

USER MANUAL

Digital Hard Disk Recorder (8 & 16 Channel, MPEG-2)



* Default system password: 111111

(for RAMS, Record stop, Menu setup, System off, Auto key lock)

* Default ID: admin (for RAMS)

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1. SYSTEM OVERVIEWS

1.1 Safety

WARNING

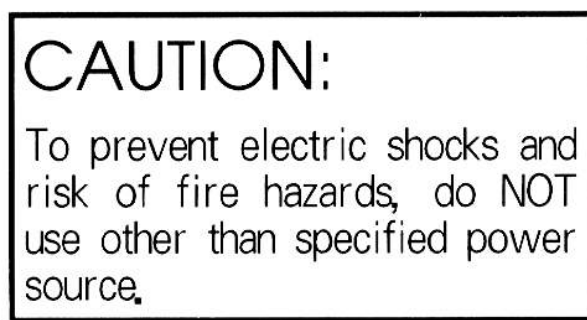
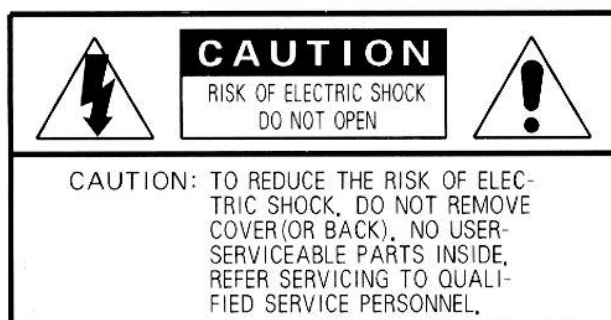
To prevent fire or shock hazard, do not expose the unit to rain or moisture.



The symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the unit.



The symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



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

Warning – If TIMEKEEPER NVRAM IC that is consist of RTC, SRAM, POWER-FAIL CONTROL CIRCUIT and BATTERY is replaced, the replacement is to be done by a trained technician with the same type of component.

Caution -- Any changes or modifications in construction of this device which are not expressly

approved by the party responsible for compliance could void the user's authority to operate the equipment.

Warranty will be made void if the product is disassembled or manipulated by the user.

Safety Instructions

- 1) Read these instructions.
- 2) Keep these instructions.
- 3) Heed all warnings.
- 4) Follow all instructions.
- 5) Do not use this apparatus near water.
- 6) Clean only with dry cloth.
- 7) Do not block any ventilation openings.
Install in accordance with the manufacturer's instructions.
- 8) Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- 9) Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- 10) Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
- 11) Only use attachments/accessories specified by the manufacturer.
- 12) Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
- 13) Unplug this apparatus during lightning storms or when unused for long periods of time.
- 14) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.



1.2 Components & Option

The following items are included with the 8 & 16 Channel DVR. Please be certain that all items are included as soon as you open the box:

1.2.1 Components

- DVR (CD/RW as a basic specification)
- Power cable
- DSUB-15 connector for PTZ /AUX / ALARM
- Quick Manual
- Software CD (RAMS, Uni Player, Multi Viewer, Quick Installer and Operation Manual)
- Screws for Assembling HDD

1.2.2 Options

- Remote controller (two battery included)
- Hard disk drive (Option or included)

1.3 Features & specifications

1.3.1 Features

- 8/16 channel Embedded Digital Video Recorder
- MPEG-2 compression
- Quad-plex mode for simultaneous recording, playback, backup, and networking
- Live remote viewing, on-the-fly recording, and control over the network
- Dynamic IP support (DHCP & PPPoE)
- Alarm triggered FTP and E-mail alert function
- Motion detection, Video loss, and sensor alarm function
- User defined setting for recording frame rate & resolution
- Various backup method support
(CD-RW, USB, Network)
- Audio recording available
- Multiple recording modes: Time lapse, video loss alarm, schedule, manual, & continuous recording
- Still image capture and search function
- Convenient search by alarm, time, or date
- Quick and responsive playback & field-by-field viewing with the Jog/Shuttle dial
- Watermarking (Backup)
- PTZ control through RS-485
- Quick & easy setup through RS-232
- Remote controller available (optional)
- Dual video modes: Selectable NTSC & PAL
- Rack mountable : 2U
- Free voltage power input (100 - 240VAC, 50Hz/60Hz, 70W)
- Various Video output (CVBS 2 ea out, VGA out, Spot out, S-Video out)

1.3.2 Specifications

Item	8 Channel	16 Channel
Image System	NTSC, PAL selectable	
Video Channel	8 CH	16 CH
Multi-tasking	Quad-plex	
Video Output	2 Ch Composite(BNC), 1Ch S-Video, 1 Ch Spot, VGA	
Video Compression	MPEG-2	
Recording Resolution	NTSC : 640x240, 320x240 PAL : 640x288, 320x288	
Recording Quality	4 Levels (Normal, Enhanced, Fine, Super Fine)	
Max Recording Speed	120fps (320*240), 100 fps (320*288), 60 fps (640*240), 50 fps (640*288)	
Time Laps Recording Interval (FPS)	NTSC: 1,2,3,4,5,6,7,8,9,10,15,20,30 PAL : 1,2,3,4,5,6,7,8,9,10,15,20,25	
Recording Mode	Schedule, Event (sensor, motion detection), Mnual, Continuous	
Playback Search	Date/Time, Event (Alarm, Motion detection)	
Playback Speed	x1, x2, x4, x8, x16, x32, x64, x128, Field by Field (Forward/ Backward)	
Slow Motion	X1/4, x1/2 (Forward only)	
Sensor Input	8 (NO/NC Selectable)	16 (NO/NC Selectable)
Alarm Output	1 (NO/NC)	
Aux Control In/Out	2/3 (Selectable Function Menu) Alarm Reset In, Record Start In, Record ON/OFF, Alarm Out, Error Out, Record Start Out, Disk Full Out, Record Status Out	
Audio	1CH, mono	
Network	10Base-T (STATIC,DHCP, PPPoE, E-mail, & FTP)	
Motion Detection	12* 12, 8 Level Sensitivity	
Hard Disk	Max Two HDD	
Backup Method	CD-RW,USB Memory, Network	
Watermarking	Still image backup	
PTZ Control	RS-485	
System Log	Video Loss, Power On/Off, HDD Full, HDD Fail, Menu called, Reset HDD, Format, Reset SW Upgrade, E-mail Fail, FTP fail	
Language	Korean, English, Japanese, French, Spanish	
S/W upgarde	Network, USB Memory stick	
Password Function	Power ON/OFF, MENU, Record OFF, Key Lock	
Digital Zoom	x 2	
Timer	Built-in real time clock	
Remote control	Optional	
Power Source	Free Voltage (100 - 240VAC, 50Hz/60Hz, 70W)	
Dimension	433(W) x 385(D) x 88(H)	
Operating Temperature	5℃ ~ 40℃	
Weight	7 Kg (w/o HDD)	

- Design and specifications are subjected to change without notice.

1.4 Name, function & connections

1.4.1 Front view



Description:

1. CD/RW

- * Easy backup by CD/RW is available. The cover of CD/RW shows an excellent design.

2. LED indicator

- POWER: Power Off status is indicated by a Red light and ON status is indicated by a Green light.
- REC: Green light (Recording)
- ALARM: Green light (Alarm triggered)
- HDD FULL: Green light (No more disk space for recording)
- PTZ: Pan, Tilt, Zoom, Focus status is indicated by Green

3. Numeric button - Live Viewing mode button

- 16 Channel : 1/9, 2/10, 3/11, 4/12, 5/13, 6/14, 7/15, 8/16
 - Channel selection for Live Viewing and Playback mode, Password inputting,
 - Channel selection by pushing the button 1 & 9, 2 & 10, ...
- 8 Channel : 1, 2, 3, 4, 5, 6, 7, 8,
 - Channel selection for Live Viewing and Playback mode, Password inputting.
- MULT (16 Channel) :
 - Selection of Screen Division for Live Viewing mode
(16 screen, 4 screen division, 8 screen division, 9 screen division)
 - In order to go back to previous mode, user is required to push "MULT" button, after selecting a specific channel.

-
- MULT (8 Channel)
 - Selection of Screen Division for Live Viewing mode
(8 screen, 4 screen division,)
 - In order to go back to previous mode, user is required to push "MULT" button, after selecting a specific channel
 - SEQ : Sequential view.
 - View all active channels sequentially.
 - Also, Release all sections for Motion Detection Zone

4. Function button

- POWER: Press this button to power ON/OFF
 - Soft Power method is adapted. Therefore, If Power button is pressed, user is asked to input Password, before Power off.
- LOCK: Press this button to lock/unlock the buttons of DVR, in order to prevent the use by Unapproved user.
 - If the LOCK button is pressed, DVR is locked, and it's unlocked by inputting correct password
- ZOOM: Zoom In/Out on the images during Live Viewing.
- FRZ : Freeze.
 - Press button once to freeze the frame at live mode. Press again to return.
 - To take a still image capture at playback mode.
 - Exchange of video input type : Press power button with FRZ button from NTSC to Pal or PAL to NTSC.
- MISC/SH: Miscellaneous functions or Shuttle Hold.
 - MISC: To substitute for the buttons that are placed on the remote control but that are not placed on the keypad (NET, OSD, Audio Mute, HDD, LOG).
(If the button is pressed, windows appear, and user can select lower menu one by one)
 - SH: Press button while using the Shuttle to hold the speed.
- SEARCH : Press once to open the menu to search for recorded files.
- PTZ: Pan/Tilt/Zoom. Press once to access the Pan/Tilt/Zoom/Focus control mode.
Press again to exit.
- MENU: Press button to access Main Menu. Press again to return.

5. Direction/select button

- UP: Used to move the cursor up; change possible values in the setup menu; under PTZ control sub menu, used to move camera; or used to adjust focus.

-
- **DOWN:** Used to move the cursor up; change possible values in the setup menu; under PTZ control sub menu, used to move camera; or used to adjust focus.
 - **LEFT:** Used to change possible values in the setup menu. Under PTZ control menu, used to move the camera left or used to do Zoom Out; At playback mode, used to decrease playback speed.
 - **RIGHT:** Used to change possible values in the setup menu. Under PTZ control menu, used to move the camera left or used to do Zoom In; At playback mode, used to increase playback speed.
 - **OK:** Used as a selection key. Under PTZ control menu, used to be interchanged P/T mode with Z/F mode

6. Jog/Shuttle

- **Shuttle:** Multi-speed forward/reverse playback. Under Network Setup sub menu, used to input parameters fast.
- **Jog:** Frame by frame search.

7. IR receiver

- Remote control signal receiver

8. Recording/Playback buttons

- **RECORD:** Press once to begin recording all active channels. Press again to end recording.
- **R-PLAY:** Reverse Playback. Press to begin reverse playback. Under PTZ control menu, used to decrease the speed of Pan, Tilt, Zoom, Focus.
- **STOP:** Stop playback.
- **PLAY:** Access to playback.
 - Playback button will activate assigned starting position and Channel at playback setup of menu.
 - At pause mode, it will release pause mode.
 - Under PTZ control menu, used to increase the speed of Pan, Tilt, Zoom, Focus.
- **PAUSE:** Press to freeze the picture at playback mode..

9. USB connector in the front panel

- * This connector is for USB Memory stick to back up the image

1.4.2 Rear panel view



Description:

1. USB

- Connect USB flash drives for backing up stored video files.

2. ETHERNET

- Network terminal for 10Base-T (RJ-45)

3. PTZ/AUX/ALARM

- Terminal for PTZ, sensor, alarm, and AUX IN/OUT (DB-15 Male Connector)

4. VGA and SERIAL

- VGA : Terminal for VGA video output (DB-15 Male Connector)
- Serial terminal for RS-232C (PC) for console or quick installation (DB-9 Male Connector)

5. AUDIO

- IN: Audio line input
- OUT: Audio line output

6. VIDEO OUT

- Terminals for composite video and s-video to connect with monitor

7. CAMERA

- 16 Channel : 16 Inputs (1~16 ch) : In order to use Loop through, please refer to Article 3.1.7.
- 8 Channel : 8 Inputs (1 ~ 8 ch) : With 8 loop through, the video of each channel can be out.

8. VIDEO OUT (SPOT and VIDEO 2)

- SPOT : User can use this connector for a specific Spot Monitor
- VIDEO 2 : With the Extra Output, user can connector with other monitor
(Same video image as Video 1)

9. FAN

- Heat protection fan to reduce heat in the unit

10. POWER INPUT

- Power cord terminal (free voltage, 100 - 240VAC, 50Hz/60Hz)

1.4.3 Remote controller function



- ① POWER : button for power on/off. (DVR should be standby or on working)
- ② MUTE : button for voice off (If it's pressed again, voice on)
- ③ RECORD : button for forced recording (If it's pressed again, recording stops)
- ④ INFO BUTTON GROUP : button group for HDD, NET, LOG, INFO.

If each button is pressed, the relative information shows and press Menu button for exit

- ⑤ NUMBER KEYPAD : use with OK button to select any channel

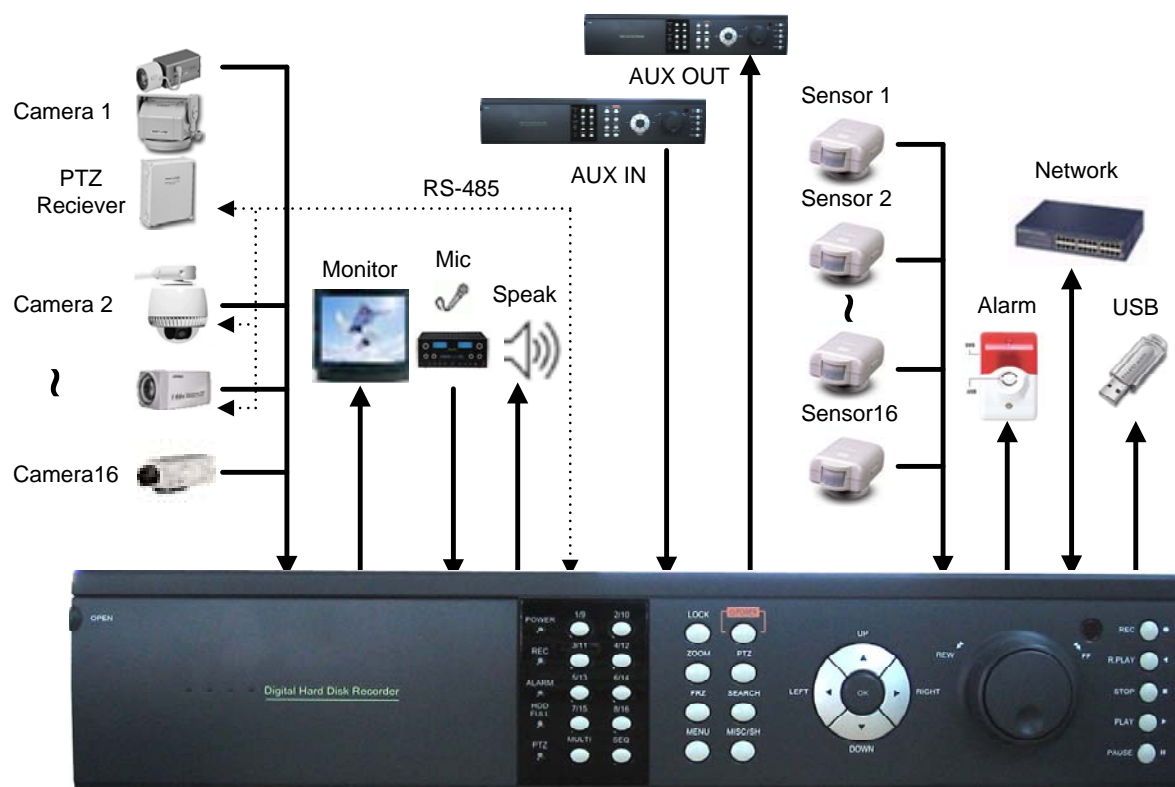
Ex : to select Ch 7, press 7 button and OK button.

-
- ⑥ LOCK : Remocon Rock button. Same function as Lock button in the front panel.
To unlock, press any button and input password.
- ⑦ SEARCH : button to search data in HDD. Press the button to enter, and repress for exit
- ⑧ SEQ : button for sequence (2 functions)
- Press one time : one channel in full screen shows by interval.
 - Press 2nd time : 4 division / 8 division/ 9 division/ 16 division/ 4 division screen shows.
 - If press again, previous screen shows. To exit, press MULT button
- ⑨ MULT : button for division screen
- Basic screen : 16 ch. If it's pressed each time, 4 ch/ 8ch/ 9ch/ 16ch screen shows
- ⑩ MENU : Button for menu. Various sub menu can be selected
- To exit, press again the button
- ⑪ Up/down, Right/left & OK button

Status	OK	Up/down	Right/left
Menu	Selection, sub menu	Menu move	x
Sub Menu	Selection	Move Menu	Adjust value
Play	x	x	Low speed and playback speed

1.5 INSTALLATION

1.5.1 Installation and connection



1.5.2 Camera



16 Channel : The unit comes with 16 video IN and 16 video OUT for up to 16 cameras connection. In order to use Loop-Through, please enter into DVR setting menu and set up Termination (through Y-cable or T terminal).



8 Channel : 8 cameras can be connected.
The below video connectors are for Loop through.

1.5.3 Video Out



The unit has two composite video outputs, one S-video output, one VGA output. Also one spot output allows users to select specific channel for special monitoring.

1.5.4 Audio



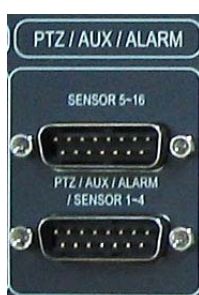
Use IN for a Line input and OUT for speaker output.

1.5.5 RS-232



Use this connector to connect RS-232 cable to the serial port on your PC to control the DVR or to perform Quick Installation.

1.5.6 PTZ/AUX/ALARM



1.5.6.1 RS-485+, RS-485-

DVR uses RS-485 protocol to control PTZ Receiver, Speed Dome, and Auto-focus camera. Be sure to match the polarity.

1.5.6.2 AUX 1~5

AUX Port consists of 2 input ports (AUX 1,2) and 3 output ports (AUX 3,4,5) and the function of each port is selectable according to user's purpose, user's access to external DVR, or controllers using the supplied DB-15 connector.

1.5.6.3 Alarm Out (NO, COM, NC)

The Alarm output is activated using a relay contact point when an alarm event occurs for the duration of the alarm event.

Select from Normal Open Relay or Normal Close Relay.

N.O. (Normal Open) is disconnected from COM during normal status and connected to COM during alarm event. N.C (Normal Close) is connected from COM during normal status and disconnected to COM during alarm event.

1.5.6.4 Sensor 1~16

Users can connect up to four N.O./N.C. type sensors and configure them within Main Menu, Sensor Setting.

1.5.7 Network



Support 10 base- T Ethernet, and connect Ethernet cable.

1.5.8 USB flash memory



Perform backup of recorded video files from DVR system to USB flash memory manually.

2. Basic operation procedures

2.1 Power On/Off

2.1.1 Power ON

Using either the keypad or the remote control, press the “Power” button. (Note: In case of power outage or rare instance of system failure, the DVR will reboot automatically)

The Power LED light will turn from red to green when it has turned on properly.

In a standby mode, the LED is red.



2.1.2 Power OFF

In order to shutdown the system, you must type in the password. The default password for shutdown is “111111”.

2.2 Date & time setting

Set the date and time for the DVR.

(System Setup in Main Menu → Time/Date)

2.3 Change of live video channel in Mux mode

Live channel can be changed in Mux screen of DVR.

This function is available for 4 ch / 6 ch/ 8 ch/ 9 ch of Mux screen (it's not available for 16 ch)

If OK key is pressed in the mux screen, box appears. Buttons are used to select the channel

And up/down key is used to move the channel.

After setting, if menu key is pressed, user can go back to Live picture.

2.4 Password setting procedure

Select or change your password for the DVR. The password must be a 6-digit number consisting of numbers 0 ~ 8.

(System Setup in Main Menu → System Password)

2.5 Network setting

There are three types of network setting for the DVR: Static, DHCP, or PPPoE. Please set the network type. (**Network Setup in Main Menu**)

2.6 Recording

Select recording related parameters in the Record Setup in the main menu.

2.6.1 Recording types

Enter in Recording setup of menu. For resolution, select either 640*240 (NTSC), 640*288 (PAL) or 320*240 (NTSC), 320*288 (PAL). Audio channel is synchronized with the selected video signal. Select Video input quality (Enhance/ Normal/ Fine/ Super fine), Frame rate (120 fps – NTSC/ 100 fps –PAL), and recording mode. 8 or 16 channels can be selected at the same time,

2.6.2 Recording modes

Recording mode are made up of MANUAL, CONTINUOUS, MOTION, SENSOR, MOTION+SENSOR, and SCHEDULE mode. A red record light (●) on the top right corner of each channel will indicate DVR recording.

In the MANUAL mode, the DVR starts to record on/off whenever the RECORD button is pressed. Refer to the article 3.2.6 for details of Record mode.

2.7 Playback

2.7.1 Press the Play button

The DVR will playback either the first recorded file or the last recorded file according to the setting in the Playback Setup menu.

2.7.2 Audio files

You will hear audio when video files containing audio is selected for playback.

2.8 Search

2.8.1 Search mode

The DVR has 2 types of search modes:

- SEARCH BY TIME: Displays recorded data by recording time and camera number.
- STILL IMAGE SEARCH: Displays recorded still images.

2.8.2 Search method

- When you press Search, select from three options listed: Search by Time, Still Image

Search, & Backup HDD Search. A detailed search list will open. Press OK button to view the selected file.

- Use the Left/Right key to move page by page. The Up/Down key is used to move between items on the same page.

2.9 Backup

The DVR has various types of backup methods:

2.9.1 CD-RW

- After inserting CD-Rom into CR-RW Drive, push Menu button & go to Backup menu, and back up the moving picture of HDD by CD-RW for the selected time.
- In the backup menu, select backup time → start backup, and backup for capacity of CD RW.
- The backed-up files can be play-backed by Uniplayer

2.9.2 USB flash memory

- User can backup manually from internal HDD to USB memory stick by connecting one to USB port equipped at rear side of DVR
- Connect USB Memory Stick into USB port → Input the start of backup date and time at backup menu → Input the end of backup date and time at backup menu → Select the channel → Select event condition.
- USB flash memory will save backup to be used..
- Backup by USB flash memory supports video data only.
- User can replay backup files at proprietary UniPlayer client program.

2.10 Network

At remote sites, users will access to backup audio & video files recorded in local H.D.D to user's PC through network.

2.11 Client Program

2.11.1 RAMS (Remote Access & Monitoring System)

- Remotely access, monitor, and operate the DVR for real-time live viewing, playback, backup, on-the-fly recording, and control over the LAN/WAN
- Upgrade the S/W(Kernel, Ramdisk) of DVR
- Install the RAMS program as referred to in section 4.2 of Operation Manual.

-
- Execute RAMS program and register selected DVR's IP address & Port number from the DVR list.
 - After selecting the target DVR, enter "**admin**" for ID and "**111111**" for default password. This will enable you to access the DVR.

2.11.2 UniPlayer

- A viewer with functions for recording, capturing, & backing up files.

2.11.3 MultiViewer

- To monitor multiple DVR, both locally and remotely.

2.11.4 Quick Installer

- To setup configuration template for quick & easy, multiple unit setup using RS-232 or network
- To upload/download DVR menu setting from/to DVR as file form using pc.

3. Main Setup screen



Figure. 3-1 Main Setup screen

3.1 Camera Setup menu

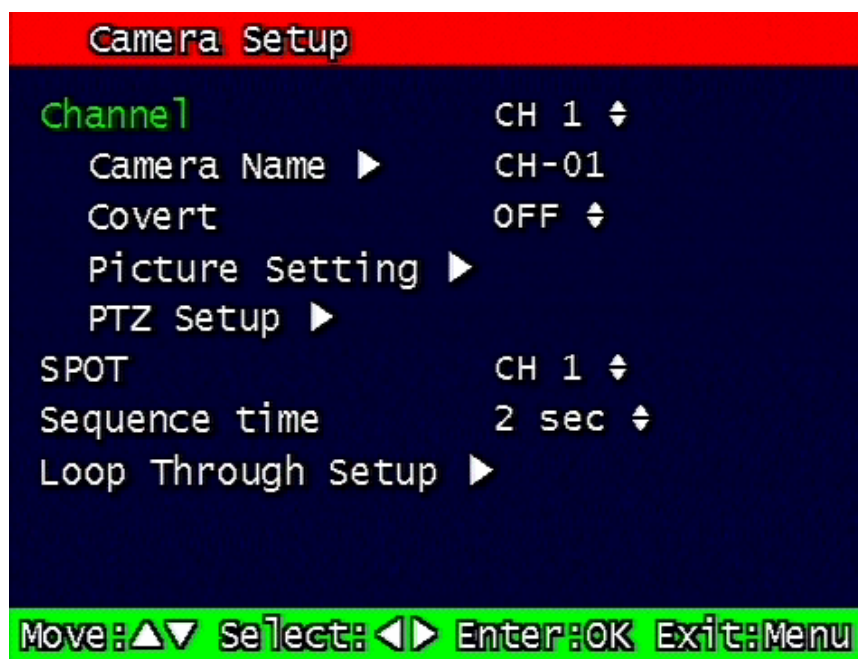


Figure. 3-2 Camera setup screen

3.1.1 Channel number.

A user can select targeted camera. After setting, this, live viewing picture will be changed to selected channel automatically.

3.1.2 Camera Name Edit

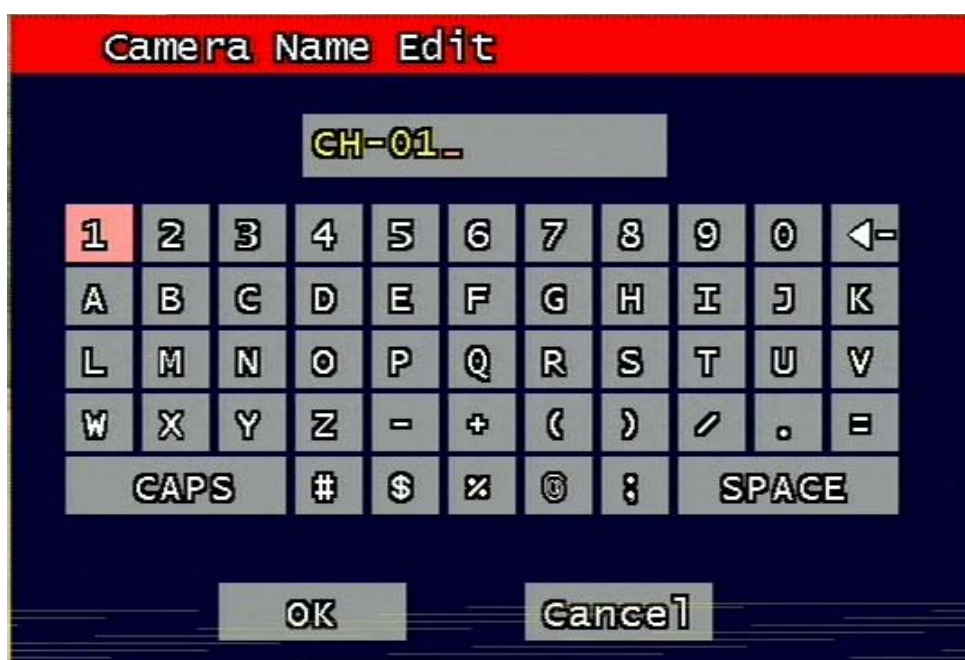


Figure. 3-3 Camera name edit screen

User can edit camera name indicated button part of each channel. as explained paragraph 3.1.1. According to above picture 3-3, after keyboard type's window which is enterable or editable as displayed, user can set channel name with entering new letters and it is available 12 letters at maximum. Selected name at this paragraph will be displayed at the left side of top portion on window.

By using "CAPS" button, user can shift a letter to capital one and/or inversion.

By using "◀—" button, user can delete miss-entered characters .

If you enter "OK" button, entered name will be applied after that and revert to previous menu.

If user enter "cancel" button, entered name will be discharged and maintain the present name & reverted to prior menu.

3.1.3 Camera hide

User can make the live screen appear or not by channel with this function.

If user sets up "On" in this function, the live screen of the selected channel does not appear.

In case of recording, the recording continues, although screen does not appear.

3.1.4 Picture Setting



Figure. 3-4 4 Picture setting screen

3.1.4.1 Contrast, Brightness, Hue,

Contrast, Brightness, Hue will be managed & each parameter has 16 level steps adjustable.

3.1.4.2 Default

Users can restore the factory default setting of Contrast, Brightness & Hue.

Confirmation box on picture setting default will appear after entering default. User can restore the factory default setting after entering 'yes' key button.

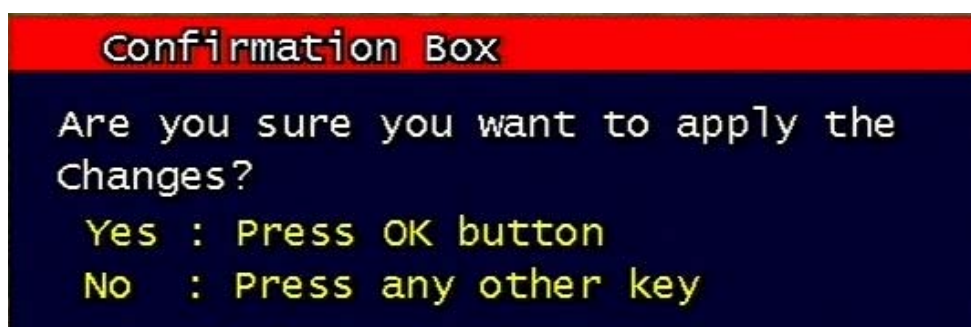


Figure. 3-5 Confirmation box on Picture Setting Default

3.1.5 PTZ setup

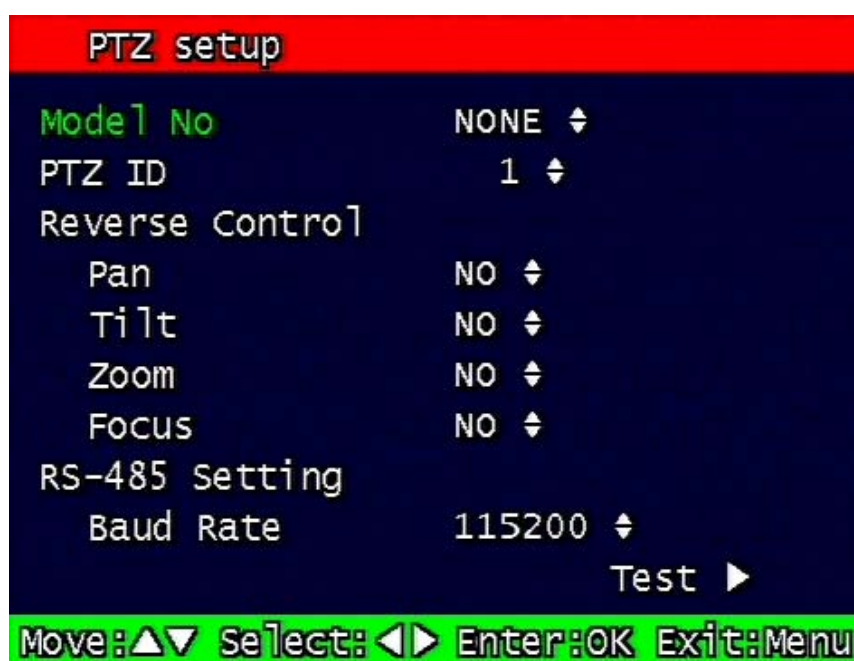


Figure. 3-6 PTZ setup screen

It sets PTZ protocol of targeted channel in the Camera Setup. (Please refer to paragraph 3.1.1 for channel selection)

3.1.5.1 Model Number

Select the PTZ model or choose "NONE".

3.1.5.2 PTZ ID

Set the PTZ ID: 0 ~ 255

The PTZ ID must match the ID number that has been set by the PTZ Controller. Please verify the ID on the Controller first before setting the PTZ ID.

3.1.5.3 Reverse Control

Without any further changing of cable connection, user can control PTZ controller by changing reverse direction of PTZ. Each PAN, TILT, ZOOM, FOCUS will be selectable to reverse direction and each parameter will be selectable ON /OFF.

3.1.5.4 RS-485 Setting

Choose from the following to set PTZ RS-485 baud rate: 2400, 4800, 9600, 19200, 38400, 57600, 115200 bps.

3.1.5.5 TEST

Users can test the PTZ control after setting the parameters. After clicking the TEST button, PTZ control will be available and tested by up/down key. Pan/tilt and Zoom/Focus mode will be controlled after entering OK key button.

PTZ control speed will be controlled by PLAY button for higher speed or by R-PLAY button for precision control

Users can access prior menu with PTZ key entering after finishing test.

3.1.5.6 Additional PTZ Menus

Users can access additional PTZ menu after pressing Menu button in the PTZ mode.

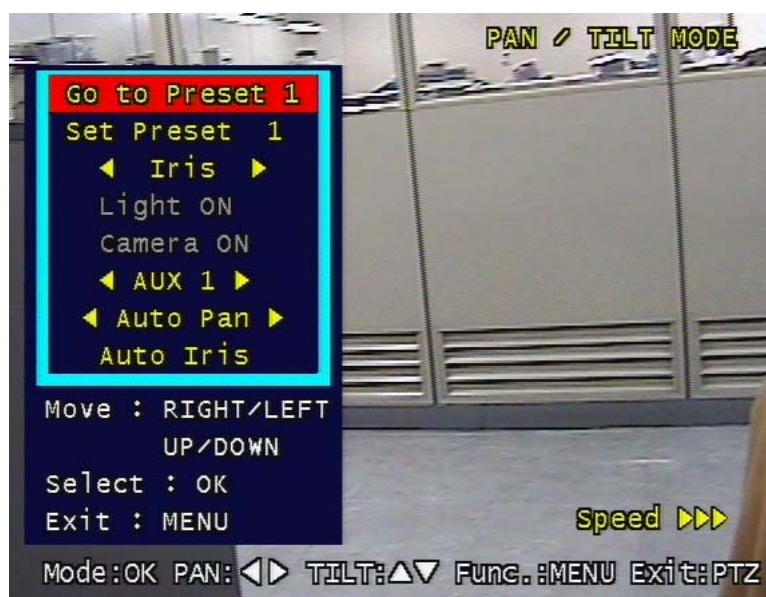


Figure. 3-7 Additional PTZ Menu

- Go to Preset : To move the Pan/Tilt drive to the position preset in Set Preset mode. Preset numbers are selected by Left/Right buttons and the Pan/Tilt drive moves to the preset position after pressing OK button.
- Set Preset : To preset the position of the Pan/Tilt drive. Users can preset 99 positions selected by Left/Right buttons and save the preset by pressing OK button.
- Light : To turn on/off the camera lighting selected by Left/Right and OK buttons.
- Camera : To turn on/off the camera itself selected by Left/Right and OK buttons.
- Aux : To turn on/off the AUX (six) connected to the camera. On/off are selected by Left/Right and OK buttons.
- Auto Pan : To automatically pan the camera. Pan speed are selected by Left/Right and OK buttons.
- Auto Iris : To automatically Iris the camera.

3.1.6 Sequence time

It can set sequential display time of each channel during Live Viewing mode.

Choose from 2, 4, 5, 8, 10, 15, 30 second sequential display time.

3.1.7 Loop Through Setup

Set up Loop Through function. Set up is available with 75 or high each channel.

3.2 Record Setup menu

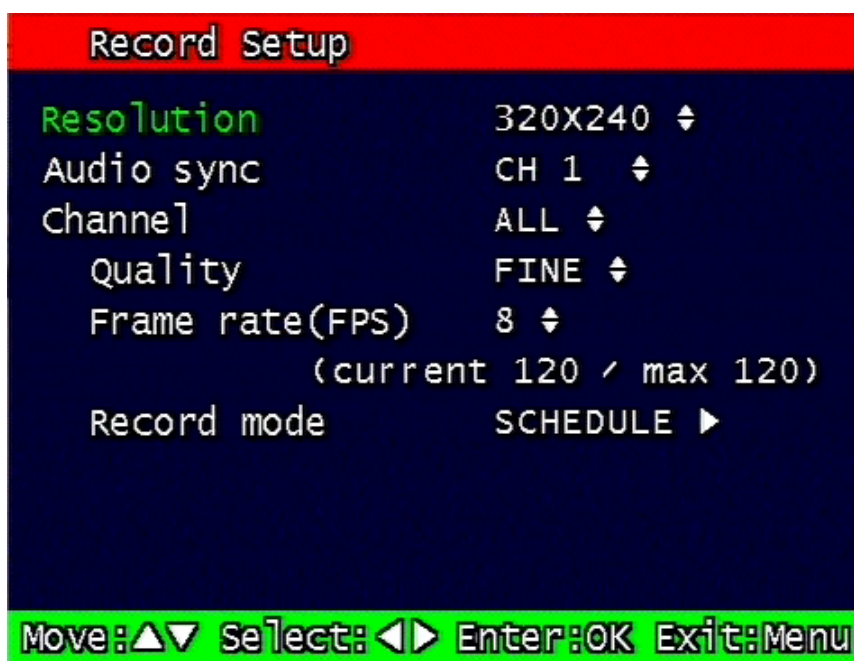


Figure. 3-8 Record setup screen

3.2.1 Resolution

Resolution for NTSC is “320 x 240” or “640 x 240”. PAL is “320 x 288” or “640 x 288” selectable and selected resolution will be applicable to all channels simultaneously.

3.2.2 Audio Sync

As audio input port is one channel available, user should synchronize audio signal with targeted video signal. With synchronized channel will record audio as well as video. But others will only record video input signal only.

3.2.3 Channel number

Quality, frame rate, record conditions will be selected per channel. So users can choose targeted channel. All means all of channels.

3.2.4 Quality

Recording quality of each channel will be selectable & Normal, Enhanced, Fine, Super Fine 4 steps are available now.

3.2.5 Frame rate

User select channel's recording frame rate and none (no recording), 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 15, 30 fps will be available. The total for all the cannels is max 120 fps.

But, with 640 x 240 (NTSC), 640x288 (PAL) resolution, user should not set to exceed 60 frame per second with accumulated total channel recording.

3.2.6 Record mode

User will choose recording mode channel by channel and selectable parameters and meaning are below.

- **Manual:** Manual recording function that starts record and/or stop recording manually by pushing REC key on remote controller or on front key.
- **Continuous:** Continuous recording mode that starts to recording automatically after turning on the systems.
- **Motion:** Start to record under motion detection. Under Motion, it starts pre-alarm recording around 2 or 3 second and maintains it until no of motion event. Post-alarm recording will be controlled at Post alarm recording time on Event Setup Menu. (Refer to paragraph 3.3.4)
- **Sensor:** Start to record under sensor input. As same as motion mode, it starts pre alarm recording around 2 or 3 second and maintain it until no of sensor input. Post-alarm recording will be controlled at Post alarm recording time on Event Setup Menu. (Refer to paragraph 3.3.4)
- **Motion + Sensor:** Start to recording under motion detection or Sensor occurrence. The detailed will be referred to previous motion detection & sensor occurrence.
- **Schedule:** This mode supply user defined time and date schedule recording in advance detailed recording schedule will be referred to paragraph 3.2.7 record schedule.

3.2.7 Record Schedule Setup

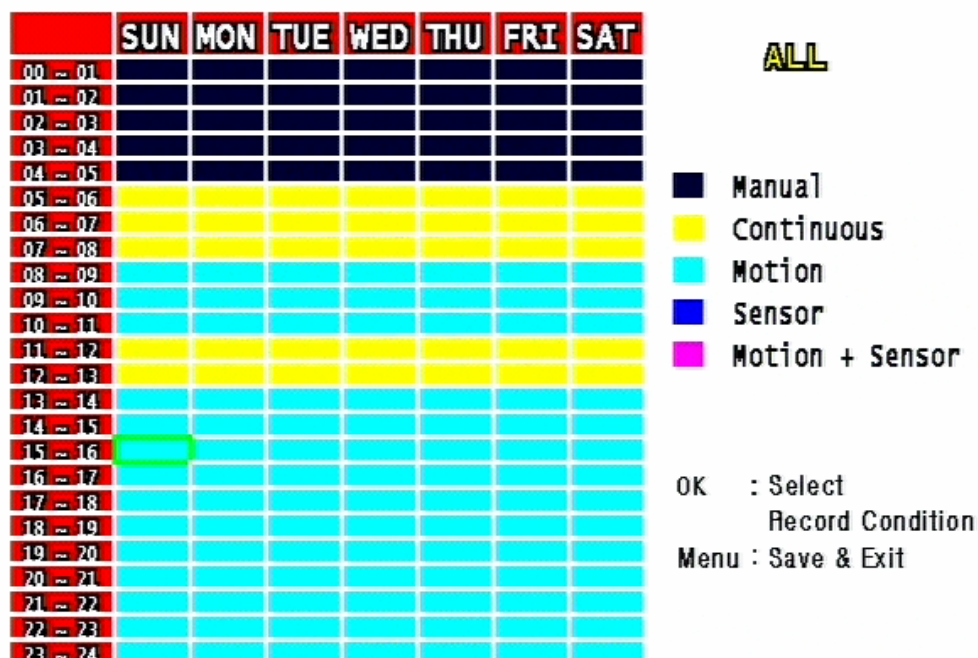


Figure. 3-9 Recording schedule setting screen

User can select to set recording schedule targeted date, time based week & 24Hours.

Move the cursor to the desired position of time by pressing up/down key and set the recording mode at the desired position of time by pressing the OK button with referring to the Help Message per Record Mode on the right position. After the setup, store the set schedule and exit to the top menu by pressing the Menu button.

3.3 Event Setup Menu

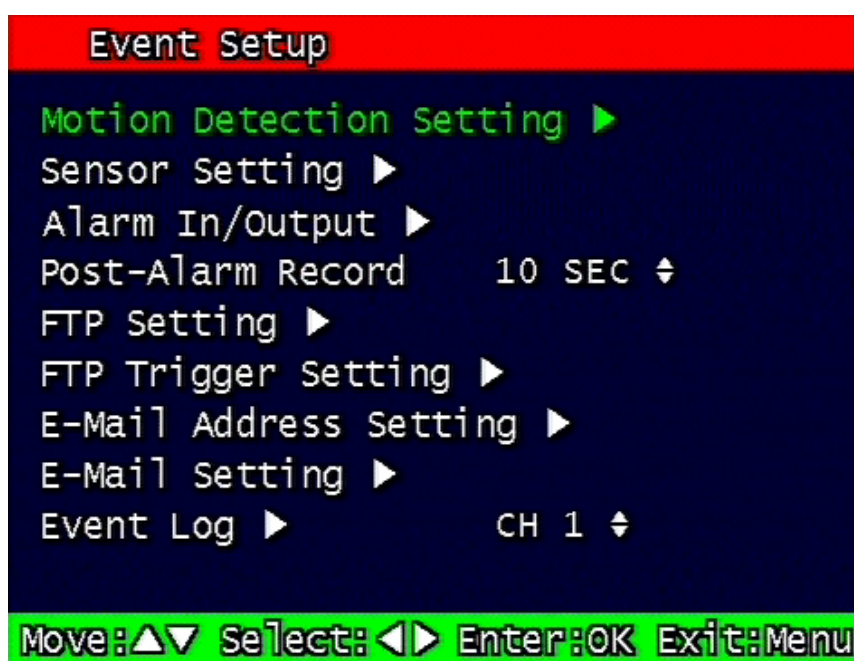


Figure. 3-10 Event Setup screen

3.3.1 Motion Detection Setting

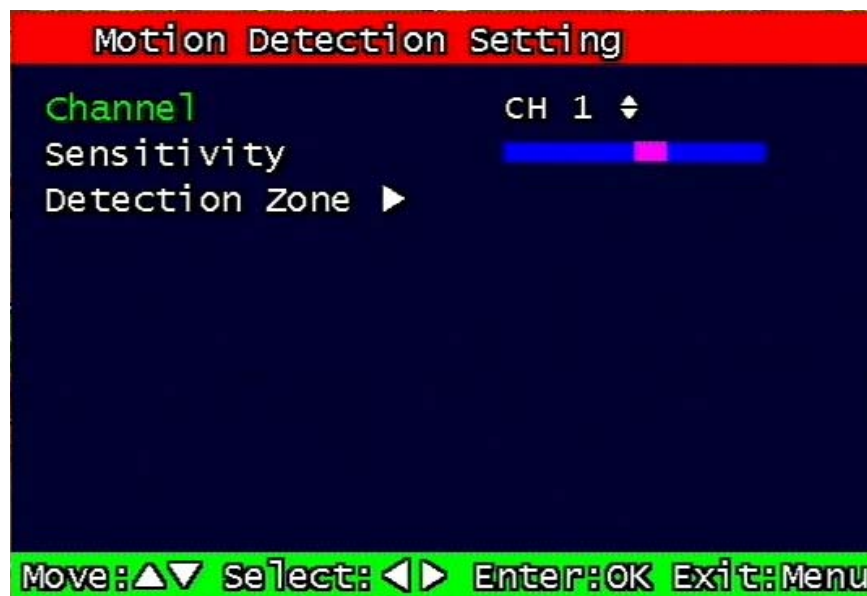


Figure. 3-11 Motion Detecting Setup screen

Sets up the motion detecting area and sensitivity.

3.3.1.1 Channel

Sets up the motion detecting area and sensitivity for each channel.

3.3.1.2 Sensitivity

Sets up the motion detecting sensitivity. The lower the sensitivity gets the closer to the left the red bar gets.

3.3.1.3 Detection Zone



Figure. 3-12 Motion Detecting Area Setup screen

Selects the motion detecting area. The sky blue square implies the current cursor and the yellow square implies the area that was already selected as the motion detecting area.

When the cursor positions on the area that was selected as the motion detecting area, it turns green. Above screen is for MUX motion detection set-up and for QUAD motion detection set-up all four screens appear together.

Full screen shall be as the motion detecting areas after entering MULTI button. The reverse key button is SEQ erasing motion detecting area.

3.3.2 Sensor Setting

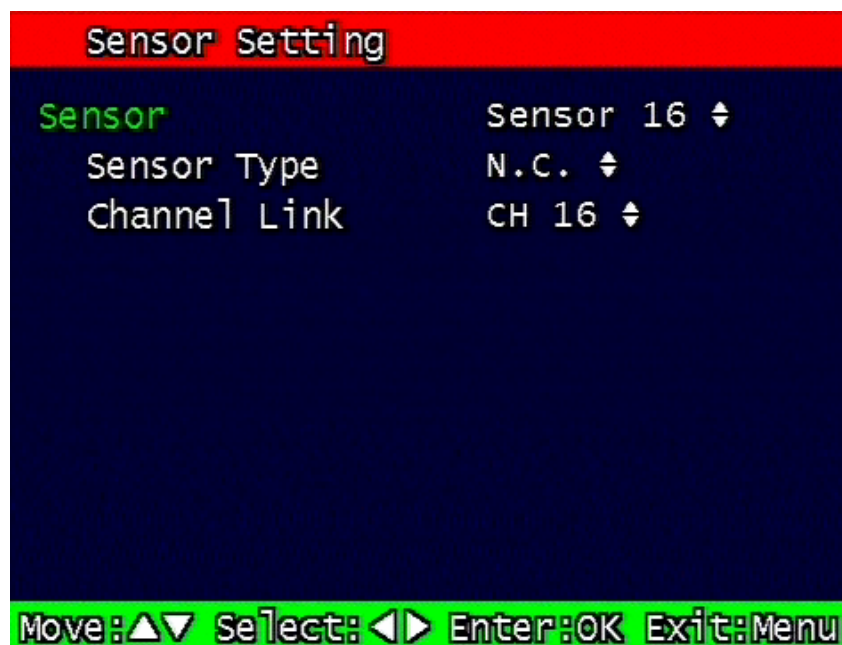


Figure. 3-13 Sensor Setting screen

3.3.2.1 Sensor Type

N.O.: Normal Open. Operation mode for the installed sensor's contact point is usually open in normal condition and changed from open to close at sensor's detect event.

N.C.: Normal Close. Operation mode for the installed sensor's contact point is usually close in normal condition and changed from close to open at sensor's detect event.

•

3.3.2.2 Channel Link

Assign sensors to designated Camera Channels.

3.3.3 Alarm Output

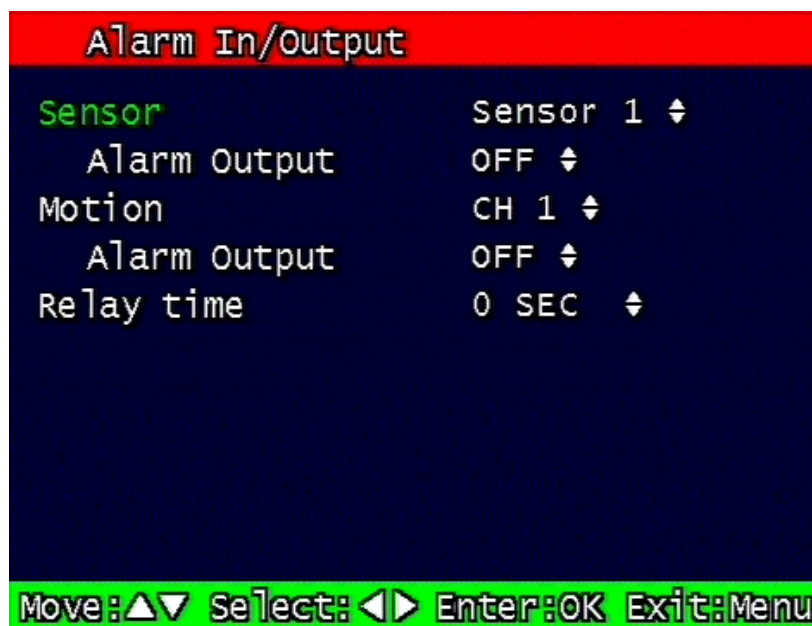


Figure. 3-14 Alarm Output Setting

3.3.3.1 Sensor

Configure the alarm out on/off activated by the sensor.

3.3.3.2 Motion

Configure the alarm out on/off triggered by the motion detection.

3.3.3.3 Relay Time

Configure the alarm duration time. It can be set up from 1 second to 60 seconds in the unit of 5 seconds.

3.3.4 Post Alarm Record Time

Configure the recording continuation time after starting an event recording. It can be set up from 10 seconds to 60 seconds in the unit of 10 seconds.

3.3.5 FTP Setting

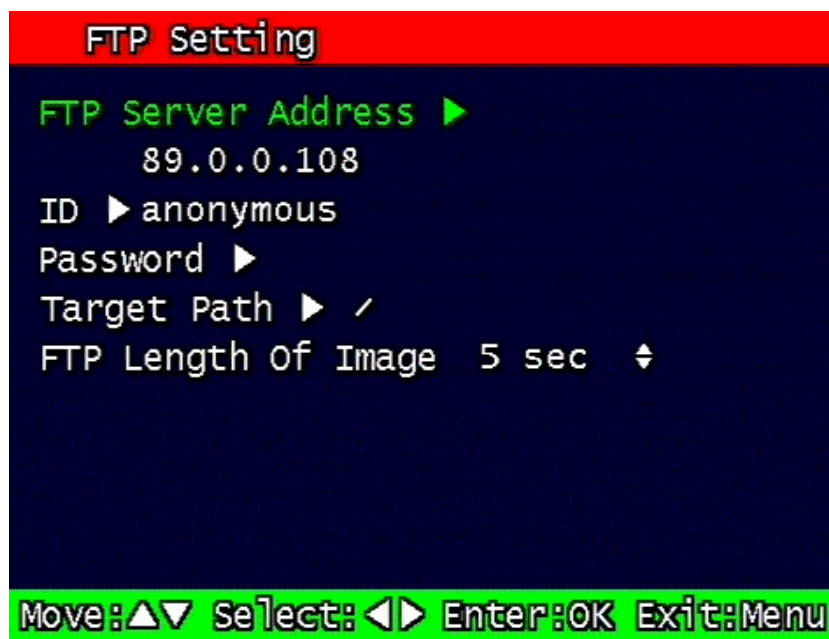


Figure. 3-15 FTP Setting

Enables the unit to transmit an assigned FTP Length of Motion picture to an FTP Server over network when an event occurs. The event will be transmitted 15 seconds after the event occurs.

3.3.5.1 FTP Server IP address

Configure the IP address of the FTP server. The number changes by moving left and right, and then it moves to the next digit by pressing the OK button for setting up the next number.

Change the IP address of the FTP server to fast forward or backward by using shuttle equipped in front panel.

3.3.5.2 ID

Configure the FTP ID. The ID can contain maximum of 31 characters.



Figure. 3-16 FTP ID

3.3.5.3 Password

Configure the FTP password. The password can contain maximum of 12 characters.



Figure. 3-17 FTP Password input

3.3.5.4 Target Path

Configure the path to transmit to an FTP server. The path can contain maximum of 31 characters.



Figure. 3-18 FTP Target Path

3.3.5.5 FTP Length of Image (second)

Select FTP length of image by second (5 to 10 seconds are selectable) to transmit image files for selected seconds.

3.3.6 FTP Trigger Setting

Selects on/off for transmitting the video file to FTP for each channel.

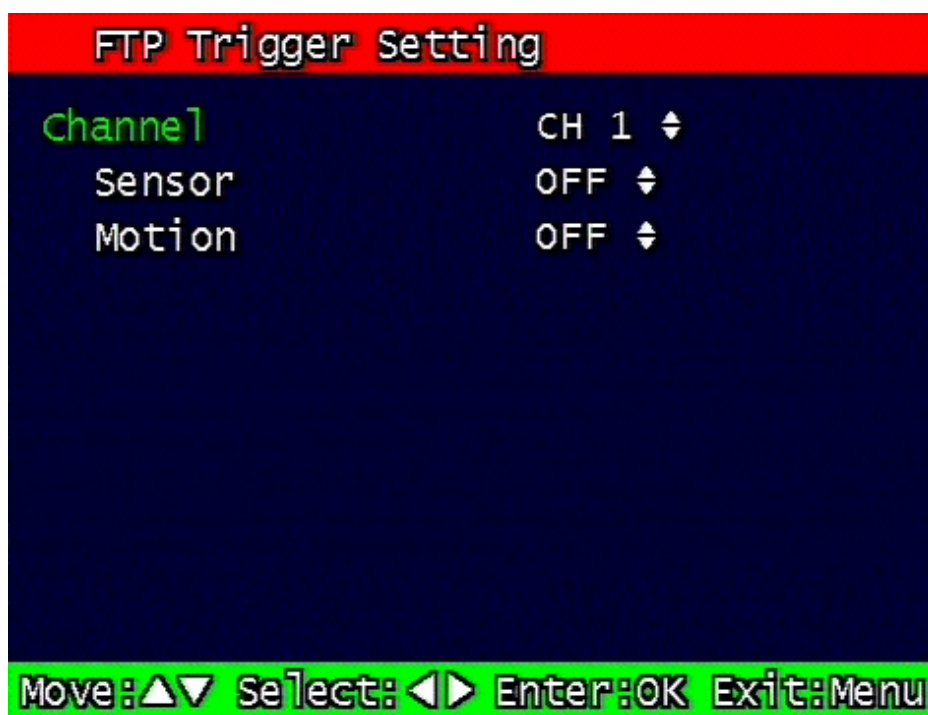


Figure. 3-19 FTP Trigger Setting

3.3.6.1 Sensor

Configure sensor events.

3.3.6.2 Motion

Configure motion events.

3.3.7 E-Mail Address Setting

Transmits the content of an event log periodically through e-mail. Configure up to four e-mail address to transmit under event status simultaneously. The e-mail address can contain maximum of 31 characters, and the event logs transmitted through e-mail will be deleted in the DVR unit.

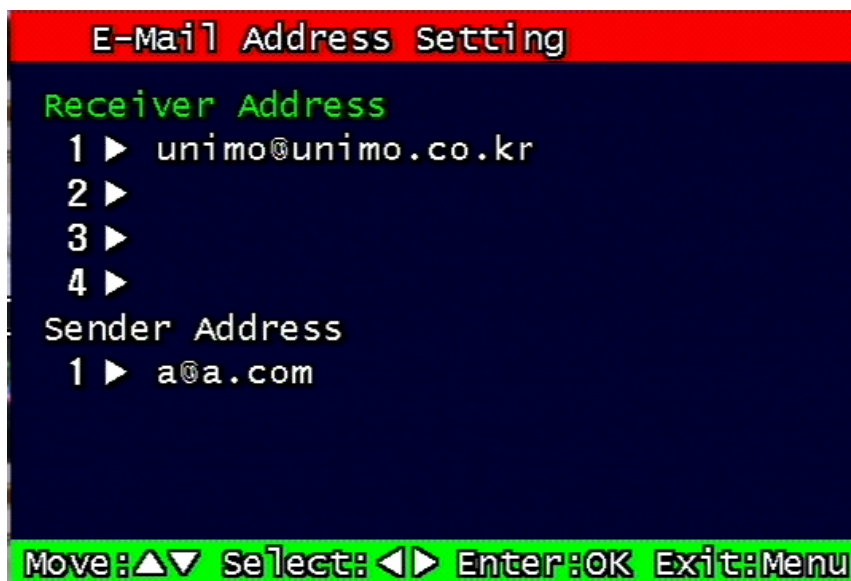


Figure. 3-20 E-Mail Address setting

3.3.8 E-Mail Setting

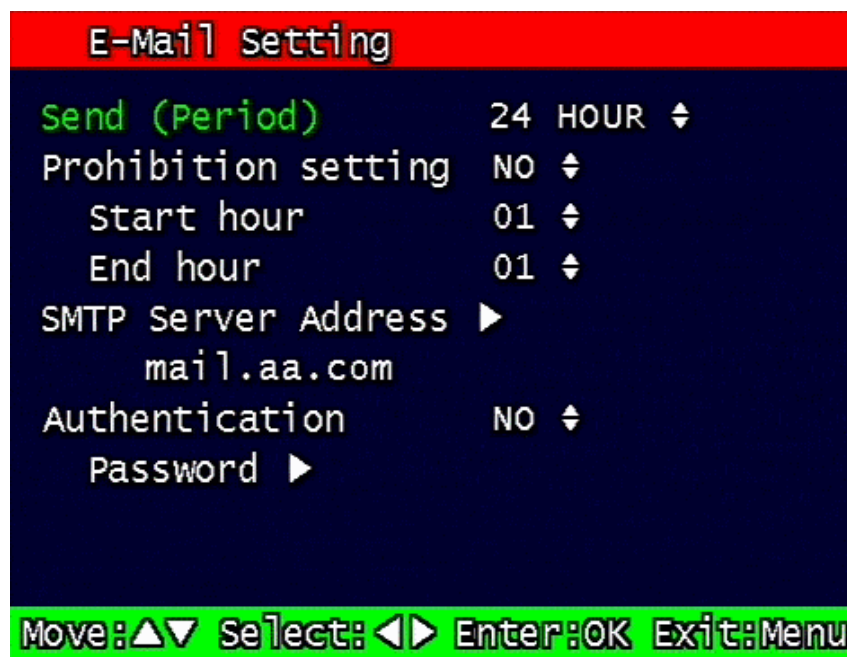


Figure. 3-21 E-Mail Setting

3.3.8.1 Send (Period)

Configure the e-mail transmitting cycle. It does not transmit when it is set to NO. The setting time can be set up at the units of within 2 minutes after event, 30minutes, 1, 2, 5, 12, 24 hours.

3.3.8.2 Prohibition setting

Set up prohibition time to transmit the e-mail. Users can enter prohibition time from the starting time and the ending time of transmitting the e-mail

3.3.8.3 SMTP Server IP address

Configure the IP address of the SMTP server to transmit the e-mail.

If you do not know your SMTP server IP address then go to Command Prompt in Windows, then use ping and SMTP name address eg smtp.yahoo.com as below to get your SMTP IP address. (Same method also applies to finding FTP server IP address from FTP name address).

```
C:\>ping smtp.yahoo.com
```

Pinging smarthost.yahoo.com [216.109.112.27] with 32 bytes of data:

```
Reply from 216.109.112.27: bytes=32 time=230ms TTL=50
```

```
Reply from 216.109.112.27: bytes=32 time=235ms TTL=50
```

```
Reply from 216.109.112.27: bytes=32 time=236ms TTL=50
```

```
Reply from 216.109.112.27: bytes=32 time=232ms TTL=50
```

Ping statistics for 216.109.112.27:

Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),

Approximate round trip times in milli-seconds:

Minimum = 230ms, Maximum = 236ms, Average = 233ms

3.3.8.4 Authentication

Users can select authentication process dependent on SMTP server requirement.

Selects on/off for authentication process do authentication process whenever transmitting e-mail messages through SMTP server.

3.3.8.5 Password

Enter sender's mail password for authentication

3.3.8.6 Event Log

Shows the event log of the selected channel. It can reset periodically by setting e-mail as

described in paragraph 3.3.7.

Event Log		3 Lists Found		
[	1]	2004-07-30	11:37:15	SENSOR
[	2]	2004-07-30	11:36:28	SENSOR
[	3]	2004-07-26	17:44:08	MOTION

Page Move : ▲▼◀▶ Exit : Menu

Figure. 3-22 Event Log Display screen

3.4 Playback Setup

Playback setup	
channel	CH 1 ◄
Starting point	FIRST ◄
Audio	ON ◄

Move:▲▼ Select:◀▶ Enter:OK Exit:Menu

Figure. 3-23 Playback setup screen

3.4.1 Channel

Designate the channel to be viewed when the “Replay” button is pressed.

3.4.2 Starting Point

This starting point configures the starting position when the “Replay” button is pressed.

- FIRST: This can search for and replay the oldest recorded images from the selected channel.
- LAST: This can search for and replay the latest recorded images from the selected channel.

3.4.3 Audio

If the recorded files contain audio, choose whether to turn the sound ON/OFF when the “Play” button is pressed.

3.5 Display Setup

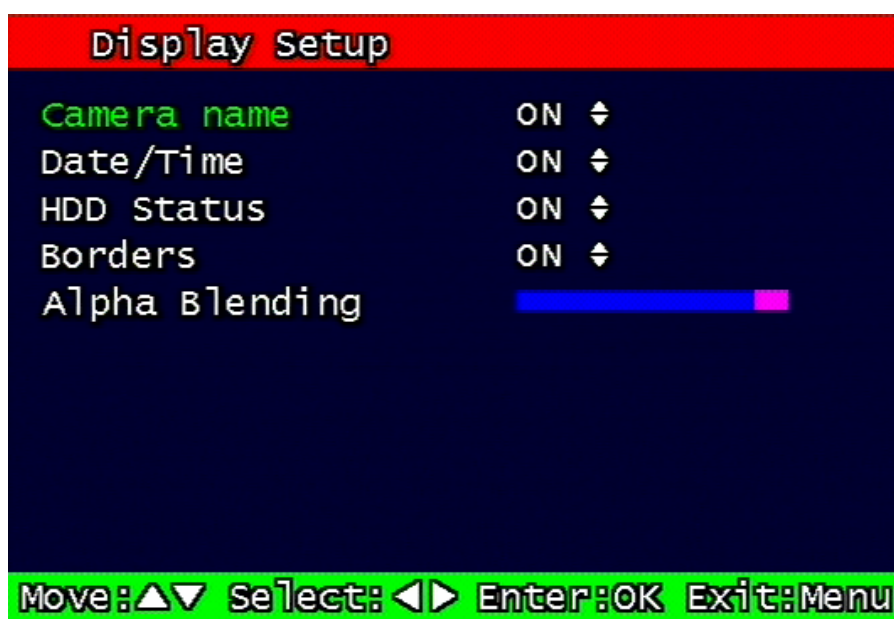


Figure. 3-24 Display setup screen

Determine whether to have the following be shown on the monitor: Camera name, Time/Date, HDD status, Borders (Quad View). Select either ON/OFF for each item.

3.6 Network Setup

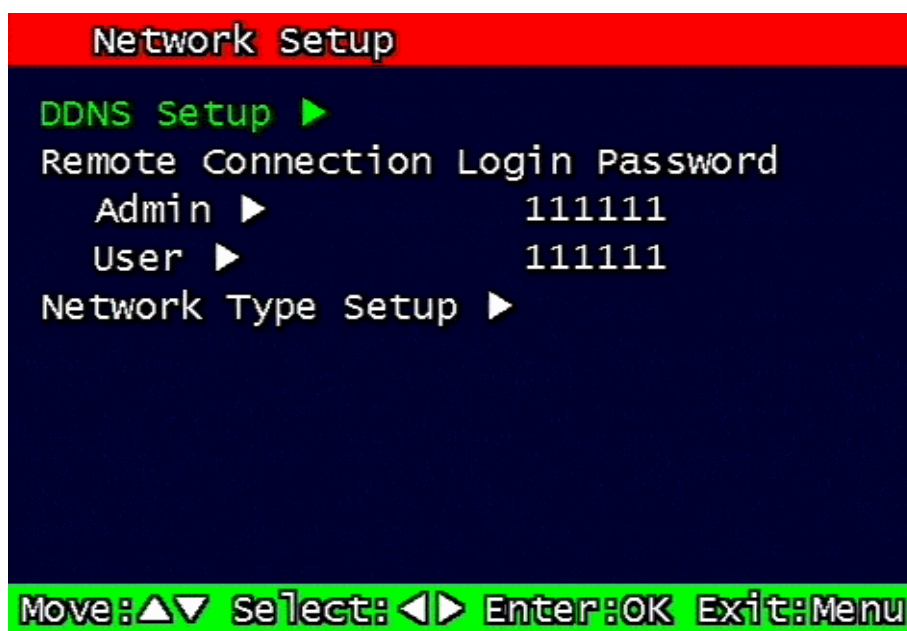


Figure. 3-25 Network Setup screen

3.6.1 DDNS setting

Set up DDNS (Dynamic Domain Name System) server address & port number.

Users can set up two DDNS server address and port.

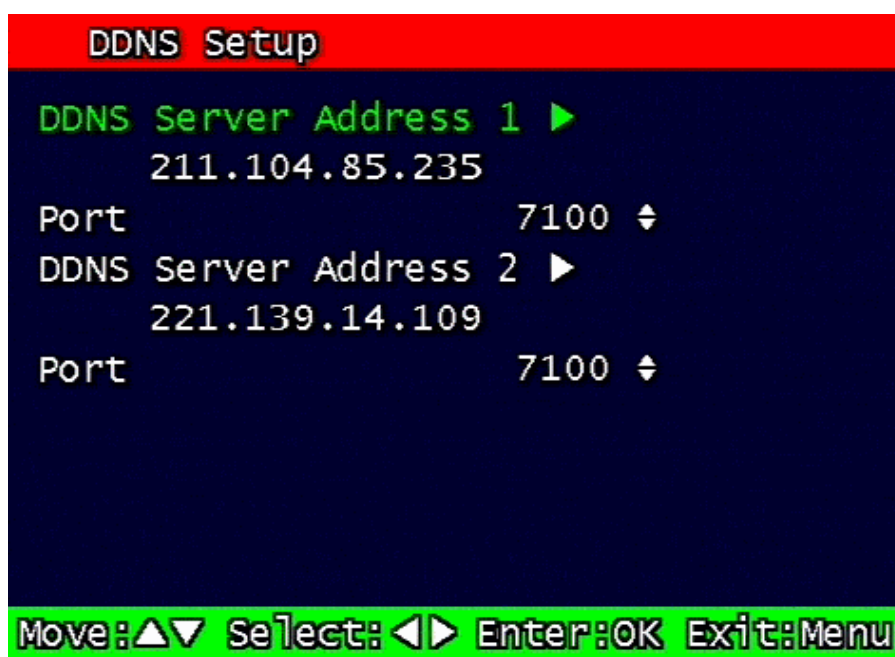


Figure. 3-26 DDNS setup screen

Under DHCP or PPPoE configuration using IP Router, the DVR will receive an IP address periodically, and each time, the IP address can be different. Therefore, in order for users to access the DVR over the network, it must update its IP address to the DDNS Server.

Under IP router configuration, IP of DVR must be setup as static IP address and it must update its IP address to the DDNS server. Therefore DDNS Link on NETWORK SETUP menu should be on. (When IP router is connected from static IP, it is no necessary to setup DDNS link on)

By indicating the address of a DDNS Server, the DVR will update its IP address and its MAC address periodically. Therefore, when users access the DVR over the network, the same URL can be used. For example, if the DVR has a MAC address of "00:09:F8:12:34:56" and the domain name of the DDNS server is "ns.udrdns.net", the users can access the DVR with the URL "u123456.udrdns.net". The DDNS will know which machine to resolve the URL because it would contain an updated IP address and MAC address list.

The factory default value of the DDNS server address from UNIOM Technology Co, Ltd. is as follows:

- ◆ DDNS address: 211.104.85.235
- ◆ DDNS connection port: 7100

If users wish to operate the DDNS server by themselves, please contact us.

3.6.2 Remote Connection Login Password

There are two levels of access that can be set up in the RAMS program.

- Admin (Highest), User (Normal)
- By default, the password is 111111 when the software is first installed.

Users can use any numeric number from 0~4, combined 6 units.



Figure. 3-27 Remote Connection Login Password screen

3.6.3 Network Type

Choose one type from the following: Static, DHCP, & PPPoE.

Static mode uses fixed assigned IP address in the network.

DHCP (Dynamic Host Configuration Protocol) receives an IP address from the DHCP Server, and it may change according to the lease period.

PPPoE (PPP over Ethernet) mode is used for network using PSTN such as ADSL.

Please refer to paragraph 3.6.3.1, 3.6.3.2, 3.6.3.3 for detailed network type setup process

3.6.3.1 Static

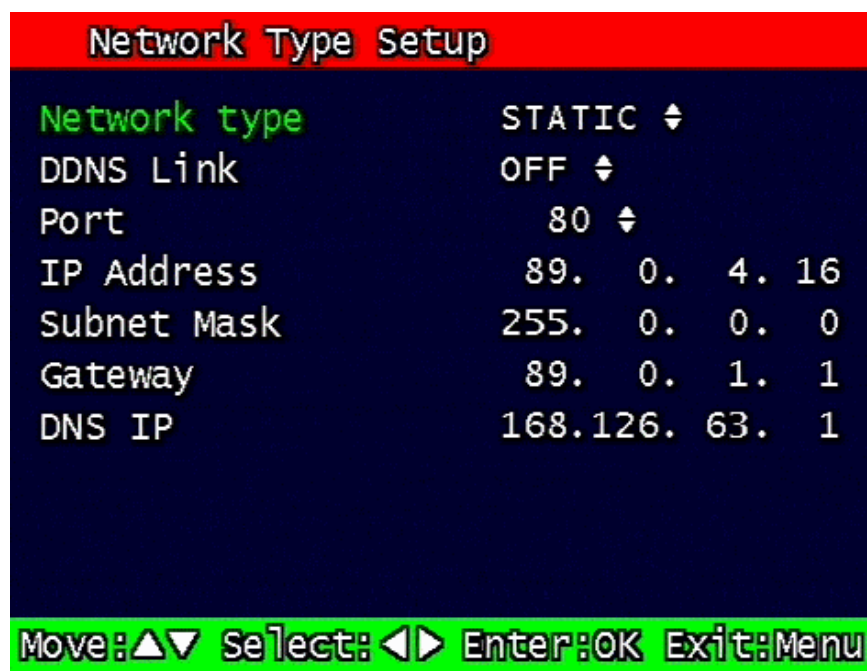


Figure. 3-28 Static Network setting

1. *DDNS Link On/off*
2. *Port*

Configure the Port number to be used to connect to the DVR system using RAMS (Remote Access & Monitoring System). The default Port number is port 80. Change easily by using Jog/shuttle equipped in front panel.
3. *IP Address*

Assign a fixed IP address to the DVR. Change easily by using Jog/shuttle equipped in front panel.
4. *Subnet Mask*

Assign the Subnet Mask. Change easily by using Jog/shuttle equipped in front panel.
5. *Gateway*

Assign the Gateway address
Change easily by using Jog/shuttle equipped in front panel.

3.6.3.2 DHCP

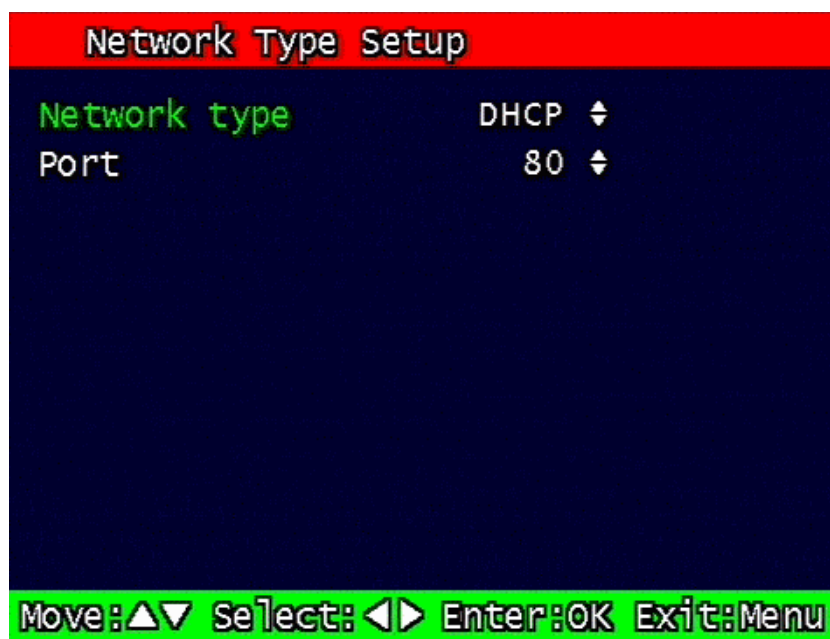


Figure. 3-29 DHCP setup scre

1. *Port*

Please refer to paragraph 3.6.3.1 for Port setting of Static/ DHCP/ PPPoE)

3.6.3.3 PPPoE

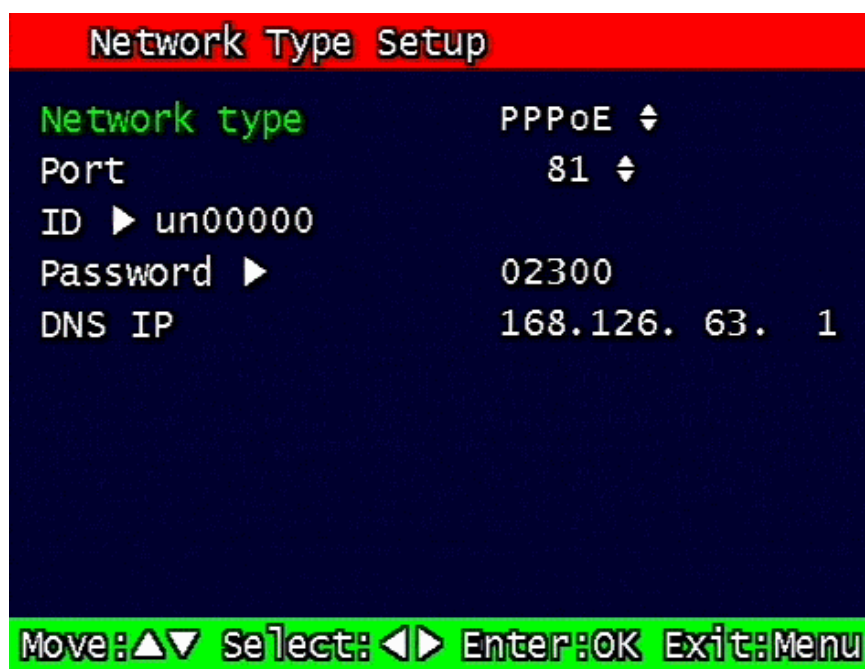


Figure. 3-30 PPPoE setting

1. *Port*

Please refer to the port setting in paragraph 3.6.3.1

2. *ID*

Type in your user ID for the ADSL account (PPPoE).

The password can contain maximum of 31 characters.



Figure. 3-31 ID input screen

3. *Password*

Type in your user Password for the ADSL account (PPPoE),

The password can contain maximum of 12 characters.



Figure. 3-32 Password input screen

3.6.4 Changing the Network configuration

If users want to change network type of DVR, users must reboot the system. User can restart the new network mode setting after entering 'yes' key button.

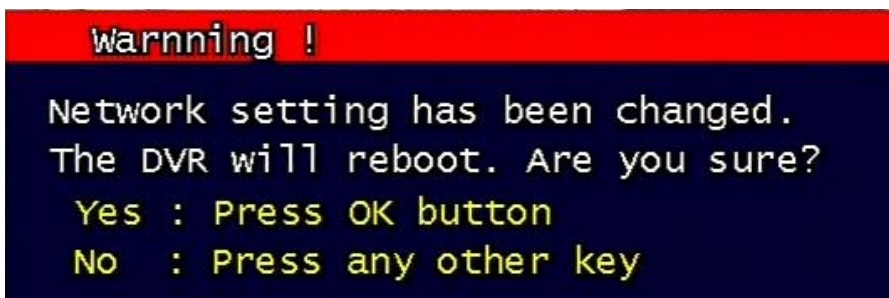


Figure. 3-33 Changing the Network setting screen

3.7 System Setup screen

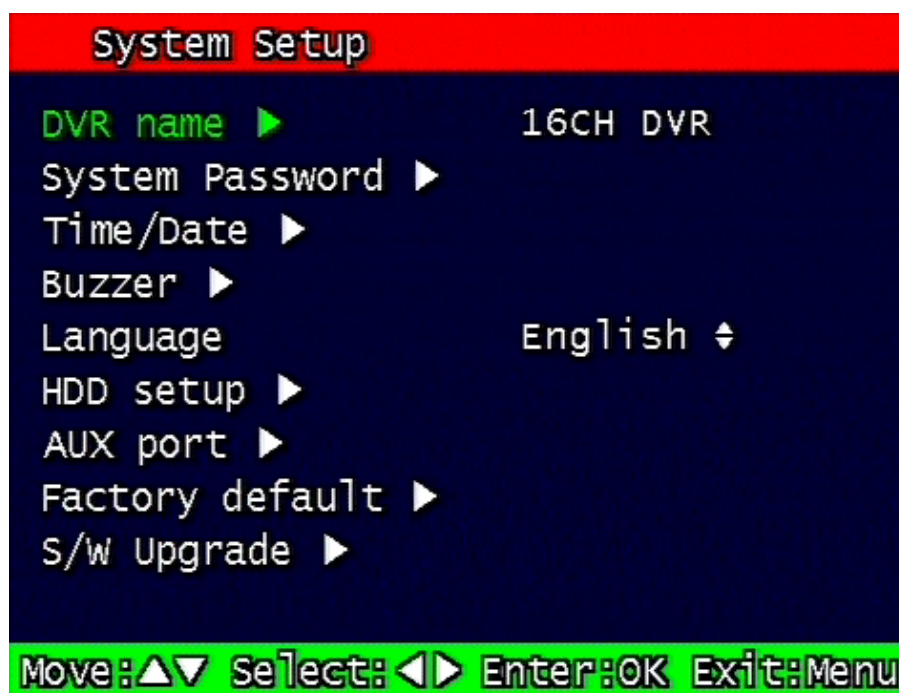


Figure. 3-34 System Setup screen

3.7.1 DVR Name

Type in the name of the DVR you wish to assign. The name can contain maximum of 12 digits.



Figure. 3-35 DVR name screen

Using the arrow, type in the DVR name.

Click "OK" when finished.

3.7.2 System Password



Figure. 3-36 System password set up

Set up part for system password, related function and application.

This is a part of installation, actual system password, related function and password application.

3.7.2.1 Password Setting

To change system password:

First, type-in the current password, confirm. Then if it is correct, type-in the new password twice. If they match, the password has been changed.

Users can use any numeric number from 0~8, combined 6 units.

Password input screen (present, new, confirm, if it is wrong -twice, confirm to change)

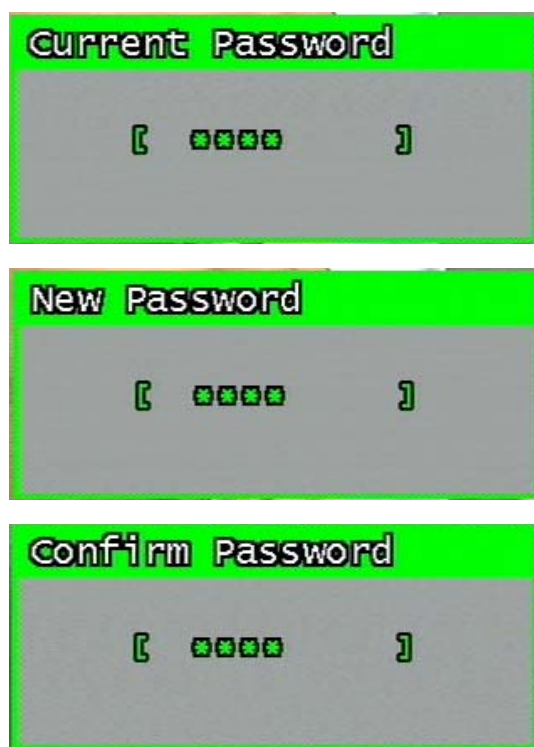


Figure. 3-37 Password input screen

3.7.2.2 Password Apply

Determine whether the system password has to be applied to power On/Off. The applicable features are recording close, enter menu, system off. Users can set up password ON/OFF for each feature.

Setting to On, when each feature starts, users have to confirm password for each step. Setting to Off, users can use any confirmation of password.

3.7.3 Auto Key Lock

Possible Setting time is every 30sec, 1 min, 3min, 5min, 10 minutes. If users choose setting time among them, auto key lock function will start exactly after the setting time and lock key type icon will be displayed at the bottom of window. Users can access system operation after release from key lock state by entering right current password..

3.7.4 Time / Date

Users can configure the view of time & date on the system, as well as, Day Light Saving Time.

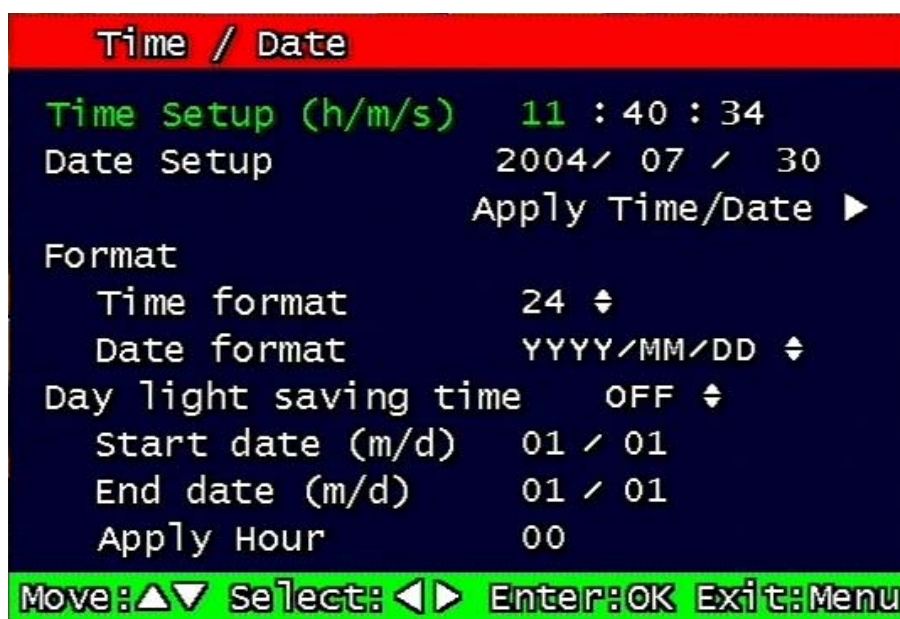


Figure. 3-38 Set up Time/Date

3.7.4.1 Set up Time / Date

Set up date and time on the system

3.7.4.2 Time / Date Format

Set up format for date and time. There are two types of time: 24hr circle/ 12hr circle. Date format can be set up as the following: YYYY/MM/DD, MM/DD/YYYY, DD/MM/YYYY.

3.7.4.3 Day Light Saving Time

Set up Start Day and End Day in Day Light Saving Time mode

For example, if users adopt day light saving time from May 01 to Oct.31, input the dates accordingly.

1. *Start date (m/d)*
Set up start day in Day Light Saving Time mode.
2. *End date (m/d)*
Set up end date in Day Light Saving Time mode.
3. *Apply Hour*
Configure Day Light Saving Time.

3.7.5 Buzzer

Users can turn the buzzer On/Off depending on the situations. Usable situation is Sensor, Motion, & Video Loss. When users activate the buzzer, buzzer will make a sound when there any event occurs. There would be no sound if the buzzer is turned Off.



Figure. 3-39 Set up buzzer

3.7.6 Language

English, Korean, Japanese and Spanish, French, germany are available.

3.7.7 HDD Setup

Set up for Internal HDD and Removable HDD, See the information.

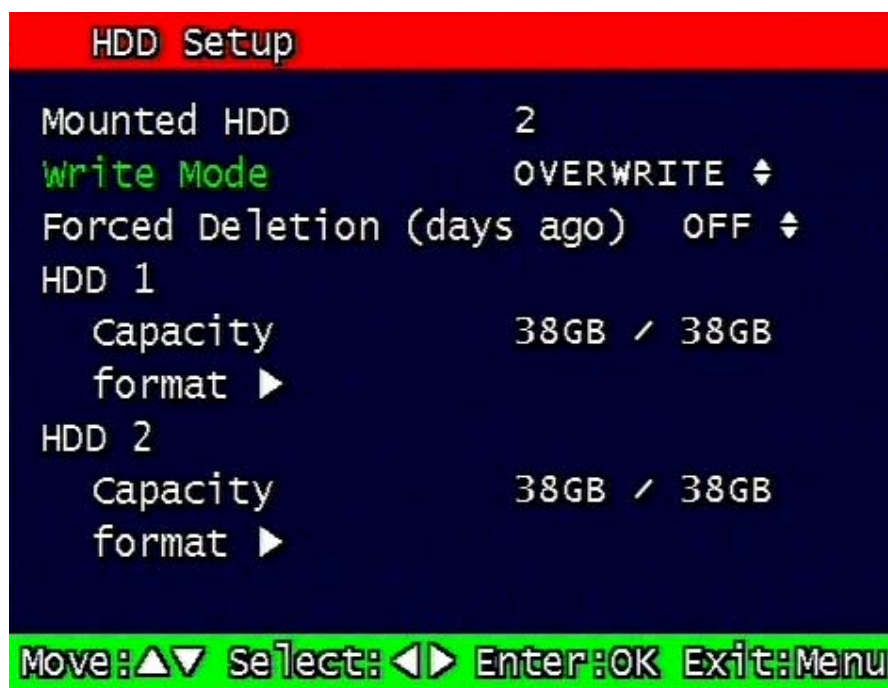


Figure. 3-40 HDD Setup image

3.7.7.1 The number of HDD

Show the HDD quantity that is built-in.

3.7.7.2 Write Mode

Set up writing type in recording.

Types are 'Once' and 'Overwrite'. If set up by 'Once', HDD can record until the Full state. If set by 'Overwrite', HDD will record continuously by start overwrite oldest data.

3.7.7.3 Forced Deletion

The images recorded earlier than specific date can be erased by force.

The number of dates for erasure can be selected from 1 ~ 100.

In case that "off" is setup, the recorded images shall not be erased,.

In case that "30" is setup, the images recorded 30 days earlier than today shall be erased.

3.7.7.4 Hard Disk

1. Capacity

Indicate the used part and total capacity of Internal HDD.

Used part of HDD (GB) / Full capacity of HDD (GB)

2. Format

This is function for internal HDD formatting and you must reboot the system after this instruction. Confirmation box on format will appear after entering format key. User can format and erase all information of HDD, after entering 'yes' key button.

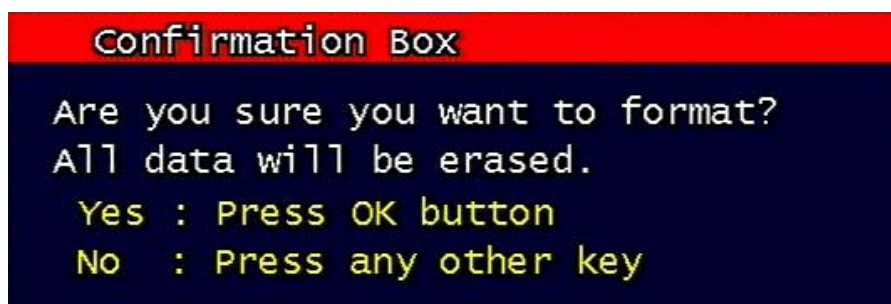


Figure. 3-41 Confirmation box for HDD format

Max 2 HDD can be installed. The added HDD works as a HDD, together with first HDD

3.7.8 Aux Port

Set up for Aux Port

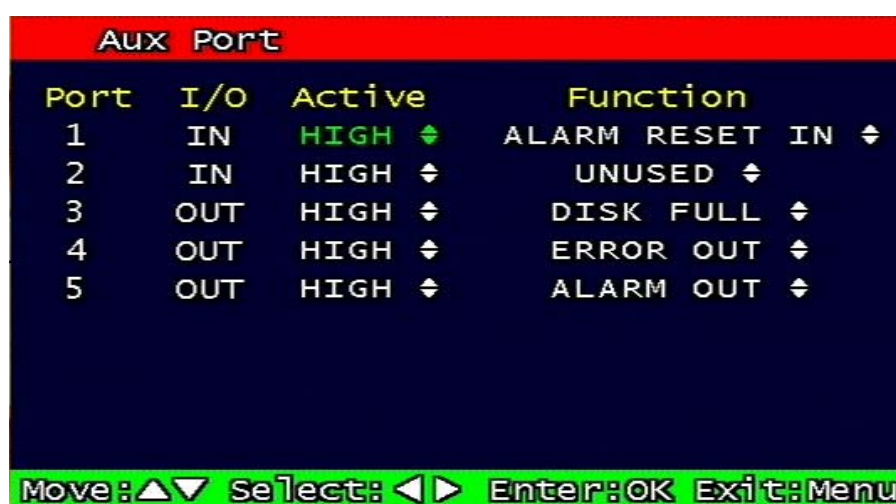


Figure. 3-42 Set up AUX port screen

3.7.8.1 Active

Set up Active state. Low/High will be different depend on machine..

3.7.8.2 Function

The following list contains a brief description of each function.

1. Direction : IN

- UNUSED: Do not use the AUX port.
- ALARM RESET IN: Pause alarm or buzzer when event occurred
- RECORD START IN: Record image during user push the button
- RECORD ON/OFF: Recording start/stop during user push the button & same as pushing remote controller or DVR machine

2. Direction : OUT

- ALARM OUT: Notice the assigned port when event occurred
- ERROR OUT: Notice the assigned port when system error occurred
(Mark system error)
- RECORD START OUT: HDD of DVR is full, send signal to DVR which is connect with AUX port. During receiving recording signal through AUX port, it can record it and the mode of DVR AUX in port is RECORD START IN.
- DISK FULL: If HDD is full, send signal to the AUX port.
- RECORD STATUS: Indicate whether it is recording or not

3.7.9 Factory Default

All of set-up date of system comes back to Factory default.

Confirmation box on picture setting default will appear after entering default. User can restore the factory default setting after entering 'yes' key button.

Please refer to paragraph 5.3 for factory default.

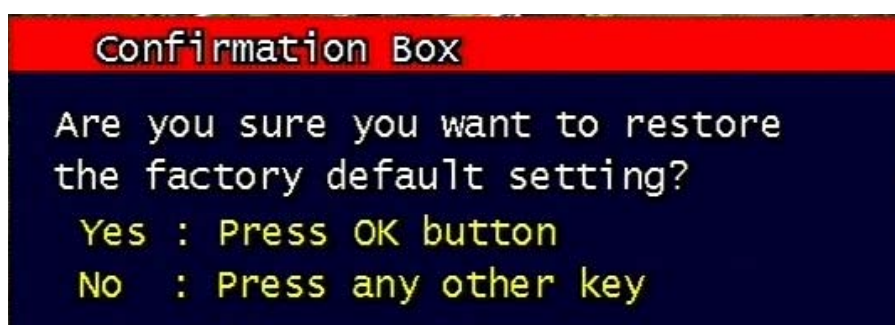


Figure. 3-43 Confirmation box for Factory Default

3.7.10 Software Upgrade

Users can upgrade the software of Ramdisk and Kernel using the USB flash drive (thumb drive) by the following steps.

- Get the latest version of software (Ramdisk/Kernel) from distributor
- Copy the downloaded files from the PC to the USB memory.
- Connect the USB memory to the USB port.
- Go to 'System Setup' then 'S/W Upgrade' then select Ramdisk or Kernel to upgrade.

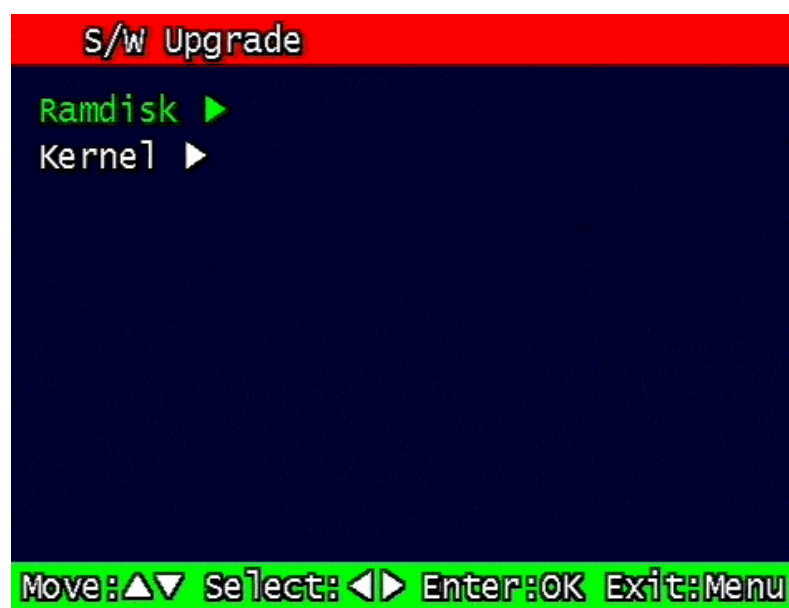


Figure. 3-44 Software Upgrade

- After the unit recognizes the USB flash drive and upgrading end, the unit will reboot.



Figure. 3-45 Ramdisk Upgrade

3.8 Backup

Backup recording data to HDD or USB Flash Drives

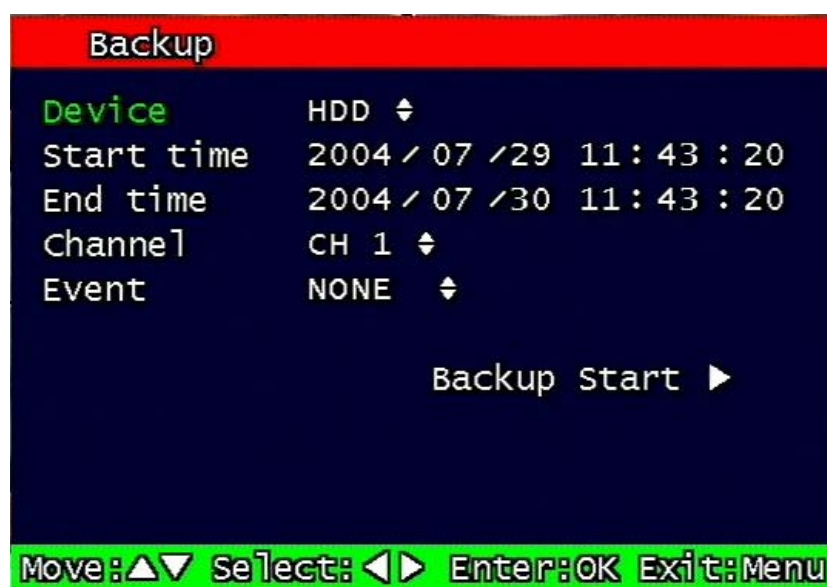


Figure. 3-46 Backup screen

3.8.1 Backup Device

Set up the device for backup. USB/ CD-RW are available

3.8.2 Start Time

Input the start of backup date and time.

3.8.3 End Time

Input the end of backup date and time.

3.8.4 Channel

Choose the channel to backup.

3.8.5 Event

Choose the event to backup. In case of none mode, selected files according to time will be backed-up.

3.8.6 Backup Start

Based on the input date, time, channel and event & other condition search the images will be backed-up to the chosen device. Back up progress rate is marked on the bottom right side of the screen.

3.8.7 Format

This menu is used only when backup device is CD-RW. In case that backup device is CD-RW, format command has to be done by this menu, before starting backup.

However, with CD-R media, backup can be started without format.

3.9 System Log

It is for displaying major system events.

The items that manage by Log are Video Loss, Power On, Power Off, Menu entry, HDD Full, failure of FTP transmission, failure of E-mail transmission

System Log		1022 Lists Found
[1]	2004-07-30 11:40:30	FTP FAILED
[2]	2004-07-30 11:39:30	FTP FAILED
[3]	2004-07-30 11:38:29	FTP FAILED
[4]	2004-07-30 11:37:33	MENU CALLED
[5]	2004-07-30 11:37:29	FTP FAILED
[6]	2004-07-30 11:37:16	MOTION CH-03
[7]	2004-07-30 11:37:16	MOTION CH-02
[8]	2004-07-30 11:37:14	SENSOR 4
[9]	2004-07-30 11:37:14	SENSOR 1
[10]	2004-07-30 11:37:09	POWER ON

Page Move : ▲▼◀▶ Exit : Menu

Figure. 3-47 System Log

3.10 System Information

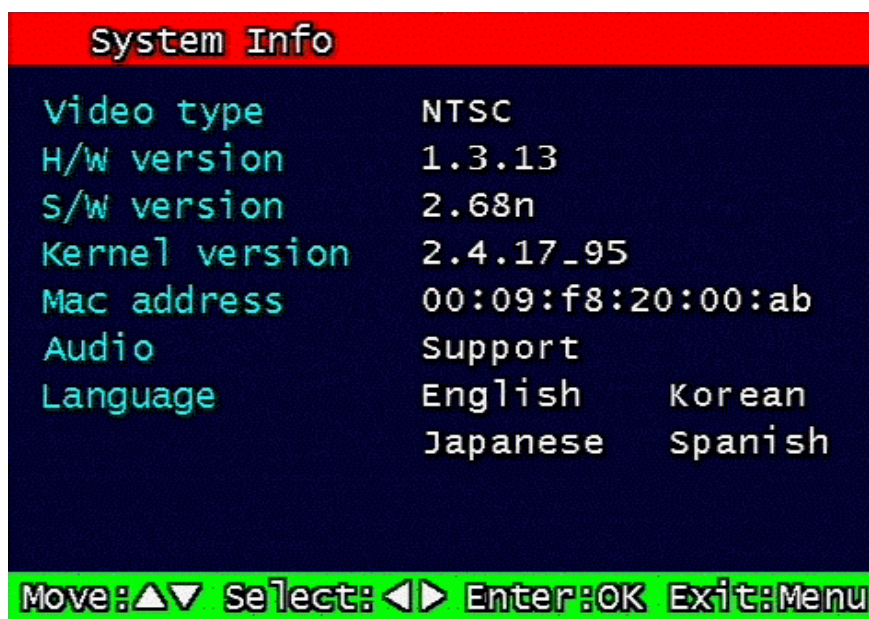


Figure. 3-48 System Information

3.10.1 Video type

It shows that present Video type of System is NTSC or PAL.

3.10.2 H/W version

It shows the H/W Version of system.

3.10.3 S/W version

It shows the S/W Version of system

3.10.4 KERNEL version

It shows the S/W Version of KERNEL.

3.10.5 Mac Address

It shows Mac Address of system

3.11 Search Menu

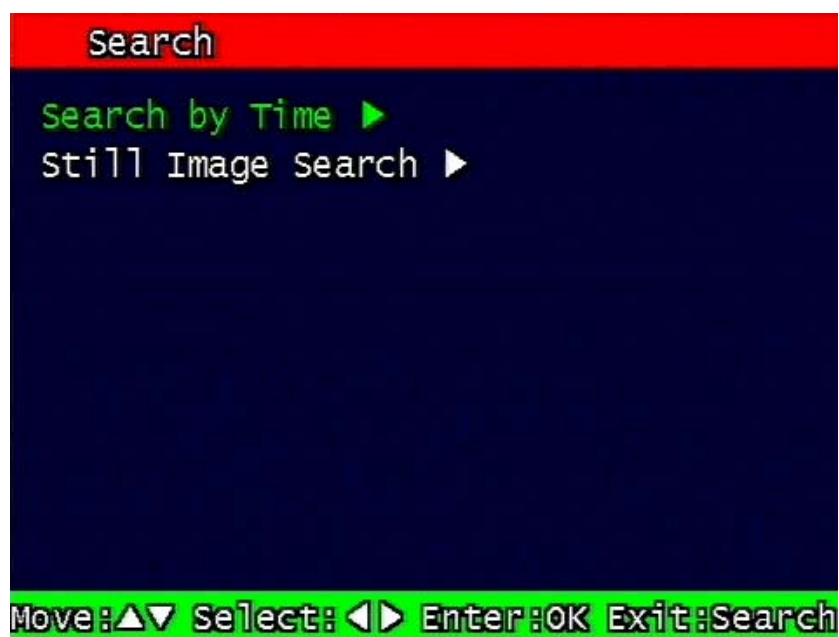


Figure. 3-49 Main Screen of Search

3.11.1 Search by Time

The recorded images are searched by Time, Channel, Event. DVR saves last searching condition so it automatically displayed last search condition under search mode.

** Screen where the condition of search will be input.



Figure. 3-50 Search by time

3.11.1.1 Starting Time

Starting Time and date for Search is input.

The starting year range is from 1970 to 2037, and it is not possible to input any year after 2037.

3.11.1.2 Ending Time

Ending Time and date for Search is input.

The ending year range is from 1970 to 2037, and it is not possible to input any year after 2037.

3.11.1.3 Channel

Select the channel for Search from Channel 1 ~ Channel 4.

3.11.1.4 Event

Select the Event as follows.

- NONE : All of files are searched regardless of Event.
- MOTION : The file recorded by MOTION is searched.
- SENSOR : The file recorded by SENSOR is searched.

3.11.1.5 Example of Search Result

1/ 6 page (54 file found)				
Start(Y/M/D H:M:S)	End(Y/M/D H:M:S)	Ch	Mode	
04/07/29 11:49:17	04/07/29 11:50:00	1	F	
04/07/29 11:50:00	04/07/29 11:55:00	1	F	
04/07/29 11:55:00	04/07/29 12:00:00	1	F	
04/07/29 12:00:00	04/07/29 12:05:00	1	F	
04/07/29 12:05:00	04/07/29 12:10:00	1	F	
04/07/29 12:10:00	04/07/29 12:15:00	1	F	
04/07/29 12:15:00	04/07/29 12:20:00	1	F	
04/07/29 12:20:00	04/07/29 12:25:00	1	F	
04/07/29 12:25:00	04/07/29 12:30:00	1	F	
04/07/29 12:30:00	04/07/29 12:35:00	1	F	

Move: ▲▼ Page Move: ◀▶ Enter: OK Exit: Search

Figure. 3-51 Screen of result of search by time

3.11.2 Search of still image

Still image is not searched by Time and Channel.

If users press "search" Button, the still images recorded in the system appear from the oldest one to latest one, and Maximum 99 still images can be stored and searched

3.11.2.1 Screen of search

Still Image List			
No	Time (Y/M/D H:M:S)	Ch	
[1]	2004/07/26 16:45:04	1	
[2]	2004/07/26 16:45:05	1	
[3]	2004/07/26 16:45:07	1	
[4]	2004/07/26 16:45:08	1	
[5]	2004/07/26 16:45:09	1	
[6]	2004/07/26 16:45:10	1	
[7]	2004/07/26 16:45:11	1	
[8]	2004/07/26 16:45:12	1	
[9]	2004/07/26 16:45:13	1	

Move: ▲▼ Page Move: ◀▶ Enter: OK Exit: Search

Figure. 3-52 Search Screen of Still Image

3.12 PLAYBACK

3.12.1 PLAYBACK of recorded Images

This function means that the images recorded in the system are searched by Time or Played back directly.

3.12.2 Method of playback

In order to play back the recorded images, put the Curser to the selected content in the Menu of Search, and press Button "OK".

The screen of Search results disappears and the selected images are played back.

The recorded files with Audio are played back with Audio.

3.12.3 Screen of played back.



Figure. 3-53 Screen of playback

3.12.4 Control during play back

1. Stop of Play back

If user needs to stop play back, user should press button “ STOP”

in the remote controller of in the system, and play back stops and live screen is coming back.

2. Temporary Stop during Playback

In order to stop temporarily playback, press button “ PAUSE”.

If users press the button “PAUSE” again, play back continues.

3. Speed level of Play back

There is 7 Speed levels for playback (Normal, Fast mode) in the forward and backward direction as well.

There is 2 speed levels for slow playback mode in the forward and backward.

If user needs faster speed of playback, users press button “RIGHT” and speed is controlled.

If user needs slower speed of playback, users press button “LEFT” and speed is controlled.

4. Change of Direction of Playback

There's forward and Backward directions.

In order to change direction from Forward to Backward, user press the button “ REVERSE PLAY” and backward playback starts with normal speed. On the contrary, to change direction from Backward to Forward, user press the button “PLAY” and Forward playback starts with normal speed.

5. Select of channel of Playback

This function is applied to MUX recording as well as Quad Recording.

- Under Quad recording type: Select the channels by using button “1” ~ “4” and selected channels show the Image With Digital Zoom. User press the button “MULTI”, Quad screen is played back.

- Under MUX recording type: Select the channels by using button “ 1” ~ “4” and selected channels show the image which recorded at simultaneous time. If there are recorded image, it will show the image which close to recorded time at previous playback channel.

6. Audio ON / OFF

In case of recorded image with Audio, user can on or off by using the button "AUDIO MUTE".
The Icon in the top of screen shows the status (On / Off) of AUDIO.

3.12.5 Playback of still image

3.12.5.1 Method of playback

As the paragraph 3.11.2, users put the cursor to contents. In the searched still Image Lists, and press Button "OK".

The screen of search list disappears and still image is played back as the paragraph 3.11.2.

3.12.5.2 Screen of playing back



Figure. 3-54 Still Image of playing back

3.12.5.3 Control during Play back

1. Stop of play back

To stop the playing back, User press button "STOP" or "SEARCH".

Playback stops and screen of search list appears.

2. Next screen

Press Button "RIGHT" and next screen is played back.

3. Previous screen

Press Button "LEFT" and previous screen is played back.

3.12.6 Playback the backed up-image

This function means that the images in the backup HDD that were backed up manually or automatically from the recorded images in the system are played back.

The functions for Playback of backed up images, screen during playback, control during playback are same as those of Playback of Recorded images, as the paragraph 3.11.1

3.13 Miscellaneous Menu



Figure. 3-55 Miscellaneous Menu

This menu is to use the five functions that are placed only on the remote control but on the keypad of the unit

3.13.1 NET

Displays the current network IP and the user connected to the network.

(it substitutes the NET button on the remote control).

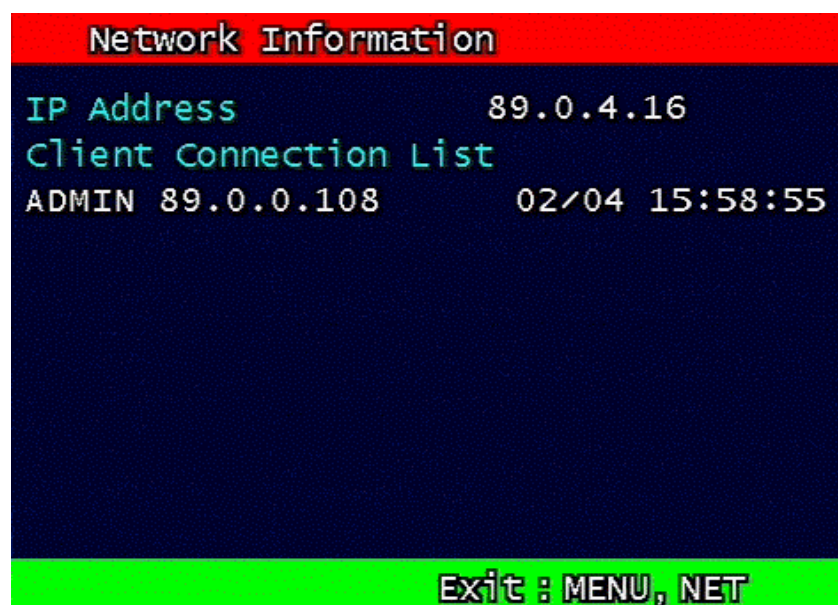



Figure. 3-56 Network Information

3.13.2 OSD

Turns on/off the OSD (On Screen Display). It substitutes the OSD button on the remote control.

3.13.3 Audio Mute

Turns on/off the audio. It substitutes  button on the remote control.

3.13.4 HDD

Displays the HDD information. It substitutes the HDD button on the remote control.

3.13.5 LOG

Display the System Log. It substitutes the LOG button on the remote control.

4. DVR Client program

4.1 Overview of DVR

- **RAMS** (Remote Access & Monitoring System) is used to remotely access, monitor, and operate the DVR for real-time live viewing, playback, backup, on-the-fly recording, and control over the LAN/WAN.
- **UniPlayer** is a viewer with functions for recording, capturing, & backing up files.
- **Multiviewer** is to monitor multiple DVR
- QuickInstaller is a setup configuration template for quick & easy, multiple unit setup using RS-232 or network. It can be used to derive setting parameters of DVR system and to save setting parameters to DVR system.

4.2 PC requirement (minimum)

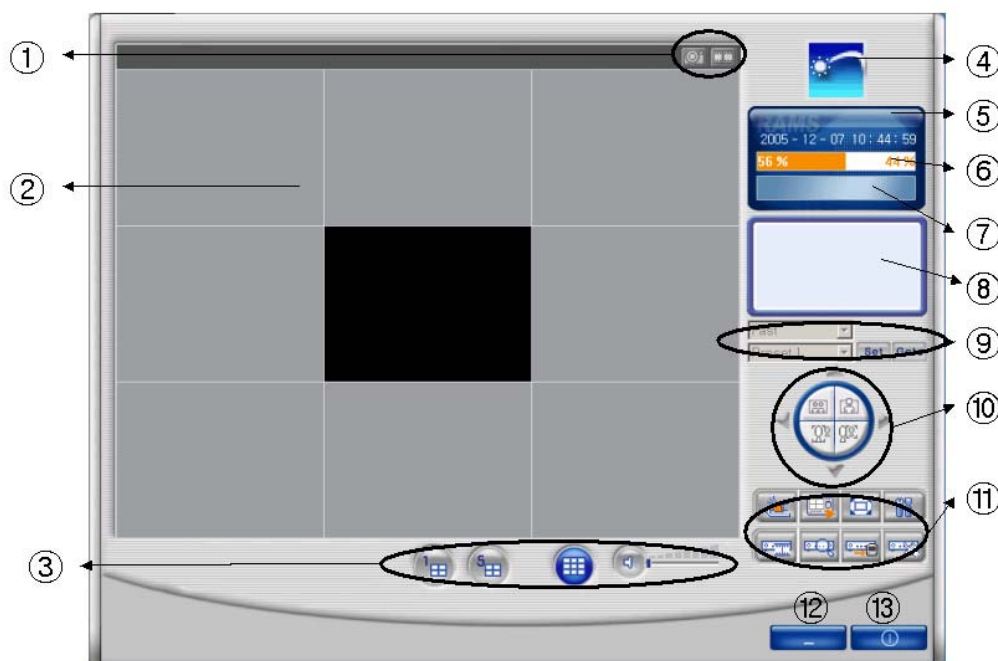
- Window 98
- DirectX 8.0
- Explorer 5.0
- VGA Card for over 2 x AGP
- Video card memory 64MB memory (the latest graphic card driver)
- Resolution 1024 x 768

4.3 Installation & execution of program

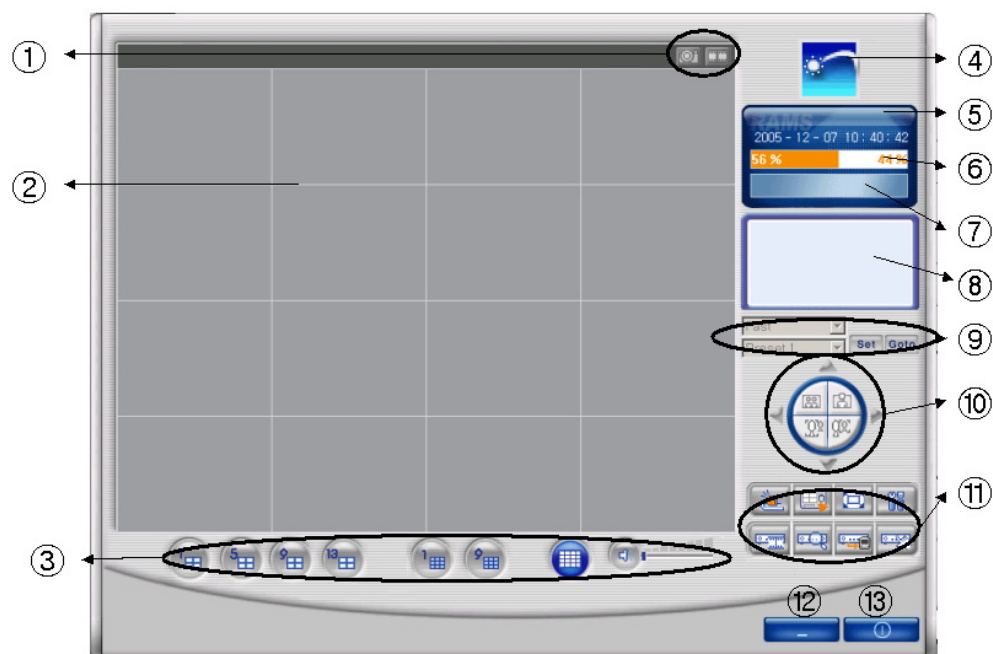
- Please use DirectX 8.0 or newer.
 - <http://www.microsoft.com/windows/directx/default.aspx> - English
 - <http://www.microsoft.com/korea/directx/default.aspx> - Korean
- To ensure optimal performance, install the latest graphics driver.
- Install DVR by clicking on the Setup.exe file.
- Rams.exe, Uniplayer.exe, and Multiviewer.exe, QuickInstaller.exe icons will be placed on the desktop after a successful installation.

4.4 RAMS (Remote Access & Monitoring System)

4.4.1 Screen and button




< 8 Channel >

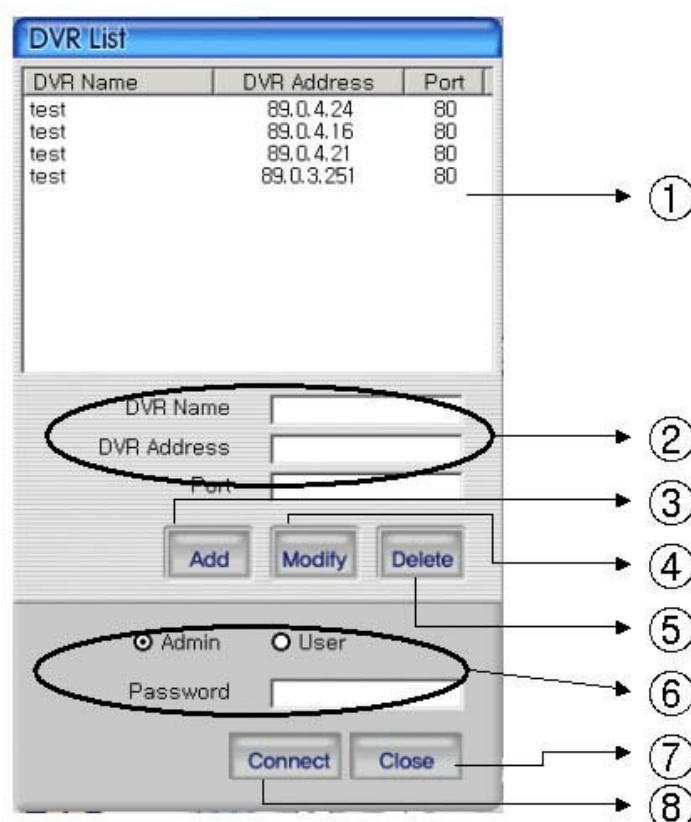


<16 Channel >

- ① Screen capture button, Video record button
- ② Screen display
- ③ Channel display button, Sound control button
- ④ If logo is clicked, program version window appears.
- ⑤ Time indicator
- ⑥ PC HDD information indicator
- ⑦ Live or Playback mode indicator
- ⑧ Connected DVR information indicator
- ⑨ Preset
- ⑩ Pan/Tilt, Zoom/Focus button
- ⑪ DVR Connect button, UniPlayer link button, Full Screen button, Parameter setting button, DVR recording button, DVR search & playback button, DVR retrieve & backup button, DVR Setting button
- ⑫ Minimizing button
- ⑬ .Close program

4.4.2 Connecting to DVR

Click  icon to open the DVR list.



- ① This box allows the user to select the IP address assigned to the selected unit. This is required for making a network connection.
- ② To create a new IP address & DVR selection, enter the DVR name, DVR address, and port number.
- ③ To Click to add the newly entered DVR information into the DVR list
- ④ After selecting a DVR Name from the list and making changes, click Modify to update the changes made to the item.
- ⑤ To remove an IP address/DVR Name , click and highlight the desired name, then press the Delete button to remove.
- ⑥ Enter the correct password for either Admin or User for the target DVR.
- ⑦ Click Close to exit the DVR List
- ⑧ Click Connect after correct password has been entered to connect to the desired DVR.

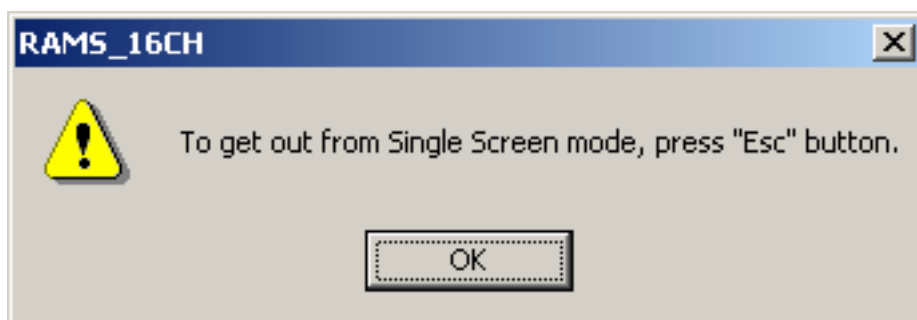
4.4.3 UniPlayer link



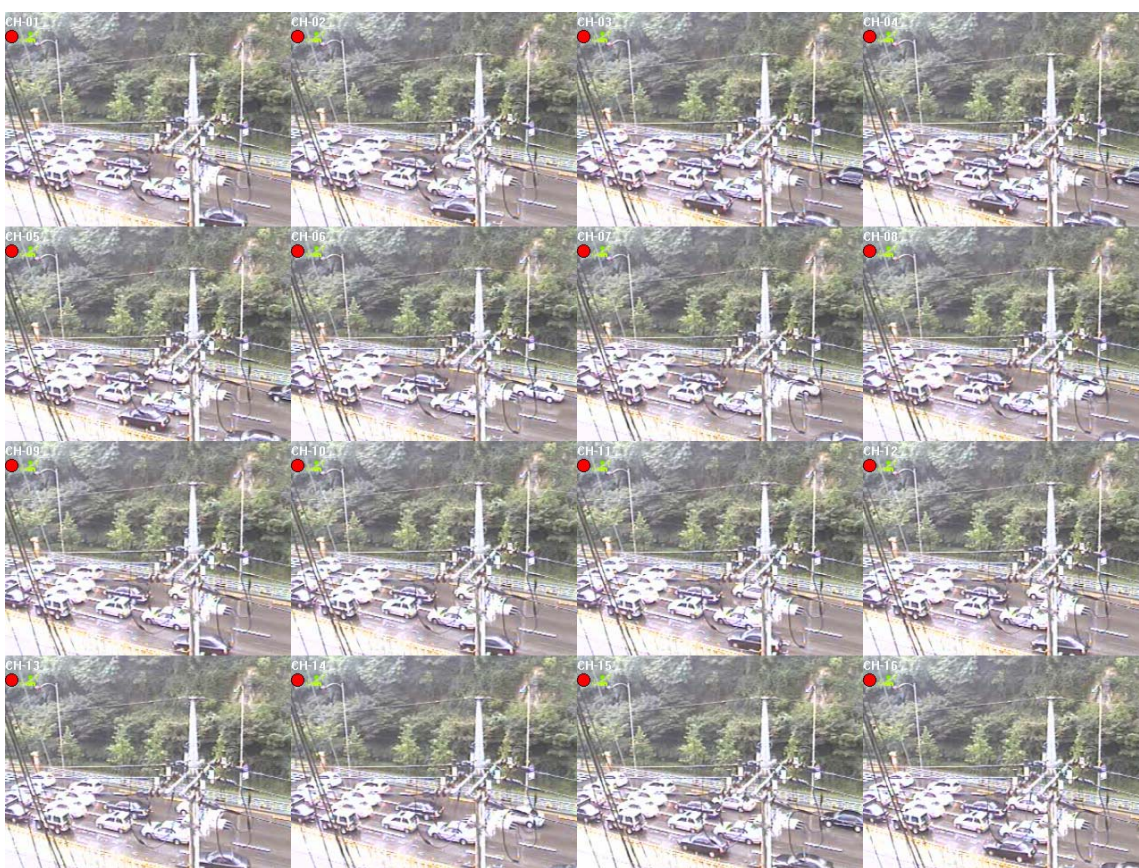
If you click this button on main menu, UniPlayer program will be executed.

Regarding the UniPlayer program, please refer to the article 4.4

4.4.4 Full-screen display



If you push this icon in the main menu, full screen form appears.



If users press the key of ESC, you will return to the selected screen.

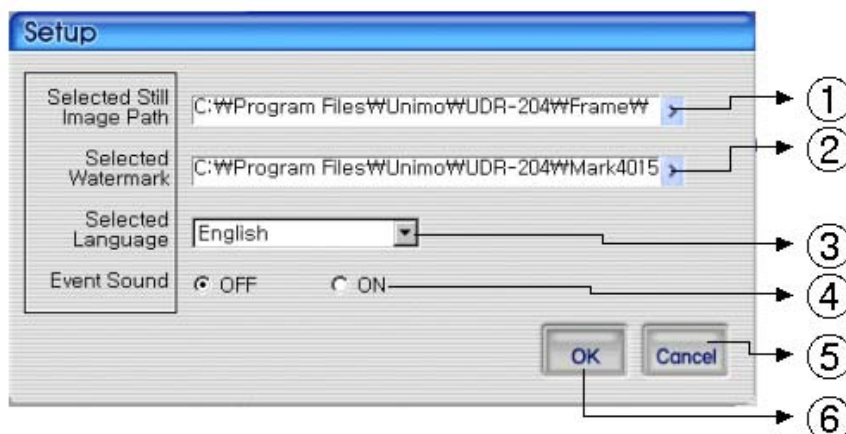
OSD in the screen is same as that of DVR

(Channel name, recording on/off, Motion icon, Sensor icon)

4.4.5 Program setup



If users click this button in the main window, window of program setup appears.

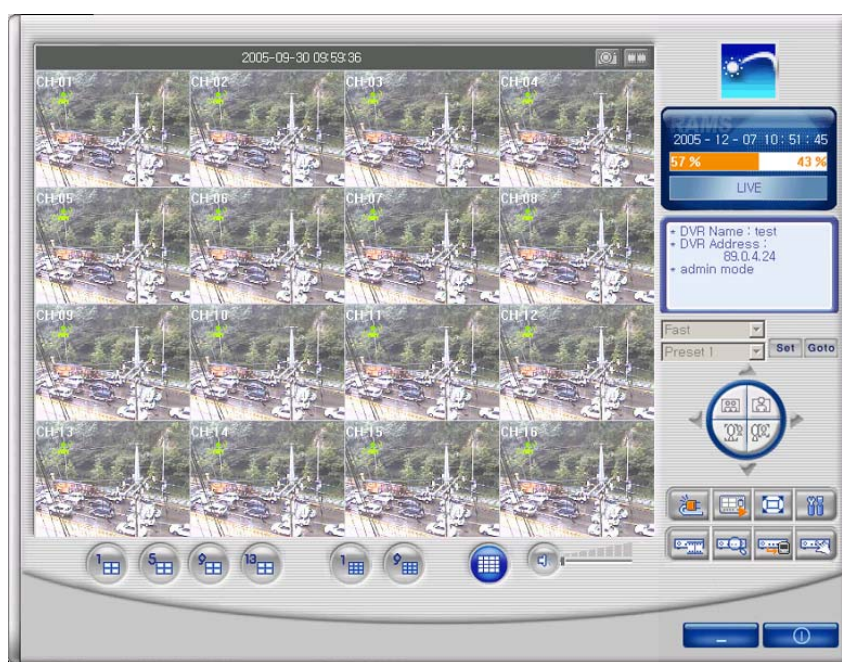


- ① Capture a still image and select a folder where the image is recorded
- ② Select the image of water mark to be input in the still image
- ③ Set up a program by user's language
- ④ Set up whether alarm occurrence is on or off when motion detection or sensor icon activated.
- ⑤ Close the window without saving the setup
- ⑥ Close the window after saving the setup

4.4.6 DVR recording



It works as recording button of DVR system. After logging in admin, button will be activated. Under recording mode at DVR, red icon will be displayed at the top of right at the window.



=> DVR (live viewing)

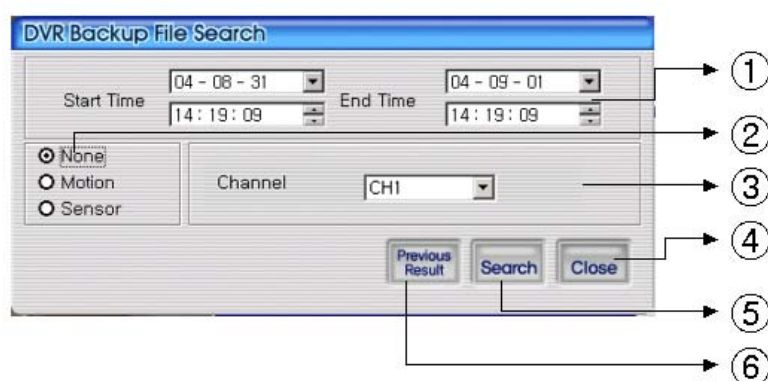
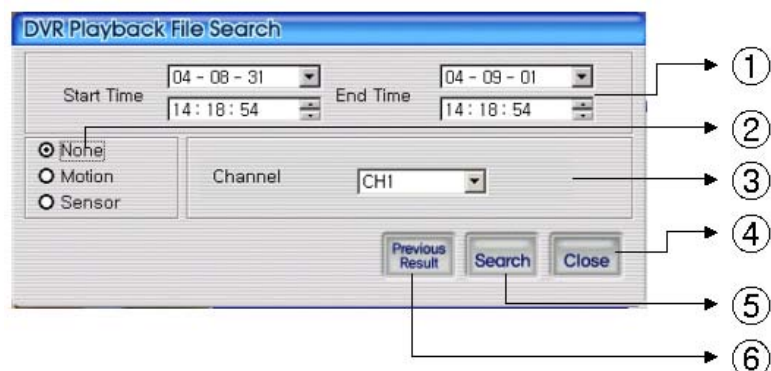


=> DVR (Recording mode)

4.4.7 DVR playback search



This button is used for playback search, playback, and backup functions for DVR and after logging in by admin.

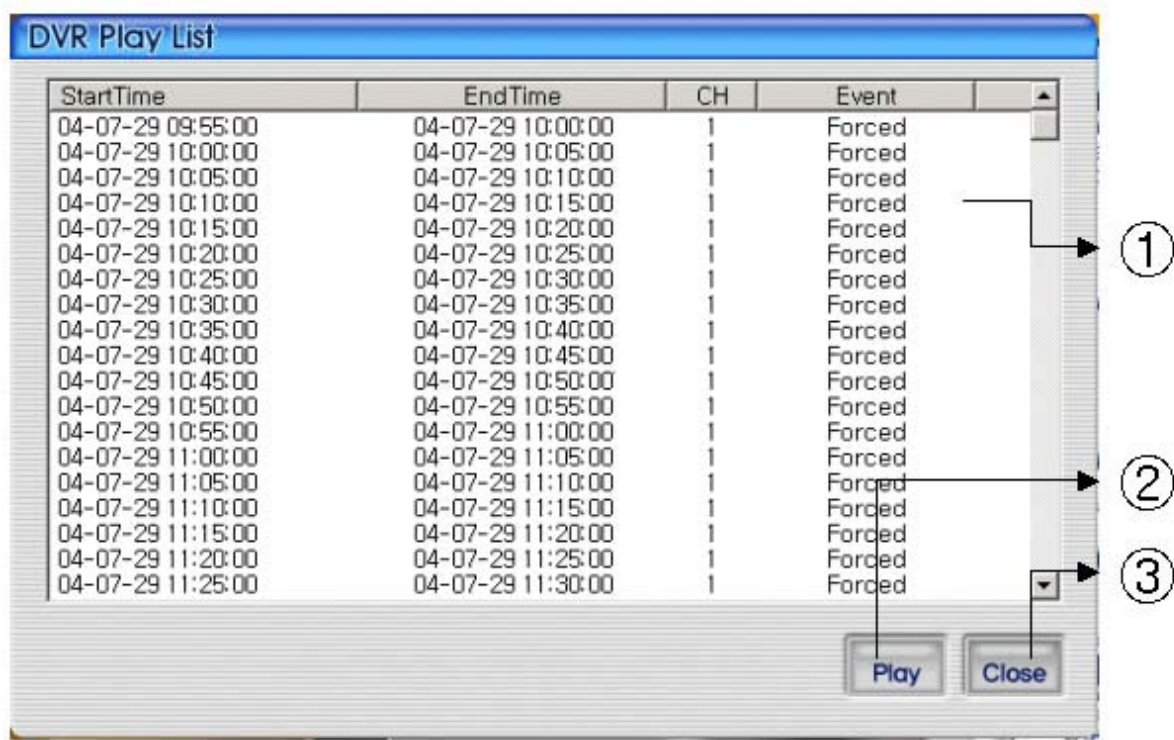


- ① Enter search time from start time to end time
- ② Check if user want to search event condition
- ③ Select targeted channel for search
- ④ Close DVR playback search
- ⑤ Start to search by selected searching condition
- ⑥ Previous research result will appears

4.4.8 DVR playback search



Search data will appear list form if users push two buttons at DVR playback screen.



- ① DVR search files will appear recording start/end time, channel, and event information included
- ② Button for starting of backup. With pushing selected channel, start to playback.
Start to playback after pushing selected channel,. If do double click selected files, it starts to playback.
- ③ Close DVR backup window



After selecting a file at list, push play button or do double clicks in order to watch playback pictures.



- ① Change present mode to playback mode
- ② Display playback picture derived from DVR system
- ③ Button for reverse playback, pause, still, reverse phase, forward phase, slow, fast, previous search, next search
- ④ Comeback playback mode to Live viewing mode



Reverse playback button



Playback button



Temporarily pause button



Still image button



When user use temporarily pause image file move to backward



When user use temporarily pause image file move to forward

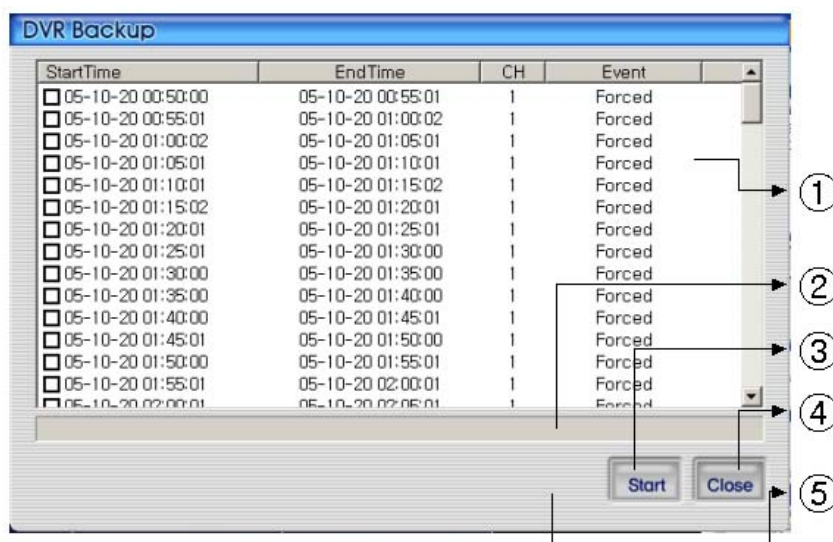


Play stored files slowly. User can control by clicking this button



Play stored files quickly. User can control by clicking this button

4.4.9 DVR backup



- ① DVR search files will appear recording start/end time, channel, and event information included
- ② Indicator backup progress at backup
- ③ Button for starting of backup. With pushing selected channel, start to backup
- ④ Close DVR backup window



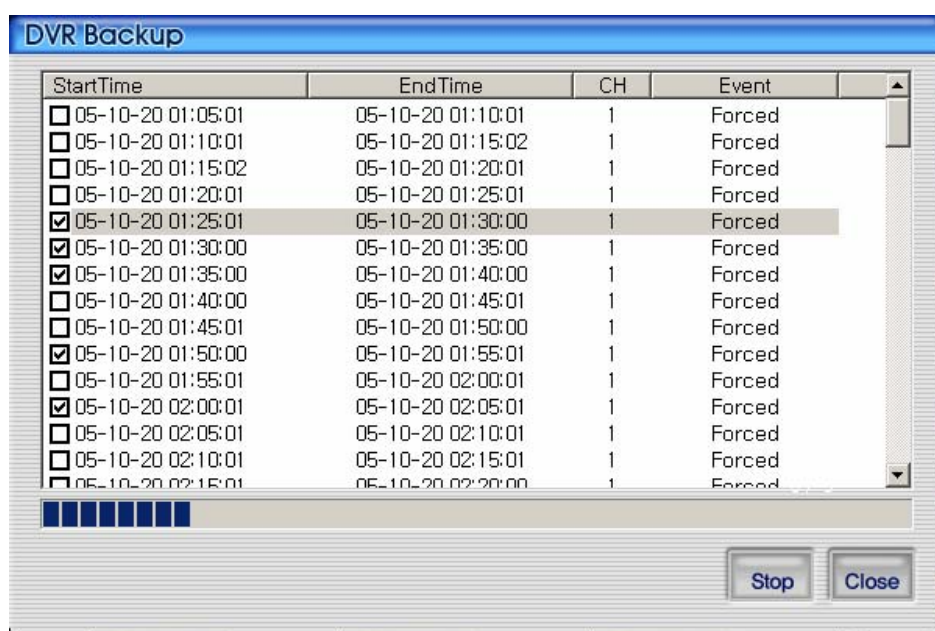
After selecting a file at DVR backup list, user can start to backup with pushing start button

The destination of backup files is below of backup folder located in directory of program

installed. After starting backup, button changes button, displays backup

progress rate. Even backup, users can stop it by pushing button. Close DVR

backup window with pushing button. (Even backup mode, it will be stopped & closed.)



4.4.10 DVR Setting



This button is for linking into quick installation program, which is used to manage setting parameter of DVR easily. It can be activated after logging in by admin.

The setting parameter of DVR are displayed.

4.4.11 Still image Capture



You can save playing image such as live viewing image, DVR playback image, into still image by capture. Besides users can capture image by pushing capture button for each channel or push capture button at the foot of a screen. Still image will be saved in a path frame directory established in RAMS's setup section screen. If user change storage path of still image at setup window, still image will be recorded to destination in the future.



- ① Select check box in order to insert watermark into still image capture
- ② Save still image as user defined default file name if chosen
- ③ Save still image as user selected new file name if chosen
- ④ Insert keyword to user easy searching
- ⑤ Close still image capture window
- ⑥ Print still image capture file
- ⑦ Save still image. The destination of recording is assigned at still image recording, folder through setup menu among RAMS program

4.4.12 Watermark insertion

Click the watermark checkbox then push the save button to save still image with watermark.

4.4.13 Printing still image

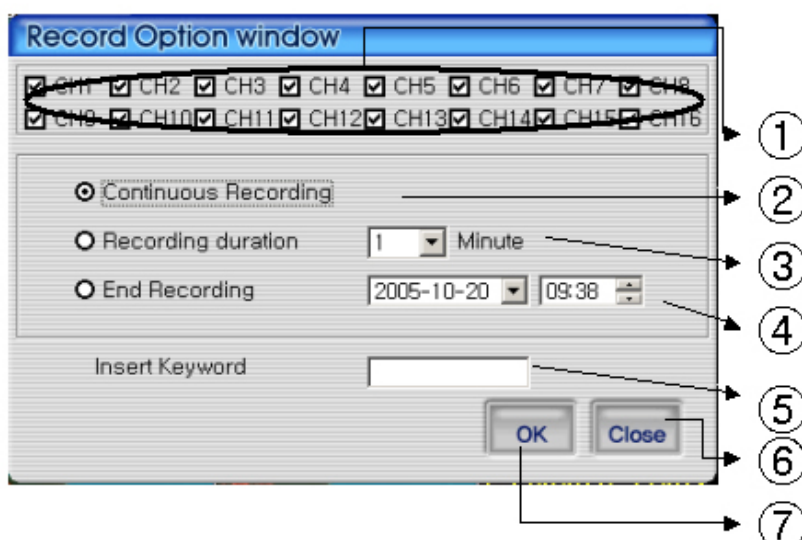
To print still image, please push  icon in capture screen.

4.4.14 Motion picture recording



With live viewing picture, motion picture recording and saving at local PC

User can record each channel by pushing record button on top right side of channel or pushing record button at below side of window. After pushing recording, record time setting window will be popup. Users can change it or not.



- ① Select the targeted channel changed recording time. Among this mode, Quad mean that timing choice for recording button on main menu
- ② Continuous recording until clients stop recording mode
- ③ Continuous recording until targeted minutes. Of course, it stopped manually by users
- ④ Continuous recording until targeted date & time. It stopped manually by users
- ⑤ For easy searching by keyword, client will insert keyword at search mode
- ⑥ Close record option window
- ⑦ After saving new selected recording option, automatically close it

With starting record, button  will be changed to  button

In order to stop recording, users just push record button again & record. The recording destination is record directory installed in Program.

4.4.15 PAN/TILT, ZOOM/FOCUS



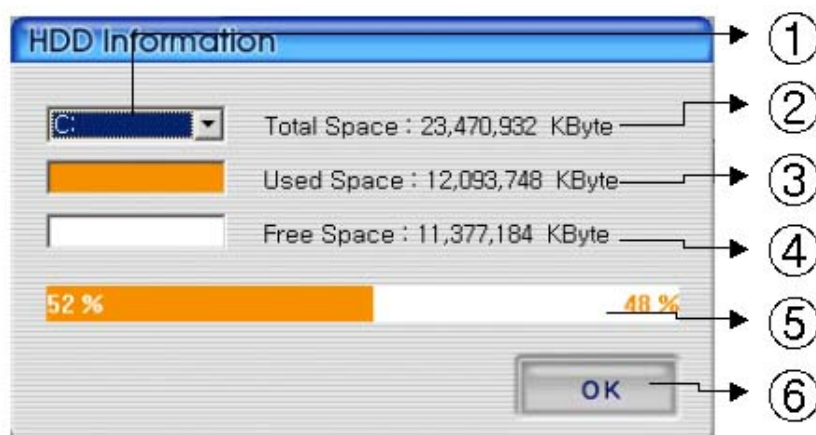
These buttons are for PAN/TILT, ZOOM/FOCUS function of DVR and after logging in by admin and/or one channel selected.

4.4.16 HDD Information



Orange: used parts of HDD,

White: remaining part of HDD. Detailed HDD information will be activated on pushing this icon.

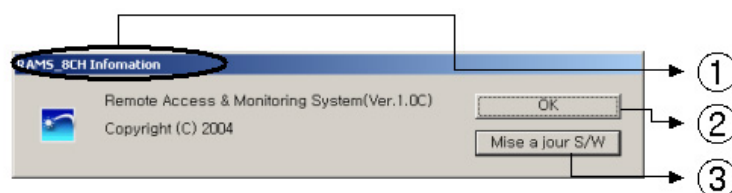


- ① Select hard disk
- ② It shows total capacity of HDD
- ③ It shows the used capacity of HDD used
- ④ It shows the capacity of HDD to be used
- ⑤ It shows the capacity of HDD used and to be used
- ⑥ Close the window

4.4.17 Check the program version



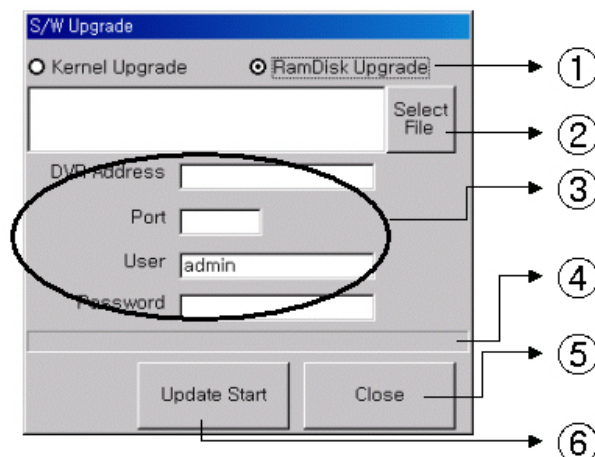
Click Logo to check program version or do S/W upgrade of DVR system.



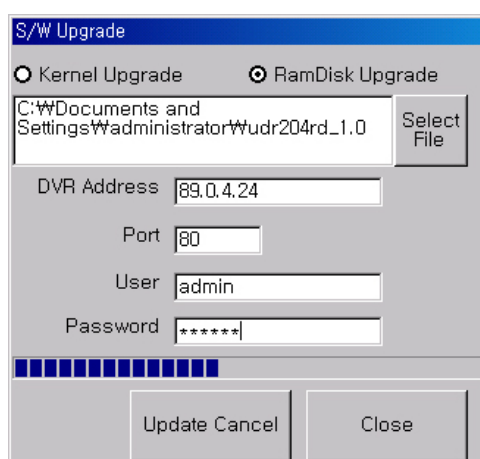
- ① Display the name & version of program
- ② Close the RAMS information window
- ③ Display S/W update window of DVR system

4.4.18 S/W upgrade of DVR

S/W upgrade window is activated on pushing S/W upgrade button in the program version check screen



- ① : Select targeted files to upgrade
- ② : Select targeted files saved in local PC
- ③ : Enter targeted DVR information such as DVR address, Port, user, and password (admin only)
- ④ : Indicator of targeted file's transmission status
- ⑤ : Close upgrade window
- ⑥ : Transmit targeted files. After that, changed to upgraded cancel (cancel of upgrade transmission)



=> Display status of SW Upgrade

4.4.19 Program minimizing

Rams program is minimized

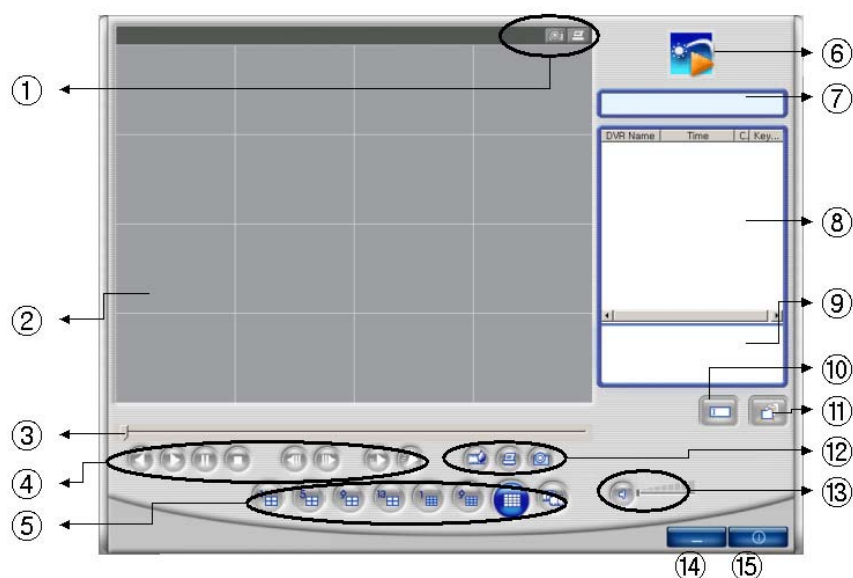
4.4.20 Close program



Closed Multiviewer program

4.5 UniPlayer

4.5.1 Screen and button



- ① Button per channel (Capture, Print, D-Zoom)
- ② Playback picture
- ③ Indicator for playback progress rate
- ④ Reverse playback, playback, still, pause, reverse phase, forward phase, slow, fast
- ⑤ Channel selection button, Panorama playback button
- ⑥ Click the logo to check program version
- ⑦ Uniplayer's status
- ⑧ Search list
- ⑨ File path is displayed if selected at search list
- ⑩ Button for user searching
- ⑪ Button for directory based searching
- ⑫ Retrieve button for watermark, printing, Capture
- ⑬ Button for sound On/Off, volume adjustment
- ⑭ Button for minimizing

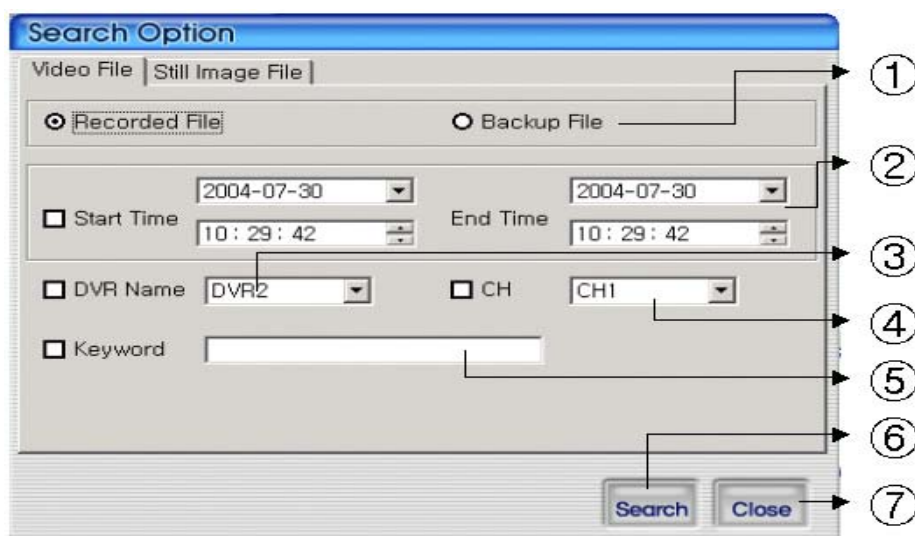
- ⑮ Button for closing program

4.5.2 Search

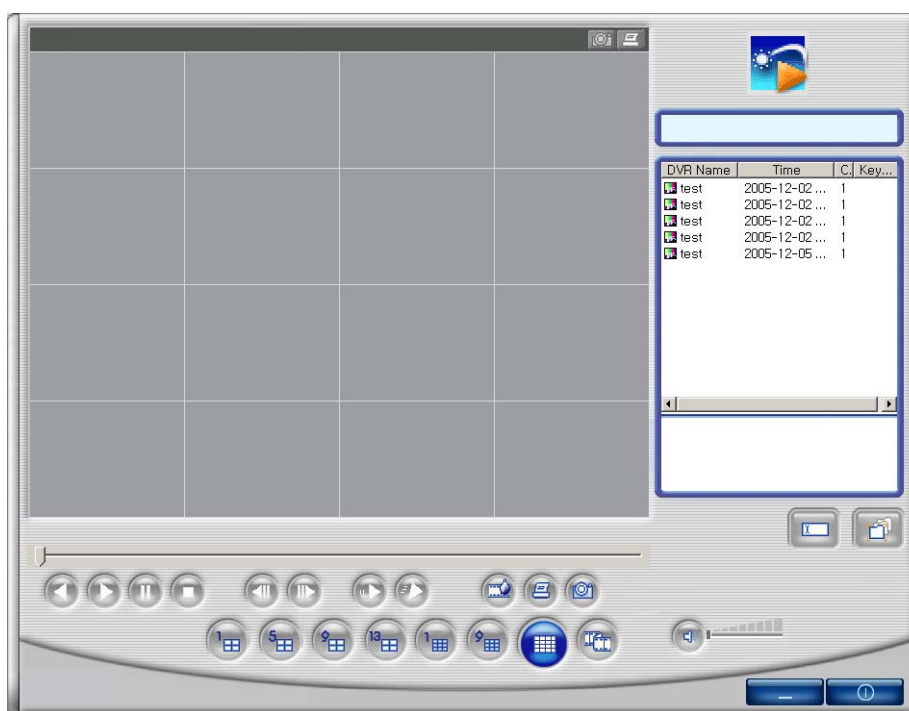


Users access to search files after push this icon. As files are default mode, without knowing of files, users can access it.

4.5.2.1 Search option from video image & backup file



- ① Select whether recording files at RAMS, Multiviewer or backup files
- ② Enter targeted recording date for search
- ③ Enter targeted DVR name for search
- ④ Enter targeted channel
- ⑤ Enter keyword to classification to list
- ⑥ Start to search accordingly
- ⑦ Close search option window

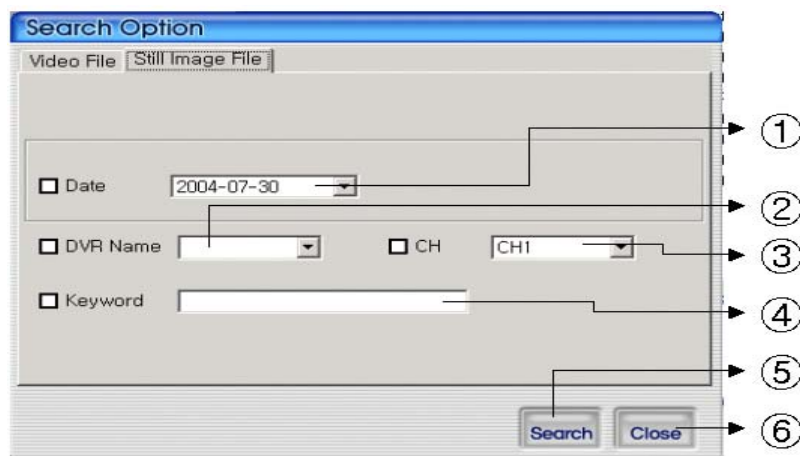


=> If there is nothing to special condition for searching, all files saved in recording folder will be displayed on search window after searched.



=> Search window after selected channel number 1 as search option.

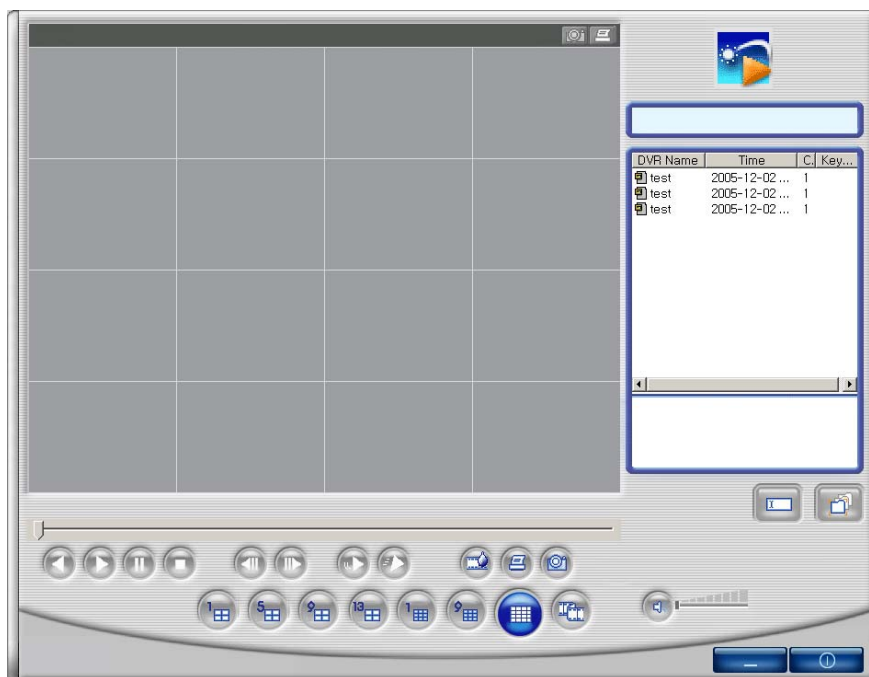
4.5.2.2 Search option for still image



- ① Enter targeted recording date for search
- ② Enter targeted DVR name for search
- ③ Enter targeted channel
- ④ Enter keyword to classification to list
- ⑤ Start to search accordingly
- ⑥ Close search option window



=> If there is nothing to special condition for searching, all still images saved in folder will be displayed on search window after searched.

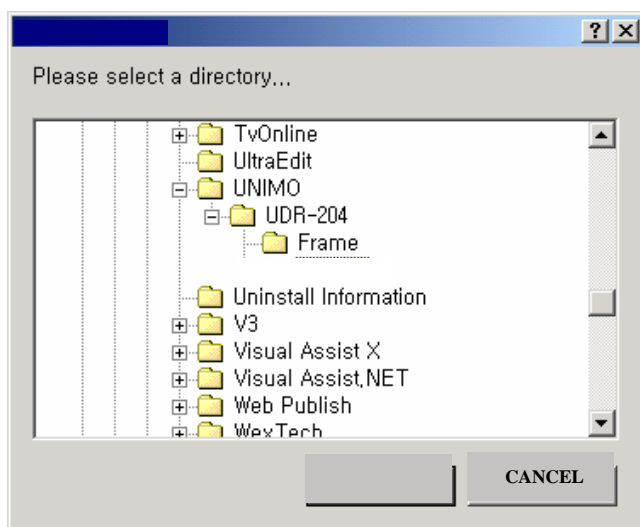


=> Search window after selected channel number 1 & selected date (Dec. 02, 2005) as search option.

4.5.2.3 Searching by directory



You can use it when you know the directory has AVI file or still image file. It will be set up default directory at first. After that users can choose their own directory than see all folder user want to save will be on the list.



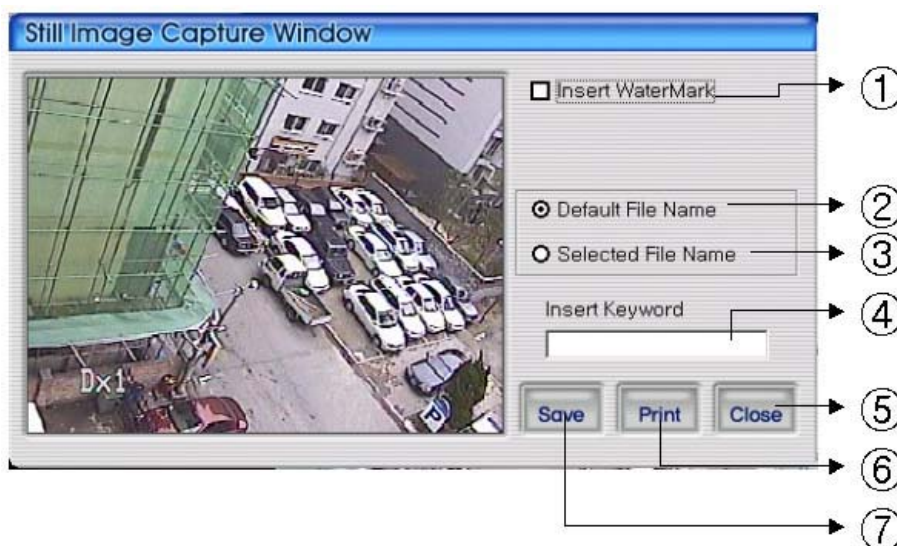


=> AVI file Playing screen by searching scene

4.5.2.4 Still Image Capture



Save replaying images into still image by capture. Besides users can capture image by push capture button for each channel or push capture button at the foot of a screen. Still image will be saved in a path of which is established in RAMS's setup section screen



- ① Select check box in order to insert watermark into still image capture
- ② Save still image as user defined default file name if chosen

-
- ③ Save still image as user selected new file name if chosen
 - ④ Insert keyword to user easy searching
 - ⑤ Close still image capture window
 - ⑥ Print still image capture file
 - ⑦ Save still image. The destination of recording is assigned at still image recording folder through setup menu among RAMS program

4.5.3 Input water mark

Click the Water Mark checkbox then push the save button to save still image with watermark.

4.5.4 Printing still image

To print still image, please push the  button in capture screen. Then use this



button in main page. But In the motion picture state, this button only is applicable to pause or temporarily pause mode.

4.5.5 Moving picture file playback, playing, pause, temporarily pause, move by interval of frame, fast forward Playing



Playing-back image file



Playing image file



Temporarily pause image file



Pause



When user use temporarily pause image file, move to backward



When user use temporarily pause image file, move to forward.



Play file slowly. Users can control by click this button.



Play file quickly. User can control by click this button.

4.5.6 Water mark drawing

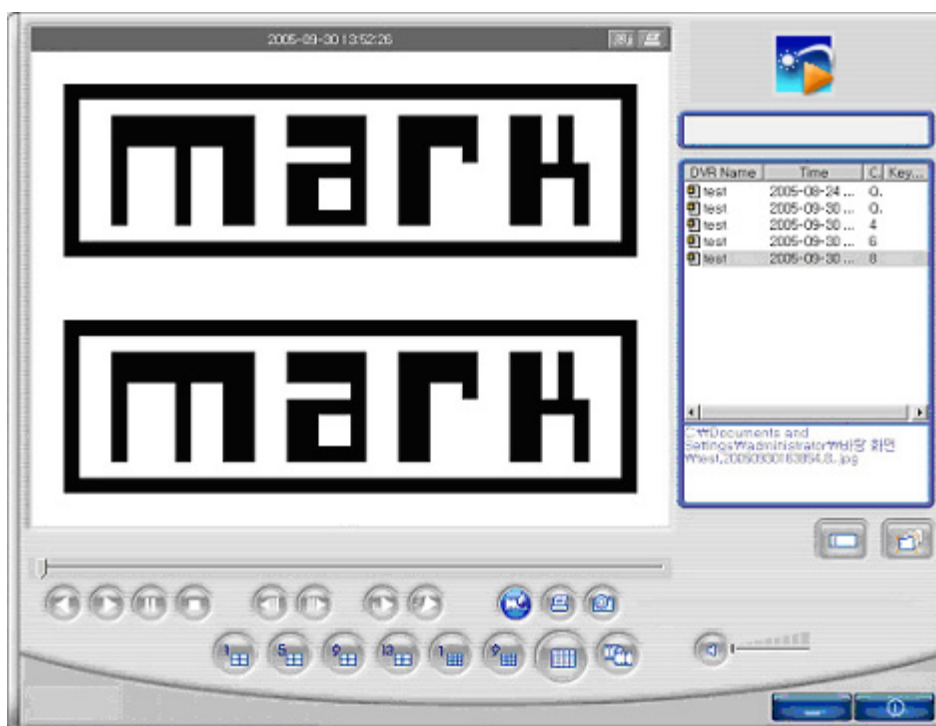


When still image is display, if push this button watermark will be drawn. If you find

other color except black, white, blue color, image file must get damaged. Push this button one more time, reverts to original image state.



=> Still image Display screen. Push this button , water mark will be drawn.






⇒ Watermark viewing screen. If you find other color except black, white, blue color, image file must get damaged.

4.5.7 Panorama



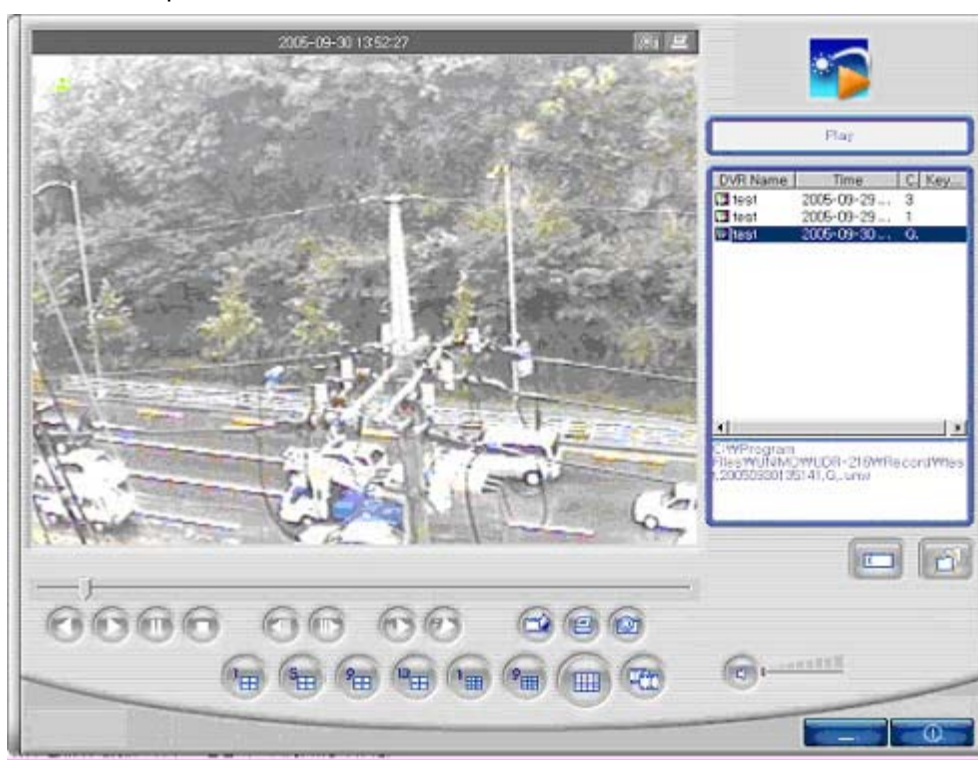
You can see the panorama screen when you push this button while file playing.

(Button will change into like this button. . And  &  button can help user to view screen while control screen back and forth. And click the one screen which is one of the 16 channel, you can see 640x480 image. If you want to come out of the panorama mode,

click  button. Then program will go back to former state.



=> Screen in panorama mode.

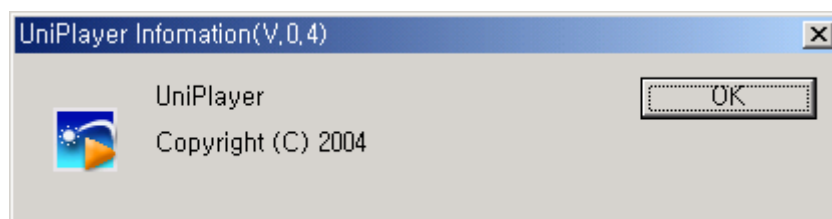


=> Image when click one screen in panorama mode.

4.5.8 Check the program version.



Click logo to confirm version.



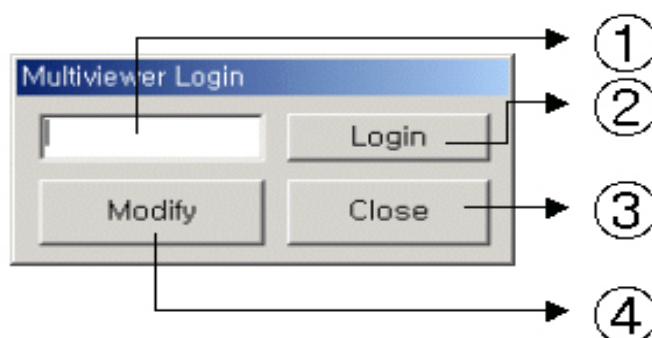
4.5.9 Close Program



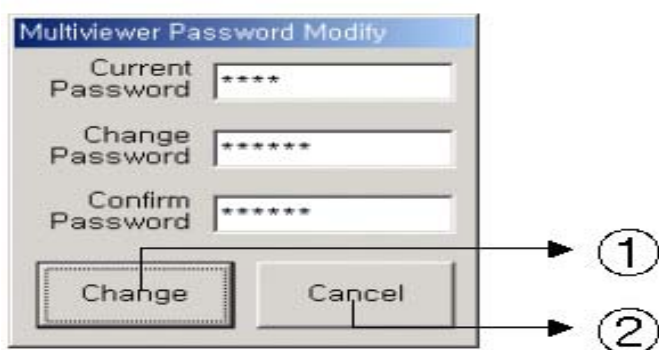
Close UniPlayer program

4.6 MultiViewer

4.6.1 Program login

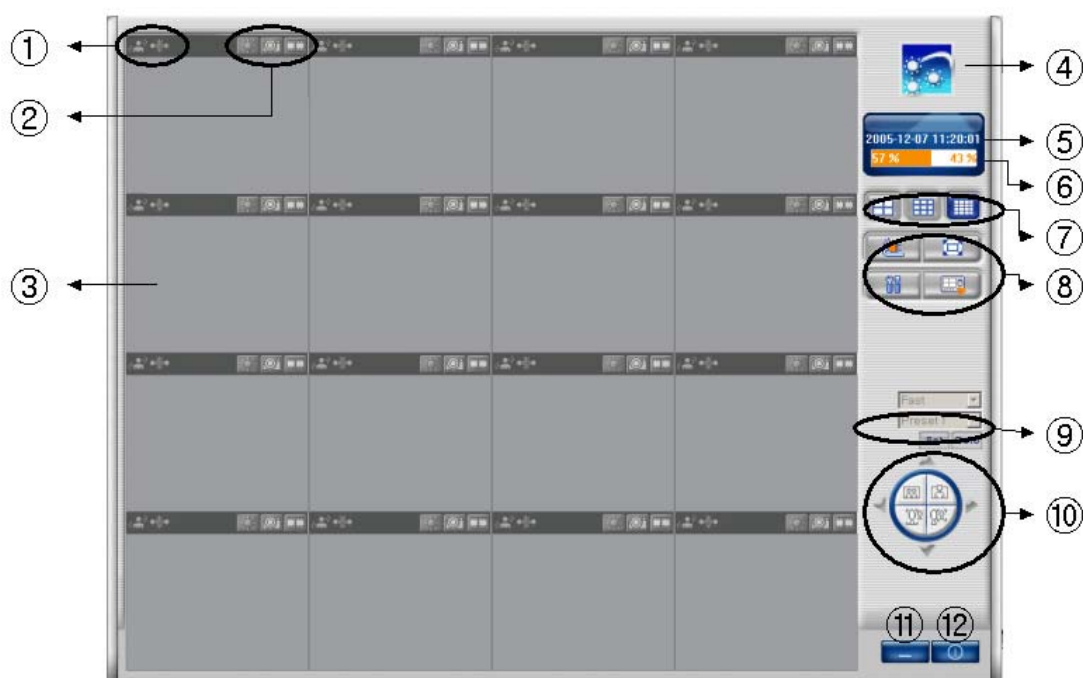





- ① Insert program password.
- ② If inserted password is right, multiviewer runs.
- ③ Close program
- ④ Modify program password.




- ① After inserting current password, change password, & confirm password accordingly, changes program pass.
- ② Closing window without changing. Return to login window

4.6.2 Screen and Button



① ICON for Event (Motion, Sensor): If an Event is activated,  => ,  =>

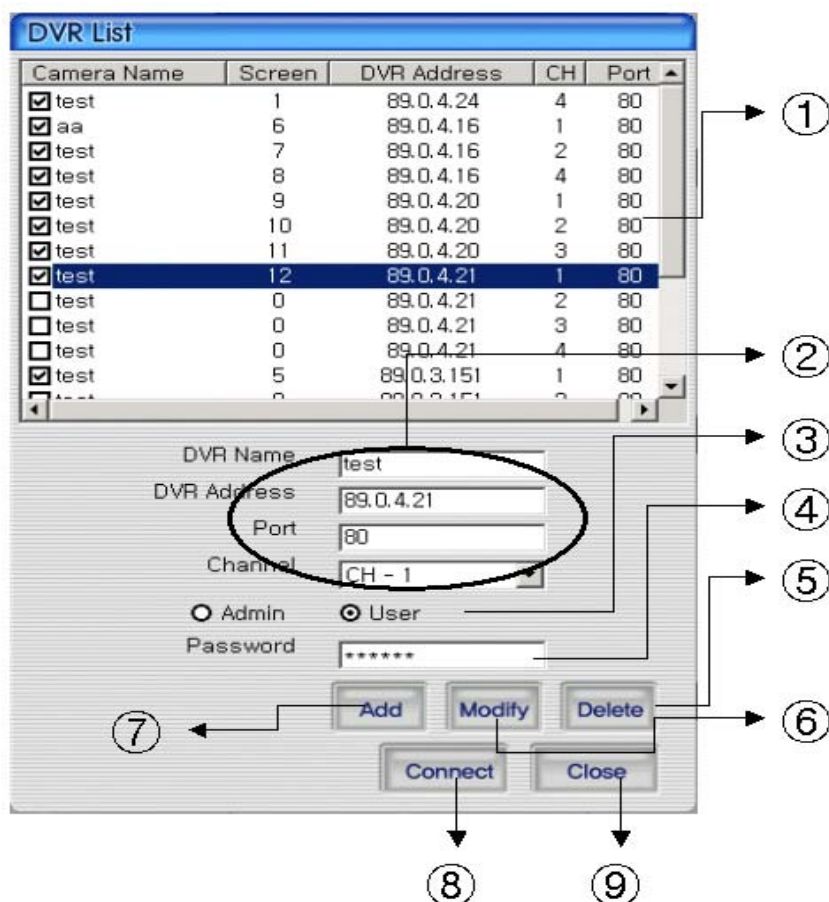
 the color of icons change.

- ② BUTTON for channel (Connect/Disconnect, Capture, Record)
- ③ Channel SCREEN
- ③ Click on logo to check the version of program
- ⑤ Actual Time shows.
- ⑥ Information of Hard Disk of PC shows
- ⑦ Button for dividing screen (4 screen, 9 screen, 16 screen)
- ⑧ Button for DVR list, Full Screen, Recording time, Setting-up, link to UNI-Player
- ⑨ Preset
- ⑩ Button for Pan/Tilt, Zoom/Focus
- ⑪ Button for minimizing
- ⑫ Button for closing program

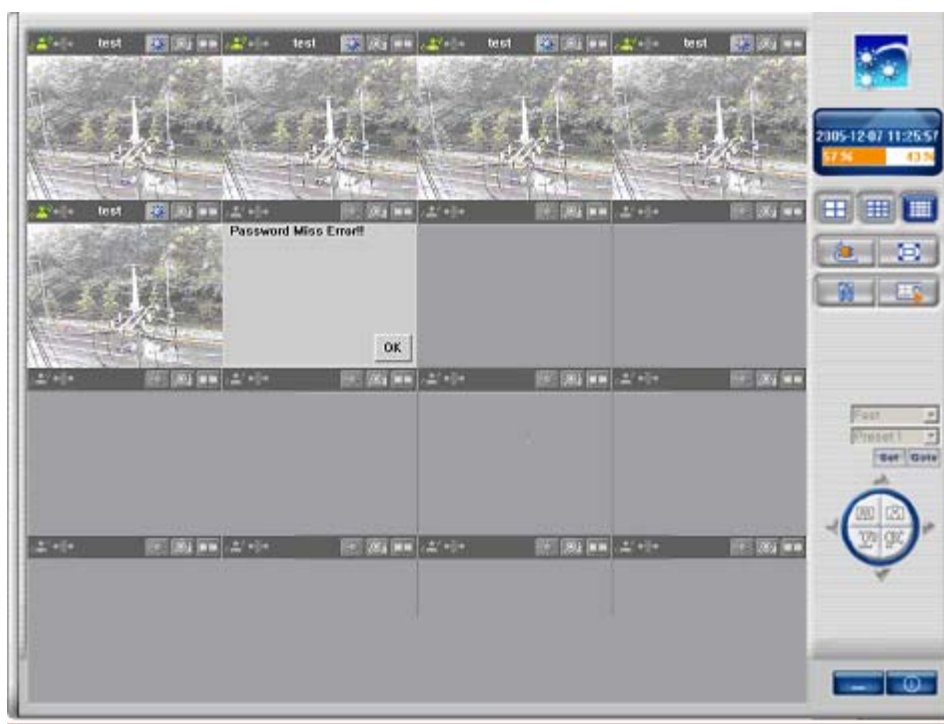
4.6.3 DVR LIST management & connection



If users click this button in the main screen, DVR List management & connection window appear.




- ① DVR List that user recorded, appears.
- ② Input DVR name, IP address, domain name, port
- ③ Input id name
- ④ Input id password
- ⑤ Delete the information selected in DVR List
- ⑥ Modify the information of DVR List
- ⑦ Add the information in DVR List
- ⑧ Connect to the selected DVR ID
- ⑨ Close the screen, after storing DVR List




=> Connected screen

=> If connection is impossible, it displays error defectives on screen.

4.6.4 Camera On/Off

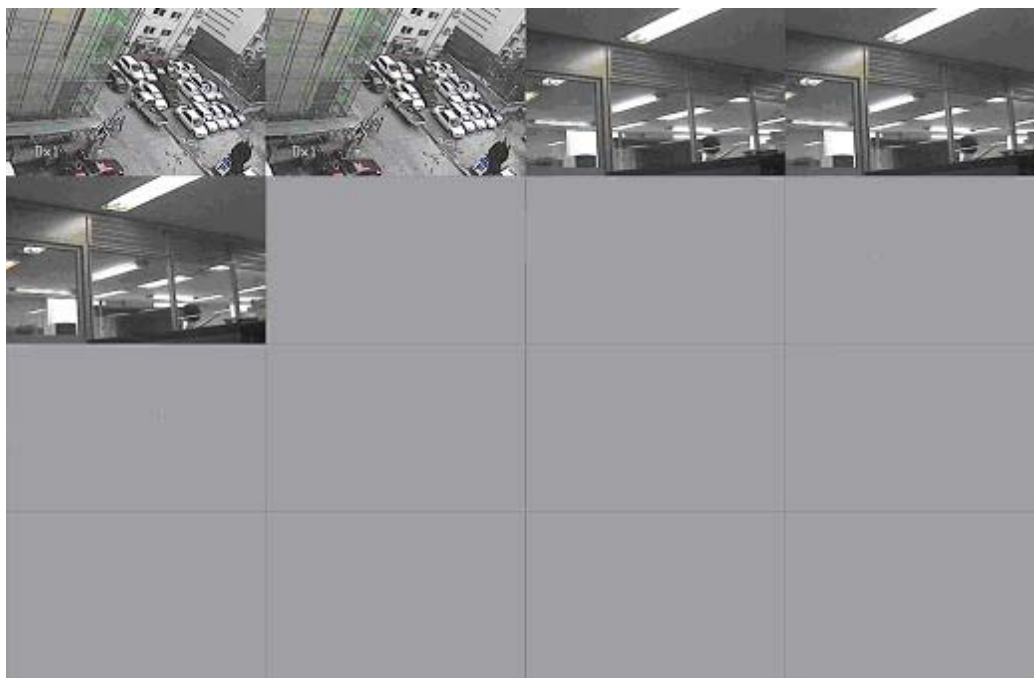
In order to connect to DVR in the main screen, please click  button, and select DVR,

and log in. After connection, please click one more time , and DVR is disconnected.

4.6.5 Full Screen



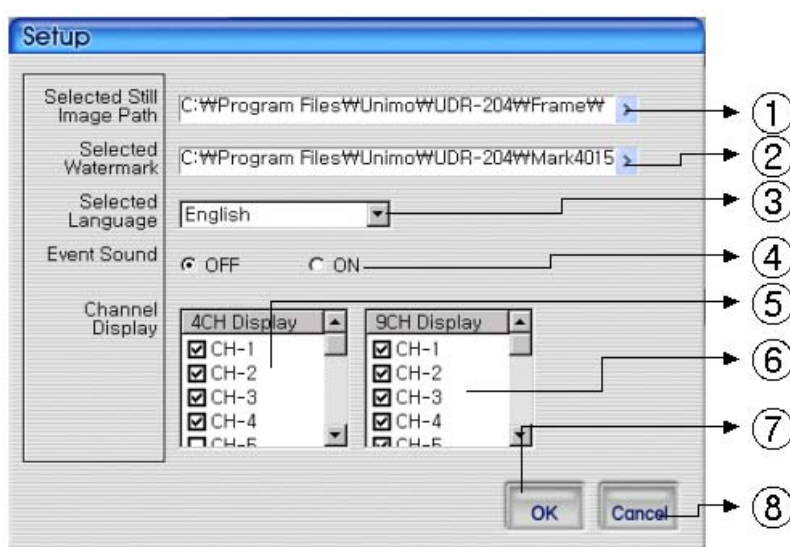
Click the Full Screen button to open a screen in full view. Press ESC to return.



4.6.6 Program Setup



Click to launch Setup.



-
- ① Indicates the file location of the captured still Image
 - ② Indicates the file location of the watermark image to be inserted in the still image
 - ③ Select language
 - ④ Set up whether alarm occurrence is on or off when motion detection or sensor icon activated.
 - ⑤ Check the image among 4channels
 - ⑥ Check the image among 9 channels
 - ⑦ Close the Screen after storing the setup
 - ⑧ Cancel the Screen without storing the setup

4.6.7 Link with UniPlayer



Click this button in the main screen to start Uniplayer.
Please refer to the UniPlayer section.

4.6.8 PAN/TILT, ZOOM/FOCUS



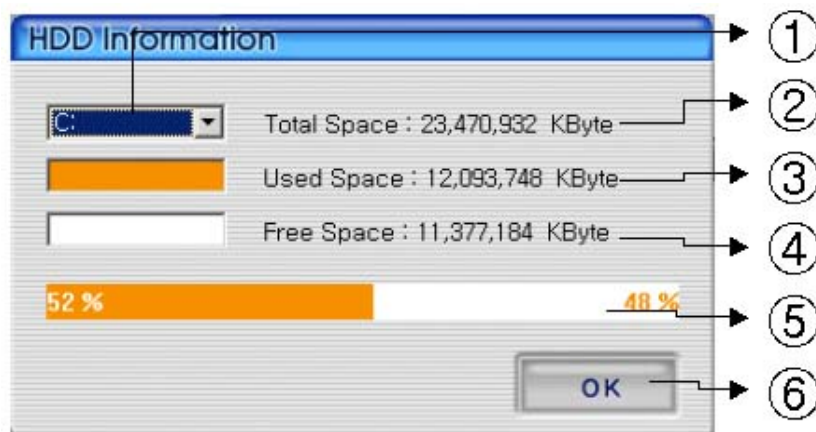
These buttons are for Preset, PAN/TILT, ZOOM/FOCUS of DVR.
After logging in by admin, please select one channel.

4.6.9 HDD Information



ORANGE: used parts of HDD,

WHITE: remaining part of HDD. This menu indicate the detailed HDD information

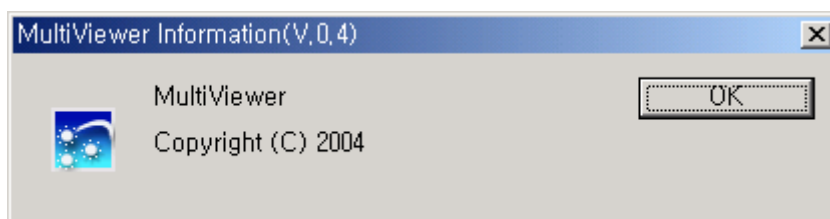


- ① Select HDD disk
- ② It shows total capacity of HDD
- ③ It shows the used capacity of HDD
- ④ It shows the free capacity of HDD
- ⑤ It shows both the used capacity of HDD and free space
- ⑥ Click to close the screen

4.6.10 Confirmation of Version of Program



Click the logo to check the program version.



4.6.11 Minimizing of program

Click to minimize Multiviewer progma

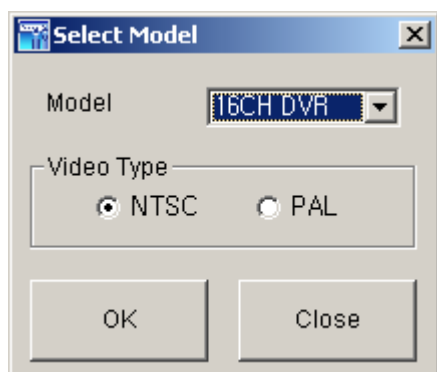
4.6.12 Closing of Program



Click to close the Multiviewer program

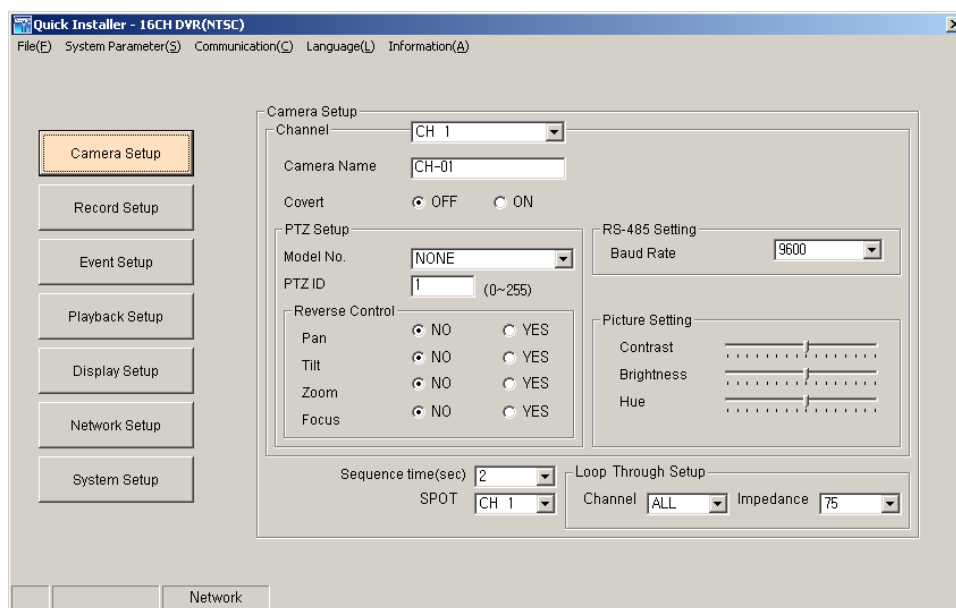
4.7 Quick Installer

4.7.1 Select model



Clicks to select DVR model name and video type in order to set system parameters.

4.7.2 System parameter setting



* Right parts on System parameter setting window is same form as Main menu used in DVR system. Users can change DVR system parameter by entering each menu.

* Main menu description

* File ->Open: Read to display saved parameter values from DVR system.

1. File ->Save: Click to save setting parameter values as file.

2. File->Close: Click to close program

3. System parameter-> Read parameters from DVR: Derive to display setting

parameter values

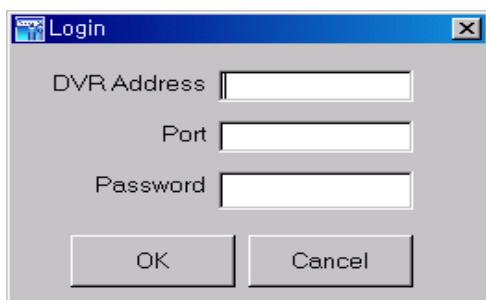
4. System parameter-> Write parameters to DVR: Transfer to save setting parameters of DVR.
5. System parameter->Default value setting: Initialize parameters values.
6. Communication->Network: Communicate data through network.
7. Communication->Serial: Communicate data through serial port (Setting preferable ComPort)
8. Language: Click to select preferable language
9. Information: Click to display program version information.

4.7.3 Communication over Network or serial port

Click to open system parameter -> Write to DVR

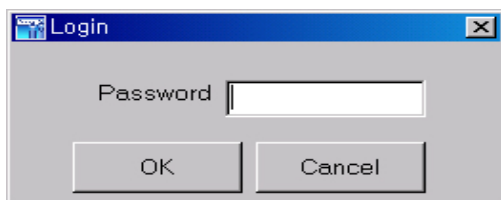
The below window will be activated on

- After Setting system parameters
- Derive system parameters from DVR



=> Network mode as communication media

Enter assigned network access password for Admin. After authenticated, users can communication between DVR using network.

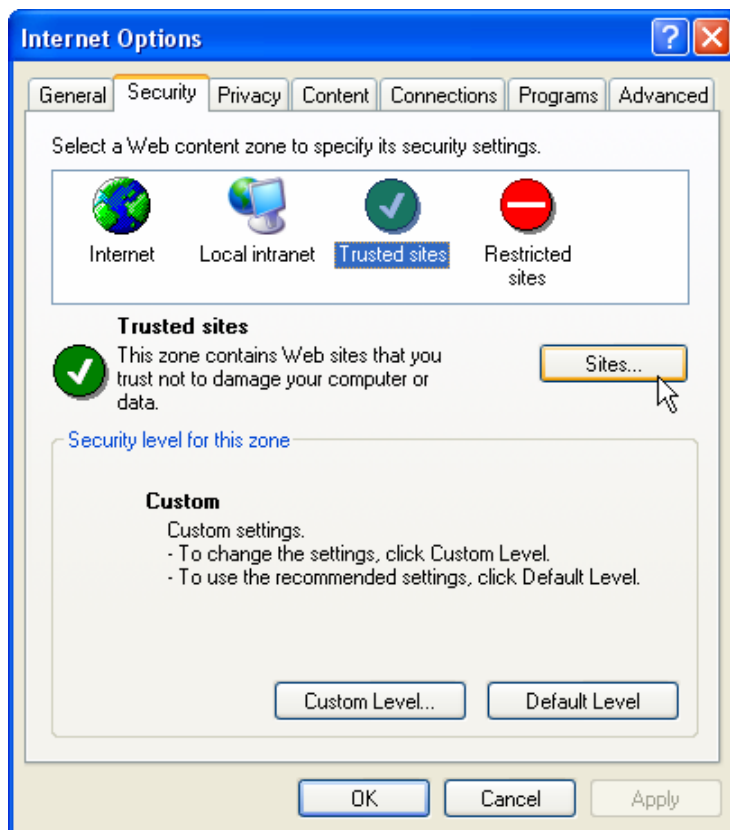


=>Serial mode as communication media

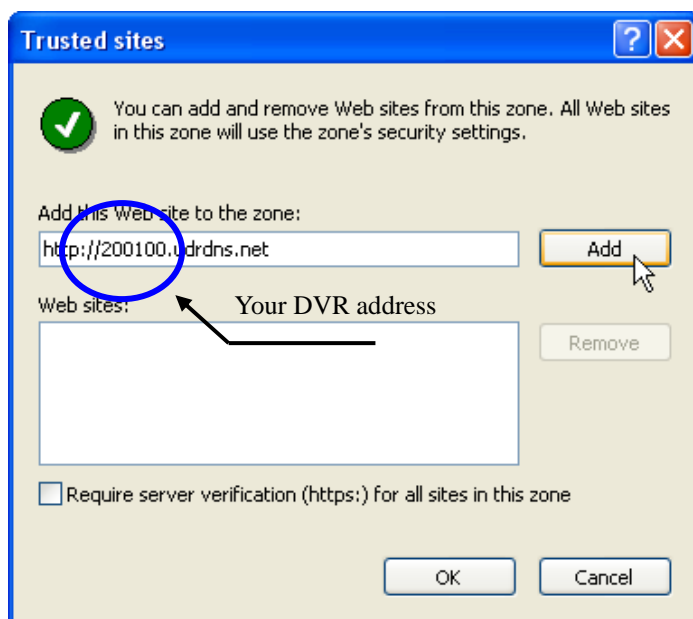
Enter assigned network access password for Admin. After authenticated, users can communication between DVR using serial port.

4.8 Connection by Internet Explorer

4.8.1 Security setup



In "Internet Option" Menu, Choose "Trusted sites" then click "Sites..." button,



Add your DVR Address.(it possible “IP” or “MAC”).

4.8.2 Download ActiveX control

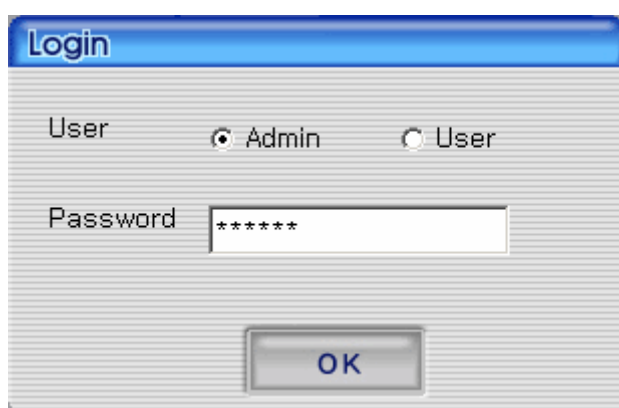
In order to download ActiveX control, press “confirmation” button, when the message Appears, and download in the PC.

(If “cancel” button is clicked, program may not be worked)

4.8.3 Connection with DVR

Fill the address of DVR up in the address window of Internet Explorer.

4.8.4 Login



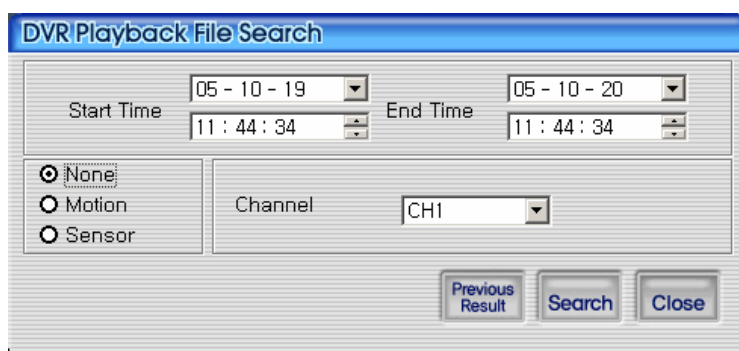
fill network password of DVR and press “OK” button, same as Rams program.

4.8.5 Connected screen



1. In the lower part of screen, there are buttons
 - button to select the screen division & button to search the moving picture..
2. In the right part of screen, there is a button to control PTZ.
 - PTZ control is available when one screen is selected,
 - In order to select one screen, double click the required channel.

4.8.6 Search



Same function as search of DVR playback search

Please refer to the article 4.4.7

4.8.7 Playback



This is the screen when it's playback.. Playback control button in the right parts has same function as DVR playback in RAMS. Please refer to the article 4.4.8 (DVR manual)

5. Appendix

5.1 Installing HDD

5.1.1 Installing single hard disk drive

2 HDD can be installed for DVR.

In case that 1 HDD is installed, HDD should be set to “MASTER” or “SINGLE” mode.

In case that 2 HDD are installed, one HDD should be set to “MASTER” and the other to “SLAVE” mode.



- Prepare one or two HDD and Bracket.



- Jumper setting can be different by manufacturer of HDD.
- Please refer to the setting method which shows in the upper label of HDD.
- Example in the above: if Jumper is placed on the 2nd lot (from left), HDD is set to “MASTER” Mode, and if Jumper is removed, HDD is set to “SLAVE”.
- Right picture shows that HDD is set to CS (Cable Select).



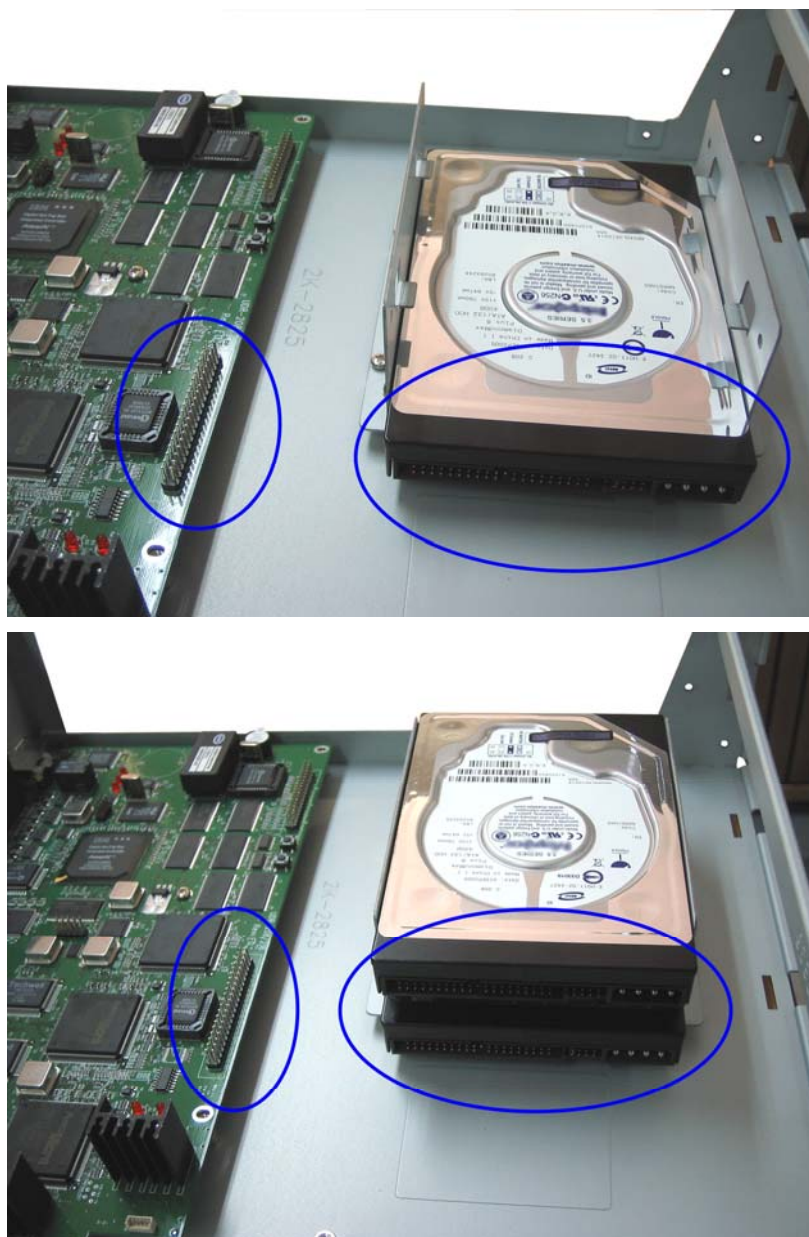
- EX :In cases of assembling 1 HDD
 - Assemble as the above picture (Brackets are used for any direction)
 - In case of 1 HDD, in general HDD is used to MASTER/SINGLE mode (Screw M3.5 x 5L is used, which included)



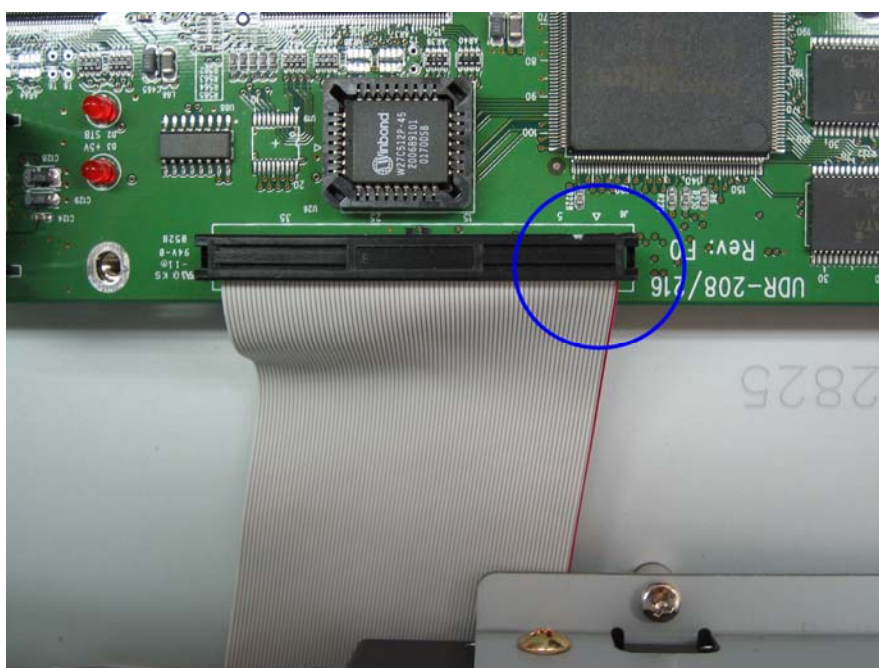
- Ex : In case of assembling 2 HDD
 - Please make sure that one HDD is set to MASTER/SINGLE, the other is set to SLAVE mode.



- The above picture shows that 2 HDD are connected (The upper HDD is set to MASTER, lower HDD is set to SLAVE mode).



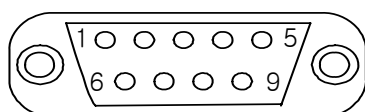
- The above pictures show that the assembled HDD is connected to DVR.
- Upper picture is for 1 HDD, lower picture is for 2 HDD.
- The circled part is HDD connector. Please make sure that direction is correct.



- The picture shows the connection of 80 pin HDD Cable.
- In the circle, small triangle indicate the position of pin # 1.
(The triangle should be located on the red line of 80 pin HDD cable)

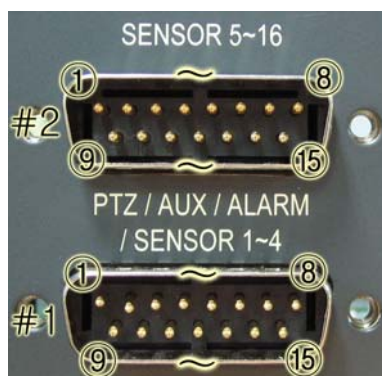
5.2 Terminal Information

5.2.1 DSUB-9P (RS-232)



No	Name	Description
2	RXD	Receive Data
3	TXD	Transmit Data
5	GND	Signal Ground

5.2.2 DSUB-15P (PTZ / AUX / ALARM / SENSOR)



	No	Name	Description	No	Name	Description
#1	1	RS-485+	RS-485 Transmit Data +	9	Alarm Out	Alarm Out (NO)
	2	RS-485-	RS-485 Transmit Data -	10	Alarm Out	Alarm Out (COM)
	3	AUX1	Auxiliary In Port (RSI, ARI, RONOFFI)*	11	Alarm Out	Alarm Out (NC)
	4	AUX2		12	Sensor1	NO/NC
	5	AUX3	Auxiliary Out Port (ARO, RSTO, ERRO, DFO, RSO)*	13	Sensor2	
	6	AUX4		14	Sensor3	
	7	AUX5		15	Sensor4	
		8	GND	Signal Ground		
	No	Name	Description	No	Name	Description
#2	1	Sensor5	NO/NC	9	Sensor13	NO/NC
	2	Sensor6		10	Sensor14	
	3	Sensor7		11	Sensor15	
	4	Sensor8		12	Sensor16	
	5	Sensor9		13	GND	Signal Ground
	6	Sensor10		14	GND	Signal Ground
	7	Sensor11		15	GND	Signal Ground
	8	Sensor12				

* Abbreviation

RSI	Record Start In	RSTO	Record Start Out
RI	Alarm Reset In	ERRO	Error Out
RONOFFI	Record On Off In	DFO	Disk Full Out
ARO	Alarm Record Out	RSO	Record Status Out

5.3 Factory Default Value

5.3.1 Main Menu

Main Menu	Menu			Default Vale	Remarks		
	Sub Menu1	Sub Menu 2	Sub Menu 3				
Camera Setup	Channel	Channel No		CH-1~CH-16			
	Camera Name			CH-1~CH-16			
	Covert			OFF			
	Picture Setting	Contrast			9 Level	Max. 16 Levels	
		Brightness			9 Level		
		Hue			9 Level		
	PTZ setup	Model No			NONE	URX-500, PELCO-D, SENSORMATIC, VICON_E, VICON_S, SUNGJIN MRX-1000 SRX-100B, SPECO CVC-927PTZ	
		PTZ ID			Channel No		
		Reverse Control	Pan			NO	
			Tilt			NO	
			Zoom			NO	
			Focus			NO	
		RS-485 Setting	Baud Rate		9600	2400, 2800, 9600, 38400, 57600, 115200	
	SPOT			CH 1			
	Sequence time			2 sec			
Loop Through Stej	Channel			ALL	1~16		
	Impedance			75			
Record Setup	Resolution			320x240(NTSC)	320x240, 640x240		
				320x288(PAL)	320x288, 640x288		
	Audio sync			NONE			
	Channel	Channel No			CH 1		
		Quality			FINE	4 Levels	
Frame rate (FPS)				7			
	Record mode			MANUAL			
Event Setup	Motion Detection Setting	Channel		CH-1			
		Sensitivity		5 Level	8 Levels		
		Detection Zone		ALL			
	Sensor Setting	Sensor No			Sensor 1		
			Sensor Type		N.O.	N.O. / N.C.	

			Channel Link	NONE	CH1-CH16	
Alarm In/Output	Sensor			Sensor 1		
			Alarm Output	OFF		
	Motion			CH 1		
			Alarm Output	OFF		
Relay time			0 sec			
Post-Alarm Record			10 sec	10, 20, 20, 40, 50, 60 sec		
FTP Setting	FTP Server Address			0.0.0.0		
	ID			anonymous		
	Password			Blank		
	Target Path			/		
	FTP Length of Image			5 sec	5, 6, 7, 8, 9, 10 sec	
FTP Trigger Setting	Channel			CH 1		
		Sensor		OFF		
		Motion		OFF		
E-Mail Address Setting	Receiver Address	1~4		Blank		
	Sender Address	1		Blank		
E-Mail Setting	Send (period)			NO		
	Prohibition Setting			NO		
		Start hour		01		
		End hour		01		
	SMTP Server Address			0.0.0.0		
	Authentication	YES / NO		NO		
	Password		Blank			
Event Log				CH 1		
Playback Setup	Channel			CH 1		
	Starting point			LAST		
	Audio			ON		
Display Setup	Camera name			ON		
	Date / Time			ON		
	HDD Status			ON		
	Borders			ON		
	Alpha Blending			4 Level	8 Levels	
Network Setup	DDNS Setup	DDNS Server Address 1		211.139.14.109		
		Port		7100		
		DDNS Server Address 2		211.104.85.235		
		Port		7100		
	Remote Connection Loing Password	Admin			111111	
		User			111111	
	Network Type Setup	STATIC	DDNS Link		OFF	
			Port		80	
			IP Address		192.168.1.200	
			Subnet Mask		255.255.255.0	
Gateway				192.168.1.1		
DNS IP			0.0.0.0			

		DHCP	Port	80			
		PPPoE	Port	80			
			ID	dvr	Registered ID		
			Password	111111	Registered PW		
			DNS IP	0.0.0.0			
System Setup	DVR name			16CH DVR			
	System password	Password setting		*****	111111		
		Password Apply	Record Stop		OFF		
			Menu enter		OFF		
			System off		ON		
		Auto Key Lock		OFF			
	Time / Date	Time Setup (h/m/s)			Current Time		
		Date Setup			Current Date		
		Format	Time format		24		
			Date Format		YYYY/MM/DD		
		Day light saving time	ON / OFF		OFF		
			Start date (m/d)		01/01		
			End date (m/d)		01/01		
	Apply Hour			00			
	Buzzer	Sensor			OFF		
		Motion			OFF		
		Video Loss			OFF		
	Language				ENGLISH		
	HDD setup	Mounted HDD			1 or 2	No of HDD shows	
		Write Mode			Overwrite	Overwrite/Once	
		Force Deletion			OFF	1~100	
		HDD 1	Capacity			Used Cap. / Total Cap.	
			Format				
		HDD 2	Capacity			Used Cap. / Total Cap.	
	Format						
	AUX Port	Active		HIGH / LOW	HIGH		
		Function		IN	UNUSED		
				Out	UNUSED		
	Factory default						
	S/W Upgrade	Ramdisk					
		Kernel					
	Backup	Device		USB / CD-RW	USB		
Start time				Date : Date of Yesterday Time : Current Time			
End time				Date : Date of Today Time : Current Time			
Channel				CH1			
Event				NONE			
Format					CD-RW only		
System Log							
System info	Video type			Current Type	NTSC, PAL		
	H/W version			1.4.15	Can be changed to Improve the function		
	S/W version			1.0			
	Kernel version			2.4.17_98			
Mac Address			00:09:F8:XX:XX:XX				

	Audio			Support	Depends on software version
	Language			English French German Japanese Korean Spanish	Depends on software version

1.5.1. Search Menu

Main menu	Sub menu1	Menu		Default Value	Remarks
		Sub menu2	Sub menu3		
Search	Search by Time	Start Time		Date : Date of Yesterday Time : Current Time	
		End Time		Date : Date of Today Time : Current Time	
		Channel		CH1	
		Event		NONE	
	Still Image Search				
	Backup HDD Search	Start Time		Date : Date of Yesterday Time : Current Time	
		End Time		Date : Date of Today Time : Current Time	
		Channel		CH1	
Event			NONE		

5.4 Protocol

5.4.1 Code table

No	Protocol	Description	Remarks
1	kmute	Audio Mute	
2	krec	Record	
3	khdd	HDD Information	
4	knet	Network user information	
5	klog	Log Display	
6	kinfo	System Information	
7	knum1	Number 1	
8	knum2	Number 2	
9	knum3	Number 3	
10	knum4	Number 4	
11	knum5	Number 5	
12	knum6	Number 6	
13	knum7	Number 7	
14	knum8	Number 8	
15	knum9	Number 9	
16	knum0	Number 0	
17	kseq	Sequence	
18	kmulti	Multi	
19	klock	Lock	
20	kdvr	DVR	
21	ksearch	Search	
22	kmenu	Menu	
23	kup	Up	
24	kdown	Down	
25	kleft	Left	
26	kright	Right	
27	kok	Ok	
28	krplay	R.Play	
29	kstop	Stop	
30	kplay	Play	
31	kpause	Pause	
32	kptz	PTZ	
33	kfrz	Freeze	
34	kzoom	Zoom	
35	kosd	OSD	
36	k4ch	4ch Devision	
37	k6ch	6h Devision	
38	k8ch	8h Devision	
39	k16ch	16 Devision	
40	kshold	Shuttle Hold	
41	ksr8	Shuttle Right 8Step	
42	ksr7	Shuttle Right 7Step	
43	ksr6	Shuttle Right 6Step	
44	ksr5	Shuttle Right 5Step	
45	ksr4	Shuttle Right 4Step	
46	ksr3	Shuttle Right 3Step	
47	ksr2	Shuttle Right 2Step	
48	ksr1	Shuttle Right 1Step	
49	ks0	Shuttle Right 0Step	

50	ks1	Shuttle left 1Step	
51	ks2	Shuttle left 2Step	
52	ks3	Shuttle left 3Step	
53	ks4	Shuttle left 4Step	
54	ks5	Shuttle left 5Step	
55	ks6	Shuttle left 6Step	
56	ks7	Shuttle left 7Step	
57	kjleft	Jog left	
58	kjright	Jog right	
59	kpower	Power	

5.4.2 Usage

- System protocol to control DVR from remote client software installed in PC or remote controller.
- It maps button function of remote controller with front key in the front panel of DVR. If user add English letters assigned protocol paragraph and \n(new line and transmit ASCII Code form, DVR will be activated same as for user to push one of pad or remote controller.

5.5 HDD recording time table

(Based on recording mode, Resolution, picture Quality, FPS)

TV System	Resolution	Quality	Frame Rate (fps/CH)	HDD Possible Record Time(Hour)				
				80GB	120GB	160GB	200GB	300GB
NTSC	320*240	Super Fine	8	21.20	31.80	42.40	53.00	79.50
			4	34.83	52.24	69.66	87.07	130.61
			1	98.31	147.47	196.63	245.79	368.69
		Fine	8	36.69	55.04	73.39	91.73	137.60
			4	58.25	87.38	116.50	145.63	218.45
			1	180.63	270.94	361.26	451.58	677.37
		Enhanced	8	55.61	83.41	111.22	139.03	208.54
			4	88.59	132.89	177.19	221.49	332.24
			1	242.72	364.08	485.45	606.81	910.22
		Normal	8	73.73	110.60	147.47	184.34	276.52
			4	112.56	168.85	225.13	281.42	422.13
			1	332.88	499.32	665.76	832.20	1248.30
	640*240	Super Fine	4	20.86	31.29	41.72	52.15	78.22
			2	29.38	44.07	58.76	73.46	110.19
			1	55.74	83.61	111.49	139.36	209.04
		Fine	4	34.77	52.16	69.55	86.94	130.41
			2	50.65	75.98	101.31	126.63	189.95
			1	97.49	146.24	194.99	243.74	365.61
		Enhanced	4	51.10	76.65	102.20	127.75	191.62
			2	70.04	106.56	142.08	177.60	266.40
			1	133.15	199.72	266.30	332.88	499.32
		Normal	4	66.19	99.29	132.39	165.49	248.24
			2	91.02	136.53	182.04	227.55	341.33
			1	179.24	268.86	358.48	448.10	672.16

TV System	Resolution	Quality	Frame Rate (fps/CH)	HDD Possible Record Time(HOUR)				
				80GB	120GB	160GB	200GB	300GB
PAL	320*288	Super Fine	7	18.95	28.43	37.91	47.39	71.09
			4	27.06	40.59	54.12	67.65	101.48
			1	80.90	121.36	161.81	202.27	303.40
		Fine	7	31.96	47.94	63.92	79.90	119.86
			4	44.38	66.57	88.76	110.96	166.44
			1	145.63	218.45	291.27	364.08	546.13
		Enhanced	7	48.54	72.81	97.09	121.36	182.04
			4	66.95	100.43	133.91	167.39	251.09
			1	190.99	286.49	381.99	477.49	716.24
		Normal	7	65.82	98.73	131.64	164.55	246.83
			4	87.60	131.40	175.20	219.00	328.50
			1	242.72	364.08	485.45	606.81	910.22
	640*288	Super Fine	4	18.82	28.23	37.64	47.05	70.58
			2	22.57	33.86	45.15	56.44	84.67
			1	44.38	66.57	88.76	110.96	166.44
		Fine	4	30.45	45.68	60.91	76.14	114.22
			2	39.03	58.54	78.06	97.57	146.36
			1	76.90	115.35	153.80	192.25	288.38
		Enhanced	4	45.24	67.86	90.49	113.11	169.67
			2	54.06	81.09	108.12	135.16	202.74
			1	109.39	164.09	218.79	273.49	410.24
		Normal	4	59.44	89.16	118.88	148.60	222.91
			2	69.55	104.33	139.11	173.89	260.83
			1	133.15	199.72	266.30	332.88	499.32