

KRATOS

HD Digital Video Recorder

Manual (Rev.1)

L-Series / P-Series





WARNING

RISK OF ELECTRIC SHOCK
DO NOT OPEN



**WARNING: TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK).
NO USER-SERVICEABLE PARTS INSIDE.**



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of un-insulated “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and Maintenance (servicing) instructions in the literature accompanying the appliance.

COMPLIANCE NOTICE OF FCC:

THIS EQUIPMENT HAS BEEN TESTED AND FOUND TO COMPLY WITH THE LIMITS FOR A CLASS A DIGITAL DEVICE, PURSUANT TO PART 15 OF THE FCC RULES. THESE LIMITS ARE DESIGNED TO PROVIDE REASONABLE PROTECTION AGAINST HARMFUL INTERFERENCE WHEN THE EQUIPMENT IS OPERATED IN A COMMERCIAL ENVIRONMENT. THIS EQUIPMENT GENERATES, USES, AND CAN RADIATE RADIO FREQUENCY ENERGY AND IF NOT INSTALLED AND USED IN ACCORDANCE WITH THE INSTRUCTION MANUAL, MAY CAUSE HARMFUL INTERFERENCE TO RADIO COMMUNICATIONS. OPERATION OF THIS EQUIPMENT IN A RESIDENTIAL AREA IS LIKELY TO CAUSE HARMFUL INTERFERENCE, IN WHICH CASE USERS WILL BE REQUIRED TO CORRECT THE INTERFERENCE AT THEIR OWN EXPENSE.

CAUTION: CHANGES OR MODIFICATIONS NOT EXPRESSLY APPROVED BY THE PARTY RESPONSIBLE FOR COMPLIANCE COULD VOID THE USER’S AUTHORITY TO OPERATE THE EQUIPMENT. THIS CLASS OF DIGITAL APPARATUS MEETS ALL REQUIREMENTS OF THE CANADIAN INTERFERENCE-CAUSING EQUIPMENT REGULATIONS.

The information in this manual is believed to be accurate as of the date of publication. The information contained herein is subject to change without notice. Revisions or new editions to this publication may be issued to incorporate such changes.

IMPORTANT SAFEGUARDS

1. Read Instructions

All the safety and operating instructions should be read before the appliance is operated.

2. Retain Instructions

The safety and operating instructions should be retained for future reference.

3. Cleaning

Unplug this equipment from the wall outlet before cleaning it. Do not use liquid aerosol cleaners. Use a damp soft cloth for cleaning.

4. Attachments

Never add any attachments and/or equipment without the approval of The manufacturer as such additions may result in the risk of fire, electric shock or other personal injury.

5. Water and/or Moisture

Do not use this equipment near water or in contact with water.

6. Accessories

Do not place this equipment on an unstable cart, stand or table. The equipment may fall, causing serious injury to a child or adult, and serious damage to the equipment. Wall or shelf mounting should follow the manufacturer's instructions, and should use a mounting kit approved by the manufacturer.

7. Power Sources

This equipment should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power, please consult your equipment dealer or local power company.

8. Power Cords

Operator or installer must remove power before handling the equipment.

9. Lightning

For added protection for this equipment during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the cable system. This will prevent damage to the equipment due to lightning and power-line surges.

10. Overloading

Do not overload wall outlets and extension cords as this can result in the risk of fire or electric shock.

11. Objects and Liquids

Never push objects of any kind through openings of this equipment as they may touch dangerous voltage points or short out parts that could result in a fire or electric shock. Never spill liquid of any kind on the equipment.

12. Servicing

Do not attempt to service this equipment yourself. Refer all servicing to qualified service personnel.

13. Damage requiring Service

Unplug this equipment from the wall outlet and refer servicing to qualified service personnel under the following conditions:

A. When the power-supply cord or the plug has been damaged.

B. If liquid is spilled, or objects have fallen into the equipment.

C. If the equipment has been exposed to rain or water.

D. If the equipment does not operate normally by following the operating instructions, adjust only those controls that are covered by the operating instructions as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the equipment to its normal operation.

E. If the equipment has been dropped, or the cabinet damaged.

F. When the equipment exhibits a distinct change in performance — this indicates a need for service.

14. Replacement Parts

When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or that have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock or other hazards.

15. Safety Check

Upon completion of any service or repairs to this equipment, ask the service technician to perform safety checks to determine that the equipment is in proper operating condition.

16. Field Installation

This installation should be made by a qualified service person and should conform to all local codes.

17. Correct Batteries

Warning: Risk of explosion if battery is replaced by an incorrect type. Dispose of used batteries according to the instructions.

18. Tmra

A manufacturer's maximum recommended ambient temperature (Tmra) for the equipment must be specified so that the customer and installer may determine a suitable maximum operating environment for the equipment.

19. Elevated Operating Ambient Temperature

If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than ambient room temperature. Therefore, consideration should be given to installing the equipment in an environment compatible with the manufacturer's maximum rated ambient temperature (Tmra).

20. Reduced Air Flow

Installation of the equipment in the rack should be such that the amount of airflow required for safe operation of the equipment is not compromised.

21. Mechanical Loading

Mounting of the equipment in the rack should be such that a hazardous condition is not caused by uneven mechanical loading.

22. Circuit Overloading

Consideration should be given to connection of the equipment to supply circuit and the effect that overloading of circuits might have on over current protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

23. Reliable Earthing (Grounding)

Reliable grounding of rack mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g., use of power strips).



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1. SAFETY CAUTIONS

- ※ Follow these instructions to keep the user safe and prevent property damage.
Read them carefully before the use of the product.
The responsibility falls on the user to install and use the product properly.

1.1 Power Source-related

- ① Insert the power plug fully and firmly into the power source.
– Unstable connection may cause fire.



- ② Do not use a damaged power cord, plug or loose outlet.
– It may cause electric shock or fire.



- ③ Do not plug several devices exceeding the rated capacity into a single outlet.
– Abnormal heat generation at the outlet may cause fire.



- ④ Do not bend nor pull the power cord. Do not place a heavy object on top of it.
– It may cause electric shock or fire.



- ⑤ When unplugging the power cord, do not pull it out by touching the cord area or do not touch it with a wet hand.
– It may cause electric shock or fire.



1.2 Installation-related

- ① Do not place candlelight or lit cigarettes on top of the product or do not install the product near heating devices.
– It may cause fire.



- ② Do not place the power cord near heating devices.
– The exterior of the cord may melt, causing electric shock or fire.



- ③ Do not install the product in a place where a large amount of oil, smoke or moisture exists. Do not install the product in a place where water is splashed.

- It may cause electric shock or fire.



- ④ Do not place the product on top of an unstable cart, stand or table. Do not block the air ventilation.
– Internal temperature rise may cause fire.



- ⑤ Do not install the product in a narrow place. Keep the product a certain distance away from the wall.
– Internal temperature rise may cause fire.



1.3 Cleaning and Usage-related

- ① Unplug the power plug during lightning, thunderstorm or when not in use for long periods of time.
- It may cause electric shock or fire.



- ② When taking the battery out from the remote control, keep them away from children to prevent from swallowing incidents. Keep the battery away from babies.
- If a child swallowed the battery, immediately consult a doctor.



- ③ Do not place a container or vase filled with water, liquids, chemicals, small pieces of metal or heavy objects on the product.
- If liquid flows into the product, it may cause electric shock or fire. A heavy object may drop from the top of the product, causing injury.



- ④ Do not use or store the product near combustible sprays and other flammable substances.
- It may cause explosion or fire.



- ⑤ If dust or water is present at the power plug's pin and contact area, wipe out the area.
- may cause electric shock or fire.



- ⑥ When cleaning the product, unplug the power cord and gently wipe using a soft cloth. Do not directly spray water on the product or do not use benzene, thinner or alcohol when cleaning.
- It may cause electric shock or fire.



- ⑦ When replacing the battery, be sure to check the correctness of the polarity.
- If the battery polarity is wrong, generation of abnormal heat or leakage of internal liquid may cause fire, injury or contamination in the surrounding area.



- ⑧ In case the product was dropped or the case was damaged, switch off the product and unplug the power cord. Have a technician repair the product.
- If the damaged product is used without repair, it may cause electric shock.



- ⑨ Do not repair or disassemble the product by yourself or do not connect other connection devices without the manufacturer's approval.
- If repair is required, contact the reseller. Failure to follow this instruction may cause electric shock or fire.





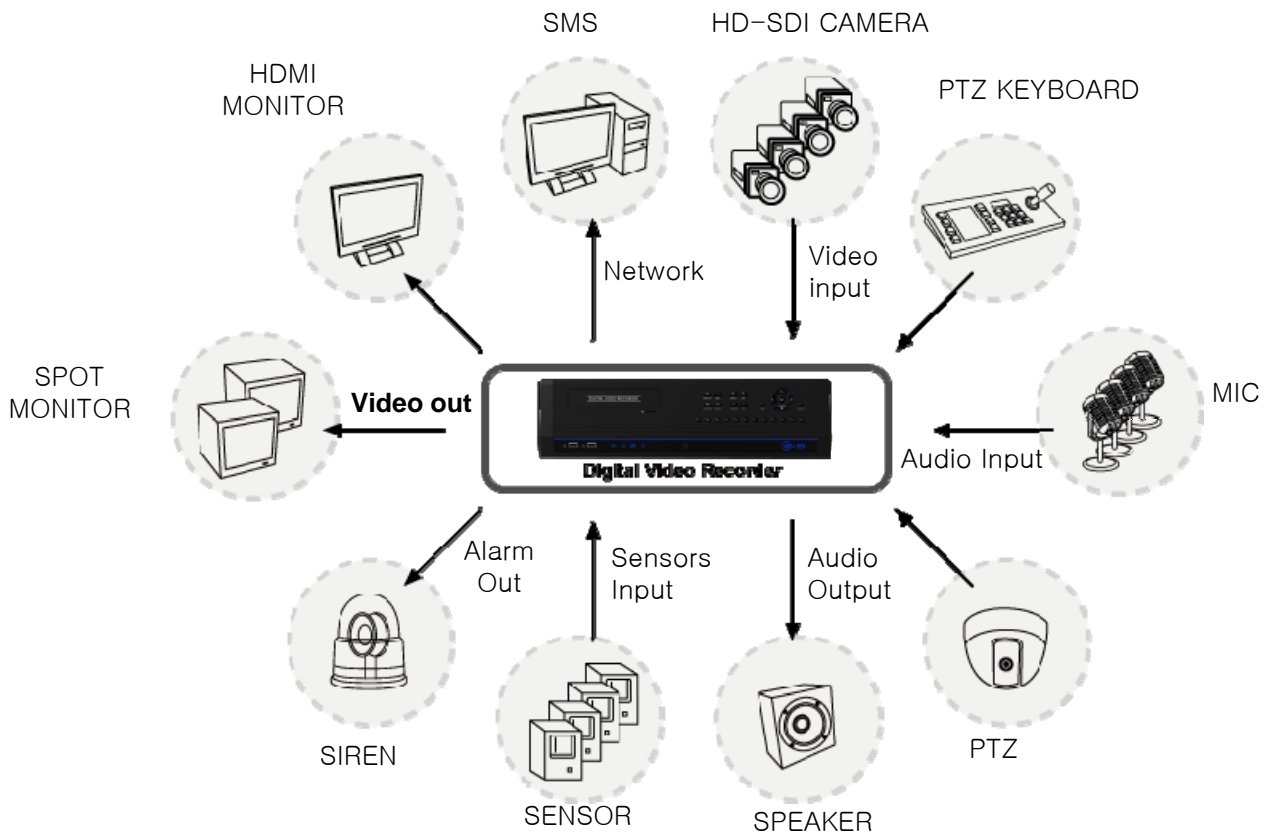
2. OUTLINE

2.1 Functions

This DVR provides Full HD Display and Playback.

- Based on Private Development ASIC Technology and Linux OS.
- Pentaplex Operation Performance (Live, Recording, Playback, Backup, Network)
- 16CH / 8CH / 4CH HD-SDI (SMPTE 292M) Video input.
- 1080P / 720P video compression.
- Various Recording modes. (Manual / Schedule / Event)
- Various Search functions. (Date/Hour search, Calendar search, Event Search)
- Various Playback functions. (Normal / Fast / Slow / Step / Reverse / Smart / Panorama / Repeat)
- Supports E-SATA & SATA II
- Digital Zoom in Playback and Live View.
- Gigabit Network.
- Supports up to 16 channel audio.
- Mouse control.
- E-mail function (Alarm, Motion detection, Video loss, HDD fail, System events)

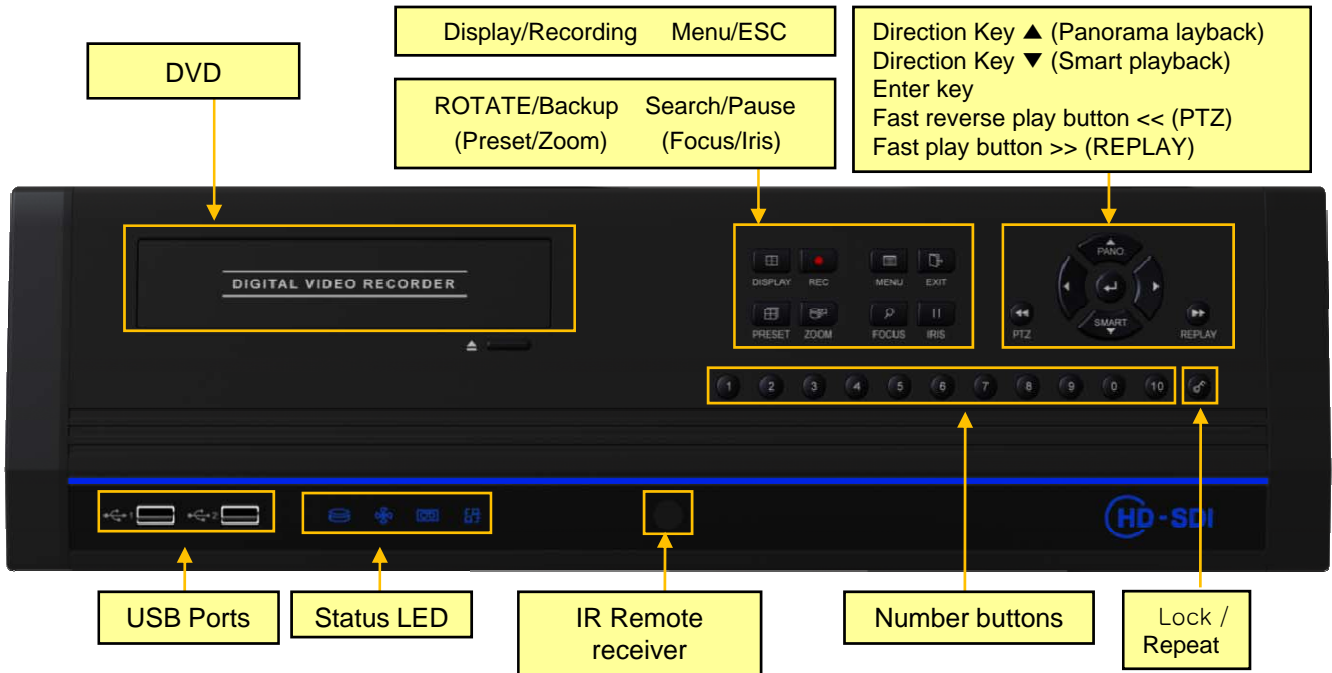
2.2 System Organization



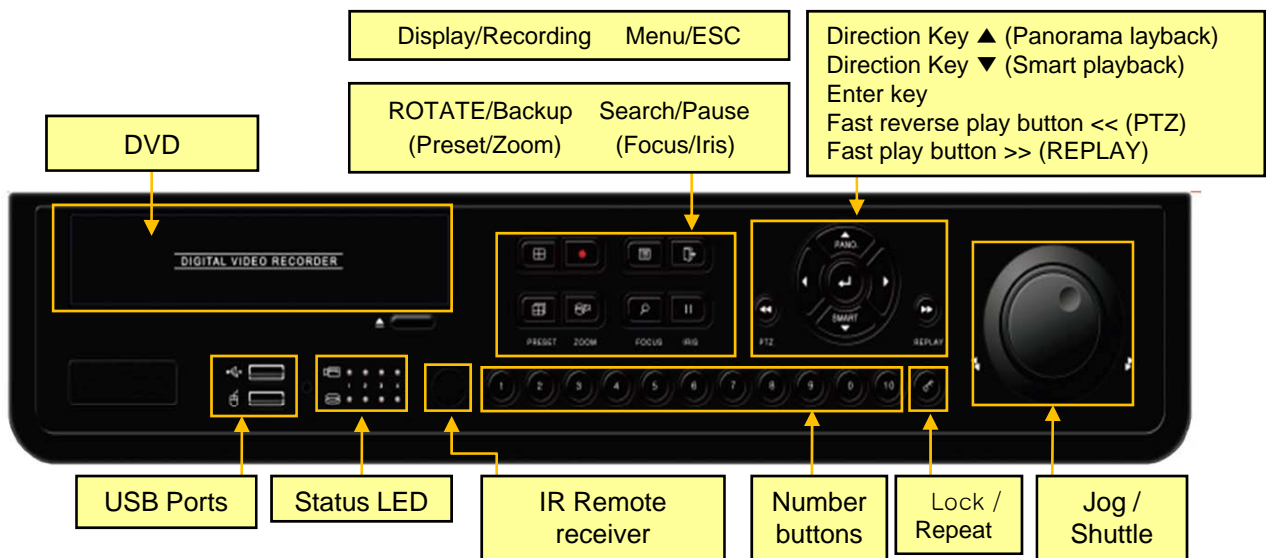
3. DVR ORGANIZATION

3.1 Front Panel Description

▪ Model P16



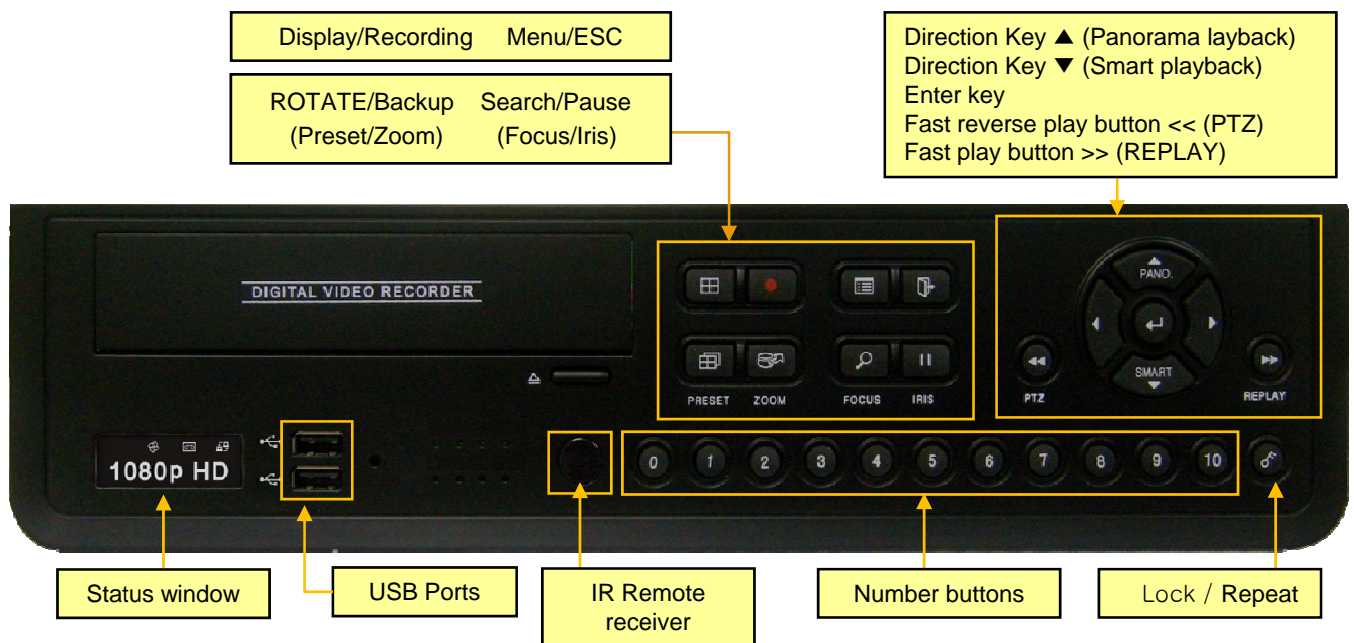
▪ Models P800/P1600



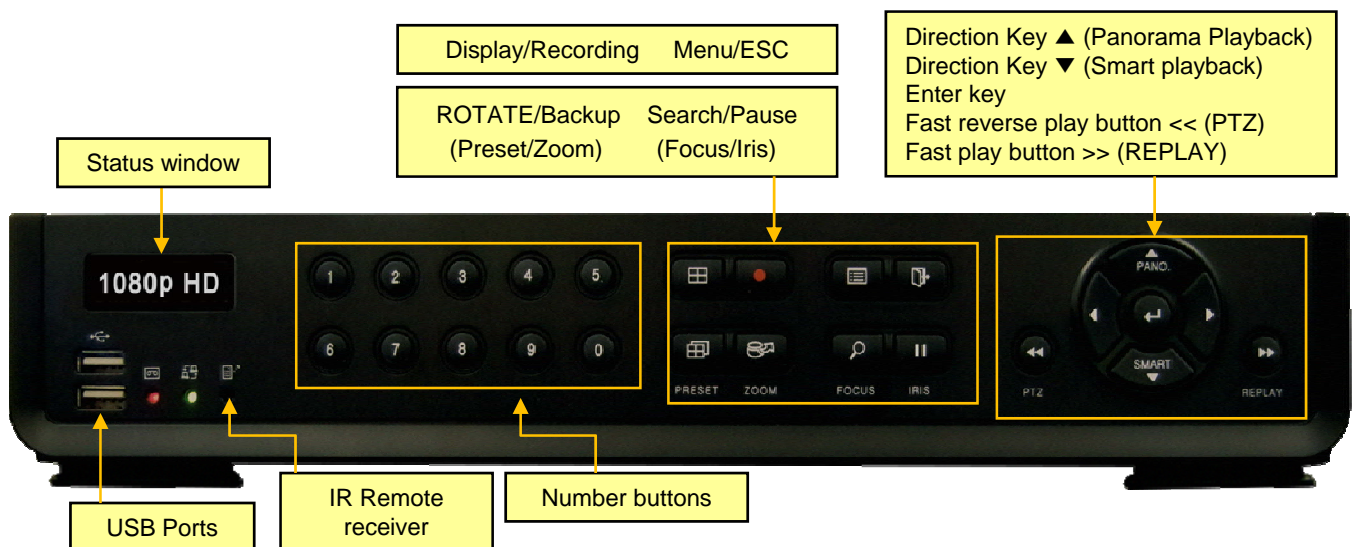
3. DVR ORGANIZATION

3.1 Front Panel Description

▪ Model L4



▪ Model L400



※ STATUS LED

Recording LED

Recording LED is turned on when DVR is recording.

Network LED

Network LED is turned on when DVR is connected to a network.

※ Front Button

The front panel of DVR is similar to normal VCR or Multiplexer and the functions are also similar . Some front buttons have various functions and are used for DVR initial setting and operation.

NUMBER buttons (0 ~ 9)

Displayed selected camera number to full screen.
And also these buttons are used to enter a password.

NOTE: If user wants to use channel numbers greater than 10 channel, pres the 10 button, quickly followed by the units button.

E.g. $10 + 1 = 11$, $10 + 6 = 16$

DISPLAY button

Display split screens 1, 4, 7, 9, 10, 13, 16.

REC button

Start recording when this button is pressed in live mode.

MENU button

Enter Setup menu. User needs to have administrator privileges.
Returns to previous screen if this button is pressed again.

ESC button

Exit current screen or return to previous screen.

ROTATE button (Preset)

Display next channel if this button is pressed.
In PTZ mode, It is used as a Preset function button.

BACKUP button (Zoom)

Enter Backup menu. Returns to previous screen if this button is pressed again.
In PTZ mode, it is used as Zoom function button.

SEARCH button (Focus)

Enter Search menu. The password is required for search.
Returns to previous screen if this button is pressed again.
In PTZ menu, it is used for Focus function button.

PAUSE button (IRIS)

In Search mode, playback is paused by this button.
In PTZ mode, it is used for IRIS function button.

Direction buttons (▲, ▼, ◀, ▶)

These buttons are used to move to other menus or change the position of the CAMEO screen.
In PTZ mode, it is used for PAN/TILT function.

- ▲ : In Playback mode, it is Panorama search function button.
In PTZ mode, it is used to tilt the camera up.
- ▼ : In Playback mode, it is Smart search function button.
In PTZ mode, it is used to tilt the camera down.
- ◀ : In Playback mode, it is reverse play button. When playback is paused, you can step to the previous frame with each press.
In PTZ mode, it is used to pan the camera left.
- ▶ : In Playback mode, it is forward play button. When playback is paused, you can step to the next frame with each press.
In PTZ mode, it is use to pan the camera right.

NOTE: For the Smart search, recording data should be recorded by the Event recording. Otherwise, if the user tries to playback with Smart search, the screen is returned to Live View mode.

ENTER button

Execute the selected function or save the setup value.

FAST REVERSE PLAY button (PTZ)

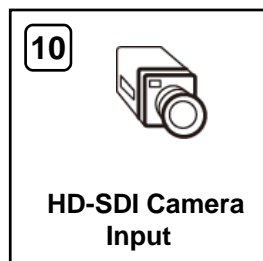
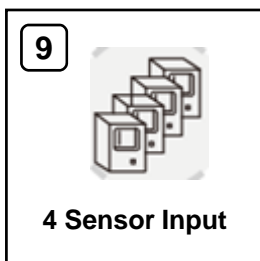
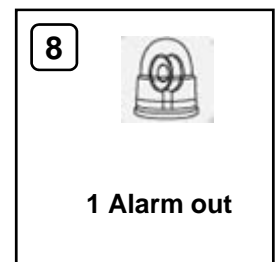
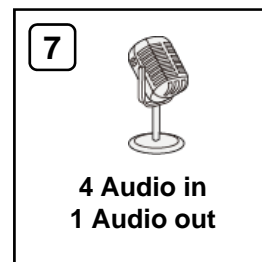
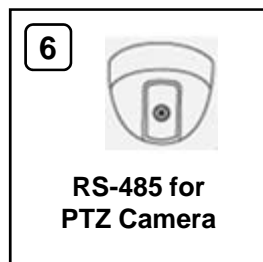
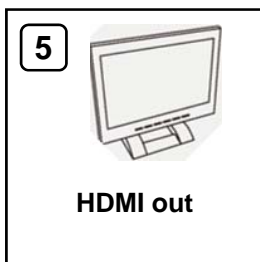
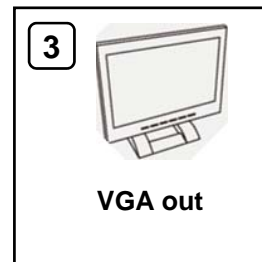
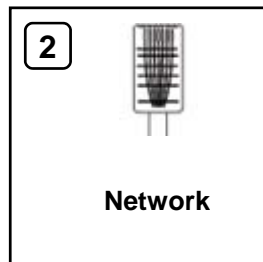
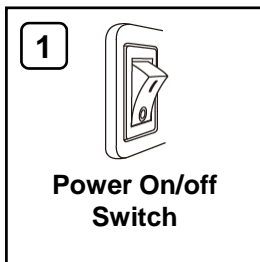
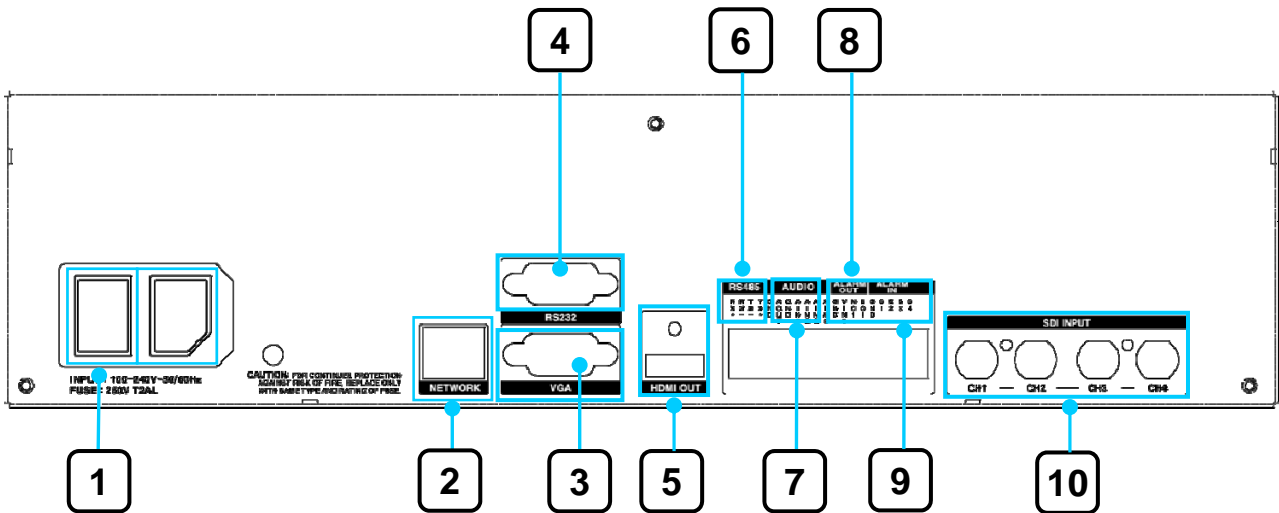
Playback with fast reverse. Playback speed is changed if this button is pressed repeatedly. (◀, ◀◀, ◀◀◀, ◀◀◀◀, ◀◀◀◀◀). In PTZ mode, it is used for Zoom out function button.
In Live View mode, switch to PTZ mode with this button.

FAST FORWARD PLAY button (PLAY)

Playback with fast forward. Playback speed is changed if this button is pressed repeatedly. (▶, ▶▶, ▶▶▶, ▶▶▶▶, ▶▶▶▶▶). In PTZ mode, it is used for Zoom in function button.
In Live View mode, the last portion of recorded video is played.

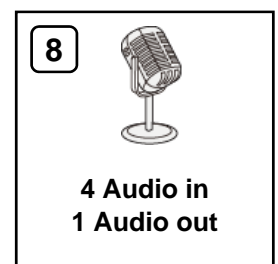
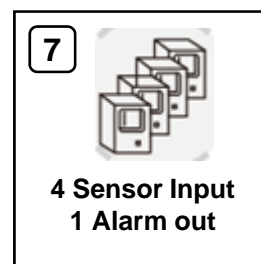
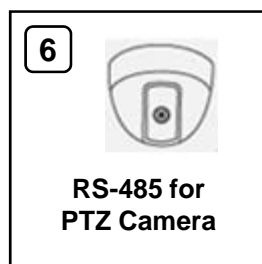
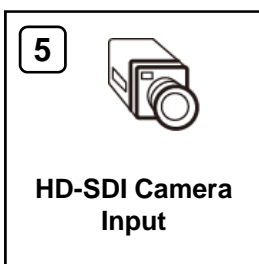
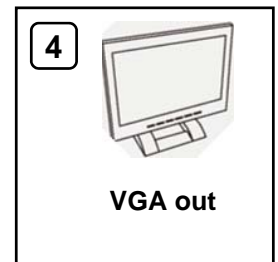
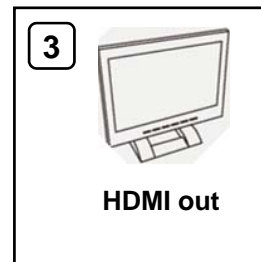
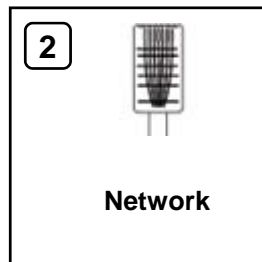
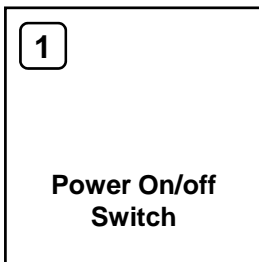
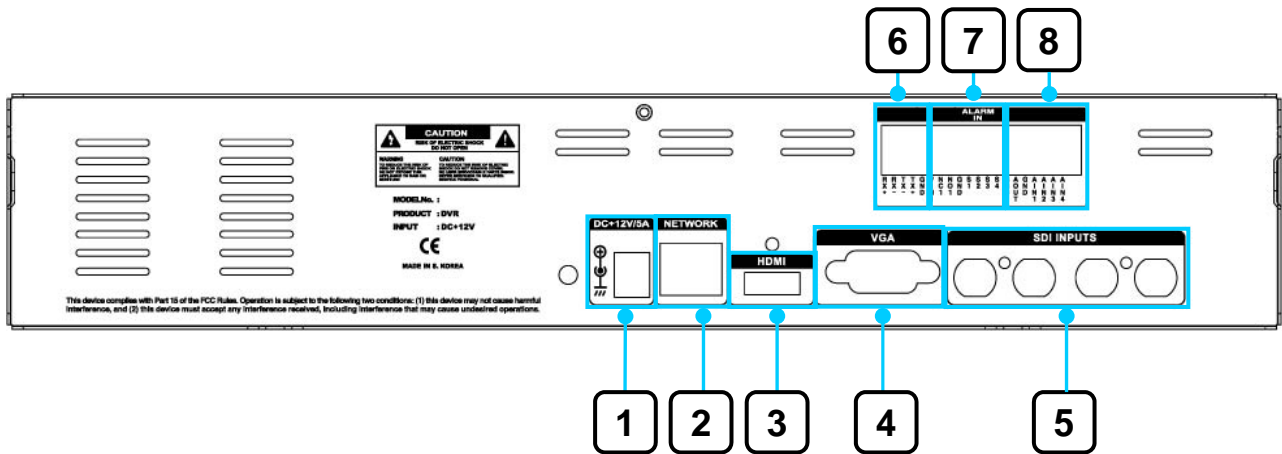
3.2 Real Panel

▪ Model L4

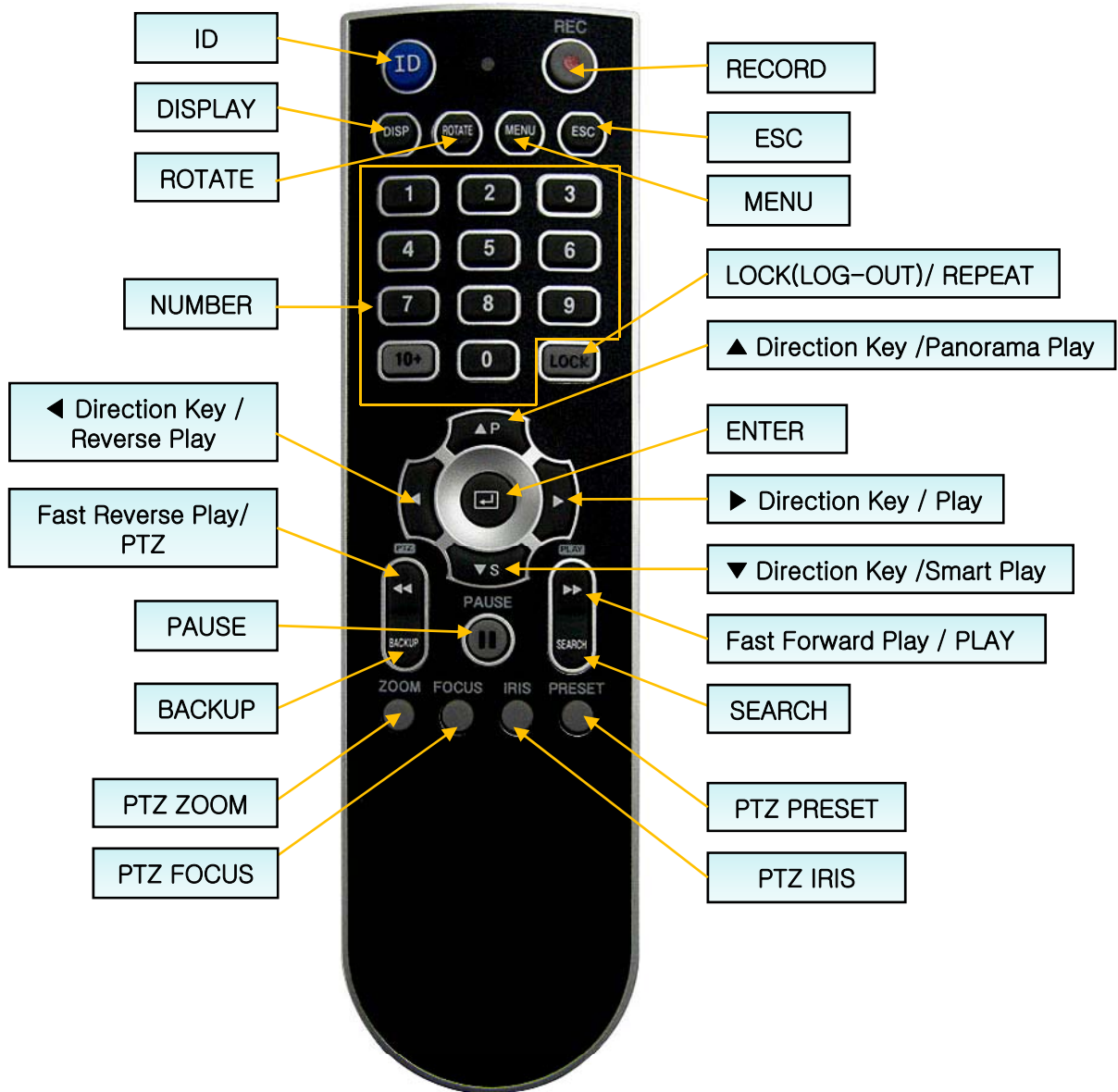


3.2 Real Panel

▪ Model S-400



3.3 Remote Controller



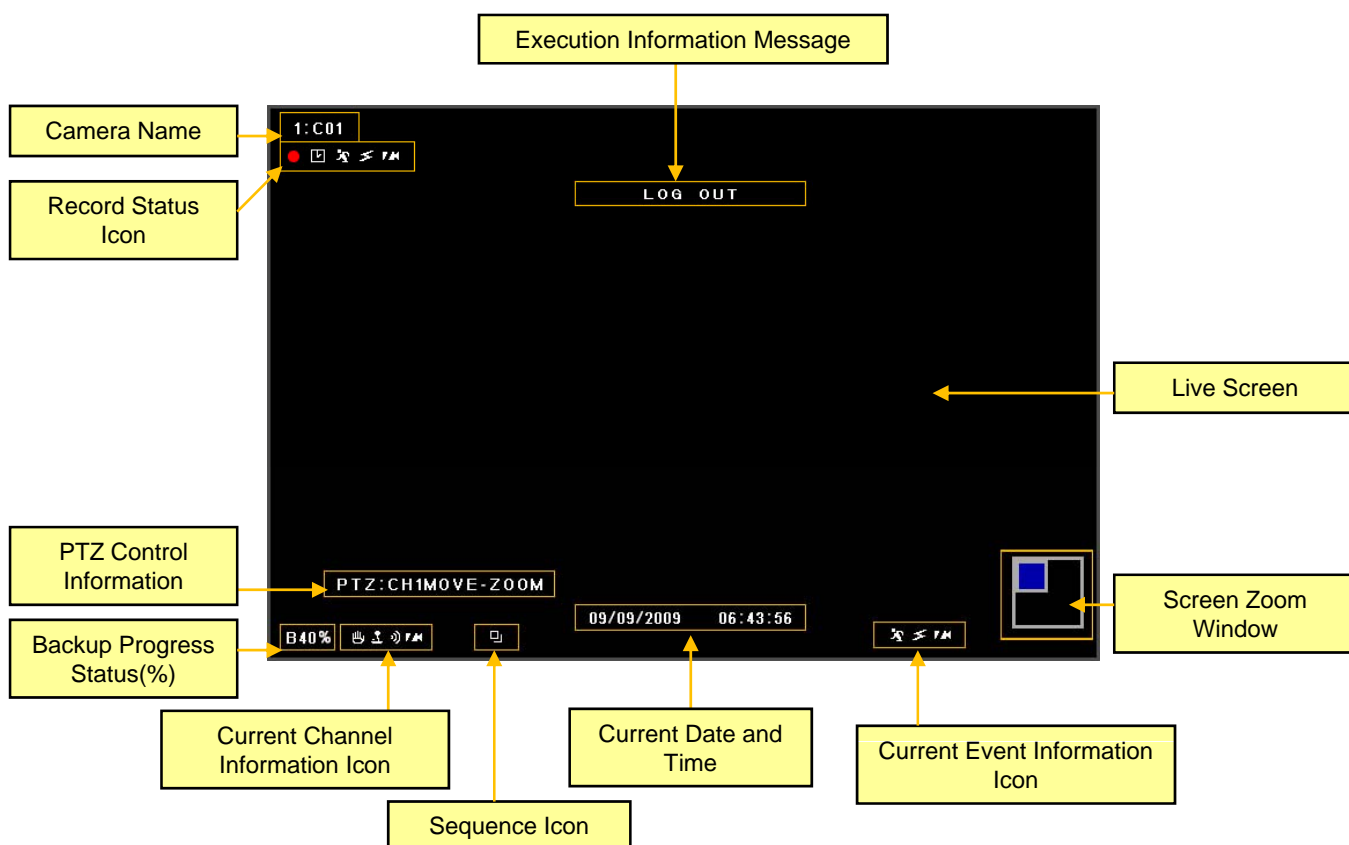
※ How to set ID

- ① Before setup the ID, Enter the GENERAL SETUP and set the ID first. (Default is 0)
- ② While pressing and holding the ID button, enter the two-digit unit address of the DVR.
- ③ If the unit address is a single digit, enter a two digit number by adding a leading zero.
(Example – If the unit address is 1, the input value is 01.)

※ A single remote controller can change ID from 0 to 19 and independently control up to 20 DVRs.

4. Live View

4.1 Live Screen



- Record Icon (Red)
When record in live screen.



- Time Icon
When record by designated time.



- Motion Icon
When motion has occurred.



- Sensor Icon
When sensor is occurred.



- Video-loss Icon
When there is no video input.



- Audio Icon
When sound is generated in live mode.



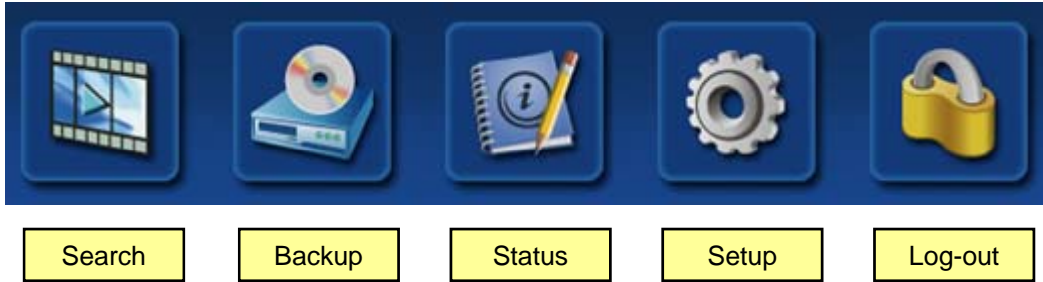
- Freeze Icon
When Live View is paused.



- Sequence Icon
When screen is rotated continuously.

4.1.1 Top Menu

In live screen, if the ▲ button of the remote controller or front panel is pressed, or if the mouse cursor is placed over the end of the top area, the top menu appears.



4.1.2 Bottom Menu

In Live screen, if the ▼ button of the remote controller or front panel is pressed, or if the mouse cursor is placed over the end of the bottom area, the bottom menu appears.

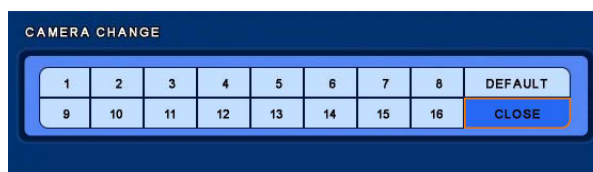


4.1.3 CAMEO Menu

In live screen, if the ENTER button of the remote controller or front panel is pressed, a pink rectangle marquee appears to indicate the target camera. If the ENTER button is pressed again, the CAMERA menu will appear.



- **ADJUSTMENT :** Adjust the selected camera color setting.
- **CAMEO CHANGE :** The live camera can be changed to the selected channel.
If the camera number is selected at the pop-up menu shown below, the camera is changed to the selected channel.



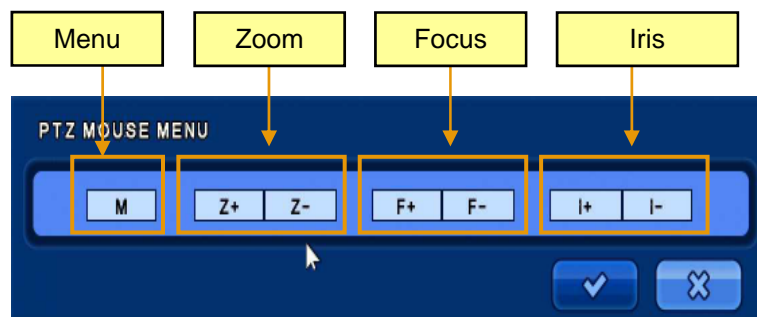
- **PLAYBACK :** Playback with previous recording image (about 20 seconds)
- **FREEZE :** Live screen of the selected channel can be paused.
- **FREEZE ALL :** Live screen of the all channels can be paused.
- **SEQUENCE :** Live screen is rotated.

- **PTZ** : PTZ Camera should be installed otherwise the PTZ menu will not be available.

The following picture will appear when the PTZ menu is selected.



- ※ **Using Mouse** : When in PTZ mode, right clicking the mouse will bring up the PTZ control menu, allowing access to Menu, Zoom, Focus and Iris.



※ Using Remote Controller or Front Panel Keys:

- Press the ENTER button on PTZ Camera channel.
- Press the ENTER button again to display the CAMEO menu.
- Select PTZ menu on the Live CAMEO menu.
- Press the ENTER button again, the above PTZ menu screen will appear.
- **Zoom Control** : In PTZ mode, press the Zoom (Back) button.
Zoom in - Fast reverse play button / Zoom out - The fast forward play button.
- **Focus Control** : In PTZ mode, press the Focus (Search) button.
(+) - Fast reverse play button / (-) – Fast forward play button.
- **Iris Control** : In PTZ mode, press the Iris (Pause) button.
(+) – Fast reverse play button / (-) – Fast forward play button.



- **SPEED SETUP** : Set the PTZ camera speed. (1 to 8)

NOTE: If the mouse is used to move the PTZ camera, the movement speed depends on the position of the mouse. As the mouse pointer moves away from the center, speed becomes faster.

- **PRESET SETUP** :

Set the preset position. If the position setup is saved, PTZ camera will be directed to the set position by preset number.

- **PRESET TOUR** :

6 different preset lists can be created. If the created preset lists are set to "ON", recording is made with preset tour.

- **PATTERN SETUP** :

Pattern can be created by movement, zoom, focus and iris. After pressing the BEGIN button, adjust the PTZ camera position or zoom and then press the END button. All directions (up, down, left and right), zoom and iris settings are recorded.

- **PATTERN TOUR** : PTZ camera moves according to the saved pattern.

- **AUTO FOCUS / POWER / LIGHT** :

Auto focus, power and light functions can be turned on/off in each category.

- **OSD MENU** : Turn on/off the OSD menu.

▪ **ZOOM X2** : Zoom in x2.

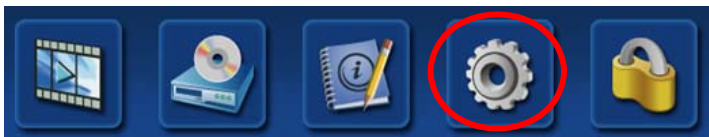
▪ **ZOOM X4** : Zoom in x4.

▪ **ADUIO ON** : Turn on/off Audio.

5. SETUP

In this category, there are General, Camera, Event, Schedule, Ethernet and System Information.

On the Top menu, select the [SETUP] menu.



After select the menu, the Log-in window will appear.

LOGIN

ID		root			
PASSWORD		****			
0	1	2	3	4	←
5	6	7	8	9	

✓ ✕

Enter the password by the key buttons and press the ENTER button.

(The default password : 000000)

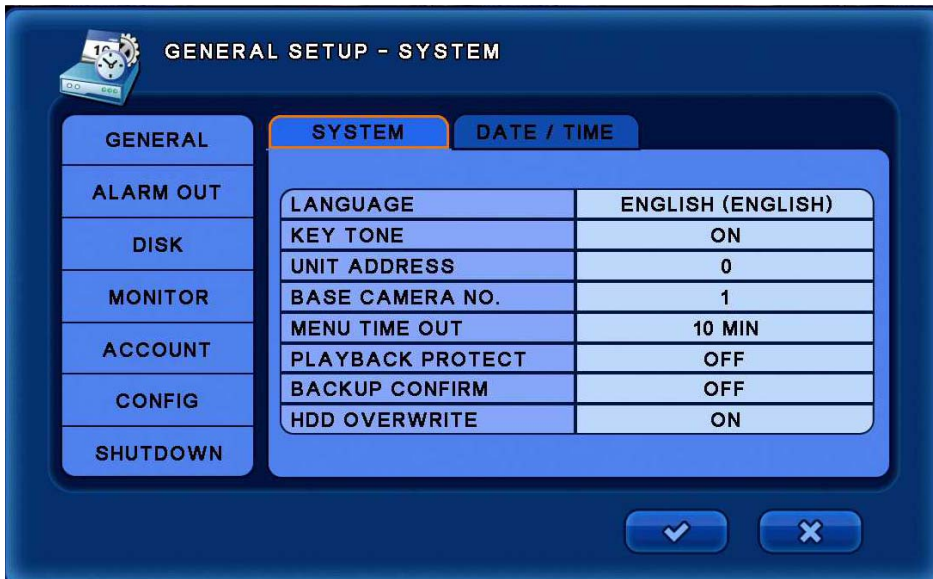
5.1 GENERAL SETUP

In this category, there are General, Alarm, Disk, Monitor, Account, Configuration and Shutdown.

Select the [GENERAL] menu.



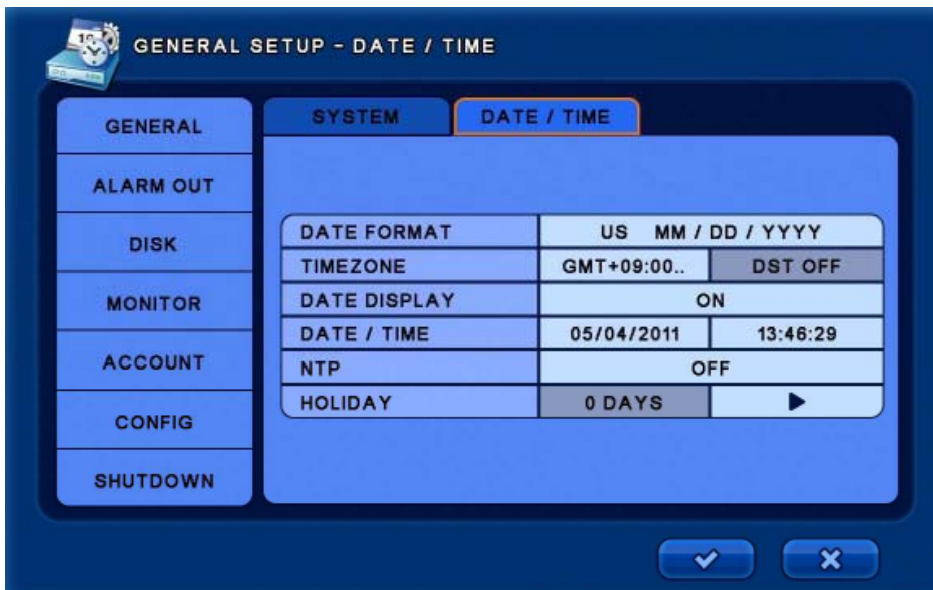
5.1.1 GENERAL



[SYSTEM]

- **LANGUAGE:** Select the desired language.
(English, Germany, French, Spanish, Japanese, Chinese, Italian, Russian, Dutch and Korean)
- **KEY TONE:** Turn on/off the buzzer sound for key presses.
- **UNIT ADDRESS:** Set the DVR ID. This ID can be used when controlling multiple DVRs in the same room with one remote controller.
- **BASE CAMERA NO:** Set the beginning number of camera. E.g. If set to 17, the camera numbers will start at 17.
- **MENU TIMEOUT :** Displays the Menu screen for set time and then exits the Menu.
- **PLAYBACK PROTECT :** Prohibits the playback of passed data. Select from 0 to 99 days.
- **BACKUP CONFIRM :** Confirm the backup process.(Log-in process)
- **HDD OVERWRITE :** Select on/off to overwrite data on Hard disk. If set to OFF, recording will stop automatically when the HDD is full.

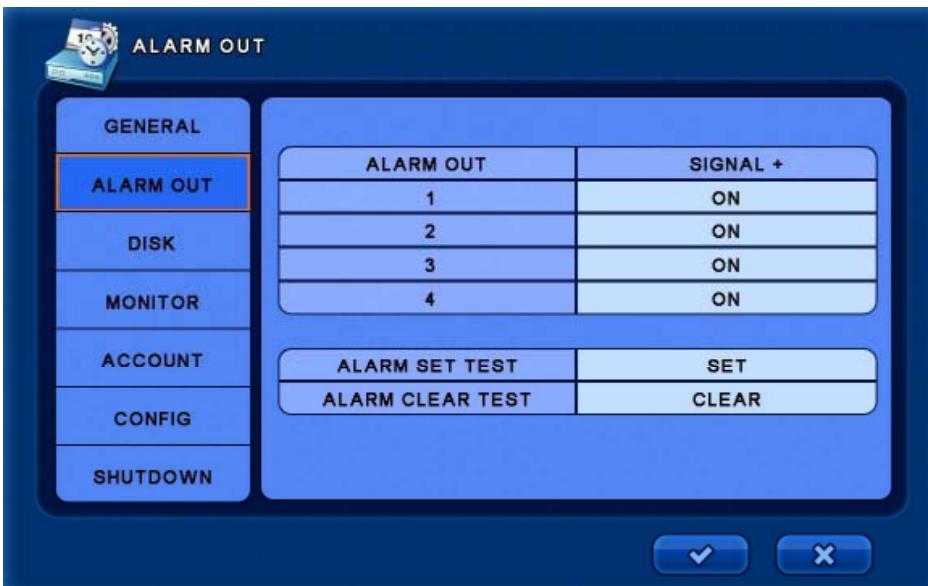
5.1.1 GENERAL



[DATE / TIME]

- **DATE FROMAT** : Select the data format. (YY/MM/DD) / (MM/DD/YY) / (DD/MM/YY)
- **TIMEZONE** : Select the time zone and DST. DST is automatically disabled for those cities that don't use it. (NTP must be disabled to allow time zone to be selected).
- **DATE DISPLAY** : Turns date display on the Live screen on/off.
- **DATE / TIME** : Change date and time.
- **NTP** : DVR time is synchronized with NTP server. The default server is [pool.ntp.org]
Users can input other servers if desired.
[Sync Now] : Synchronize immediately.
[Auto Sync] : Synchronize every day automatically. (Sync Now must be selected prior to enabling Auto Sync).
- **HOLIDAY** : Add or delete a holiday period.

5.1.2 ALARM OUT



- **SIGNAL :** Select on/off to use alarm by channel.
- **ALARM SET TEST :** Check whether the alarm connection is functioning correctly.
- **ALARM CLEAR TEST :** Press the [CLEAR] button to stop the alarm test.

5.1.3 DISK



※ **NOTE :**
After installing the HDD for the first time, the HDD should be formatted by pressing the [INSTALL] button.

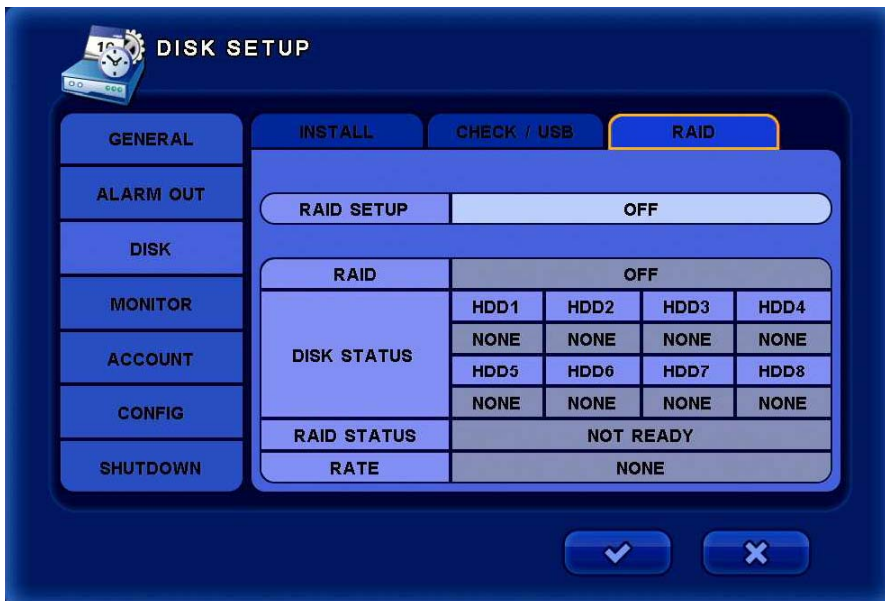
[INSTALL] - Formats the HDD.

5.1.3 DISK



[CHECK / USB]

- **EARLIEST RECORD** : Displays the earliest recorded data information.
- **LATEST RECORD** : Displays the latest recorded data information.
- **DISK CHECK** : Check the data from the earliest recorded to the latest recorded.
- **USB RESET** : Reset the USB connection.
- **USB FORMAT** : Format the connected USB.



[RAID] ✘ This function for only L400, P800, P1600, P16

- **RAID SETUP :** Select the RAID level (RAID0, RAID1 and RAID5).
- **RAID :** Display RAID on/off status.
- **DISK STATUS :** Display disk status.
- **RAID STATUS :** Display RAID status.
- **RATE :** Display process rate.

!WARNING!

- ✘ Depending on the RAID LEVEL, a minimum 2 or 3 hard disks should be installed.
- ✘ Hard disks size and model should be identical in RAID configuration.
- ✘ If hard disk brand or model is different, Disk errors can occur.



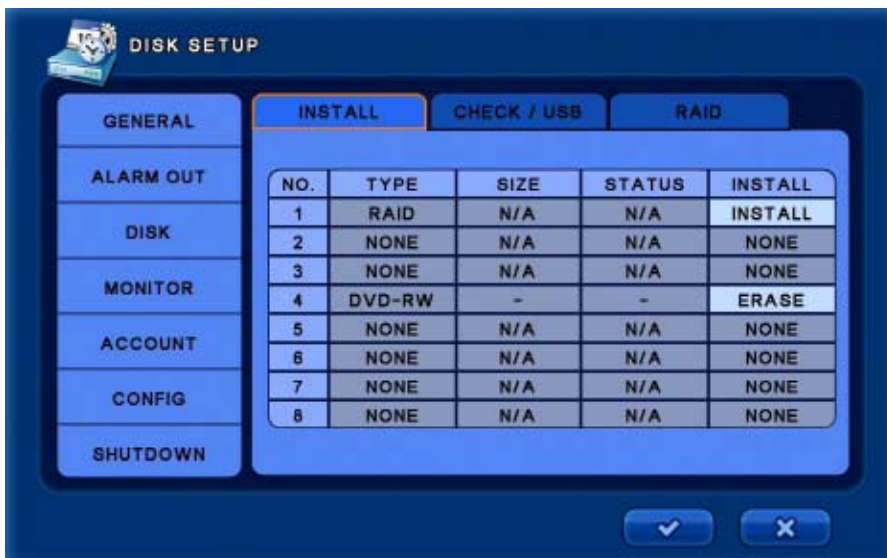
When enabling RAID, the above message will appear. The DVR will reboot to enable RAID.

※ When rebooting for RAID, boot time will be longer than normal. (About 5 minutes)

!WARNING

※ When RAID is built, all data on the HDD will be deleted.

※ If previous data is needed, backup the data before proceeding with RAID setup.



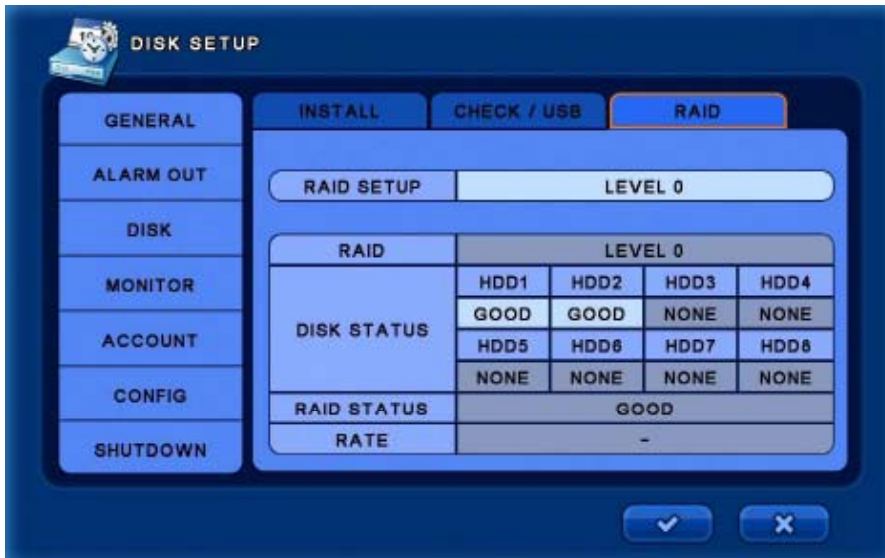
After the RAID has been built, the drive type will be changed to [RAID] and will be recognized as 1 HDD.

Supported RAID levels are 0, 1, 5.



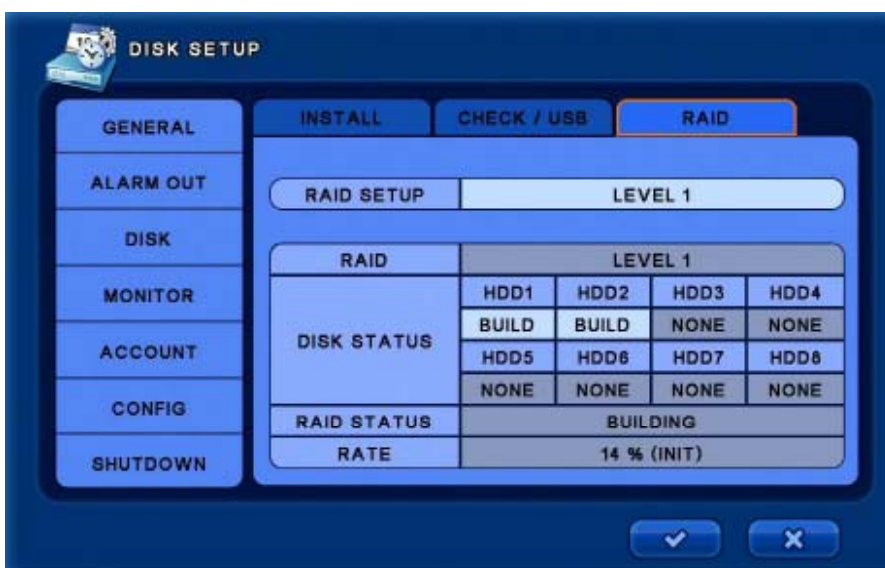
※ RAID 0

- Block-level striping without parity or mirroring. A minimum of 2 HDDs are required.
- Improves data access speed but any HDD failure will result in total loss of data across all drives.
- Displayed with [GOOD] if the building is finished without any problem .



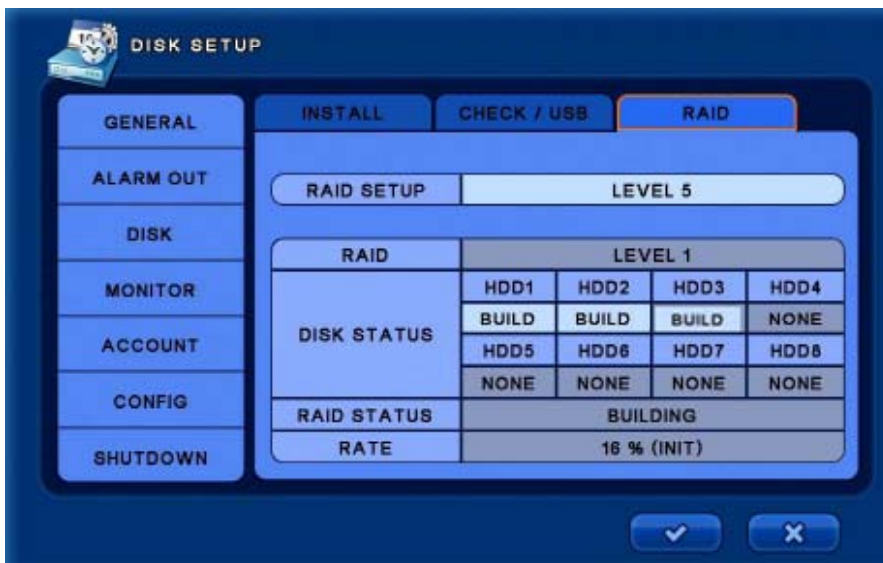
※ RAID 1

- Mirroring without parity or striping. A minimum of 2 HDDs are required.
- Allows for data recovery if at least 1 HDD is still functioning. Data errors are not corrected.
- Check the status on [RAID STATUS] and [RATE].

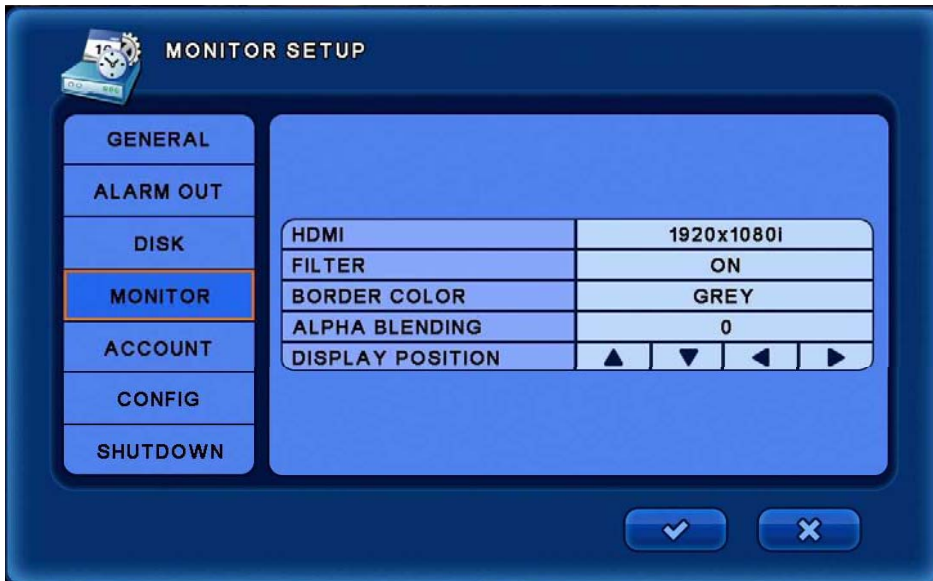


※ RAID 5

- Block-level striping with distributed parity. A minimum of 3 HDDs are required.
- A single drive failure will not destroy the array. Upon drive failure, any subsequent reads can be calculated from the distributed parity on the other working drives.
- Check the status on [RAID STATUS] and [RATE].



5.1.4 MONITOR



- **HDMI :** Select the HDMI resolution for the connected monitor.
- **FILTER :** Select On/Off for image filtering.
- **BORDER COLOR :** Change the Live view border color.
- **ALPHA BLENDING :** Set the transparency of menu overlays.
- **DISPLAY POSITION :** Adjust the display position.

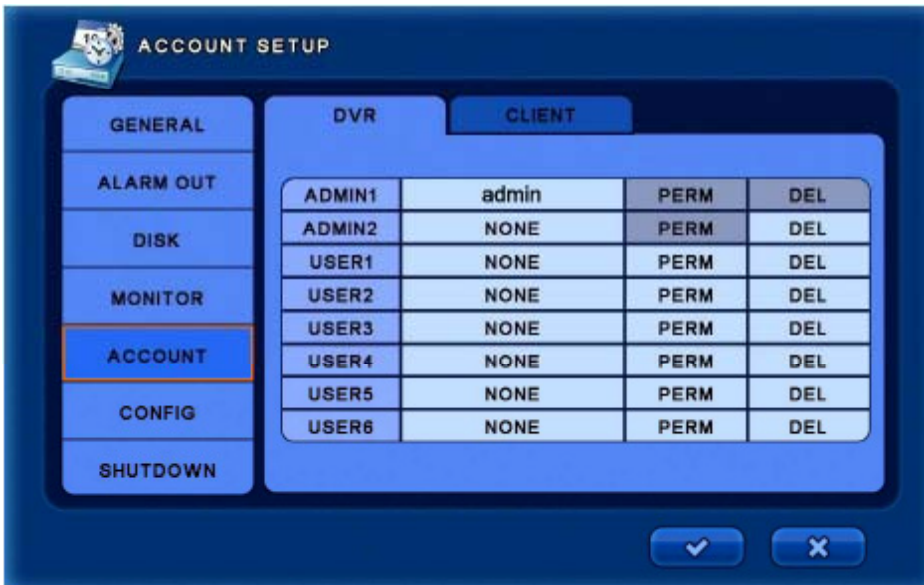


[RESOLUTION selection screen]



[ALPHA BLENDING selection screen]

5.1.5 ACCOUNT



There are two account management tabs. The DVR tab allows management for users accessing the DVR directly. The CLIENT tab is for management of users accessing the DVR remotely using the SMS (Server Management Software) or from a web browser. Users in the DVR list do not have permissions for remote access.

NOTE: (Default ADMIN password is 000000), The ADMIN1 account name and password can be modified but not deleted.

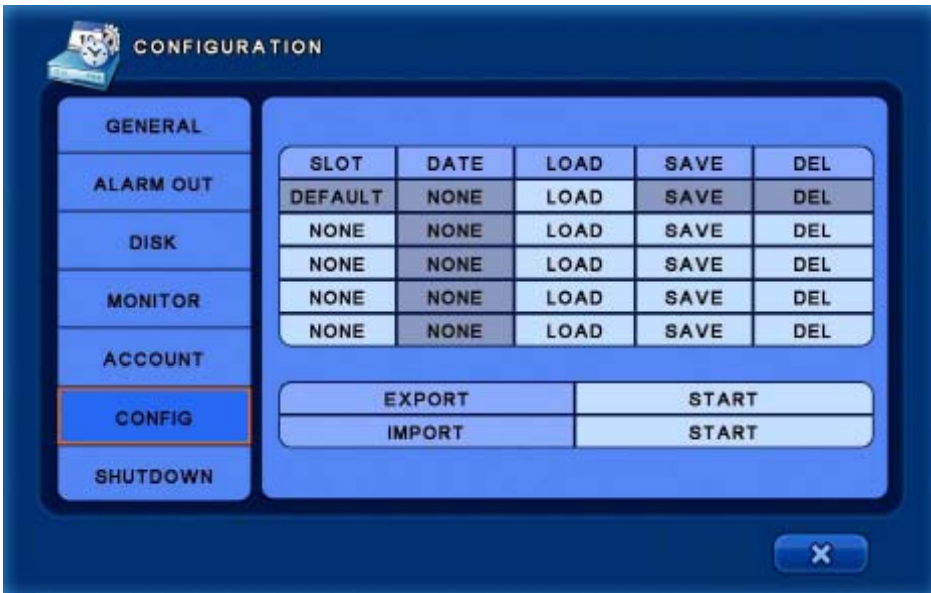
※ Click on any account name to change the name and password for that account.

NOTE: Only ADMIN1 or ADMIN2 users can create accounts.

※ Click on the [PERM] button to assign user permissions.

※ Click on the [DEL] button to delete an account.

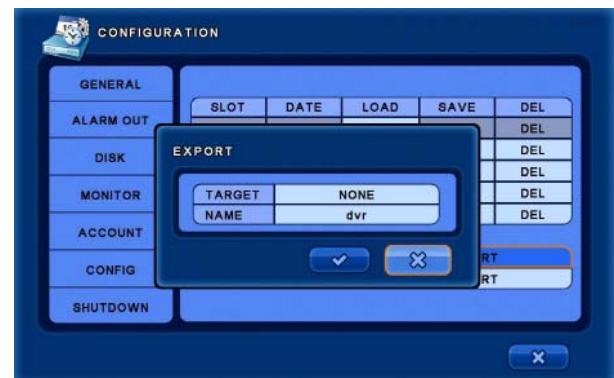
5.1.6 CONFIG



- **SLOT** : Select the slot to load or save the DVR configuration. The slot name can be changed.
 ※ DEFAULT : Used to restore factory setting.
- **DATE** : Displays the latest saved date.
- **LOAD** : Loads the saved configuration.
- **SAVE** : Save the current configuration.
- **DEL** : Deletes the saved data.
- **EXPORT** : Export the current configuration to USB or DVD.
- **IMPORT** : Imports previously exported configuration from USB or DVD.



[DEFAULT selected screen]



[EXPORT selected screen]

5.1.7 SHUTDOWN



- **RESTART** : Restart the DVR.
- **SHUTDOWN** : Shutdown the DVR.

5.2 CAMERA SETUP

In this category, there are Camera, PTZ, Spot, Sequence and Private Zone settings.



5.2.1 CAMERA

CAM	NAME	INSTALL +	HIDDEN +
1	C01	ON	OFF
2	C02	ON	OFF
3	C03	ON	OFF
4	C04	ON	OFF
5	C05	ON	OFF
6	C06	ON	OFF

- **CAMERA LABEL :** Sets the camera label display on the Live screen. (ALL / NUMBER / NAME / OFF)
- **RESOLUTION :** Select the camera resolution. (1080 / 720 / AUTO)
- **NAME :** Changes the camera name.
- **INSTALL :** Toggle On/Off button to use camera.
- **HIDDEN :** Toggle On/Off button to hide camera on Live screen. (Recording of the camera will operate correctly.)

NOTE: If select [INSTALL] – [OFF], Camera name and number are not displayed.

NOTE: By first clicking on the column title, changes will be applied to all cameras.



If the camera name is selected, the virtual keyboard will appear. Max camera name should be less than 11 characters.

[Virtual Keyboard]

5.2.2 PTZ



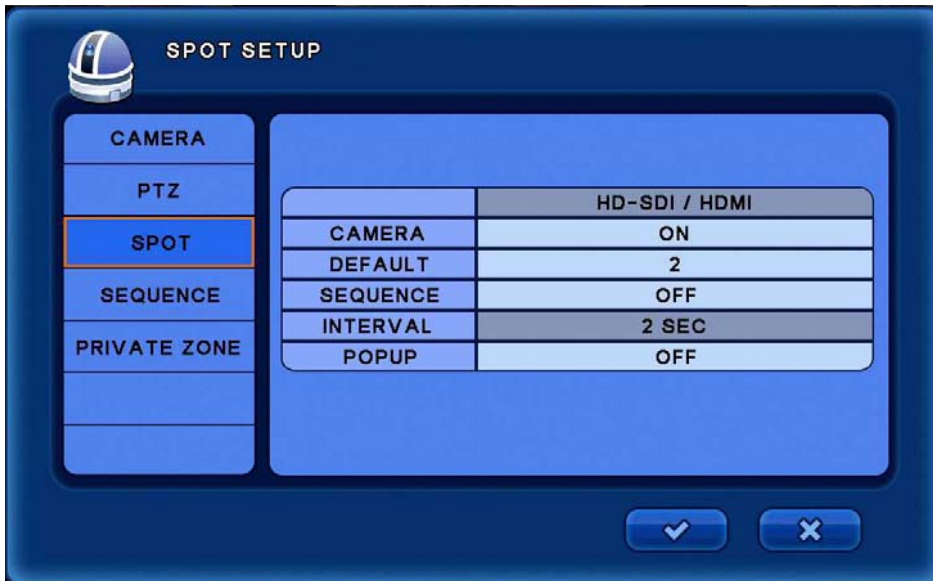
[PTZ]

- **PORT** : Select the Baud Rate, Data Bit, Parity and Stop Bit required for the PTZ camera.
- **ID** : Select the ID # required for the PTZ camera.
- **TYPE** : Choose the required communications protocol for the PTZ Camera.

NOTE : Consult the manual for the PTZ camera for the correct port settings.



5.2.3 SPOT



CAMERA : Select the camera to be displayed on the spot monitor.

DEFAULT : Select the camera to be displayed on the spot monitor when sequence is off.

SEQUENCE : Select On/Off for screen sequence function.

INTERVAL : Select the sequence time interval. The maximum value is 256 sec.

POPUP : Select On/Off for pop-up screen when an event is detected.

NOTE: The same channel image can not be displayed on each spot monitor.

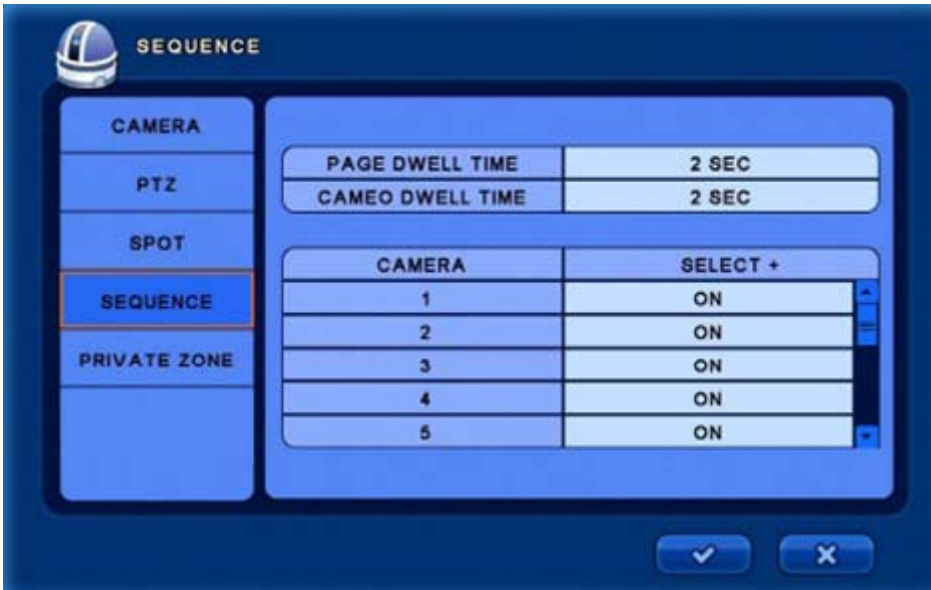


[CAMERA selection screen]



[INTERVAL selection screen]

5.2.4 SEQUENCE



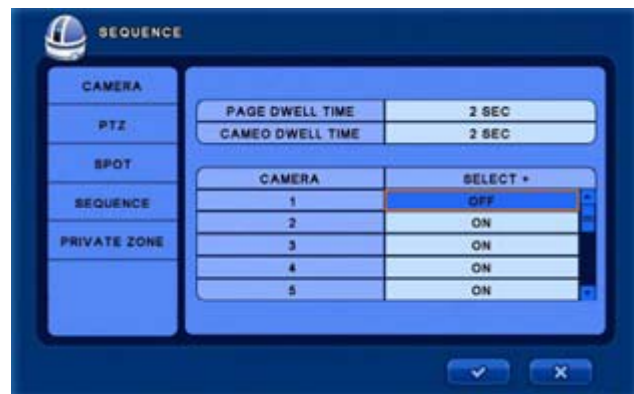
PAGE DWELL TIME : Select the display dwell time before moving to the next channel.

CAMEO DWELL TIME : Select the dwell time for CAMEO sequence.

NOTE: CAMEO sequence displays cameras that have been enabled in the sequence list.



[DWELL-TIME selected screen]

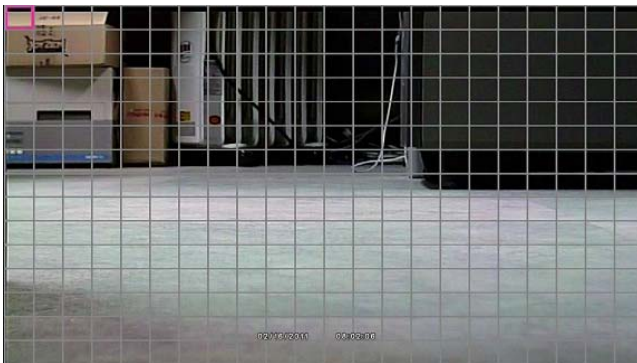


[CAMEO SEQUENCE LIST]

5.2.5 PRIVATE ZONE



- **ZONE ENABLE** : Select On/Off to use. (LIVE mode / SEARCH mode)
- **ZONE COLOR** : Select the zone blanking color.
- **ZONE** : Define the zone to hide. (When the ZONE button is selected, the camera image will appear). Left-click and drag across the screen to define the hidden zone. Right-click and select Clear, Save, Close or Exit from the pop-up menu.



[ZONE selected screen]



[Mouse right button selected screen]

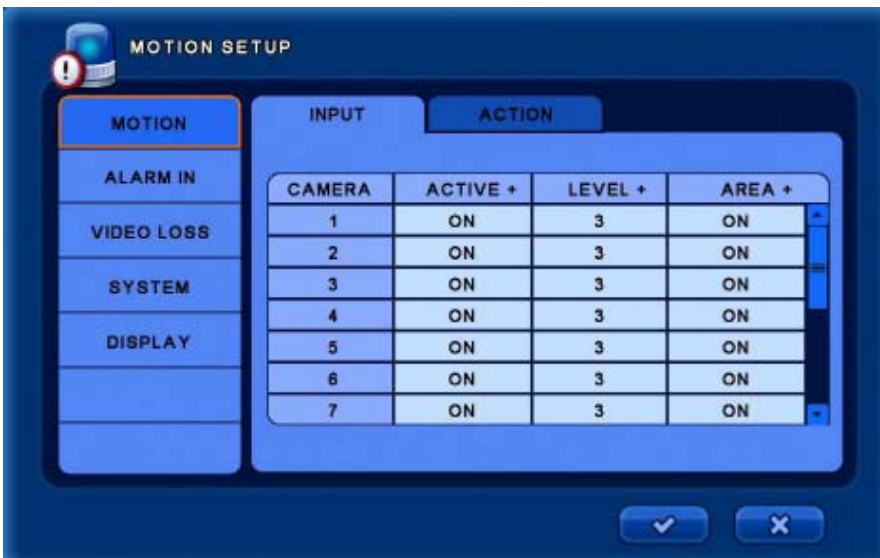
5.3 EVENT SETUP

In this menu, there are Motion, Alarm in, Video Loss, System and Display setup.

Select the [EVENT] menu.



5.3.1 MOTION

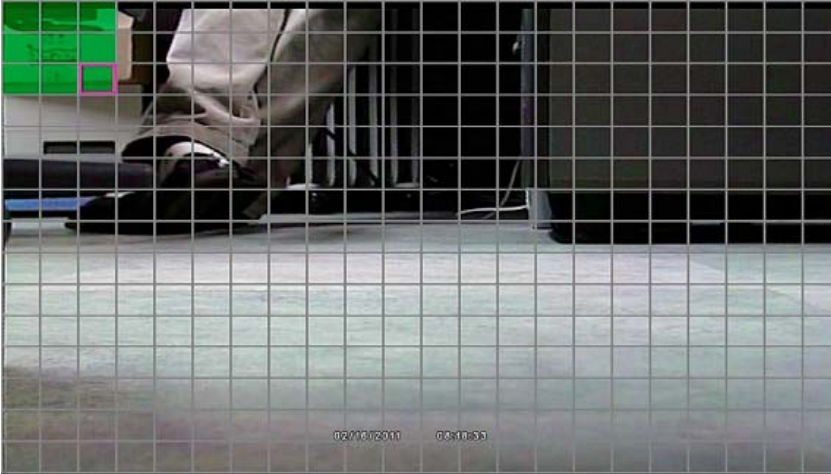


TIP: Left-click the ACTIVE+ / LEVEL+ / AREA+ column titles to apply all cameras simultaneously.

[INPUT]

- **ACTIVE :** Select On/Off to enable motion detection.
- **LEVEL :** Set the sensitivity of the motion trigger. (Select 1 = min, 5 = maximum)
- **AREA :** Define the motion detection area.

▪ AREA SETUP



Left-click and drag the mouse to define the motion detection zone. Multiple zones can be defined for each camera.

Right-click the mouse to bring up the area setup MENU.



- **SELECT ALL** : Select the entire motion detection grid.
- **CLEAR ALL** : Clear all of the motion detection grid.
- **SAVE** : Save the changed setting.
- **CLOSE** : Close the pop-up screen.
- **EXIT** : Exit the motion area setup.



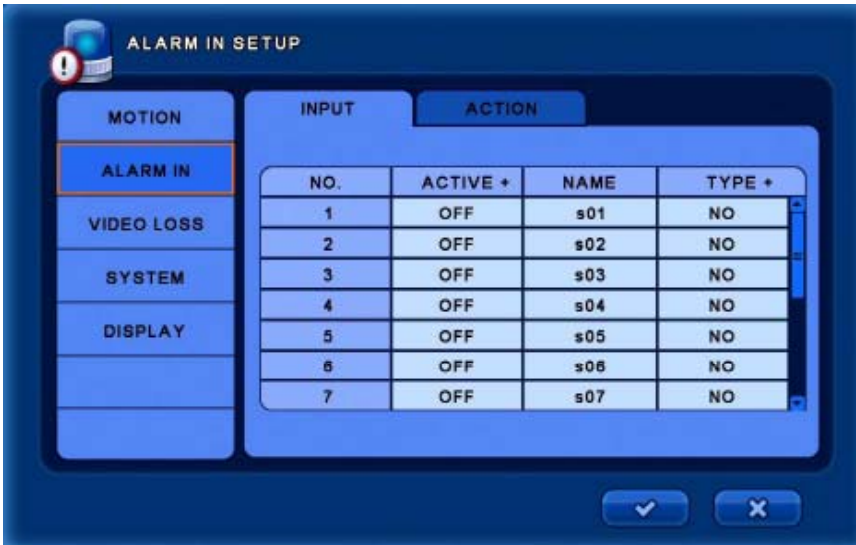
TIP: Left-click the RECORD / ALARM / BUZZER / PRESET / EMAIL column titles to apply all cameras simultaneously.

[ACTION]

- **RECORD** : Select the channel for record.
TIP: If [DEFAULT] is selected, only the channel on which the event occurred will be recorded.
- **ALARM** : Select On/Off for alarm.
- **BUZZER** : Select On/Off for buzzer.
- **PRESET** : Set the PTZ preset number.
 (When motion is triggered, the PTZ camera will move to the defined preset).
- **E-MAIL** : Select On/Off for e-mail notification.



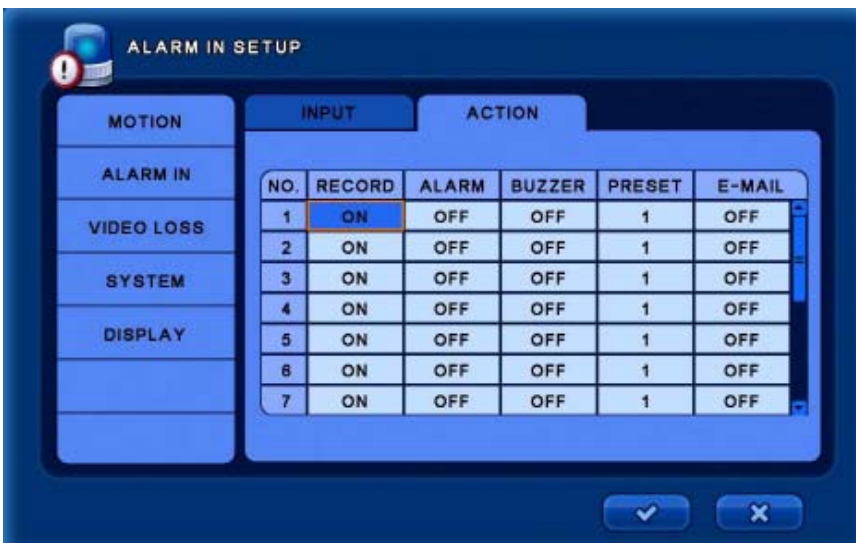
5.3.2 ALARM IN



TIP: Left-click the ACTIVE+ / NAME / TYPE+ column titles to apply all alarm inputs simultaneously.

[INPUT]

- **ACTIVE** : Select On/Off to enable the alarm input.
- **NAME** : Reference name for the alarm.
- **TYPE** : Select the alarm trigger type . (NO : Normal Open / NC : Normal Close)

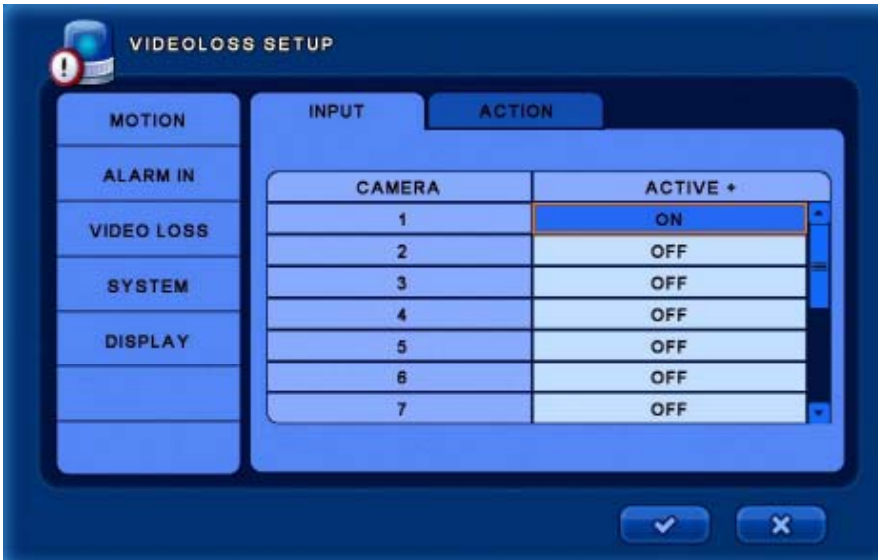


TIP: Left-click the RECORD / ALARM / BUZZER / PRESET / EMAIL column titles to apply all cameras simultaneously.

[ACTION]

- **RECORD** : Select the channel for record.
- **ALARM** : Select On/Off for alarm.
- **BUZZER** : Select On/Off for buzzer.
- **PRESET** : Set the preset number.
(When motion is triggered, the PTZ camera move to the set preset number position)
- **E-MAIL** : Select On/Off for e-mail notification.

5.3.3 VIDEO LOSS



TIP: Left-click the ACTIVE+ column title to apply all cameras simultaneously..

[INPUT]

- **ACTIVE** : Select On/Off to activate.



TIP: Left-click the RECORD / ALARM / BUZZER / PRESET / EMAIL column titles to apply all cameras simultaneously.

[ACTION]

- **RECORD** : Select On/Off for record.
- **ALARM** : Select On/Off for alarm.
- **BUZZER** : Select On/Off for buzzer.
- **PRESET** : Set the preset number.
(When motion is triggered, the PTZ camera move to the set preset number position)
- **E-MAIL** : Select On/Off for e-mail notification.

5.3.4 SYSTEM



[SMART]

- **SMART WARNING :** Select the option for smart warning. (POPUP + BUZZER / POPUP / OFF)
- **CHECK INTERVAL :** Select the check interval time. (Select 1 hour to 24 hour)
- **TEMP. THRESH :** Select the warning temperature. (C: 0 to 100 / F : 32 to 212)
- **DISK FULL WARNING :** Select On/Off to disk full warning.
- **USED SPACE :** Display the used space.
- **ALARM :** Select the channel for alarm out.
- **BUZZER :** Select On/Off for buzzer.
- **MESSAGE :** Select On/Off for message.



[MAIL] – Select option On/Off for e-mail notification for each of the following events.

- **POWER / MENU / LOGIN FAIL / DISK FULL / LOG IN / SMART**

5.3.5 DISPLAY



TIP: Left-click the DISPLAY column title to apply all cameras simultaneously.

- **DISPLAY :** Select display time in seconds from 0 to 100.
- **EVENT MESSAGE :** Select On/Off to display event message.
- **EVENT POPUP :** Select On/Off for camera pop-up.

5.4 RECORD SETUP

In this menu, there are Resolution, Schedule, Record, Audio, Manual, Filter setup.

Select the [RECORD] menu.



5.4.1 SCHEDULE



- **SETUP MODE** : Select the record schedule. (TYPICAL / CUSTOM)

[TYPICAL]

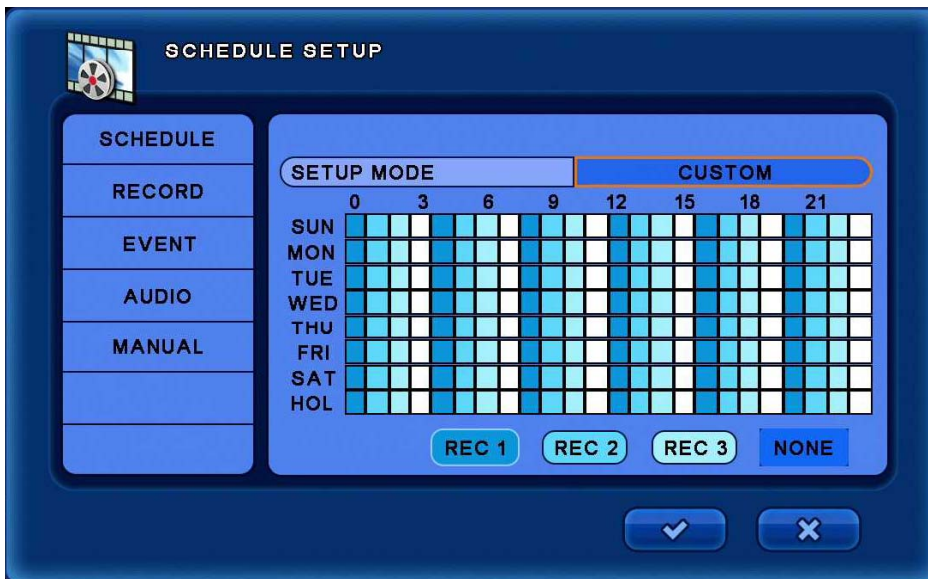
- **DAY TIME** : Select the day time. (The night time is changed automatically according to the day time zone)
- **WEEKEND** : Set the weekend zone.

[CUSTOM]

- There are 3 configurable record schedules. (REC0, REC1, REC2)

This is related with [RECORD] menu so [CUSTOM] mode should be matched with [RECORD] menu.

TIP : For REC0, REC1, REC2 recording, change the SETUP MODE to [TYPICAL] and enter the [RECORD] menu to change the recording settings.



[CUSTOM selected screen]

5.4.2 RECORD



TIP: Left-click the TIME+ / EVENT+ column titles to apply all cameras simultaneously.

[DAY] / [NIGHT] / [WEEKEND]

- **TIME :** Set the recording frame and resolution by channel.
- **EVENT :** Set the event recording. (Frame / Resolution / Post recording time from 5 to 100 seconds)

NOTE: If SCHEDULE is set to [CUSTOM], the DAY / NIGHT / WEEKEND menu will be changed to REC0/ REC1 / REC2.



[RECORD] screen after selecting
[CUSTOM] scheduling

5.4.3 EVENT



TIP: Left-click the PRE RECORD+ / POST RECORD+ column titles to apply to all cameras simultaneously.

- **EVENT** : Select the Pre-Recording and Post Recording time.

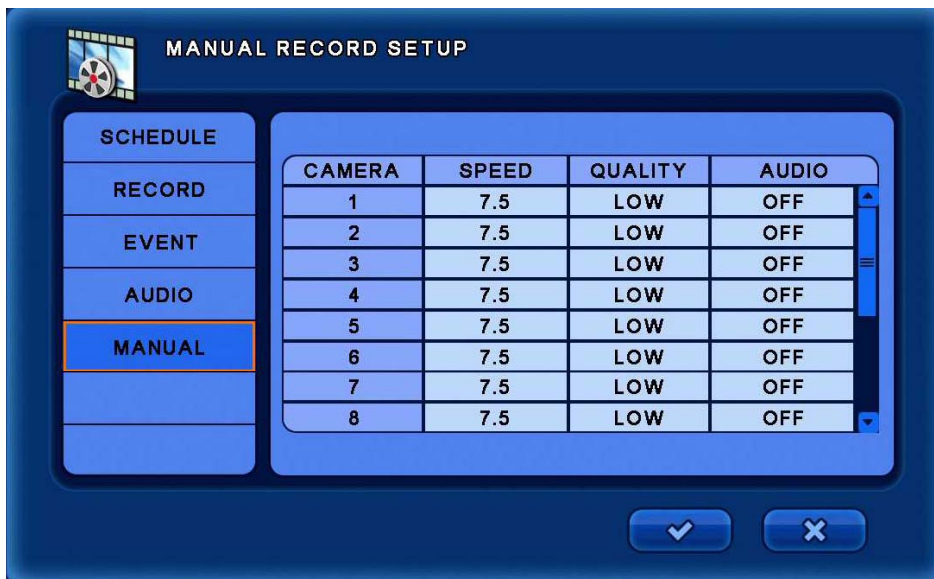
5.4.4 AUDIO



TIP: Left-click the RECORD+ column title to apply to all cameras simultaneously.

- **AUDIO** : Select On/Off for audio recording on each channel.

5.4.5 MANUAL



TIP: Left-click the SPEED / QUALITY / AUDIO column titles to apply all cameras simultaneously.

Manual Recording is the same as Panic recording.

This function works by pressing the [REC] button on Remote controller or Front panel.

- **SPEED** : Select the recording frame rate for each channel.
- **Quality** : Select the resolution for each channel.
- **AUDIO** : Select On/Off for audio recording for each channel.

5.5 ETHERNET SETUP

In this menu, there are Network, Serial, DDNS, E-mail setup.

Select the [ETHERNET] menu.



5.5.1 NETWORK

ETHERNET	ETHERNET2	CLIENT
DYNAMIC IP		OFF
HOST NAME		dvr
IP ADDRESS		192.168.2.252
SUBNET MASK		255.255.255.0
GATEWAY		192.168.2.1
DNS SERVER		192.168.2.1

CHECK INTERNET START

[ETHERNET]

- **DYNAMIC IP :** Select On/Off for dynamic IP.
If Dynamic IP is ON, DVR will get an IP address from DHCP enabled router.
- **HOST NAME :** Create a name for the DVR.
- **IP ADDRESS :** Enter the static IP address. (Only available when DYNAMIC IP is OFF)
- **SUBNET MASK :** Enter the Subnet mask. (Only available when DYNAMIC IP is OFF)
- **GATEWAY :** Enter the Gateway IP address. (Only available when DYNAMIC IP is OFF)
- **DNS SERVER :** Enter the DNS server IP address. (Only available when DYNAMIC IP is OFF)
- **CHECK INTERNET :** Check for internet status.

5.5.1 NETWORK

The screenshot shows the 'ETHERNET SETUP' window with the 'CLIENT' tab selected. The window has a sidebar on the left with options: NETWORK, SERIAL, DDNS, and E-MAIL. The main area is divided into three tabs: ETHERNET, ETHERNET2, and CLIENT. The CLIENT tab contains the following configuration options:

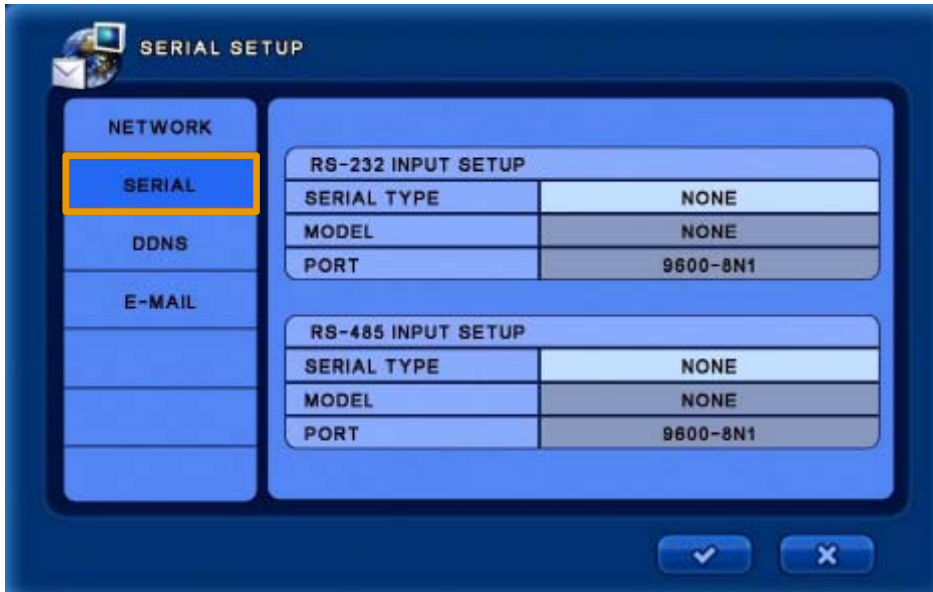
CLIENT ACCESS	ALL
BEGIN ADDRESS	END ADDRESS
0.0.0.0	0.0.0.0
0.0.0.0	0.0.0.0
0.0.0.0	0.0.0.0
SMS PORT (TCP)	7000
WEB PORT (TCP)	80
REMOTE RESTART	OFF
REMOTE CONFIG	ON

At the bottom of the window are two buttons: a checkmark button and an 'X' button.

[CLIENT]

- **CLIENT ACCESS** : Select client access options. (ALL / RANGE)
- **BEGIN ADDRESS / END ADDRESS**
(When [CLIENT ACCESS] is set to [RANGE] option, enter the IP address range of remote clients permitted to access the DVR).
- **SMS PORT (TCP)** : Select SMS (Site Management Software) port. (Default is 7000)
- **WEB PORT (TCP)** : Select Web port. (Default is 80)
- **REMOTE RESTART** : Select On/Off to allow remote restart of the DVR.
- **REMOTE CONFIG** : Select On/Off to allow remote configuration.

5.5.2 SERIAL



[RS-232 INPUT SETUP]

- **SERIAL TYPE** : Select external device.
- **MODEL** : Select the protocol to use.
- **PORT** : Select the Baud Rate / DATA bit / Parity / Stop Bit.

[RS-485 INPUT SETUP]

- **SERIAL TYPE** : Select external device.
- **MODEL** : Select the protocol to use.
- **PORT** : Select the Baud Rate / DATA bit / Parity / Stop Bit.

5.5.3 DDNS

DDNS SETUP

NETWORK	DDNS SERVER	NONE
SERIAL	HOST NAME	
DDNS	USER NAME	
E-MAIL	PASSWORD	
	ROUTER IP	OFF
	STATUS	UNCHECKED CHECK

- **DDNS SERVER** : Select DDNS server. (Ddnsvr.com / Dyn dns.com / ChangeIP.com)
- **HOST NAME** : Enter the full host name as registered on the DDNS server.
- **USER NAME** : Enter the user name registered on the DDNS server.
- **PASSWORD** : Enter the password registered on the DDNS server.
- **ROUTER IP** : Select On/Off for sending IP information to the DDNS server. If you are using any router, this setting should be [ON].
- **STATUS** : Check the connection status.

NOTE : Host name, User name and password should be registered with the desired DDNS service provider.

Example for registering a host name on DDNSDVR

- In web browser, visit www.ddnsvr.com
- Click [New Account] on the left menu.
- Enter the User / Email / Password details that user wants to use and click on [Register].
- Click [Log In] on the left menu and log into the newly created account.
- Click [New hostnames] and create a new host name for the DVR.
 - In the DVR DDNS menu, the full host name should be entered. E.g. [\[myhostname.ddnsvr.com\]](http://myhostname.ddnsvr.com)
- Click the [List hostnames] and confirm the new host name has been created.

5.5.4 E-MAIL

E-MAIL SETUP

ADDRESS | **SERVER**

SEND E-MAIL	SCHEDULE	FROM	TO
ON	ON	00:00:00	23:59:59

NO.	E-MAIL ADDRESS
1	email@ddnsdvr.com
2	email@ddnsdvr.com
3	email@ddnsdvr.com
4	email@ddnsdvr.com
5	email@ddnsdvr.com
6	email@ddnsdvr.com

[ADDRESS]

- **SEND E-MAIL** : Select On/Off for use.
- **SCHEDULE** : Set to ON to enable and configure schedule start and end times.
- **E-MAIL ADDRESS** : Enter the target E-mail addresses.

E-MAIL SETUP

ADDRESS | **SERVER**

MAIL SERVER	SMTP SERVER
USER NAME	UserName
USER E-MAIL	email@ddnsdvr.com
SERVER ADDRESS	ddnsdvr.com
SERVER PORT	25
LOGIN ID	UserId
LOGIN PASSWORD	****

[SERVER]

- **MAIL SERVER** : Select the mail server type. (SMTP server / DVR System)
- **USER NAME** : Enter the user name.
- **USER E-MAIL** : Enter the user e-mail address.
- **SERVER ADDRESS** : Enter the mail server address.
- **SERVER PORT** : Enter the mail server port.
- **LOGIN ID** : Enter the e-mail account Login ID.
- **LOGIN PASSWORD** : Enter the e-mail account Login password.

5.6 SYSTEM SETUP

In this menu, there are System Log, Status, Version.

Select the [SYSTEM] menu.



5.6.1 SYSTEM LOG

NO.	DATE	SYSTEM LOG
0089	05/04 17:11:26	Video Loss Camera 2
0088	05/04 17:11:21	Video Loss Camera 4
0087	05/04 17:09:57	Video Loss Camera 2
0086	05/04 17:03:54	Video Loss Camera 2
0085	05/04 17:03:38	Schedule Changed
0084	05/04 17:03:32	Record Setup Changed
0083	05/04 17:02:54	Video Loss Camera 2
0082	05/04 17:01:05	Video Loss Camera 2

- Check the system log by left-clicking on the left and right direction buttons.

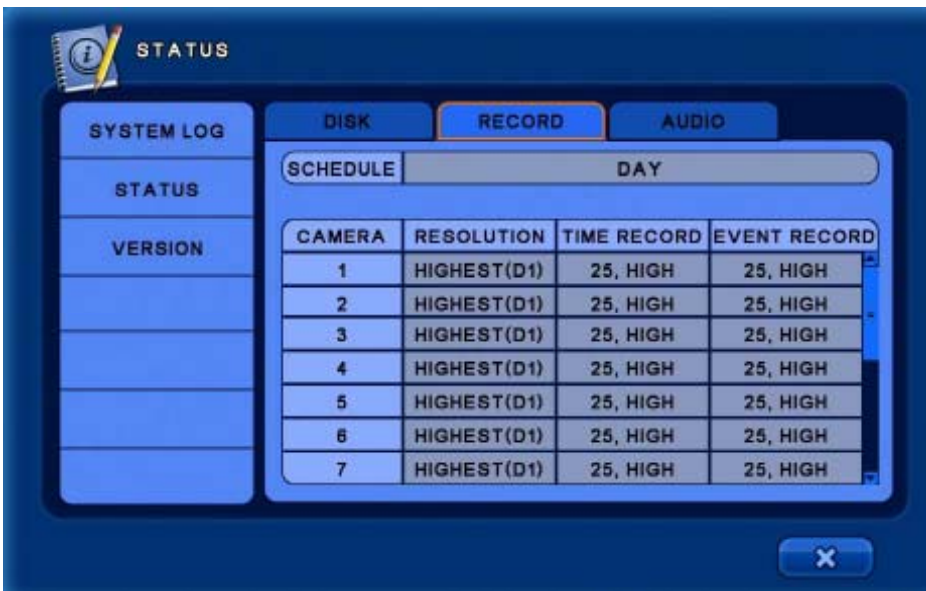
5.6.2 STATUS



[DISK]

Displays HDD information.

- **HDD INFORMATION** : Shows the HDD condition.



[RECORD]

- Display RECORD settings.

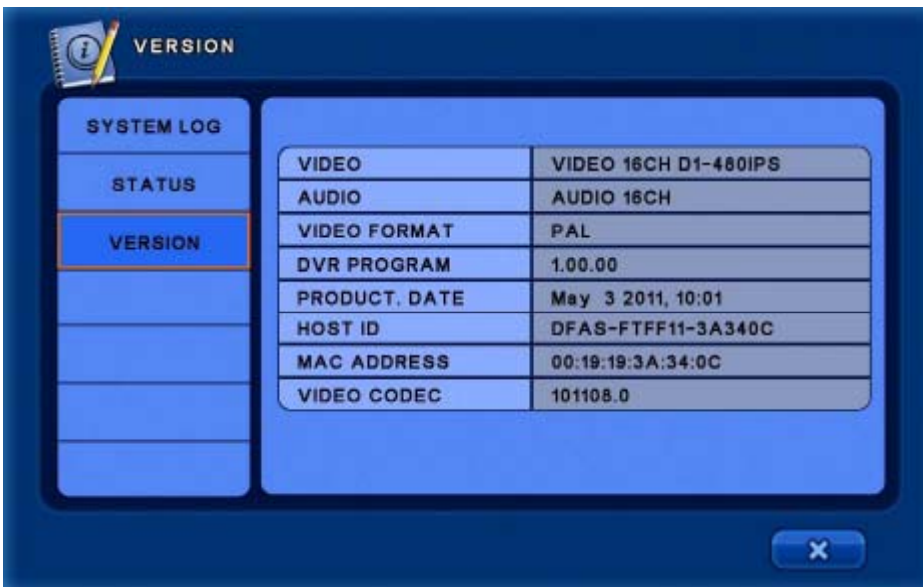
5.6.2 STATUS



[AUDIO]

- Display AUDIO settings.

5.6.3 VERSION



- Displays DVR firmware version and hardware information.

6. SEARCH

On the Top menu, select the [SEARCH] menu.



After selecting the search function, the following Log-in window may appear.

LOGIN

ID	admin				
PASSWORD	*****				
0	1	2	3	4	←
5	6	7	8	9	

✓ ✕

Enter the password clicking the key buttons or with the front panel buttons. The ID name can be changed by clicking on the name box.
(The default admin password : 000000)

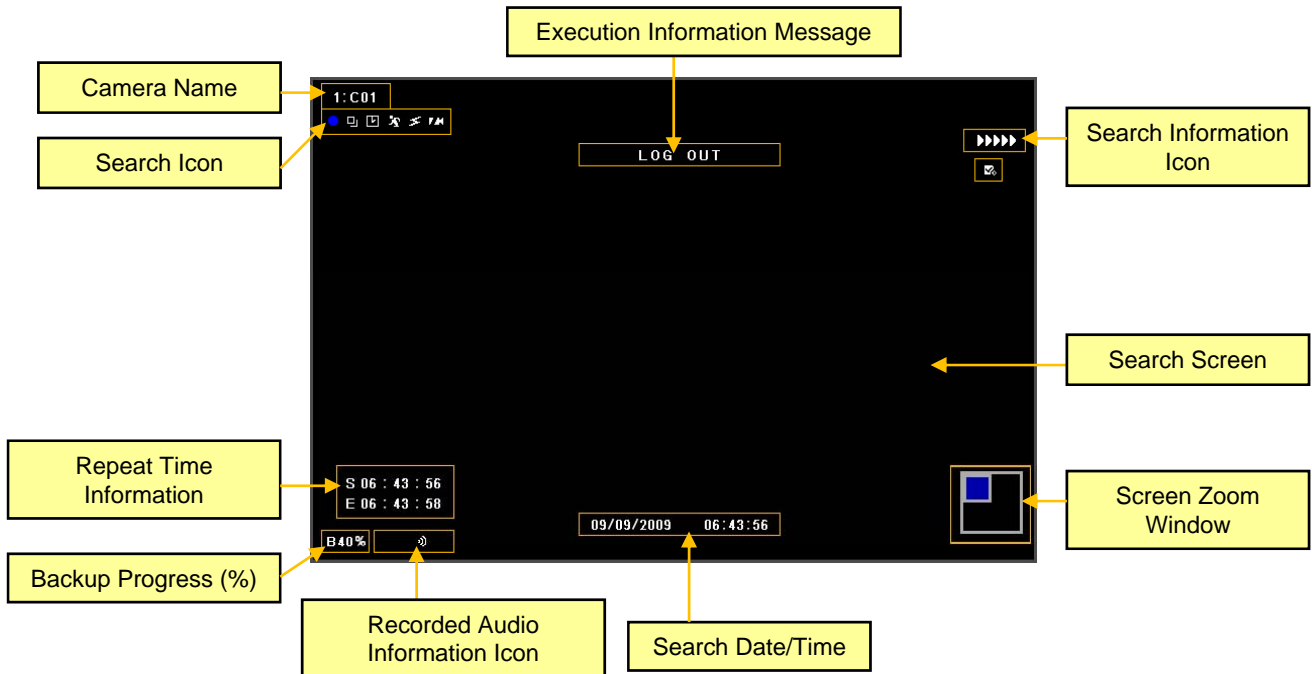
SEARCH

TARGET	HDD
QUICK SEARCH	
CALENDAR	
EVENT SEARCH	
OVERLAPPED LIST	
GO TO FIRST	
GO TO LAST	

✕

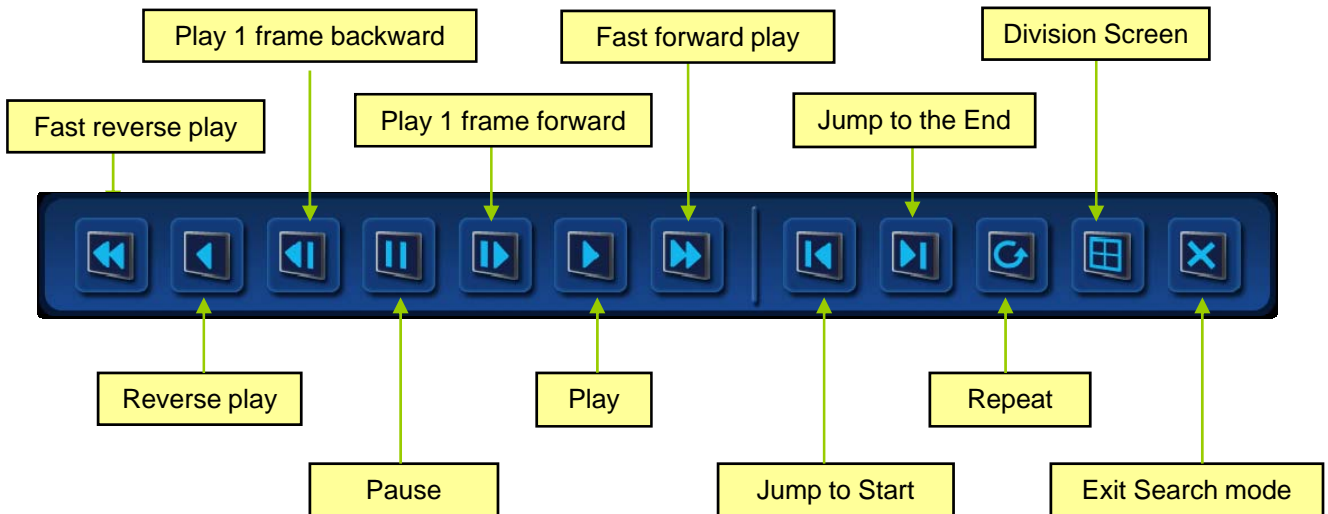
- **TARGET:** Choose from HDD / DVD / USB (DVD not available on all models)
- **QUICK SEARCH :** Search by selecting exact date and time.
- **CALENDAR :** Search by date and time with Calendar.
- **EVENT SEARCH :** Search by event
- **OVERLAPPED LIST :** Search the overlapped data that occurred when changing time. E.g. DST
- **GO TO FIRST :** Jump to the first recording
- **GO TO LAST :** Jump to the last recording.

6.1 Search Screen Configuration



6.1.1 Search Menu

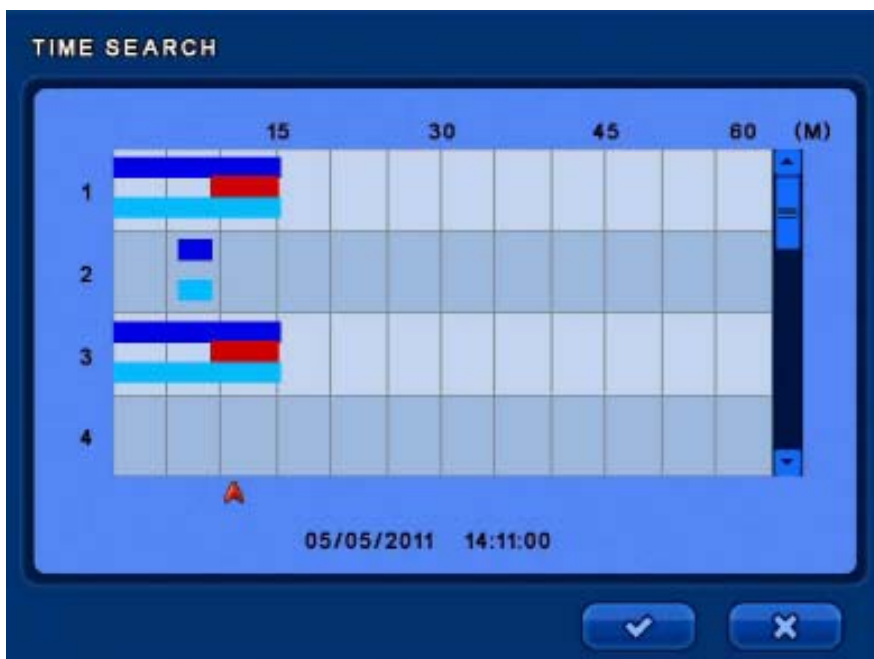
When the mouse cursor is placed over the bottom of the screen, the Search menu will appear.



6.1.2 CALENDAR SEARCH



- a. Select the required day from the calendar. Use the arrow buttons to change the month/year.
- Days with recorded data are displayed in orange.



- b. Select the search start time.
- Drag the red arrow at the bottom of the time line or left-click in the hour block to expand that hour into 5 minute blocks. Right-click to change from 5 minute to 1 hour blocks.

NOTE: The time graph color is different for each recording type.

Continuous Recording = Dark Blue, Audio Recording = Light Blue, Event Recording = Red.

6.1.3 EVENT SEARCH

EVENT SEARCH

EARLIEST RECORD	01/04/2011 17:33:14
LATEST RECORDING	01/04/2011 18:58:28
DATE	01/04/2011
MOTION	ON
ALARM IN	ON
VIDEO LOSS	ON
SELECT CAMERA	ON

VIEW SEARCH LOG

X

- **DATE :** Select Date to search.
- **MOTION :** Select On/Off for searching motion events.
- **ALARM IN :** Select On/Off for searching alarm events.
- **VIDEO LOSS :** Select On/Off for searching for video loss.
- **SELECT CAMERA :** Select the camera(s) to search.
- **VIEW SEARCH LOG :** Display selected event log.

EVENT SEARCH RESULT

NO.	TIME	DST	CAMERA	EVENT
22	01/04/2011 18:58:50		1	MOTION
21	01/04/2011 18:58:45		1	MOTION
20	01/04/2011 18:58:02		1	MOTION
19	01/04/2011 18:57:35		1	MOTION
18	01/04/2011 18:57:30		1	MOTION
17	01/04/2011 18:57:25		1	MOTION
16	01/04/2011 18:57:22		1	MOTION
15	01/04/2011 18:56:45		1	MOTION
14	01/04/2011 18:56:32		1	MOTION
13	01/04/2011 18:56:26		1	MOTION

◀ 0 - 18 HOUR ▶

PREV NEXT GOTO

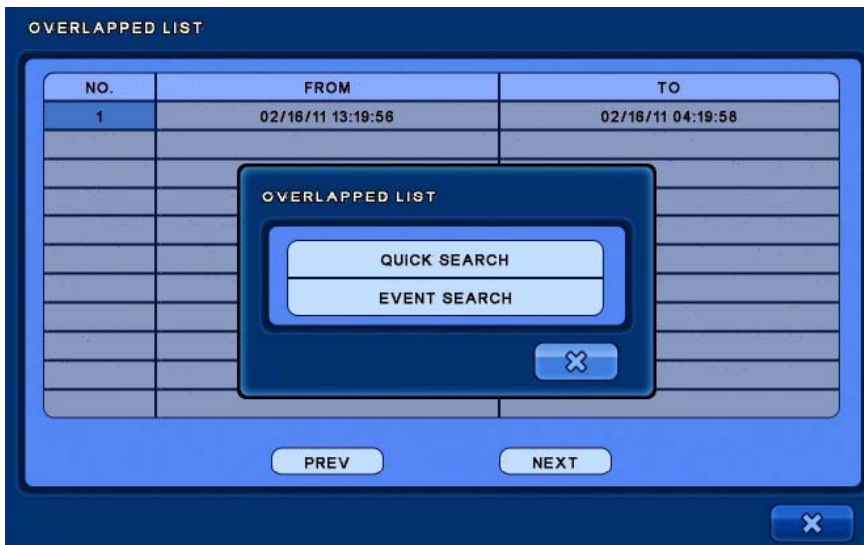
✓ X

- **HOUR :** Select time period to see.
- **PREV :** Display previous page.
- **NEXT :** Display next page.
- **NO. :** Click on the event number to begin playback
- **GOTO :** You will be prompted to enter the Event No. you want to playback

6.1.4 OVERLAPPED LIST



- If user change the time or applied DST (Daylight Saving Time), there will be overlapped data.



- After selecting a recording from the OVERLAPPED LIST, a pop-up menu will appear asking for the type of search required.

6.1.5 PANORAMA SEARCH

- During playback, press the [PANO] button on the front panel or right-click on the screen and select [PANORAMA] Search.
- Playback will be frame by frame displayed across a multi-screen.



6.1.6 SMART SEARCH

- During playback, press the [SMART] button on the front panel or right-click on the screen and select [SMART].
- Playback will skip to the start of each event trigger.



6.1.7 SECTION REPEAT SEARCH

- During playback, press the [LOCK] button on the front panel or click the repeat icon in the playback control panel. With one click/press, the start position is set, press one more time to set the end position. Playback will repeat between these two markers. Click/press one more time to cancel.



Playback repeat marker.

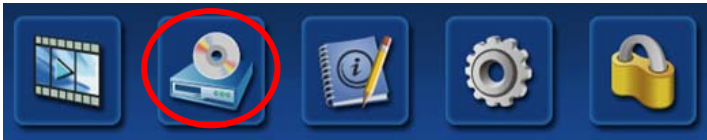
※ Button Explanation in Search mode

- Remote Controller or Front button

Button	Explanation
SEARCH	Display the [SEARCH] menu.
ESC	Cancel the Search mode or return to the live screen.
ENTER	Select the CAMEO menu.
FAST REVERSE	Increases reverse speed whilst in playback. Slows down reverse play when in pause.
FAST FORWARD	Increases forward speed whilst in playback. Slows down forward play when in pause.
PAUSE	Pause the playback.
FORWARD PLAY	Playback the data.
REVEERSE PLAY	Reverse Play the data.
DISPLAY	Display division screen. (1,4,9,16)

7. BACKUP

On the Top menu, select the [BACKUP] menu.



After selecting the function, the following Log-in window may appear.

LOGIN

ID	admin				
PASSWORD	*****				
0	1	2	3	4	←
5	6	7	8	9	

✓ ✕

Enter the password clicking the key buttons or with the front panel buttons. The ID name can be changed by clicking on the name box.
(The default admin password : 000000)

MANUAL BACKUP

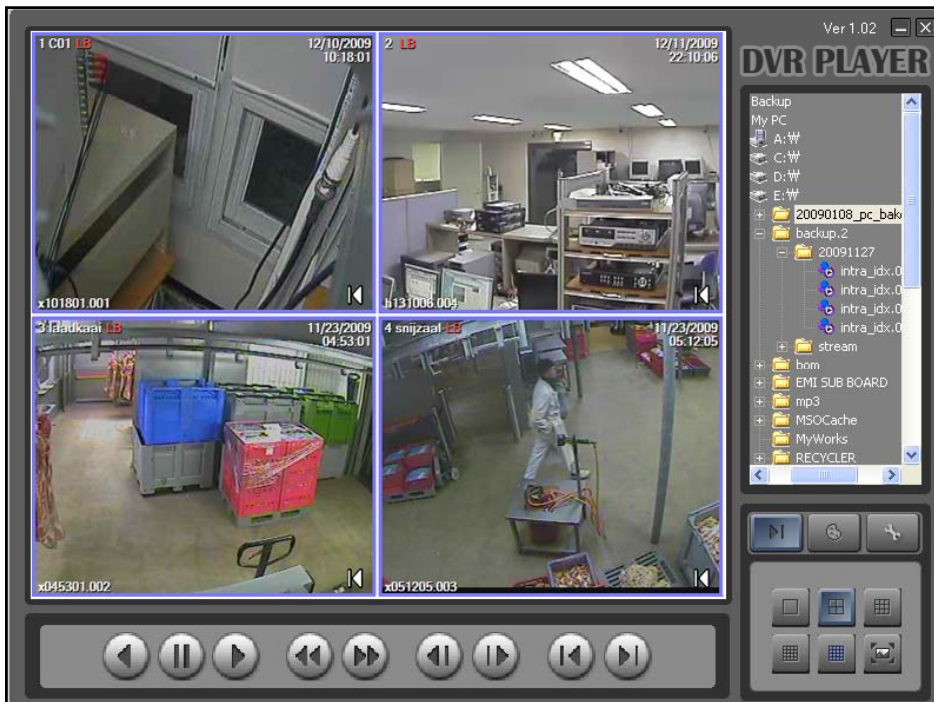
TARGET	NONE	NONE
FROM	05/05/2011	13:30:05
TO	05/05/2011	14:17:33
BACKUP TITLE	backup	
SELECT CAMERA	ON	
EARLIEST RECORD	05/05/2011 13:30:05	
LATEST RECORD	05/05/2011 14:17:33	
REQUIRE SPACE	ESTIMATE	0.00MB

WRITE

✕

- **TARGET :** Choose from DVD / USB (DVD not available on all models)
- **FROM :** Select the start date and time.
- **TO :** Select the end date and time.
- **BACKUP TITLE :** Name the backup
- **SELECT CAMERA :** Select the camera(s) for backup
- **EARLIEST RECORD :** Display the earliest record.
- **LATEST RECORD :** Display the latest record.
- **REQUIRE SPACE :** Calculates the approximate backup size.
- **WRITE :** Start the backup.

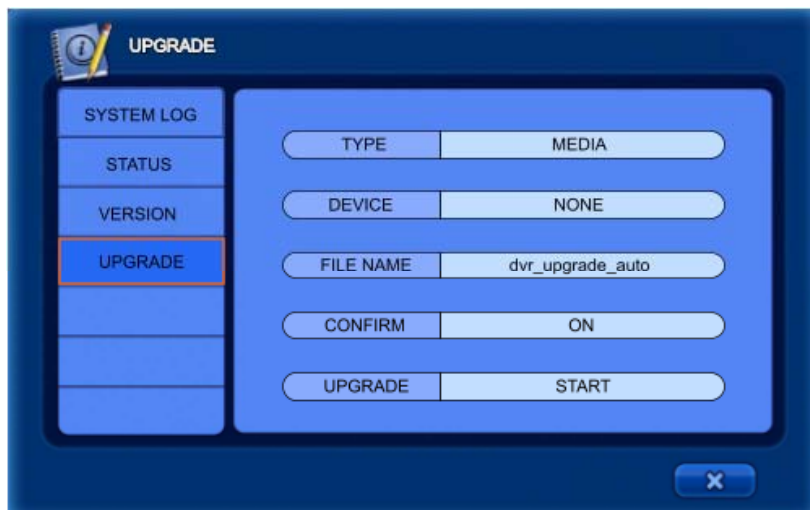
7.1 Play backup data



- The backup data is accompanied by a mini DVR player that can be used on a PC to playback the data..
- JPEG snapshots and printouts can be made from right-clicking on a paused video frame and selecting Print & Save from the pop-up menu.

8. APPENDIX

8.1 Firmware Upgrade via USB



1. Copy the firmware into the root folder of a USB flash drive and connect it to the first USB port on the DVR.
2. Select MEDIA from the [TYPE] list
3. Select USB from the [DEVICE] list.
4. Click on START to begin the upgrade.
5. After the upgrade, remove the USB and click the OK button. The DVR will restart.

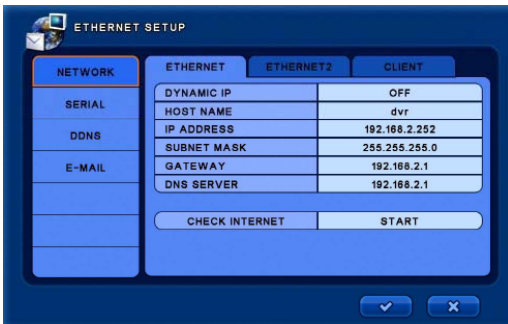


6. After the restart, confirm that the upgrade has been successful by checking the version number .

8. APPENDIX

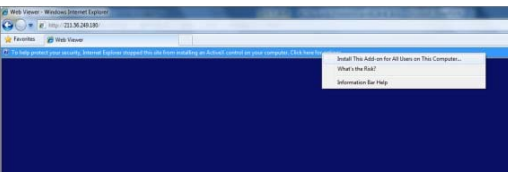
8.2 Web Client

The DVR can be accessed on the local network and via the internet using Internet Explorer. To access the DVR via the internet, port forwarding must be configured in the router according to the WEB and SMS port settings in the DVR. The default port settings are 80 for WEB and 7000 for SMS.



1. To connect to the Web viewer on a local network, enter the IP address of the DVR into the address bar of Internet Explorer. E.g. <http://192.168.0.50>

Note: If the WEB port has been changed in the DVR you will need to include the port number in the address. E.g. <http://192.168.0.50:xxxx> (xxxx is the new port number).



2. To connect to the DVR via the internet, either the public IP address of the router or a registered DDNS host name can be used. E.g.

- <http://210.58.10.134>
- <http://myhostname.ddnsdvr.com>

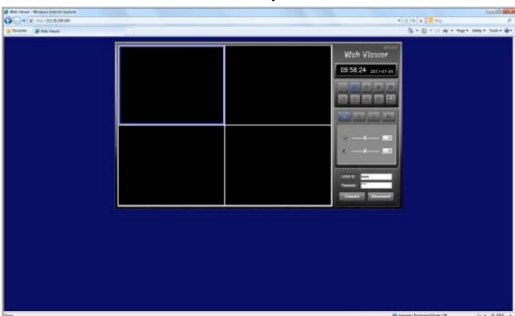
Note: If the WEB port has been changed in the DVR you will need to include the port number in the address. E.g. <http://210.58.10.134:xxxx> (xxxx is the new port number).

For access via the internet, port forwarding must be correctly configured in the router.

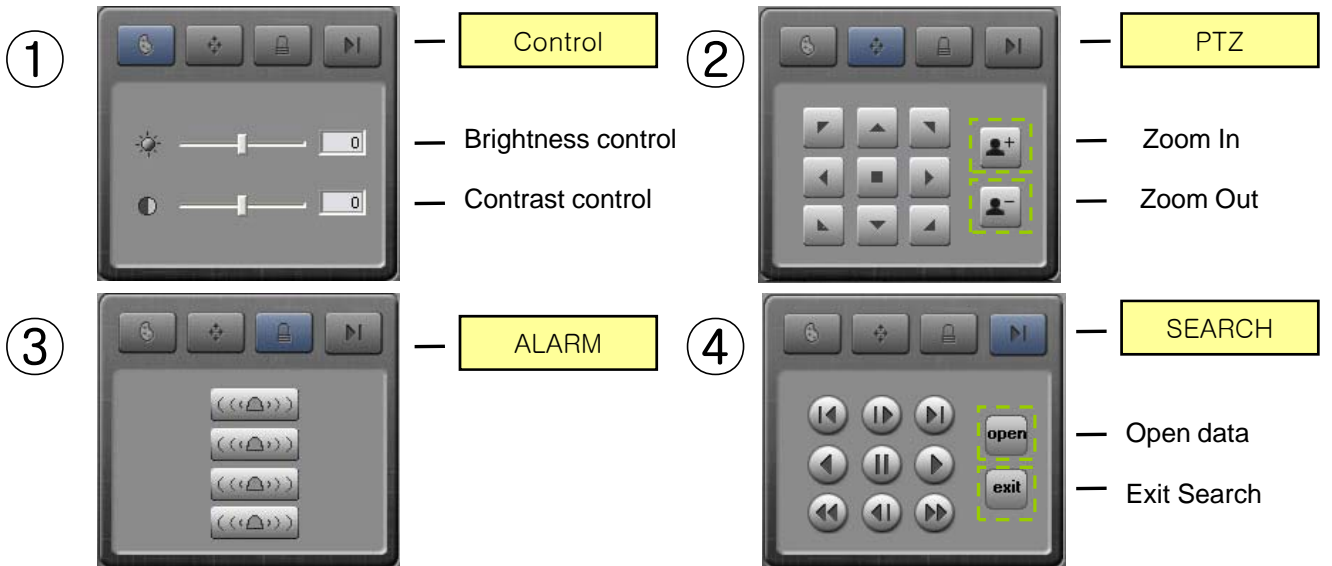
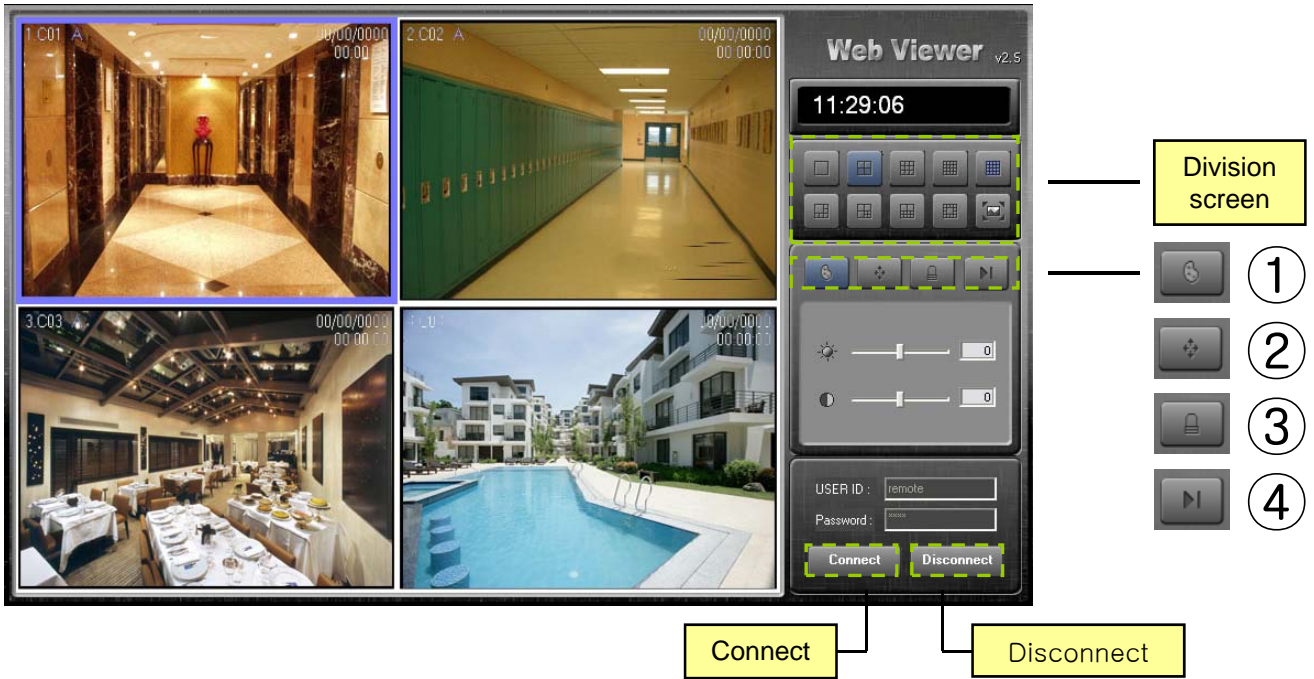
3. Allow Internet Explorer to install an ActiveX component when prompted.

Note: If IE will not allow the ActiveX component to install, change the security setting for the Local Intranet zone to LOW. This can be found in the Security tab of the IE options. You may also need to add the IP address of the DVR to the Sites list in the Trusted Zone.

4. When the Web Viewer page appears, enter the logon details for the DVR.



8.2.1 Web viewer Functions



8. APPENDIX

8.3 Specification

Model	P1600	P800	L400	P16	L4	
Performance	PENTAPLEX					
Display Speed	Real-Time					
Recording Speed	Max. (1080)	240 fps	240 fps	60 fps	120 fps	30 fps
	Max. (720)	480 fps	240 fps	120 fps	240 fps	60 fps
Video In	Signal Level	HD-SDI (SMPTE292M)				
	Channel	16 Ch (BNC)	8 Ch (BNC)	4 Ch (BNC)	16 Ch (BNC)	4 Ch (BNC)
Video Out	Main Display	HDMI				
	Main Display Resolution	1920x1080(P) / 1920x1080(I) / 1280x 720(P) / 1440x900				
	Sub Display	VGA				
	Spot	HDMI (Multi Channel) / HD-SDI		N/A	HDMI (Multi Channel) / HD-SD)	N/A
Audio	Input / output	16 / 1	8 / 1	4 / 1	16 / 1	4 / 1
Alarm	Input / output	16 / 2	8 / 2	4 / 1	16 / 2	4 / 1
Details						
Screen	Display Split	1, 4, 7, 9, 10, 13, 16	1, 4, 7, 9	1, 4	1, 4, 7, 9, 10, 13, 16	1, 4
	Interface	Graphic User Interface				
Video	Format	1080 / 720 Auto detection				
	Codec	H.264 Advanced				
	Recording type	Schedule / Continuous / Event (Motion, Alarm)				
Storage	Interface type	SATA II				
	HDD / Capacity	Up to 6 HDD's		Up to 2 HDD's	Up to 9 HDD's	Up to 4 HDD's
	RAID	RAID 0/1/5 JBOD		N/A	RAID 0/1/5 JBOD	N/A
Connectors	USB port	USB port * 2				
Function						
Live Display	OSD	On / Off				
	Border Color/ Digital Zoom	Selectable / Up to 4X				
	Cameo	Camera Adjustment / Camera position change / Freeze / Audio on				
Motion	Area	Adjustable GRID (22 X 15)				
	Sensitivity	5 Level motion detection				
System	Hidden Video	Video is hidden in Live view but it is recorded				
	Private Zone	Block the private zone in live camera view				
	Auto Time Sync	By NTP (Network Time Protocol)				
	Firmware Update	Via USB & Network				
	SMART Alarm	Auto Detect & Monitoring HDD's problem				
Event	Source	Motion / Alarm In / Video loss				
	Action	E-Mail notification, Log Send message to Remote, Buzzer, Pop Up, Alarm out, PTZ preset				
	Pre/Post Alarm	Yes (Up to 60 sec / Up to 100 sec)				
Record	Resolution	By each camera for different resolution setting (CIF/2CIF/D1)				
	Quality	4 Levels (Low / Normal / High / Highest)				
Search	Quick / Event search	Search by time with calendar / Search by event				
	Repeat search	Select specific time period and playback repeatedly				
	Panorama search	Frame by frame				
	Smart search	Search only event and playback without interval				
	CAMEO	Live monitoring during playback, Playback camera change, Freeze and Digital zoom				
Backup	file format / Media	DVR Format / DVD or USB device				
Network	Protocol	Static IP, DHCP, DDNS				
	Physical / Mac Layer	RJ45 (10/100/1000 Mbps), Ethernet				
	Browser	SMS, Web Viewer, Smart Phone Viewer (Android, iphone)				
Environment						
Operating Temperature / Humidity		0~40°C / 20~80% RH				
Dimension / Weight		423(W) X 421(D) X 88(H) / 14Kg (without HDD)	423(W) X 421(D) X 88(H) / 14Kg (without HDD)	350(W) X 258(D) X 70(H) / 3Kg (without HDD)	440(W) X 500(D) X 132(H) / 14Kg (without HDD)	350(W) X 400(D) X 90(H) / 5Kg (without HDD)
Power Requirement		AC 100V – 220V (50Hz-60Hz)				

8. APPENDIX

8.4 Trouble Shooting

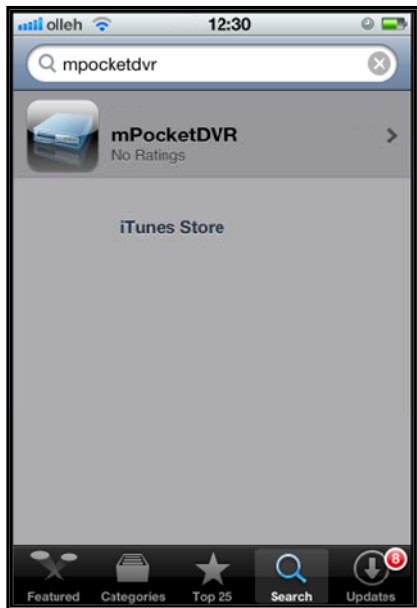
SYMPTOM	MEASURES
No Power	If the power LED is not lit, check the following. <ul style="list-style-type: none">- Check that the power cord is firmly plugged into the DVR and outlet.- Test the power outlet with another known working electrical device.
No camera image	<ul style="list-style-type: none">- Check that the camera cable is connected to the DVR input properly.- Check that the camera has power.- Connect another known working camera to the same input.- Restart DVR.
Mouse not working	<ul style="list-style-type: none">- USB mouse should be also have PS2 support.- Mouse should be connected on port (B) properly. (Refer to the [Front Panel Configuration])
Not recording	If the recording LED does not flicker, check the following; <ul style="list-style-type: none">- Delete data on HDD or change the [HDD OVERWRITE] setting to [ON]. (Refer to the [GENERAL Setup] – [HDD OVERWRITE])- If HDD overwrite is set to [OFF] ensure that there is sufficient space on the HDD for recording.- Check the recording setup.- Replace the HDD.
No Network connection on LAN	If the network LED on the back of the DVR does not flicker, check the following; <ul style="list-style-type: none">- Ensure that the network cable is connected to LAN1 on the DVR.- Change the network cable.- Check that there is connectivity at the router or switch port.- Check for connectivity using another network device, e.g. laptop.- Check the network setup in the DVR.
No remote access	<ul style="list-style-type: none">- Check all steps as described in [No Network connection on LAN].- Check that port forwarding has been correctly configured in the router.- Check that logon username and password are correct. Note: Only user accounts in the [CLIENT] account list have remote access privileges.

<p>IR Remote control not working.</p>	<ul style="list-style-type: none"> - Check the battery polarity. - Change the battery. - Check the remote controller ID. (Refer to the [Remote Controller Configuration]) - Aim the remote control at the IR sensor. - Use the remote control within 7 meters from DVR.
<p>No sound in Live View</p>	<ul style="list-style-type: none"> - Check that the microphone is connected to the correct DVR port and powered if required. (Refer to the [Real Panel Configuration]) - Check that the audio output of the DVR is correctly connected to a suitable amplified speaker. - Check that the amplified speaker is functioning correctly and that the volume has been set to a suitable listening level. - Turn on the audio by right-clicking on the camera channel and selecting [AUDIO ON].
<p>No sound in playback</p>	<ul style="list-style-type: none"> - Check all steps as described in [No sound in Live View] - Check that the record setup has been configured to record audio. - Using Calendar Search, check that audio has been recorded, indicated by a light blue bar.
<p>Smart Search not working</p>	<ul style="list-style-type: none"> - Smart Search only works if the DVR has been configured for Event recording. - If no events have been recorded, Smart Search will not initiate and the DVR will return to Live View.

8. APPENDIX

8.5 Mobile Viewer (Apple & Android)

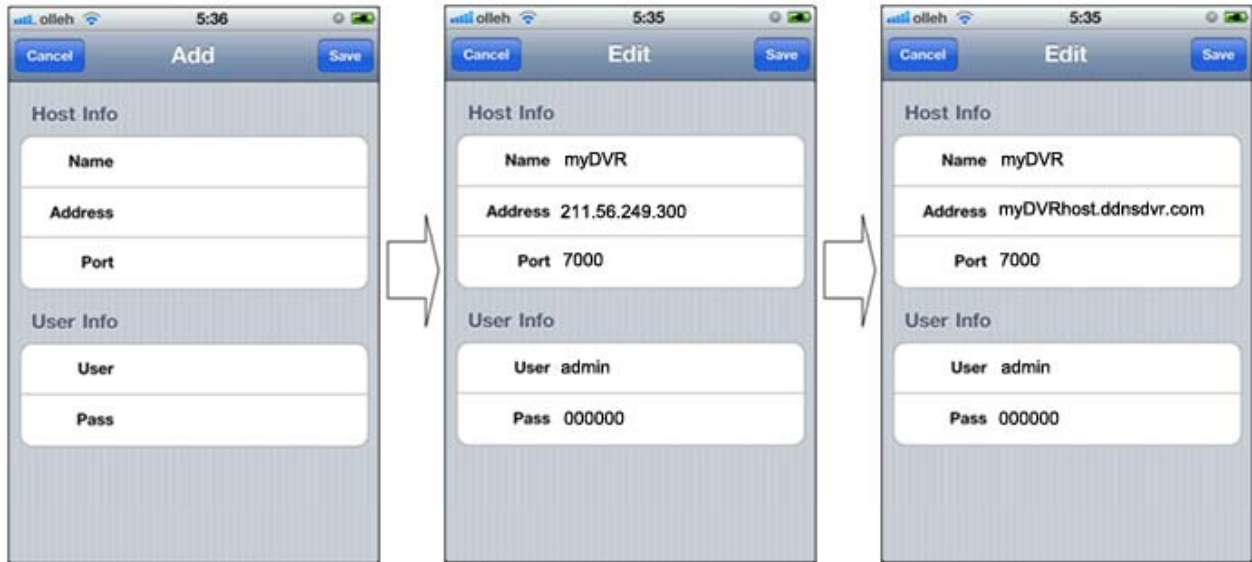
- Download the [mpocketdvr] for iPhone on App store. (Free software)
- Download the [pocketdvr] for Android on Google Play. (Free software)
- Both Apps function the same.




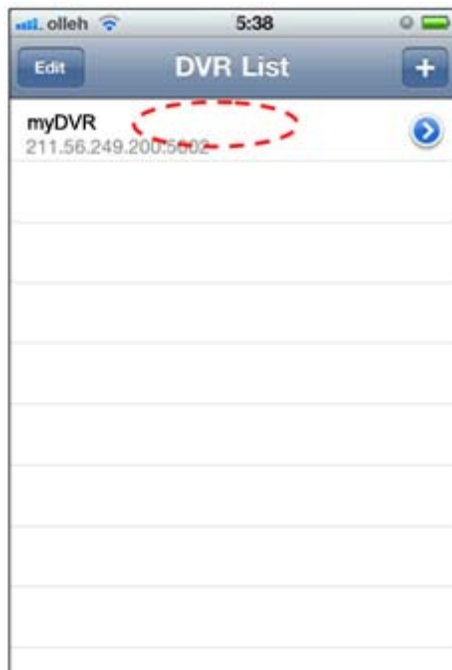
- Start the App and you will see the DVR List screen. Press the [+] button to add a new DVR.




- Enter the DVR information. If the modem has a static IP address this can be entered in the Address field (e.g. 211.56.249.200). Alternatively, the registered DDNS host name can be used (e.g. myDVRhost.ddnsdvr.com).



- Press the  button to save the configuration.
- On the DVR List screen, press on the required DVR to make a connection.



Press the  button to modify any DVR information previously entered.

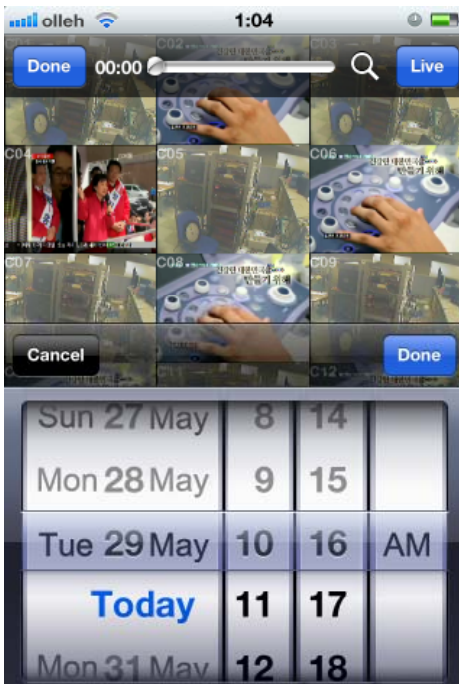
To delete the DVR from the list, press the  button followed by the  symbol. Finally, press the  button to delete the entry.



- 1,2,8,16 split screen display in vertical view
- 1,4,9,16 split screen display in Horizontal view.
- Rotate the phone to switch from Vertical to Horizontal viewing modes.



- **Done** : Exit application.
- **Search** : Playback by date / time.
After selecting the date and time, press the **Done** button for playback.
- **Live** : Return to live mode.



- Explanation of each button.



Image capture

: In single screen mode, save JPEG snapshot.



Pause

: In playback, image can be paused.



Paused Icon

: Resume playback from pause.



Screen Split

: Change to 2,8, 16 split screen by this button. For 1 screen view, double touch on the channel.



PTZ


: Control PTZ camera by this button.
Camera position is changed by the direction mark.



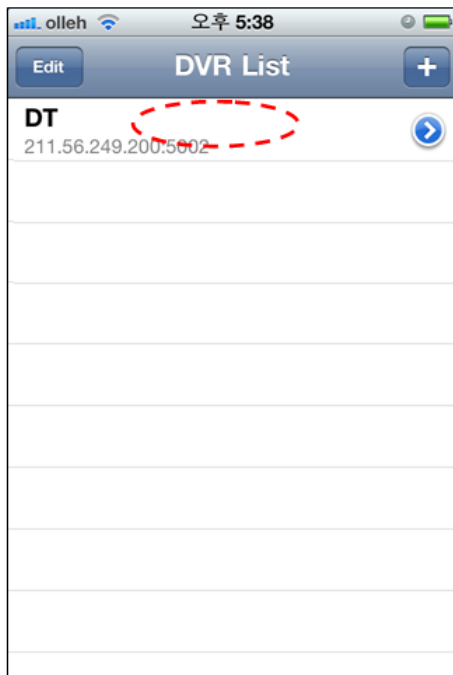




- Enter the DVR information for connection.




- After enter the DVR information, press the  button.

- On the DVR list, press the below red circle area then connections is started.



- ADD : Press the  button for other DVR.
After enter DVR information, press the  button.

- EDIT : Press the  button and modify the DVR information.
(Delete or modify)



- Support 1,2,8,16 split screen.
- By the screen touch, change 1 screen or multi screen.
- Horizontal view, Vertical view are supported.



- **Done** : Exit application.
- **Search** : Playback by date / time.
After select date and time, press the **Done** button for playback.
- **Live** : Return to live mode.



- Explanation of each button.



Image capture

: In 1 screen mode, save JPEG image by this button.



Pause

: In live view, image is paused by this button.



Paused Icon

: Press this button again, Pause is stopped by this button.



Screen Split

: Change to 2,8, 16 split screen by this button. For 1 screen view, double touch on the channel.



PTZ

: Control PTZ camera by this button.
Camera position is changed by the direction mark.

