-PATTERN TOUR: This performs the function of moving the camera in a pattern that the user sets.

-OSD MENU: This performs the function of turning ON/OFF the OSD menu.

3.12.7 Setting the ZOOM *2, *4



-ZOOM * 2, * 4: It is possible to depend on ZOOM magnification to watch the images.



3.12.8 Setting the AUDIO ON/OFF

-AUDIO ON: It is possible to turn ON/OFF the audio in the selected channel.

3.13 PLAYBACK

3.13.1 Playback of recorded images

- It is possible to playback saved live images directly or searched live images depending on the previously set conditions.

3.13.2 Method of playback

- If you are to playback a searched image, press the button "Search" to select a method of search; and then select an image you want and play it back.



3.13.3 Method of operation in the process of playback

3.13.3_1 Stopping playback

- If you are to stop playing in the process of playback, press the button "Exit" on the remote controller or on the front side of DVR, and the playback will stop and the system will move back to the live screen.

3.13.3_2 Temporary pause to play in the process of playback

- If you are to bring a temporary pause to play in the process of playback, press the button "Pause" on the remote controller or the front side of DVR for a temporary pause. In this state, press the button "Pause" and the system will move back to the previous stage.

3.13.3_3 Controlling the speed of playback

- The kinds of playback speed includes a slow 3-stage speed in the progressive direction, a normal speed in the progressive direction, a quick 4-stage speed in the straight direction, a normal speed in the regressive (reverse) direction, and a 4-stage double speed in the regressive direction. If you are to play back quicker than the current playback speed, press the button "Right" on the remote controller or on the front side of DVR to control the speed; and if you want to play back slower than the current playback speed, press the button "Left" to control the playback speed.

- When you use the mouse to play back slow, press the button "Temporary Pause" in the process of playback; and whenever the button is pressed quickly, the slow-playback double speed is changed (1/2, 1/4, 1/8 double speed).

3.13.3_4 Changing the direction of playback

- The directions of playback include the regressive (reverse) direction and the progressive direction. If you want to play back in the regressive direction while it is in operation in the progressive direction, press the button "R-Play (Reverse Play)" to change the direction of playback. Press this button, and it will be played back at a normal speed in the regressive direction; in contrast, if you want to change into the progressive direction while it is in operation in the regressive direction, press the button "Play" to change the direction of playback. Press this button and it will be played back at a normal speed in the progressive direction.

3.13.3_5 Selecting the channel of playback

- It is possible to select other channel at the same time as the current channel is in the process of playback. If you are to use the remote controller to select other channels, you are allowed to select a channel you want with the remote controller. However, if you want Channel 1, press "1" and wait for about 3 seconds, or press "OK" and it will be selected. It is possible to use the button "Channel" on the front side to change channels conveniently.

3.13.3_6 Function of section repetition

- Press the key "SEQ" in the process of playback, and you can use the function of section repetition. Or select A-B on the lower part of the mouse, and you can use the function of section repetition.
- Press the key "SEQ" one time in the process of playback, and "S time/minute/second" will be seen on the lower left part. Press the key "SEQ" one time, and "E time/minute/second" will be seen for section repetition.
- If you want to exit from the "Section Repetition," press the button "Exit" or the mouse button "X", and the function of section repetition will disappear.

3.13.4 Other functions in the process of playback

- Select the channel in the process of playback, press the right button of the mouse, or use the button "OK" to select the channel and then press the button "OK" once more, and the menu "Camera Change" below will be viewed.



3.13.4_1 LIVE CHANGE

- This is used to change the selected channel in the process of playback into other live channel mode. Press the button "Live Change" and the window in which to select a channel that you want to change will be in sight. Select a channel you want among them and it will be changed into the live screen.

3.13.4_2 PLAY CHANGE

- It is possible to change the selected channel in the process of playback into other live channel mode. Press the button "Play Change" and the window in which to select a channel that you want to change will be in sight. Select a channel you want among them and it will be changed into the live screen.

3.13.4_3 PANORAMA

- This is used to change the selected channel in the process of playback into the Panorama mode. Press the button "Panorama" and the selected screen of playback will be changed into 4-partition Panorama mode and played back in a unit of frame.



3.13.4_4 SMART



- This is used to change the selected channel into the Smart mode. If you press the button "Smart", the event will take place without delay and find the recorded position to start playback.

3.13.4_5 Setting ZOOM *2, *4

- It is possible to depend on ZOOM * 2, * 4: ZOOM magnification to view images in the channel in the process of playback.

3.13.4_6 JPEG EXPORT

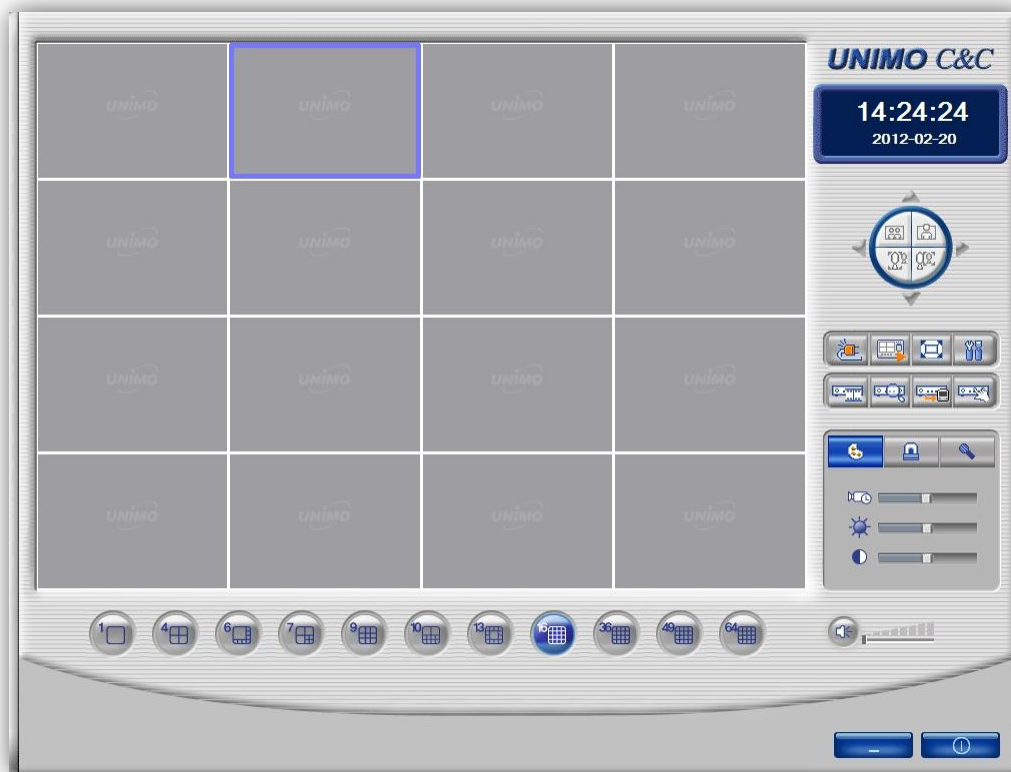
- This performs the function of saving the still images in a saving device of the channel in the process of playback.

3.13.4_7 Audio ON/OFF

- If you want to playback a file with a recorded audio linked, you should select the channel with the mouse and click on the button "Right" to view audio-related menu. Click on the button "Playback" after turning on the audio, and the audio will be played back. If you are to use the key on the front side of DVR, press the button "OK" and select the channel. Then, press the button "OK" once more, and the audio-related menu will be in sight. If you click on "Playback" after turning on the audio, the audio will be played back.

Chapter 4 PC Client Introduction

4.1 RAMS PRO

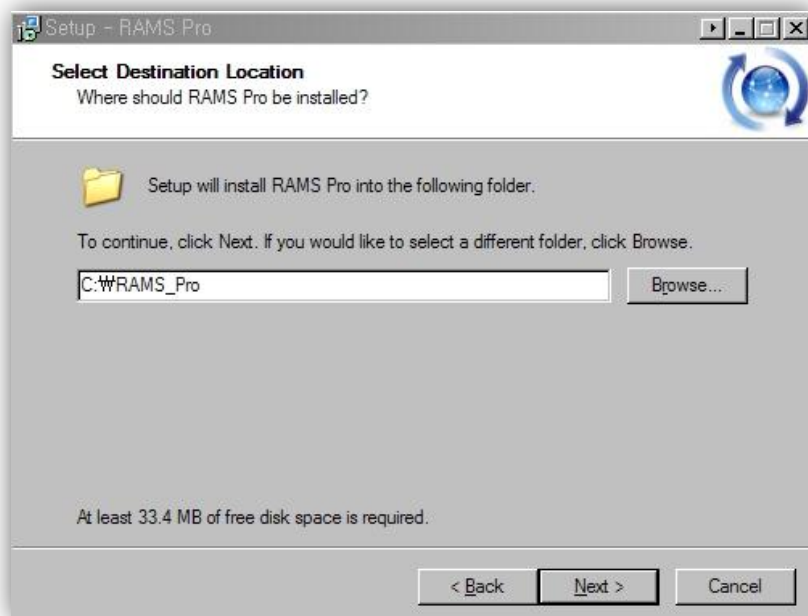


The RAMS Pro is an integrated software for controlling the DVR, a PC program to support 64 channels, making it possible to control REAL TIME VIDEO MONITORING, DVR SYSTEM SETTING, DVR BACKUP, AVI CONVERT from a remote place.

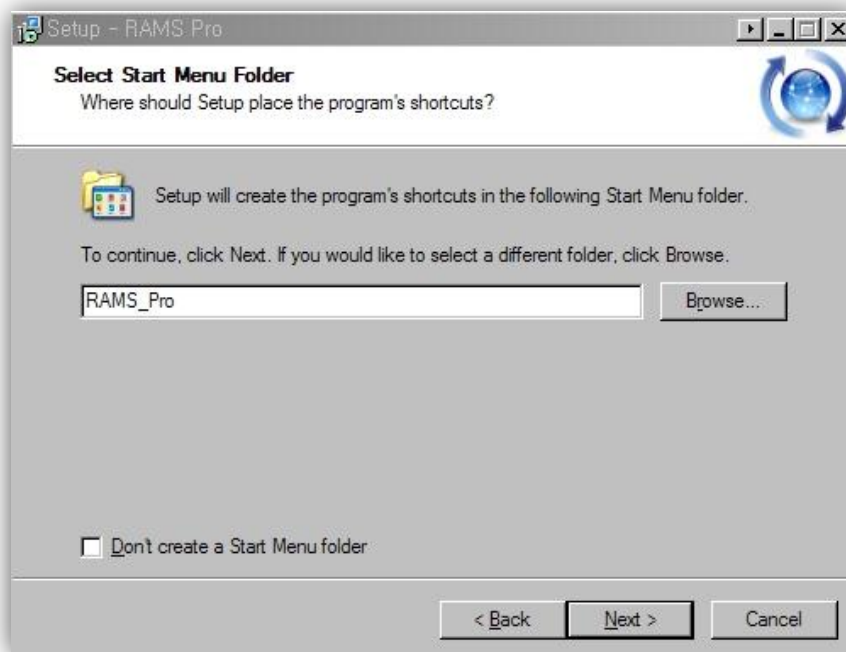
4.1.1 RAMS PRO Setup



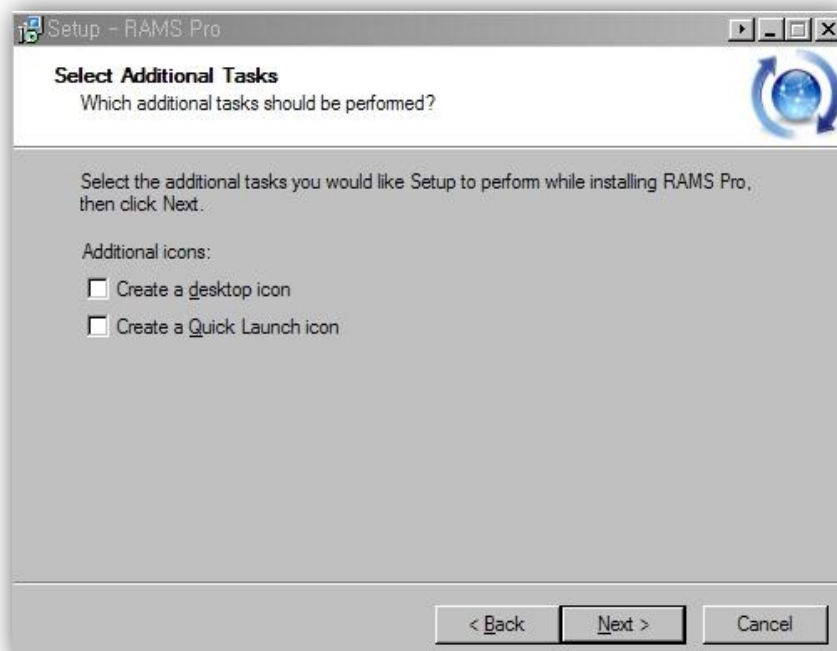
- Execute "RAMS pro.exe" and then press the button "Next" to continue the process of setup.



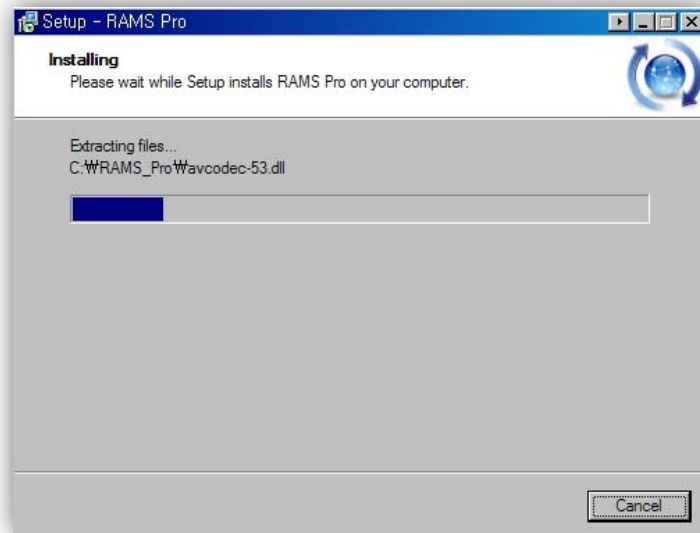
- Designate a place in which to set up the program and the name of a new folder. C: \WRAMS_Pro is set as a default value. Press the button "Next" to continue the process of setup.

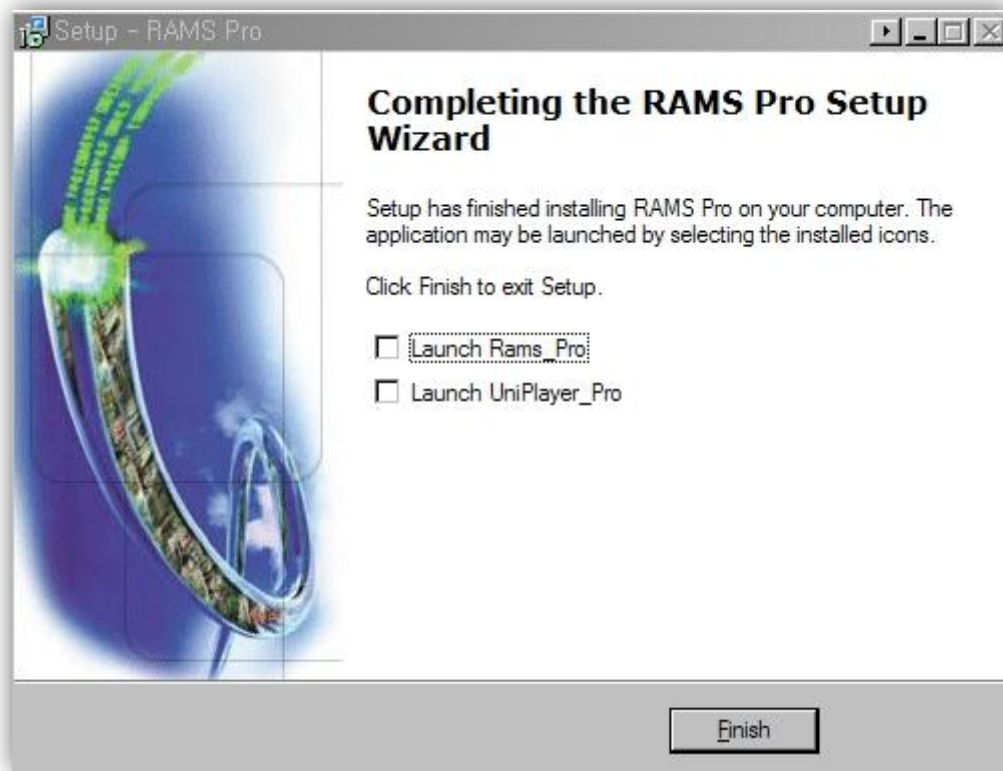


Create a "Shortcut" to a program to be created in the list of Start Programs at the bottom of Windows. If you do not want it, select the button for checking "Don't create a Start Menu folder" and then press the button "Next" to continue the process of setup.



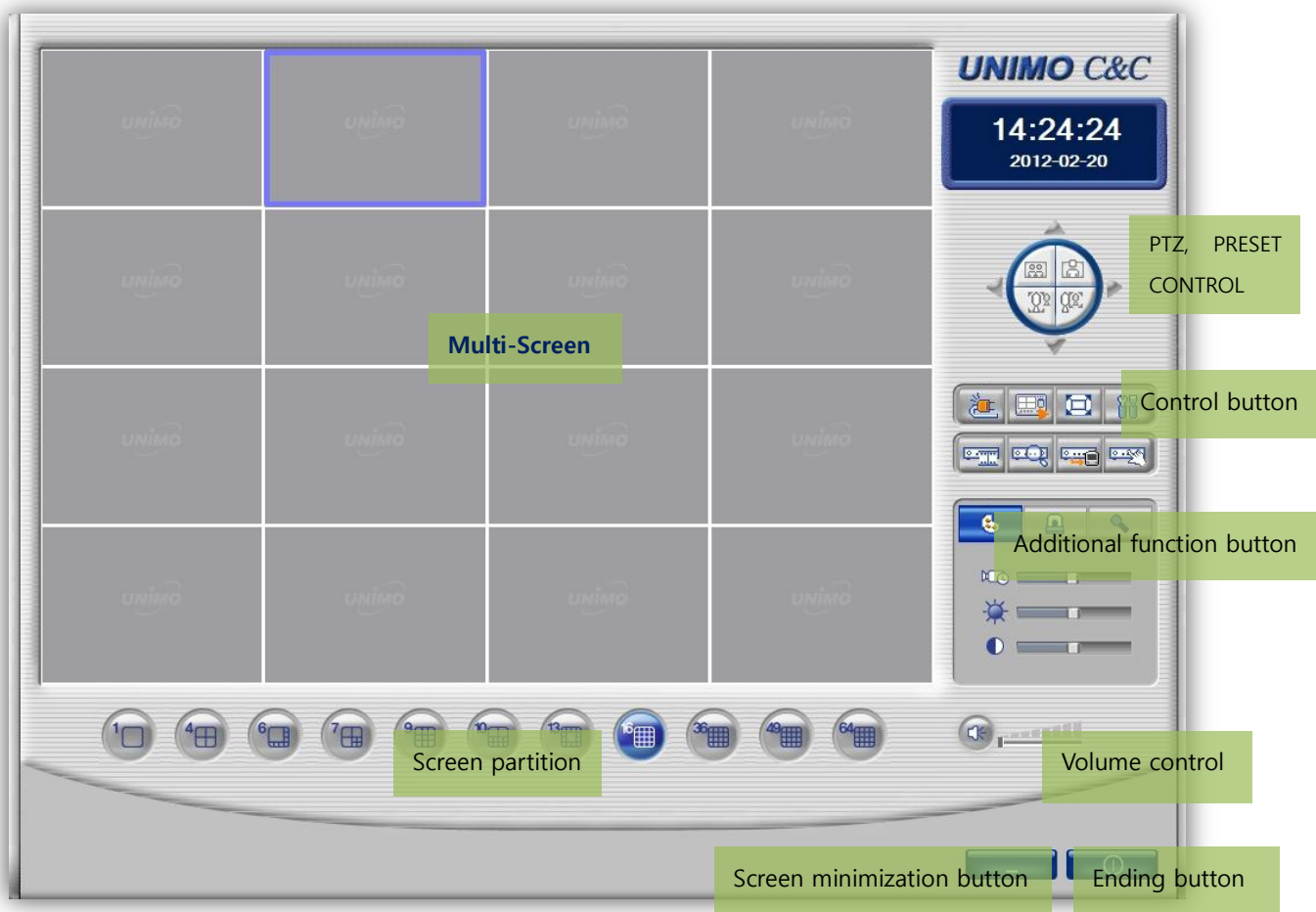
If you want to create a "Shortcut" on the wallpaper, select the icon "Create a desktop icon". And if you want to add RAMS pro to the toolbar, select "Create a quick Launch icon". Press the button "Next" to continue the process of setup.



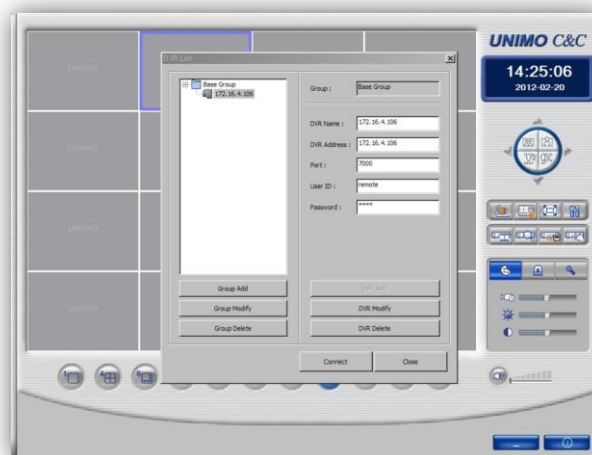


After all the program is set up, select a program you want to execute. If you do not want, press the button "Finish" to finish setting it up, with nothing selected.

4.1.2 RAMS PRO Access



- CONNECT



- DVR ADD

Press the icon "Connect" to activate the window "DVR List" and then click on "Base Group". Then, enter the name of the DVR you want to connect and the IP, PORT, USER ID, PASSWORD of the DVR, and then press the button "DVR ADD"; you can add a list in the designated name.

:

	DVR Default Value
ID	ADMIN
PW	111111
PORT	7000

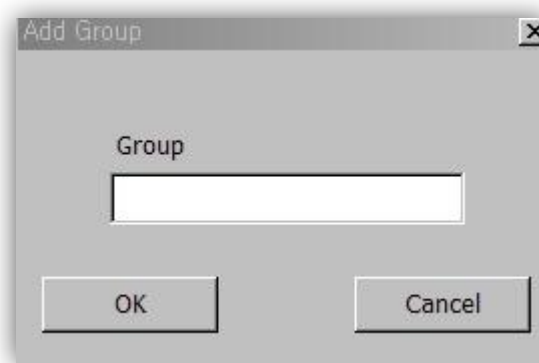
- DVR MODIFY

Select the name of the DVR you want, and you will identify the value of NAME, IP, PORT, USER ID, PASSWORD in the right "enter" window. Change the information on items you want to revise; and then press the button "DVR MODIFY", and the change will be made.

- DVR DELETE

Select the name of the DVR you want in the window of connection list, and you will identify information on the value of NAME, IP, PORT, USER ID, and PASSWORD in the right "enter" window. Press the button "DVR DELET", the information will disappear from the connection list.

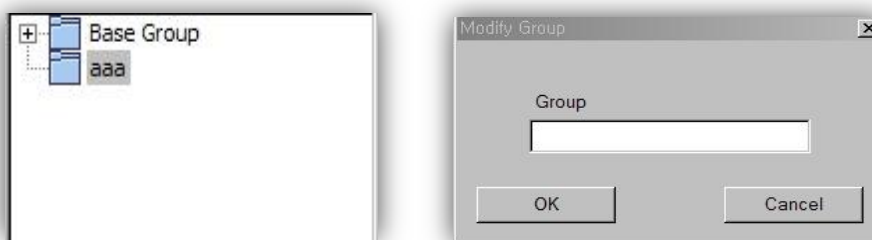
- GROUP ADD



In order to add a new group, press the button "ADD GROUP" to activate the popup window "ADD GROUP". Then, enter the name of the group you want and press the key "OK", and the list will have the new group added.

- GROUP MODIFY

Select a group you want to change from the list and then press the button "GROUP MODIFY", and the window "GROUP MODIFY" will be activated. Enter the name of the group that you want to change and then press the key "OK", and the name of the group will be changed.

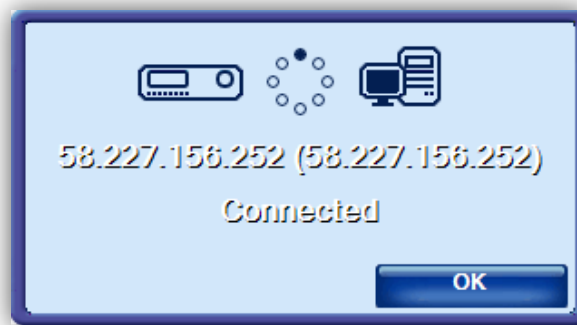


- GROUP DELETE

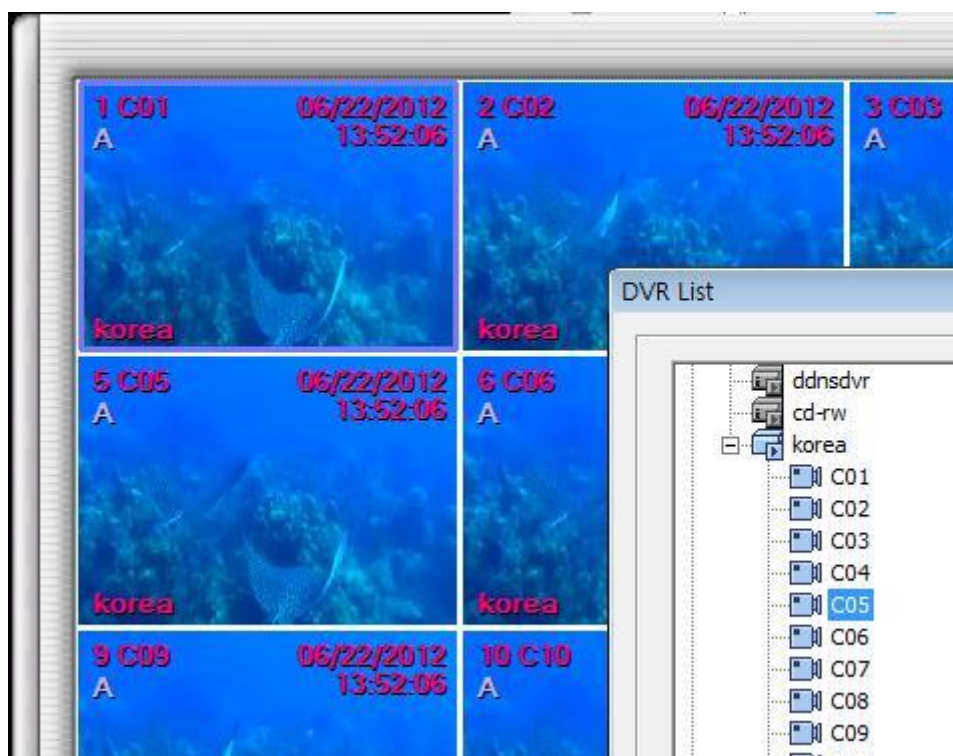
Select a group you want to change from the list and then press the button "GROUP DELETE", and the selected group will be deleted.

- DVR CONNECT

Enter accurately the information of the connection to the DVR you have, and then press the button "CONNECT", and the window below will be in view as Popup for showing the state of connection, if the connection is successful. Press the key "OK" on the window, and you will view the images of the DVR in a multi-screen.

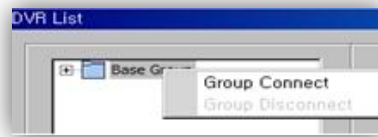


- Selecting part of the channel alone to view it



If it is connected with DVR, the icon of the list will be changed into blue. Press the button "+" of the DVR to show the list, and the list of all channels of the DVR will be in sight. Use the mouse to drag the channel you want to watch in the list of channels and then leave the mouse untouched, and you can select a particular channel, as seen on the above Figure.

- Group connection



Click on the group with the channel list that you want in the DVR list, with the right mouse, and the items for selecting GROUP CONNECT and GROUP DISCONNECT will appear. If you select Group Connect, you can connect up to 64 channels to the selected DVR.

4.1.3 Screen-partition control



It is possible to make a partition with the number of multi-screens at a maximum of 64 channels.

4.1.4 Minimization button



This is used to minimize a program and hide it in the monitor screen. If you want to maximize it back, select RAMS pro from the list on the lower part of the Windows.

4.1.5 Ending button

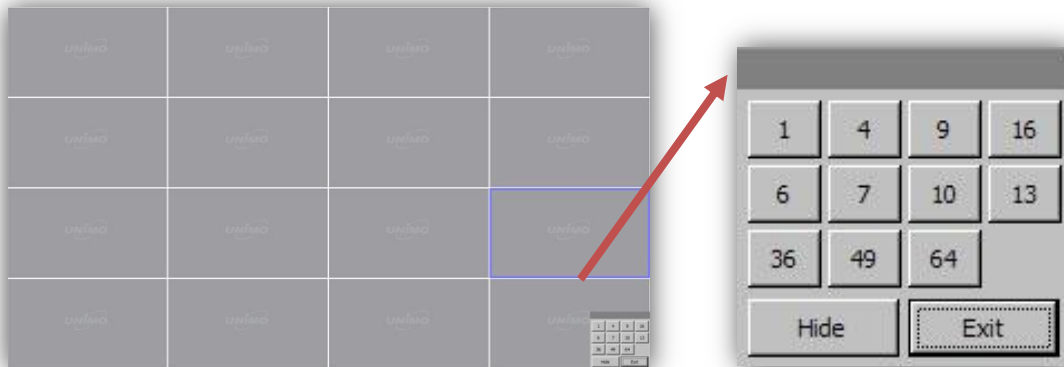


This is used to end a program by pressing it.

4.1.6 FULL SCREEN



Select the above, icon and you can view the images of the DVR in full screen.



It is possible to use the controller for screen partition in the state of full screen to make a partition of the channels: 1, 4, 9, 16, 6, 7, 10, 10, 36, 49, and 64.

- HIDE: This is used to hide the control.

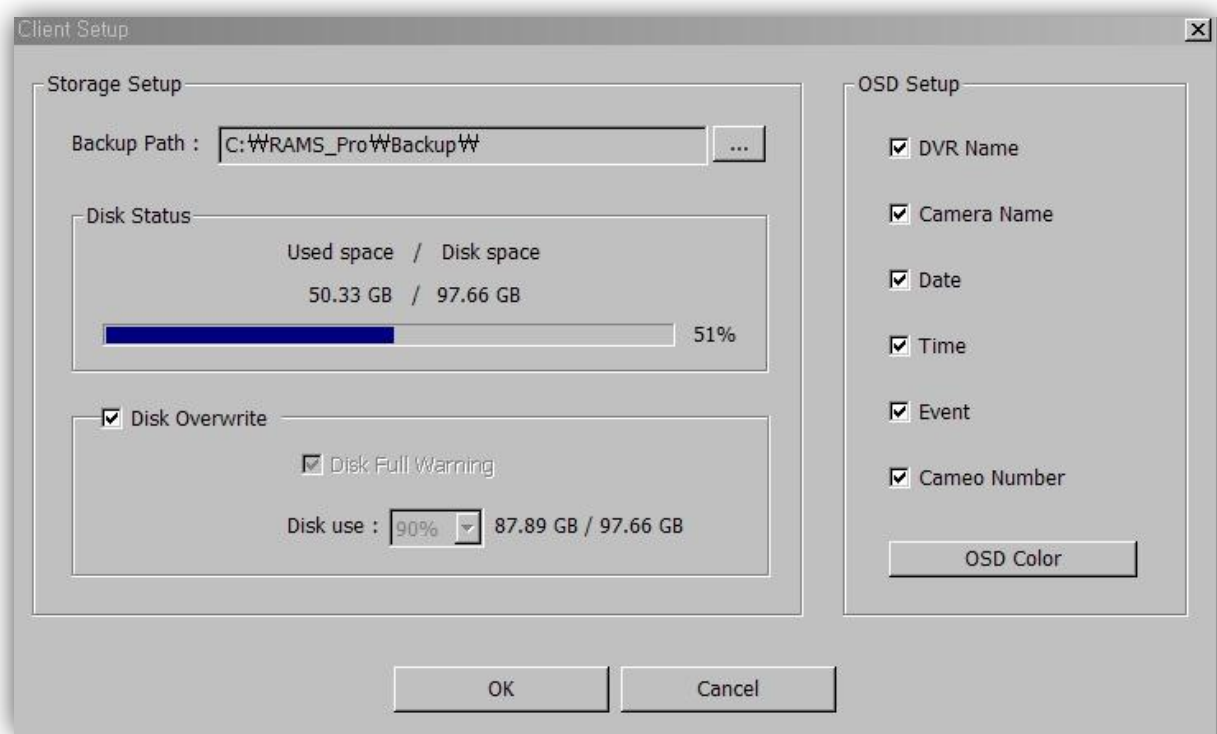
(If you are to exit from the Hide mode, right click the mouse.)

- EXIT: This makes it possible to exist from the full screen mode.

4.1.7 SETUP



Press the button "Setup" out of the control buttons, and the window "Client Setup" below will appear.



- STORAGE SETUP: It is possible to check related current information on the PC
- BACKUP PATH: It is possible to designate a folder in which recorded images can be saved according to the state of DIRECT, EVENT, LIVE, SCHEDULE of Client.
- DISK STATUS: It is possible to check how much current is used to make of the Hard Disc of the PC.
- If the DISK OVERWRITE is not checked, but if the amount of use of PC HDD reaches that of "Disk use ?%", an alarm will go off in order to help the user recognize it.

4.1.8 RECORD





If you want to record the image you view in a remote condition, independently from the record in the DVR, select the channel and then click on the button "Record", and the image will begin to be recorded in the designated place through Backup Path.

4.1.9 DVR PLAYER

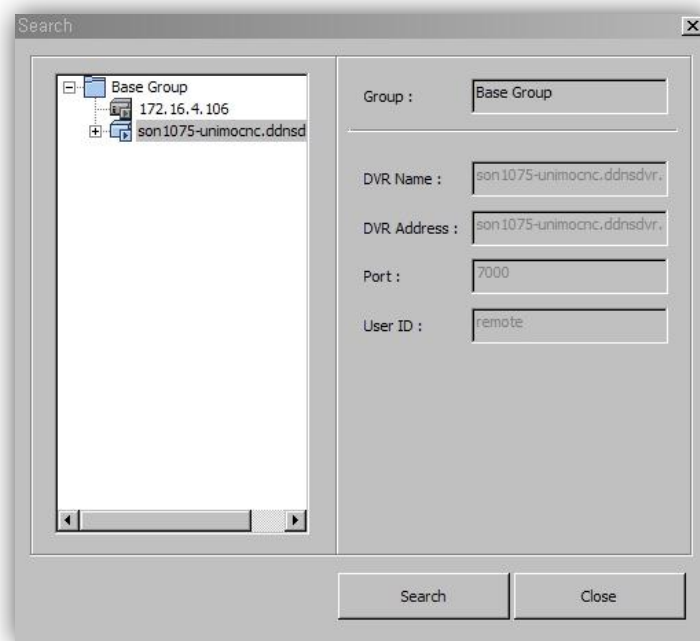


If you want to view the recorded image in "Record" click on this button, and the program "DVR Player" will be executed independently from RAMS pro.

4.1.10 SEARCH



You can search for an image recorded on the previous days in the DVR. Click on the above icon, and the window "Search" will be created.



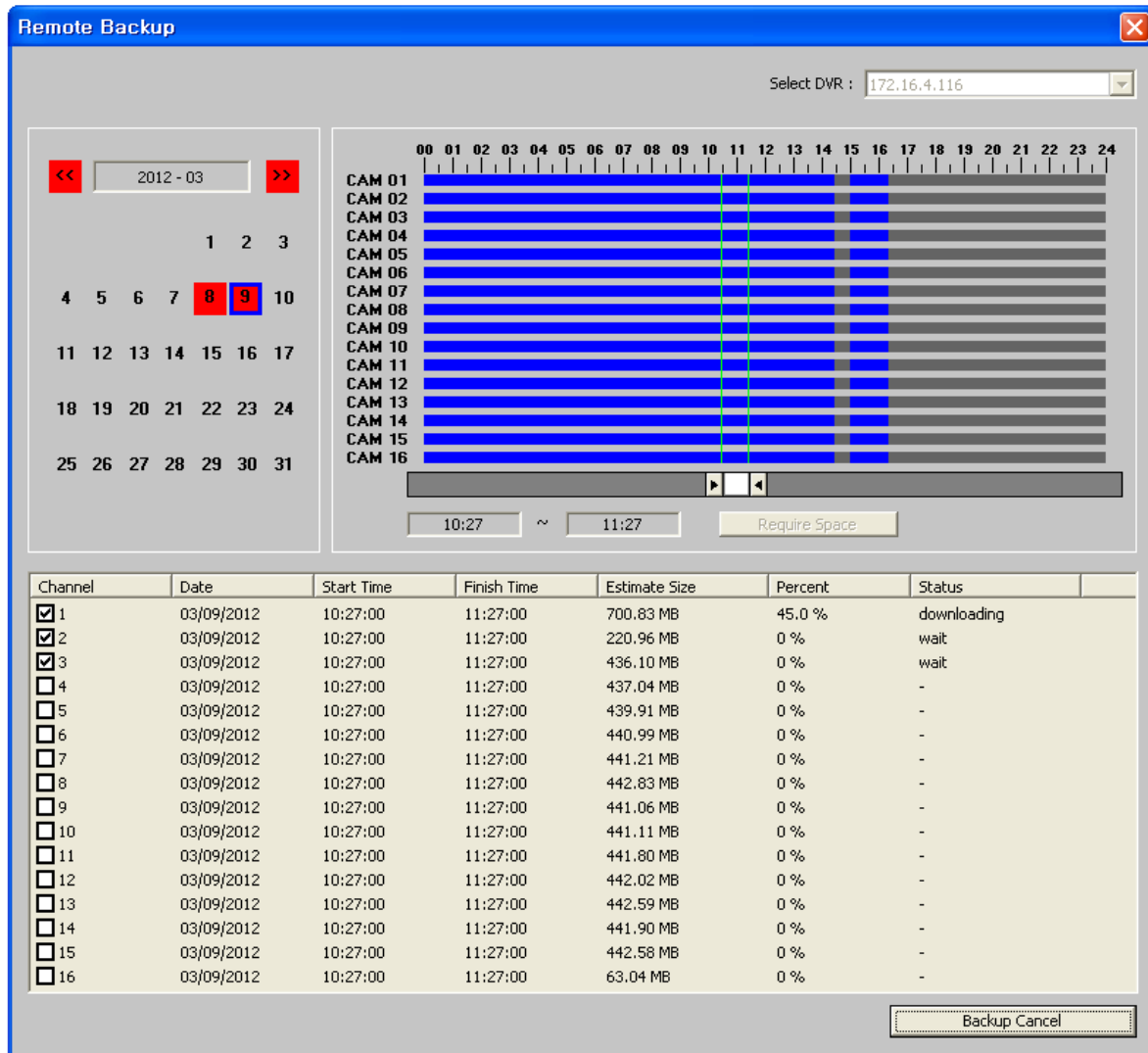
Select a DVR you want in the connection list and press the button "Search" and you can check the date and data selected in your PC.



4.1.11 REMOTE BACKUP



- Click on the above icon, and you will save the recorded data in the DVR in your PC.
- If you select a date you want, you will view the recorded data. Select the section for backup, from the starting to the ending position, and press the button "Backup Start". Then, a backup of the data will be made.



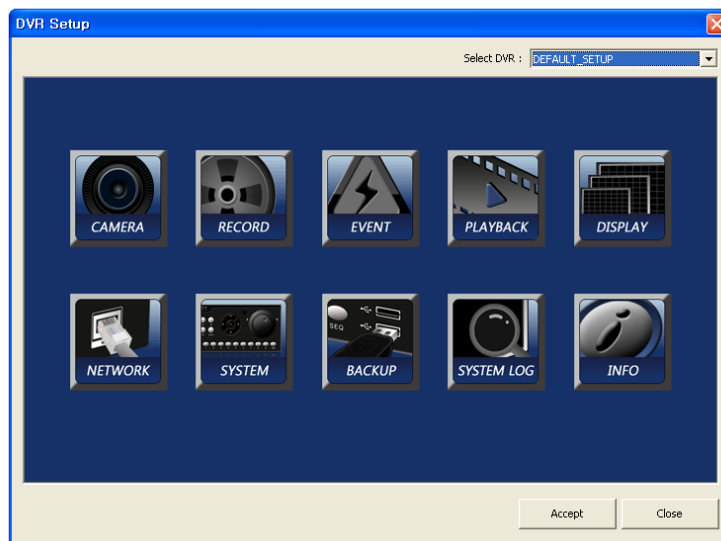
Click on the icon below to depend on Uniplayer_pro to view the backup data (see 4.2).



4.1.12 REMOTE SETUP



- Click on the above icon to depend on RAMS PRO to revise the parameter of DVR. All menus are comprised in the same way as those in DVR. You can do work you want, in the same way as the work setting in the DVR.



4.1.13 ADJUST CONTROL



The following are applied in sequence from the top.

- It is possible to control FPS of the image in the process of playback in the multi-screen.
- It is possible to control the BRIGHTNESS of the image in the process of playback in the multi-screen.
- It is possible to control the CONTRAST of the image in the process of playback in the multi-screen.

4.1.14 ALRAM CONTROL



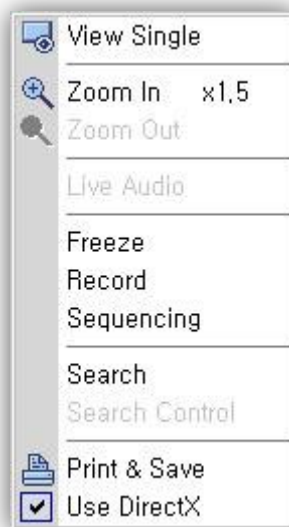
It is possible to control such other devices like a siren linked with the DVR.

4.1.15 AUDIO CONTROL



It is possible to use a speaker linked with DVR through a microphone linked with the PC to send sound messages.

4.1.16 MOUSE MENU



This performs the function of controlling the current image by clicking on the right button of the mouse in the multi-screen.

VIEW SINGLE - This is used to turn the selected channel into the mode of one-channel view.

ZOOM IN x 1.5 - This is used to magnify the image by one and a half times.

ZOOM OUT - This is used to return the magnified image to the original size.

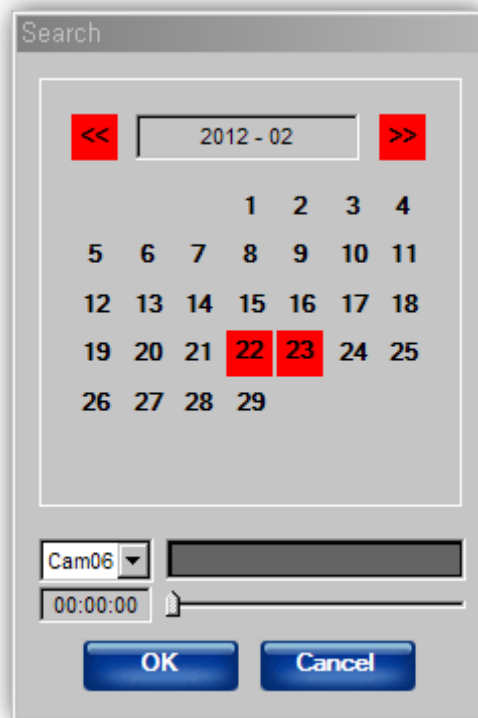
LIVE AUDIO - Click on the mouse to hear the sound of the selected channel.

FREEZE - This is used to bring a temporary pause to the image you are viewing.

RECORD - This is used to record and save the image that you are viewing in your PC, independently of the DVR.

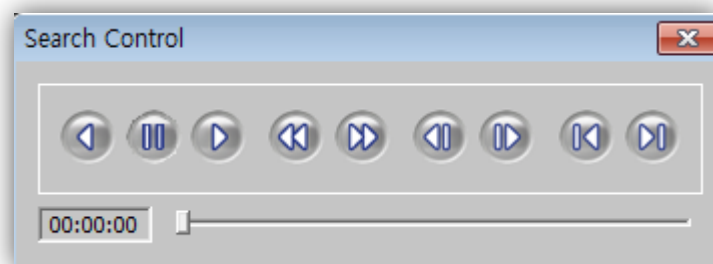
SEQUENCING - It is possible to turn into other channel on the partitioned screen every particular time.

SEARCH - This is used to playback the image data alone of the channel.



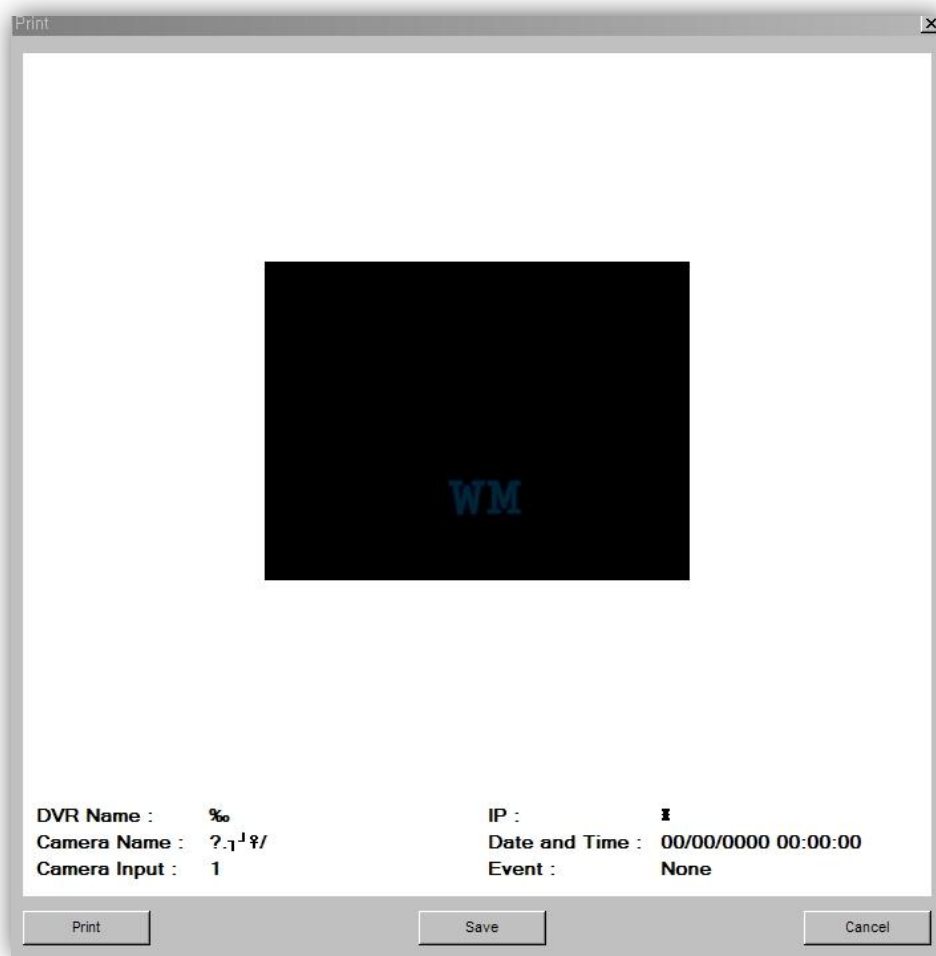
On the days when the above window for calendar search is activated or when there are recorded image data, the red light is turned on. Select the data on the date you want, and then press the key "OK".

SEARCH CONTROL



It is possible to playback in a reverse direction, bring a temporary pause, play back, rewind quickly, play back quickly, move backward by one frame, move forward by one frame, move to the initially recorded date, and move to the finally recorded data, from a time when you select on the lower progress bar.

PRINT & SAVE



It is possible to save a selected channel or all channels, or print them out.



4.1.17 PTZ Control

It is possible to click on the arrows "upward, downward, rightward and leftward" to move the camera linked with the DVR.



ZOOM IN



ZOOM OUT

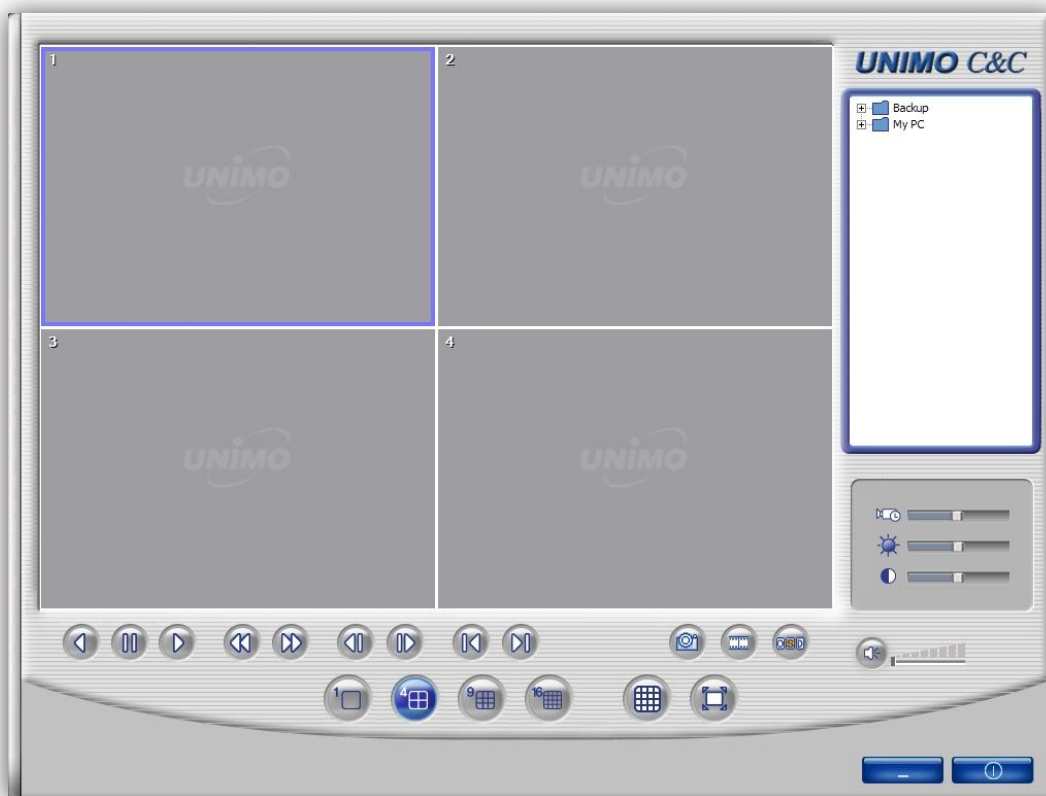


FOCUS IN



FOCUS OUT

4.2 Uniplayer Pro



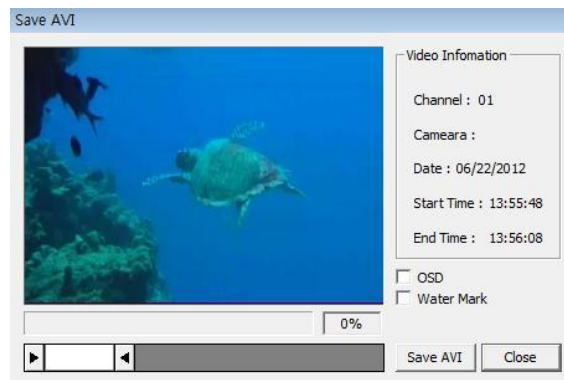
UNIPLAYER pro is a program that is used to play back a recorded image. It is together created in the process of backup in USB, CD, or DVD, in DVR. Each function of UNIPLAYER pro is the same as RAMS pro, except for the functions below.



: PRINT & SAVE - After capturing a channel you are viewing or all channels or all partitioned images, you can save or print them out.



: It is possible to change the backup images into AVI image files and then save them.



: It is possible to save OST outputs.

4.3 Web Client

4.3.1 Active-X Control download

- Enter the DVR address to be connected in the address window of the Explorer. When connecting with DVR, if you view the following message, press the button "Setup," and it will be set up (If you press the button "No Setup", it will not be set up.).



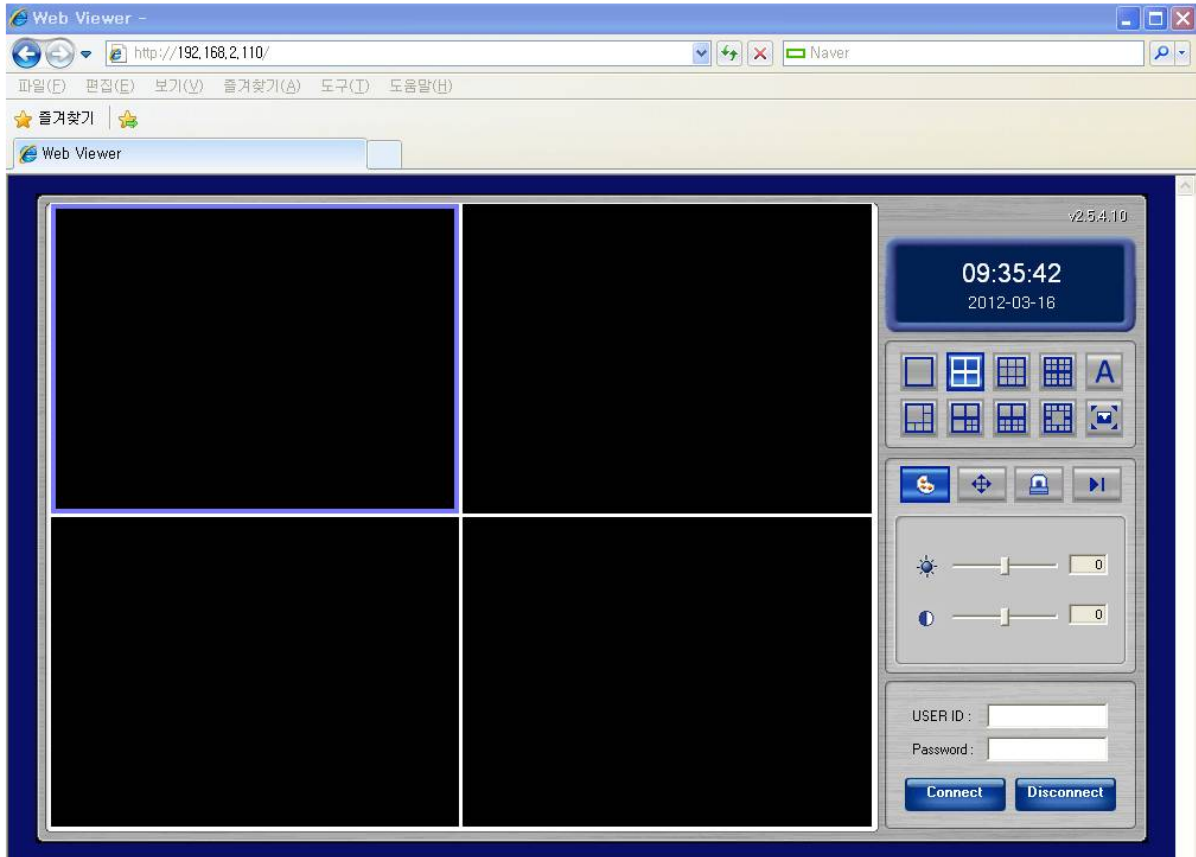
Fig. 4.3.1 Window for Checking Active-X Setup

4.3.2 Connecting with DVR

- Enter IP address or DDNS address of the DVR you want to in the address window of the Internet Explorer.

EX) When using DDNS address, add "unimocnc.ddnsdvr.com: XXXX" WEB port.

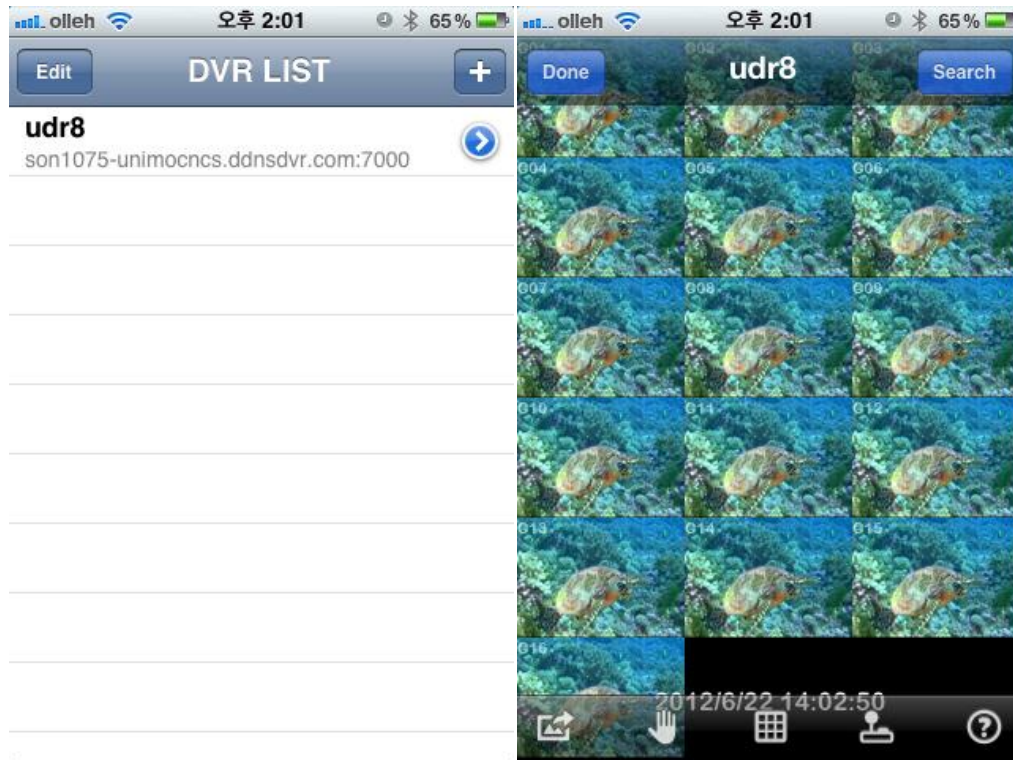
4.3.3 Screen showing the connection with DVR



- Enter the network password of DVR in the login window on the lower right. The method of its use is the same as RAMS pro. See [4.1.2 RAMS PRO Connection](#) for details.
- You can use a variety of functions including screen partition, live, search, playback and others in Active-X, like RAMS PRO.

4.4 Mobile Viewer Introduction

4.4.1 i-RAMS pro / a-RAMS pro



The 'i' of i-RAMS pro stands for i-Phone and an application exclusively for i-Phone.

The 'a' of a-RAMS pro stands for Android Phone and an application exclusively for Android Phone.

4.4.2 Search

- Android: You can search for a-RAMS pro on the Android market.




- Apple: You can search for i-RAMS pro on the App Store.




4.4.3 Connection list

-ADD 

Tap on the above button in the connection list, and it will be changed into "EDIT screen" on which to enter new address. Enter DVR information on the window for entering information and then press the button  and the information will be saved and the screen will return to the connection list.


- EDIT 

Tap on the above button in the connection list, and the order of the existing list can be changed or it will be deleted.

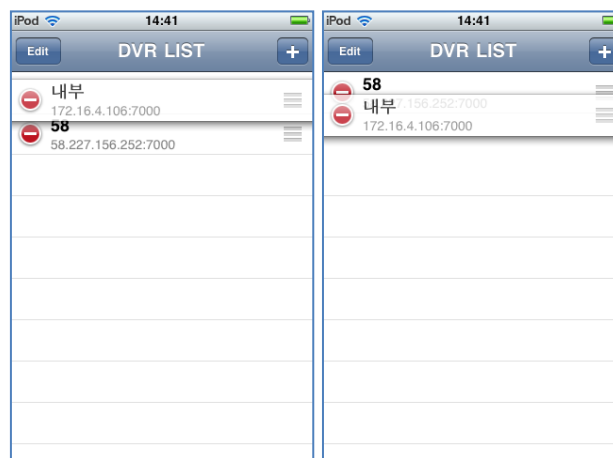
-  The list the user chose has the appearance of icons changed.



Select the DVR you want to delete, and the icons will look different, as mentioned above. It is possible to use the button "Delete" to delete the DVR information.

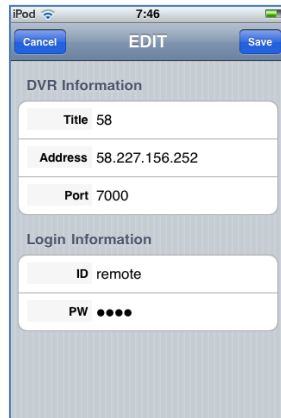
- Changing order 


With the above icon pressed and your finger attached to the left mouse, drag upward or downward, and the order of the selected DVR information will be changed.



- Connection information change 

If you want to change the address and login information on DVR to be connected, tap on the above icon, and a new screen will be changed into "EDIT" screen.



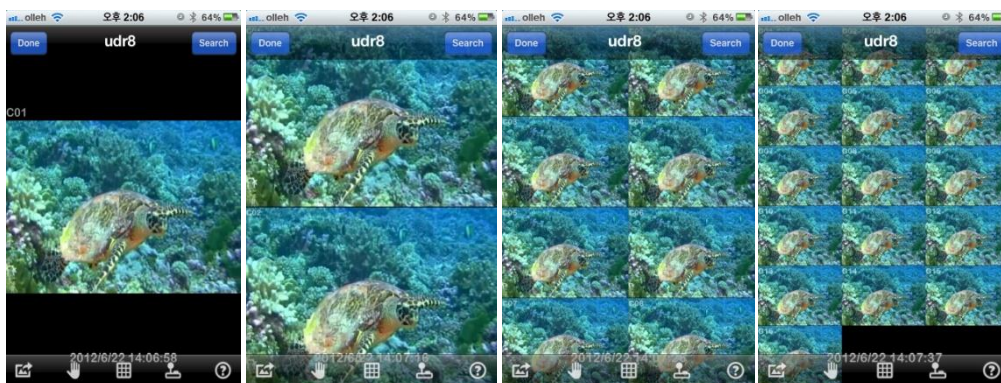
Change information you want to, and tap on the icon  and it will be saved.

4.4.4 Connection

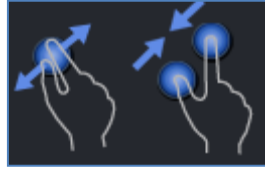


Select the list emphasized in a square, and you will have access to the DVR.

4.4.5 Screen partition and conversion



The mobile App basically supports screen partition: 1, 2, 8, 16-partition. In order to view only one channel, tap double on a channel you want to view, and in order to view partitioned screens, tap on the screen.



With the screen touched with two fingers, make them closer to each other, the screen will be converted in sequence (1, 2, 8, 16-partition); make the fingers become distant from each other, and the screen will be converted in sequence (16, 8, 2, 1-partition).

4.4.6 Upper menus

- Done 

The mobile viewer can be stopped.

- Search 

It is possible to search for a recorded image in the DVR by dates.



Select a date you want to search for and tap on the key "OK"





When search is done, bear in mind that the lower menu are JPEG_EXPORT, FAST REWIND, REVERSE PLAY, PAUSE, PLAY, FAST FORWARD, screen partition, in sequence, from the right.

4.4.7 Lower menus

- Capture 

It is possible to capture in the mode of 1-screen partition. Tap double on a channel to capture and tap on the above icon, and the image will be saved in a JPEG file.

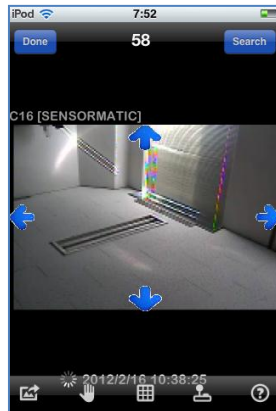
- Temporary Freeze 

It is possible to bring a temporary Freeze to a real-time image viewing. The icons will look different as seen below. 

- Screen partition 

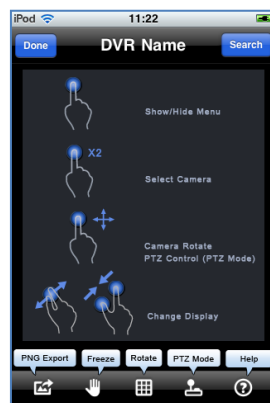
It is possible to do conversion by means of 2, 8, 16 screen partition. Tap double on the channel, and you can view in a one-channel mode.

- PTZ control 



It is possible to control the PTZ camera linked with the DVR. Press the above icon, and the direction key will be in view on the screen. Tap on the key, and the position of the camera will be changed.

- HELP 



Tap on the above icon, and the Help Patch for simple screen makeup will appear. Tap slightly on the screen, you can exit from the Help page.

Chapter 5 Appendix

5.1 Appendix A. Firmware Upgrade

- 1) Put copied firmware files in the USB memory stick. Connect it with the USB terminal on the front side of DVR.

- 2) Re-boot the DVR, and a menu window as seen on "Fig. A-1" will appear.
- 3) If you want to upgrade, click on the button "OK". If you want to cancel, click on the button "Cancel".
- 4) Continue if you see the rate of progress, as seen on "Fig. A-2"



Fig. A-1

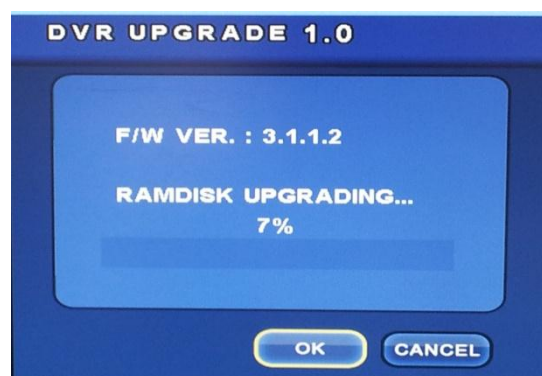


Fig. A-2

- 5) Click on the button "OK" after you see the message for success in upgrade and remove the USB memory stick.
- 6) Finish upgrading after rebooting.

5.2 Appendix B. Specifications

Model	8ch DVR	16ch DVR
Image System	NTSC, PAL, AUTO selectable	
Multi-tasking	Quadplex	
Video Channel	8CH Composite, 8CH Loop through, BNC	16CH Composite, 16CH Loop through, BNC
Video Output	HD Output 1EA, VGA 1EA, CVBS 1EA, SPOT 3EA	
Video Compression	H.264	
Display Resolution	1280x1024(50hz,60hz),1440x900(60hz),1920x1080p(50hz,60hz),1920x1080i(NTSC) / 1280x1024(50hz,60hz),1440x900(60hz),1920x1080p(50hz,60hz),1920x1080i(PAL)	
Recording Resolution	720x480, 720x240, 360x240 (NTSC) / 720x576, 720x288, 360x288 (PAL)	
Recording Quality	4 Levels (Low, Normal, High, Highest)	
Max Display Speed	240 fps (NTSC) 200 fps (PAL)	480 fps (NTSC) 400 fps (PAL)

Max Recording Speed	240 fps (NTSC) 200 fps (PAL)	480 fps (NTSC) 400 fps (PAL)
Max Playback Speed	240 fps (NTSC) 200 fps (PAL)	480 fps (NTSC) 400 fps (PAL)
Time Laps Recording Interval (fps)	1,2,3,4,5,6,7.5,10,15,30 (NTSC, 10 Steps) 1,2,3,4,5,7.5,12.5,25 (PAL, 9 Steps)	
Recording Mode	Schedule, Event (Alarm, Motion, Video loss Detection), Manual	
Playback Search	Calendar, Event (Alarm, Motion, Video loss Detection)	
Playback Speed	x1, x2, x4, x8, x16 (Forward, Backward)	
Slow Motion	x1/2, x1/4, x1/8,	
Sensor Input	8 (NO/NC Selectable)	16 (NO/NC Selectable)
Alarm Output (Relay)	4 (NO/NC) Relay	4 (NO/NC) Relay
Audio In/Out	In: 8ch , Out: 1ch	In:16ch , Out: 1ch
Network	10/100/1000 Base-T (Static, DHCP, E-mail), DDNS	
3G	iPhone, iPad, android	
Private Function	22x18 (NTSC) / 22X18(PAL)	
Motion Detection	22x18 (NTSC) / 22x18 (PAL), 5 Level Sensitivity	
Hard Disk	3EA	
ESATA PORT	1EA	
Hard Status	SMART Function (Hard status)	
Backup	USB(Ver2.0), CD-RW/DVD-RW, Network	
PTZ Control	RS-485	
Serial Port	RS-232(Console, Reserved)	
System Log	TBD	
Language	TBD	
S/W Upgrade	Network, USB Memory Stick	
Password Function	Power OFF, MENU, Record OFF, Key Lock	
Power Source	Free Voltage (100 – 240VAC, 50Hz/60Hz, 60W)	
Dimension	350(W) X 400(D) X 88(H)	
Operating Temperature	5℃ ~ 40℃	
Weight	6Kg (without HDD)	

5.3 Appendix C. Usage time per recording mode, per screen quality, per FPS, per HDD capacity.

1. D1 Record

Quality	FPS	Recording time(hour) per HDD capacity, 1 channel standard.		
		500GB	1TB	2TB
Highest	30	264.6	529.1	1058.2
	15	529.1	1058.2	2116.4
	7.5	1058.2	2116.4	4232.8
	4	1409.1	2818.2	5636.3
	1	5636.3	11272.7	22545.4
High	30	304.9	609.8	1219.5
	15	609.8	1219.5	2439.0
	7.5	1219.5	2439.0	4878.0
	4	1656.7	3313.5	6626.9
	1	6626.9	13253.8	26507.6
Normal	30	367.6	735.3	1470.6
	15	735.3	1470.6	2941.2
	7.5	1470.6	2941.2	5882.4
	4	1932.6	3865.2	7730.4
	1	7730.4	15460.7	30921.5
Low	30	431.0	862.1	1724.1
	15	862.1	1724.1	3448.3
	7.5	1724.1	3448.3	6896.6
	4	1970.4	3940.7	7881.5
	1	7881.5	15762.9	31525.9

2. Half D1 Record

Quality	FPS	Recording time(hour) per HDD capacity, 1 channel standard.		
		500GB	1TB	2TB
Highest	30	529.1	1058.2	2116.4
	15	1058.2	2116.4	4232.8
	7.5	2116.4	4232.8	8465.6
	4	2818.2	5636.3	11272.7
	1	11272.7	22545.4	45090.7
High	30	609.8	1219.5	2439.0
	15	1219.5	2439.0	4878.0
	7.5	2439.0	4878.0	9756.1
	4	3313.5	6626.9	13253.8
	1	13253.8	26507.6	53015.2
Normal	30	735.3	1470.6	2941.2
	15	1470.6	2941.2	5882.4
	7.5	2941.2	5882.4	11764.7
	4	3865.2	7730.4	15460.7
	1	15460.7	30921.5	61842.9
Low	30	862.1	1724.1	3448.3
	15	1724.1	3448.3	6896.6
	7.5	3448.3	6896.6	13793.1
	4	3940.7	7881.5	15762.9
	1	15762.9	31525.9	63051.7

3. CIF Record

Quality	FPS	Recording time(hour) per HDD capacity, 1 channel standard.		
		500GB	1TB	2TB
Highest	30	868.8	1737.6	3475.2
	15	1737.6	3475.2	6950.5
	7.5	3475.2	6950.5	13901.0
	4	4692.2	9384.4	18768.8
	1	18768.8	37537.5	75075.1
High	30	1027.0	2054.1	4108.1
	15	2054.1	4108.1	8216.3
	7.5	4108.1	8216.3	16432.5
	4	5531.0	11061.9	22123.9
	1	22123.9	44247.8	88495.6
Normal	30	1255.0	2509.9	5019.8
	15	2509.9	5019.8	10039.7
	7.5	5019.8	10039.7	20079.3
	4	6436.7	12873.3	25746.7
	1	25746.7	51493.3	102986.6
Low	30	1498.8	2997.6	5995.2
	15	2997.6	5995.2	11990.4
	7.5	5995.2	11990.4	23980.8
	4	6613.8	13227.5	26455.0
	1	26455.0	52910.1	105820.1