MPEG4 DIGITAL VIDEO RECORDER

User's Manual

MPEG COMPRESSION | 4 CHANNEL | 8/16 CHANNEL | USB B | REMOTE CONTROL | HDD HARD DISK DRIVE | AUDIO REC | VGA VGA OUTPUT | DVD R/RW | COMPACT disc ReWritable

Preface

We welcome you as a new user of the world's best digital video recorder (DVR), and the leading Digital Video Surveillance System.

For effective usage, please read this manual carefully. For future reference, please keep this manual close to hand.

Copyright/Authentication/Trademark/Limited Warranty

Copyright

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Authentication

CE, FCC, ETL, MIC

Trademark

Ethernet^{TM} is the trademark of Xerox Corporation.

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Limited Warranty

- The manufacturer, importer and agent shall not be responsible for accidental damage (including injury) and other damage caused by inappropriate use or operation of this product.

- The information in this manual is prepared based on the current specifications for the product. The manufacturer is currently adding new functions and will continue to upgrade the product with new technology. All specifications may be changed without notice to individual users.

Cautions

We strongly recommend that users read all safety cautions carefully before operating the product, to operate the product appropriately.

Since the indicated cautions contain critical safety information, they must be fully complied with. The cautions are categorized into Danger, Warning, Caution and Important.

Danger   Risk of death or serious injury.   This is the highest priority danger warning.

Warning   Risk of serious or lesser degree of injury.   May also cause damage to the product or to property.

Caution   Risk of minor injury or damage.

Important   Requirements or limitations regarding operation. Users are recommended to read the relevant details carefully so as to operate the product properly and without harm.

The above cautions indicate the degree of damage that may occur due to inappropriate use of the system.

⚠ **Danger**   Non-compliance may result in death or serious injury.
The highest degree of urgency.

- **CAUTION**-RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE. DISPOSE OF USED BATTERY ACCORDING TO THE INSTRCTIONS.

- THIS EQUIPMENT IS INDOOR USE AND ALL THE COMMUNICATION WIRINGS ARE LIMITED TO INSIDE OF THE BUILDING.

- Please connect the power cord only to the type of AC outlet indicated in the manual or product specification. If connected to other types of power outlet, fire and electric shock may result.

- Do not expose the product to moisture and dampness. Doing so may result in fire and electric shock.

- Do not place heavy objects on top of the power cord. Damage to the power cord may result in fire and electric shock.

- Do not place containers with liquid or small metal objects on top of the product. Liquid or small metal objects getting into the unit may lead to fire and electric shock.

- Do not score, bend, twist, pull or heat the power cord. Damage to the power cord may lead to fire and electric shock.

- Do not remove the top casing of the product. Doing so may result in electric shock. If internal examination and maintenance are deemed necessary, contact the authorized system vendors or installers.

- Do not modify the product in any way. Doing so may lead to fire and electric shock.

- In case of lightning, immediately turn off the power switch and remove the power cord from the power outlet. Failure to do so may result in fire and electric shock.

- Please use only the power cord supplied with the product. Use of other power cords may result in fire and electric shock.

- In case of smoke, smell or noise, immediately turn off the power switch and remove the power cord from the power outlet. Continued operation of the product may result in fire and electric shock. Request a maintenance service from the authorized system vendors or installers.

- If the product is dropped or damaged, turn off the power switch and remove the power cord from the power outlet. Continued operation of the product may result in fire and electric shock. Users should request a maintenance service from the authorized system vendors or installers.

- Do not touch the product with wet hands. Doing so may result in electric shock.

⚠ **Warning**   Non-compliance may result in a serious or lesser degree of injury. It may also cause damage to the product or to property.

- Do not leave the power cord or other cables in passageways. Passers-by may trip and fall.

- Avoid contact with water or beverages. Contact with water or beverages may result in damage that cannot be repaired.

- In case of lightning, immediately turn off the power switch and remove the power cord from the power outlet.   The product may otherwise be damaged.

- Excessive current from the product and the camera may result in an electric shock. Connect the power cord to an external device only when the products themselves are disconnected from their power supply.

![Caution triangle icon] **Caution**   Non-compliance may result in minor injury or damage.

- If a foreign substance is stuck to the product, remove it using a soft cloth or tissue. Do not use chemical agents (thinner, solvent, etc.) to remove the substance.

- Do not operate or store the product in the following places.

  - An area that is either too cold or too hot

  - An area of high humidity, or in front of an air-conditioner, or in places subject to sudden temperature changes

  - An area where there is excessive dust

  - Areas where heat from the product cannot be emitted through both of the product's side ventilation openings

- Do not place credit cards/telephone cards/bank account books/tickets and other objects with magnetic properties near the product.

- Static electricity may cause damage to the internal parts of the product. Please remove static electricity from your body before touching the rear panel and internal electronic parts of the product.

- If this product is damaged beyond repair or reaches its maximum service life, dispose of it in compliance with local laws and regulations regarding the disposal of lead and plastic waste.

![Hand icon] **Important**   Denotes requirements and limitations in operation. Users are recommended to read the relevant details carefully so as to operate the product properly and without harm.

- The product may not work properly if the power source is unstable or and if electric shock occurs. Make sure the correct rated power is available.

- The product is designed to be proof against electric power failures; however, damage may occur as a result of power failure. Current data may be damaged or data might not be recorded.   Make sure to use an Uninterruptible Power Supply (UPS).

- Since the product is designed to record video data on the hard disk, an error in the hard disk or other miscellaneous errors might prevent the product from recording properly. Periodic maintenance is required for proper operation of the product.

- The product is designed for users to configure their own interface. However a user configuration error could lead to operation malfunction. This product should be set up by certified installers only.

- Since the product is connected - and tightly coupled - to exterior accessories (camera, sensor, LAN, Hard Disk, etc.), there is a risk of malfunction from external causes. Ensure periodic maintenance by the certified installers.

- Use the rack mounting handle provided with the product for installation.

- In this product, 1 Kbyte equals 1,024 bytes, 1 Mbyte equals 1,024,000 bytes and 1 Gbyte equals 1,024,000,000 bytes.

Contents

Chapter 1 Introduction

1. The System

Since the system has been developed as a non-PC-based type, it provides stability and convenience. The DVR can convert up to 16(or 8) video input signals to digital format and store them on the hard disk drive (HDD). The product is designed to easily display, search or restore stored video data in connection with VGA Monitors and Composite (NTSC/PAL) Monitors. It is also designed to search and manage data at a Remote site via a network.

For security, one of the features of DVR provides a function to grant access (service) rights only to registered users. The DVR provides various other functions and has a user-friendly interface for convenience of use.

2. Features

- Non-PC-based stable structure
- Up to 16 camera(or 8 camera) video inputs (NTSC/PAL) and all cameras support loop-back connectors
- Supports our unique sensor input/output device (Sensor-box) connection (or 8:Sensor-box: 20 input/8 relay output, optional)
- Supports Front Keypad (Soft Button) and IR control device (Remote Controller)
- Supports VGA, NTSC/PAL Composite and SPOT display
- Restriction of system access authorization and user authentication through log-in
- Introduces journaling file system
- Supports GUI interface, user-friendly menu and setup
- Provides general recording function per camera, preset time recording, sensor-triggered recording and motion detection recording functions
- Recording speed configuration per camera (NTSC: max. 30 IPS, PAL: max. 25IPS)
- Simultaneous recording and storage in all cameras
    (NTSC: max. 480 IPS, PAL: max. 400 IPS): 16 camera
    (NTSC: max. 240 IPS, PAL: max. 200 IPS): 8 camera
- Brightness, Contrast control per video camera
- Selectable video recording resolution
  - NTSC: 320 x 240 (Normal resolution(QCIF)),352 x 240 (Normal resolution(CIF)),
          704 x 240 (High resolution(Half D1)), 704 x 480 (High resolution (D1))
  - P A L: 320 x 240 (Normal resolution(QCIF)), 352 x 288 (Normal resolution(CIF)),
          704 x 288 (High resolution(Half D1)), 704 x 576 (High resolution (D1))
- Uses MPEG-4 video compression algorithm
- Recorded file playback speed control (single frame, normal, 2x~5x high speed playback)
- Screen display function (1-, 2-, 4-, 7-, 8-, 9-, 10-, 13-, 16-screen display)
- Auto screen rotation function (1-, 2-, 4-, 7-, 8-, 9-, 10-, 13- screen display)
- Supports Ethernet 10/100 Base-T
- Supports Remote monitoring, control and backup through Ethernet
- Search and playback functions through query on recording date, camera, event and

screen

- Screen magnification/reduction functions (Maximum: Full screen size)
- Audio 8 camera simultaneous recording & single camera playback, single camera SPOT output function
- Supports DVD-RW interface (option)
   - Supports internal DVD-RW backup function
- USB interface support
   - External CD-R/W, Flash memory, HDD backup function support
- Provides RAID-1(mirroring) function

*System Specification

■ General

ITEM			DESCRIPTION
Video	Input		Input 16 (or 8) cameras (NTSC/PAL), 1Vpp, 75ohm
	Output		Output 16 (or 8) cameras Loop-back, VGA, Composite, SPOT
			VGA, Composite, SPOT
	Display		1, 2, 4, 7, 8, 9, 10, 13, 16 Display modes
CODEC Video/Audio			MPEG-4 / G.726 (Option)
Display Resolution	NTSC		720 x 480, 480 IPS (or 8:240IPS) (real time per camera)
	PAL		720 x 576, 400 IPS (or 8:200IPS) (real time per camera)
Recording Resolution	NTSC		352x120, 352x240, 704x240, 704x480 max. 480IPS (16 ch), 240IPS (8 ch)
	PAL		352x144, 352x288, 704x288, 704x576 max. 400IPS (16 ch), 200IPS (8 ch)
IO Port			RS232(1ea), RS422(1ea), Sensor/Alarm(1ea)
Operating System			RTOS, Multi-Tasking (Record,Play,Monitoring,Networking, BackUp)
System Control			Keypad(Button), IR Remote Controller, GUI Menu
Network Interface			Ethernet 10/100 Base-T (RJ-45 : 1Port)
OS	Display		Display Brightness, Contrast, AGC Control adjustment per camera 1, 2, 4, 7, 8, 9, 10, 13 screen display & rotation display
	Record	Mode	Manual, Schedule, Sensor
		Method	High Speed/Compression/Resolution, Motion Detection, Motion Detection(HR) Compression Rate, Record Frame, Motion Sensitivity, Schedule Control
	Search Mode		Search selection by Date, Time, Camera, playback screen sizing & camera selection 2x ~ 5x High-speed playback
	Utility		Password, Time setting, Auto Lock, Disk Format, Auto Deletion
HDD			Supports ATA-5, 3.5", Max. 4 drives
Power			AC100V/4A - AC240V/2A. 47Hz~63Hz (Free Voltage)
Size			435(W) x 440(D) x 88(H), 19" Rack mount type(2u)
Weight			13 Kg
Power Consumption(*)			Normal 65W, Max 150W

(*) If an additional hard disk is installed, power consumption may increase.

■ **Peripheral Device & Customizing**

| ITEM	DESCRIPTION
USB	USB 2.0 compatible
Camera Control	Camera Pan/Tilt, Zoom In/Out, Focus, Iris, Preset Pan/Tilt speed
DVD-RW	Internal DVD-RW (Optional)
Network	Ethernet Remote S/W included

✎ **Note**

Requirements of Video coaxial cable

Cable type	Max. distance
RG59/U	229m(750ft)
RG6/U	305m(1,000ft)
RG11/U	457m(1,500ft)

3. System Configuration

The system can be configured as follows:
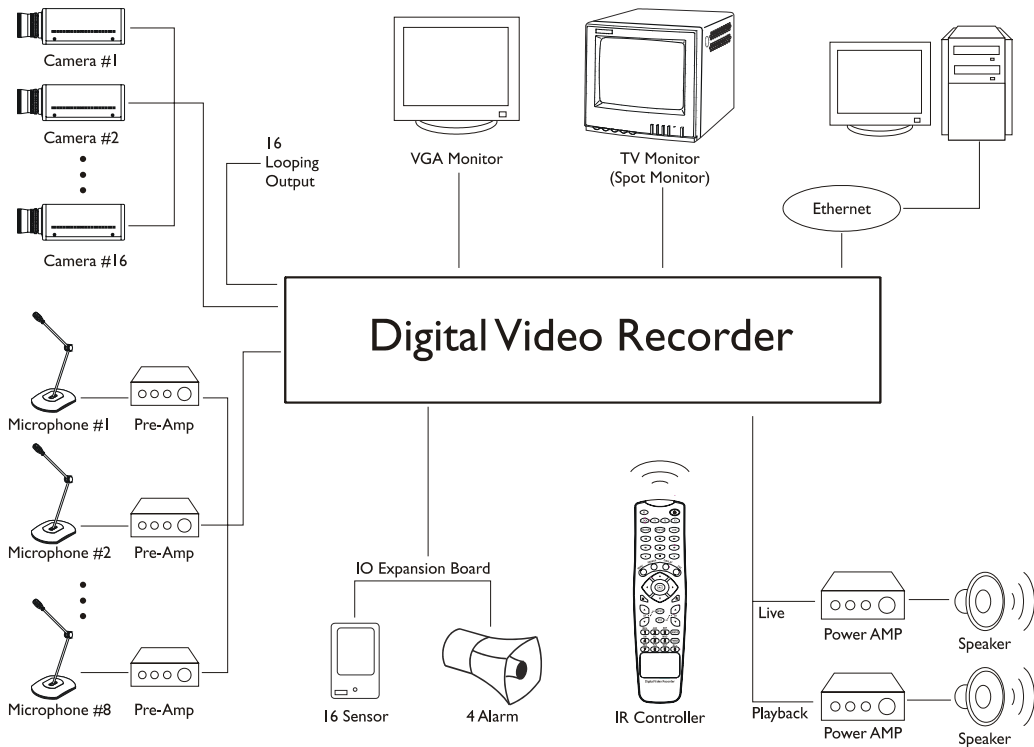
4. Package Contents

The following components are included in the product:

❶ Main unit 1
❷ IR Remote control device (Remote controller) 1
❸ Power cord (optional for each country).. 1
❹ Rack mounting handle (Left/Right) 2
❺ Batteries AAA 1.5V 2
❻ DVR connection cable 1
❼ Application S/W CD-ROM/User Manual 1
❽ HDD fastening screws 12 pcs & Rack handle fastening screws 4 pcs................ 16
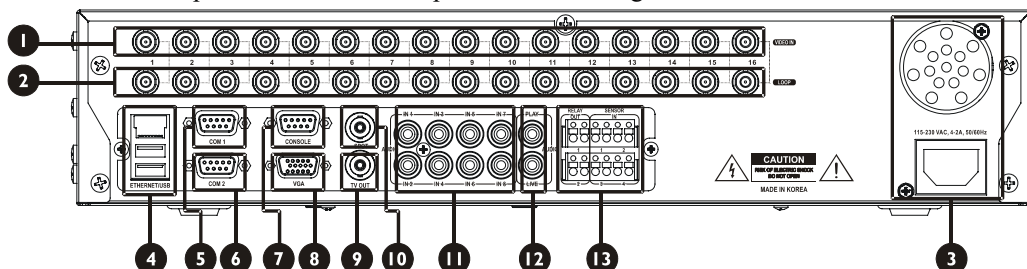
> ✐ **Note**
>
> *The above components may vary in different localities.*

Chapter 2 System Installation

1. Connectors

(1) Rear Panel Labels/Connection

The rear panel of the DVR comprises the following:

| No	Items	Note	Type
❶	Video #1~16 camera input port	Video signal input port	BNC
❷	Video #1~16 camera loop-back port	Video signal loop-back output port	BNC
❸	Power switch and power cord connection	Power switch and power cord connection on the unit	AC INLET
❹	USB & Ethernet	Ethernet 10/100 Base-T port USB 2.0 Compatible	RJ-45 TYPE A
❺	COM 1	Series cable port (RS-232C) and PTZ Camera control	D-SUB 9
❻	COM 2	for Series cable port (RS-232C) and Expansion	D-SUB 9
❼	Console	Console port (System OS Upgrade/Control)	D-SUB 9
❽	VGA monitor	Port for VGA monitor	D-SUB 15
❾	SPOT video output port	Connecting port for SPOT monitor	BNC
❿	Composit video output port	Connecting port for TV monitor	BNC
⓫	Audio 4-camera input port	Input port for Audio recording	RCA
⓬	Audio Live playback port	Audio Live/Play output port	RCA
⓭	Ethernet	Ethernet 10/100 Base-T port	RJ-45
⓮	Dedicated sensor module I/O	Sensor I/O terminal block	Terminal block

📖 Note

For details about the front panel, please refer to [Chapter 3. Using DVR - 1. Basic Operation - (1) Using the Front Panel].

⚠ Caution

Since a large electric current flows in the camera's coaxial cable, connect the camera to the camera input port only while the power cord is disconnected.
An inappropriate power shutdown by power switch during normal operation can cause damage to data recorded on the HDD. For safe power shutdown, please use the POWER button on the Front panel or the Remote controller.

(a) Connecting Interior Sensor-block

Interior sensor block consists of four sensor inputs and two sensor outputs.

■ Sensor Input, Alarm Output (Terminal Block) Interface
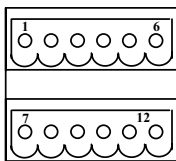
Pin Number	Data Connection
1	Alarm Output 1(+)
2,4,6,8,10	Common Ground
3	Sensor Input 1(+)
5	Sensor Input 2(+)
7	Alarm Output 2(+)
9	Sensor Input 3(+)
11	Sensor Input 4(+)

Chapter 3 Using DVR

1. Basic Operation

(1) Using the Front Panel/Remote Controller

(a) Front Panel

The DVR's front panel comprises the following:

| No	Name	Description
❶	POWER button	Turns system power on or off
❷	LOCK button	System LOG IN/OUT
❸	Camera buttons	Enters a camera value/camera label when using Search or other functions
❹	Function LEDs	LEDs indicate what function (if any) is in operation
❺	Remote Controller Signal Receiving	Receives signals from the Remote controller
❻	Main Function buttons	Executes main functions such as MENU, SEARCH, LOG, BACKUP, STATUS and RECORD
❼	Search button	Searches a file
❽	Sub-function buttons	Executes sub-functions such as ESC, PTZ, SPOT, AUDIO, DISPLAY and FREEZE
❾	Specific Up/Down	Moves up/down for specific functions
❿	ENTER button	Selects OK or rotates screen views
⓫	Direction buttons	When navigating menus/files, moves the cursor up/down and left/right

📖 **Note**

Main Function Buttons

MENU button	Sets up the system configuration
SEARCH button	Searches recorded files
LOG button	Checks the system's log information
	Log information contains data about power on/offs, user logins and recording events
BACKUP button	Copies recorded files to an external storage device
STATUS button	Checks the current status/system information
RECORD button	Starts or stops recording
	When recording starts, camera numbers on the status bar will turn red

Sub-function Buttons

ESC button	Exits the current menu or returns to the higher-level menu
PTZ button	Controls the PTZ camera
	Pressing the button changes the control method (Pan/Tilt, Zoom, Focus and Iris)
SPOT button	Displays or sets the current screen to the Spot monitor
AUDIO button	Selects a camera for live audio output
DISPLAY button	Changes the screen display mode in the current screen or playback screen
FREEZE button	Freezes the current screen

(b) Remote Controller

The DVR's Remote controller comprises the following:
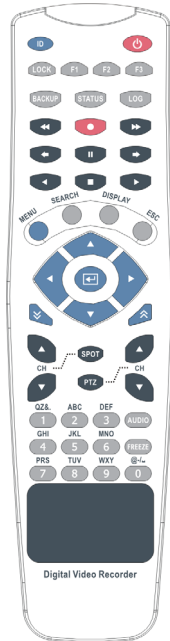
> ### ⚠ Caution
>
> *This Remote controller has no security feature and its ID can be set from 00 to 64. Hold down the ID button and press the number button to set ID. To set the ID to No. 1, for example, hold down the ID button and press the button 0 and 1 in order. If you set the ID to No. 64, you can use it for all products. For details on how to change the Remote controller's ID, please refer to [Chapter 4. DVR Setup – 6. System Setup].*

(2) Turning on/Turning off the System

(a) Turning on the System

① Connect the rated power to the system, and turn on the switch in the power supply.

② Press the **POWER** button, and use the numeric buttons on the front panel/Remote controller to enter the system password. The default password is **"00000000"**.

③ Enter the password and press the **ENTER** button.

④ Once the password is confirmed, the system will start up and initialization will begin.
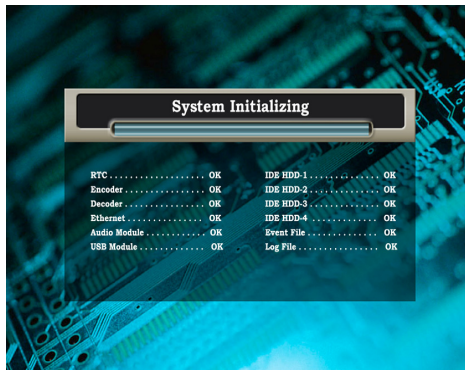
⑤ Once system initialization is complete, the real-time monitoring screen will be displayed.

✎ **Note**

If a password is not set on the system, the system will start up immediately.
The password can be set or changed from System Password in System Setup.
Initialization
Initialization refers to the process of checking the status of the devices connected to the system.
Initialization is successful if an "OK" message is returned for each item, except for the audio module, SCSI/USB module, and IDE HDD 1, 2, 3 and 4.
With respect to the audio module, SCSI/USB module, and IDE HDD 1, 2, 3 and 4, different messages will be displayed depending on the devices connected to the system. For IDE HDD 1, 2, 3 and 4, the capacity of each hard disk connected to the system will be displayed.

(b) Turning off the System

① Press the **POWER** button, and use the numeric buttons on the front panel/Remote controller to enter the system password.
② Enter the password and press the **ENTER** button.
③ The system will beep 3 times and will be turned off.

✎ **Note**

If a password is not set on the system, the system will shut down immediately.

(3) Logging In to/Out of the System
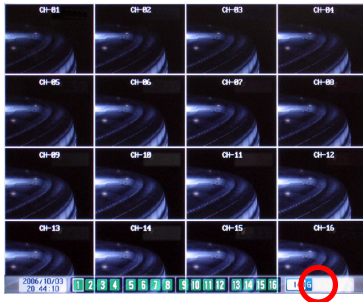
(a) System Login (Unlock)

Once the system is started, the screen shown below will appear. Even if you press the buttons on the front panel/Remote controller, no function will be performed. To use the functions, you must log in to the system.
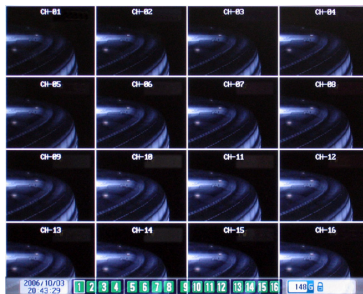
① Press the **LOCK** button and you will be asked to enter a Login ID and Password.

---

② Enter a 2-digit ID and 8-digit password, and then press the **ENTER** button. The default Login ID and Password are **"00"** and **"00000000"** respectively. Once the ID and password are confirmed, the lock icon on the status bar will disappear.
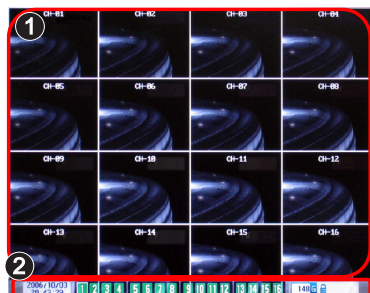

(b) System Logout (Lock)

To log out of the system, press the **LOCK** button. The lock icon will appear on the status bar and you will be logged out.All buttons, except the **LOCK** and **POWER** buttons, will be disabled.
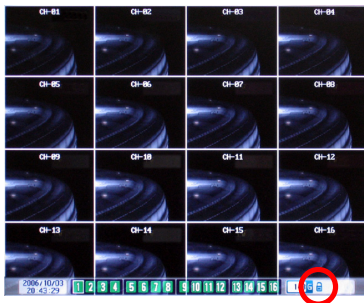
(4) Screen Layout

(a) Main Screen

When you log in, the screen shown below appears. The main screen consists of the display screen and status bar.

❶ Display Screen
❷ Status Bar

(b) Status Bar

The status bar indicates the status of the following: Time, Camera, Recording, Disk Space Remaining, Lock, Rotation, Network Transmission and Audio.

■ Date and Time Display

Displays the date and time of the system and the display format depends on the setting. Available display formats include [Year/Month/Date, Hour:Minute: Second], [Date/Month/Year, Hour:Minute:Second]. Set up the date display format under Date Format in System Setup. Refer to **[Chapter 4. DVR Setup - 6. System Setup - (5) To Setup Date Display Format]** for more details.

2003/01/01
12:59:59

■ Camera and Recording Status Display

The appearance of the camera icon changes according to the current status. Please refer to the following table for details.

No.	Camera	Input Signal	Screen Display	Recor- ding	Event	Status
1	Number (gray) Background (dark gray)	X	O / X	X	X	No video is input to the camera (The camera is not connected.)
2	Number (black) Background (blue)	O	X	X	X	Video is input to the camera, but not displayed to the screen
3	Number (white) Background (blue)	O	O	X	X	Video is input to the camera and is currently displayed to the screen
4	Number (black) Background (red)	O	X	O	X	Video input to the camera is currently being recorded (Video is not displayed to the screen)
5	Number (white) Background (red)	O	O	O	X	Video input to the camera is currently being recorded (Video is currently displayed to the screen)
6	Number (black) (black) Background (blue)(red)	O	X	O	O	Video input to the camera triggered by an event is being recorded (Video is not displayed to the screen)
7	Number (white) (white) Background (blue)(red	O	O	O	O	Video input to the camera triggered by an event is being recorded (Video is currently displayed to the screen)

📖 **Note**

The camera icons shown in the sixth and seventh rows of the above table (▩ ▩, ▩ ▩)indicate the blinking status of red and blue icons, respectively.

When video is displayed to the Spot monitor, the camera icon will be framed white.

■ Disk Capacity Display

The remaining hard disk space is displayed. Disk space is measured in gigabytes (GB), and up to 9,999 gigabytes (9.9 terabytes) can be displayed.

The following image shows that the remaining hard disk space is 1, 234 gigabytes.

1234 G

■ System Lock/Screen Rotation/Network Transmission/Audio Status Icons

The status icons are displayed according to the current system status. Please refer to the following table for the meanings of the icons.

Icon	Description	Icon	Description
	User is logged in (Unlocked)		User is logged out (Locked)
	Display views are not rotating		Display views are rotating
	Network transmission is not engaged		Network transmission is in progress
	Audio is disabled		Audio is output (on No. 3 camera)

📝 **Note**

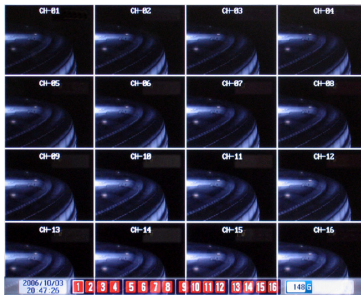*When audio is output, a camera number will be displayed beside the audio icon.*

2. Using the Main Functions

(1) To Make a Video Recording

(a) Manual Recording

Manual Recording allows you to start or stop recording by pressing the **RECORD** button.

① Press the **RECORD** button on the front panel/Remote controller to start recording. Camera numbers on the status bar will turn red.

② To stop recording, press the **RECORD** button again.

📖 **Note**

You should set the camera to be recorded in advance in Record Mode/Camera in Record Setup.

(b) Schedule Recording

Schedule Recording allows you to set the recording start and end times in advance so that recording will start and stop automatically at the specified times.

① Press the **MENU** button on the front panel/Remote controller to switch to the **Record Setup Preview** screen.

② Press the **ENTER** button to switch to the **Record Setup** screen.

③ Set **Record Mode** to **Schedule**, and then press the **ENTER** button. The setting will be saved.

④ When the screen where you can set the recording time period appears, set the start and end times, and then press the **ENTER** button. Press the **ESC** button to save the time and finish setting the recording time.

⑤ When you are returned to the **Record Setup** screen, set the general options (e.g., Resolution, Frame, etc.).

⑥ When settings are complete, press the **ESC** button to exit the **Record Setup** screen. You can confirm your settings in **Record Setup Preview**.

Recording will start automatically when the start time comes and stop automatically when the end time is reached.

📝 **Note**

If an error occurs during recording such as Disk Full, Failure, or SMART Error, recording will stop and an error message will be displayed.
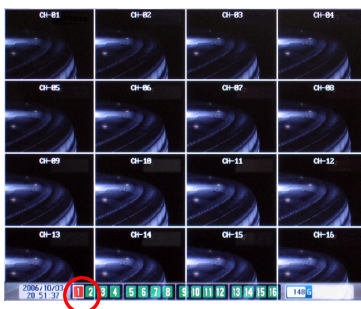*For details on Schedule Recording, please refer to [Chapter 4. DVR Setup - 1. Recording Setup].*

(c) Event Recording

Event Recording allows you to record only when an event occurs.

① Press the **MENU** button on the front panel/Remote controller to switch to the **Record Setup Preview** screen.

② Press the **ENTER** button to switch to the **Record Setup** screen.

③ Set **Event Mode** to **Motion** or **Sensor**, and then press the **ENTER** button. The setting will be saved.

④ Set the general options (e.g., Record Mode, Resolution, Frame, etc.).

⑤ When settings are complete, press the **ESC** button, and then go to **Event Setup**.

⑥ Set **Event Type** to **Motion** or **Sensor**, and then press the **ENTER** button. The setting will be saved. The event type must be the same as the **Event Mode** you have selected in Step 3.

⑦ Different options will appear depending on which **Event Type** you have selected. Set the options.

⑧ When settings are complete, press the **ESC** button to exit the screen. Recording will start automatically when the type of event set in Record Setup and Event Setup occurs and stop automatically when the Event Duration is over.

> ✐ **Note**
>
> *If Record Mode is set to "Manual", use the RECORD button to start or stop recording.*
> *Recording will start only if an event occurs. Once recording starts, the camera for which event*
> *recording has been set will blink red and blue.*
> *For details on Event Recording, please refer to [Chapter 4. DVR Setup - 1. Recording Setup, 3.*
> *Event Setup].*
> *If Event Mode is set to "Motion", only the relevant cameras will be recorded, and if Event*
> *Mode is set to "Sensor", all cameras selected as "Sensor" in the Event Mode in Record Setup*
> *will be recorded.*
> *If you set Event Mode to "Motion", you must also set MD-Sensitivity/MD-region.*
> *If you set Alarm Output, Beep, E-mail, and Dial-up options in the Event Setup screen, you will*
> *be notified of the event occurrence.*

(2) To Search Recorded Files

(a) Time Search

You can search for recorded files by time.

① Press the **SEARCH** button on the front panel/Remote controller to switch to the **Time Search** screen. The **Time Search** screen consists of search table and file information sections. The rows represent camera numbers and the columns represent time periods. At the top right corner is the date being searched.
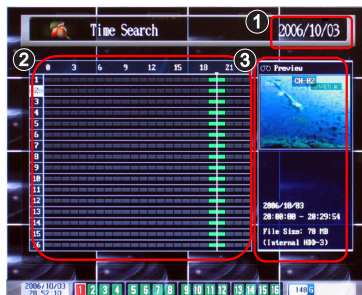
❶ Date
❷ Search Table
❸ File Information

② Use ▲▼ buttons on the front panel/Remote controller to select the camera you want to search.

③ Use ◀▶ buttons on the front panel/Remote controller to select the time period you want to search.

④ A preview will be displayed within the upper section of the file information section. Directly below the preview, the date, time period, and size of the file will be displayed. To select the current file, press the **ENTER** button.

⑤ The selected file will be played. To stop playback, press the **ESC** button on the front panel/Remote controller.
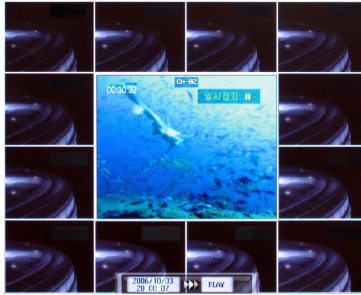
⑥ To exit the Time Search screen, press the **ESC** button on the front panel/Remote controller.

> 📖 **Note**
>
> *The red bars (▬) indicate event recordings (Motion and Sensor) and the blue bars (▬), manual or schedule recordings.*
>
> *If you press the MENU button during a time search, a time entry screen will appear. Enter the time you want to search, and then press the ENTER button. A file that corresponds to the time will be played back. Use ◀▶ buttons on the front panel/Remote controller to select an item and use ▲▼ buttons to change the value.*
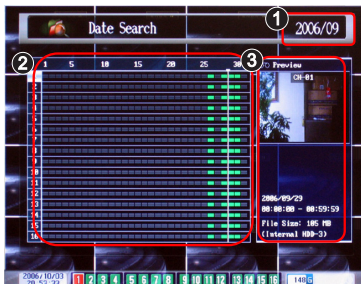>
> *To switch to the Date Search screen, press ⌃ button on the front panel/Remote controller.*
>
> *To switch to the Event Search screen, press the SEARCH button on the front panel/Remote controller.*

(b) Date Search

You can search for recorded files by date.

① In the **Time Search** screen, press on the front panel/Remote controller to switch to the **Date Search** screen. The **Date Search** screen consists of search table and file information sections. The rows represent camera numbers and the columns represent days of the month. At the top right corner are the year and month being searched.

❶ Year and Month
❷ Search Table
❸ File Information

② Use ▲▼ buttons on the front panel/Remote controller to select the camera you want to search.

③ Use ◀▶ buttons on the front panel/Remote controller to select the day you want to search.

④ A preview will be displayed within the upper section of the file information section. Directly below the preview, the date, time period, and size of the file will be displayed. To select the current file, press the **MENU** button.

⑤ The selected file will be played. To stop playback, press the **ESC** button on the front panel/Remote controller.

⑥ To exit the Date Search screen, press the **ESC** button on the front panel/Remote controller.

📝 **Note**

The red bars (▬) indicate event recordings (Motion and Sensor) and the blue bars (▬),manual or schedule recordings.

If you press the MENU button during a date search, a date entry screen will appear. Enter the date you want to search, and then press the ENTER button. A file that corresponds to the date will be played back. Use ◀▶ buttons on the front panel/Remote controller to select an item and use ▲▼ buttons to change the value.

To switch to the Time Search screen, press ▼ button on the front panel/Remote controller.
To switch to the Event Search screen, press the SEARCH button on the front panel/Remote controller.
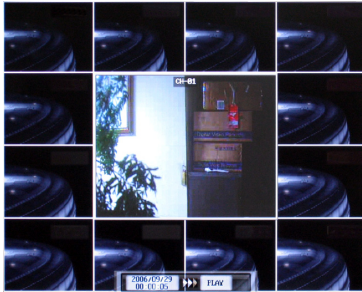

(c) Event Search

You can search for recorded files by event.

① In the **Time Search** or **Date Search** screen, press the **SEARCH** button on the front panel/Remote controller to switch to the **Event Search** screen. The **Event Search** screen consists of search table and file information sections. Events are listed in ascending order by recording date and time. At the top right corner is the current page of the event list.

❶ Page
❷ Search Table
❸ File Information

② Use ▲▼ on the front panel/Remote controller to select the desired event from the list.

③ A preview will be displayed within the upper section of the file information section. Directly below the preview, the date, time period, and size of the file will be displayed. To select the current file, press the **ENTER** button.

④ The selected file will be played. To stop playback, press the **ESC** button on the front panel/Remote controller.

3−11
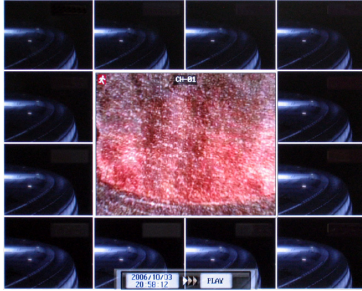
⑤ To exit the Event Search screen, press the **ESC** button on the front panel/Remote controller.

> 📝 **Note**
>
> *Use* ⊼ ⊻ *buttons on the front panel/Remote controller to move through pages.*
> *If you press the MENU button during an event search, an event search screen will appear.*
> *Enter a key word, and then press the ENTER button to perform a search.*
>
>
>
> *Press the SEARCH button on the front panel/Remote controller to switch to the Time Search or Date Search screen.*

(d) Smart Search

During playback, if you specify a particular region on the screen, only those files with motion detected within that region will be searched and played back.

① In the following screen, where the searched file is being played back, press the **MENU** button on the front panel/Remote controller.
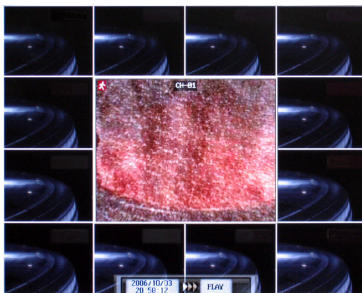
② When the **Playback Mode** screen appears, use ◀▶ buttons to select **Motion**, and then press the **ENTER** button. The setting will be saved.
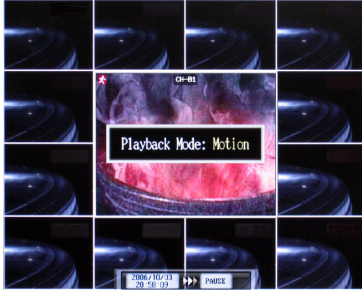
③ Press the **ENTER** button at a location within a particular region you want to specify, and then use ▲▼ , ◀▶ buttons to specify that region.

④ After specifying the region, press the **ENTER** button to save the setting.

⑤ Press the **ESC** button. Only those files where motion is detected within the specified region will be searched and played back.
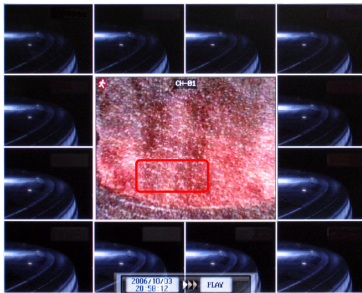
(3) To Playback a Recorded File

Search for the file you want to playback and then play it back.

① Use one of the available search methods (Time Search, Date Search and Event Search) to search the file you want to play back.

② To play back the selected file, press the **ENTER** button on the front panel/Remote controller. The selected file will be played back on the screen.

Press ◀▶ buttons during playback to change the position of screen and press ▲▼ buttons to zoom in or out on the screen.

③ To stop playback, press the **ESC** button on the front panel/Remote controller. When playback is stopped, the screen will switch to the previous search screen.

✎ **Note**

When you play back a file in 1-screen display mode, it will be displayed in the center of the screen if the recording resolution is set to Normal/Low. If the recording resolution is set to High, the file will be played back in full-screen mode.

The name of the camera (Label) will be displayed at the top center of the screen and the recording date/time, playback direction, playback status, and audio output of the file will be displayed at the bottom center of the screen.

❶ Recording Date/Time   ❷ Playback Direction

❸ Playback Status   ❹ Audio Output Status
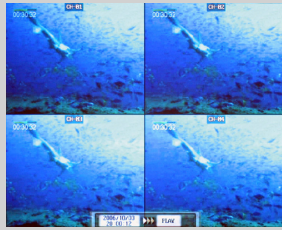
- *If you press the DISPLAY button during playback, the file will be played back in the order of 1 -> 4 -> 16-screen displays. If you press a numeric button in the 4-screen display, the screen will switch to the camera group that corresponds to the number. For example, if you press "11" during 4-screen display playback, the screen will switch to the camera group comprising 9, 10, 11 and 12 cameras.*

3. **Using Other Functions**

(1)   To Check System/Camera Information

You can check system/camera information. There are 4 ways of checking the information.

Press the **STATUS** button on the front panel/Remote controller to display system/camera information on the screen. Press the button repeatedly to cycle through different system/camera information modes.

Information is displayed in the following order:

1. STATUS BAR Display

2. STATUS BAR Display /
Camera Name (Label) Display

3. STATUS BAR Display / System
Information Display (Default)

4. No Display
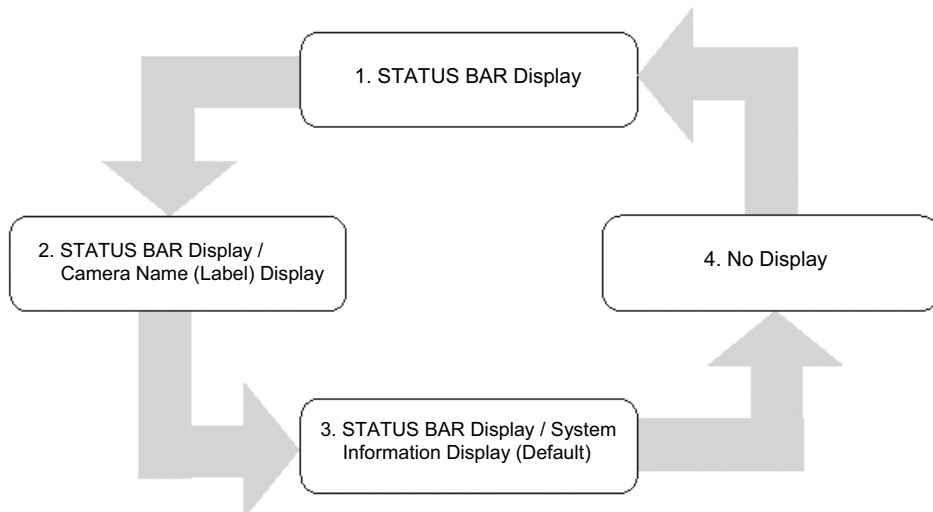
■ **Only STATUS BAR is displayed (1)**
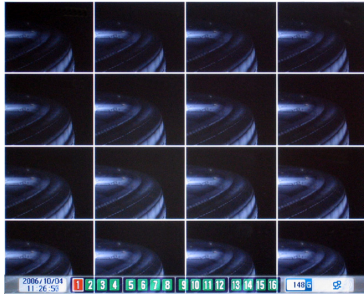
■ **STATUS BAR and Labels are displayed (2)**
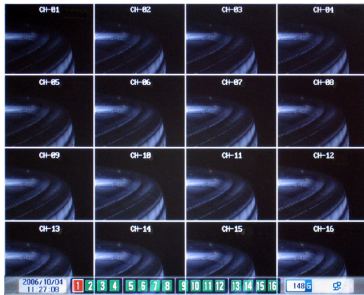
■ **STATUS BAR and system information are displayed (3)**
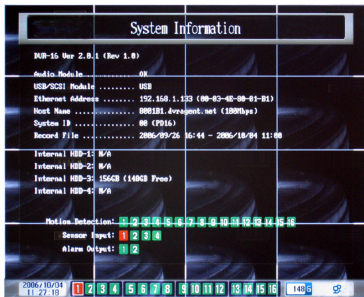
■ **No information is displayed (4)**
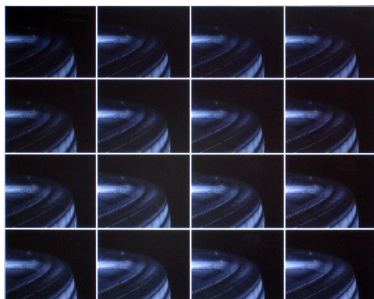
📝 **Note**

Information about the software version, remaining hard disk space, system temperature, IP address, and MAC address will be displayed on the system information screen.

(2)   To Check Log Information

All actions including login or turning on of the system will leave log information. The user can check the system log in log information.

① Press the **LOG** button on the front panel/Remote controller to switch to the **System Log** screen. The **System Log** screen consists of the date, time, activity information, and the total number of pages of the log file; and the current page will be displayed. [**Page Current /Total**]
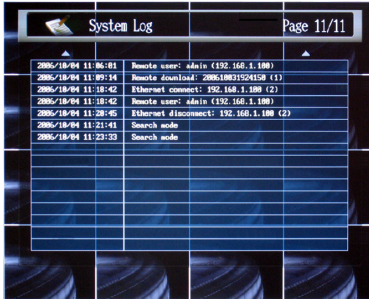
② Use on the front panel/Remote controller to move through the pages.

③ To exit the **System Log** screen, press the **ESC** button on the front panel/Remote controller.

> #### 📝 Note
>
> *Information about user logins/logouts, key system actions, and system setup actions will be recorded in a log file. Depending on the level of importance, each piece of log information is differently colored.*
>
> ***White:*** *No danger at all in security (general log)*
>
> ***Yellow:*** *Warning (User logins/logouts, file deletion, etc.)*
>
> ***Orange:*** *Important Warning (System shutdowns, hard disk format, insufficient space, etc.)*
>
> ***Red:*** *Error (HDD failure, etc.)*
>
> *To format the hard disk, select the Log File under HDD Format in System Setup and click the Select button.*
>
> *If there is not enough hard disk space to store log information, logs will be deleted automatically - the oldest one first.*
>
> *You can check log information about sensort, motion monitoring, and ATM inpust from the Event Search screen. To switch to the Event Search screen, click the SEARCH button twice.*

(3)   To Rotate Display Views Automatically

You can set display views to be switched automatically.

① Press the **ENTER** button on the front panel/Remote controller to switch display views automatically. The 'rotation active' icon will be displayed at the right side of the status bar and the screen will switch after the specified dwell time.
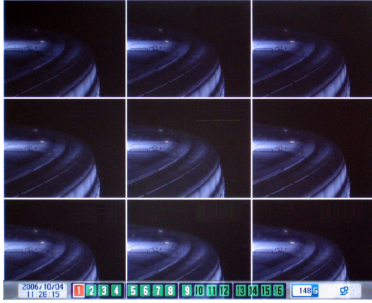
② To cancel automatic screen rotation, press the **ENTER** button again.

Note

You can set the dwell time from Display Group in Display Setup.
If an event occurs during screen rotation, that is, if the Display Video function of the Event Setup is set, the selected camera will be shown in 1-screen display mode. In addition, if the screen is switched by an event, the automatic screen switch function will stop.

(4) To Set Audio Output

Audio has recording output and live output. Recording output means that if audio is recorded with the video, audio will be output during playback. Live output means the direct output of audio that is currently being recorded with the video.

① To output live the audio currently being recorded, use the Spot monitor output. The Spot output outputs live the audio currently being recorded. Press **AUDIO** and the number button (1~8) to use the Spot output.

② The Audio camera is changed and audio is output from the camera selected.

Note

To cancel live output, press the AUDIO button and "0".

(5) To Back Up Files

Recorded files can be backed up by using CD-R/RW, Flash memory and HDD devices. To back up files, connect the devices to the SCSI or USB port.

Press the **BACKUP** button on the front panel/Remote controller to switch to the **Backup** screen.

① Set the Backup Device, File Start, File End, Camera and Disc Utility items.

- Backup Device: Displays information on backup device.
- File Start: Sets the start time of the file to backup.
- File End: Sets the end time of the file to backup.
- Camera : Sets the camera you want to back up.
- Disc Utility : Backs up the file or formats the contents of disk.

② After the setup is completed, set Disc Utility to File Backup, and then press the **ENTER** button. The backup will start.

📎 **Note**

The Estimated Time may be slightly different from the actual time elapsed.

To delete the contents on a disk, move to the Disc Utility and press ◀▶ *buttons to select Erase. When you press the ENTER button, the contents of the disk will be deleted.*

To recognize USB flash memory pr HDD, it should be formatted with FAT or FAT32.

Backup screen will be zoomed out/in by using the ⌄ ⌄ *button during backup.*

When zooming the backup screen out, the status will appear as an icon in the upper right corner of screen.

✦ *In case of removing or inserting CD, use the BACKUP button.*

---

(6) To Set Screen Rotation

(a) Rotating Cameras

To change cameras, use the numeric buttons to enter the camera group number.

📎 **Note**

Depending on the type of segmented screen, the number you can enter may differ.

You can set the screen display mode from Display Group in Display Setup.

Screen display mode	Available Number
1-screen display mode	1~16
2-screen display vertical mode	1~8
4-, 7-, 8-, 9-, 10- and 13-screen display modes	1~4
16-screen display mode	1

(b) Setting the Screen Display Mode

① Press the **DISPLAY** button on the front panel/Remote controller. The following screen display mode setup screen will appear.
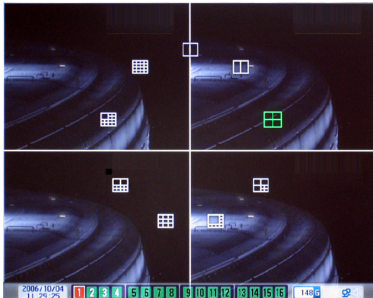
② Use ◀▶ to select one of the 9 screen display modes, and then press the **ENTER** button.

📝 **Note**

You can set the screen display mode from Display Group in Display Setup.

If you enter a camera number while a segmented screen is showing, the camera group that corresponds to the number will be displayed.

Available screen display modes are as follows:

(1) 1-screen display mode   (2) 2-screen display vertical mode   (3) 4-screen display mode   (4) 7-screen display mode
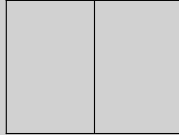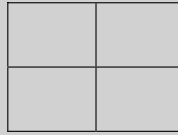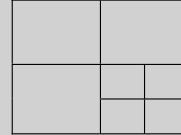
(5) 8-screen display mode   (6) 9-screen display mode   (7) 10-screen display mode   (8) 13-screen display mode
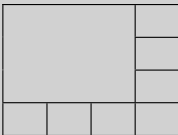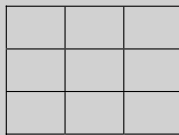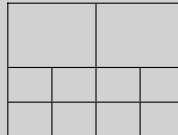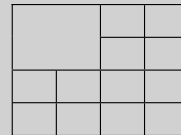
(9) 16-screen display mode
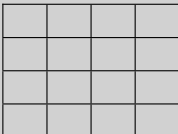
(c) Zooming

In 1-screen display mode, you can zoom in on a particular area.

① Press ⏫ button on the front panel/Remote controller to zoom in 2x on an area. Press ⏫ button again to zoom in 4x on an area.

② To change the area zoomed in on, repeatedly press ▲ ▼, ◀▶ buttons.

📝 **Note**

To return to normal view, press ⏬ button repeatedly on the front panel/Remote controller.

(d) Freezing

You can freeze the current screen.

Press the **FREEZE** button on the front panel/Remote controller. An icon will appear at the center of the screen and the screen will freeze. To cancel the freeze function, press any button, excluding the POWER button.

(e) Displaying to the Spot Monitor

Press the **SPOT** button on the front panel/Remote controller, and then enter the camera number you want to output to the Spot Monitor.

> ✎ **Note**
>
> *Use the SPOT CH UP/DOWN (▲ ▼) buttons on the Remote controller to change the camera. On the status bar, the camera numbers of the cameras being displayed to the Spot Monitor will have white borders around them.*
>
>

(f) Rotating the Spot Monitor Screens Automatically

You can use the automatic screen rotation function with the Spot Monitor.

① Press the **SPOT** button on the front panel/Remote controller, and then press the **ENTER** button. On the status bar, the camera numbers of the cameras being displayed to the Spot Monitor will have white borders around them.

② To cancel automatic screen rotation, press the **SPOT** button, and then press any button.

> ✎ **Note**
>
> *To skip the cameras that do not have camera input and output to the Spot Monitor, set the Video Loss Skip in Display Setup.*
> *To change the dwell time for Spot rotation, set the Spot Rotation in Display Setup.*
> *If the screen is rotated by Event Spot, the automatic screen rotation function will stop. To restart automatic screen rotation, press the SPOT and ENTER buttons.*
> *SPOT Rotation will be active in the same way as the Screen 1 Group setting in Display Setup.*

(7)   To Control the PTZ Camera

(a) Setting the PTZ Camera

① Press the **PTZ** button on the front panel/Remote controller. The "Pan/Tilt Control:" message will be displayed at the top center of the screen.

② Enter the camera number of the PTZ camera you want to control. If no input screen is available for the camera number selected, it will not change to the camera selected.

③ To terminate PTZ camera control, press the **ESC** button on the front panel/Remote controller. If control is terminated, the screen will switch back to the screen mode and camera immediately prior to the initiation of PTZ camera control.

(b) Changing PTZ Camera Direction (Pan/Tilt Setup)

① Press the **PTZ** button on the front panel/Remote controller, and then change the camera. To change the camera, use the numeric buttons or use the **PTZ CH UP/DOWN** (▲▼) buttons.

② Use ▲▼ , ◀▶ buttons to change the camera's direction.

Button	Pan/Tilt Control
▲	Moves the camera up
▼	Moves the camera down
◀	Moves the camera to the left
▶	Moves the camera to the right

(c) Setting the Zoom/Focus

① In **Pan/Tilt Control** mode, press the **PTZ** button again. The "Zoom/Focus Control:" message will be displayed at the top center of the screen.

② Select the camera number of the PTZ camera you want to control.　To change the camera, use the numeric buttons or use the **PTZ CH UP/DOWN** (▲▼) buttons.

③ Use ▲▼ , ◀▶ buttons to adjust the camera's Zoom/Focus.

Button	Zoom/Focus Control
▲	Zoom Tele
▼	Zoom Wide
◀	Focus Near
▶	Focus Far

(d) Setting the Iris

① In **Zoom/Focus Control** mode, press the **PTZ** button again. The "Iris Control :" message will be displayed at the top center of the screen.

② Select the camera number of the PTZ camera you want to control. To change the camera, use the numeric buttons or use the **PTZ CH UP/DOWN** (▲▼ buttons.

③ Use ▲▼, ◀▶ buttons to adjust the camera's iris.

Button	Iris Control
▲	Iris Open
▼	Iris Close

(e) Using the Preset Function

You can save the PTZ camera setup and recall them at any time by pressing a preset number. To be able to save the setup in advance, your PTZ camera must support the Preset function.

① Press the **PTZ** button on the front panel/Remote controller to set up Pan/Tilt Control, Zoom/Focus Control and Iris Control modes in turn.

② Press the **RECORD** button on the front panel/Remote controller to save the setup.

③ Press the number you want to use as the Preset number (1-9).

④ To switch to the saved setup, press the **SEARCH** button, and then press the preset number (1-9).

(8) **To use the RAID-1 (Mirroring) Function**

The RAID-1 (Mirroring) function is a function that simultaneously stores the same data by regarding two HDDs as a mirrored pair. This function protects you from loss of data resulting from hardware failure.

(a) **Setting RAID-1 mode**

To use the RAID-1 mode, open the product and set the SW1 dip switch and HDD. The default mode is normal mode.
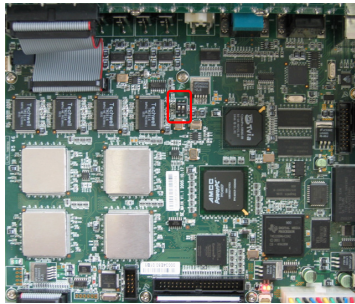
(Main Board)

	SW1		HDD Configuration		
Normal mode	1	ON	Internal HDD-1	Primary Master	
	2	ON	Internal HDD-2	Primary Slave	
			Internal HDD-3	Secondary Master	
			Internal HDD-4	Secondary Slave	
RAID-1 mode	1	ON	1st RAID	Internal HDD-1	Primary Master
	2	OFF		Internal HDD-3	Secondary Master
			2nd RAID	Internal HDD-2	Primary Slave
				Internal HDD-4	Secondary Slave

(b) **Using the RAID-1 Setup Utility**

The SW1 dip switch has to be set to RAID-1 mode before you start the RAID-1 Setup Utility.

① To start the RAID-1 Setup Utility:
  • Turn on the product
  • Press the **MENU** button in System Initializing mode before the Files system test is started.

② If you replace your HDD, you must reconstruct the RAID manually. The Raid Setup Utility provides Create and Rebuild functions for this purpose.

③ When you finish the setup, press the **ESC** key to exit from the Setup mode.

(c) **Creating a RAID-1 disk**

The Create function is a procedure that formats HDDs for RAID. When you first use the RAID-1 mode, you have to execute the Create using the RAID-1 Setup Utility. Only after creating RAID-1 disk, the capacity is displayed normally.

① After turning off your product, click on the **MENU** button in System Initializing mode to start the Setup Utility. The following screen will appear.

② Select the HDD using the ▲▼ Button, and then choose Create using the ◀▶ button.

③ Press the **ESC** key to exit from the Setup mode. The HDD format will be started. The formatting time may vary depending on the HDD capacity.

(d) Rebuilding a RAID-1 disk

The Rebuild function is a procedure whereby the normal HDD duplicates data to a new HDD that has been added. The transferring speed is about 10 Mbyte/sec, but it may slightly vary depending on the type of HDD. (For example, 80 GB would take 2 hours 15 minutes)

① After turning off your product, click on the **MENU** button in System Initializing mode to start the Setup Utility. The following screen will appear.

② Select the new HDD to add using the ▲▼ Button, and then choose Rebuild using the ◀▶ button.

③ The Rebuilding procedure is executed, and the expected remaining time for transfer is displayed. If you turn off the power during the rebuilding procedure, you will lose the data.

④ Press the **ESC** key to exit from the setup mode.

---
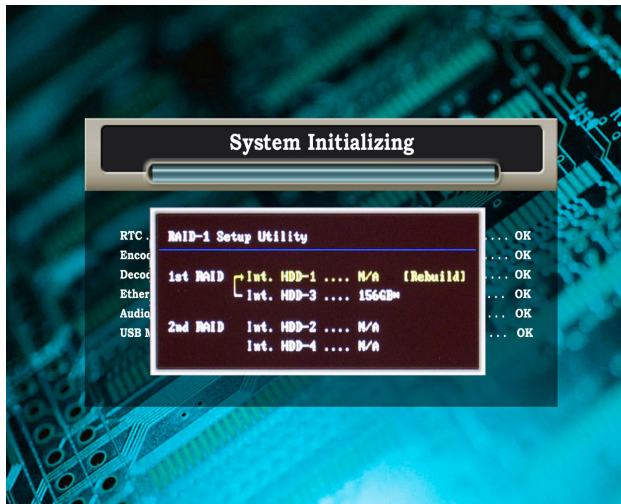
① The duplicated direction of Data when a RAID-1 disk is Rebuilt
② After the RAID is constructed, asterisks are displayed next to the operating disks. However, a disk with a problem would not show the asterisk.
③ Utility menu

(e) Recovering a RAID-1 disk

Since the HDD being used as a RAID-1 is to be stored in the main board, the HDD that has been used cannot be used in case the main board is changed. Therefore, the recovery procedure is necessary to use this HDD.

After turning on your product, click on the Menu button to enter Setup Utility.

The following appears when you enter Setup.

Press the ▲ ▼ button to select a HDD to be recovered, and press the ◄► button to select Recovery. Press the ESC key to quit Setup.

📝 **Note**

Data is simultaneously stored in two HDDs. Therefore if either HDD fails, no data is lost. Data is physically written to two HDDs, but only one logical HDD is apparent.

In order to minimize system interruption caused by a HDD failure, the RAID-1 mode can operate one HDD normally despite the failure of the other HDD. I.e. the system operates logically as if its HDD does not have any problems.

If both HDDs fail, the HDD Failure message appears and video recording is stopped.

⚠️ **Caution**

If the SW1 dip switch is set to RAID-1 mode, a pair of HDDs must be used as instructed in the above configuration table.

The pair of HDDs that compose RAID-1 must be products with the same capacity and model name.

If the mode of a HDD being used as a RAID-1 is changed to normal mode, the HDD will contain duplicated records and can no longer be used as a RAID-1 normal mode.

If a HDD status is displayed as ERR in System Information mode, instead of displaying its capacity, when you click on the STATUS button, the HDD has failed or has not been rebuilt or created after being added.

RAID-1 Usage (System Information)

Internal HDD-1: ERR (RAID-1) Internal HDD-3: 19GB (14GB free)	The HDD-1 of the 1st RAID has failed but the replacement HDD is working normally. Therefore the Logical HDD is normal and can use the 14 (out of 19) GB available disk space.
Internal HDD-2: N/A Internal HDD-4: N/A	The 2nd RAID is not installed.

Chapter 4 DVR Setup

1. Recording Setup

All recording setup can be performed at the Record Setup screen.

① Press **MENU** in the normal screen to display the **Record Setup Preview** screen. The **Record Setup Preview** screen will display settings related to video recording.
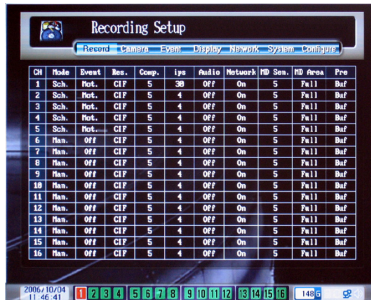
② In the **Record Setup Preview** screen, press the **ENTER** button to display the **Record Setup** screen.

③ In the **Record Setup** screen, press ▲▼ buttons to select and set.   To save the changed settings, press the **ENTER** button.

④ Complete the setup and press the **ESC** button to exit setup. A message will prompt you whether to apply the changes. To apply the changed settings, press the **ENTER** button.

(1) To Set Camera for Recording

Set the camera for Record Setup. When a camera is selected, all the settings in the Recording Setup will be applied.

① Go to **Camera** and press ◀▶ buttons to select a camera. # 1~16cameras are available and the default setting is All. To apply the selected camera, press the **ENTER** button.

(2) To Set Record Mode

Set the mode to use for recording.

① Go to **Recording Mode** and press ◀▶ buttons to select the record mode.

② To apply the selected record mode, press the **ENTER** button.

✎ **Note**

Types of Record Mode

Mode	Description
Manual (Default)	User presses the **Record** button to start/stop recording process
Schedule	User sets the recording time in advance and recording starts at the time set
Off	No recording

If you set the record mode to Schedule, you should set a time for recording.   If the following screen appears, press ◀▶ *buttons to set the timer and then press the SELECT button. If you select 0, the timer will either be reset to the time selected or set to record all the time. After setup, press the ESC button.*

0	1	2	3	4	5	6	7	8	9	10	11
12	13	14	15	16	17	18	19	20	21	22	23

Recording is possible without camera input if the Video Recording mode is not set to Off.

(3) To Set Event Recording

Set event recording which records when a specific circumstance occurs.

① Go to **Event** and press ◀▶ buttons to select event modes.

② To apply the selected event mode, press the **ENTER** button.

✎ **Note**

Types of Event Mode

Mode	Description
Off (Default)	Enables recording regardless of event
Motion	Starts recording by motion detection event **MD-Sensitivity** & **MD-Area** should be set together
Sensor	Starts recording by sensor input event Sensor Type & Sensor Record in the Event Setup screen should be set together

(4) To Set Recording Resolution

Set the resolution for recording.

① Go to **Resolution** and press ◀▶ buttons to select the resolution.

② To apply the selected resolution, press the **ENTER** button.

✎ **Note**

Types of Resolution

Classification \ Resolution	NTSC	PAL
Low Resolution	352x120	352x144
Normal Resolution (CIF)	352x240	352x288
High Resolution	704x240	704x288
High Resolution (D1)	704x480	704x576

(5) To Set Screen Compression Rate

Set the screen compression rate for recording.

① Go to **Compression** and press ◀▶ buttons to select the compression rate.

② To apply the selected compression rate, press the **ENTER** button.

> ✏ **Note**
>
> *Compression rate modes*
>
> | Mode | Description |
> |------|-------------|
> | 1 – 9 | Quality: (Highest) 1 > 2 > ... > 9 (Lowest) |
> | (Default: 5) | Size: (Largest) 1 > 2 > ... > 9 (Smallest) |
>
> *DVR uses the MPEG-4 video compression method, and the average file size may differ even in the same compression stage, depending on the degree of noise and movement in the input image.*

(6)   To Set Number of REC. Speed

Set the recording speed (ips). The screen may flicker, depending on the setting for this number.

① Go to and press ◀▶ buttons to select the number of ips.

② To apply the selected number of ips, press the **ENTER** button.

> ✏ **Note**
>
> *Number of ips*
>
> | Mode | Description |
> |------|-------------|
> | 1/4 ~ 30 ips/sec(NTSC) | 1/4, 1/2, 1 ~ 10, 12, 15, 20, 25 (PAL)/30 (NTSC) |
> | 1/4 ~ 25 ips/sec(PAL) | You cannot set a value exceeding the total number |
> | (Default: 4) | of compressed ips |
>
> *Total Number of Compressed Ips by Resolution (based on Level 5)*
>
> | Classification / Resolution | NTSC | | PAL | |
> |------|------|------|------|------|
> | | DVR 16 | DVR 08 | DVR 16 | DVR 08 |
> | Low Resolution | 480 ips | 240 ips | 400 ips | 200 ips |
> | Normal Resolution (CIF) | 480 ips | 240 ips | 400 ips | 200 ips |
> | High Resolution (1/2 D1) | 240 ips | 120 ips | 200 ips | 100 ips |
> | High Resolution (D1) | 120 ips | 60 ips | 100 ips | 50 ips |

(7)   To Set Audio Camera

Set the audio camera to be recorded with video recording.

① Go to **Audio** and press ◀▶ buttons to select the audio camera. #1~8 cameras are available and the default setting is Off. If the setting is Off, audio will not be recorded.

② To apply the selected audio camera, press the **ENTER** button.

(8)   To View Record Screen Remotely

Set to control DVR at a Remote site.

① Go to **Network Transfer** and press ◀▶ buttons to select the network transmission setup.

② To apply the network transmission setup, press the **ENTER** button.

✏ **Note**

Type of Network transmission

Mode	Description
On (Default)	User can monitor the record screen via the internet
Off	Camera screen not transmitted through the network

(9) To Set Motion Detection Sensitivity

Motion detection sensitivity can be set when **Event** is set to **Motion** in the **Record Setup** Screen

① Go to **Motion Sensitivity** and press ◀▶ buttons to select the detection sensitivity.

② To apply the selected detection sensitivity, press the **ENTER** button.

✏ **Note**

Types of motion detection sensitivity

Mode	Description
1 ~ 9 (Default: 5)	Motion sensitivity: (least sensitive) 1 < 2 < ... < 9 (most sensitive)

(10) To Set Motion Detection Region

The motion detection region can be set when **Event** is set to **Motion** in the **Record Setup** Screen.

① Go to **MD-Area** and press ◀▶ buttons to select the motion detection region.

② To apply the selected motion detection region, press the ENTER button

✏ **Note**

Motion detection region modes

Mode	Description
Full Region (Default)	Sets the full screen area as the motion detection region
Partial Region	Sets a partial screen area as the motion detection region

The user should set the region when Mot-Region is set to Partial Region. When the following screen appears, press ▲▼ buttons or ◀▶ buttons to locate to the area you want as the starting point and press the ENTER button. Press ▲▼ buttons or ◀▶ buttons again to set the size of the detection region you want and press the SELECT button.   After finishing setup, press the ESC button to end.
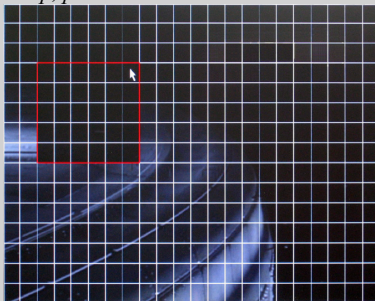
If there is motion in the input camera, red dots will appear in the region, according to the setting you have chosen in the motion detection mode
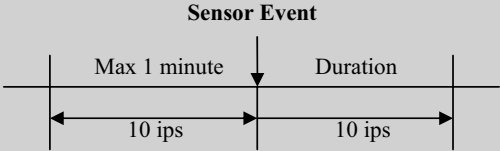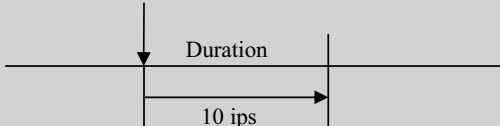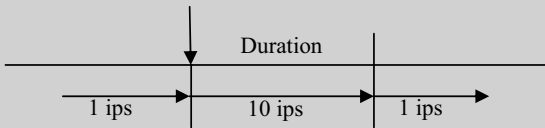
(11) To Set Number of Recording Ips Prior to Sensor Events

Pre-Record setup can be preformed when **Event** is set to **Sensor** in the **Record Setup** Screen. It sets the number of ips to be recorded prior to sensor events.

① Go to **Pre-Record** and press ◄► buttons to select the number of ips.

② To apply the selected number of ips, press the **ENTER** button

📝 **Note**

Number of ips

Item	Description
Buffer (Default)	4Mbytes of the data recorded, for a maximum of one minute before an event occurs, are stored. The recording is processed in the frame processing speed specified in **Rec. Speed** in the **Record Setup**. Ex) Pre-record = Buffer, Rec. Speed = 10ips **Sensor Event** Max 1 minute ↓ Duration 10 ips	10 ips
OFF	Recording is started from the point that an event occurred. Ex) Pre-record = Off, Rec. Speed = 10ips **Sensor Event** ↓ Duration 10 ips
1 ~ 10 Image/sec	Before an event occurs, the recording is processed in the frame processing speed set in the **Rec. Speed** section of the **Pre-Record Setup**. When the event occurs, the recording is processed at the speed specified in the **Frame** section in **Record Setup**. When the event is terminated, the recording speed returns to the frame processing speed specified in the **Rec. Speed** section of the **Pre-Record Setup**. Ex) Pre-record = 1ips, Rec. Speed = 10ips **Sensor Event** ↓ Duration 1 ips 10 ips 1 ips

2. Camera Setup

Camera related setup can be performed at the Camera Setup screen.

　① Press the **MENU** button in the normal screen to display the **Record Setup Preview** screen.

　② Press ◀▶ buttons to move to the **Camera Setup Preview** screen. Camera setup options will be displayed in the **Camera Setup Preview** screen.
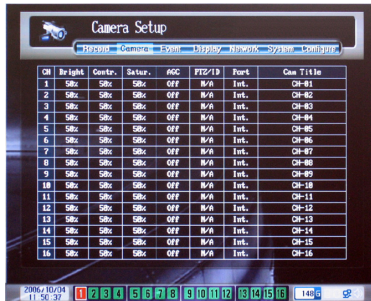
　③ In the **Camera Setup Preview** screen, press the **ENTER** button to display the **Camera Setup** screen.
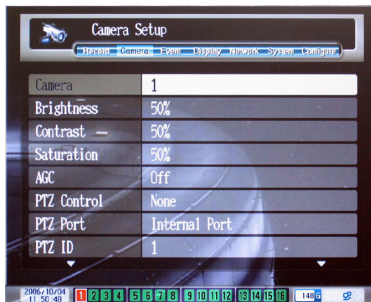
　④ In the **Camera Setup** screen, press ▲▼ buttons to select and set. To save the settings, press the **ENTER** button.

　⑤ After finishing the setup, press the **ESC** button to exit. A message will prompt you whether to apply the changes. To apply the changed settings, press the **ENTER** button.

(1)　To Set Camera

Sets the cameras for camera setup. When a camera is selected, all settings in Camera Setup will be applied to that camera.

　① Go to **Camera** and press ◀▶ buttons to select the camera. # 1~16 cameras are available and the default setting is All.

　② To apply the selected camera, press the **ENTER** button.

(2)　To Set Screen Brightness

Sets the level of screen brightness in Brightness setup.

　① Go to **Brightness** and press ◀▶ buttons to select the level of brightness.

　② To apply the selected brightness level, press the **ENTER** button.

📝 **Note**

Brightness mode

Mode	Description
0% ~ 100% (Default: 50%)	Sets camera brightness level. At 0% the screen is at its darkest, and at 100% it is at its brightest

(3) To Set Screen Contrast

Sets the level of screen contrast in Contrast setup.

① Go to **Contrast** and press ◄► buttons to select the contrast level.

② To apply the selected contrast level, press the **ENTER** button.

📝 **Note**

Contrast mode

Mode	Description
0% ~ 100% (Default: 50%)	Sets camera contrast level. At 0% the screen is at its lowest contrast, and at 100% contrast is highest

(4) To Set Screen Saturation

Sets the level of screen saturation in Saturation setup.

① Go to **Saturation** and press ◄► buttons to select the saturation level.

② To apply the selected saturation level, press the **ENTER** button.

📝 **Note**

Saturation modes

Mode	Description
0% ~ 100% (Default: 50%)	Sets camera saturation level. At 0%, the screen has least saturation and the display shows black and white. At 100%, saturation is highest and the display is saturated with color

(5) To Set AGC

AGC (Automatic Gain Control) is a function that automatically adjusts brightness and contrast so that the best picture is obtained.

① Go to **AGC** and press ◄► buttons to select ON/OFF.

② To apply the selected mode, press the **ENTER** button.

Mode	Description
On	Sets AGC mode. When recording in the dark, AGC increases the size of the record file
Off (Default)	AGC is not operational

AGC(Automatic Gain Controller)

Checks variation in the camera input signal and automatically adjusts the gain so that the output signal can be kept constant at all times. When AGC is ON, the record file may be larger due to AGC functions. This is particularly so when recording is carried out in the dark.

(6) To Set PTZ Camera Controller

Selects the controller to adjust the Pan/Tilt, Zoom/Focus functions of the PTZ camera. To control the PTZ camera, a PTZ-controllable camera should be connected to the PTZ Port.

① Go to **PTZ Control** and press ◀▶ buttons to select the installed controller type. If no controller is used, select None (default).

② To apply the selected controller, press the **ENTER** button.

📖 **Note**

■ **When using COM port (Internal Port)**

Requires a converter that will convert RS-232 to RS-422/485; connection to the camera can be made via this converter.

■ **When using SENSOR/RELAY port (External Port)**

Connects a camera via the RS-422/485 ports included in the sensor-box.

After connecting up to the camera, few settings are required. These settings may differ depending on the camera.

(7) To Set PTZ Camera Port

Sets the serial port for connection to the PTZ camera.

① Go to **PTZ Port** and press ◀▶ buttons to select the port.

② To apply the selected port, press the **ENTER** button.

📖 **Note**

Port modes

Mode	Description
Internal Port (Default)	Uses COM (RS-232) port in the main unit
External Port	Uses sensor-box (ST2008P) RS-422/485

(8) To Set PTZ Camera ID

Sets PTZ camera ID.

① Go to **PTZ ID** then press numeric buttons to enter the ID. 1~255 camera IDs are

available and the default value is identical to the camera camera number.

② To apply the chosen ID, press the **ENTER** button.

> ✎ **Note**
>
> *If Camera is set to All (Default) in the Camera Setup screen, PTZ ID will not be activated.*

(9)   To Set Camera Name

Sets the camera name for each camera. Letters can be entered with numeric buttons.

① Go to **Label** and press the **ENTER** button to shift to edit mode.

② Press ◀▶ buttons to set the location for letters and press the numeric buttons to enter the letters. During the labeling process, press the **REVERSE PLAY** button to delete entered letters if necessary.

③ After finishing, press the **ENTER** button to end the labeling process.

> ✎ **Note**
>
> *If Camera is set to All (Default) in the Camera Setup screen, Label may not be activated.*
> *Up to 16 alphabetical characters can be used. Korean/Japanese/Chinese names of up to 8 characters can be used, and they must be entered from a computer using the ISNET program. Key to using numeric buttons.*
>
> | buttons | 1time | 2times | 3times | 4times | 5times |
> |---------|-------|--------|--------|--------|--------|
> | 1 | 1 | Q | Z | & | . |
> | 2 | 2 | A | B | C | |
> | 3 | 3 | D | E | F | |
> | 4 | 4 | G | H | I | |
> | 5 | 5 | J | K | L | |
> | 6 | 6 | M | N | O | |
> | 7 | 7 | P | R | S | |
> | 8 | 8 | T | U | V | |
> | 9 | 9 | W | X | Y | |
> | 0 | 0 | @ | - | / | space |

e.g.   To type 'DVR'

> *In Label item, press the ENTER button and press #3 button twice.   Press* ▶ *button ->*
> *Press #8 button four times, press* ▶ *button -> Press #7 button three times, and then the*
> *ENTER   button.*

3. Event Setup

Event related setup can be performed at the Event Setup screen.

① Press the **MENU** button in the normal screen to display the **Record Setup Preview** screen.

② Press ◄► buttons to move to the **Event Setup Preview** screen. The event related setup will be displayed in the **Event Setup Preview** screen.

③ Press the **SELECT** button in the **Event Setup Preview** screen to display the **Event Setup** screen.

④ In the **Event Setup** screen, press ▲▼ buttons to select and set. To save the changed settings, press theENTER button.

⑤ After finishing setup, press the **ESC** button to exit. A message will prompt you whether to apply the changes. To apply the changed settings, press the **ENTER** button.

(1)   To Set Event Type

Selects Event type (Sensor, Motion, Hard Disk, Camera Loss, Password).

⑥ Go to **Event Type** and press ◄► buttons to select the event mode.

⑦ To apply the selected event type, press the **ENTER** button.

📝 **Note**

Event Type

Mode	Description
Sensor	Event through the external sensor
Motion	Event whereby the motion is detected by the camera
Hard Disk	Events relating to system warnings (Disk Full, Disk Failure, SMART Error, etc.)
Password	Event to indicate that Login ID and Password are incorrect three times repeatedly
Camera Loss	Events signaling loss of camera input

(2) To Set Event Cameras

Selects the Camera for events. If a camera is selected, all the settings in Event Setup will be applied to the selected camera.

① Go to **Camera** and press ◀▶ buttons to select a camera. # 1~16 cameras are available and the default value is All.

② To apply the selected camera, press the **ENTER** button.

📝 **Note**

The Camera will be activated only when the Event Type in the Event Setup screen is set to Sensor/Motion.

(3) To Set Sensor Type

Sets the sensor contact type. Check the sensor type connected to the system before changing the setup.

① Go to **Sensor Type** and press ◀▶ buttons to select the contact mode.

② To apply the contact type, press the **ENTER** button.

📝 **Note**

Sensor Type

Mode	Description
Normal Open (Default)	Opens contact when there is no input and closes contact when there is new input
Normal Close	Closes contact when there is no input and then opens when there is new input

The Sensor Type will be activated only when Event Type in the Event Setup screen is set to Sensor.

(4) To Set Sensor Record Camera

Sets video record cameras to be linked with sensors.

① Go to **Sensor Record** and press the **ENTER** button to display the camera setup screen as shown below.

1	2	3	4	5	6	7	8
9	10	11	12	13	14	15	16

② Press ◀▶ buttons to select the camera and press the **ENTER** button. '0' selects/cancels all cameras.

③ After selecting a camera, press the **ESC** button.

Note

The Event of the Record Setup screen will be displayed in Sensor type. It designates the record camera to be linked with the sensor input.

(5) To Set Event Duration

Sets duration for events.

① Go to **Event Duration** and press ◀▶ buttons to select duration. Seconds (1/5/10/20/30) and minutes (1/2/3/5/10/15/20/INF)are available for this selection. The default value is 10 seconds.

② To apply the selected duration time, press the **ENTER** button.

(6) To Set Camera for Monitoring Screen

Sets camera number for displaying the monitoring screen when an event occurs.

① Go to **Display Video** and press ◀▶ buttons to select the camera number. #1~16 cameras are available and the default value is Off. When this is set to Off, the screen will not change when an event occurs.

② To apply the selected camera number, press the **ENTER** button.

Note

Display Video can be activated only when Event Type of the Event Setup screen is set to Sensor/Motion.

(7) To Move PTZ Camera to Preset Position When Event Occurs

When an event occurs, move the PTZ camera to the preset position. When the event is terminated, move the PTZ camera to another preset position.

① Go to **PTZ Preset** and press ◀▶ buttons to select the PTZ camera camera. The default setting is Off (Not set).

② Click on the **ENTER** button, and select Preset number to move to when an event occurs, using the ◀▶ buttons. After that, select another Preset number to move to again when the event is terminated.

③ To apply the selected Preset number, press the **ENTER** button.

Note

PTZ Preset can be activated only when the Event Type in the Event Setup is set to Sensor.

(8) To Set Camera for Spot Screen

Sets a camera for the Spot monitor screen when an event occurs.

① Go to **Spot Video** and press ◄► buttons to select the camera number. #1~16 cameras are available and the default value is Off. When it is set to Off, the screen will not change when an even occurs.

② To apply the selected camera number, press the **ENTER** button.

📝 **Note**

Spot Video can be activated only when Event Type of the Event Setup screen is set to Sensor/Motion.

---

(9) To Set Port for Alarm

Sets the port for an alarm to be given when an event occurs.

① Go to **Alarm Output** and press the **ENTER** button to display the screen for setting an alarm port.

② Press ◄► buttons to select a port and press the **ENTER** button. Press '0' to select/cancel all port numbers.

③ After selecting the port, press the **ESC** button to exit.

(10) To Set Beep

Sets a beep sound to be generated when an event occurs.

① Go to **Beep** and press ◄► buttons to select On/Off. When this is set to On, the beep is activated, and when it is set to Off (default), the beep is deactivated.

② To apply the changed setting, press the **ENTER** button.

(11) To Email Event Information

E-mails relevant information when an event occurs.

① Go to **E-Mail**, and press ◄► buttons to select from **On/Off/'Press <ENTER> to change'**. If the setting is set to **On**, the information is transmitted to a preset e-mail address. If the setting is set to **Off** (default), no e-mail will be transmitted. If **'Press <ENTER> to change'** is selected, a new e-mail list can be made.

② To apply the changed setting, press the **ENTER** button.

📝 **Note**

E-Mail can be activated only when the Event Type is set to Sensor/Motion/Warning.

If 'Press <ENTER> to change' is selected,

*① Select the **'Press <ENTER> to change'** and press the **ENTER** button to display **E-Mail Address List**.*

*② Press ▲▼ buttons to select a number and press the **ENTER** button.*

*③ When the screen changes to **Edit/Input** mode, enter the e-mail addresses. For details on entering the e-mail address, please refer to **[Chapter 4. DVR setup - 2. Camera Setup - (9) To Set Camera Name]**.Up to 5 e-mail addresses can be entered.*

④ After entering, press the ENTER button to save.

*⑤ Press the **ESC** button to exit the **E-Mail Address** Setup.*

To copy/paste/delete e-mail addresses, Press ⤊ (Copy)/ ⤋ (Paste)/ ⬤ (Delete) button. When the setting is on DHCP, report the relevant IP value.

(12) To Notify Event Information by Phone

When an event occurs, the system reports the occurrence by phone.

① Go to **Dial-up** and press ◀▶ buttons to select from **On/Off/'Press <ENTER> to change'**. If it is set to On, the system will report to the existing phone numbers. If it is set to Off, no notification will be made. If it is set to 'Press <ENTER> to change', a new phone number can be entered.

② To apply the changed setting, press the ENTER button.

📝 **Note**

Dial-up can only be activated if the Event Type Sensor is set to Sensor/Motion/Warning.

If 'Press <ENTER> to change' is selected

① Select 'Press <ENTER> to change' and press the ENTER button to display the Dialup List screen.

② Press ▲▼ buttons to select the number to be set and press the ENTER button.

③ When the screen changes to edit/input mode, enter the phone number with the numeric buttons.

④ After entering phone numbers, press the ENTER button to save.

⑤ Press the ESC button to exit the phone number setup.

4. Screen Display Setup

Display screen related setup can be performed at the Display Setup screen.

① Press the **MENU** button in the normal screen to display the **Record Setup Preview** screen.

② Press ◀▶ buttons to move to the **Display Setup Preview** screen. No information is shown in the **Display Setup Preview** screen.

③ In the **Display Setup Preview** screen, press the **ENTER** button to display the **Display Setup** screen.
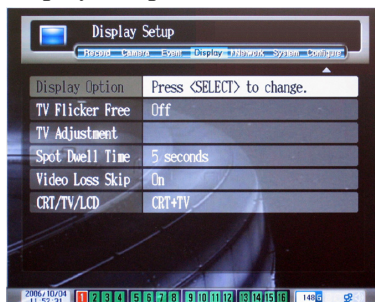
④ In the **Display Setup** screen, press ▲▼ buttons to select and set. To save the changed settings, press the **ENTER** button.

⑤ After finishing, press the **ESC** button to exit. A message will prompt you whether to apply the changes. To apply the changed settings, press the **ENTER** button.

(1)   To Set Display Group/Dwell Time

Sets the Display group screen and duration for the automatic screen change function.

① Go to **Display Group** and press the **ENTER** button to display the Display setup screen.

② Press the **DISPLAY** button repeatedly to select screen display mode. The Display mode will shift in the following order: 1/2V/2H/4/7/8/9/10/13/16.

③ Press ⩘ ⩗ buttons to select the Display Group.

④ Press ◀▶ buttons to select the camera, and press numeric buttons to enter the setting.

⑤ Press ▲▼ button to go to dwell time (Dwell Time), and press numeric buttons to enter the setting.

⑥ After finishing, press the **ESC** button to exit the Display Group setup.

> ✎ **Note**
>
> *Display Group Setup Table*
>
> | Menu | Meaning | Operation |
> |------|---------|-----------|
> | # of Displays | Screen display mode | 1-, 2-vertical, 2-horizontal, 4-, 7-, 8-, 9-, 10-, 13-, 16-screen mode |
> | # of groups | Display group number | 1 screen: Max. 16 groups / 2-screen vertical, horizontal: Max. 8 groups / 4-, 7-, 8-, 9-, 10-, 13- screen: Max. 4 / 16-screen: Max. 1 group |
> | CH | Camera | 1 ~ 16
0: No image is displayed in screen |
> | DWELL | Output display time | 1 ~ 99 sec. (Default 3 sec.)
0: Does not display Display group |
>
> *If '**0**' is entered for the camera, the screen will show **N/A** and the display screen will be pitch-black.*

(2) **To Reduce TV Screen Flicker**

Sets TV monitor flicker reduction.

① Go to **TV Flicker Free** and press ◀▶ buttons to select On/Off. When it is On (default), flickering will be reduced. When it is Off, flickering will not be reduced.

② To apply the changed setting, press the **ENTER** button.

(3) **To Adjust TV Screen Location**

Adjusts the location of the TV screen.

① Go to **TV Adjustment** and press the **ENTER** button to change to TV Adjustment mode.

② Look at the TV screen and press ▲▼, ◀▶ buttons to adjust the screen location.

③ Press ⌃⌄ buttons to adjust the screen location.

④ To exit the setup, press the **ESC** button.

(4) **To Set Spot Monitor Camera Rotation Time**

Sets the camera switch time of the spot monitor display.

① Go to **Spot Dwell** and press ◀▶ buttons to select the dwell time.   Seconds (3/5/10/15/20/25/30/40/50) and minutes (1/2/3/5/10/15/20/25/30/40/50) are available for this selection. The default value is 10 seconds.

② To apply the changed setting, press the **ENTER** button.

(5) **To Set Video Loss Skip**

Sets to skip those cameras without fresh camera input in the monitor display.

① Go to **Video Loss Skip** and press ◀▶ buttons to select On/Off. When it is On (default), cameras without fresh camera input will be skipped in the monitor display. When it is Off, cameras will be displayed regardless of fresh camera input.

② To apply the changed setting, press the **ENTER** button.

(6) **To Set the Monitor Output mode**

Set the output mode of VGA and TV monitor.

① Go to **CRT/TV/LCD** and select the Monitor Output mode by using the ◄► button.

② To apply the selected setting, you must press the **ENTER button.**

📖 **Note**

Types of Monitor Output Mode

Type	Description
CRT+TV (default value)	Outputs with both VGA CRT monitor and TV monitor simultaneously.
CRT/LCD	Outputs with VGA CRT monitor or LCD monitor.

This menu can be changed only in the PAL video mode.

If you select CRT+TV in the PAL video mode and then CRT/LCD for 50Hz vertical frequency signal, 56Hz vertical frequency signal will be output.

---

5. Network Setup

Network related settings can be performed at the Network Setup screen.

① Press the **MENU** button in the normal screen to display the **Record Setup Preview** screen

② Press ◄► buttons to move to the **Network Setup Preview** screen. The **Network Setup Preview** screen does not provide any information.

③ If you press the **ENTER** button in the **Network Setup Preview** screen, the **Network Setup** screen will appear.
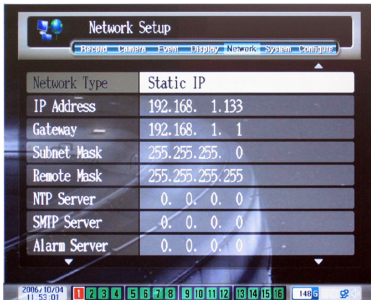
④ In the **Network Setup** screen, press ▲▼ buttons to select and set. To save the changed settings, press the **ENTER** button.

⑤ After finishing, press the **ESC** button to exit. A message will prompt you whether to save the changes. To apply the changed settings, press the **ENTER** button.

(1) To Set IP Address Protocol

Sets the IP address protocol.

① Go to **Network Type** then press ◄► buttons to select the IP address protocol.

② To apply the selected IP address protocol, press the **ENTER** button.

> 📝 **Note**
>
> *IP Address Protocol Modes*
>
> | Mode | Description |
> |---|---|
> | Static IP (Default) | Manually enter settings for IP Address, Gateway Address and Subnet Mask. Refer to network administrator for IP address |
> | Dynamic IP (DHCP) | Use dynamically allocated IP address from DHCP server. Does not require manual entering of the IP Address, Gateway Address and Subnet Mask settings |

■ Using Dynamic DNS(DDNS)

To access to DVR by using a Remote S/W, you have to know the IP of DVR. In case of Dynamic IP (DHCP), however, it is hard to trace the IP because IP can be allocated by DHCP periodically. So DDNS is supported to access with the host name instead of IP and you can check the host name on the System Information screen. But you have to connect to Internet to register and use the host on the DDNS server.

Ex) Ethernet Address ………204.248.192.3 (00-03-4E-20-1A-E2)

   Host Name …………… 201Ae2.dvragent.net

(2) To Set System IP address/Gateway Address/Subnet Mask

Sets the system IP address/Gateway address/Subnet Mask. These 3 items can be activated only when the **Network Type** in the **Network Setup** screen is set to **Static IP**.

① Go to **IP Address** and press the **ENTER** button to shift to edit mode.

② Press ◀▶ buttons to set input location and press numeric buttons to enter the IP address. While entering the IP address, press the **REVERSE PLAY** button to delete entered numbers.

③ After entering the IP address, press the **ENTER** button to exit the IP address setup.

④ Press ▲▼ buttons to move to **Gateway Address** and press the **ENTER** button.

⑤ Enter the Gateway address in the same way as the IP address. After entering, press the **ENTER** button to exit the Gateway address setup.

⑥ Press ▲▼ buttons to move to **Subnet Mask** and press the **ENTER** button.

⑦ Enter the **Subnet Mask** in the same way as the IP address/Gateway input procedure. After entering, press the **ENTER** button to exit the Subnet Mask setup.

> 📝 **Note**
>
> *For example, if you want to set the IP address to 172.16.12.128, press the ENTER button and select IP Address. Next, press numeric 1, 7, 2 buttons and ▶ button -> Press numeric 1, 6 buttons and ▶ button -> Press numeric 1, 2 buttons and ▶ button -> Press numeric 1, 2, 8 buttons and finally press the ENTER button.*

(3) To Set Remote Mask

Sets the IP Mask for permitting system access.

① Go to **Remote Mask** and press the **ENTER** button to shift to edit mode.

② Enter the Remote Mask in the same way as the IP address (in 2 above).

③ After entering, press the **ENTER** button to exit the Remote Mask setup.

> 📝 **Note**
>
> *Remote Mask*
> *This value is to limit user IP addresses that can access the system. The value will be used for IP Mask setting and if it is set to 255.255.255.255, it is possible to access the system from all IP addresses.*

(4) To Set NTP Server Address

Sets the Time Server address for time synchronization.

① Go to **NTP Server** and press the **ENTER** button to shift to edit mode.

② Enter the NTP Server address in the same way as the IP address.

③ After entering, press the **ENTER** button to exit the NTP Server setup.

> 📝 **Note**
>
> *If the NTP Server setting is set to 0.0.0.0, the NTP Server is not used.*
> *Accurate time can be set only when the NTP Server is set with the Time Zone of the System Setup.*
> *Time synchronization with other equipments by using DVR self-NTP server is possible.*
> *NTP Server address*
>
> | Region | Server Name | IP Address |
> |--------|--------------|-------------|
> | US CA | nist1.aol-ca.truetime.com | 207.200.81.113 |
> | US WA | bigben.cac.washington.edu | 140.142.16.34 |
> | KR | time.nuri.net | 211.115.194.21 |
> | JP | clock.nc.fukuoka-u.ac.jp | 133.100.9.2 |

(5) To Set SMTP Server Address

Sets the SMTP server address for sending E-mail.

① Go to **SMTP Server** and press the **ENTER** button to shift to edit mode.

② Enter the SMTP Server address in the same way as the IP address.

③ After entering, press the **ENTER** button to exit the SMTP Server setup.

> 📝 **Note**
>
> *SMTP Server*
> *This is the address of the server for sending E-mail. Ask the network administrator to set the system so that it can use the Relay function.*

(6) To Set Alarm Server Addresses

Set the server to store the alarm information when an alarm occurs.

① Go to **SMTP Server**, and press the **ENTER** button to shift to edit mode.

② The item as shown in [Chapter 3. DVR Setup - 3. Even Setup - (11) To E-mail Event Information] appears.

③ You can input a maximum of five Alarm Server addresses.

④ After entering, press the **ENTER** button to save the setup.

⑤ Press the **ESC** button to close the Alarm Server setup.

(7) To set an E-mail address

Set addresses to which to send your E-mail. The sender's mailing address is needed to get through the Mail filter that prevents spam.

① Go to **E-mail address**, and press the **ENTER** button to shift to edit mode.

② Enter the sender's E-mail address in the same way as the camera name setup.

③ After entering it, press the **ESC** button to complete the E-mail address setup.

(8) To Set Broadcast

Set the bandwidth of network for multiple users to monitor Remotely.

① Go to **Broadcast** and press ◄► buttons to select the bandwidth of network. Off, 256Kbps, 512Kbps, T1/LAN (1.5Mbps), E1/LAN (2.0Mbps), 10Mbps LAN, E3/LAN (34.5Mbps), T3/LAN (45Mbps), 100Mbps LAN options are available and the default setting is Off (Not use the Broadcast function).

(9) To Set the Port

Set the network port for Remote access.

① Go to **Port** and input numbers for Port with the number buttons. Numbers from 0 to 9999 can be entered for network port.

② To apply the Port entered, press the **ENTER** button without fail.

📖 **Note**

*The network port basically used is 2710, 2711.*

To change Port, please mind not coming into a collision with any other network service.

For Remote access, you must assign the same port in PC S/W.

---

6. System Setup

System related settings can be performed at the System Setup screen.

① Press the **MENU** button in the normal screen to display the **Record Setup Preview** screen.

② Press ◀▶ buttons to move to the **System Setup Preview** screen. The **System Setup Preview** screen does not provide any information.

③ Press the **ENTER** button in the **System Setup Preview** screen to display the **System Setup** screen.
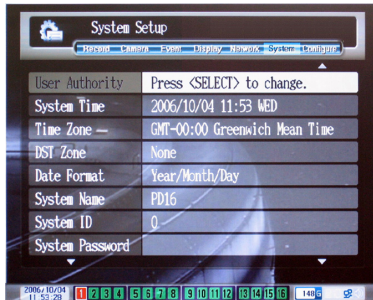
④ In the **System Setup** screen, press ▲▼ buttons to select and set. To save the changed settings, press the **ENTER** button.

⑤ After finishing, press the **ESC** button to exit System Setup. A message will prompt you whether to save your changes. To apply the changed settings, press the **ENTER** button.

(1) To Set User Management

Sets user registration and access rights. Registered details can be deleted or changed.

① Go to **User Management** and press the **ENTER** button to shift to setup mode.

② Press ▲▼ buttons to move to the user ID you want to add/delete/change.

③ Press ◀▶ buttons to move to items you want to add/delete/change and press the **ENTER** button.

④ Add/delete/change the items and press the **ENTER** button.

⑤ To exit User Management, press the **ESC** button.

✎ **Note**

Administrator ID is 00 and the Name is admin. The administrator Name and rights cannot be changed. The default Password for the administrator is 00000000 and it can be changed.
Name
Enters the system user name.
For details on entering letters, please refer to [Chapter 4. DVR Setup - 2. Camera Setup - (9) To Set Camera Name]. (Except spaces between letters).
Password
Sets user password. Up to 8 digit numbers can be set as a password. If a user Name is set, the default Password is "00000000 (********)".
For details on entering numbers, please refer to [Chapter 4. DVR Setup - 5. Network Setup - (2) To Set System IP Address/Gateway Address/Subnet Mask].
Local/Network Access
Sets user access rights to the Local/Network. Network mode refers to Remote access using the ISNET program.
Press ◀ ▶ *buttons to move to items and press the ENTER button to set/cancel access authority.*
In Network Access, if you select the 👁 *icon, the following screen will appear, where you can set cameras with relevant access rights. Press* ◀ ▶ *buttons to select the items and press the ENTER button to set/cancel access right.*

1	2	3	4	5	6	7	8
9	10	11	12	13	14	15	16

Local Access		Network Access	
Icon	**Function**	**Icon**	**Function**
🆂🅴🆃	Right to execute SETUP functions	🆂🅴🆃	Right for the network user to execute system SETUP functions Remotely
🔍	Right to execute SEARCH function	🔍	Right for network users to Remote SEARCH system files
📼	Right to set RECORD function to On/Off	☰	Right for network users to open system LOG file Remotely
☰	Right to manage LOG files	📹	Right for network users to control PTZ camera connected to the system Remotely
📹	Right to control PTZ Camera	👁	Right for network users to check system video Remotely
🖥	Right to control DISPLAY/ DISPLAY function	ⓘ	Right for network users to check system setup information Remotely
🖧	Right to execute BACKUP function	⌨	Right for network users to control the system button Remotely
🕐	To control user's hours of system use.		

(2) To Set System Time

Sets system time.

① Go to **System Time** and press the **MENU** button to shift to setup mode.

② Press ◀▶ buttons to move to the item you want to change and press ▲▼ buttons to change the setting.

③ Press the **MENU** button to change the setting.

④ To finish the System Time setup, press the **ESC** button.

(3) To Set GMT

Set GMT in order to synchronize with the NTP Server.

① Go to **Time Zone** then press ◀▶ buttons to select GMT.

② To apply the selected GMT, press the **ENTER** button.

(4) To Set DST Zone

Sets Daylight Saving Time zone. If a region is selected, the appropriate DST will be applied to that particular region.

① Go to **DST Zone** and press ◀▶ buttons to select DST. European Union/United States/Australia/None modes are available for DST. The default setting is None (no setting).

② To apply the selected DST, press the **ENTER** button.

(5) To Set Date Display Format

Sets the date display format for the system.

① Go to **Date Format** and press ◀▶ buttons to select the Date display format. Year/Month/Day and Day/Month/Year are available. The default setting is Year/Month/Day.

② To apply the selected date display format, press the **ENTER** button.

(6) To Set System Name

Sets a name for each system to identify when there is more than one system in operation.

① Go to **System Name** and press the **ENTER** button to shift to Name setup mode.

② Enter the name of the system. For details on entering letters, refer to **[Chapter 4. DVR Setup - 2. Camera Setup - (9) To Set Camera Name]**.

③ After finishing, press the **ENTER** button to save the setting.

(7) To Set System ID

Set an ID to identify each system, when a controller or a Remote controller is used to control several systems.

① Go to **System ID** and press the **ENTER** button to shift to ID setup mode.

② Enter the system ID with numeric (0~99) buttons and press the **ENTER** button to save the setting.

(8) To Set System Password

Sets the password for activating or shutting down system power.

① Go to **System Password** and press the **ENTER** button to shift to password setup mode.

② Enter the password with numeric buttons and press the **ENTER** button.

③ Enter the same password once more, and press the **ENTER** button. If the password matches, an '**OK**' message will pop up and the new password will be saved. If the password does not match, a '**Failed**' message will pop up and the system password will not be changed.

📝 **Note**

You can press the ENTER button in password setup mode to activate or shutdown the system regardless of the password.

(9) To Set System Language

Sets the language shown in the system.

① Go to **System Language** and press ◄► buttons to select the language to use.

② To apply the language setting, always press the **ENTER** button.

📝 **Note**

Languages available for setting differ with local areas.

(10)   To Format HDD/Log File/Event File

Formats HDD, Log file and Event file.

① Go to **HDD Format** and press ◄► buttons to select the files to be formatted. Internal Disk/External Disk(External HDD - SCSI)/Log File/Event File are available.   The default setting is None.

② To format the selected file, press the **ENTER** button.

③ When a message window asking for format confirmation pops up, press ◄► buttons to select **YES** and press the **ENTER** button. A message window pops up when the format is completed.

⚠ **Note**

Please note that all the files in the hard disk will be deleted if the hard disk is formatted. Exercise care before formatting!

(11)   To Set HDD SMART

Sets the HDD's SMART (Self Monitoring And Reporting Technology) function.

① Go to **HDD SMART**, and press ◄► buttons to select the SMART function option. On (SMART activated) and Off (SMART deactivated) are available, and the default setting is Off.

② To apply the changed settings, press the **ENTER** button.

(12)   To Set Video Recording in case of HDD error

Set the stop of video recording function in case of HDD error.

① Go to **HDD Failure** and select the stop of video recording function, with the ◀ ▶ button. On (Stop recording) and Off (Keep recording) are available, and the default setting is On.

② To apply the setup mode, always press the **ENTER** button.

(13) To Automatically Delete Files

Automatically deletes files saved in the system.

① Go to **File Delete** and press ◀▶ buttons to select auto delete mode.

② To apply the selected setting, press the **ENTER** button.

> ✎ **Note**
>
> *Type of Auto file delete*
>
> | Mode | Description |
> | --- | --- |
> | Off (Default) | Deactivates auto file delete function. When the HDD becomes full, recording stops, and a warning is delivered |
> | Automatic | Auto deletes files (old versions first) when there is a shortage of HDD space |
> | Automatic (1 WEEK) | Automatically deletes files that are more than a week old |
> | Automatic (2 WEEK) | Automatically deletes files that are more than 2 weeks old |
> | Automatic (3 WEEK) | Automatically deletes files that are more than 3 weeks old |
> | Automatic (1 Month) | Automatically deletes files that are more than a month old |
> | Automatic (6 Month) | Automatically deletes files that are more than 6 months old |

(14) To Set Auto Key Lock

Locks the system when there is no further input by the user for certain period of time. (Log out status)

① Go to **Auto Keylock** and press ◀▶ buttons to select the time. 3/5/10/20/30/60 minute options are available and the default setting is Off (Auto Key lock deactivated).

② To apply the selected setting, press the **ENTER** button.

(15) To Change External Device Connected to Serial Port

Changes the types of external device connected to the system serial port.

① Go to **Serial Comm**. and press ◀▶ buttons to select external device mode.

② To apply the changed settings, press the **ENTER** button.

 Note

Serial Communication devices are external devices such as ATMs. Signal inputs from external devices are coupled with the video recording in the system and stored together as an event file. The external device currently available is the ATM TVC-2100.

Device	Description
None (Default setting)	No external device connected
Dial-up modem	External dial-up modem. Used to transfer Event information.
ATM TVC-2100	ATM protocol interface. ATM input information is stored in an Event file with the video recording.
DVR SP1010	Text Insert protocol. Text input information is stored with the video recording.
DVR SP1000	DVR can be controlled by connecting with serial control protocol, controller, etc.
Ethernet: RS232	Can be directly controlled to serial port through network.

(16) To Upgrade System Software

Upgrades the system S/W by using USB flash disk.

① Go to **S/W Upgrade** and press the **ENTER** button to change into the Upgrade mode.

② If there exists normal S/W on your USB flash disk, do Upgrade.

③ After finishing system upgrade, 'Complete' message appears and the system will be rebooted.

 Note

Before selecting Upgrade menu, you must insert the USB flash disk in USB port.
USB flash disk must be formatted in the type of FAT or FAT32.
System S/W must exist in the root directory.
The name of system S/W must be SE.bin (16ch   model), SE8.bin (8ch   model).

7. System Configuration Setup

System configuration related setups can be performed at the Config Setup screen.

① Press the **MENU** button in the normal screen to go to the **Record Setup Preview** screen.

② Press ◀▶ buttons to move to the **Config Setup Preview** screen. The **Config Setup Preview** screen does not provide any information.

③ Press the **ENTER** button in the **Config Setup Preview** screen to display the **Config Setup** screen.

④ In the **Config Setup** screen, press ▲▼ buttons to select and set.   To save the changed settings, press the **ENTER** button.

⑤ After setup, press the **ESC** button to exit the Config Setup.   A message will prompt you whether to save the changes.   To apply the changed settings, press the **ENTER** button.

(1)   To Set/Apply Week Schedule

Sets the current Week's Schedule or applies a new Week Schedule.

① Go to **Week Schedule**, then press ◀▶ buttons to set the Week Schedule

② **(**On/Off**)** or select the '**Press <ENTER> to change**' option.

③ To apply the changed settings, press the **ENTER** button.

> ✎ **Note**
>
> *To Set a new Week Schedule (if you have selected 'Press <ENTER> to change')*
>
> ① *In* **Week Schedule,** *press* ◀▶ *buttons to select* ***'Press <ENTER> to change'*** *and press the ENTER button.*
>
> ② *When the following screen appears, press* ▲▼ *,* ◀▶ *buttons to move to Day/Hour mode.*
>
>
>
> ③ *Press numeric buttons to enter and set the configuration numbers or press the* ***ENTER*** *button repeatedly. To change the configuration to default setting, enter '0'.*
>
> ④ *After setting, press* the **ESC** button to exit.
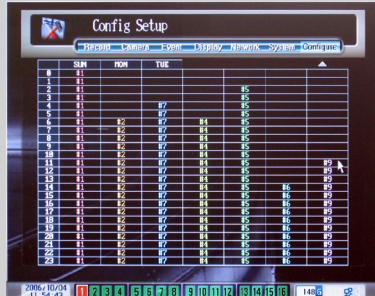
(2) To Check Configuration Information

Calls up configuration information from preset numbers.

① Go to **Load Config** and press ◀▶ buttons to select the configuration information number. #1~#9 are available, and the default setting is #1.

② To apply the changed settings, press the **ENTER** button.

③ When a message appears asking you to confirm execution, press ◀▶ buttons to select YES/NO, and then press the **ENTER** button.

(3) To Save Configuration Information

Saves configuration information in the preset numbers.

① Go to **Save Config** and press ◀▶ buttons to select a number for saving the configuration information. #1~#9 are available and the default setting is #1.

② To apply the changed settings, press the **ENTER** button. When they are saved, an 'OK' message will be displayed.

(4) To Apply Configuration Information

Applies current configuration information to the system.

① Go to **Apply Config** and press ◀▶ buttons to select Yes/No. Yes confirms that the configuration information is applied to the system. No confirms no change. The default setting is No.

② To apply the changed settings, press the **ENTER** button.

Chapter 5 DVR S/W Upgrade

1. Introduction to System Upgrade

(1) What is Remote System Upgrade?

Upgrade is software that transfers and installs an upgraded S/W system to DVR.

The RTOS (Real Time Operating System), which is built into DVR, will be continuously upgraded to support new peripheral devices and enhance system performance.

(2) Features of Remote System Upgrade S/W

- Use of Ethernet
- Easy upgrade function
- Enhanced transmission speed
- Transmission progress rate check
- System and Data (Font, Player) upgrade function

2. Preparing the Remote System Upgrade Environment

(1) Connecting to the Ethernet

① Connect an Ethernet cable RJ45 connector to the 10/100 BASE - T in the rear panel.
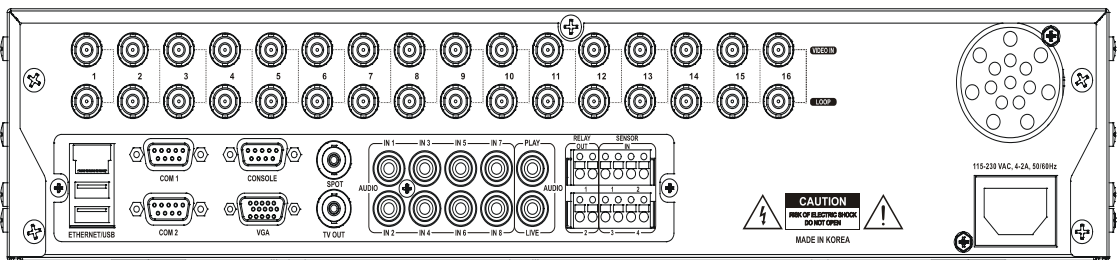
② With a Cross cable, directly connect the PC installed with Upgrade S/W. If a Direct cable is used, the IP addresses of the main unit and the PC must be allocated within the C-class IP range.

📖 Note

Direct cable and Cross cable

A direct cable is used to connect a PC with a DVR via LAN (Local Area Network).

A Cross cable is used for the point-to-point connection of a PC and a DVR.

Direct UTP cable White-Orange-White-Blue- White-Green-White-Brown	**Cross UTP cable** White-Green-White-Blue- White-Orange-White-Brown
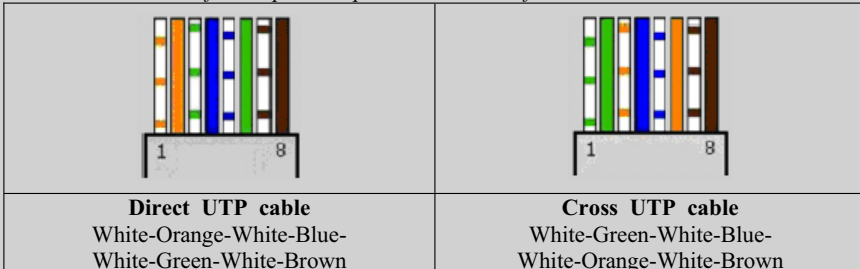
(2) Checking the MAC (Media Access Control) Address of the DVR

① Start DVR.

② Press the Status button three times to display the System Information screen. For details about the system screen, refer to [Chapter3. Using DVR - 3 Using other functions - (1) To check System/Camera Information].

③ The MAC address is displayed in hexadecimal form, such as 00-03-4E-□□-□□-□□ in the Ethernet Address field on the screen.

3. Starting Remote System Upgrade

(1) Installation

If you want to install Upgrade S/W, double click the Setup.exe file in the CD provided with the DVR. The program will be installed with a folder.

(2) Getting started

Double click the **Upgrade S/W.exe** file to launch the program.

> 📝 **Note**
>
> *If DVR is connected to a PC that is using Windows 2000 or Windows XT, only users of the Administrator group can execute the program normally.*

(3) Setting Network Card

The types of Network card installed in your PC appear in a combo box. Network cards with the same brand name can be checked by the related IP address. Select the network card connected to DVR using the related IP address.

(4) Setting MAC Address

Fill in the boxes of the Setup MAC address field using the DVR MAC address. You can check the DVR MAC, which consists of 00-03-4E-□□-□□-□□, from the System Information box.

(5) Selecting System Image/Data Image

Select the RTOS image file for DVR. If you select the **System Image** tab, System image is loaded in DVR. If you select the **Data Image** tab, Data Image is loaded.

> ⚠️ **Caution**
>
> *RTOS image files are closely related to the system's hardware. Therefore, if you voluntarily load a file into a system, the system may not work normally.*

(a) System Image

The System Image file is an image file that contains the S/W operating DVR, and its filename extension is **.bin**.

① Select the **System Image** tab.

② Click on the **Browse** button to select the correct image file.

(b) Data Image

The Data Image file is a data file that contains fonts and players to use in DVR, and its filename extension is **.fnt**.

① Select the **Data Image** tab.

② Click on the **Browse** button to select the correct image file.

(6) Uploading/Aborting

① When you finish the setting, turn DVR off.

② When you click on the Upload button, the Uploading Started message is displayed in the Status of uploading dialogue box, with a beep sound.

③ Turn DVR on. The uploading progress rate is displayed in the Status of uploading dialogue box.

④ When the uploading task is completed, the Uploading Complete message is displayed with a beep sound.

⑤ After a time, the DVR will be re-booted. Since it takes several minutes to write uploading data to the DVR's Flash memory, wait until the system is automatically booted.

✐ Note

If you click on the Abort button during uploading, the uploading is stopped and the system is also halted. The uploading time may vary depending on the network status.

4. Operating Procedure of the System Upgrade S/W

① Checking the DVR Ethernet address (MAC Address) and turning the DVR off.

② Executing Upgrade S/W.exe

③ Setting network card

④ Setting MAC address

⑤ Selecting System Image/Data Image

⑥ Uploading

⑦ Turning DVR on

⑧ Checking Uploading task

5. Error Messages and Troubleshooting

Normal and error messages may be displayed as listed below while the RTOS files are uploading to DVR. If an error occurs, an error message is displayed with a continuous stream of beep sounds. If you encounter an error, check the following list for possible solutions.

(1)   Normal Operation and Error Messages

No.	Message	Meaning	Solution
1	Uploading Started	The preparation for upload is completed.	Restart DVR
2	Upload XX(%) Completed	Upload progress rate	Normal message
3	Uploading Completed	The upload is completed	Normal message. Close the program.
4	Step 1 bootp socket error: error code (xxxx)	Bootp service socket is not created	Two copies of the same program are open: close one of them. Observe **[4. Operating Procedure]**
5	Step 2 bootp socket error: error code (xxxx)	A program is already using the port.	Close the program occupying the port. Observe **[4. Operating Procedure]**
6	Step 3 bootp socket error: error code (xxxx)	Bootp service socket is not created.	Two copies of the same program are open: close one of them. Observe **[4. Operating Procedure]**
7	Step 4 bootp socket error: error code (xxxx)	Bootp service socket is not created.	Two copies of the same program are open: close one of them. Observe **[4. Operating Procedure]**
8	Step 1 tftp socket error: error code (xxxx)	Bootp service socket is not created.	Two copies of the same program are open: close one of them. Observe **[4. Operating Procedure]**
9	Step 2 tftp socket error: error code (xxxx)	Bootp service socket is not created.	Two copies of the same program are open: close one of them. Observe **[4. Operating Procedure]**
10	Step 3 tftp socket error: error code (xxxx)	A Tftp Socket Bind error occurs	Two copies of the same program are open: close one of them. Or close the program using the same port. Observe **[4. Operating Procedure]**
11	Tftp receive data error: error code (xxxx)	Data is not received from the Tftp socket.	Restart uploading
12	Tftp error received	A Tftp error has occurred in DVR.	Restart uploading
13	Arp error - xxxx	Network setting error, IP address error, MAC address error, etc.	Check the Cross cable connection, Select another network card or check the MAC address.
14	Tftp file request error: file name is not the same in Bootp and Tftp.	Image file name is incorrect.	Select another image file.
15	File Read Error, fseek()	Upgrade S/W cannot read the file.	Close the program using image files.
16	File read error, fread(),	UpgradeS/W cannot read the file.	Close the program using image files.

17	Data transfer error	Data transfer error has occurred in the network.	Make sure the network card is operating normally. Make sure the network cable card is operating normally.
18	Progress rate is not displayed.	Network error	Refer to [Note] [(2) Troubleshooting when you encounter an error message].
19	Image file is invalid	The file to upload does not exist or UpgradeS/W cannot read the file via network.	Select the correct file in the Open File window.
20	MAC address is invalid	The DVR MAC address is incorrect.	Type the correct MAC address in the MAC address window.

(2) Troubleshooting when you encounter an error message

Please take the following actions when DVR starts without uploading.

(a) Execute the Uploading program again

Make sure the UpgradeS/W MAC address is correct. Make sure the network linked to DVR is operating normally. Turn DVR off and upload the aborted program again observing **[4. Operating Procedure ofr the System Upgrade S/W]**.

(b) Restart after checking the network setting

When a PC and a DVR are connected via LAN, the PC and the DVR must have accessible IP addresses in the same network C-class, and the address of the gateway set to the firewall or the PC, also, must belong to the C-class IP range.

For example, if a PC IP address is 192.100.100.5, the DVR IP address is temporarily allocated to 192.100.100.6. Therefore the PC can access 192.100.100.6 without any problem. In addition, if a PC and a DVR have a point-to point connection using a Cross cable, check if the IP address, the gateway address and the subnet mask address have been set.

(c) Check the duplicated Bootp server.

A port to be used for S/W upload may conflict with other programs. Check if any program using the same port is operating.

Troubleshooting

■ **Execution**

Problems	Causes	Actions
I cannot execute DVR	You may not have turned on the power	Check whether the power cord is properly Connected
		Check whether the power complies with the rating specifications
		Check whether you turned on the power switch in the right lower part of the rear panel
No screen is displayed in the video monitor	You may not have connected the power cable to the monitor	Check whether the power cable is properly connected to the monitor
	You may not have properly connected the monitor cable	Check whether the monitor cable is properly connected to the VGA port in the rear panel
	The monitor may not support some vertical resolution frequencies (TFT monitor, lowpriced monitor, etc)	Change to another monitor which operates at over 50Hz
DVR stops during the initial operation	There may be a problem in RTOS	Connect the RS-232C cable to a PC and execute the hyper-terminal program. Turn on the system and check the system initialization message displayed. Give the details to the authorized vendor where you bought the product, or to the installer

■ **Video Display**

Problems	Causes	Actions
Slow image display	You may not have installed the camera properly	Check whether you installed the camera properly
	Camera image is projected unevenly or is not operating properly	Connect the camera directly to another monitor and check the operation status
Poor image quality	Camera image is projected unevenly or is not operating properly	Connect the camera directly to another monitor and check the operation status
	Camera/lens is not properly adjusted or not operating properly	Check the operation status of the camera or adjust the lens
	Camera may have too low a resolution	Change it to a camera with higher resolution
There is no camera input signal	The power may not be connected to the camera	Check the camera's power connection
	Camera and cable are not connected properly or the cable has a defect	Check the connection or change the cable
	You may not have set the recording at the recording setting	Check the setting value in the recording setting again
Monitored image is displayed too dark in the monitor	The monitor setting may be wrong	Re-do the monitor setup
	The camera iris is not correctly adjusted	Adjust the camera Iris
The color of the image in the monitor is poor	If the monitor setting is not correct	Re-do the monitor setup
	The setting value in the display setting is not correct	Adjust the output setting values for contrast and brightness
	The video chip may have a problem	Have it checked by the authorized vendor where you bought the product, or by the installer
Monitored image is displayed too bright in the monitor	The loopback switch is not properly set	Switch the loopback dip switch up when you are not using loopback
	The monitor is not properly adjusted	Adjust the monitor
	The camera iris is not properly adjusted	Adjust the camera Iris
There are horizontal lines in the image and the image is not stable	There may be a problem in video display and the camera's synchronous signal	Check the video cable or connection, or change it to another camera
The image received from loopback is not displayed in the monitor	The cable connection status or loopback circuit has a problem	Remove the cable from Ch out port and check the monitor display image. If there is no problem, change the cable and test the loopback. If there is still a problem, contact the authorized vendor where you bought the product, or the installer

■ Sensor/Alarm Detection

Problems	Causes	Actions
There is no reaction from the alarm even if the sensor has detected input	Sensor/Alarm is not set	Set Record Mode to Sensor Mode and then select the alarm output port
	You may have used the wrong type of sensor	Use an A Type sensor
	The sensor operation time is not properly set	Set the sensor operation time
The alarm does not turn off but remains on continuously after the sensor has detected input	The alarm is not connected	Using a multimeter, check whether sensor output is continuously shorted when there is input
	Duration of the sensor alarm has been set too long	Adjust the output port operation time for when the sensor has detected input
Recording is not working in Sensor Operation Mode	The sensor may be defective	Check sensor operation
	The sensor box port may be defective	Set Record Mode to Sensor Mode, and short the lower and upper ports of the sensor box. Check the recording status under these conditions. If recording cannot be made to work, contact the authorized vendor where you bought the product, or the installer
The selected camera does not light up red when I try to select the camera connected to the sensor	The setting is wrong	Check if Recording Mode is in Sensor Mode in the recording setting of the relevant camera

■ Recording of Motion Detection

Problems	Causes	Actions
There is a movement, but recording is not initiated	The Sensitivity is set too low	Set the Sensitivity value of the recording setting higher
Recording starts as a result of insignificant movement	The Sensitivity is set too high	Set the Sensitivity value of the recording setting lower
	Too insignificant an area is included in the monitoring region	Exclude the insignificant area from the Motion Region
Recording operates when there is no movement at all	The illumination of the monitoring region is too low	Increase the illumination of the monitoring region
	The camera is not properly fixed	Safely fix the camera
	The camera image is projected unevenly or it is not working properly	Check the camera's operation status
	AGC is on in a dark screen	Screen noise may be detected if the AGC is on in a dark screen

■ **Playback**

Problems	Causes	Actions
The quality of the playback screen is poor and a block appears in the screen	The compression level is too high	Set the Compression Level value in the recording setting
	The quality of the camera input image is poor	This occurs when there is excessive noise in the camera image. Check out the potential causes of the noise (cable, camera status)
In playback, the screen appears smaller than the full screen	The output device may be a VGA monitor	The image in the monitor may appear curved if the monitor has a low resolution. This phenomenon does not occur if you use a TV monitor

■ **Execution of ISNET**

Problems	Causes	Actions
ISNET was successfully executed, but not properly connected	Network may not be connected	Check whether the network is connected using the Ping test
	You may have used the wrong cable, or it is not connected properly	Check whether it is a CAT 5 TPE (Category 5 Twisted-Pair Ethernet) cable and that use different methods for connecting cables depending on the connection status of the network. You may use cross cable or direct cable
	There is an error in the network environment	Test after connecting the PC and DVR directly, using cross cable
	The version of the ISNET is not the same as that of the system	Check the version of the Remote surveillance program and download an update at our web site if necessary
ISNET can be executed and the result of Ping test is ok, but it cannot be connected	Conflicting with the IP of other equipment(if other equipment uses the same IP)	If the result of Ping test after removing the network cable of DVR is O.K, other equipment uses the IP. Set the other IP that is not used by other equipment
	ISNET 's setting is not correct	Check whether IP/ID/ Password is correct in the setting of ISNET
	The DVR network setup is wrong	Check whether the DVR Network setting is correct ① Check the IP address of the Network Setup ② Check the ID/Password/ Access Right in User management of System Setup ③ Check whether the Network Setting per Camera is set to On in the Record Setup
	The Port Number is not allowed in the firewall	Contact the network administrator or operator to check whether it is restricted port number
ISNET is not executed	PC's specification is not correct	Check whether the PC specification is correct

■ **Others**

Problems	Causes	Actions
I cannot access the System	System access rights cannot be restored	Contact the installer, or the authorized vendor where you bought the product, and ask for help