

# TheSmartDVR.com

## Installation and Operation Manual

Models covered

CCT778 – 8 Channel DVR



Version 1.0

**INSTALLATION & SAFEGUARDS**

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

- To prevent electric shock or other hazard, do not expose this unit to rain, moisture or dust.
- This unit should be located in an area with low humidity and a low dust level.
- Place this unit in a well-ventilated place and do not place heat-generating objects on this unit.
- This unit should not be located in an area where it is likely to be subjected to vibration.

**Before You Start**

- Ensure the power switch is in the OFF position prior to starting.
- Do not attempt to service this unit yourself as opening or removing covers may expose you to dangerous voltage or other hazards.
- Installation should be performed by qualified service personnel only.
- This unit should be operated only from the type of power source indicated on the manufacturer's label and with the power supply included with the unit.

**Notice**

- Before initial configuration or operation you must first set the TIME/DATE, followed by setting the unit to the FACTORY DEFAULT settings, lastly clearing the HDD. Please follow these steps in order.
- Before installing a second HDD, ensure that the drive conforms to the specifications listed on the specifications page at the end of this manual. When installing a second HDD, set the drive to SLAVE. After installation, first reset the TIME/DATE, followed by resetting the unit to the FACTORY DEFAULT settings, lastly clearing the new HDD.
- Pull the unit out of record mode prior to cutting off power to the unit. Do this by entering the setup menu, followed by switching the unit off. Powering off the unit while writing to the disks can cause critical malfunctions. (Ex: Recording Error, Playback Error, System Error).
- When you set the record type, you have to set the Record Configuration and also Schedule Setup. This unit records as per the Record type & Schedule setup.
- The [REC] button on the front panel is for emergency record using highest image quality.



The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user of this equipment that there are dangerous voltages within the enclosure, which 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.

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**CHAP. 1 Features & Package Contents****1-1. Features****Live View**

Real time display per camera  
Auto Sequence  
PIP (Picture in picture)  
Event Popup  
Digital Zoom  
Display Freeze  
Simple Playback mode  
Simple PTZ camera control

**Record**

Variable Record resolution (For higher picture quality or higher recording speed)  
Efficient Image Quality setup in 5 steps  
Schedule Record / Holiday Record  
Event Record (Alarm / Motion)  
Emergency Record

**Network**

View Live and Playback images across IP network  
Copy images across the network

**Playback**

Search & Playback by Date/Time, Event and Camera  
Outstanding picture quality by JPEG 2000 compression algorithm (No mosaic effect)  
Suitable for recording not only images but also text  
Forward Playback Speeds (X1/16, X1/8, X1/4, X1/2, X2, X4, X16, X32, X64)  
Backward Playback Speeds (X1/16, X1/8, X1/4, X1/2, X2, X4, X16, X32, X64)  
Easy and convenient search by Jog Shuttle & Remote Controller

**Data Back-Up**

Simple Back-Up using built-in DVD Writer (Back-up DVD Player included in the package)  
Network Back-Up using Remote Viewer program (Remote Viewer included in the package)  
Supports larger capacity of HDD (500GB or larger)

**Others**

Multi-Language (English, Spanish, Portuguese, German, French, Italian, Japanese, Russian, Dutch & Polish)  
VGA support both TFT LCD monitor and CRT monitor (option)  
Lock the system by Password  
JOG / SHUTTLE  
PAL/NTSC Auto detection  
Control the unit by using Remote Controller  
Audio recording: IN – 4 channels, OUT – 1 channel (mono)

**1-2. Package Contents**



1. DVR Main Unit



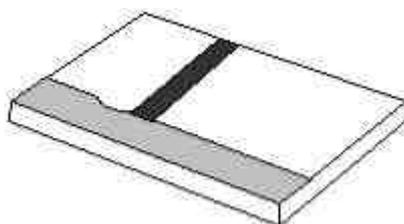
2. Remote Controller



3. Power Cable



4. Power Adapter



5. User's Manual



6. Software CD

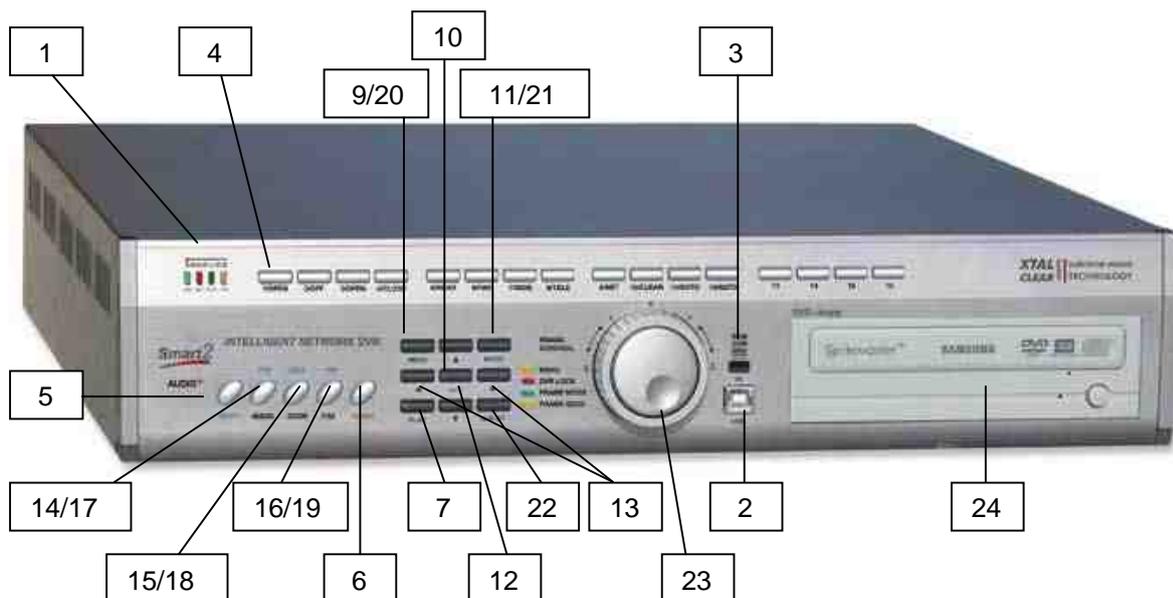


7. Battery for remote



8. Bolts & Foam Mount washers

Package Contents	Description
1. DVR Main Unit	STAND-ALONE DIGITAL VIDEO RECORDER
2. Remote Controller	DVR control
3. Power Cable	AC power supply to adapters for 12 V DC power
4. Power Adapter	12 V DC power supply to DVR main board
5. User's Manual	User's Manual
6. Software CD	Remote Viewer Software & Back up DVD player
7. Battery	Battery for remote controller
8. Bolts & Foam Mount Washers	For attaching Hard Disk Drive into DVR



Name	Function	
1. LED Lamps	Shows status of operation	
2. USB Device	Used to upgrade Firmware only via USB port	
3③ IR	IR receiver	
4.1 Camera selection	4.1. Pressing these buttons will display a full screen image of that camera	
	4.2. Control PTZ camera (Each button is assigned for each PTZ command)	
4.2 PTZ camera control	•ON: LIGHT ON	•WIDE : ZOOM IN
	•OFF : LIGHT OFF	•TELE : ZOOM OUT
	•OPEN : IRIS OPEN	•SET: SET PRESET
	•CLOSE: IRIS CLOSE	•CLEAR : CLEAR PRESET
	•NEAR : FOCUS NEAR	•GOTO : GOTO PRESET
	•FAR : FOCUS FAR	•AUTO : AUTO SCAN
5. SHIFT	THIS KEY IS PRESSED TO SELECT ADDITIONAL FUNCTIONS ON A KEY	
6. E-REC	Emergency Record at continuous, 60ips, SUPER FINE size (Press & hold for 3 seconds to return to Schedule Record)	
7. PLAY	Playback of recorded data on HDD	
8. SHIFT & PLAY	Search recorded data on HDD	

9⑥ MENU	Set up for SYSTEM MENU or Use to exit the menu <b>PRESS MENU BUTTON BEFORE POWERING OFF UNIT</b>
10. ENTER	Selects each menu option
11. NEXT	Move to next step
12. ▲▼◀▶	Navigate in the menu
13. + -	Reduce or increase the option value in the menu (USE SHIFT KEY)
14. PTZ	On/Off for PAN/TILT/ZOOM control mode Press this button first to control PTZ camera connected to DVR unit via RS-485
15. SEQ	Auto sequencing in full screen mode
16. PIP	Picture in Picture mode
17. AUDIO	Select audio channel
18. ZOOM	Zoom control
19. FRZ	Freezes an image
20. K.LOCK	Lock key function
21. MODE	Switches from full screen display to 9 split screen
22. Q.PLAY	QUICK PLAY – Play images recorded 2 minutes ago in forward direction (only if recording in continuous mode)
23. JOG SHUTTLE	Pressing Jog Shuttle button (Ready for use Jog/Shuttle): In playback mode, pressing J. SHUTTLE button freezes images. RUN LED on: While you operate Jog or Shuttle ACTIVE LED on: When J. SHUTTLE button is pressed SEARCH FACILITY : Press J. Shuttle button, and images in playback pause, and Jog and Shuttle makes it very easy and convenient to search forward or backward, fast and slow, as user wants. Note that Jog Shuttle can only be activated when ACTIVE LED is ON.
24. DVD-RW	Data Back-up using built-in DVD writer

2-2 REAR

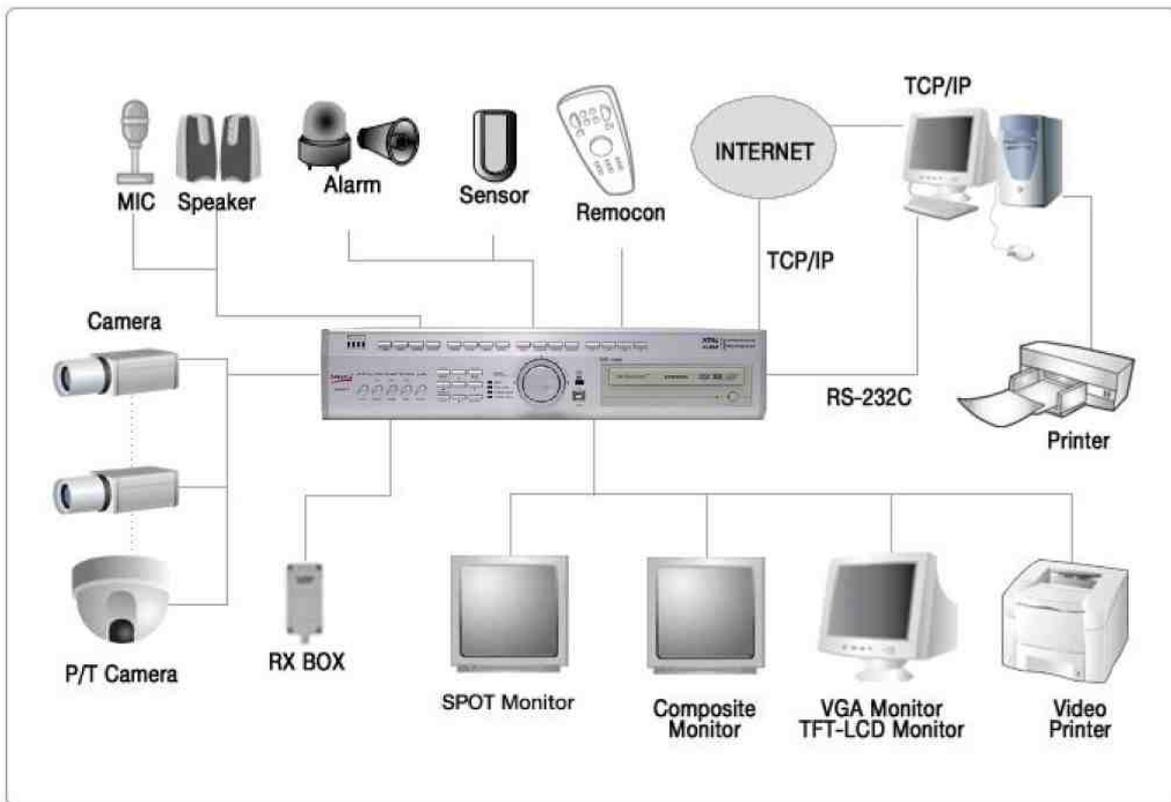
8 Channel



	Name	Functions
1	RS485	Connection with PTZ Camera or other external device using RS 485 interface (Pin 1: D- / Pin 2: D+)
	RELAY Output	Relay out terminal
	SENSOR Input	Sensor input terminal
2	VGA	Connection to VGA Monitor (CRT type or TFT LCD monitor)
3	ETHERNET	Connection to ETHERNET device
4	RS-232C	Connection to external device as PC using RS-232C to control the DVR. NOTE: This facility is not supported.
5	CAMERA Input	Connection with camera
6	LOOP Output	Camera loop out
7	MONITOR Output	Connection with Composite Video Monitor
8	SPOT	Connection with additional Composite Video Monitor
9	DC Power	DC power input (DC12V, 6.67A adapter)
10	POWER SWITCH	Power ON/OFF. NOTE: To avoid deletion of HDD data, make sure you press MENU button and enter into menu setup before powering down. This safely takes unit out of record mode.
11	Audio Input	Microphone input (4 channels)
	Audio Output	Speaker Output (1 channel)

CHAP.3 Installation

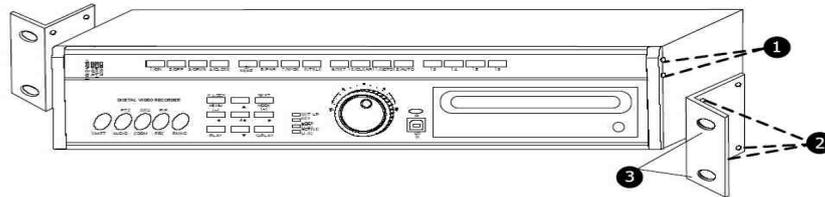
3-1. Installation Configuration



# The SmartDVR.com

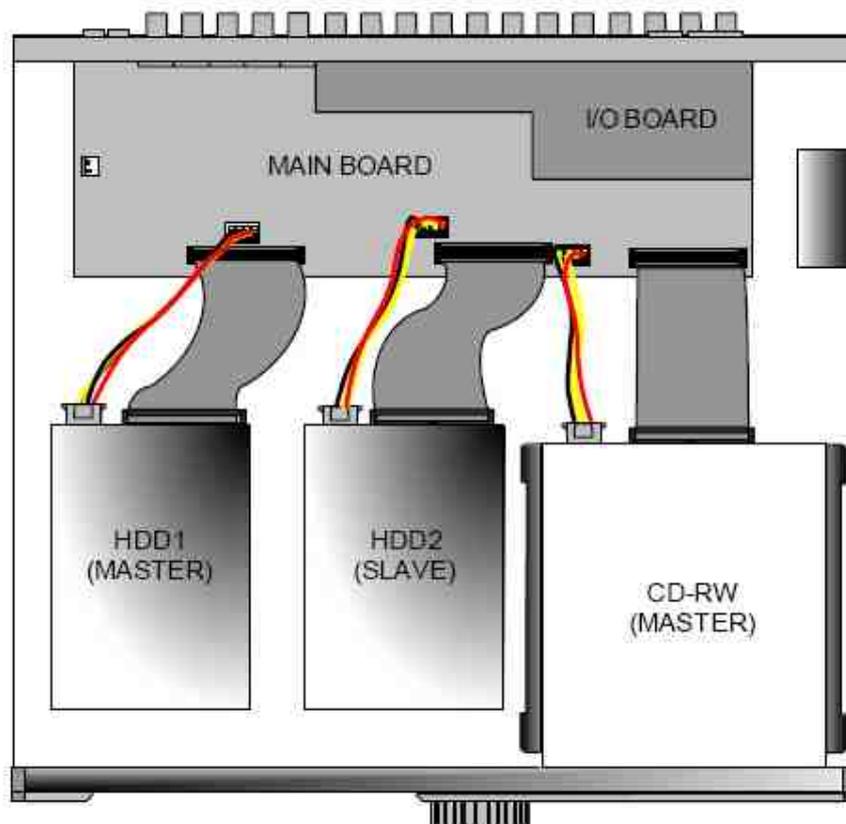
## 3-2. Detailed Installation

### 1) Rack mount



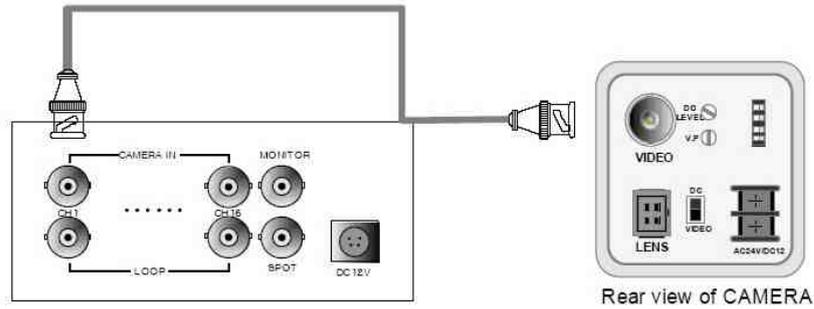
1. Remove 4 bolts on each side to install rack mount brackets
2. Attach rack mount bracket
3. Attach DVR brackets to 19" rack.

### 2) HDD



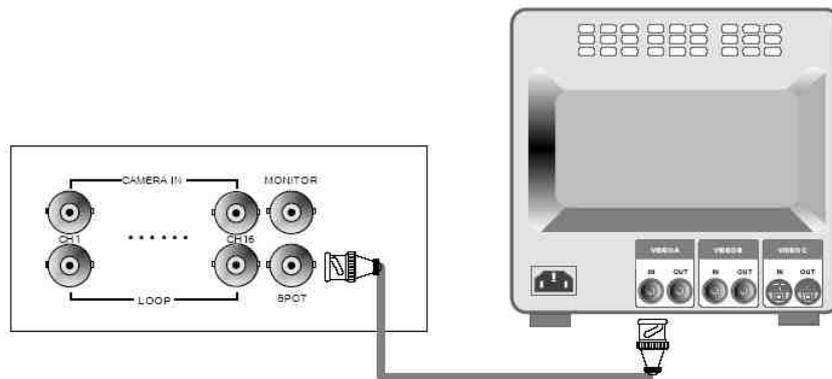
1. Connect Main Board and HDD1 using IDE cable and HDD power cable.
2. The jumper setting of HDD1 should be the Master if you install only one HDD.
3. The jumper setting of HDD1 should be the Master and HDD2 should be the Slave if you install two HDDs. (Refer to the above figure)
4. Stick the HDD absorber (included in package) on the bottom of case and then install the HDD on top of them by using the bolts (included in package).
5. Screws must be inserted from outside of the case bottom.

### 3) Camera



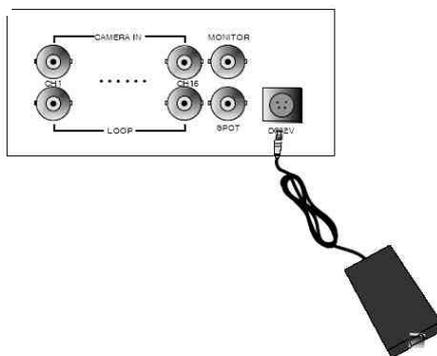
Connect cameras to the camera input on rear panel of DVR marked CAMERA IN.

### 4) Monitor



Connect the video output marked MONITOR to Video In of Main monitor.

### 5) Power

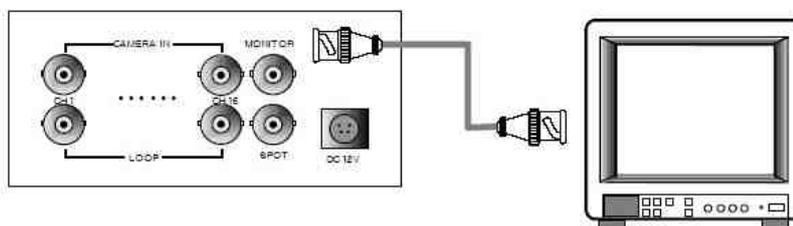


Connect one 12V DC 6.67A adaptor to the DC12V input connector on rear of unit.

NOTE: Before you turn on power switch, ensure that power adaptor, cameras and monitor are connected properly.

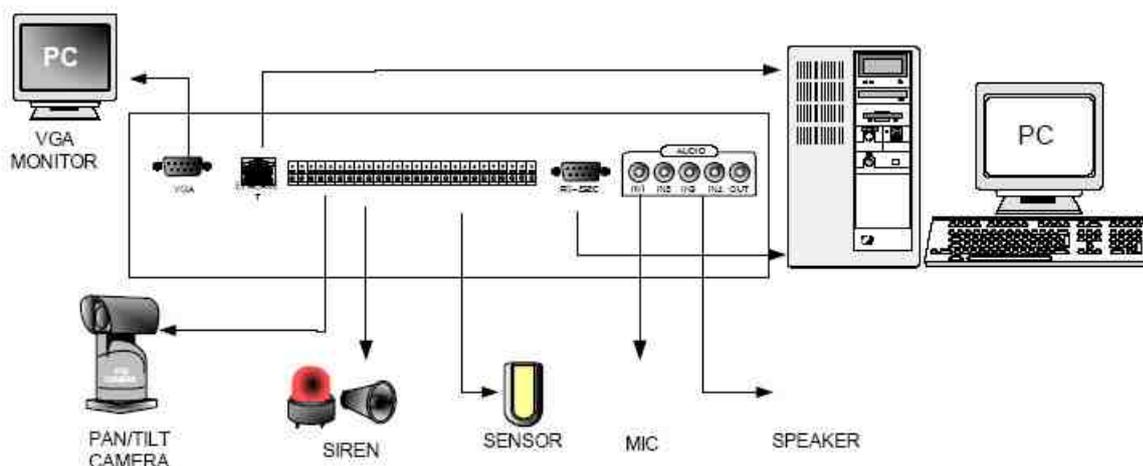
**ALSO TO AVOID DELETION OF HDD DATA, ENSURE YOU PRESS MENU AND ENTER BEFORE POWERING DOWN. THIS TAKES UNIT OUT OF RECORD MODE.**

6) VCR, VIDEO PRINTER



Connection with additional composite monitor

7) Other External Device



**RS-232C** : Control DVR through RS-232C port by using PC (N.B Not supported.)

**RS-485** : Control external device like PTZ Camera

**RELAY Output** : Relay Output (Pin 4 ~6 at Terminal Block).

**SENSOR Input** : SENSOR Input (Alarm connection)

**ETHERNET**: Connection to LAN, WAN, Internet.

**VGA**: Connection to VGA monitor(CRT,TFT LCD).

Select VGA in DISPLAY SETUP menu before connection to VGA monitor

Resolution set by manufacturer is 800x600 60Hz. This can be altered by entering Monitor Setup/ VGA Setup / VGA resolution

Use VGA option board for both CRT type PC monitor or TFT LCD monitor.

**AUDIO INPUT**: Microphone Input (IN1~IN4)

**AUDIO OUTPUT**: Speaker Output (OUT)

## CHAP.4 Operation

### 4-0. Starting up system

Before turning on the DVR be sure that everything is firmly connected. Turn on the DVR and go the Menu using the relevant Login Password and you will then see the System Setup Screen. You may proceed by referring to the related chapters describing the various functions.



### 4-1. System Log-In

- 1) To enter into the setup menu, press the [MENU] button.
- 2) Enter password with channel number button from No.1 to No.10 on the front of the DVR unit. (Maximum of 8 digits are available)
- 3) After inputting the password, press the [ENTER] button.



Administrator:

If the password entered matches previously set password, "LOGIN ADMIN" message appears and you can enter into SYSTEM SETUP. If the password entered does not match previously set password, the DVR unit goes back to live display mode.

Factory default password is blank. For log-in, just press [MENU] button, followed by the [ENTER] button.

-Factory default password

ADMIN: (Blank)

MANAGER: ' 1 '

USER 1-USER 8: ' 2 ' ~ ' 9 '

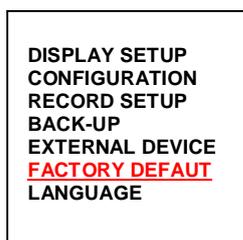
We recommend configuring a unique password as per the procedure in SYSTEM MENU - CONFIGURATION - PASSWORD SETUP.

For security reasons, be sure to make note of your own password.

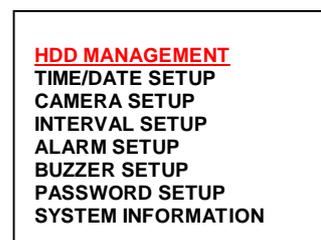
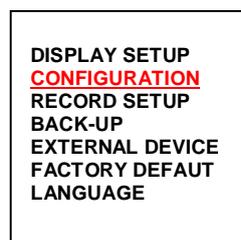
### 4-2. Factory Default

Before initial configuring or operation you must first set the Time/Date, followed by setting the unit to the FACTORY DEFAULT settings, lastly clearing the HDD. Please follow these steps in order. Improper operation may result if this action is not taken. Starting without FACTORY DEFAULT & HDD clear will cause malfunctions.

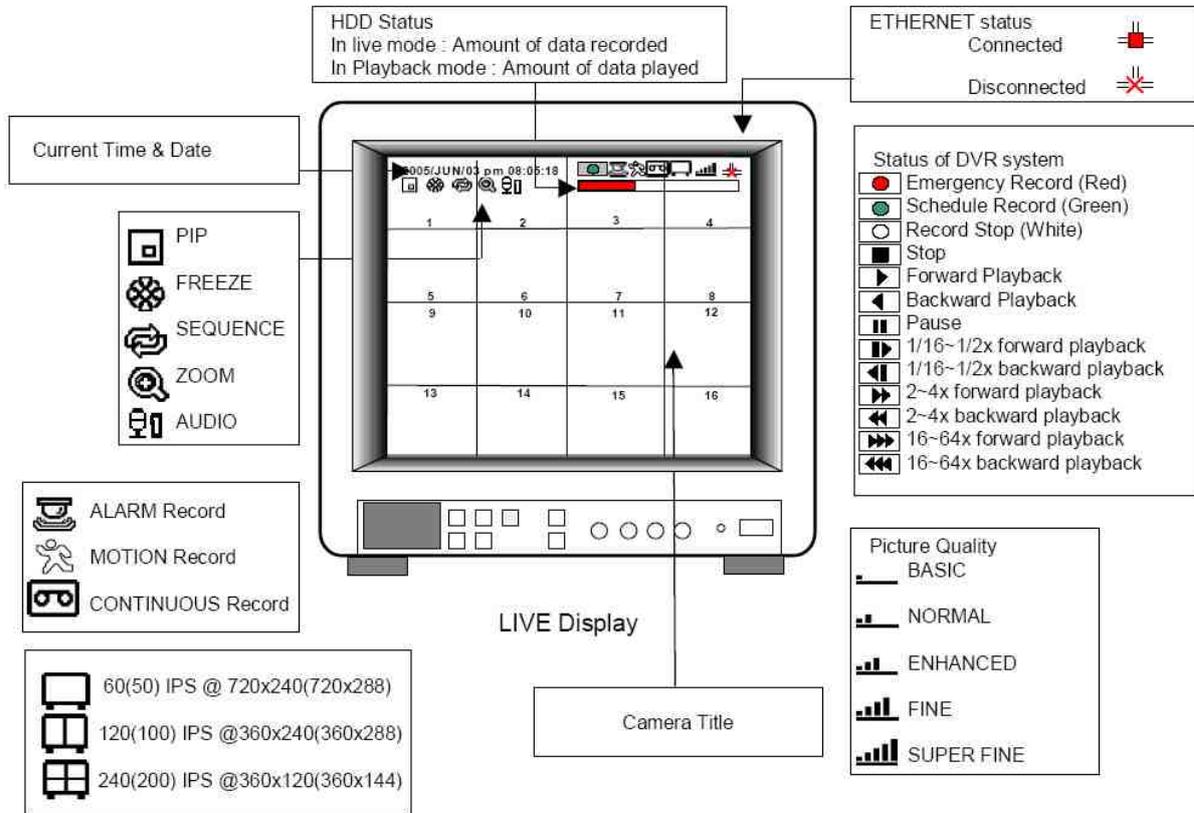
1. FACTORY DEFAULT (page 31)



2. HDD CLEAR (page 22)



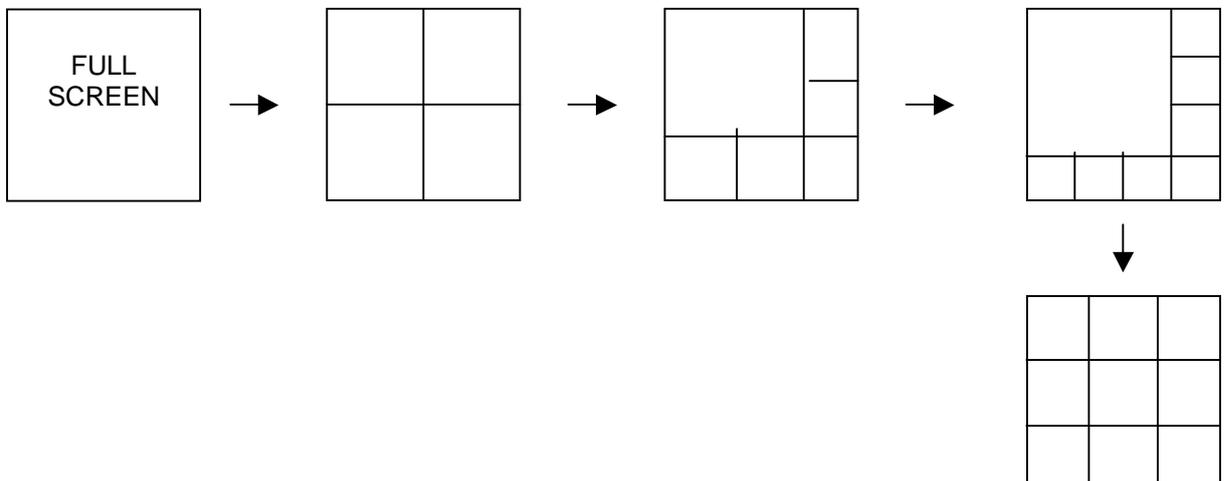
4-3. Display Configuration



4-4. Live View Setup

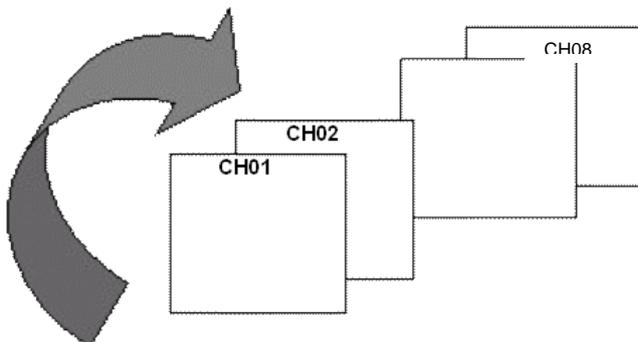
1) Full / Multiple View

Switch to multi-screen displays by pressing [MODE]. For full image display, just press the channel button you want or keep pressing [MODE] button. When you playback images that are recorded in 360x240 (360x288) or 360x120 (360x144) resolution, only 4 and 9 way split screens are available.



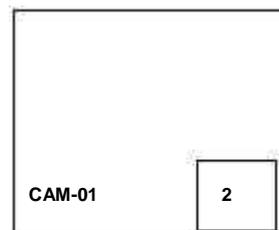
## 2) View In Sequence

Press [SEQ] button. It automatically displays full screen images in sequence. To stop the sequence press the [SEQ] button.



## 3) Picture in Picture (PIP View)

When it is in full screen display mode, you can see another camera in a small window by pressing [PIP]. This camera window rotates in sequence to next camera and you can set the rotating time interval as per the procedure in *SYSTEM MENU-CONFIGURATION- INTERVAL SETUP*.



## 4) Freeze View

**Full display mode:** If you press the [FRZ] button, the FRZ icon will be activated on screen and the "F" character will be shown beside camera title, and the live image will be frozen.

**Split display mode:** If you press the [FRZ] button, the FRZ icon will be activated on screen. Then press the channel button you want to freeze.

To release frozen image, press channel number of frozen image again and press [FRZ] button to exit FRZ mode.

## 5) Zoom View

In full screen, press the [ZOOM] button and move the Selection Frame using Jog Shuttle or direction keys to the area which you want to enlarge. Then press the [ENTER] button for 2-times enlarged picture. To exit Zoom mode, just press [ZOOM] button again.

Horizontal Movement: Jog Shuttle

Vertical Movement: Hold [UP or DOWN] button and turn Jog Shuttle

**4-5. Record**

The recording mode set before delivery by manufacturer (Default recording mode) is Schedule Recording. In this default recording mode, it records 24 hours/day continuously during weekdays and the weekend.

If you press the [E-REC] button whilst you are in live view mode, the record type is changed to Emergency Record mode.

**EMERGENCY RECORD:** at full resolution/best quality  
 Record type : CONTINUOUS, SUPER FINE quality,  
 60 (50) ips at 720X240 (720x288)

Emergency Record [RED]

Schedule Record [GREEN]

Stop Record [WHITE]

**SCHEDULE RECORD:**

Record and stop as set (time interval and record type) in RECORD-SCHEDULE SETUP menu.

**STOP RECORD:**

Recording stopped as set in RECORD-SCHEDULE SETUP menu.

On the screen

**-Emergency Record**

: Red Record Icon LED is lit

**- Schedule Record**

: Green Record Icon LED is lit

**- Record Stop**

: White Icon Record LED is off

**- Motion Record, Alarm Record, Alarm+Motion Record**

: Record standby LED blinks

: Record LED is lit

While in Emergency Record mode, press [PLAY], [MENU], or [SEARCH] button to exit from Emergency Recording mode and return to Schedule Record mode or press E-REC button for three seconds.

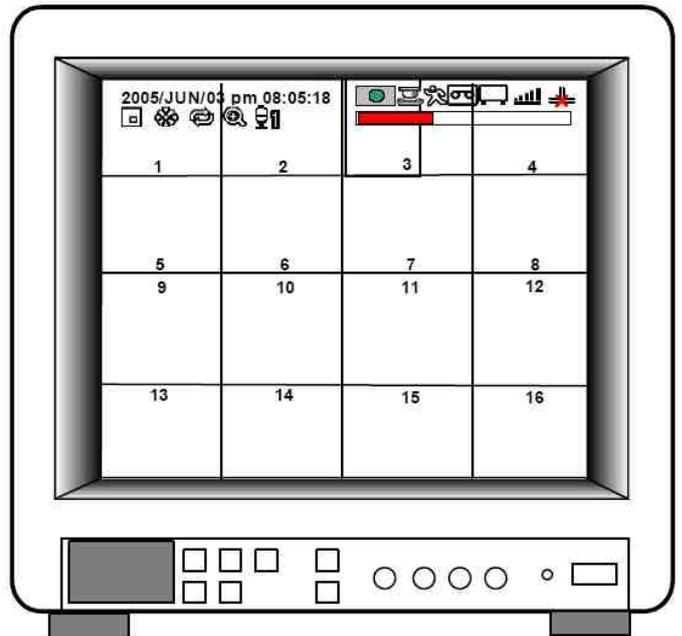
Further details, refer to the SYSTEM MENU – RECORD SETUP.

**This DVR unit does not record in the following conditions:**

While entered in the menu

No camera connected

HDD is full and Overwriting is off in the Record Setup menu.



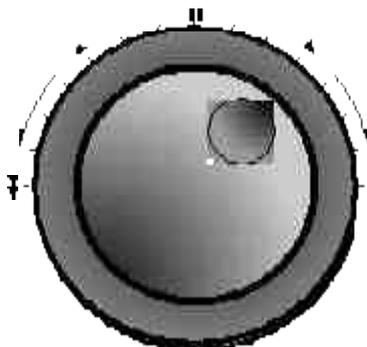
**4-6. Playback**

In record mode or stop mode, press [PLAY] button to play the recorded data in 1x speed. Press [LEFT] for backward playback or press [RIGHT] button for forward playback. Use Jog Shuttle to pause and control playback speed. To stop playback, press the [PLAY] button again.

**Using Jog/Shuttle**

When the [ACTIVE] LED is on the [JOG SHUTTLE] is ready for use. The [RUN] LED will blink whenever you operate the Jog Shuttle. For forward playback, turn the Shuttle right and turn Shuttle left for backward playback. Turn the inner Jog using your index figure to see picture by picture in forward or backward direction. Operation of Shuttle is as follows.

If you want to keep the playback speed you have selected using Shuttle, just hold the shuttle at that location for a few seconds, and playback in speed you selected continues until you rotate Shuttle again.



- 1/4 x : 4 times slower than normal playback speed
- 1/2 x : 2 times slower than normal playback speed
- 1 x : Normal playback speed
- 2 x : 2 times faster than normal playback speed
- 4 x : 4 times faster than normal playback speed
- 16 x : 16 times faster than normal playback speed
- 64 x : 64 times faster than normal playback speed

**4-7. Search**

Press [PLAY] & [SHIFT] buttons, and 3 different methods for searching recorded data are available as shown in following SEARCH window. For selecting searching method, use direction key or Jog Shuttle. After selecting each search method, press [ENTER] button for playback. To exit press [MENU].

1) SEARCH BAR

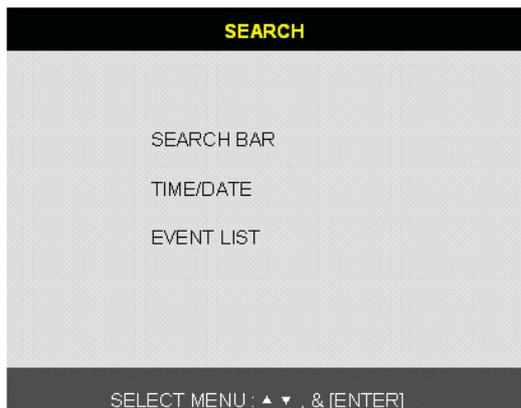
Search by percentage of total recorded data, using the arrow keys or the jog shuttle. It starts from image corresponding to set % of data on the search bar.

2) TIME/DATE

Search by time & date. Playback starts from the time & date selected.

3) EVENT LIST

Search by event list (Motion, Alarm, Video Loss).



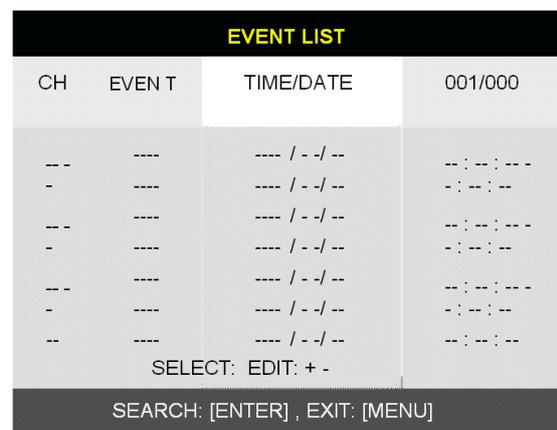
**SEARCH page**



**SEARCH BAR page**



**TIME/DATE page**



**EVENT LIST page**

**4-8. PAN/TILT/ZOOM Camera Operation**

Press [PTZ] button first for PTZ control mode. Numeric buttons from 1 to 16 and direction buttons are assigned for each PTZ command, and user can control PTZ camera connected to DVR unit by pressing any one of those 20 buttons, one after the other, as needed, and it is similar to controlling by a separate PTZ controller.

Button	PTZ command	Button	PTZ command
1/ON	LIGHT ON	9/SET	PRESET SET
2/OFF	LIGHT OFF	10/CLEAR	PRESET CLEAR
3/OPEN	IRIS OPEN	11/GOTO	PRESET GOTO
4/CLOSE	IRIS CLOSE	12/AUTO	AUTO SCAN
5/NEAR	FOCUS NEAR	UP BUTTON	TILT UP
6/FAR	FOCUS FAR	DOWN BUTTON	TILT DOWN
7/WIDE	ZOOM OUT	LEFT BUTTON	PAN LEFT
8/TELE	ZOOM IN	RIGHT BUTTON	PAN RIGHT

**4-9. Data Back-Up**

Enter into SYSTEM MENU-BACKUP-CDR SETUP.

1) Insert empty CD-R or DVD-R media into DVD writer and select the start time & date from which you want to back up. The START & END time / date in HDD sub-menu only shows start and end of recording. This is not selectable and editable.

(700MB on CD-R sub-menu represents size of CD-R media and 4480MB on DVD-R media inserted.)

2) To set start time of back-up and back-up data size, press the [ENTER] button first on [START] or [SIZE] sub-menu and adjust using [+] or [-] button and move using [LEFT] and [RIGHT] button for next change. After setting the time & date and back-up data size, press the [ENTER] button again to exit.

End of back-up time will be calculated automatically as per start time & date and the back-up data size you set.

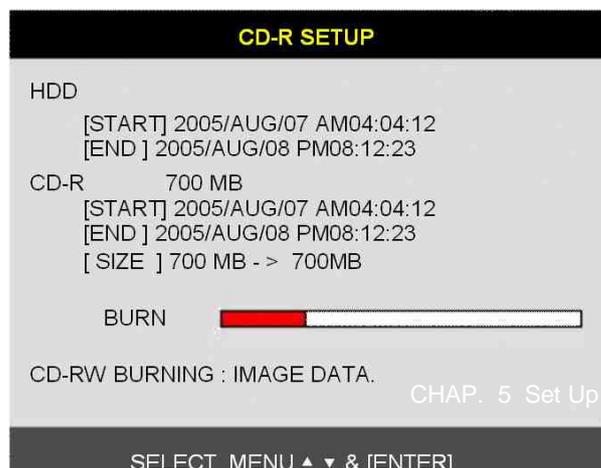
User can select the back-up data size (size of back-up data from start of back-up) on [SIZE] item but END of back-up time is automatically determined by DVR system.

3) Press [ENTER] button on BURN sub-menu. DVR system starts burning CD or DVD.

4) When burning is completed, CD-R or DVD-R media will eject automatically. If you wish to continue backup of more data, the next CD/DVD back-up, set the start time of the next backup as the end time of previous back-up. If you need another backup, repeat the above procedure. To stop backup, press the [MENU] button.

During the backup burning process it's impossible to cancel burning.

User can verify the back-up media on a PC. On insertion the media will auto run.



**NOTE: SIZE = 4480MB WITH DVD-R MEDIA**

**4.10. Audio Operation**

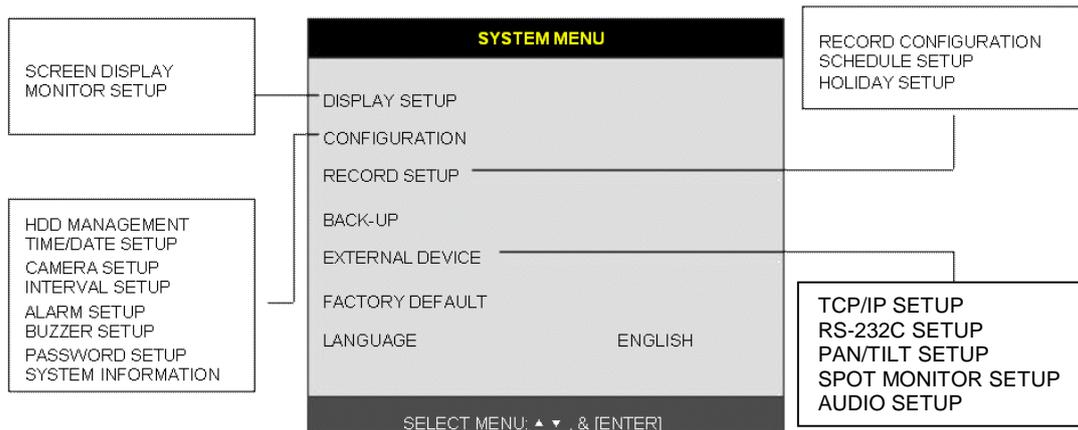
Press [AUDIO] button to select audio channel .... CH1, CH2, CH3, CH4 or SILENCE in sequence. Sound of the selected audio channel can be heard in LIVE mode display. Recorded sound is heard in Playback.

**CHAP. 5 Set Up**

**5-1. Entering into the Menu**

Enter into SYSTEM MENU by pressing [MENU] button.

BUTTON	FUNCTION
MENU	Enter into SYSTEM MENU, Move to previous menu, ESC
ENTER	Selection key, Move to sub-menu, change status (ON or OFF)
NEXT	Move to next page
UP	Move Up
DOWN	Move down
LEFT	Move left
RIGHT	Move right
MINUS [-]	Decrease the option value [SHIFT] + [◀] key
PLUS [+]	Increase the option value [SHIFT] + [▶] key
Jog Shuttle	Jog Left turning: Move backward to next image / Decrease value Jog Right turning: Move forward to next image / Increase value
	Shuttle left turning: Reduce playback speed / Decrease value Shuttle right turning: Increase playback speed / Increase value

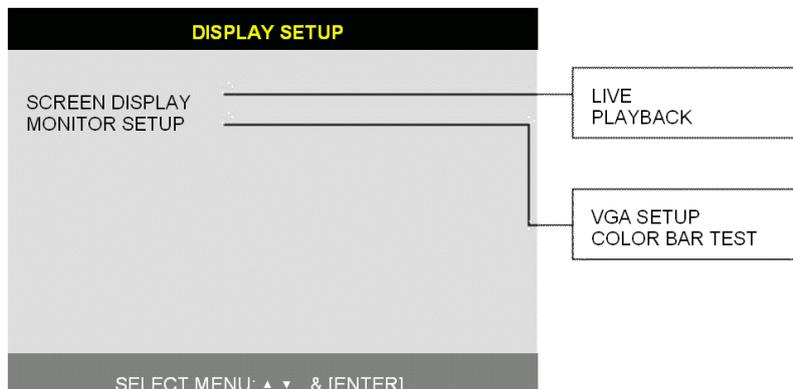


**SYSTEM MENU**

## 5-2. DISPLAY SETUP

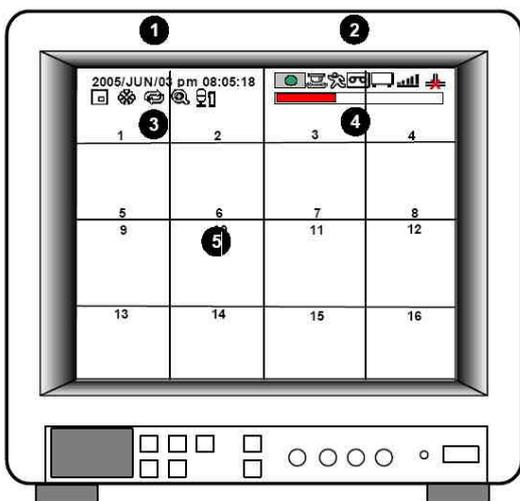
Setting up parameters for monitor and display on screen.

Enter into SYSTEM MENU-DISPLAY SETUP.



### 1) SCREEN DISPLAY

Setting up the screen display in LIVE mode and PLAYBACK mode.



Select the sub-menu, that you would like to set using direction buttons and then change ON/OFF with [ENTER] button.

1. TIME/DATE: Display time & date
2. DVR STATUS: Display system setting status
3. ICON DISPLAY: Display function setting status
4. REC/PLAY BAR: Display record / playback status
5. CAMERA TITLE: Display camera title

### 2) MONITOR SETUP

VGA SETUP: The VGA card enables you to connect a TFT LCD monitor or CRT type PC monitor to this unit.

You will have to select one of the resolution settings below using the [+] [-] button. After setting the option below, press [ENTER] button then the DVR unit will set VGA mode automatically.

1024x768 / 60Hz or 800x600 / 60Hz or 640x480 / 60Hz  
 1024x768 / 75Hz or 800x600 / 75Hz or 640x480 / 75Hz

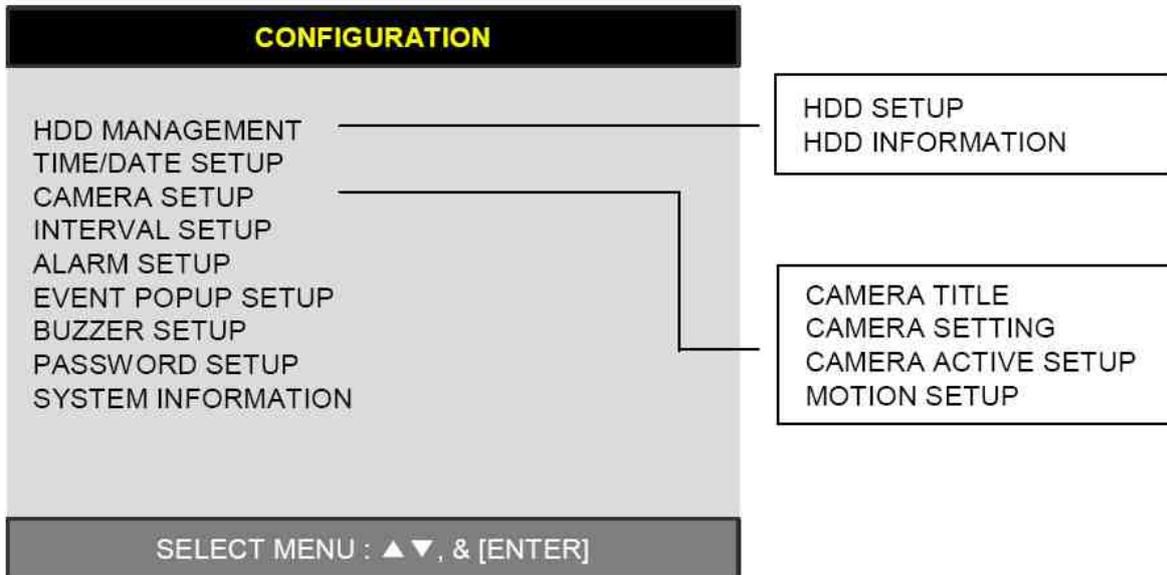
The resolution reflects pixels per inch. The higher the pixel rate the better the quality. Best quality is therefore 1024x768 / 75Hz but must match TFT LCD or CRT PC monitor

COLOUR BAR TEST: Necessary to adjust colour tone of monitor. (Not available with VGA option)

NOTICE: When this DVR unit is operated for the first time, it will take a few seconds to boot up for initialisation of VGA mode.

5-3. CONFIGURATION

Various system parameters can be set in the CONFIGURATION menu. Enter the SYSTEM MENU-CONFIGURATION and press the [ENTER] button.

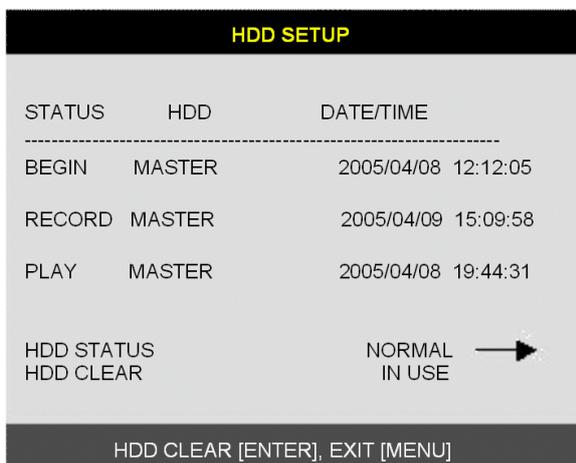


1) HDD MANAGEMENT

Enter SYSTEM MENU-CONFIGURATION-HDD MANAGEMENT and press the [ENTER] button.

(1) HDD SETUP

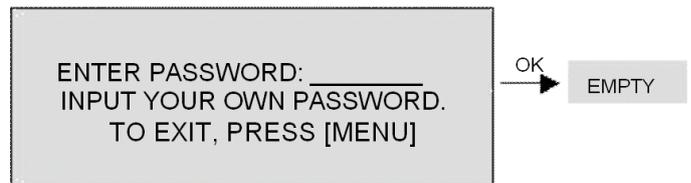
This page includes information about start and end of recording, location of recorded data, or location of last playback on HDD. In addition, users can delete all the data on HDD.



On the [HDD CLEAR] sub-menu, press the [ENTER] button to delete all image data on HDD.

The system will ask you the password for verification. After you clear all data on the HDD, the status of HDD CLEAR changes from IN USE to EMPTY.

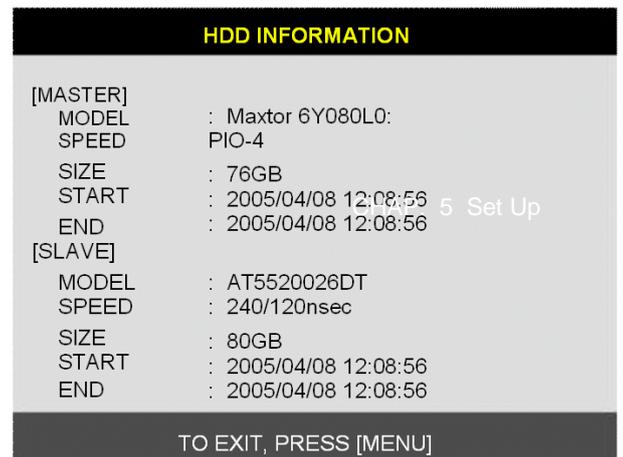
When you clear HDD, the event list is deleted, too.



If you selected OVERWRITE in Record Setup, the HDD STATUS above will display OVERWRITE.

(2) HDD INFORMATION

This menu will show the physical state of the HDD in the DVR.

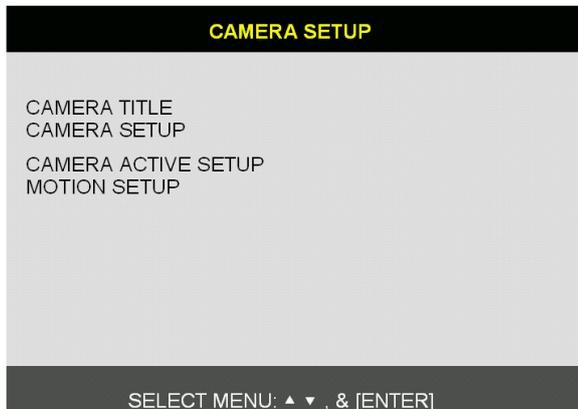


### 2) TIME/DATE SETUP

Set the time and date of the DVR system. It is very important for searching an event with time and date that this is accurately set. Note that the time and date set by manufacturer may be different from the local time and user must set the date and time before recordings start. The time and date can be set by using the direction buttons [+], [-] or the Jog Shuttle. There is an option for selecting date, time and month formats.



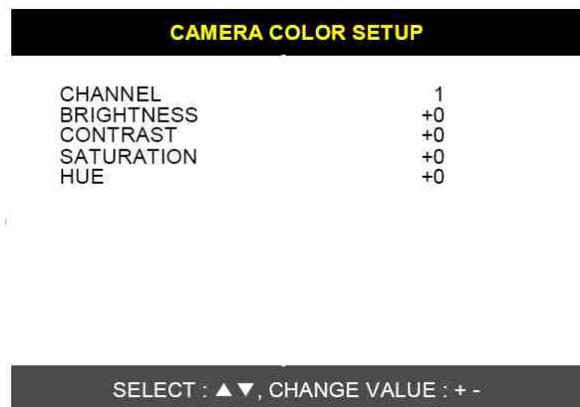
### 3) CAMERA SETUP



(1) TITLE: Input Title of each camera. Move to a channel you want to edit using [LEFT] or [RIGHT] direction button and then change the title-using [-] [+] button. When modification is finished, press the [ENTER] button. To exit to previous menu, press the [MENU] button.

(2) COLOUR: Adjust image colour  
Move to each setting using [UP][DOWN] button and adjust using [-] [+] button or Jog shuttle.

- CHANNEL: Select camera
- BRIGHTNESS: Adjust image brightness (-32~ 31)
- CONTRAST: Adjust colour contrast ( -32 ~ 31)
- SATURATION: Adjust colour saturation ( -32 ~ 31)
- HUE: Adjust colour hue ( -32 ~ 31)



CAMERA ACTIVE SETUP			
CH	STATUS	LIVE	REC
01	ACTIVE	ON	ON
02	ACTIVE	ON	ON
03	LOSS	OFF	OFF
04	ACTIVE	ON	OFF

SELECT : ▲▼, CHANGE VALUE : ◀▶

MOTION SETUP	
CHANNEL	01
SENSITIVITY GRADE	01
MOTION DISPLAY TYPE	OFF
RECORD DURATION	05 SEC
NUMBER OF CELLS TO DETECT	02

SELECT ▲▼, PRESS

- (3) CAMERA ACTIVE SETUP: With direction button, move to option to be changed, and press [ENTER] button to select [ON/OFF]. If it is set at LIVE [OFF] and REC [ON], DVR system records, but does not show live image of set channel.

STATUS: Shows if image from a specific channel is set for live display and recording. In normal camera condition, it is ACTIVE, but LOSS is displayed when the cable is disconnected or camera is not working.

LIVE: Decides whether to show LIVE screen image or not.

REC: Decides whether to record relevant channel or not.

- (4) MOTION SETUP: You can set sensitivity of motion detection in 4 steps, motion detection area and others in relation to motion recording in this menu.

#### (4)-1. MOTION SETUP

SENSITIVITY GRADE: Adjusts motion detection sensitivity. 1(LOW) 2(MEDIUM) 3(HIGH) 4(VERY HIGH)

MOTION DISPLAY TYPE: Showing cells with motion detected differently from cells with no motion.

RECORD DURATION: Whenever motion is detected and it is set in Motion Recording mode, DVR system records for RECORD DURATION from time motion is detected. (1sec. ~ 99 sec.) (Default duration: 5sec.)

#### 4)-2. MOTION MASK SETUP

Set motion detection area. Direction button is for moving, [ENTER] button is for selection and MODE button is for changing mode of MASK SETUP.

CELL: Move to the location that you want to detect and then press the [ENTER] button.

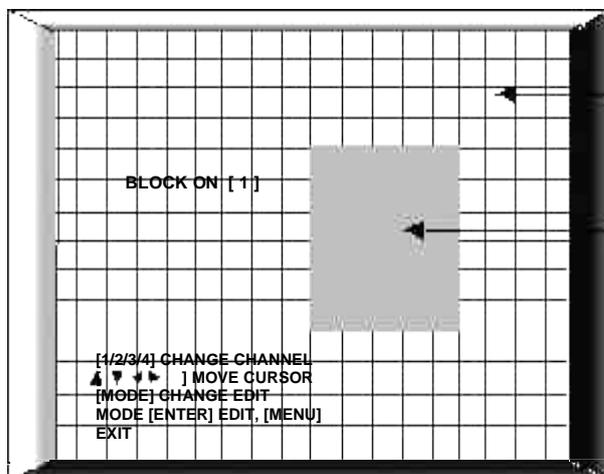
Highlighted cell area means motion detection area.

ALL ON: Set all cells as detection area. Use [ENTER] button to set.

ALL OFF: Set all cells as no-detection area. Use [ENTER] button to set

BLOCK ON: Select detection area by block. Use [MODE] button and press [ENTER] button to set ON.

BLOCK OFF: Select un-detection area by block. Use [MODE] button & press [ENTER] button to set ON.



Highlighted Area  
(Motion Detection Area)

Non-highlighted Area  
(No Motion Detection Area)

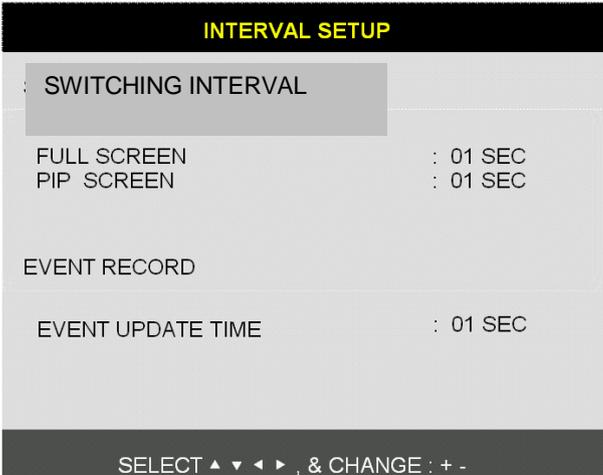
#### 4) INTERVAL SETUP

Set the switching time interval for SEQ or PIP function.(1sec. ~ 99 sec.)

FULL SCREEN: set the sequencing switch time interval in live full screen.

PIP SCREEN: set the sequencing switch time interval of PIP window.

EVENT UPDATE TIME: Set the minimum time interval of event to be listed in EVENT LIST. If EVENT UPDATE TIME is set at 20 seconds, only following an event that lasted longer than 20 seconds will it be added to the EVENT LIST.

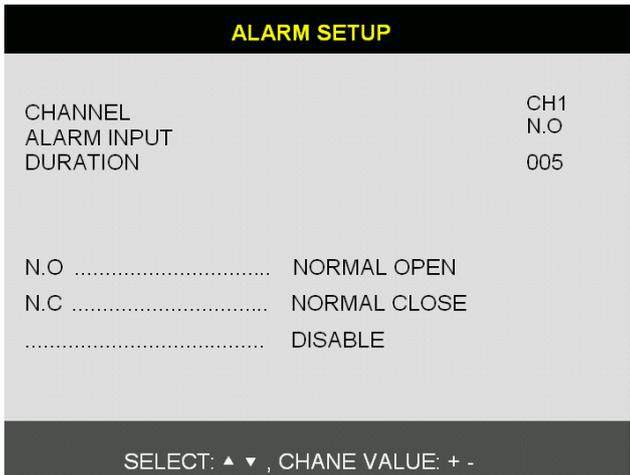


#### 5) ALARM SETUP

Set type of alarm sensors connected to DVR unit. N.O represents Normal Open type and N.C Normal Close type.

ALARM INPUT: Select type of alarm sensor connected to DVR Unit (N.O or N.C). Use direction buttons [+] or [-] to set. DISABLE disables alarm sensor connected to DVR.

DURATION: Set the duration of alarm when an alarm is Activated. (0 seconds ~ 300 seconds)



#### 6) EVENT POPUP SETUP

When event is activated, a full screen image will popup.

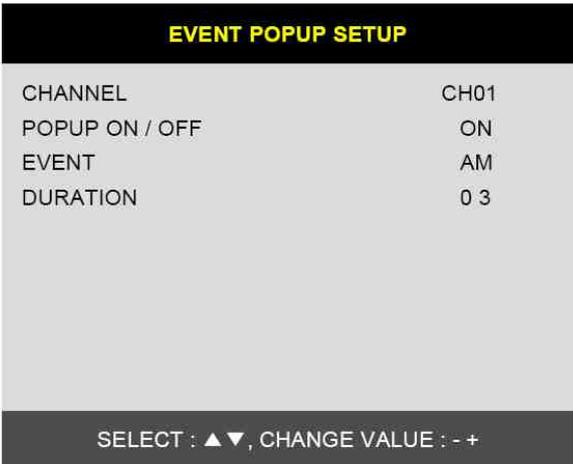
CHANNEL: Select a channel that uses an event (motion or alarm)

POPUP ON/OFF: Set a popup function to ON or OFF

EVENT: Set the type of event mode that this popup is applied to. A: ALARM event or M: Motion event.

DURATION: Set the duration to how long the popup image is displayed. (0 seconds ~ 60 seconds)

NOTE: If two or more channels popup at the same time, the lowest channel number will only be displayed.

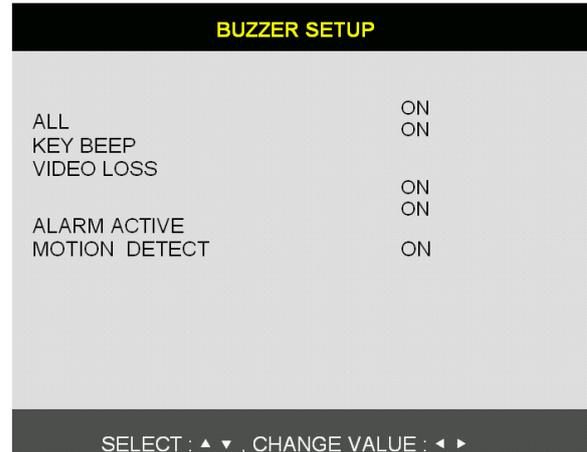


### 7) BUZZER SETUP

Set parameters for buzzer (On or Off).  
Use direction button and [ENTER] button.

- KEY BEEP: buzz when button is pressed.
- VIDEO LOSS: buzz when video signal is lost.
- ALARM ACTIVE: buzz when alarm is activated.
- MOTION DETECT: buzz when motion is detected.

User can set all buzzers at On/Off at once by set ALL at ON/OFF.



### 8) PASSWORD SETUP

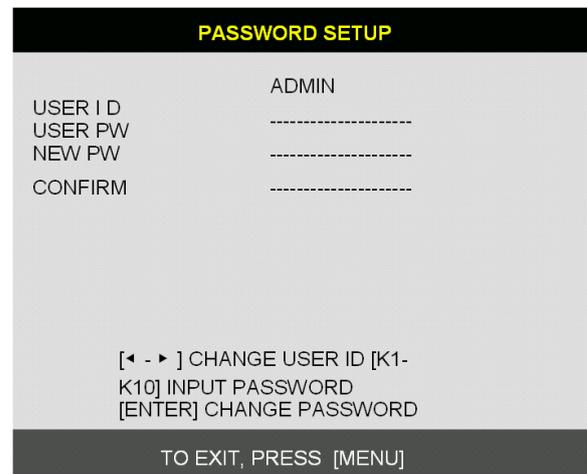
Set user ID and password.

-Use [UP] and [DOWN] button to move to option and [LEFT] and [RIGHT] button to set user ID.

The password must consist of a 1 to 8 digit number.  
Just use numbers button from 1 to 10 on the front panel of DVR unit. Note that 10 = 0

-To change password, user must input current password and then input the new password. Then input again the new password to confirm.

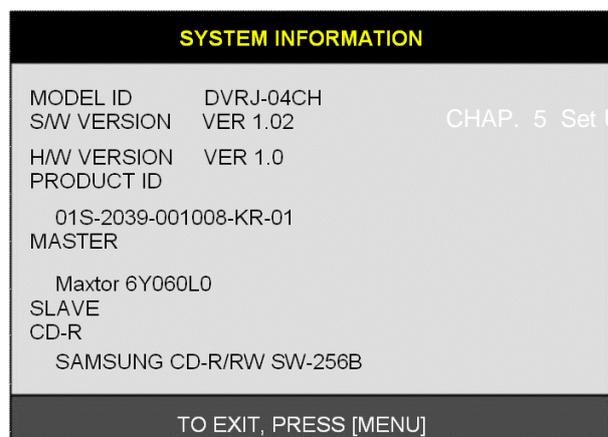
- Default value
- ADMIN: " (NULL)
- MANAGER: '1'
- USER 1: '2'
- :
- :
- USER 8: '9'



Change the user PASSWORD in the first operation is recommended.  
Ensure that you record the new password.

### 9) SYSTEM INFORMATION

DVR system information including model number, firmware version, hardware version, etc.



**5-4. RECORD SETUP**

This is the most important configuration of the DVR. Enter SYSTEM MENU-RECORD SETUP and press the [ENTER] button.

**1) RECORD CONFIGURATION**

Use direction button to move and [-] [+] button to set value.

(1) OVERWRITE: Set overwrite or stop recording when the HDD is full.

(2) MULTIPLEX: Set DUPLEX or TRIPLEX

- DUPLEX: Playback & Ethernet
- TRIPLEX: Recording, Playback & Ethernet

NOTE: Using triplex decreases frame rate by 50%.  
Duplex does not record during a search.

3) QUALITY: Set record quality. This affects disk space. BASIC / NORMAL / ENHANCED / FINE / SUPER FINE  
In Emergency record, quality is SUPER FINE.

To send more images via IP network and longer recording times, set QUALITY to Normal or Enhanced and record at 360x288 PAL.

(4) RESOLUTION: Set recording resolution in PAL mode.

- 50 ips at 720x288 PAL 60 ips at 720x240 NTSC
- 100 ips at 360x288 PAL 120 ips at 360x240 NTSC
- 200 ips at 360x144 PAL 240 ips at 360x120 NTSC

Images recorded in 360x288 It is not possible to see those images in full screen mode in playback. Recording in half or quad resolution is recommended for higher recording speed.

(5) RECORD IN ALARM: <Set record speed (skip rate) > in ALARM record mode.

(6) RECORD IN MOTION: <Set record speed (skip rate) > in MOTION record mode.

(7) CONTINUOUS RECORD: <Set record speed (skip rate) > in CONTINUOUS record mode.

**Set record speed (skip rate):** Set record speed (skip rate) in alarm/ motion/ continuous mode

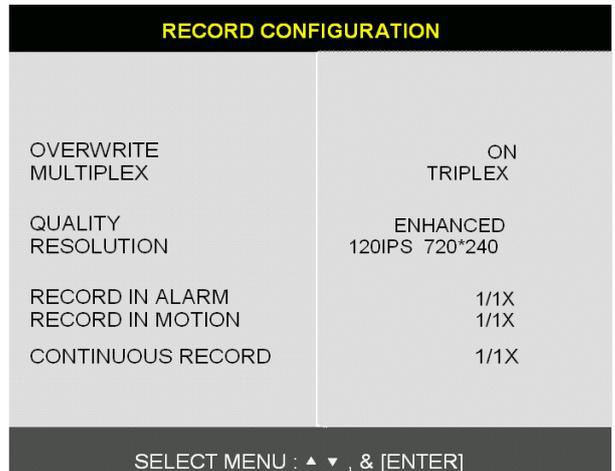
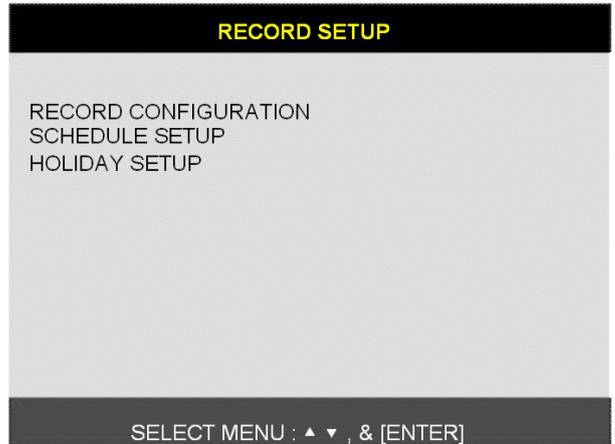
- 1/1x, 1/2x, .....1/999x record speed

example: 1/2x ) R->S->R->S...

example: 1/3x ) R->S->S->R->S->S->R...

example: 1/4x ) R->S->S->S->R->S->S... ( R : RECORD S : SKIP )

example: If record resolution is set at 360x288, 1/1x = 100ips, 1/2x = 50ips, 1/3x = 33ips etc.



## 2) SCHEDULE SETUP

Unless you selected another recording mode, DVR system records in Schedule Recording mode. In SCHEDULE REC SETUP, you set type of recording for every time interval of 2 hours in each day of the week. Schedule Recording set by manufacturer is recording continuously at its full recording speed, and it means DVR system records continuously at 50 ips overall at 720x288 resolution. To set Schedule Recording parameters, enter into SYSTEM MENU-RECORD SETUP-SCHEDULE SETUP and press the [ENTER] button.

### (1) SCHEDULE SETUP

Set recording type for each recording time interval for a day of the week (2 hours interval).

SCHEDULE REC SETUP							
00-02	SUN - M-	MON - AM -	TUE - -C	WED - -C-	THU - -C-	FRI - -C	SAT - -C
02-04	-M -	AM -	--C	--C	--C	--C	--C
04-06	-M -	AM-	--C	--C	--C	--C	--C
06-08	-M -	AM-	--C	--C	--C	--C	--C
08-10	---	AM-	--C	--C	--C	--C	--C
10-12	---	AM-	--C	--C	--C	--C	--C
MODE: CELL BY CELL							1 / 2
SELECT: ▲ ▼ ◀ ▶ & [NEXT], EDIT [+ -]&[MODE] A: ALARM M: MOTION C: CONTINUES							

Use [MODE] button to select edit type and move to the time interval of a day of the week you want to change. Press [ENTER] button to select and use [+] or [-] button, to change the record type. To go to the next page, use the [NEXT] button.

MODE (Edit type)

**TIME CELL:** Set each time interval of a day

**WEEK:** Set a day of the week at once

**TIMEZONE:** Set a time slot at once

**ALL:** Set page by page at once

**CLEAR ALL:** Clear page by page

Except when EMERGENCY record is enabled, the DVR system records according to the SCHEDULE Record Setup. The DEFAULT record mode set by the manufacturer is 'C' which is CONTINUOUS recording mode.

### RECORD TYPE

After power on ----- Schedule record

Exit from menu ----- Schedule record

Press and **HOLD** [E-REC] Emergency Record ----- Schedule record

End of search or playback ----- Schedule record

After pressing [E-REC] Emergency record ----- Emergency record (Continuous recording in best performance 50 ips at 720x288)

## 3) HOLIDAY SETUP

Users can set national holiday or holidays on calendar to record just as the setting for Sunday in SCHEDULE REC SETUP.

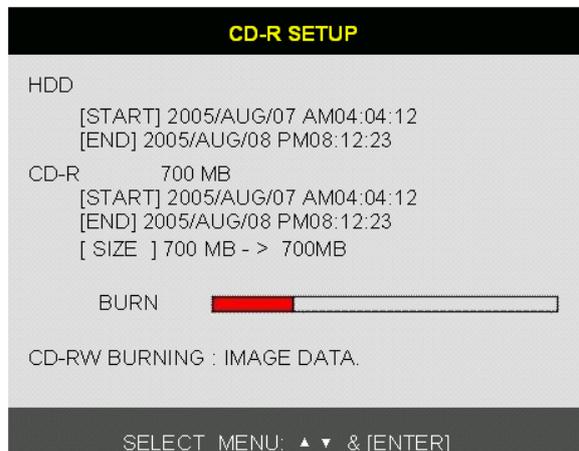
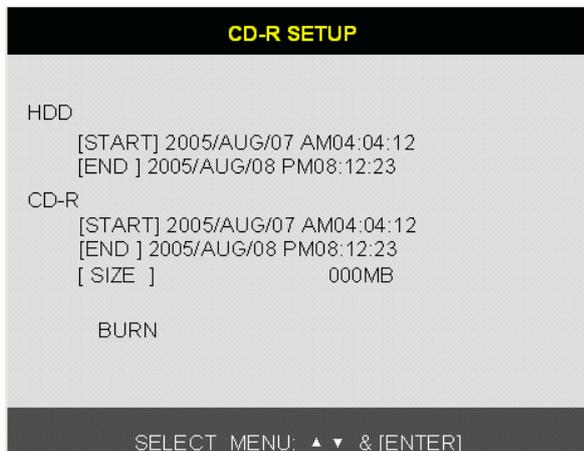
Use [MODE] button to select a month and direction button to move to a day, and press [ENTER] button to set a holiday. The colour of the date is then changed to red, as per Sunday.

The maximum number of holidays that can be set is 100 days.

HOLIDAY SETUP						
< AUG >						000/100
SUN	MON	TUE	WED	THU	FRI	SAT
						01 02
03	04	05	06	07	08	09
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
MODE : MONTH						

**5-5. BACK-UP**

User can back up the recorded data to CD or DVD using DVD writer installed in DVR. Refer to [START] and [END] of data on HDD and set copy from time, [START], and size of data copied, [SIZE], and move to BURN and press [ENTER] button to start copy.



System Status Messages:

- CD-RW DOOR CLOSE. CHECKING CD-R: Blank CD check
- INPUT BLANK CD: CD writer has no blank CD/DVD.
- CD-RW DOOR OPEN: Open CD-RW and insert blank CD-R or DVD-R media into drive.
- CD-R MEDIA IS DETECTED: Blank media has been inserted and detected. DVR system will display size of blank CD-R or DVD-R.

After you set [START] time and [SIZE] in CD-R sub-menu and then select BURN, DVR system starts copying images to CD/DVD and displays following message.

- CD-RW BURNING: START
- CD-RW BURNING: LEAD-IN
- CD-RW BURNING: IMAGE DATA
- CD-RW BURNING: CLOSE TRACK
- CD-RW DOOR: OPEN

When burning is complete, CD-R/DVD-R media will eject automatically.

To copy more images, repeat above process. In next process, [START] time in CD-R sub-menu shall be [END] time in previous back-up, and you can copy images in series to many CDs/DVDs, as many as you want.

**5-6. EXTERNAL DEVICE**

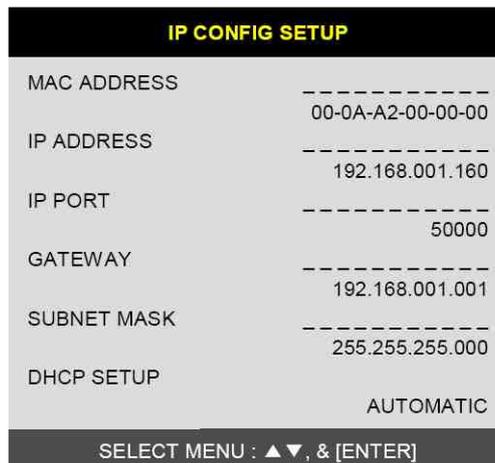
Set parameters of external devices connected to DVR, like Ethernet, PTZ camera, RS-232C, etc. Use direction button to move to sub-menu and Press [ENTER] button to set.

**1) TCP/IP SETUP**

The TCP/IP function enables users to view live and recorded images via the Internet or network.

**(1) IP CONFIG SETUP:**

This shows the network information assigned to the DVR unit. If the DHCP setup is AUTOMATIC, the user can set the IP port only and if the DHCP setup status is MANUAL, user must set all parameters. For further details refer to the Remote Viewer software instructions.



CONNECTION SETUP	
TIMEOUT	200 MSEC
RETRY COUNT	08

SELECT MENU : ▲ ▼ , & [ENTER]

DHCP SETUP	
DHCP MODE	MANUAL
DNS SERVER	000.000.192.168
IP ADDRESS	192.168.001.160
SUBNET MASK	255.255.255.000
GATEWAY	192.168.001.001

SELECT : ▲ ▼ , CHANGE VALUE : + -

(2) CONNECTION SETUP:

TIMEOUT: Adjust TIMEOUT value to successfully access the DVR unit via the Internet. If data transfer rate is high enough leave the TIMEOUT value as set by manufacturer at 200 msec but increase it if transfer rate is slow. If you use your PC DOS prompt and enter tracert <IP address> you can add up the minimum access time to reach your DVR.

RETRY COUNT: Set the number of retry times for network connection.

2) RS-232C SETUP

User can control the DVR via RS-232C port. Connect DVR to PC via RS-232C port and user can control DVR using keyboard of PC. This function is mainly for programmer who wants to control DVR as part of many devices connected to a PC system.

NOTE: THIS IS NOT CURRENTLY SUPPORTED.

RS-232C SETUP	
SPEED	576000
LENGTH	8
STOP BIT	1
PARITY	NONE

SELECT : ▲ ▼ , CHANGE VALUE : ◀ ▶

3) PANTILT SETUP

This is used to set parameters for PTZ camera/s connected to the DVR unit. DVR unit includes many well known protocols like PELCO-D and user must select MODEL and set other parameters to control their PTZ cameras. PTZ cameras can be controlled using the PTZ operation buttons on the front panel of the DVR. If PTZ camera protocol is not incorporated into this DVR unit, user can input or upgrade protocol using the USB device port.

PANTILT SETUP	
COMMAND SETTING	PTZ camera set
SPEED SETTING	PTZ speed set

SELECT: ▲ ▼ , CHANGE VALUE: ◀ ▶

COMMAND SETTING	
CHANNEL	01 PELCO-
MODEL	D 000
PTZ ID	
BAUDRATE	2400 BPS
CMD DELAY	1 MSEC
COMMAND	PAN/TILT STOP
LENGTH	0.7
CODE	FF 00 00 00
	00 00 00 00

SELECT: ▲ ▼ , CHANGE VALUE: ◀ ▶

- (1) CHANNEL: Select channel
- (2) MODEL: Select Protocol
- (3) PTZ ID: PTZ Address
- (4) BAUDRATE: Select Baud Rate
- (5) CMD DELAY: Select command delay time

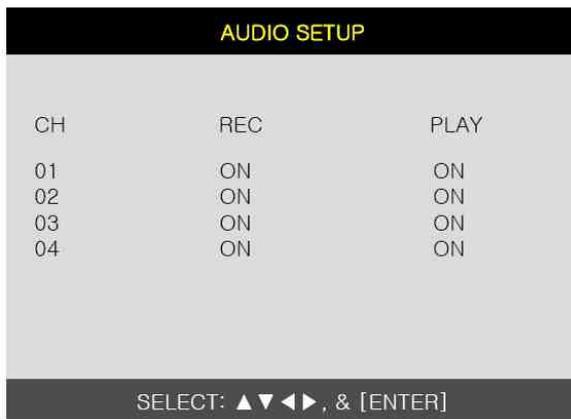
**4) SPOT MONITOR SETUP**



- 1) SWITCHING INTERVAL  
Channel switching time (1 sec. ~ 99 secs.)
- 2) ALARM POP-UP  
Set ON to show screen pop-up on Alarm
- 3) MOTION POP-UP  
Set ON to show screen pop-up on Motion
- 4) EVENT POP-UP DURATION  
Set DURATION time of Alarm or Motion Event (1 sec ~ 99 secs.)

**5) AUDIO SETUP**

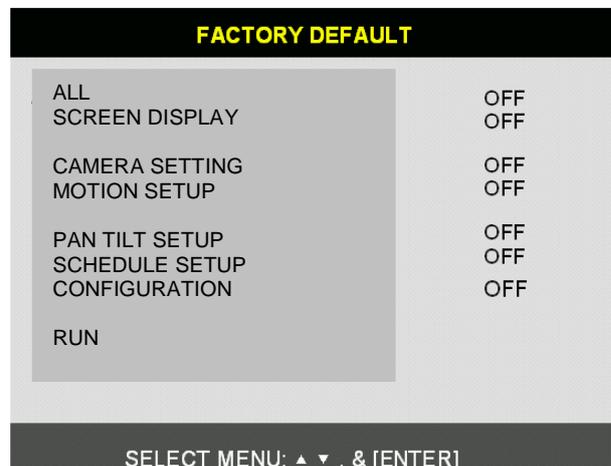
Use direction button to move to channel and press [ENTER] button to set (ON/OFF).



- 1) REC
  - a) ON: Record with AUDIO
  - b) OFF: Record without AUDIO
- 2) PLAY
  - a) ON: Audio on playback
  - b) OFF: No Audio on playback

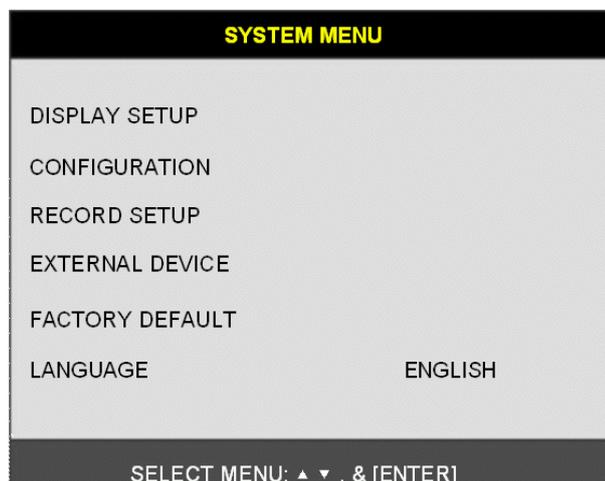
**5-7. FACTORY DEFAULT**

Reset all system parameters as per manufacturer's settings. Use this option when adding a new HDD or following problems with changes made to system. Use direction button to move and Press [ENTER] button to change parameters. Then select RUN, Press [ENTER] button for actual Factory Default setting.



## 5-8. LANGUAGE SETUP

The menu can be displayed in a number of languages. Press [ENTER] button to select language.



## CHAP. 6 Network Setup

### 6-1. DVR Network Configuration

Please call your Internet provider to identify what type of service they are providing for you. You will need to know the following;

Upload speed – For your own knowledge for expected frame rates

Download speed – For your own knowledge for expected frame rates

Addressing – For determining the addressing method you will need to make

Router On Site – For connecting to the outside world

NOTE: For remote viewing we recommend using a Broadband ADSL connection with an external I.P address (supplied by your Internet provider). You will probably need to install a modem/router for Internet connection sharing and remote access.

PLEASE verify Internet access after installing any new equipment (routers, switches, modems, etc.). If possible, use a PC on the network to verify that an Internet connection can be made and that all current configurations on any equipment are up and working properly. Do this before doing ANY configurations with the DVR. We are assuming that your current equipment is configured properly for Internet access.

### PC's TCP/IP Setting

Before configuring the DVR, please fill out the information below if applicable;

Choose any PC on your network and determine its TCP/IP settings;

IP Address: \_\_\_\_\_ (ex.192.168.1.5)

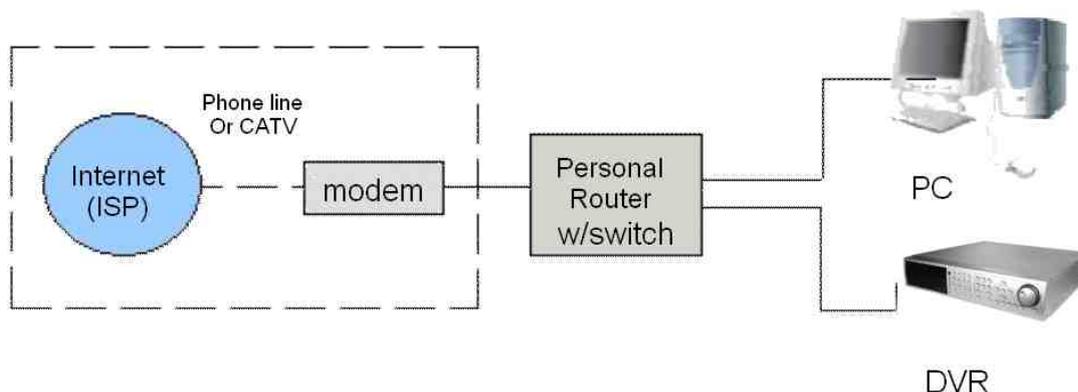
Subnet Mask: \_\_\_\_\_ (ex. 255.255.255.0)

Default Gateway: \_\_\_\_\_ (ex.192.168.1.1)

The following pages containing several network scenarios will clarify the network setup of the DVR; follow the instructions for configuring and accessing your DVR via TCP/IP.

## 1) Static I.P Address from an Internet Service Provider

Configure the DVR to operate with a modem router.



Configure the DVR as follows:

- a. It is assumed you have a PC working on Broadband Internet.
  - b. Check IP address in P.C and record IP Address, Subnet Mask & Gateway Address.  
Example: IP Address **192.168.1.100** Subnet: **255.255.255.000** Gateway: **192.168.1.1**
  - c. Connect LAN cable from router to DVR.
  - d. Assign DVR a private IP address Example : **192.168.001.105**  
You need to assign the DVR an IP address similar to PC. The IP address you assign must be unique but the first three levels must match your local network. When configuring the DVR's IP address information, the version of firmware within the units may display the IP addresses differently. For simplicity 192.168.1.105 may have to be configured as 192.168.001.105
1. Enter the DVR Menu – Go to EXTERNAL DEVICE - Go to TCP/IP SETUP
  2. Enter IP CONFIG SETUP
  3. SET IP ADDRESS (see above), IP PORT: 50000, GATEWAY 192.168.1.1(example) (Router base address), SUBNET MASK: 255.255.255.000 (example) - Assign the DVR the same exact subnet mask as your PC.
  4. Please DO NOT configure MAC ADDRESS but set DHCP SETUP to MANUAL.
  5. EXIT MENU.
  6. Now turn Router off and on. This will take about one minute to reset.
  7. Your DVR is now ready for access via the local PC using the Remote Viewer Software. Refer to your modem/router manual for instructions on how to configure it to allow incoming Internet access.
  8. If you fail to access DVR check all steps again.
  9. If access speed is too slow and connection fails after access then:-  
Go into MENU – EXTERNAL DEVICE – TCP/IP SETUP – CONNECTION SETUP  
Increase TIMEOUT value if Internet line too slow. You can estimate minimum speed by going into your PC DOS Command Mode and executing TRACERT on the DVR IP address. Now add together all msec values displayed and use this as a base level.

### **Dynamic IP Address from an Internet Service Provider**

Customers using a dynamic I.P address on their Broadband connection are advised to source a modem/router supporting "Dynamic DNS" within its firmware and to refer to the instructions provided with that router in order to configure that service.

## **Accessing the DVR using the Remote Software**

### **Locally:**

To access the DVR locally, that is from your local network on site from where the DVR is installed. Open the remote viewing software and click on the "Settings" button. As far as TCP/IP connectivity is concerned only 4 entries need to be made:

1. IP address: Input the IP address that you assigned the DVR. As in the above example input the private IP address of 192.168.001.105
2. Port: 50000(this has to match what is configured in the router and in the DVR)
3. User ID: (always leave the default " admin ")
4. Password: this must match what is configured in the DVR  
4,8,16 channel default: null (NO PASSWORD)

### **Remotely:**

To access the DVR remotely, that is from outside your local network, follow the above directions for accessing locally, except for the IP address. Taking into consideration you have received a static IP from your Internet Service provider, that static IP address is what you must enter into the software for connectivity to take place (NOT the IP of the DVR). Please consult your router manual for information on port forwarding.



**6-2**  
**Remote**  
**Viewer**  
**Software**

- ① **Power button:** Press the Power switch to exit the program.
- ② **Status window:** Display the present time and date.
- ③ **Screen Division button:** Single, 4-split, 9-split or 16-split. When you select any of them, screen division button is highlighted.
- ④ **Setting, Playback and Sequence buttons:**
  - a. Sequence: When in single channel view, click the sequence button to switch all active channels to the speed specified in the Settings menu.
  - b. Setting: Enables software configuration.
  - c. Live: Exit to display mode.
  - d. Playback: Enables remote playback.
- ⑤ **Channel number button :** Select the channel that you want to view in single channel view.
- ⑥ **PTZ control :** You can control a PTZ camera via the software with these controls.
  - a. First, you must input or configure the specific PTZ protocol into the software in order to communicate with the PTZ device. This includes protocol, address and baud rate.
  - b. When you press any of the controls for the PTZ, please press and hold the button for 1-2 seconds to compensate for the data transmission rate. If you do not and instead simply click the PTZ buttons, you may get undesired results (having the requested operation transmitted repeatedly.)
  - c. The plus and minus buttons send the PTZ commands to the corresponding PTZ camera ID.
- ⑦ **Time selection:** Select the time of the start of the recording by moving the cursor using the mouse.
- ⑧ **Calendar:** Use the calendar to select the date of the search. The grey filled square indicates the earliest date found on the hard drive/s. The outlined square indicates the latest date on the hard drive. Select the date to play back. If you select a non-recorded date, the unit will start at the earliest file on the hard drive/s.
- ⑨ **Command buttons**

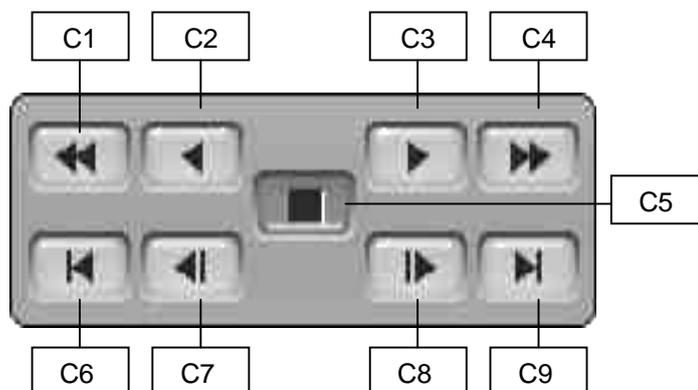
**SAVE:** Press STOP PLAYBACK [C9] then click SAVE to save the currently viewed image in jpg format.

**PRINT:** Press STOP PLAYBACK [C9] then click PRINT to print the currently viewed image.

**EVENT:** Search events on DVR unit (Motion/Alarm/Video Loss)

**RECORD:** Press RECORD to download playback images from the DVR to your PC. Saved images can be viewed using Windows Media Player.

### 10 CONTROL BUTTONS



**C1 PLAY FAST BACKWARDS**

**C2 PLAY BACKWARDS (1X)**

**C3 PLAY FORWARDS (1X)**

**C4 PLAY FAST FORWARDS**

**C5 STOP PLAYBACK**

**C6 MOVE TO START OF RECORDING**

**C7 MOVE TO PREVIOUS HOUR**

**C8 MOVE TO NEXT HOUR**

**C9 MOVE TO END OF RECORDING**

### 11 CONNECT BUTTON

Press Connect button to view in live view mode. The delay time depends upon your Internet connection.

### DISCONNECT BUTTON

Press the Disconnect button to disconnect the DVR unit. You can then power off the software.

### 12 NETWORK SPEED (optional facility)

(+) Increase the network speed which lowers the picture quality.

(-) Decrease the network speed which improves the picture quality.

## IP / PORT Setting Screen

Remote Viewer Setup

IP/PORT | DDNS | PIZSAVE

DVR Name: SMART2     MANUAL     DDNS

IP Address: 192.168.1.160    Port: 50000

User ID: admin    Password: \_\_\_\_\_

Name	IP	Port
SMART2	192.168.1.160	50000

SELECT    SAVE    Del    DELETE

OK    Cancel

IP LIST

- MANUAL**    Input IP address and PORT manually
- DDNS**    Receive IP address and PORT from DDNS Server
- DVR NAME**    Name allocated to IP Address
- IP ADDRESS**    The IP address to be used on this DVR
- USER ID**    Always enter admin
- PORT**    Enter the Port Number assigned to the DVR. Recommend PORT 50000
- PASSWORD**    This must match the password on the DVR. Recommend just using numbers.
- IP LIST**    List of IP address/es set
- SELECT**    Select NAME, IP and PORT in the IP LIST
- SAVE**    Save IP and PORT in the IP LIST
- DELETE**    Delete IP and PORT in the IP LIST

## DDNS Setting

Remote Viewer Setup

IP/PORT | **DDNS** | RTSP/SAVE

DDNS INFO

Member ID  Save

Name  Load

DVR INFO

IP Address

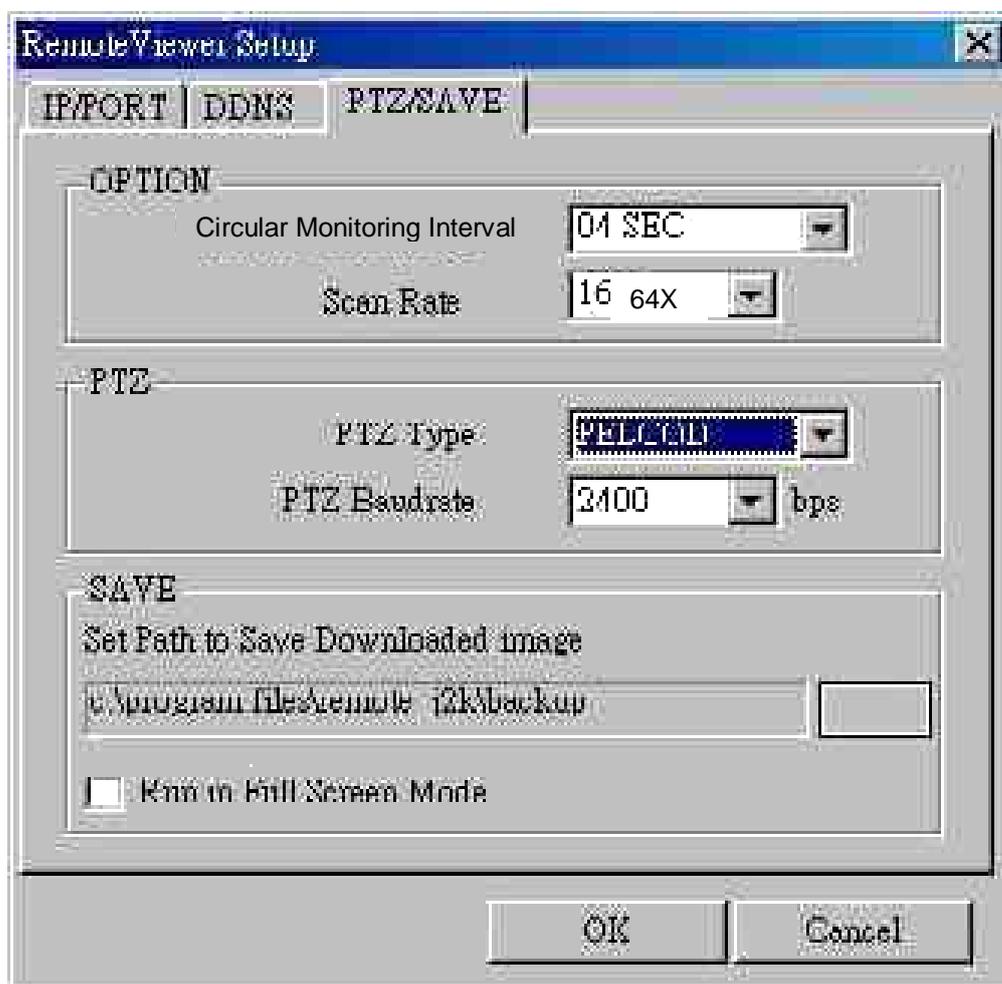
User ID  Connect

Password

OK Cancel

- Member ID** Input member ID which is registered at DDNS server
- Name** Input DVR name which is registered at DDNS server
- Save** Save Member ID and Name
- Load** Load Member ID and Name which is saved in Remote Viewer Software
- User ID** ID set in DVR. Default is admin.
- Password** DVR password
- Connect** Download DVR IP address and PORT from DDNS server.

## PTZ/SAVE Setting Screen



**Circular Monitoring Interval:** This determines the speed at which the channels sequence, when the SEQUENCE button is used from the main interface.

**Scan Rate:** Set playback speed

**PTZ TYPE:** If using PTZ device or camera, select the protocol your PTZ camera is using from the list of pre configured protocols.

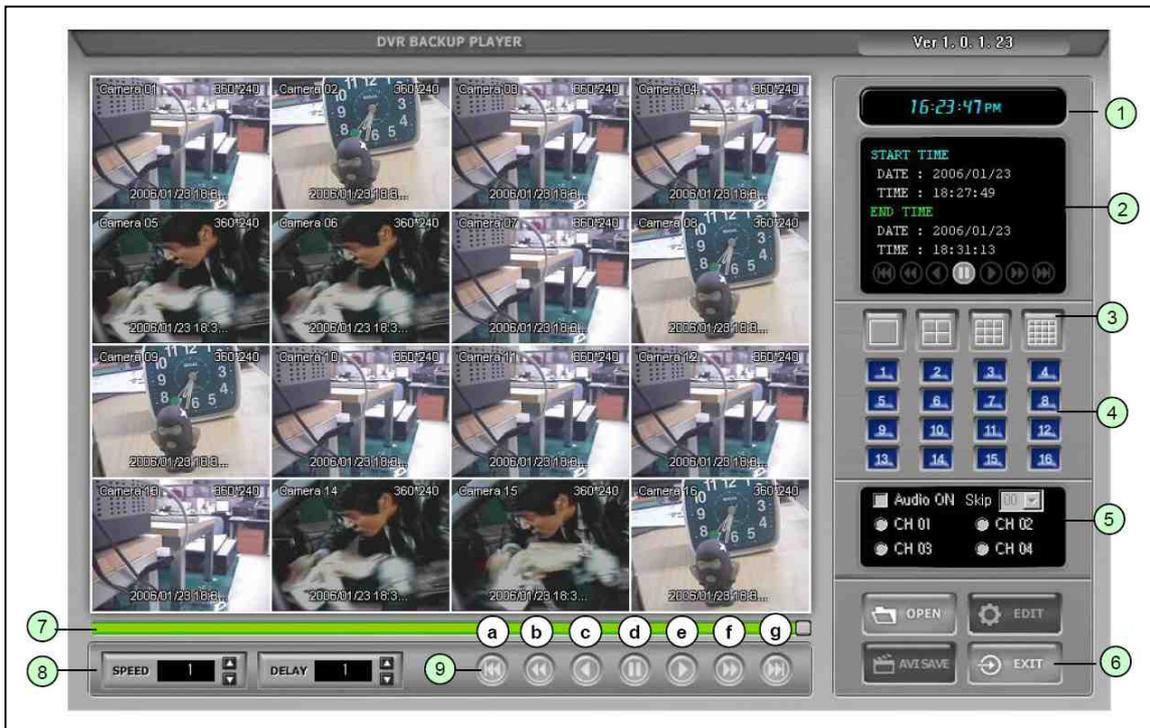
**PTZ Baud rate:** Setup PTZ camera baud rate.

**Set Path to Save Recorded Images:**

Determines the location and folder on your PC where the saved video clips are stored.

**Run in full screen mode:** When checked, this will enable the program to re-adjust the interface to completely fill your computer screen.

## 6.3 Backup CD Player

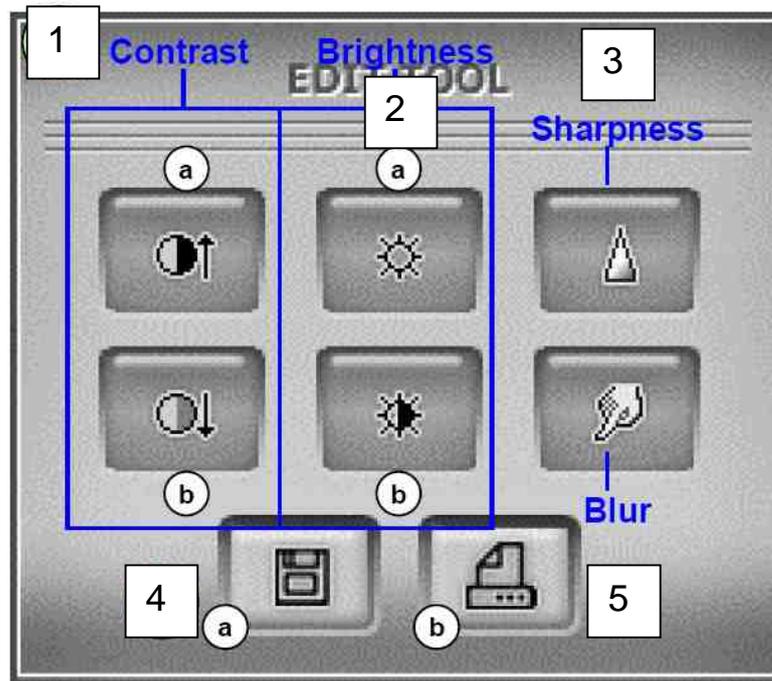


The DVR units have a built-in CD-RW and users can backup copies of images to a CD. Using the Back-up CD Player you can see view images on backup CD and the function of the buttons are explained below:

- 1 **Time:** Current time.
- 2 **Status Window:** Start & End of time & date, Status of operating button. When user plays forwards or backwards, the recorded time will appear.
- 3 **Screen division:** Select Full / 4 / 9 / 16 split screen.
- 4 **Channel button:** Select channel to see pictures in full screen.
- 5 **Audio Playback:** When you open a file, the audio OSD menu initiates automatically.  
 Audio ON: Check box to output recorded sound then select audio channel.  
 Skip: Set the number of images to skip forward.  
 CH 01 ~ 04: Select the audio channel to play 01, 02, 03 or 04.  
 During playback, only one channel is displayed. Multi or Full screen mode cannot be changed.
- 6 **Function buttons: These consist of :-** OPEN, EDIT, AVI SAVE and EXIT.  
 OPEN: Open the backup CD Player.  
 EDIT: User can edit, save and print recorded images. The edit option only works when one camera is selected. Note during playback only 9a, d, e and g are controlled.  
 AVI SAVE: Saves backup file as an AVI file.  
 EXIT: Exit from Back-up CD Player.
- 7 **Slide Bar:** Use the cursor to move to a selected time
- 8 **Speed:** User can adjust play speed by clicking on up/down arrow keys.  
 Speed (1/4X, 1/2X, 1X, 2X, 4X, 8X, 16X)  
**Delay:** (1,2,4,8,16,32)

- 9 **Operation buttons:** User can search recorded data using these buttons.
- Move the slide bar to start position
  - Play fast backward in preset speed
  - Play backward at 1x speed
  - Pause
  - Play forward at 1x speed
  - Move the slide bar to end position
  - Play fast forward in preset speed

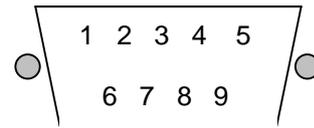
## Image EDIT



**EDIT BUTTON:** User can adjust colour picture quality using this button.

- 1 **Contrast**
- |                        |                     |
|------------------------|---------------------|
| 1a) increases contrast | 1b) lowers contrast |
|------------------------|---------------------|
- 2 **BRIGHTNESS**
- |                          |                        |
|--------------------------|------------------------|
| 2a) increases brightness | 2b) reduces brightness |
|--------------------------|------------------------|
- 3 **SHARPNESS**
- |                         |                       |
|-------------------------|-----------------------|
| 3a) increases sharpness | 3b) reduces sharpness |
|-------------------------|-----------------------|
- 4 **SAVE:** 4a) User can save an image in JPEG format. It is saved in CD Player Backup
- 5 **PRINT:** 5b) User can print current image selected.

## 7. Programmer reference



RS-232C

### 1) Connector Pin Assignment

No		Description	No		Description
1	DCD	Data Carrier Detect	6	DSR	Data Set Ready
2	RxD	Receive Data	7	RTS	RS232C:Rx/Tx data
3	TxD	Transmit Data	8		
4	DTR	Data Terminal Data	9		
5	GND	Signal Ground			

### 2) RS232 ASCII-CODE

The information regarding ASCII codes for programmers is only supplied as reference material and is not supported. We regret we cannot offer any assistance about issues concerning these commands nor can we guarantee the integrity of the information supplied.

The following table is based on the 16 channel DVR and all ASCII code is 1 Byte.

PANIC	'R'	DOWN	'J'	PTZ	'T'	KLOCK	'C'	CH5	'5'	CH12	'@'
STOP	'S'	LEFT	'H'	ZOOM	'Z'	ULOCK	'O'	CH6	'6'	CH13	'#'
PLAY	'P'	RIGHT	'K'	FRZ	'F'	QPLAY	'Y'	CH7	'7'	CH14	'\$'
PAUSE	'A'	NEXT	'N'	MODE	'D'	CH1	'1'	CH8	'8'	CH15	'%'
Search	'E'	ENTER	0x0d	PIP	'I'	CH2	'2'	CH9	'9'	CH16	'^'
MENU	'M'	-	'<'	SEQ	'Q'	CH3	'3'	CH10	'0'		
UP	'U'	+	'>'	J.SHU	'L'	CH4	'4'	CH11	'!'		

#### Jog / Shuttle

When [ACTIVE] LED is on, Jog/Shuttle is ready to activated by the commands below.

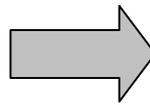
Shuttle 0 degree	"&>0"[enter]	Shuttle Left 10 degree	"&<1"[enter]
Shuttle Right 10 degree	"&>1"[enter]	Shuttle Left 10 degree	"&<2"[enter]
Shuttle Right 20 degree	"&>2"[enter]	Shuttle Left 10 degree	"&<3"[enter]
Shuttle Right 30 degree	"&>3"[enter]	Shuttle Left 10 degree	"&<4"[enter]
Shuttle Right 40 degree	"&>4"[enter]	Shuttle Left 10 degree	"&<5"[enter]
Shuttle Right 50 degree	"&>5"[enter]	Shuttle Left 10 degree	"&<6"[enter]
Shuttle Right 60 degree	"&>6"[enter]	Shuttle Left 10 degree	"&<7"[enter]
Shuttle Right 70 degree	"&>7"[enter]	Shuttle Left 10 degree	"&<8"[enter]
Jog Minus	"&-"[enter]	Jog Plus	"&+ "[enter]

**Shuttle:** After inputting a command once, it will keep performing the command until next command received.

**Jog:** This is a one time operation command like a press button.

**Key Release for PTZ function**

power on , light on	"1"
power off , light off	"2"
iris open	"3"
iris close	"4"
focus near	"5"
focus far	"6"
zoom in	"7"
zoom out	"8"
set preset	"9"
clear preset	"0"
goto preset	"!"
auto scan	"@"
tilt up	"u"
tilt down	"j"
pan left	"h"
pan right	"k"



"&Z"

To stop transmitting the code to DVR via RS232.

**1) Set preset**

"T" → "U", "J", "H", "K" (To move to required position) → "9" (set preset) →  
 "&Z" → "&+", "&-" (To set other preset point)

**2) Clear preset**

"T" → "0" → "&Z" → "&+", "&-" (To choose preset to delete) → "enter"

**3) Goto preset**

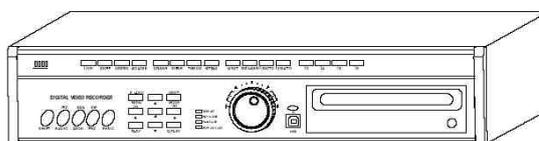
"T" → "!" → "&Z" → "&+", "&-" (To go to preset required) → "enter"

**Reference**

1. Functions where the OSD [xx] to the right of the function are not seen, pressing "1" or "2" will bring it up.
2. Operations such as 'clear preset' take effect after pressing the '0' key causing the last preset to be deleted even though it may not be the desired action. Instead use the next key 'N' until 'clear preset' is up then choose the preset to be deleted followed by enter.
3. For units lacking a front panel jog shuttle the '15/F3' and 16/F4' ASCII front panel equivalent can be used.

**CHAP. 8 Specifications**

- The best picture quality in Playback (JPEG-2000)
- Real time live display on all channels
- 8 channel video 240(200) ips recording capability •Triplex (Recording/Playback/Ethernet)
- Multi-language menu
- Remote monitoring and download through network
- Convenient search function with Jog-shuttle
- USB (Device) port for firmware upgrade
- Easy PTZ camera control by pre-assigned buttons
- Password Protection
- Remote Controller



Multiplex function		Triplex (Playback/Recording/Ethernet)	
Storage Capacity	Internal	HDD CD-R/DVD-R	Up to 2 HDDs with no capacity limitation For backup
Video	Inputs	Composite	8Ch
	Outputs	Composite	2Ch (Monitor/Spot Monitor)
		VGA	1Ch (Supporting TFT LCD Monitor/Option)
	Loop-through		8Ch
	Compression		JPEG-2000
	Comp. Rates (Image size fixed)		Basic Normal Enhanced Fine Super Fine
Display Speed		Real Time Display	
Record/Search	Record Mode	Schedule (Time, Motion, Alarm), Emergency	
	Search Mode	Event Search, Date/Time, Search Bar (Jog/Shuttle)	
	Record Speed (NTSC/PAL)	Full (120/100), Dual(240/200), Quad(480/400)	
	Record Resolution (PAL)	Full (720/288), Dual(360x288), Quad(360x144)	
Multi-language	English, Spanish, German, French, Italian, Russian, Dutch, Polish, Portuguese.		
Switching Interval		1 ~ 99 seconds selectable	
Line Division Screen		1 / 4 / 9 split Digital Zoom, Freeze, PIP, SEQ, Event Popup	
Alarm	Inputs	4 Alarms (NO/NC selectable in SETUP menu)	
	Outputs	1 (NO/NC)	
	Post Alarm	Duration of Alarm Output: 1 ~ 300 secs	
Motion Detection		Area division: 16 x 12 / Detection 32 x 24	
Network		Ethernet(TCP/IP), Remote Viewer provided	
Backup		VCR, CD-R, DVD-R, Download via TCP/IP	
PTZ Control		RS485, Key Control	
Firmware Upgrade		USB port for firmware upgrade, CD-R/DVD-R	
Serial Interface		RS485	For PTZ camera control
		RS232C	For operation using PC keyboard- not supported
Audio	Input	4Ch Microphone Input	
	Output	1Ch Speaker Output	
Power Requirements		DC 12v 6.67A adaptor	
Weight		8.5Kg	
Dimensions (Wide x Height x Depth)		436 x 396 x 88	
Packing		600 x 520 x 180	

**4 Channel Record time table.**

HDD Capacity (GB)	PAL				
	Basic	Normal	Enhanced	Fine	Super Fine
	14K	19K	24K	29K	32K
<b>80</b>	33 Hr	25 Hr	19 Hr	16 Hr	15 Hr
<b>160</b>	67 Hr	49 Hr	39 Hr	32 Hr	29 Hr
<b>250</b>	104 Hr	77 Hr	61 Hr	50 Hr	46 Hr
<b>300</b>	125 Hr	92 Hr	73 Hr	60 Hr	55 Hr
<b>400</b>	166 Hr	123 Hr	97 Hr	80 Hr	73 Hr
<b>500</b>	208 Hr	154 Hr	121 Hr	100 Hr	91 Hr
<b>600</b>	250 Hr	184 Hr	146 Hr	120 Hr	109 Hr
<b>800</b>	333 Hr	246 Hr	194 Hr	160 Hr	146 Hr
<b>1000</b>	416 Hr	307 Hr	243 Hr	200 Hr	182 Hr

**8/16 Channel Record time table.**

HDD Capacity (GB)	PAL				
	Basic	Normal	Enhanced	Fine	Super Fine
	14K	19K	24K	29K	32K
<b>80</b>	17 Hr	12 Hr	10 Hr	8 Hr	7 Hr
<b>160</b>	33 Hr	25 Hr	19 Hr	16 Hr	15 Hr
<b>250</b>	52 Hr	38 Hr	30 Hr	25 Hr	23 Hr
<b>300</b>	62 Hr	46 Hr	36 Hr	30 Hr	27 Hr
<b>400</b>	83 Hr	61 Hr	49 Hr	40 Hr	36 Hr
<b>500</b>	104 Hr	77 Hr	61 Hr	50 Hr	46 Hr
<b>600</b>	125 Hr	92 Hr	73 Hr	60 Hr	55 Hr
<b>800</b>	166 Hr	123 Hr	97 Hr	80 Hr	73 Hr
<b>1000</b>	208 Hr	154 Hr	121 Hr	100 Hr	91 Hr