



# USER MANUAL



INSTALLATION

CONFIGURATION

SURVEILLANCE

SEARCH

BACK UP

PAN/TILT

CLIENT

BACK UP VIEW

WATER MARK

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- Windows 98, Windows ME, Windows 2000 and Windows XP are Microsoft registered brands.

## REVISION HISTORY

Manual	Date	Comments
CM610-E	6/10	Program version 1.0
CM610-EA	7/15	Added the termination switch
CM610-EB	8/1	Program version 1.1 Update, Added UL, CE mark Modify the Converter
CM610-EC	8/26	Read proofs with religious care

This operation manual was written for the 16 channel model. The content in parts of the manual may be different from each other models.

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# 1. WARNING & CAUTION

## INSTALLATION INSTRUCTION

- 1) This device designed to operate under Max. 40°C. When you install this device in the rack, please consider the Max. ambient temperature. Please install this device proper ambient temperature of all part.
- 2) CAUTION : When you install this device in the rack, the operating ambient temperature may be greater than room ambient. Please consider this condition and simulate the Max. temperature and install in an environment compatible temperature.
- 3) Reduced Air Flow : Installation of this device in a rack should be such that the amount of air flow required for safe operation of this device is not compromised. Please provide enough space to get the proper air flow.
- 4) Mechanical Loading – Mounting of this device in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.
- 5) Circuit Overloading : Please read the rating in the nameplate and consider appropriate power supply and supply wiring.
- 6) When you are using like a power strips except direct connections to the branch circuit, please make sure to connect reliable earthing maintained.

**NOTE:** 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 his own expense.

Connecting Power source to System Using 110V power source. Make sure power select switch set to 115V(110V use)

Using 220V power source Make sure power select switch set to 230V(220V use)

**NOTICE:** For U.S.A and Canada regions; use only UL listed CSA labeled detachable power cord, 3-conductor, 18 AWG, SVT or SJT type, plug rounding type parallel blade, cord connector body-IEC 320 style to mate with appliance inlet on product.

To reduce the risk of fire, use only No.26 AWG or larger telecommunications line cord.

**IMPORTANT** The only way to disconnect power completely is to unplug the power cord. Make sure at least one end of the power cord is within easy reach so that you can unplug the computer when you need to.

**CAUTION:** DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED. REPLACE ONLY WITH THE SAME OR EQUIVALENT TYPE RECOMMENDED BY THE MANUFACTURER. DISCARD USED BATTERIES ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.

### WARNING

This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

## 1. WARNING & CAUTION

---

### WARNING & CAUTION

- 1) Avoid direct sunlight, heating equipment and electric equipment. (Danger of fire)
- 2) Do not place vases, cups, cosmetics, drugs, water or any filled objects on the product. (May cause fire, electric shock and other injuries)
- 3) Do not place or drop metallic objects (coins, hair pin, metal) or easily flammable products (matches, paper) in the ventilation of the product.  
(May cause fire or electric shock)
- 4) Do not place heavy objects on product. (May cause injury)
- 5) Make sure to properly insert the power plug.  
(May cause fire if the connection is unstable)
- 6) When cleaning the product, do not use water, but use a dry cloth to gently wipe the product. Please do not use chemicals or detergent as they cause the outer coating to damage.
- 7) When in notice of smoke or weird smell, please stop usage and pull out the power plug and contact the service center.  
(Continued usage may cause fire or electric shock)
- 8) Do not pull the power plug with wet hands. (Danger of electric shock)
- 9) Do not pull on the power cord. (May cause fire or electric shock if cord is damaged)
- 10) Do not install product in areas of high humidity, dust or is soot-covered.  
(May cause fire, electric shock or defects.)
- 11) Do not drop the product or cause sudden impacts.
- 12) Avoid areas of magnetic fields and severe vibration.  
(May cause defect in product.)
- 13) Avoid installation in cold areas.
- 14) Do not disassemble or reconstruct product.  
(May cause fire, electric shock or defects)
- 15) In case of DVR is return to operate after outage, please check the DVR operate normally.
- 16) We recommend to check and change CPU Cooling fan and Filter once a year. Contact to manufacture and distributor for change.
- 17) Back up the important data.  
To prevent loss of data. Any loss of data will not be covered under the warranty.



This symbol indicates that dangerous voltage constituting a risk of electric shock is present within this unit.



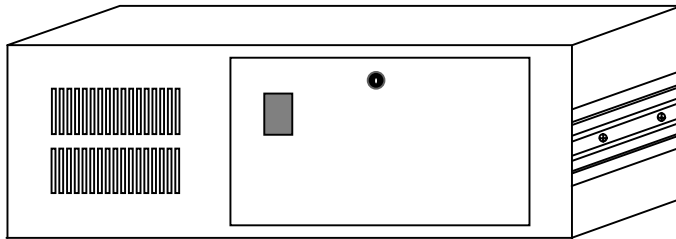
This symbol indicates that there are important operating and maintenance instruction in literature accompanying this unit.

<b>CAUTION</b>
RISK OF ELECTRIC SHOCK. DO NOT OPEN.

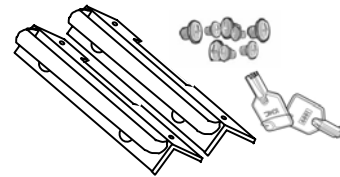
## 2. SYSTEM INSTALLATION

### 2.1 Product Content

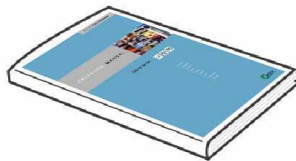
The front or rear layout of the product or its content may be different from each other models.



DVR System



Rack Mount , Screw & Key



Manual



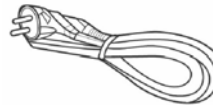
Keyboard



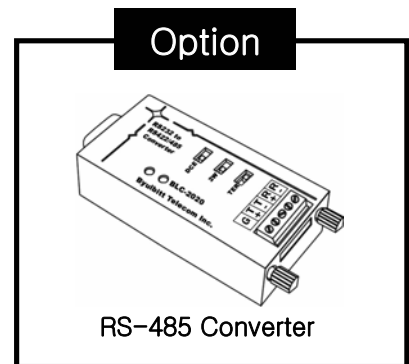
Program CD



Mouse

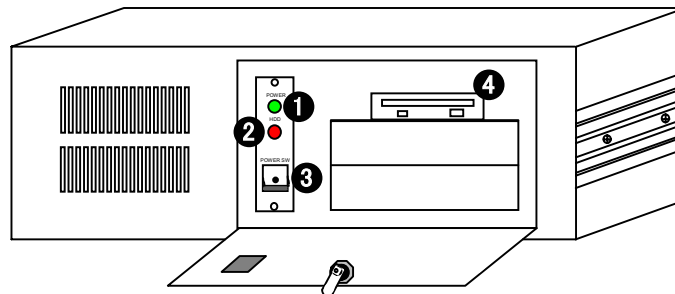


Power Cable



RS-485 Converter

### 2.2 System Front Layout



**1** Power LED

The LED will turn on green when switching on the power switch.

**2** Hard Disk LED

Will blink red whenever video and audio is saved in HDD.

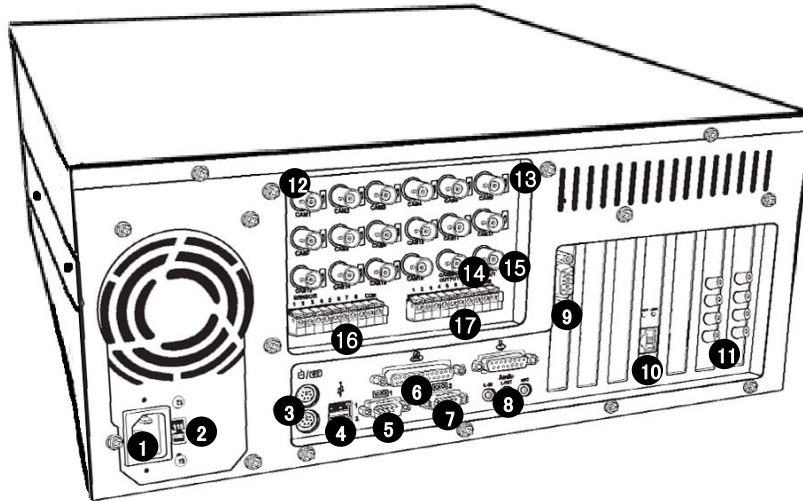
**3** Power Switch

Switch ON/OFF the DVR.

**4** 3.5 inch Floppy Disk Drive

Used to install and back up using 3.5 inch floppy disks.

### 2.3 System Rear Layout



- 1 AC Power Input**  
Terminal providing power to DVR.
- 2 Power Voltage Selection Switch**  
Voltage select switch 115V and 230V.
- 3 Mouse/Keyboard Input**  
Connects Mouse and Keyboard.
- 4 USB (Universal Serial Bus) Port**  
Terminal used to connect USB devices or Hub.
- 5 COM1 Serial Port**  
PTZ, modem, other device connection.
- 6 LPT1 Printer Port**  
Connect the printer.
- 7 COM2 Serial Port**  
PTZ, modem, other device connection.
- 8 Speaker & Microphone Connection**  
Connects exterior speaker & MIC.
- 9 Video Output Port**  
Connect the PC Monitor.
- 10 LAN Connection Terminal**  
Ethernet Adapter Connection.
- 11 Audio (Microphone) Input Port**  
Connect the microphone.
- 12 Camera Inputs (VIDEO IN)**  
Connect CCD cameras.
- 13 Termination Switch**  
It help to keep video signal, 75Ω standard impedance.
- 14 TV Out1 (VIDEO OUT1)**  
Connect the analogue monitor (CCTV Monitor). [Rotation screen]
- 15 TV Out2 (VIDEO OUT2)**  
Connect the analogue monitor (CCTV Monitor). [Division screen]
- 16 Sensor Inputs**  
Connect the 8 sensors.
- 17 Digital Out**  
Connect the 8 Digital out.



The system model may be different from each other models.

### Termination Switch

It helps to keep video signal, 75Ω standard impedance. “ON” – 75Ω, “OFF” – Over 10kΩ.(High Impedance)

### Termination Switch Use

Make switch to “OFF” mode when one camera line is divided to 2 channel and the quality become low.

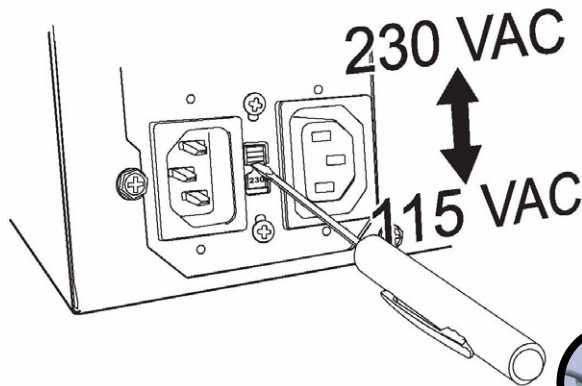
Factory default is set to “ON” mode, 75Ω


## 2.4 System Connection



### Power Connection

Connect power cable to power input terminal and electric socket.



**WARNING**  
Verify that the voltage is set correctly for user location.



### Mouse Connection

Connect to the mouse terminal in the system’s rear.



### PC Monitor Connection (Item not included)

Connect to the VGA output terminal.



### Keyboard Connection

Connect to the keyboard terminal in the system’s rear.



### TV Connection (Item not included)

Connect to video output terminal.



### Camera connection (Item not included)

Connect to Camera Input Terminal.



### LAN Connection (Item not included)

In order for network access, must connect to Hub or Router.

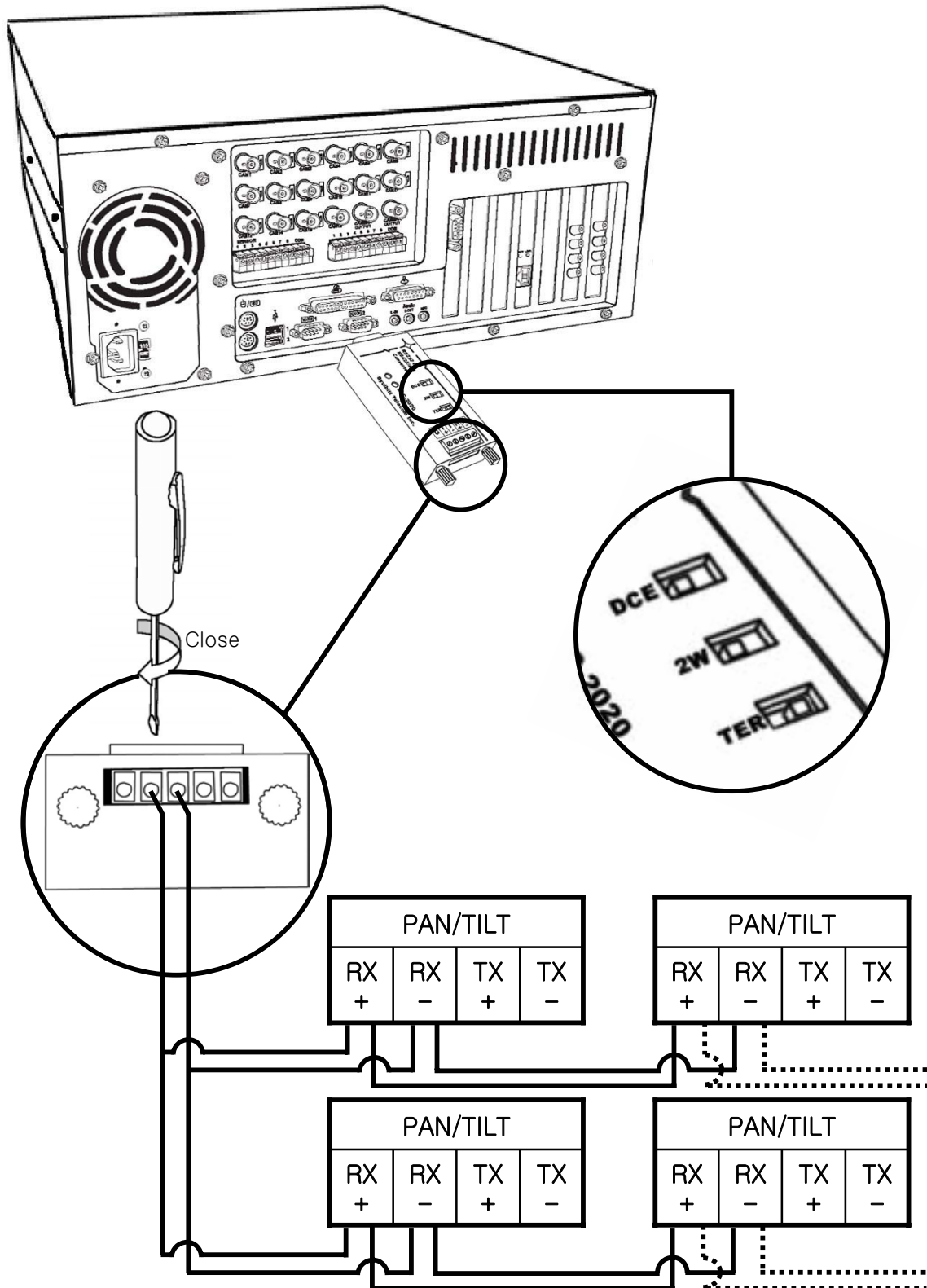


### Printer Installation (Item not included)

Connect to printer.

2. SYSTEM INSTALLATION

2.5 PAN/TILT, DOME Camera Connection



## 2.6 Mounting

The DVR may be placed on a flat surface, such as a shelf, or it can be installed in a 19-inch (48.26 cm) equipment rack.

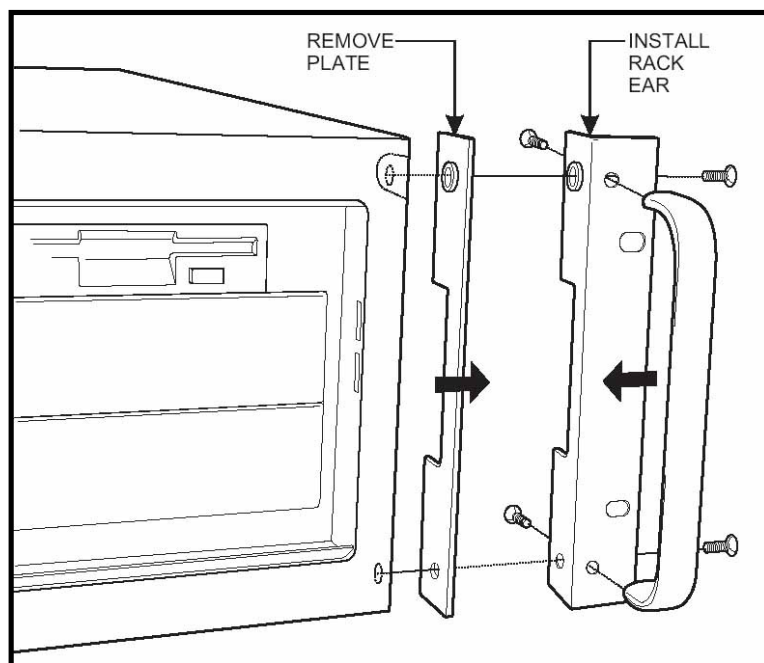
### • FLAT SURFACE MOUNTING

Before placing the unit on a flat surface, attach the rubber feet (supplied) to the bottom of the DVR. The unit may scratch the surface if the rubber feet are not installed.

### • EQUIPMENT RACK MOUNTING

To install the unit in an equipment rack:

1. Attach the handles to the rack ears using four of the Phillips flat head screws (provided). Refer to Figure.
2. Remove the top screw and bottom screw from the left and right side of the DVR. Remove the side plates. Refer to Figure.
3. Use the screws removed from the sides of the DVR and attach the rack ears to the unit. Refer to Figure.
4. Use four of the supplied 10–32 x .75-inch black screws and finishing washers and mount the assembly to a 19-inch (48.26 cm) rack or console. Installation of the assembly may require two persons. We recommends 1RU spacing between units.

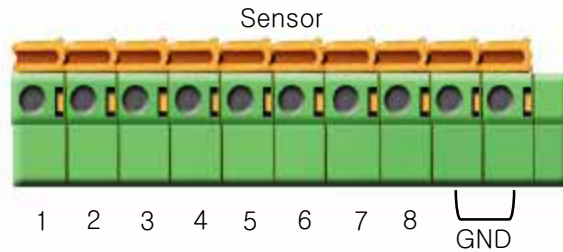


**IMPORTANT:** Slots and openings in the cabinet provide ventilation and prevent it from overheating. Do not block these openings. Never place the DVR near or over a radiator or heat register. Do not place it in a built-in installation, such as a rack, unless proper ventilation is provided or distributor instructions have been followed.

## 2. SYSTEM INSTALLATION

### 2.7 Sensor and Digital Output Connection

- Sensor Connection

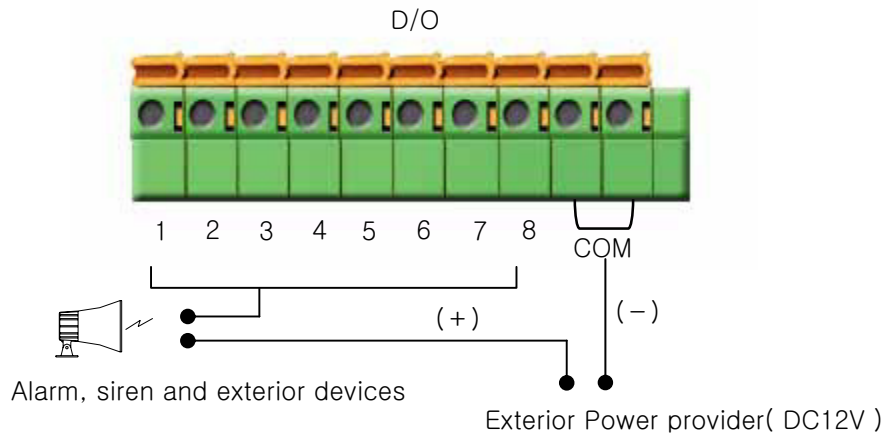


Connect one of the sensor cords to the main part's folding terminal and input another cord in any of the above numbered terminals.



“Normal Close & Normal Open” types can be used.  
The sensor type must be set in the SENSOR CONFIGURATION screen

- D/O Connection

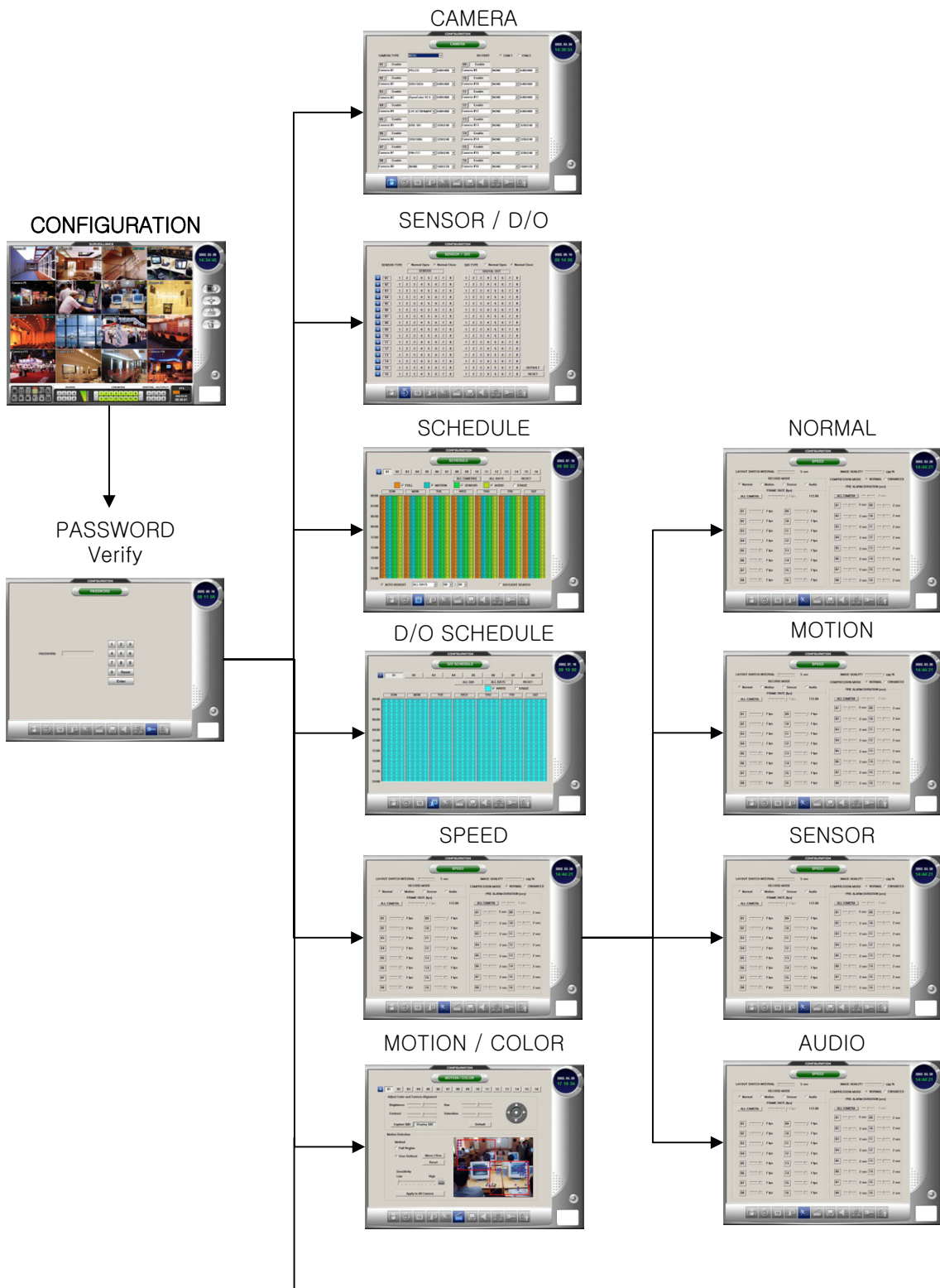


Use DC Adapter (Power Supply) to provide power to sensor and relays

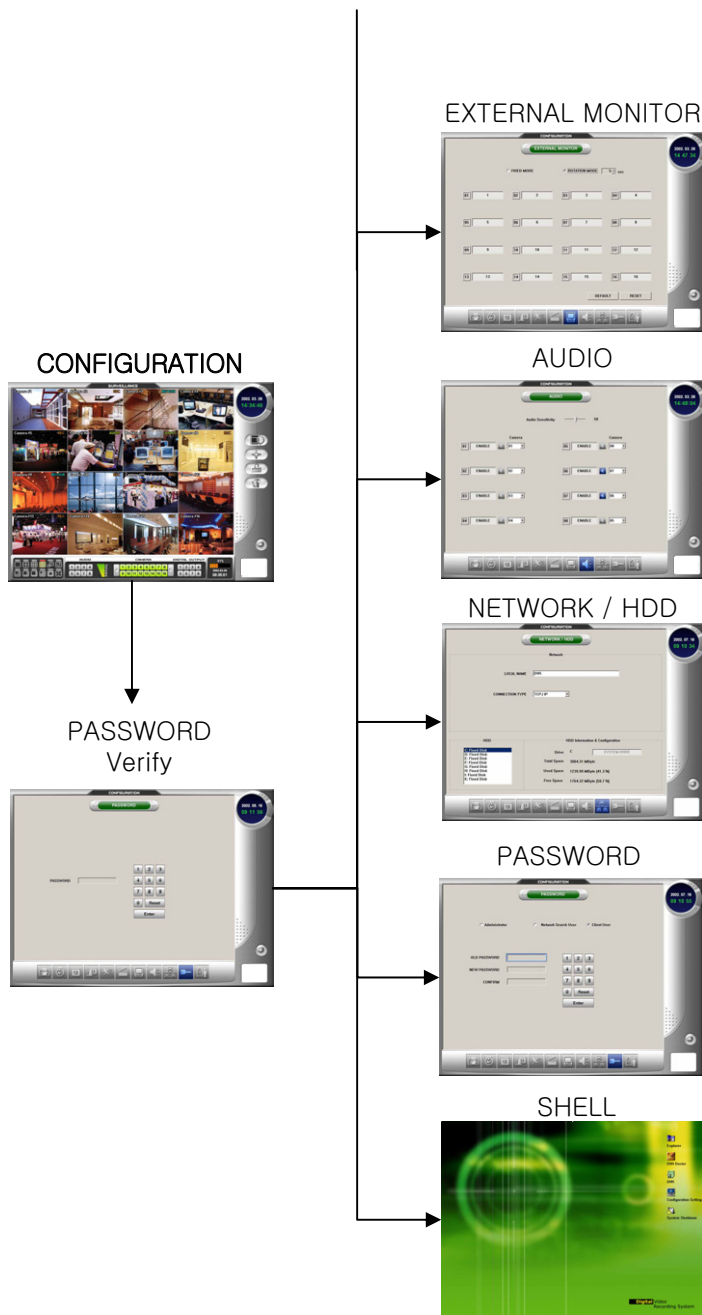


# 3. PROGRAM TREE

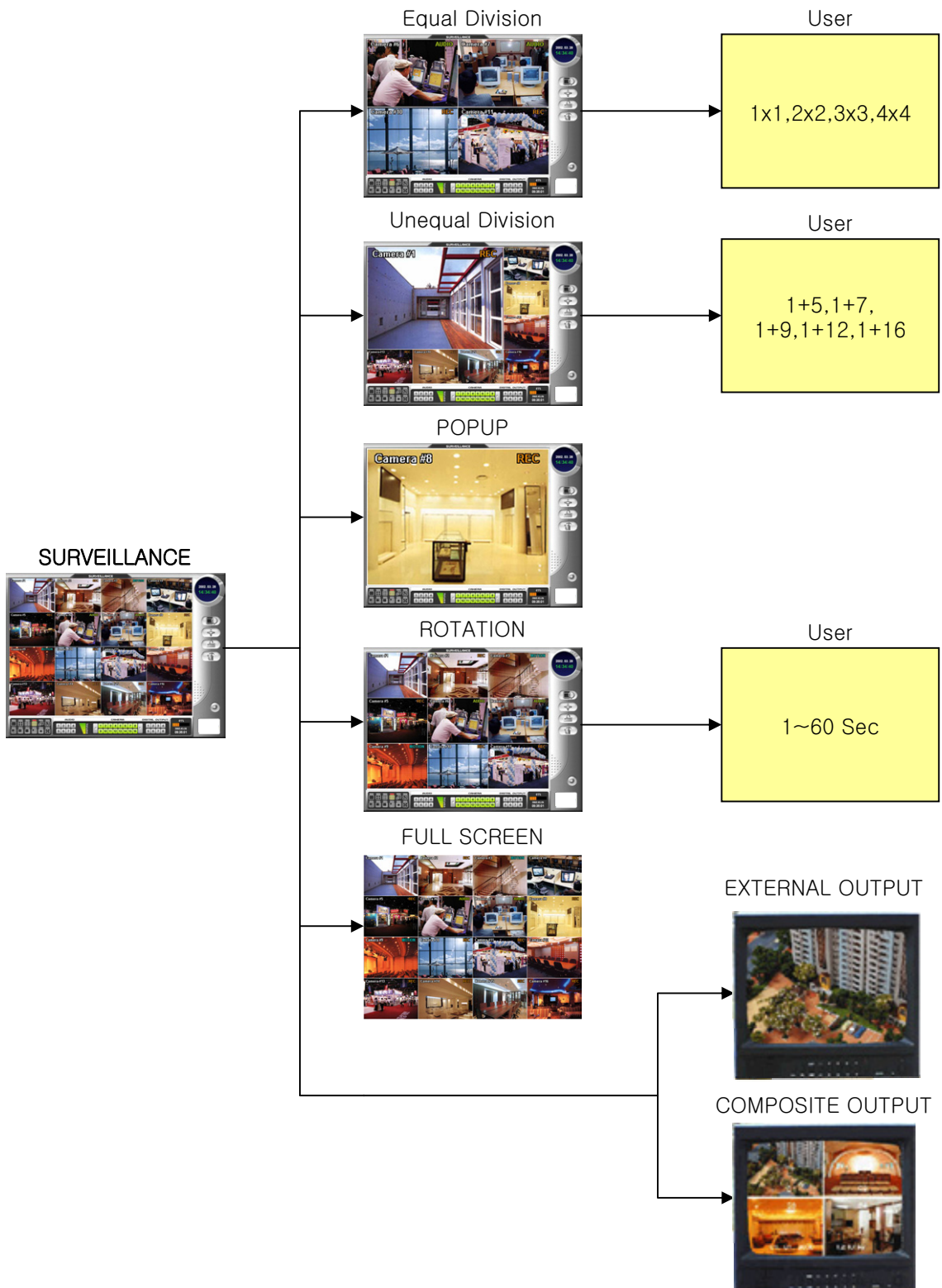
## 3.1 CONFIGURATION



### 3. PROGRAM TREE



3.2 SURVEILLANCE



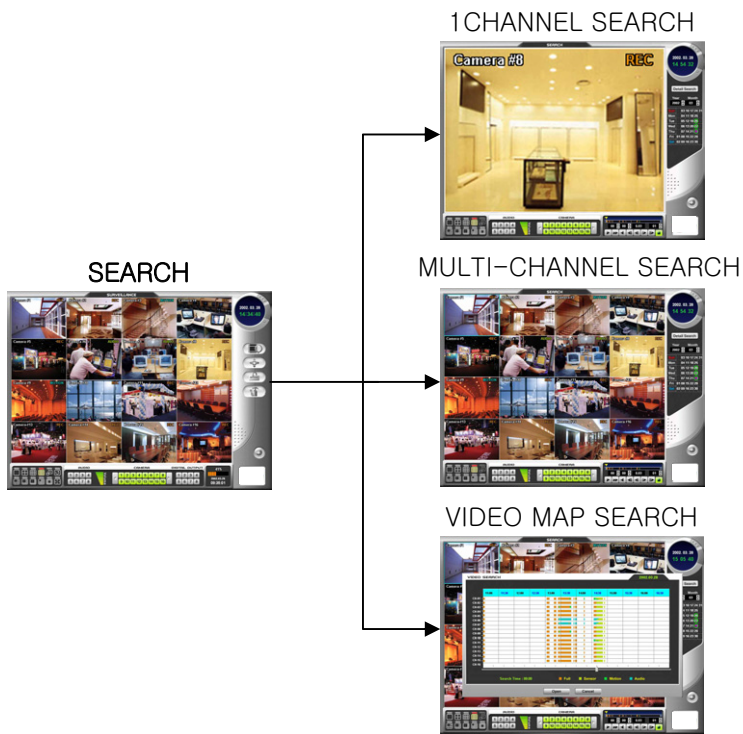
### 3. PROGRAM TREE

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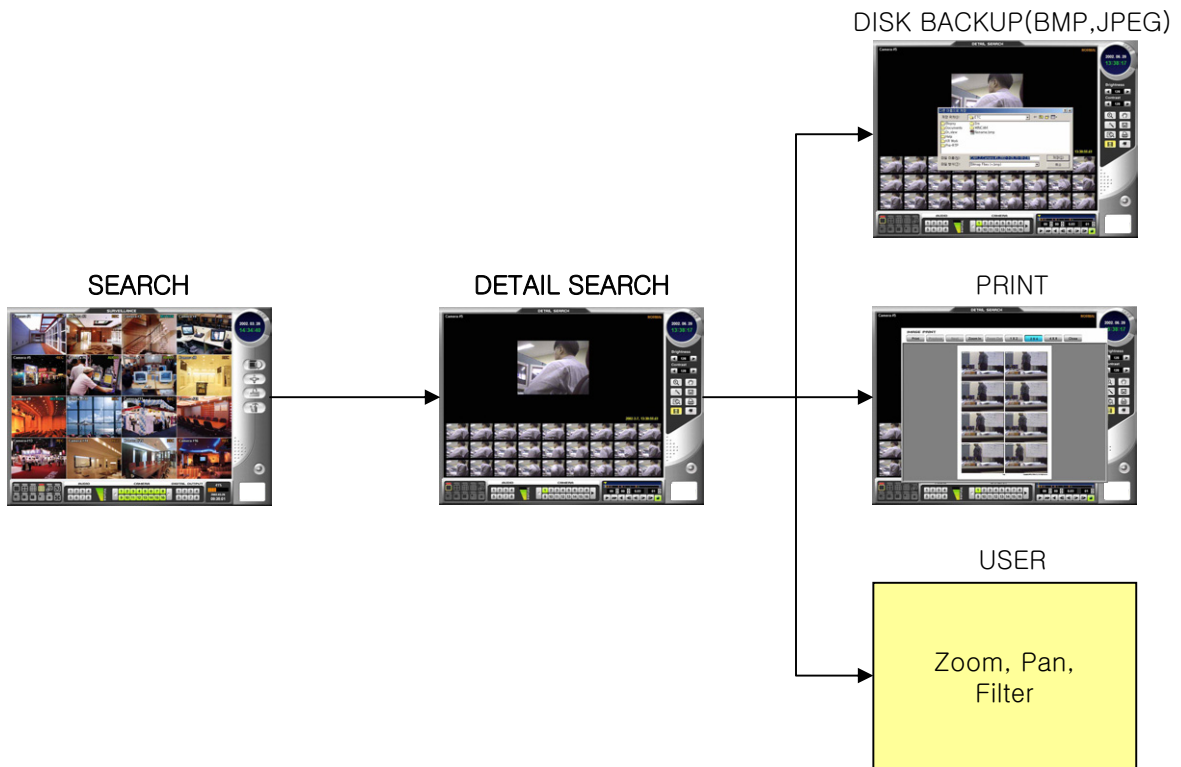
#### 3.3 PAN/TILT



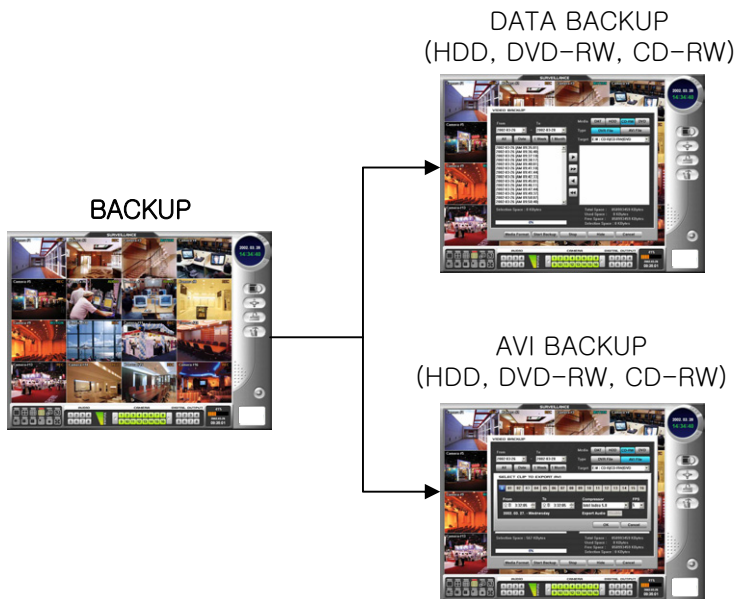
#### 3.4 SEARCH



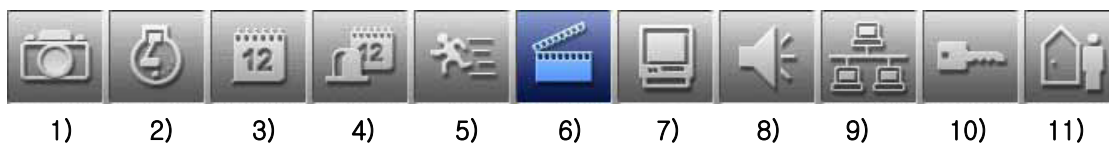
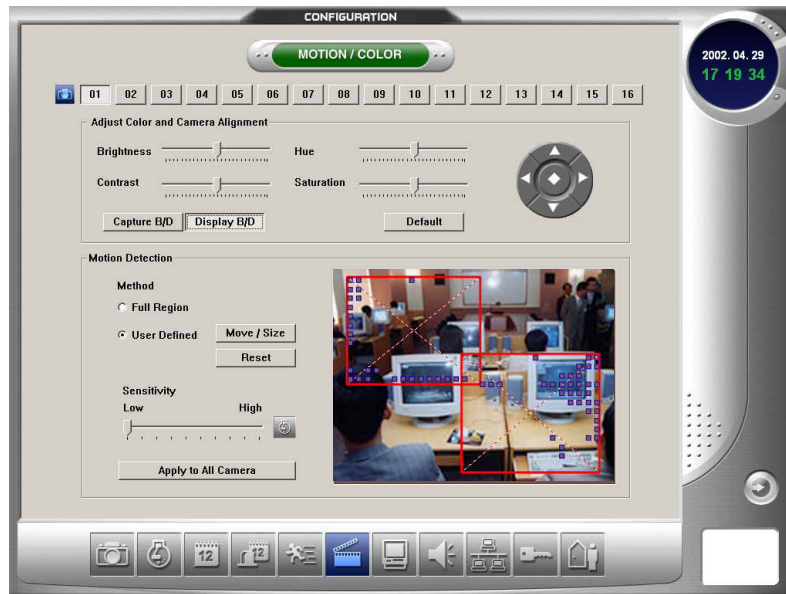
3.5 DETAIL SEARCH



3.6 BACKUP



## 4. CONFIGURATION MODE



- 1) CAMERA – Insert camera name, enable camera and camera type, resolution.
- 2) SENSOR / D/O – Set the Sensor and Digital out.
- 3) SCHEDULE – Specify recording start time, end time, day of week, and recording mode (FULL, MOTION, SENSOR or AUDIO).
- 4) D/O SCHEDULE – Digital out schedule.
- 5) SPEED – Set the FPS (frames per second) for continuous recording, motion detection, sensor detection, audio detection and pre-alarm recording.
- 6) MOTION / COLOR – Motion detection, adjust color and camera alignment.
- 7) EXTERNAL MONITOR – Exterior analogue monitor.
- 8) AUDIO – Enable Audio and sensitivity.
- 9) NETWORK / HDD – Network connection method and connection name.
- 10) PASSWORD – Password levels include Administrator, Search User and Client User.
- 11) SHELL – Stops recording and starts shell mode.



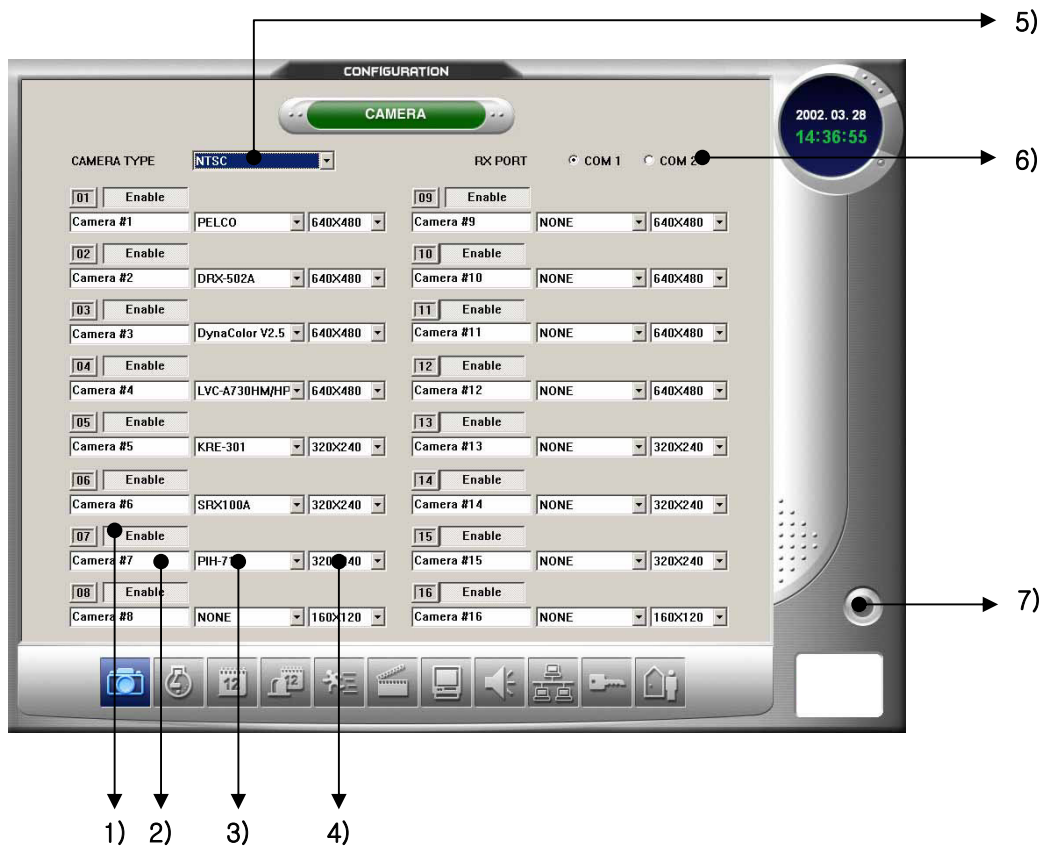
When pushing Exit button, changed setup is saved and returns to surveillance mode.



The administrator password must be used to go to configuration mode.  
Even a registered user can not access the configuration mode without the administrator password.



## 4.1 CAMERA



- 1) CAMERA ENABLE/DISABLE – Sets the mode for camera activity.
- 2) CAMERA NAME – To name a camera drag the cursor over the text in the camera name box and type in the new name. Up to 19 characters can be entered in the box.
- 3) PAN/TILT – Sets the pan/tilt controller attached to the camera.
- 4) RESOLUTION – Select digital image size from 160x120,320x240,640x480.
- 5) CAMERA TYPE – Set the NTSC/PAL signal to the correct camera setting for your location.
- 6) RX PORT – Select direct communication port to be connected to pan/tilt controller. (COM1/COM2)
- 7) EXIT – Saves new setup and returns to surveillance mode.



NTSC (National Television System Committee)  
Used in 44 countries. (Korea, Japan, US, Canada, Taiwan……)

PAL (Phase Alternation Line)  
Used in 100 countries. (China, Australia, Germany, UK, Brazil……)

#### 4. CONFIGURATION MODE



If image size is set at 640 x 480 then the number of channels that can be used is limited.  
 If a camera is set at the non-active mode, active mode cameras' number of frames increase.  
 For example, if a camera with 15 frame storage capacity camera is set at the non-active mode, then a camera at another channel's frame will be increased to 30.  
 If the image is enlarged, the linked channel's image is also enlarged.  
 ※ Refer to the appropriate model for number of channels that can be used under 640 x 480

Model by model 640 x 480 resolution and linked channels

When the camera's enable/disable, camera type, camera name, resolution changed, the DVR program is automatically restarting.

640x480 Resolution of each model and linked channels

Model	No. of channels under 640 x 480	Linked channel	Recording speed
DVR-1016	16	1-2-3-4-5-6-7-8-9-10-11-12-13-14-15-16	20~30FPS
DVR-2004	4	None	80~120FPS
DVR-2016	16	1-5-9-13, 2-6-10-14 3-7-11-15, 4-8-12-16	80~120FPS
DVR-3009	0	None	240~270FPS
DVR-3016	6	1-9, 2-10, 3-11, 4-12 5-13, 6-14, 7-15, 8-16	160~240FPS
DVR-4016	16	1-2-3-4-5-6-7-8-9-10-11-12-13-14-15-16	20~30FPS
DVR-5016	16	1-5-9-13, 2-6-10-14 3-7-11-15, 4-8-12-16	80~120FPS
DVR-6016	6	1-9, 2-10, 3-11, 4-12 5-13, 6-14, 7-15, 8-16	160~240FPS
DVR-7016	1	None	240~270FPS



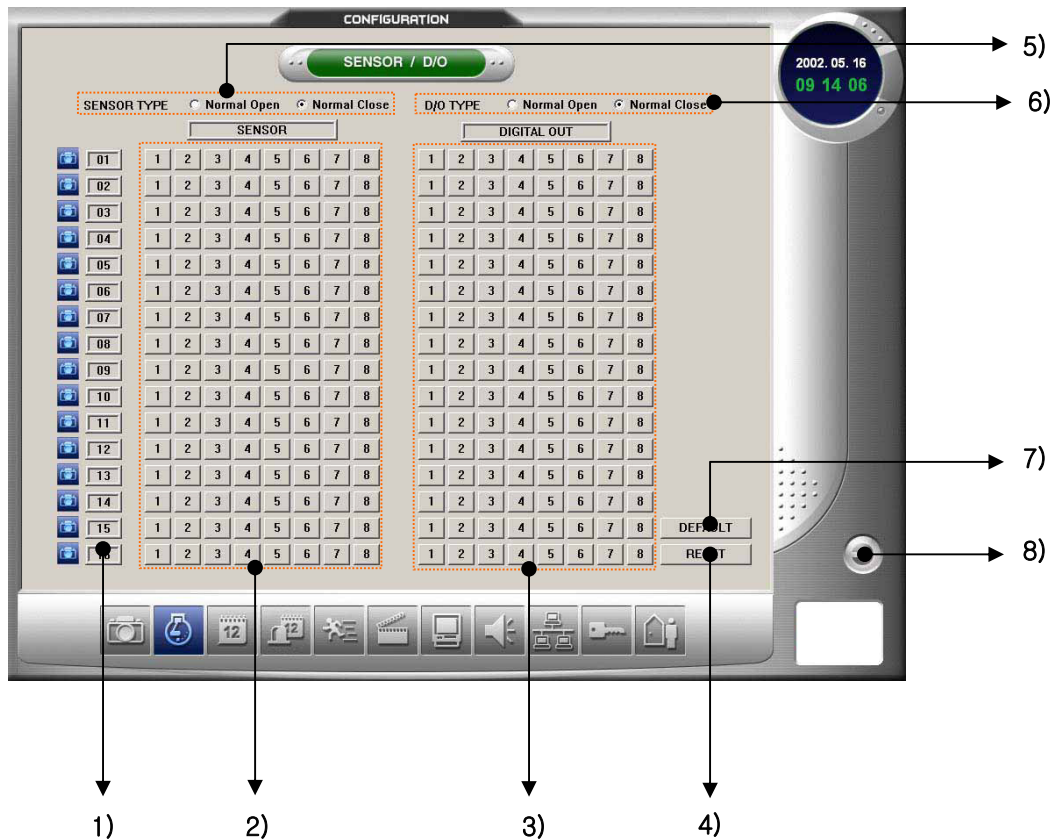


Types of pan/tilt controllers (RX Controller) that can be setup

RX Type	Manufacture	Line Info	Interface Type	Description	Remark
KRE-301	Kodicom	9600-8-N-1	RS-485		Korea
DRX-502A	DongYang Unitech	9600-8-N-1	RS-485		Korea
SRX-100A	Samsung	9600-8-N-1	RS-485		Korea
D-Protocol	Pelco	2400-8-N-1	RS-485	RX Integrated Type	USA
H7720 Ver2.02	DynaColor	9600 -8-N-1	RS-485	RX Integrated Type	Taiwan
LVC-A730HM/HP	LG Electronics	9600 -8-N-1	RS-485		Korea
PIH-717	LI-LIN	9600 -8-N-1	RS-485	RX Integrated Type	Taiwan
SJ2819RX	Sungjin C&C	4800 -8-Y-1	RS-485		Korea
HSD-251	LG Electronics	4800 -8-Y-1	RS-485		Korea

## 4. CONFIGURATION MODE

### 4.2 SENSOR / D/O



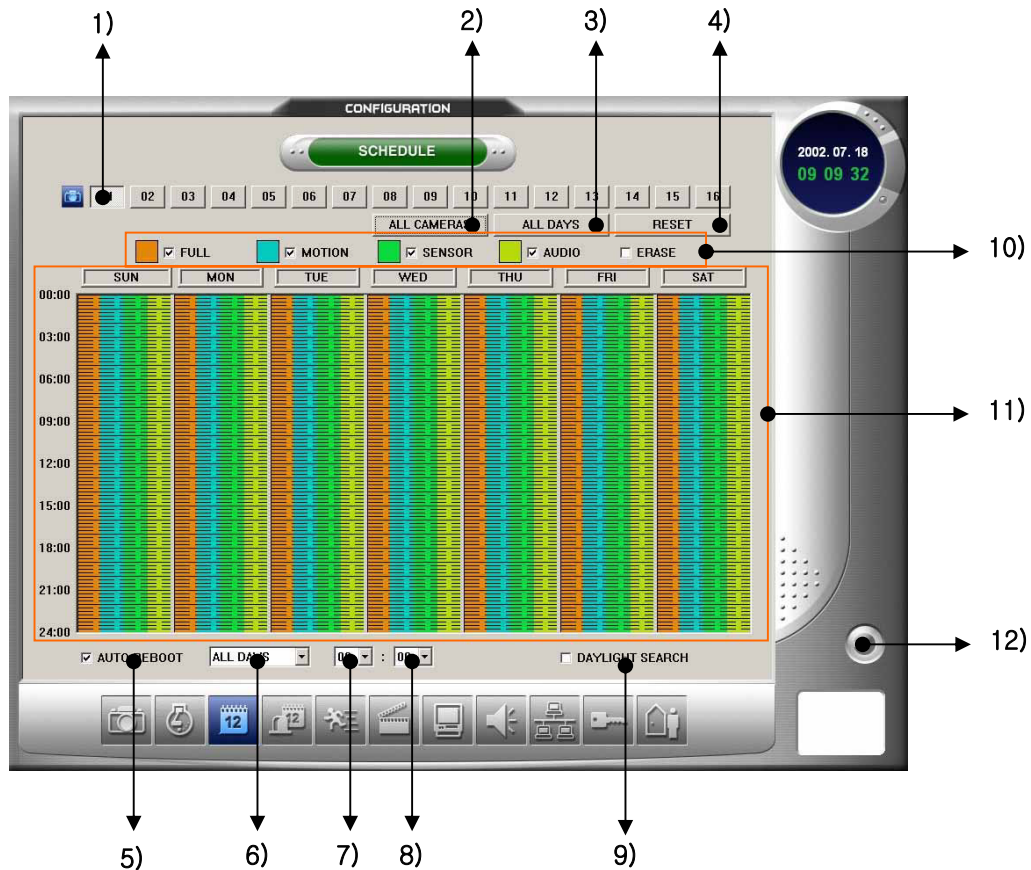
- 1) **Camera Numbers** – Indicates camera numbers.
- 2) **Linked Sensor** – Sets the Sensor linked to camera. (Multi-channel capable)
- 3) **Linked Digital Out** – Sets the D/O channel to be activated when Sensor linked to camera is detected.
- 4) **RESET** – Erases all of setup.
- 5) **SENSOR TYPE** – Select from Normal Open and Normal Close mode.
- 6) **D/O TYPE** – Select from Normal Open and Normal Close mode.
- 7) **DEFAULT** – Sets camera, Sensor and D/O at same channel.
- 8) **EXIT** – Saves setup and returns to surveillance mode.



NOTE

The sensor is only activated when the recording starts due to sensor detect.  
D/O is only activated corresponding to the D/O activation schedule.

## 4.3 SCHEDULE



- 1) **Camera selection** – Selects camera to set schedule.
- 2) **ALL CAMERAS** – Chooses all cameras.
- 3) **ALL DAYS** – Chooses all days.
- 4) **RESET** – Erases all of schedule.
- 5) **AUTO REBOOT** – Sets auto restart.
  - ※ Auto restart mode must be selected in order for the following items to appear on screen.
- 6) **Auto reboot days selection** – Selects auto restart day.  
(ALL DAYS, Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, Saturday)
- 7) **Auto reboot time selection** – Selects auto restart time.
- 8) **Auto reboot minute selection** – Selects auto restart minute.
- 9) **DAYLIGHT SEARCH**.

#### 4. CONFIGURATION MODE

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- 10) **Recording method selection** – Selects recording method to set schedule.
  - 10-1) **FULL** – Sets schedule for continuous recording.
  - 10-2) **MOTION** – Sets schedule for motion detection recording mode.
  - 10-3) **SENSOR** – Sets schedule for sensor detection recording mode.
  - 10-4) **AUDIO** – Sets schedule for audio detection recording mode.
  - 10-5) **ERASE** – Erase previous recording schedule.
- 11) **Recording schedule** – Can input recording schedule using the mouse.
- 12) **EXIT** – Saves set-up and returns to surveillance mode.

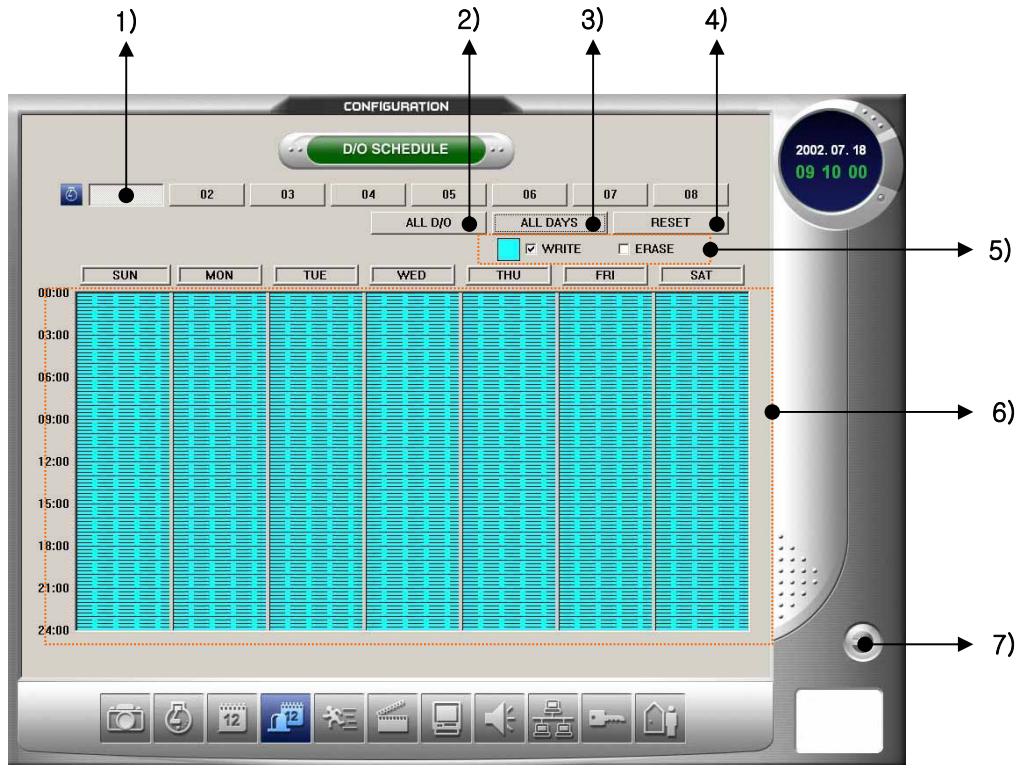


Continuous recording, motion detection, sensor detection and the audio detection recording schedule can be overlapped.

When the continuous recording and detection recording method are overlapped, the continuous recording mode will automatically convert to detection recording mode during detection recording mode, and when the detection stops, automatically returns to continuous recording mode.

When the detection recording is overlapped, it will be recorded as overlapped and the number of frames will correspond to the one with the higher detected method.

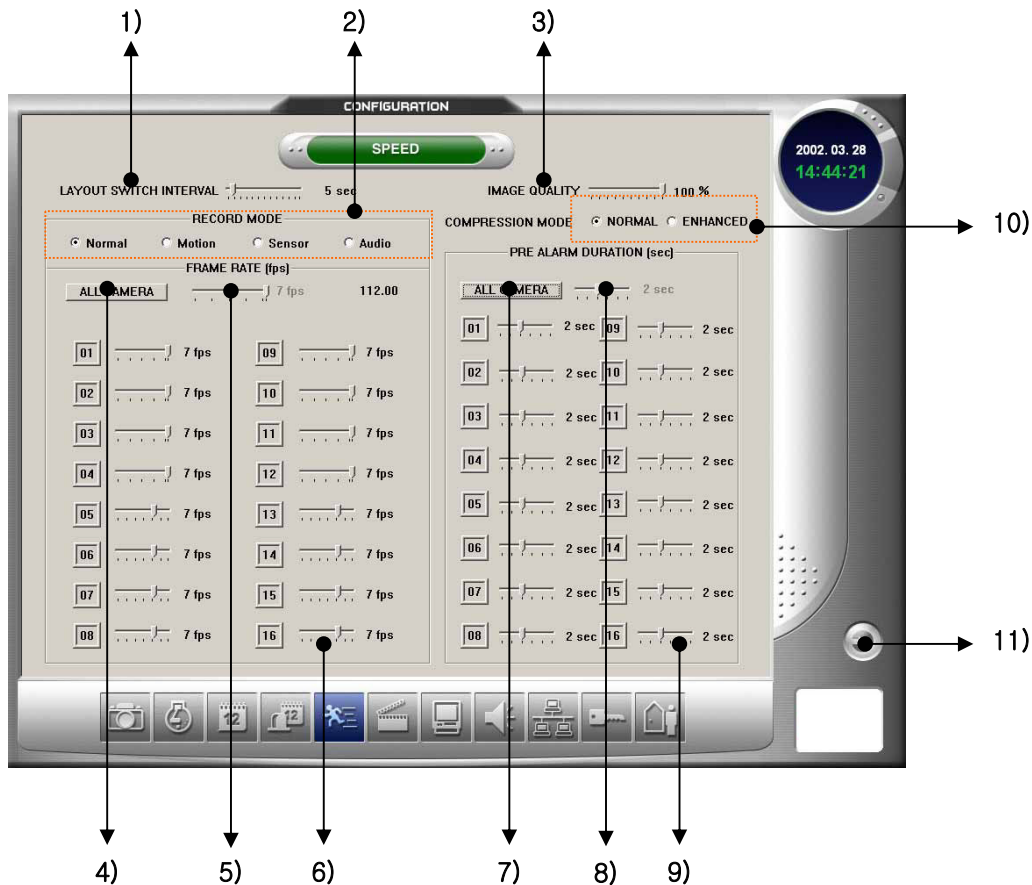
## 4.4 D/O SCHEDULE



- 1) **D/O selection** – Select D/O to set schedule.
- 2) **ALL D/O** – Chooses all D/O's.
- 3) **ALL DAYS** – Chooses all days.
- 4) **RESET** – Erases all of schedule.
- 5) **Set-up method selection** – Selects setup method.
  - 5-1) **WRITE** : For setup schedule.
  - 5-2) **ERASE** : For erase schedule.
- 6) **D/O schedule** – D/O movement schedule can be set using the mouse.
- 7) **EXIT** – Saves setup and returns to surveillance mode.

## 4. CONFIGURATION MODE

### 4.5 SPEED



- 1) **LAYOUT SWITCH INTERVAL** – Sets channel conversion time under surveillance mode.
- 2) **RECORD MODE** – Sets recording speed corresponding to recording mode. (per second)
  - 2-1) **Normal** : Opens the recording speed menu for continuous recording.
  - 2-2) **Motion** : Opens the motion detection. Refer to the Motion Speed Menu Section.
  - 2-3) **Sensor** : Opens the sensor detection. Refer to the Sensor Speed Menu Section.
  - 2-4) **Audio** : Opens the audio detection. Refer to the Audio Speed Menu Section.
- 3) **IMAGE QUALITY** – Sets the quality of the recording image. Image quality affects storage capacity and transmission rate. More bandwidth and storage capacity is required for high quality images.
- 4) **ALL CAMERA** – Press this button to control the recording speed for all channels.
- 5) **All channel recording speed setup** – Sets the number of recording frames per second.
- 6) **Recording speed setup** – Sets the recording speed for each channel.
- 7) **ALL CAMERA (Pre-Alarm)** – All cameras when Motion/Sensor/Audio is detected, images are recorded for the programmed duration (five seconds maximum per camera) before an event happens.

- 8) **All cameras set bar (Pre-Alarm)** – Setup All cameras, for Pre-Alarm function the duration (five seconds maximum per cameras) before an event happens.
- 9) **Camera set bar (Pre-Alarm)** – Setup camera, for Pre-Alarm function the duration (five seconds maximum per camera) before an event happens.
- 10) **COMPRESSION MODE** – Select image compression method.
  - 10-1) **NORMAL** – Compresses image into normal MJPEG mode.
  - 10-2) **ENHANCED** – Compresses image into enhanced MJPEG mode.
- 11) **EXIT** – Saves setup and returns to surveillance mode.



The Duplex mode is automatically started when converted into search or configuration mode, and when using 16 cameras, the maximum recording speed is 90fps and when the search or configuration mode is completed, will return to normal recording mode.



When using a PAL type camera, the recording speed is reduced by approx. 17% compared to an NTSC type. For example, an NTSC type can record 15 frames per channel while the PAL type can only record 12 frames per channel.

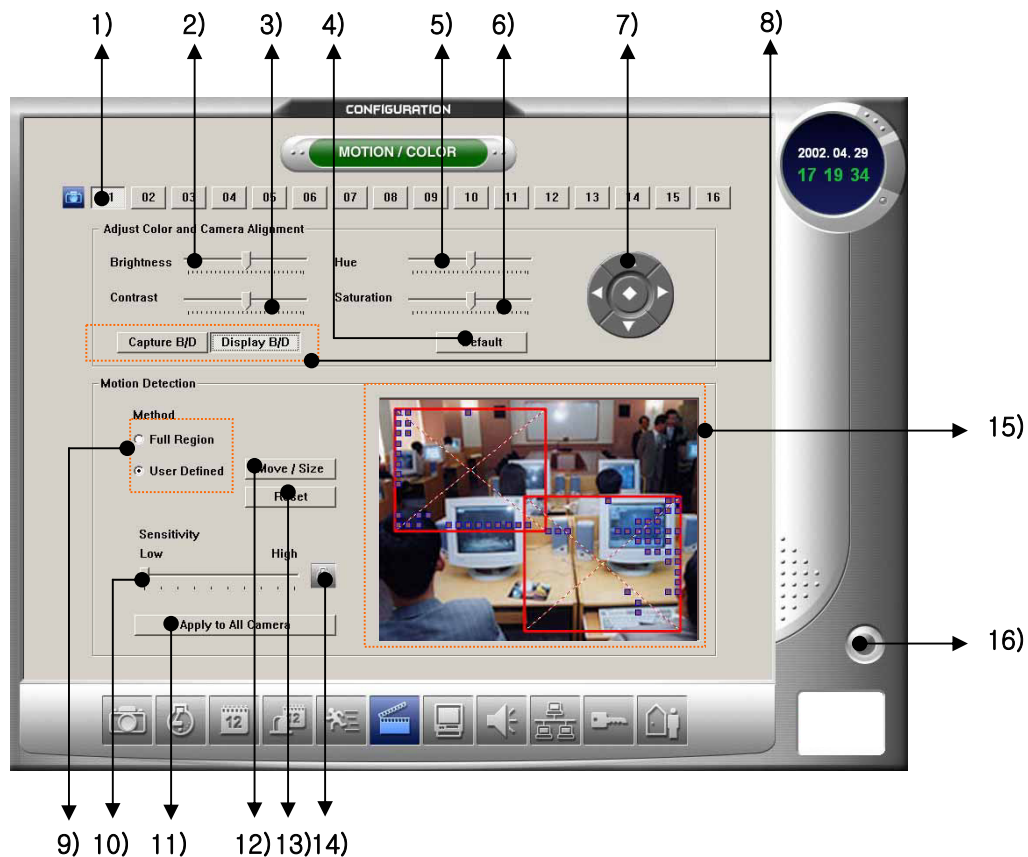
For 3009, Frame rate will be reduced to 40% when Camera image size is set to 640 x 480 mode using Audio channel.

For 3009, frame rate will be reduced to 20% when audio channel is on.



## 4. CONFIGURATION MODE

### 4.6 MOTION / COLOR



- 1) **Camera selection** – Select a camera.
- 2) **Brightness** – Drag the cursor on the BRI bar to change the brightness value of the viewed and recorded scene. Adjust the brightness of the scene to compensate for differences in lighting.
- 3) **Contrast** – Drag the cursor on the CON bar to change the contrast value of the viewed and recorded scene. Proper adjustment will allow maximum gradations between the darkest and lightest parts of a scene.
- 4) **Default** – Click the Default Color button to return all color settings to their default settings.
- 5) **Hue** – Controls tone.
- 6) **Saturation** – Controls saturation.
- 7) **Image location control** – Use the image alignment buttons.  
(up, down, left, right and center) to align the image within the camera frame.
- 8) **Capture B/D / Display B/D** – Selected setting the board type.



9) Motion detect area setup method selection

9-1) **Full Region** : All areas

9-2) **User Defined** : User can select area.

10) **Sensitivity** – Adjusts the sensitivity of the detect areas for the selected camera.

11) **Apply to All Camera** – The current motion setup is applied to all cameras.

12) **Move/Size** – Used when changing detect area or increasing size.

13) **Reset** – Deletes previously set motion detect areas.

14) **Motion detect status** – Blinks when there is movement.

15) **Motion detect area setup window** – Set using the mouse. Motion status can be checked through this window.

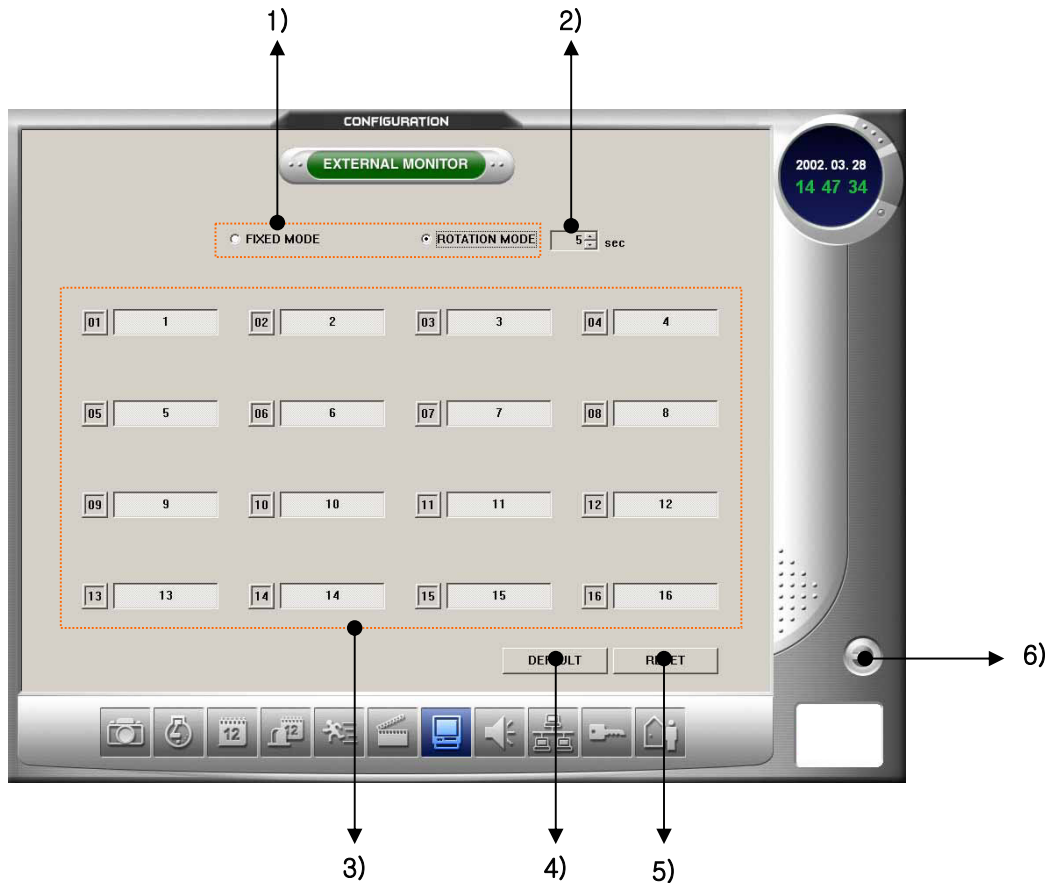
16) **EXIT** – Saves setup and returns to surveillance mode.



Motion detect sensitivity is affected by the camera's performance and what it's recording. Especially, there can be big difference to day and night. Therefore, movement detection sensitivity must be adjusted according to the time and environment in order to maximize performance.

“Display B/D” mode for picture control, Page 28 is only available on the below models.

## 4.7 EXTERNAL MONITOR



**1) Select the display method of external monitor**

1-1) **FIXED** : Display only the selected channels.

1-2) **ROTATION MODE** : Automatically display according to set order.

**2) Conversion time setup** – Sets the channel conversion time for the rotation mode.

**3) Conversion order setup** – Select the channel conversion order for the rotation mode.

**4) DEFAULT** – Selects the external monitor order for each camera.

**5) RESET** – Resets external monitor order.

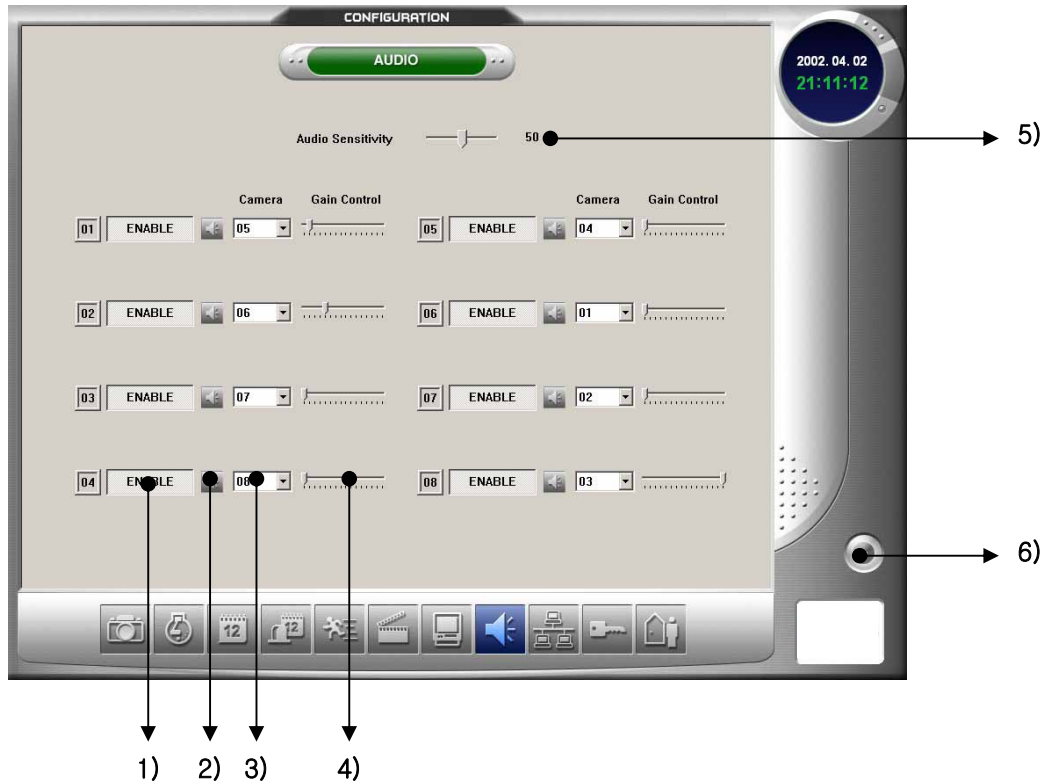
**6) EXIT** – Saves setup and returns to surveillance mode.

**※ Channel conversion order setup**

1) Reset conversion order by pressing reset button.

2) Press channels by whichever order. Do not press channels that need not be display.

## 4.8 AUDIO



- 1) **AUDIO ENABLE/DISABLE** – Sets the activation/non-activation of the audio channel.
- 2) **Audio detection status indicator** – Blinks when detecting noise.
- 3) **Camera** – Sets the audio, channel and linked camera.
- 4) **Gain Control** – Controls the gain of audio input.
- 5) **Audio Sensitivity** – Controls sensitivity of audio detection. The status can be checked through the detection indicator.
- 6) **EXIT** – Saves setup and returns to surveillance mode.

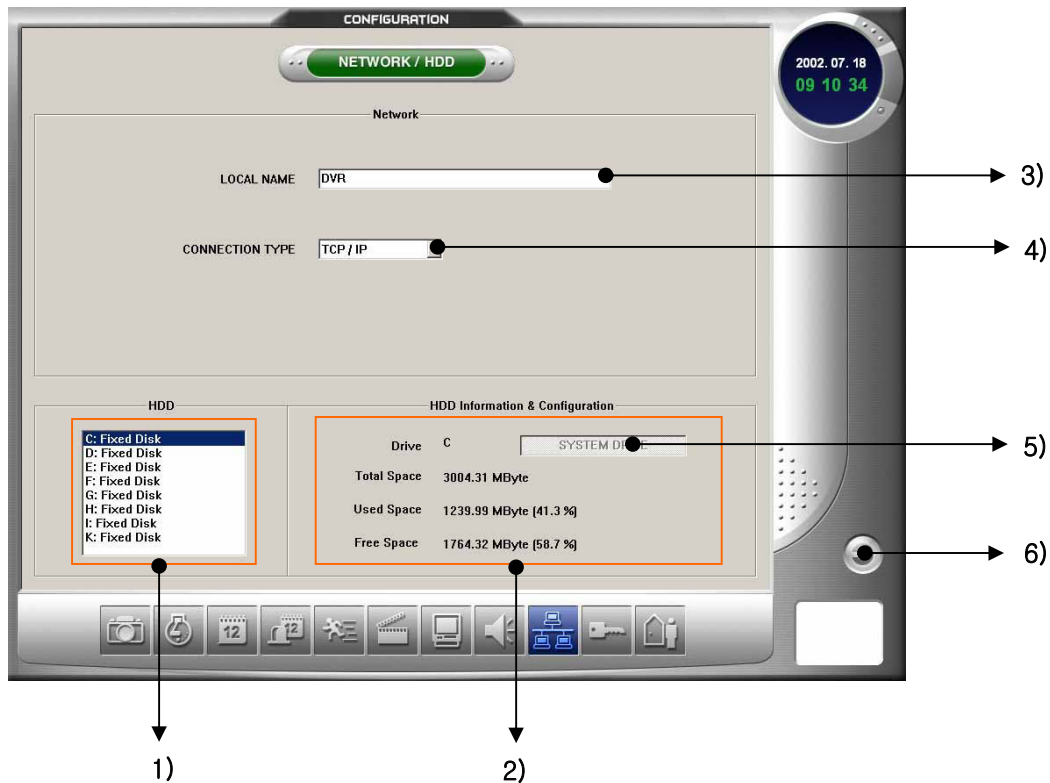


The audio data is automatically recorded when the linked video channel is recording.

The audio gives load to the system. Put channels not in use to non-activation mode. Even if the microphone is not connected, mute will be recorded if the audio channel is activated.

## 4. CONFIGURATION MODE

### 4.9 NETWORK / HDD



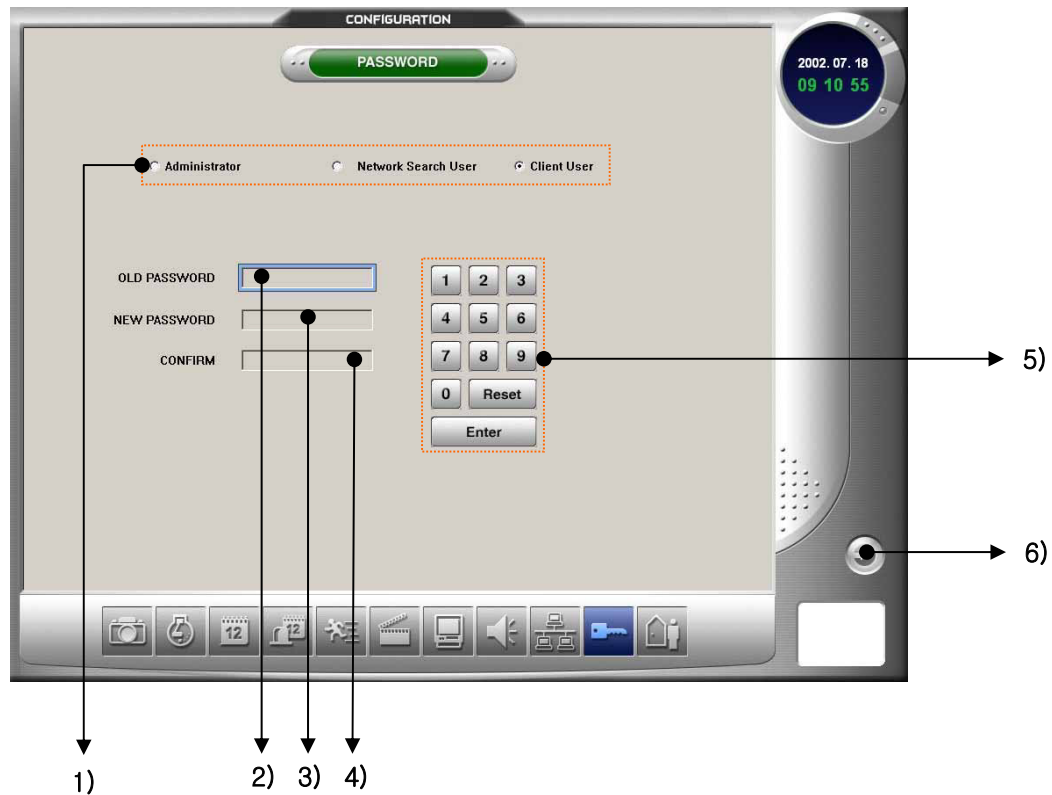
- 1) HDD – Show the installed HDDs.
- 2) HDD Information & Configuration – Show the info of HDD selected.
- 3) LOCAL NAME – Enter DVR name to be used in network.
- 4) CONNECTION TYPE – Select from either TCP/IP or MODEM.
- 5) SELECT BACKUP HDD – Click the button to return use exclusively a backup-hard disk drive, at selected “1)” (can not recording the selected HDD)
- 6) EXIT – Saves setup and returns to surveillance mode.



DVR server can not allow simultaneous connections by the modem and TCP/IP.  
However, it is different when the modem user uses the TCP/IP.

When the network setup is changed, the DVR program restarts automatically.

## 4.10 PASSWORD



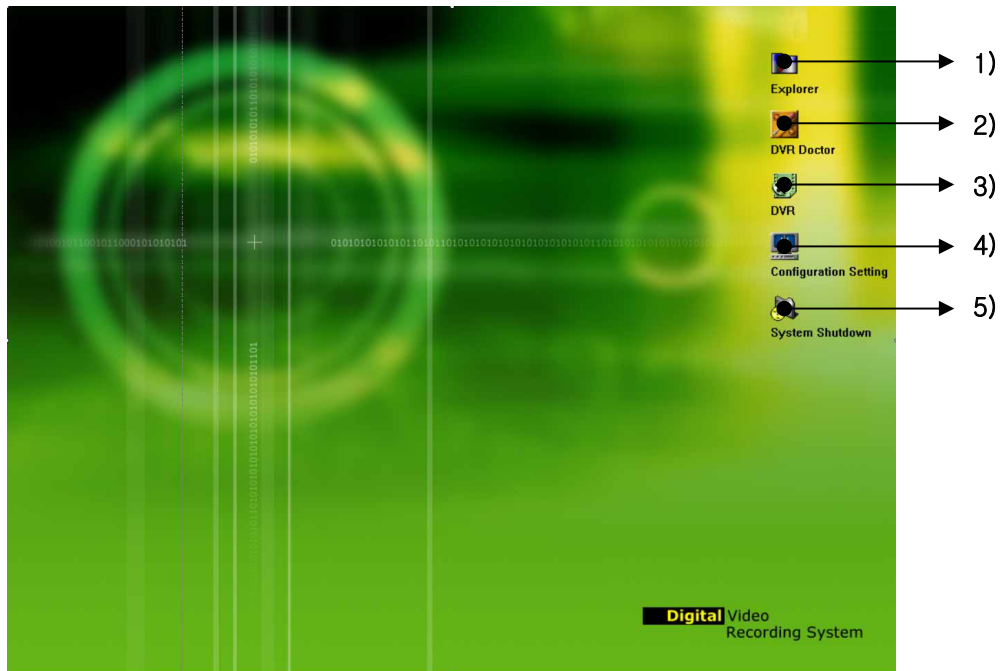
- 1) **Select level** – Use the left mouse button to select a password level..
  - 1-1) **Administrator** : Access all DVR capabilities.
  - 1-2) **Search user** : Only accesses surveillance and search mode.
  - 1-3) **Client user** : User can access the DVR system from remote area.
- 2) **OLD PASSWORD** – Input previous password.
- 3) **NEW PASSWORD** – Input new password.
- 4) **CONFIRM** – Reenter new password.
- 5) **Number/Reset/Enter Buttons** – Use number/reset/enter buttons to input password.
- 6) **EXIT** – Saves setup and returns to surveillance mode.



The password must be a number maximum 12 digits.  
Factory default is set to “0”.

## 4. CONFIGURATION MODE

### 4.11 SHELL



This mode helps user to restore and fix the DVR when windows explorer, program uninstall, network setting, check the HDD.

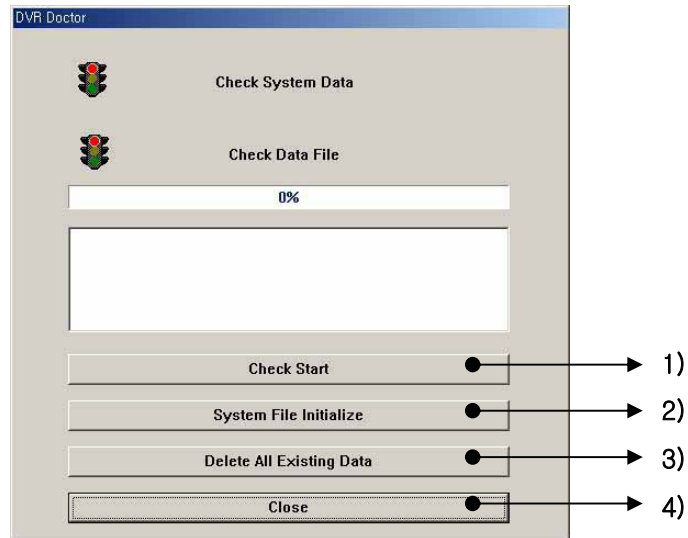
- 1) **Explorer** – Run ‘Windows Explorer’.
- 2) **DVR Doctor** – Restore the corrupted parts when DVR System and Data have some problems.
- 3) **DVR** – Go to DVR mode.
- 4) **Configuration Setting** – Setup the system control.
- 5) **System shutdown** – Shut down DVR system.



Data problem due to Power failure can not be fixed to 100%. For perfect safety, recommend to use UPS equipment.

In case of no camera image, bounded image and noised image, recommend you to check the Camera line and use Standard Devices.

• DVR Doctor



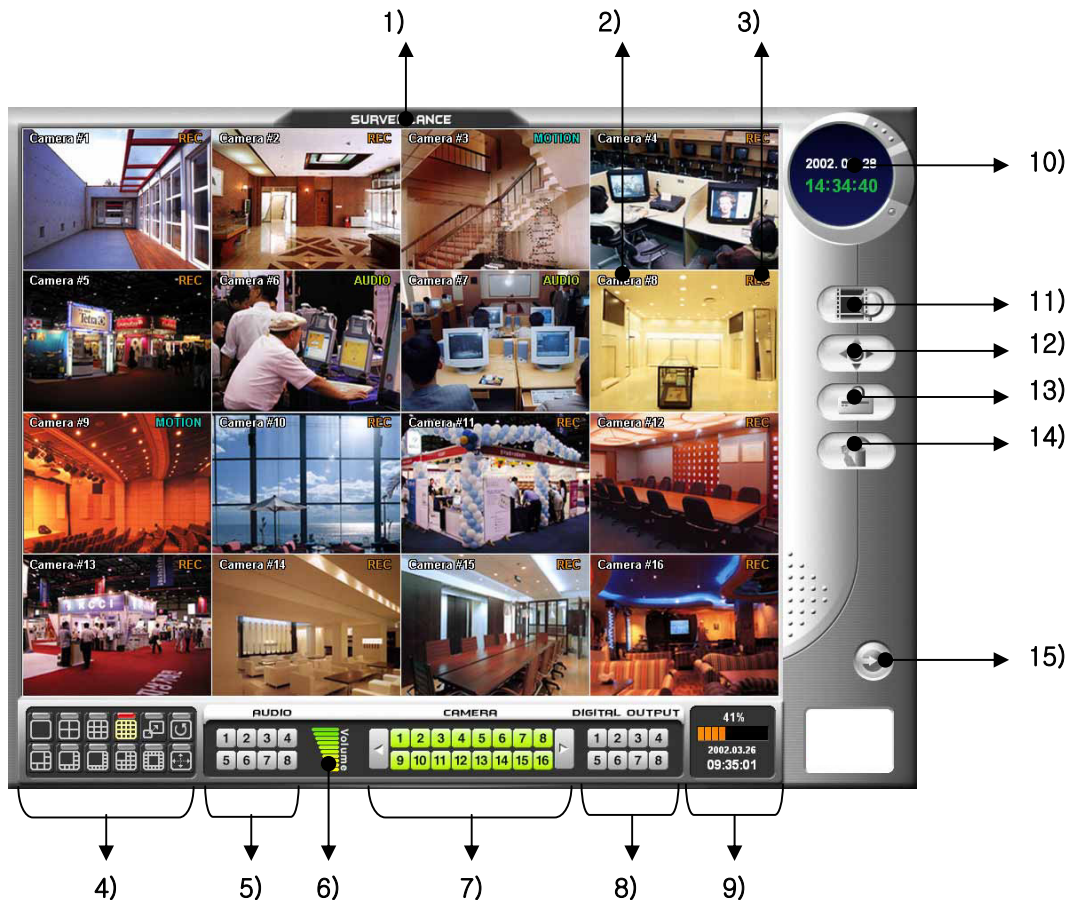
- 1) **Check Start** – Check and restore the data file.
- 2) **System File Initialize** – Default the configuration.
- 3) **Delete All Existing Data** – Delete all data.
- 4) **Close** – Close DVR Doctor.



Be careful when you use System Initialize and Delete all data.

## 5. SURVEILLANCE MODE

### 5.1 Surveillance Screen Layout



- 1) **Current mode indicator** – Identifies the mode displayed on the screen.
- 2) **Camera name indicator** – Show camera name of current channel.
- 3) **Storage status indicator** – Show video storage modes such as normal, motion, sensor, and audio detection.
- 4) **Screen division button**
- 5) **Select audio channel buttons** – Select real-time audio channel.
- 6) **Volume control** – Controls audio volume.
- 7) **Select camera buttons convert button**
- 8) **Digital output status indication and control buttons** – Show and controls D/O print status.
- 9) **HDD storage data indicator** – Show HDD storage status.
- 10) **Current time and date indicator**
- 11) **Search mode button** – Converts to search mode.
- 12) **Pan/tilt control mode button** – Converts to pan/tilt control mode.
- 13) **Backup mode button** – Converts to back-up mode.
- 14) **Configuration mode button** – Converts to Configuration mode.
- 15) **EXIT** – Ends DVR program and shuts off system.



## 5.2 Screen Division

- Screen Division Buttons



Select single-camera or multiple-camera views.

- Equal division



1 screen division



4 screen division



9 screen division



16 screen division



By clicking on the division screen, the screen will return to original screen, and by clicking again the screen will return to the screen division.

Video display (480FPS) model does not provide the unequal division function.

- Unequal division



1+5 screen division : 1 main screen and 5 surveillance sub-screens.



1+7 screen division : 1 main screen and 7 surveillance sub-screens.



1+9 screen division : 1 main screen and 9 surveillance sub-screens.



1+12 screen division : 1 main screen and 12 surveillance sub-screens.



1+16 screen division : 1 main screen and 16 surveillance sub-screens.

## 5. SURVEILLANCE MODE



By clicking on the sub-screen, it will convert into the full screen, and by clicking on the full screen, it will turn into sub-screen 1. By clicking on the converted screen, it will return to its original screen.

The screen division function may be different from on the DVR model and activated number of cameras.

### ▪ Surveillance by sequence, full screen and pop-up



Surveillance by sequence : Show division screen by sequence for specified time.  
Converted time may be changed in configuration mode.



Full screen : Converts to full screen.



Pop-up : Channel with motion detected is converted to screen 1. If motion is simultaneously detected in different channels, each screen will show for a specified time.



By pressing the right button of each division screen, it will convert to the full screen, and by pressing again the converted screen with the right button, it will convert into the original screen.

You can control the pop-up time through the configuration → speed → screen conversion menu.

### 5.3 Select Camera Buttons

- Select camera buttons



Under the surveillance mode the selected camera is shown, converted as a 1 screen division.

Select the detail search channel in the search mode.



Previous Camera : Show cameras previous to current camera.



Next Camera : Show cameras after the current camera.

- Camera status indicator



Highlight the camera number when camera is displayed on screen.



It means that camera is not displayed now on screen although the camera is on.



It means that camera is off.



The channel conversion by the next and previous camera buttons are different from on the current division mode. For example, for a 1 screen division, channels will convert by 1 channel, and when in a 9 channel division, 9 channels will be converted. This also applies for the surveillance by sequence mode.

### 5.4 D/O Status Indication and Control Buttons

- D/O status indication



Shows the D/O status linked to motion or sensor detect.



Appears as left when respective D/O channel is activated.



Appears as left when respective D/O channel is not activated.

- D/O Control

By pressing an activated D/O channel button, the D/O will be non-activated.



The D/O is activated only when a linked camera or sensor detects movement.

The motion detect and sensor detector are only activated when there is a set recording schedule.

The D/O is activated only during times of set schedule. Therefore, in order to activate camera and sensor must be linked and the schedule for the motion detector and Sensor must be set and finally the D/O schedule can be set.

## 5.5 Select Audio Channel Buttons

- Audio channel selection button



Select audio channel.

The audio channel can be selected only when it is activated through configuration mode.



Highlight the chosen audio channel.



Audio is off.

- Volume Control

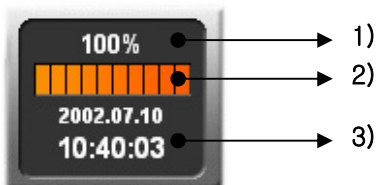


Controls volume. Use the mouse to increase and reduce volume.



To properly listen to the audio, the input signals must be sufficient.  
If the installed microphone's signal is too weak, please control an amplifier to maximize performance.

## 5.6 HDD Storage Date Indicator



- 1) Used capacity indicator – Indicates current used HDD capacity in %.
- 2) Used capacity Indicating bar – Indicates currently used HDD capacity in bars.
- 3) First image data indicator – Show the date and time of the first image data.



When the hard disk is completely used, the oldest data will be deleted and then overwrite .  
In order to conserve data for longer periods, more HDD must be installed or data must be Regularly backed up.

## 6. PAN/TILT CONTROL MODE

### 6.1 PAN/TILT Control



The screen converts to the pan/tilt screen when pressing the pan/tilt button on the surveillance screen.

With the pan/tilt camera installed, based on the camera & control box type, one can use the up, down, left, right, zoom, focus and preset function.



- 1) **Preset** – Converts into mode to control the high-speed dome camera's preset function.
- 2) **Camera** – Power on/off the camera.
- 3) **Light** – Power on/off the lighting.
- 4) **Wiper** – Turn on/off the wiper located on the camera exterior.
- 5) **Auto Run** – Repeatedly moves the camera left and right.
- 6) **Focus** – Controls camera's focus.
- 7) **Zoom** – Increase/reduce camera's image.
- 8) **Control Key** – Moves the camera up, down, left and right.
- 9) **Exit** – When pushing Exit button, returns to surveillance mode.

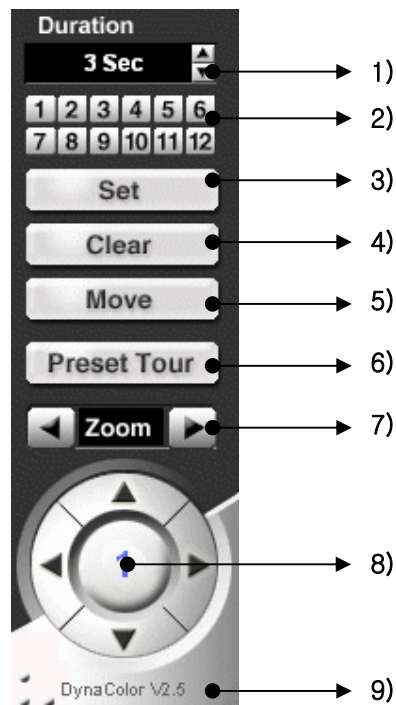
※ The number in the center of the control panel shows the camera number being controlled.



The pan/tilt control function can be limited according to the type of RX receiver and camera. When in notice of fault in movement, please check the camera and RX receiver type.

## 6.2 PRESET

Controls the high-speed dome camera's preset capability. Using the Preset capability allows the user to automatically move the camera to a specific location and allow for continuous movement to a specific location.



- 1) **Duration** – Sets the time to be automatically converted preset location.
- 2) **Preset position numbers** – Number with preset specific location.
- 3) **Set** – Press this button to preset location.
- 4) **Clear** – Deletes preset location.
- 5) **Move** – Moves to preset location.
- 6) **Preset Tour** – Automatically moves to preset location in sequence.
- 7) **Zoom** – Increase/reduces camera's image.
- 8) **Control** – Moves camera up, down, left and right.
- 9) **PAN/TILT Type** – Shows that currently selected high-speed dome camera name.

## 6. PAN/TILT CONTROL MODE

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- **PRESET selection method**

- ① Press the set button.
- ② Capture to image location using the canted and zoom button.
- ③ Press the preset button to memorize location.
- ④ Repeat steps ①–③.

- **To move to PRESET location**

- ① Press the move button.
- ② Press the preset number to move the camera to desired location.

- **To delete PRESET location**

- ① Press the Clear button.
- ② Press the preset number button to delete the preset location.

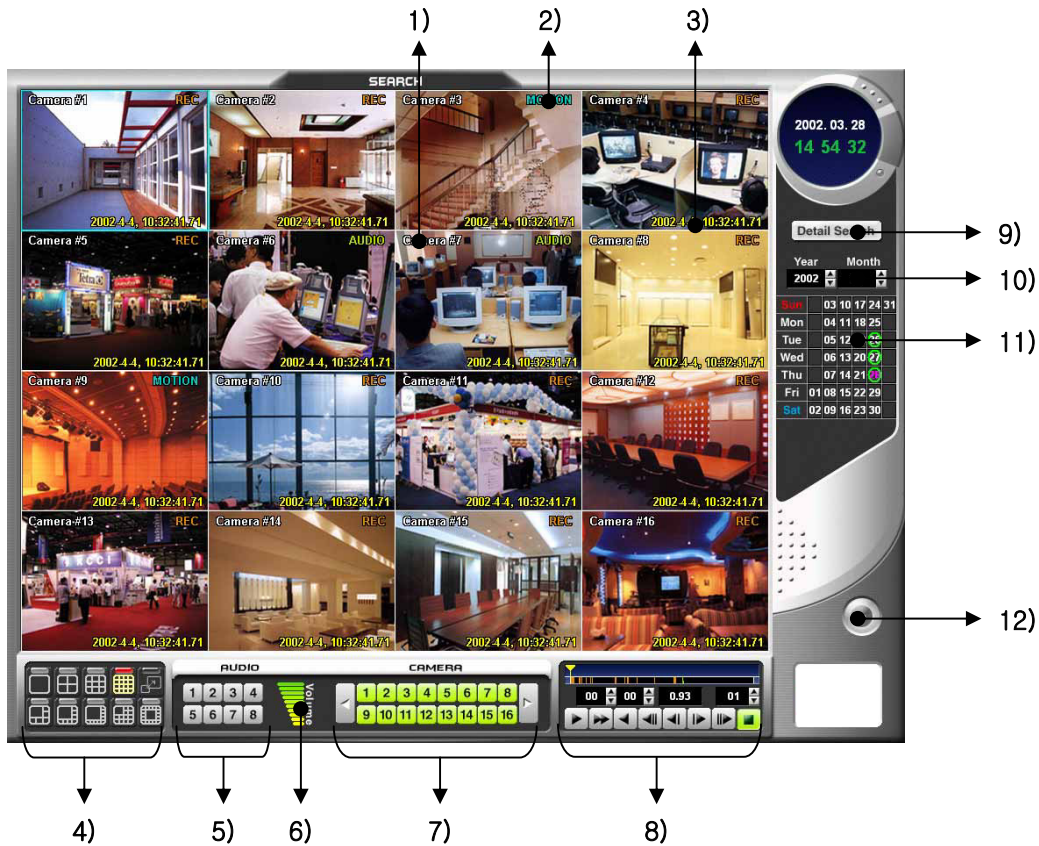


## 7. SEARCH MODE

### 7.1 Search Screen Layout



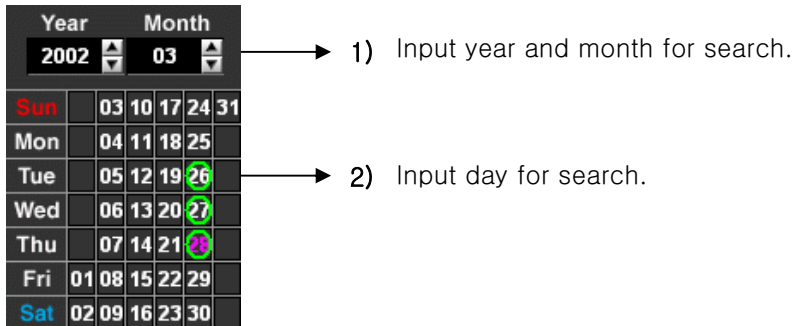
The screen converts from surveillance to search when pressing the search button.



- 1) Camera name – Shows current channel's camera name.
- 2) Recorded status – Shows video recorded mode in normal, motion, sensor and audio modes.
- 3) Recorded date – Shows date and time of recorded data.
- 4) Screen division – Selects screen division status.
- 5) Audio channel – Does not work in search mode.
- 6) Volume control – Controls audio volume.
- 7) Video channel select and convert – Selects and converts video channel.
- 8) Playback control and time search (Hour and minute)
- 9) Detail search – Converts to detail search mode.(print and disk backup, zoom ...)
- 10) Year and Month to Search – Displays year and month to search.
- 11) Day Search – Days with recordings are highlighted with a yellow circle. The day selected is highlighted with a green circle.
- 12) EXIT – Ends search capability and returns to surveillance mode.

## 7. SEARCH MODE

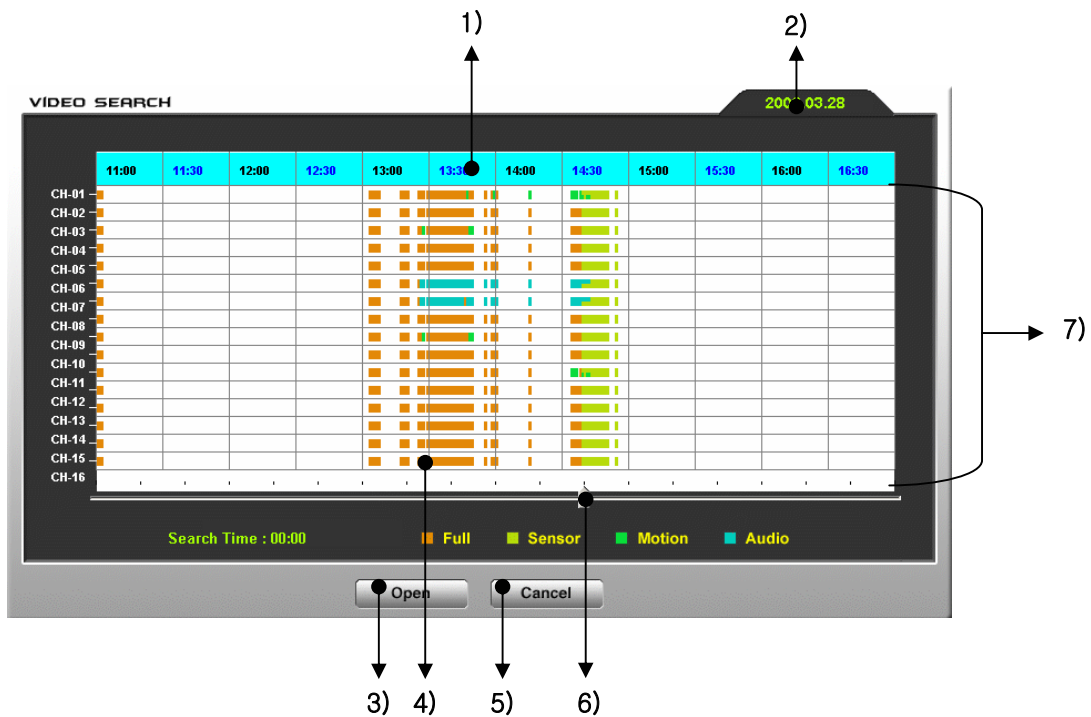
### 7.2 Search by Date and Time



○ When pressing the date with the left circle, the video map screen for the selected date will appear.

#### ▪ Video map

User can check the recorded status of video data and search video data by specified time.



- 1) Time – 0 ~ 24hours. The time scale will enlarge by clicking.
- 2) Show the date
- 3) Open – Moves video search point to selected location.
- 4) Video search bar – Using the mouse, user can search by desire time.
- 5) Cancel – Ends search process and closes video map conversation box.

- 6) **Time indicator movement bar** – Changes time indicator area when top time indicator scale is enlarged.
- 7) **Video recorded status indicator** – Shows video recorded status.

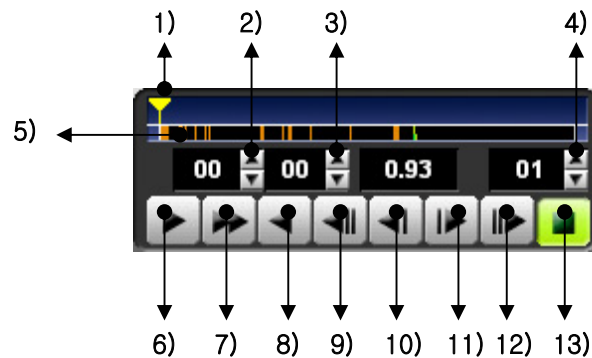


Screen division and camera selection operation is identical to the surveillance mode. However, when selecting the camera button, the screen will convert to the detail search channel instead of the 1 screen division.

It skips some frames when you playback multi screen division at search mode. Go to one channel detail search to check all not skipped image data.

It playbacks audio with video when video is recorded with audio data.

### 7.3 Play Control Buttons



- 1) Search time selection slider
- 2) To change search by hour
- 3) To change search by minute
- 4) To change detailed search channel
- 5) **Video recorded status indicator** – Shows selected channel's recorded status.
- 6) Playback
- 7) Fast playback
- 8) Backward
- 9) Go to the first image
- 10) **Previous image** – Play selected image in reverse.
- 11) **Next image** – Play selected image after image.
- 12) Go to last image
- 13) **Stop** – Stops the playing of data.

## 7. SEARCH MODE

### 7.4 Detail Search

#### Detail Search

Converts to detail search screen from surveillance screen when pressing the detail search button.



- 1) **Brightness** – Controls brightness of search screen.
- 2) **Contrast** – Controls contrast of search screen.
- 3) **Pan** – Use mouse to move search screen.
- 4) **Zoom** – Use mouse to enlarge search screen.
- 5) **Save image** – Recorded image on disk by selecting the image.
- 6) **Filtering** – Improves video quality.
- 7) **print** – Print image.
- 8) **Print preview** – Print preview mode and print setup.
- 9) **AVI Backup** – Back up using standard AVI file.(Only FDD)
- 10) **Show/Hide Thumbnail image** – Show/Hide film play.
- 11) **Play film** – Plays film of selected image.
- 12) **EXIT** – Ends detail search and returns to search mode.

## 7.5 Search Screen Enlarge/Reduce and Move



Upon clicking the enlarge/reduce button, when dragging the image to the right the image will enlarge, and when dragged to the left, will reduce.



[Enlarge]



[Reduce]



Upon clicking the move button, the screen will move correspondent to the direction the screen is being dragged.



[Up, down]



[Left, right]

## 7.6 Filtering



Image filter

## 7. SEARCH MODE

### 7.7 Print Preview and Print



The user can preview the image before it is printed by clicking on the image in the Film play window.



- 1) **Print** – Prints preview image.
- 2) **Print setup** – Select the printer.
- 3) **Previous** – When the printed pages exceed one page, the previous page is previewed.
- 4) **Next** – When the printed pages exceed one page, the next page is previewed.
- 5) **Zoom In** – Enlarges preview image.
- 6) **Zoom Out** – Reduces preview image.
- 7) **1 x 2** – Preview in 1 x 2 layout.
- 8) **2 x 4** – Preview in 2 x 4 layout.
- 9) **4 x 8** – Preview in 4 x 8 layout.
- 10) **Close** – Closes print preview window.



If printed directly using the print button, images will be printed only in 1x2 layout.

## 7.8 Disk Save



Upon selecting the image on the film play window and pressing the save button, the user can save the selected image in either Bitmap or JPEG file.



The file names are automatically saved as follows.

[CAM\\_0\\_Camera #1\\_2001-8-8\\_7-30-33.53](#)

[Camera No.](#) [Camera name](#) [Date](#) [Time](#)

If the file name is not entered, the files will be saved as default.

If the file name is entered, the files will be saved as [entered file]01, [entered file]02 ...  
bmp/jpg

## 7.9 Save AVI File



Coping the AVI file from FDD.



Copied the AVI file, only FDD.

1 frame of a second.

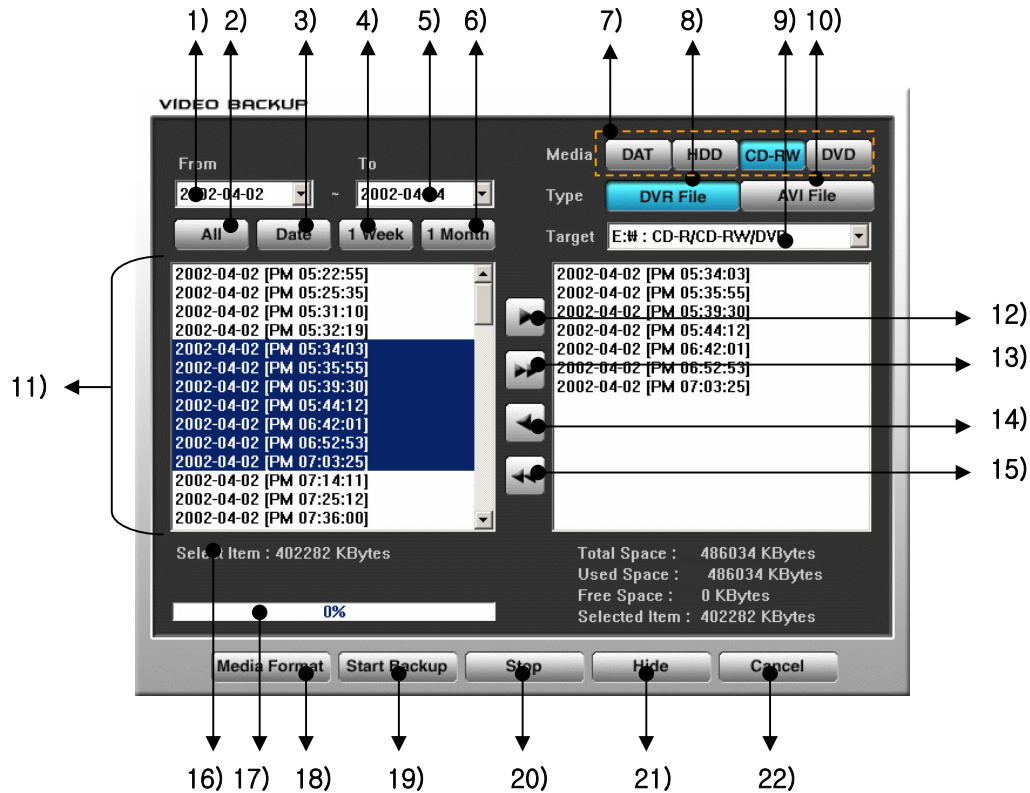


## 8. BACKUP MODE

### 8.1 DVR Data File Backup



The back-up window will appear upon pressing the back-up button.



- 1) **From** – HDD Shows oldest data saved in HDD. User can temporarily change this date.
- 2) **All** – Shows all data saved in HDD.
- 3) **Date** – From “1)” to “5)”.
- 4) **1 Week** – The previous week’s data from today is shown.
- 5) **To** – Shows most recent date saved. User can temporarily change this date.
- 6) **1 Month** – The previous month’s data from today is shown.
- 7) **Media** – Select media to be backed up.
  - 7-1) **DAT** : Back up data on tape unit.
  - 7-2) **HDD** : Back up data on HDD.
  - 7-3) **CD-RW** : Back up data on CD-RW.
  - 7-4) **DVD** : Back up data on DVD-RW.
- 8) **DVR File** – Back up as DVR data file.
- 9) **Target** – Select save folder for back up media.
- 10) **AVI File** – Back up using standard AVI file.



- 11) **Data list window** – Shows data list saved in DVR.
- 12) **To add selected data in back-up list**
- 13) **To add all data in back-up list**
- 14) **To delete selected data from back-up list**
- 15) **To delete all data from back-up list**
- 16) **Select Item**
- 17) **Show progress in back-up**
- 18) **Media format** – Formats selected media.
- 19) **Start backup** – Starts back-up of selected data.
- 20) **Stop** – End back-up in progress.
- 21) **Hide** – Hides back-up window. Back-up continues.
- 22) **Cancel** – Ends back-up and closes back-up window.

▪ **To backup data files**

- ① Press the data list button (All Days, Week, Month) and indicate the saved data list.
- ② Select the data to be backed up and press the ► button to add to back-up list.
- ③ Select back-up media type.
- ④ If needed format the back-up media.
- ⑤ Press the back-up start button to start saving data.
- ⑥ By pressing the hide button, the user can use the DVR system while backing up data.



In order to back up DAT, CD-RW, DVD-RAM and DVD-RW a separate equipment and media software must be installed.

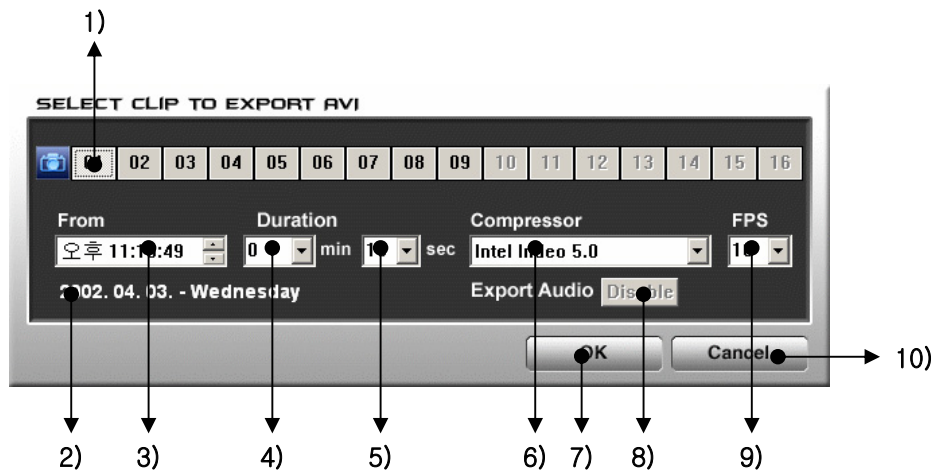
1. DAT : Datman (Windows 98 Only)
2. CD-RW : Direct CD
3. DVD-RAM : Write DVD! For 98, Write DVD Pro! For 98, 2000
4. HP DVD+RW : HP DLA

Details should be consulted in the backup equipment installation guide.

The method of formatting media is different for different backup equipment. Details regarding the methods should be consulted in the backup software manual which is included along with the backup software.

## 8.2 AVI File Backup

By selecting the AVI file type in the backup window and by double-clicking on the date on the data file list or selecting the dates, and finally pressing the backup start button, the AVI file backup window will appear.



- 1) **Channel selection** – Select the channel to backup AVI.
- 2) **Select date** – Shows selected date.
- 3) **From** – Shows time to start backup AVI files.
- 4) **Duration (minutes) to be saved**
- 5) **Duration (seconds) to be saved**
- 6) **Compression** – Selected the compression process.
- 7) **OK** – Start AVI file backup
- 8) **Audio save activate/non-activate** – Activated when audio is simultaneously saved.
- 9) **FPS** – Set number of frames to be converted to AVI file
- 10) **Cancel** – Cancels AVI file backup and closes window.



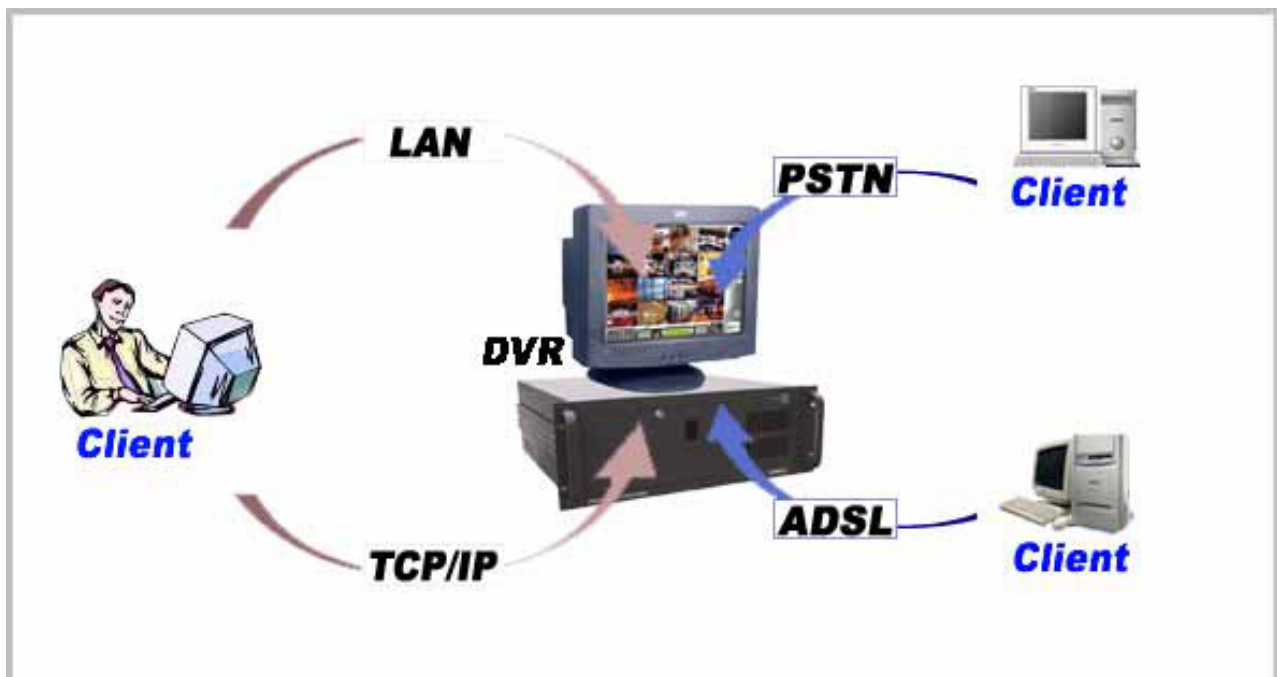
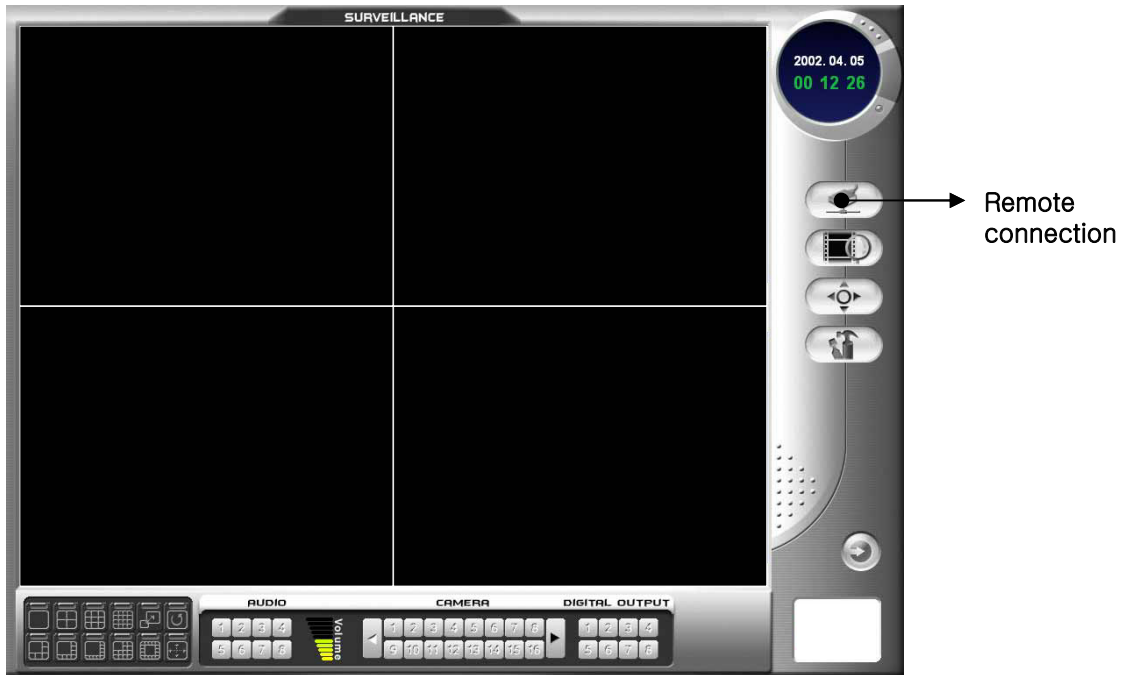
AVI files are saved as “date\_channel\_number.avi” under the target drive. For example, An AVI file backed up in channel 1 on March 31 2002 will be “20020331\_CH1\_0.AVI”.

Saved AVI files can be played using AVI file supporting media players. By selecting view caption on the media player, the user can check the saved date and time.

## 9. CLIENT (Remote)

### 9.1 Remote Connection

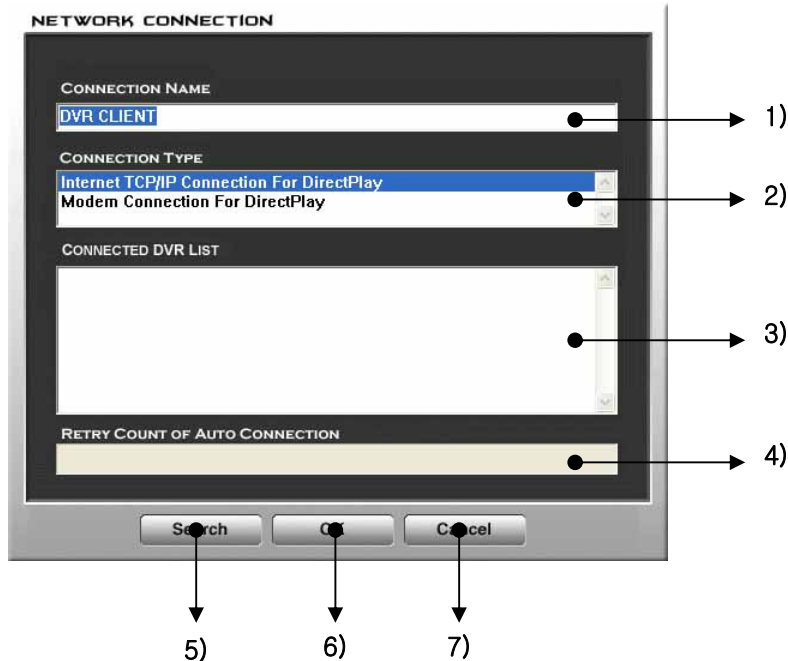
Install the Client program and the remote DVR program will start.



DVR Network Constitution

## 9. CLIENT (Remote)

By pressing the remote connection button, the conversation box to connect to the DVR system will appear on the screen.



- 1) **CONNECTION NAME** – Enter client name to be used on the network.
- 2) **CONNECTION TYPE** – Selected the connection type.
- 3) **CONNECTED DVR LIST**
- 4) **RETRY COUNT OF AUTO CONNECTION** – Shows connection progress with DVR.
- 5) **Search** – Searches DVR from remote area.
- 6) **OK** – Attempt connection with DVR from remote area.
- 7) **Cancel** – Cancels connection and closes connection window.

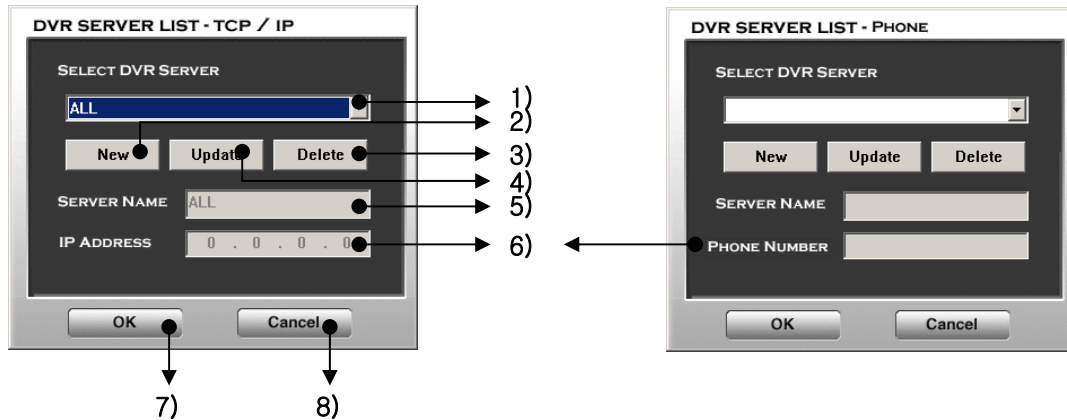


The simultaneous number of users is limited to 5 when connecting to DVR from client. The number of users that have access to remote search and set-up capability is limited to 1.

If using a modem, only 1:1 connection is possible, as a modem must also be installed in the DVR server. If the server is connected to the internet and only the client is using a modem, The user must use telephone connected internet service.

▪ Remote DVR Search

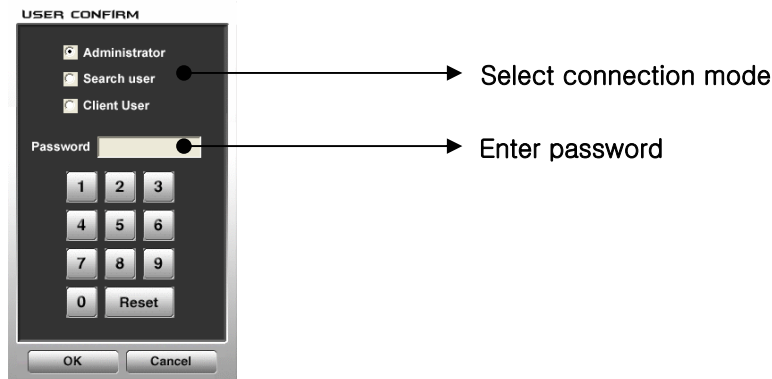
Selected the “Internet TCP/IP Connection For DirectPlay” or “Modem Connection For DirectPlay”, press the “Search” button.



- 1) **Registry** – Selected the server or connection site.  
(ALL – DVR server IP address and if connected through LAN, DVR server is found the list will show.)
- 2) **New/Cancel** – Click the “New” button to 5) and 6) ENABLE for input.
- 3) **Update** – Click the “Update” button to Save.
- 4) **Delete** – Click the “Delete” button to Clear the server or site.
- 5) **SERVER NAME** – Enter the server name or site name.
- 6) **IP ADDRESS / PHONE NUMBER** – Enter the IP address or phone numbers.
- 7) **OK** – Click the OK button to DVR server is found for show.
- 8) **Cancel**.

From the searched DVR list, select the DVR to be connected.

Then press the connect button to allow for the password verification window to appear in order to connect to the DVR.



Select the connection mode → enter the password → press the “OK” button

## 9. CLIENT (Remote)

### 9.2 Remote Surveillance Capability

- Remote DVR access



The method in operating the DVR using the client is identical to accessing through the DVR server. The client has access to all capabilities including surveillance, search, pan/tilt and set-up.

- Limits in remote DVR access

- 1) The remote program compresses the image data, therefore the image may not be as clear, and can not provide real-time video due to the limit in number of frames.
- 2) For the modem, the user can view one frame every 3 seconds, therefore in order to minimize the delay, the user should convert to 1x1 layout.
- 3) As for the remote pan/tilt, because of the lag in time, the user would be better off using a faster connection.
- 4) The user can not remotely access the DVR server backup capability.
- 5) The user can not remotely reset any of the DVR server programs.  
(Changing of camera type, focus, activate/non-activate, and network name)

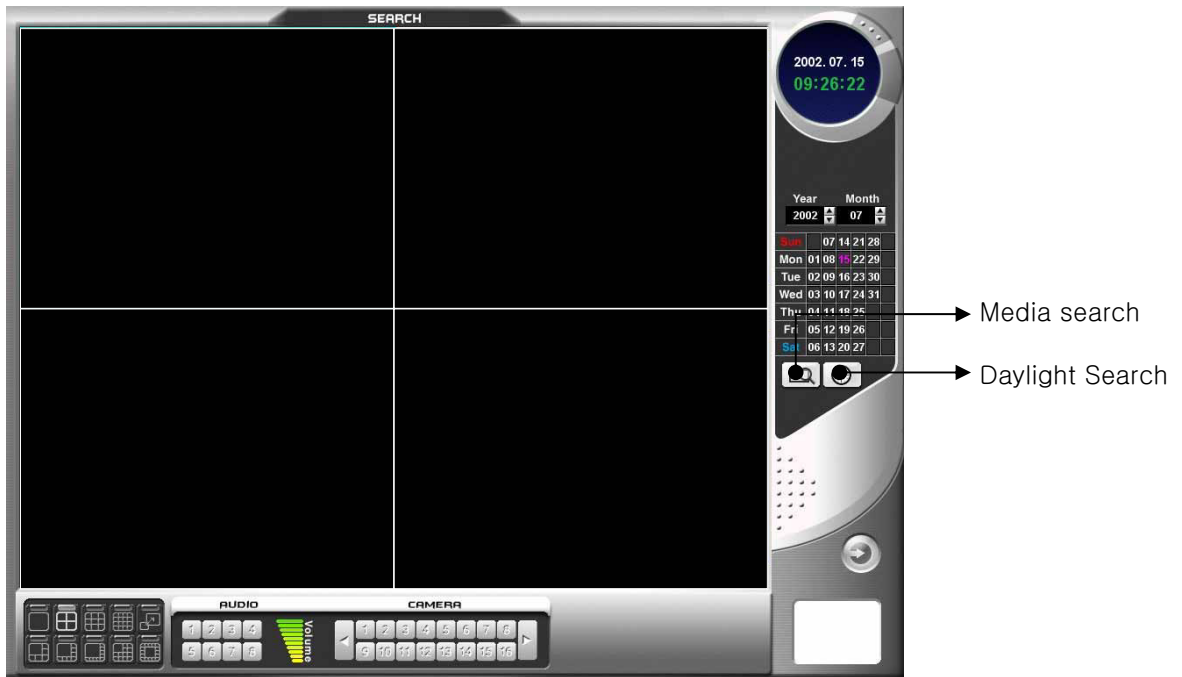


The DVR server's performance is affected when a client is connected.  
When not in use, please end the connection.

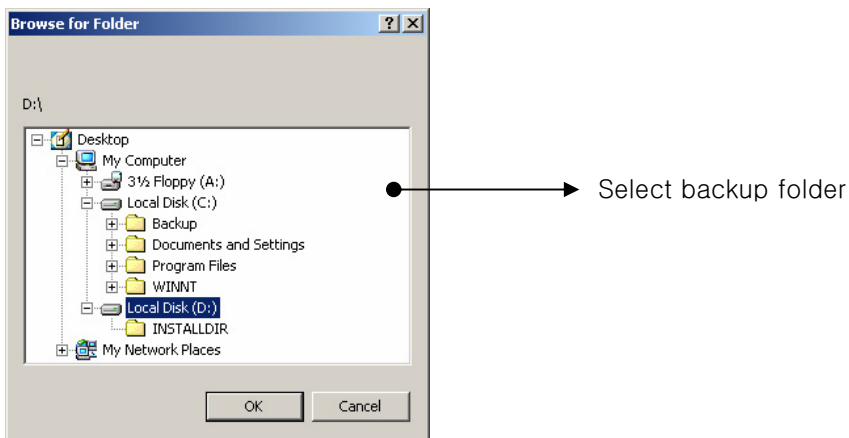
# 10. BACKUP VIEWER

## 10.1 Media Search

Install the Backup Viewer program and start to view the following program.



By first pressing the media search button and then selecting the folder with the DVR saved data, the user can view the backed up DVR data files.



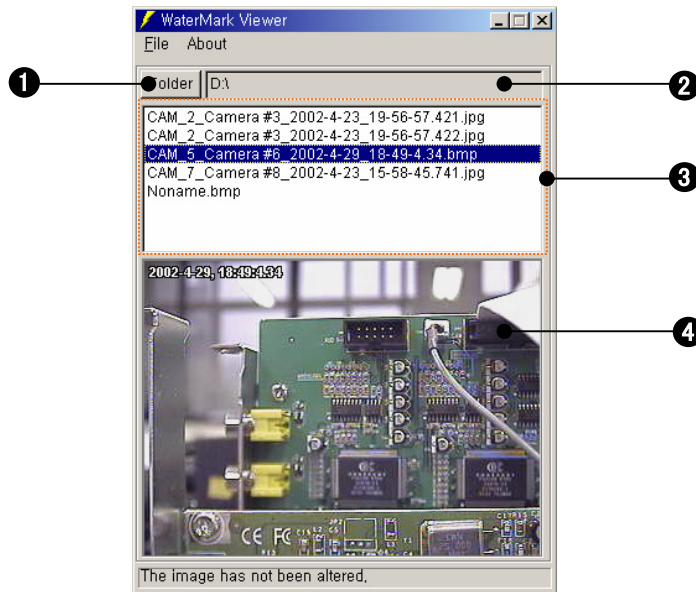
The operation of searching and playing backup data is identical to the method used for the DVR server.

The user has access to detailed search capability in Backup Viewer.

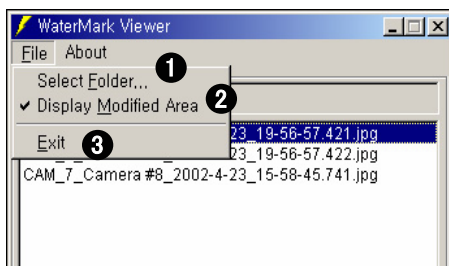
# 11. WATERMARK VIEWER (Option)

**Watermarking** – Technology used in inserting specified data such as copyright information that is undetectable through the human eye or ear, in multimedia contents such as audio, video and images. Hence, watermarks are hidden data inserted in order to verify the originality of the contents. The watermark can be an image or text.

Upon purchase, loading the included CD will allow for the following screen to appear. Clicking the watermark viewer on the installation screen will properly install the program.



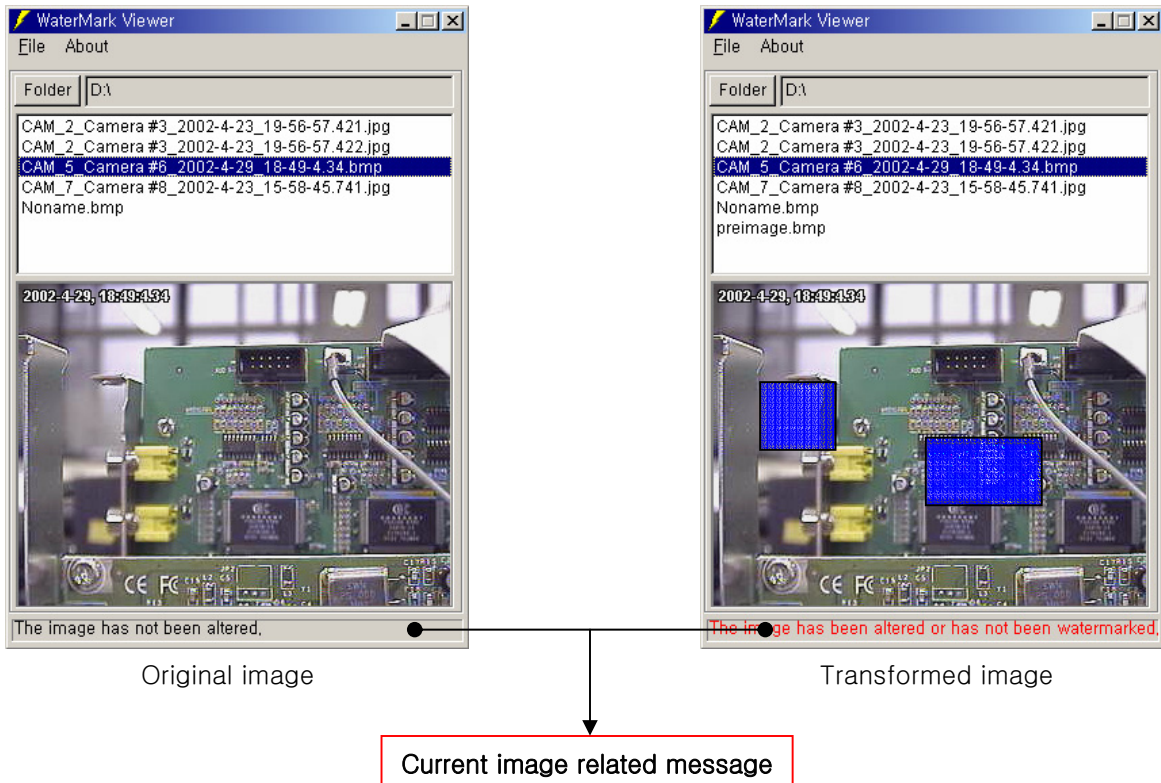
- ❶ Folder – Select folder with Water Viewer type files.
- ❷ Address – Indicates currently selected folder.
- ❸ List – Will show list of Water Viewer type files.
- ❹ Shows image




- ❶ Select Folder – Select folder with Water Viewer type files.
- ❷ Display Modified Area – Select to show or hide transformed image.
- ❸ Exit

**About** Shows Water Viewer version.



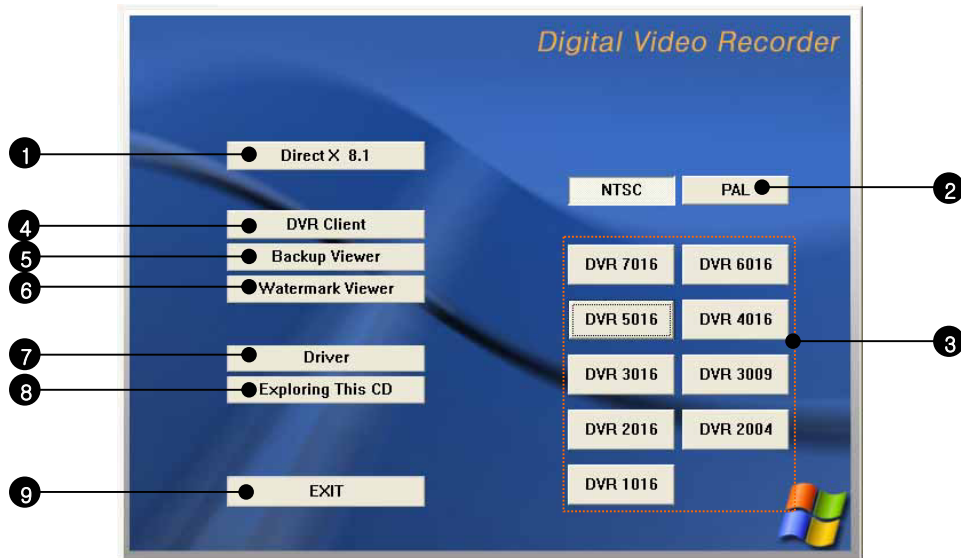


-  Message – The image has not been altered.  
The image has been altered or has not been watermarked.



If the file type is not water viewer, then the files can not be viewed on this program.

## 12. PROGRAM INSTALL



- 1 DirectX 8.1 Install
- 2 Select camera type
- 3 Install appropriate DVR server program
- 4 Install Client
- 5 Install Backup Viewer
- 6 Install Watermark Viewer
- 7 Install VGA, LAN, Sound Card driver
- 8 Run Windows explorer
- 9 Exit



The DVR server program is affected by the specifications of the hardware, therefore install only the hardware recommended by the supplier.

Installation programs and various operating programs can be upgraded to improve the DVR's performance. Download the supplier's upgraded or patched programs through the supplier homepage.

# 13. SYSTEM SPECIFICATION

	C 7016	C 6016	C 5016	C 4016
<b>Maximum image Display</b>	480 frame/sec	480 frame/sec	480 frame/sec	480 frame/sec
<b>Maximum recording speed</b>	270 frame/sec (320x240)	240 frame/sec (320x240)	120 frame/sec	30 frame/sec
<b>Focus</b>	160X120, 320X240, 640X480	160X120, 320X240, 640X480	160X120, 320X240, 640X480	160X120, 320X240, 640X480
<b>Compressed Image SIZE</b>	2 ~ 15 Kbytes / frame	2 ~ 15 Kbytes / frame	2 ~ 15 Kbytes / frame	2 ~ 15 Kbytes / frame
<b>Image compression Method</b>	MJPEG Enhanced MJPEG	MJPEG Enhanced MJPEG	MJPEG Enhanced MJPEG	MJPEG Enhanced MJPEG
<b>Screen split mode</b>	"1, 4, 9, 16", "1+5, 1+7,1+9, 1+12, 1+16"	"1, 4, 9, 16", "1+5, 1+7,1+9, 1+12, 1+16"	"1, 4, 9, 16", "1+5, 1+7,1+9, 1+12, 1+16"	"1, 4, 9, 16", "1+5, 1+7,1+9, 1+12, 1+16"
<b>Remote connection</b>	LAN, MODEM	LAN, MODEM	LAN, MODEM	LAN, MODEM
<b>Detection method</b>	Motion, Sensor, Audio Detection	Motion, Sensor, Audio Detection	Motion, Sensor, Audio Detection	Motion, Sensor, Audio Detection
<b>Camera input</b>	16 CH	16 CH	16 CH	16 CH
<b>Sensor/control</b>	8 CH	8 CH	8 CH	8 CH
<b>PAN/TILT capability</b>	Possible	Possible	Possible	Possible
<b>Audio</b>	8 CH	8 CH	4 CH	1 CH

	C 3016	C 3009	C 2004 C 2016	C 1016
<b>Maximum image Display</b>	240 frame/sec	270 frame/sec	120 frame/sec	30 frame/sec
<b>Maximum recording speed</b>	240 frame/sec	270 frame/sec	120 frame/sec	30 frame/sec
<b>Focus</b>	160X120, 320X240, 640X480	160X120, 320X240, 640X480	160X120, 320X240, 640X480	160X120, 320X240, 640X480
<b>Compressed image SIZE</b>	2 ~ 15 Kbytes / frame	2 ~ 15 Kbytes / frame	2 ~ 15 Kbytes / frame	2 ~ 15 Kbytes / frame
<b>Image compression method</b>	MJPEG Enhanced MJPEG	MJPEG Enhanced MJPEG	MJPEG Enhanced MJPEG	MJPEG Enhanced MJPEG
<b>Screen split mode</b>	"1, 4, 9, 16", "1+5, 1+7,1+9, 1+12, 1+16"	"1, 4, 9", "1+5, 1+7,1+9"	"1, 4", "1+5"	"1, 4, 9, 16", "1+5, 1+7,1+9, 1+12, 1+16"
<b>Remote connection</b>	LAN, MODEM	LAN, MODEM	LAN, MODEM	LAN, MODEM
<b>Detection method</b>	Motion, Sensor, Audio Detection	Motion, Sensor, Audio Detection	Motion, Sensor, Audio Detection	Motion, Sensor, Audio Detection
<b>Camera input</b>	16 CH	9 CH	4 CH 16 CH	16 CH
<b>Sensor/control</b>	8 CH	8 CH	4 CH 8 CH	8 CH
<b>PAN/TILT capability</b>	Possible	Possible	Possible	Possible
<b>Audio</b>	8 CH	8 CH	4 CH	1 CH

