



# Digital Video Recorder

Operating Instructions

REV 1.0



Models DW-716 DW-709

# DW716 Manual

- ◆ This manual is published by KALTECH Enterprises. and contains information on DW716 for you to use this product comfortably.
- ◆ If you require additional copies of this manual, please print and use the manual contained in the CD provided.



# Introduction

---

**Thank you for purchasing KALTECH DW716.**

This DVR is produced by the most advanced technology developed by KALTECH and its quality is guaranteed by strict reliability and compatibility tests.

This DW716 manual provides necessary information in order to use this product to its maximum capacity and also contains useful tips.

***Please read this manual thoroughly before using DW716*** in order to prevent any breakdown due to mishandling.

# Notice

---

This manual applies to **DW716** DVR only.

This manual describes external features of DW716 DVR, part names, correct connection methods for Pan/Tilt control, Control devices, peripheral devices, and the system setting method.

- KALTECH is not held responsible if the DVR is damaged due to non-compatible devices being used with the product.
- KALTECH is not held responsible if the DVR is damaged due to the product being disassembled or modified by the user without permission.
- If you wish to open the system to modify, repair, or upgrade, it is recommended that you ask for KALTECH engineer's assistance by contacting your dealer or by contacting KALTECH head office.
- DW716 are registered trademarks of KALTECH .
- This product is qualified for both domestic and industrial use. This product has qualified the Radio Equipment Requirements of Korea and acquired international certificates including CE (Europe) and FCC (USA).

# Copyrights

---

All copyrights of this manual are reserved by KALTECH Enterprises.

Copyright© 2003

It is prohibited to copy or republish this manual for commercial reasons.

It is prohibited to transfer this manual via online media such as, but not limited to, Internet. It is also prohibited to post, distribute, or translate this manual without given permission.

KALTECH is not held responsible if the DVR is damaged either accidentally or intentionally due to the system being handled inappropriately by a user who is not aware of how to operate this product, or by a user who did not refer to this manual before operating the product.

KALTECH reserves the right to change the contents of this manual for specific groups or individuals without notice.

KALTECH reserves all copyrights of registered trademark in this manual.

# Caution

---

**Please beware of the following precautions before installing the DVR.**

- Avoid any place with moisture, dust, or soot.
- Avoid any place with direct sunlight or heating appliances.
- Keep the product away from electric shock or magnetic substances.
- Avoid high or low temperature (recommended operation temperature is between 0°C and ~40°C).
- Do not place any conductive material through the ventilation.
- Turn off the system before installation.
- Ensure enough space for cable connections.
- Place the system on a solid surface with sufficient air ventilation. Avoid any surface that vibrates.
- Placing the system near electronic devices such as radio or TV may cause breakdown to the product.
- Do not disassemble the product without an assistance from KALTECH .
- Do not place any heavy object on the system.

# Safety Warnings and Cautions

The following are warnings and cautions for the safety of the users and for the prevention of any property damage. Please read below thoroughly.

## Warning and Caution signs

 <p><b>Warning</b> If you are not aware of this warning, you may be seriously injured or be killed.</p>	 <p><b>Caution</b> If you are not aware of this caution, you may be injured or cause property loss.</p>
--	--



## Warning

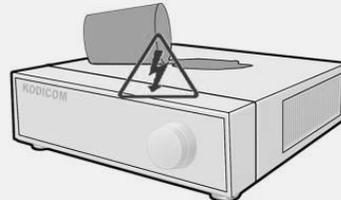
Turn off the system before installing the system. Do not plug in several electric devices to the same outlet.

- This may cause heating, fire, or electric shock.



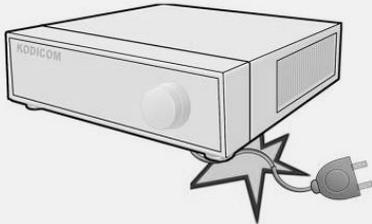
Do not place any liquid container on the system, such as water, coffee, or beverage.

- If liquid is poured onto the system, it can cause a system breakdown or cause fire.



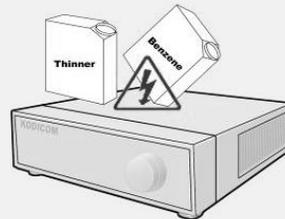
Prevent power cable from being severely bent or pressed by a heavy object.

- This may cause fire.



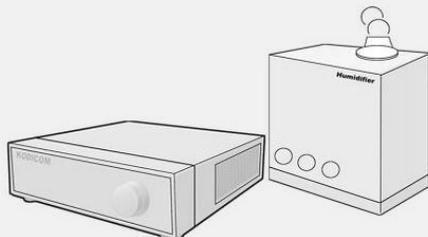
Clean the dust around the system on regular basis. When cleaning the system, always use dry cloth. Do not use wet cloth or other organic solvents.

- This may damage the surface of the system and can cause system breakdown or electric shock.



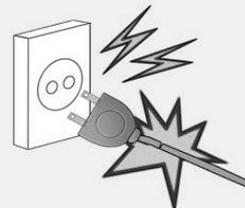
Avoid any place with moisture, dust, or soot.

- This can cause fire or electric shock.



When pulling the power cable from the plug, do so gently. Do not touch the plug with wet hands and avoid using the plug if the holes on the outlet are too loose.

- This may cause fire or electric shock.

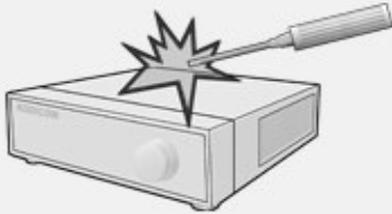




## Warning

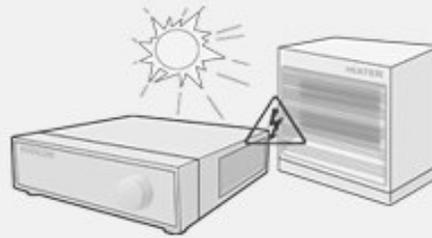
Do not attempt to disassemble, repair, or modify the system on your own. It is extremely dangerous due to high voltage running through the system.

- This may cause fire, electric shock, or serious injuries.



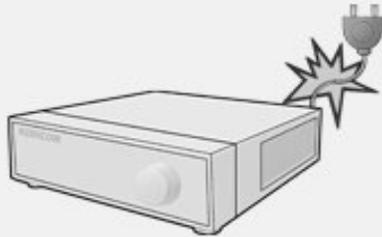
Install the system in a cool place without direct sunlight and always maintain room temperature. Avoid candle light and heat-generating devices such as heater. Keep the system away from places where many people pass.

- This may cause fire.



Check for any danger signs such as moist floor, loosened or damaged power cable, or unstable surface. If you encounter any problems, ask for assistance from your dealer.

- This may cause fire or electric shock.



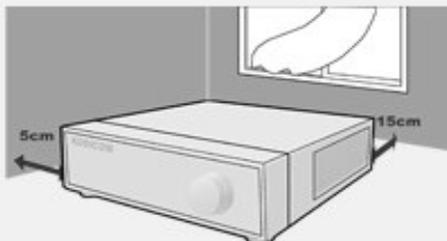
Install the system on a plain surface with sufficient air ventilation. Do not place the system on elevated surface.

- This may cause system breakdown or serious injuries.



Keep at least 15cm between the back of the system and a wall for the cables connected into the system. Otherwise, cables may be bent, damaged, or cut.

- This may cause fire, electric shock, or injuries.



The power outlet must be placed on a ground, and the voltage range must be within 10% of the voltage rate. Do not use the same outlet with a hair dryer, iron, refrigerator, or any heating appliances.

- This may cause fire, heating, an electric shock.





## Warning

When the system's battery is depleted, you must change it with the same or equivalent type of battery specified by the manufacturer. Depleted batteries should be discarded according to manufacturer's instructions.

- This may cause an explosion.

If the system's HDD exceeded its life span, you may not be able to recover any data stored inside the HDD. If the video on the system screen appears 'damaged' while playing a recording stored inside the system's HDD, it must be replaced with a new one. Ask for an engineer's assistance for HDD replacement from your dealer.

- KALTECH is not responsible for deleted data caused by user's mishandling.



## Caution

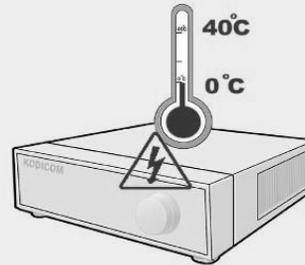
Do not install the system in a place with high magnetic, electric wave, or wireless devices such as radio or TV.

- Install the system in a place without magnetic objects, electric frequencies, or vibration.



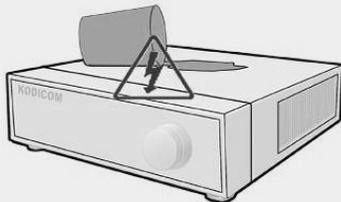
Install the system in a place with appropriate moisture and temperature level.

- Avoid installing the system with high (over 40°C) or low (under 0°C) temperature.



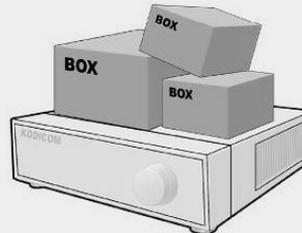
Prevent any substances from being inserted into the system.

- This may cause system breakdown.



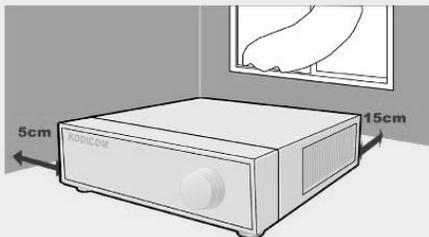
Do not place any heavy object on the system.

- This may cause system breakdown.



Install the system in a place with sufficient air ventilation.

- Keep at least 15cm distance between the back of the system and a wall, and at least 5cm distance between the side of the system and a wall.



Install the system on a stable and leveled surface..

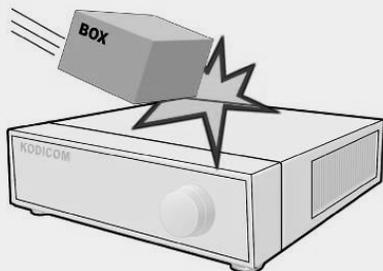
- The system may not operate properly.



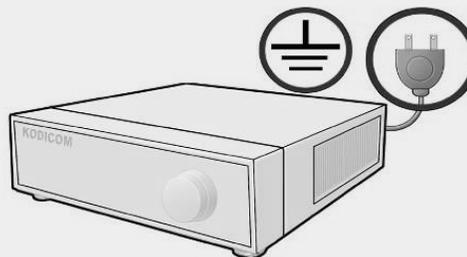


## Caution

The system can be damaged from a strong impact or vibration. Avoid throwing objects within the vicinity of the system.

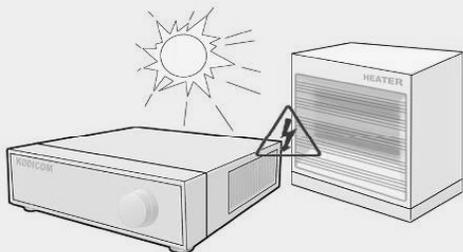


The outlet must be placed on the ground.



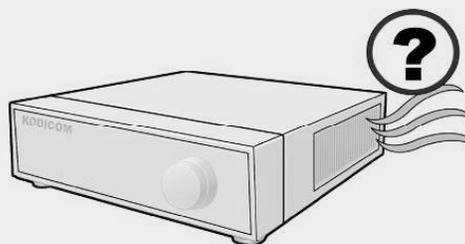
Avoid direct sunlight or any heating appliances.

- Recommended operating temperature is over 0 °C (32 °F)



If there is strange sound or smell, unplug the power cable immediately and contact the service center.

- This may cause fire or electric shock.



Ventilate the air inside the system operation room, and tighten the system cover firmly.

- System breakdown may be caused by inappropriate environment.

In order to maintain stable system performance, have your system checked regularly by the service center.

- KALTECH is not held responsible for system breakdown caused by user's mishandling.

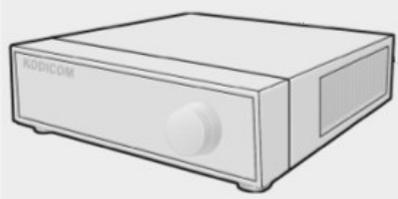
It is recommended to use AVR (Automatic Voltage Regulator) for stable power supply.

It is recommended to coil the core-ferrite around the connector of the system to avoid electromagnetic interference.

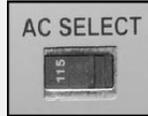


## Caution

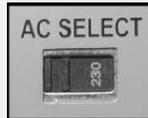
Do not overturn the product under use.



### Power Set up



Connect with AC115V if AC selector is as left picture.

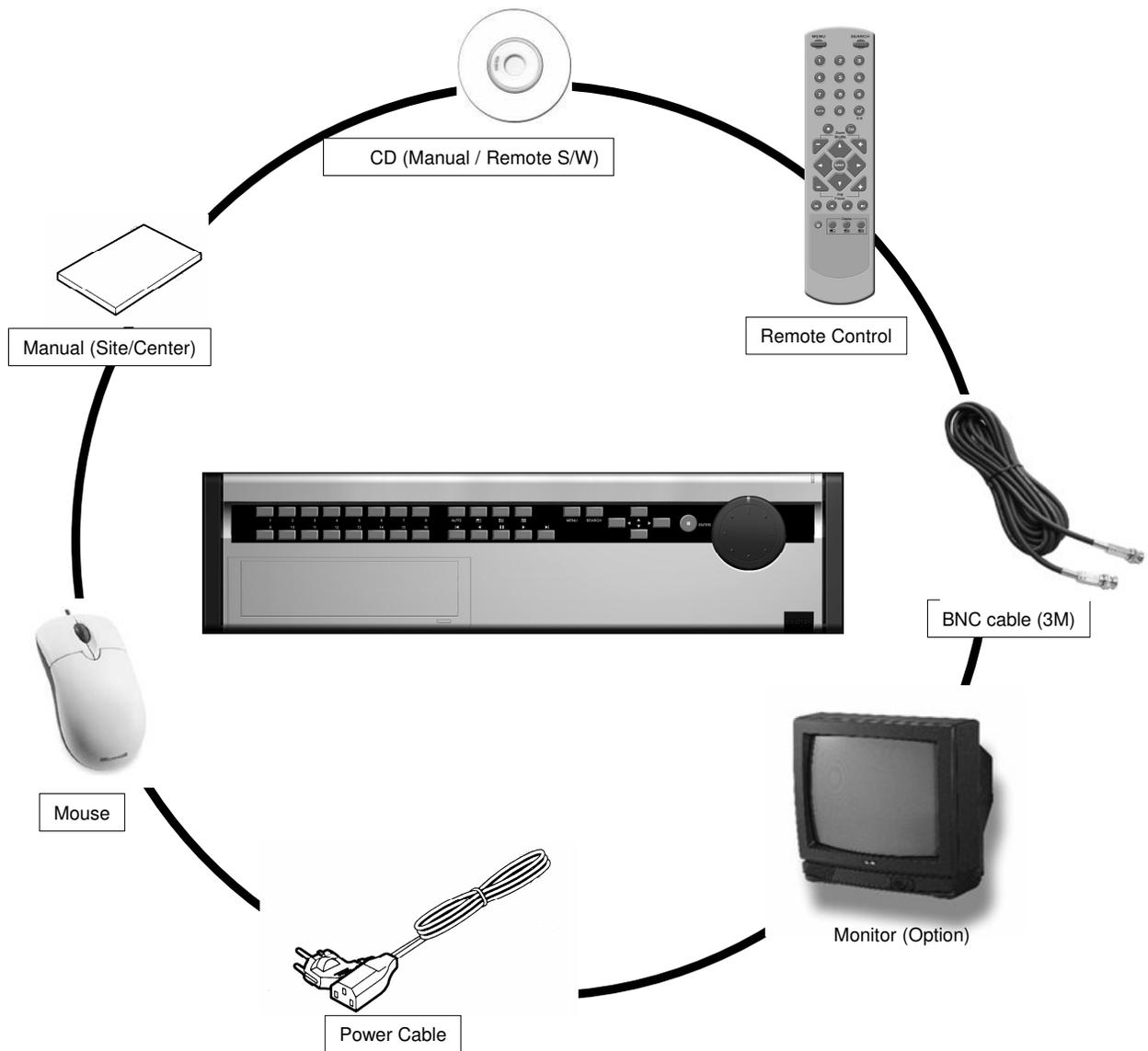


Connect with AC230V if AC selector is as left picture.

# Equipment

Please check to make sure the following equipment are included when you purchased DW716. If any items are missing, contact your dealer.

(Optional items: Monitor; External Modem)



# Contents

## Chapter 1. DW716 Guide

<b>1. System Overview</b> .....	<b>18</b>
1.1 System Function .....	18
1.1.1 System Functions on Front side .....	18
1.1.2 System Functions on Rear side .....	20
1.2 Remote Control .....	23
<b>2. Surveillance mode</b> .....	<b>24</b>
2.1 Screen Layout .....	24
2.2 Enlarging channel and Automatic channel rotation .....	25
<b>3. Pop-up Menu Using mouse</b> .....	<b>26</b>
3.1 Pop-up menu in live mode .....	26
3.2 Pop-up menu on PAN/TILT mode .....	27
3.3 Pop-up menu on playback menu mode .....	28
<b>4. Pan/Tilt Camera</b> .....	<b>29</b>
4.1 Switching to Pan/Tilt control mode .....	29
4.2 Pan/Tilt Camera Control .....	30
4.3 Supported Pan/Tilt Camera list .....	31
<b>5. Search</b> .....	<b>32</b>
5.1 Accessing Search mode .....	32
5.2 Search mode display .....	32
5.2.1 Graph color display .....	33
5.3 Selecting date and time .....	34
5.3.1 Selecting date .....	34
5.3.2 Selecting cameras and changing graph bar line .....	35
5.3.3 Audio Output .....	36
5.3.4 Playing the recording .....	37
<b>6. Backup</b> .....	<b>38</b>
6.1 Saving backup into local drive .....	38
6.1.1 Still image backup .....	38
6.1.2 Video backup .....	39
6.2 Saving backup using remote drive .....	42
6.2.1 Remote backup .....	42
6.3 Printing Image .....	45
6.3.1 Printing Image .....	45
<b>7. System Setup</b> .....	<b>46</b>
7.1 Accessing Setup mode .....	46
7.2 Setup menu .....	46
7.3 System Setup .....	48
7.3.1 Password .....	48
7.3.2 Site Information .....	49
7.3.3 Software Upgrade .....	51
7.3.4 Log Information .....	52
7.3.5 OSD / Dwell Time .....	55
7.3.6 System management .....	56
7.3.7 System Shutdown .....	60
7.4 Recording Setup .....	62
7.4.1 Recording Setup .....	62
7.4.2 Motion detection .....	63
7.4.3 Motion Link setting .....	64
7.4.4 Schedule .....	65
7.4.5 Quality/Resolution .....	66

7.5 Camera Setup.....	67
7.5.1 Camera name.....	68
7.5.2 Sensor setting .....	69
7.5.3 Sensor/Control link.....	70
7.5.4 Sensor/Camera link.....	71
7.6 Network Setup.....	72
7.7 Backup Schedule .....	76
7.7.1 Adding Backup schedule.....	77
7.7.2 Deleting a Backup schedule.....	82
<b>8. Controls - Manual Control.....</b>	<b>83</b>
8.1 Switching to Control Mode.....	83

## Chapter 2. DW716 DVR Installation

<b>1. Pan/Tilt Connection.....</b>	<b>85</b>
<b>2. Connecting LAN/PSTN Communication Lines.....</b>	<b>86</b>
2.1 LAN, ISDN (with the Router), and Dedicated Line Connection.....	86
2.2 PSTN (telephone line) Connection (optional).....	87
<b>3. RX Receiver (KRE-303) Connection Diagram (optional).....</b>	<b>88</b>
3.1 Name of Each Part and Description.....	89
<b>4. External Sensor Connection (Input).....</b>	<b>90</b>
<b>5. Control Port Connection (Output).....</b>	<b>91</b>
<b>6. Adding HDD.....</b>	<b>92</b>
6.1 Installing new HDD.....	92
6.2 Checking HDD Database.....	93
<b>7. HDD Smart Check.....</b>	<b>94</b>
7.1 HDD Smart Check.....	94

## Appendix

<b>1. Viewer for KDB data.....</b>	<b>96</b>
<b>2. Specifications .....</b>	<b>100</b>
<b>3. FAQ.....</b>	<b>102</b>

# Contents

## Chapter 1. DW716 Guide

<b>1. System Overview</b> .....	<b>18</b>
1.1 System Function .....	18
1.1.1 System Functions on Front side .....	18
1.1.2 System Functions on Rear side .....	20
1.2 Remote Control .....	23
<b>2. Surveillance mode</b> .....	<b>24</b>
2.1 Screen Layout .....	24
2.2 Enlarging channel and Automatic channel rotation .....	25
<b>3. Pop-up Menu Using mouse</b> .....	<b>26</b>
3.1 Pop-up menu in live mode .....	26
3.2 Pop-up menu on PAN/TILT mode .....	27
3.3 Pop-up menu on playback menu mode .....	28
<b>4. Pan/Tilt Camera</b> .....	<b>29</b>
4.1 Switching to Pan/Tilt control mode .....	29
4.2 Pan/Tilt Camera Control .....	30
4.3 Supported Pan/Tilt Camera list .....	31
<b>5. Search</b> .....	<b>32</b>
5.1 Accessing Search mode .....	32
5.2 Search mode display .....	32
5.2.1 Graph color display .....	33
5.3 Selecting date and time .....	34
5.3.1 Selecting date .....	34
5.3.2 Selecting cameras and changing graph bar line .....	35
5.3.3 Audio Output .....	36
5.3.4 Playing the recording .....	37
<b>6. Backup</b> .....	<b>38</b>
6.1 Saving backup into local drive .....	38
6.1.1 Still image backup .....	38
6.1.2 Video backup .....	39
6.2 Saving backup using remote drive .....	42
6.2.1 Remote backup .....	42
6.3 Printing Image .....	45
6.3.1 Printing Image .....	45
<b>7. System Setup</b> .....	<b>46</b>
7.1 Accessing Setup mode .....	46
7.2 Setup menu .....	46
7.3 System Setup .....	48
7.3.1 Password .....	48
7.3.2 Site Information .....	49
7.3.3 Software Upgrade .....	51
7.3.4 Log Information .....	52
7.3.5 OSD / Dwell Time .....	55
7.3.6 System management .....	56
7.3.7 System Shutdown .....	60
7.4 Recording Setup .....	62
7.4.1 Recording Setup .....	62
7.4.2 Motion detection .....	63
7.4.3 Motion Link setting .....	64
7.4.4 Schedule .....	65
7.4.5 Quality/Resolution .....	66

---

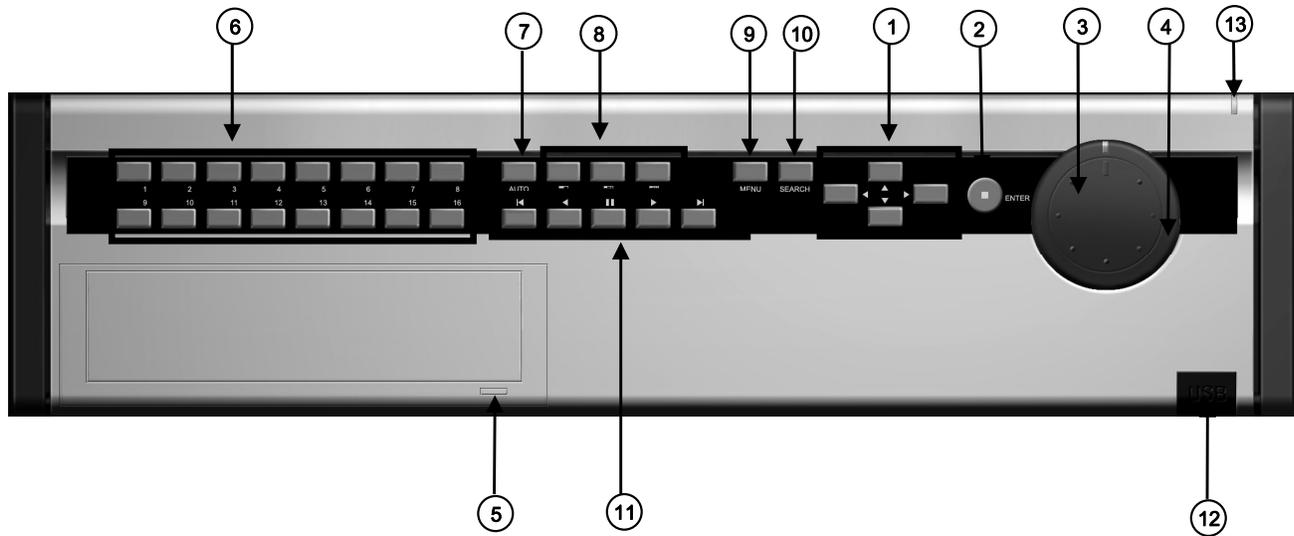
7.5 Camera Setup.....	67
7.5.1 Camera name.....	68
7.5.2 Sensor setting .....	69
7.5.3 Sensor/Control link.....	70
7.5.4 Sensor/Camera link.....	71
7.6 Network Setup.....	72
7.7 Backup Schedule .....	76
7.7.1 Adding Backup schedule.....	77
7.7.2 Deleting a Backup schedule.....	82
<b>8. Controls - Manual Control.....</b>	<b>83</b>
8.1 Switching to Control Mode.....	83

# 1. System Overview

## 1.1 System Functions

### 1.1.1 System functions on Front Side

The following describes keys and ports on the front part of the system and their functions:



[Figure 1-1. System front view]

#### ① [Directional Keys]

- Use to move options in Setup mode or in Search mode.
- When controlling P/T/Z camera, press the **directional** keys to move the camera.

[Enter Key]

- #### ②
- Use to select options in Setup mode or in Search mode.

[Jog]

- #### ③
- Rotate to view the recording one frame at a time in Search mode.
  - Rotate to change the value of options one unit at a time in Setup mode.
  - When controlling P/T/Z camera, rotate to shift camera lens focus.

[Shuttle]

- #### ④
- Rotate to play the recording forward or backwards in Search mode.
  - Rotate to change the value of options continuously in Setup mode.
  - When controlling P/T/Z camera, rotate to zoom in or out.

- 5 [CD-RW Open button]  
 • Press to open CD-RW.

[Camera/Number keys]

- 6 • In Surveillance mode, press to enlarge a camera channel.  
 • In Search mode, press to enlarge a camera channel during playback.  
 • Press the keys to enter correct password when accessing Setup mode or Search mode.

[Auto]

- Press to begin automatic channel rotation to view all channels one at a time.

- 7 [Split screen buttons]

- In Surveillance mode or Search mode, press to select 4-splitscreen  , 9-splitscreen  , or 16-splitscreen .

- 8 [Menu]  
 • Press to access Setup mode.



[Search]

- Press to access Search mode.

- 9 [Search mode control Keys]

- In Search mode, use these keys to view the recording from the very beginning/end, to play the recording forward/backward, or to pause.

- 10 [USB Port]  
 • You can connect a portable disk drive to USB port to save backup of your recorded video.  
 • You can update your system with an upgrade package through the USB port.

- 11 • A standard PostScript computer printer can be connected to USB port of the DVR to print frame captures.

12

 **[Note] Removable Disk**  
 • The table below shows the compatible USB disk. Other USB disk might now work properly.

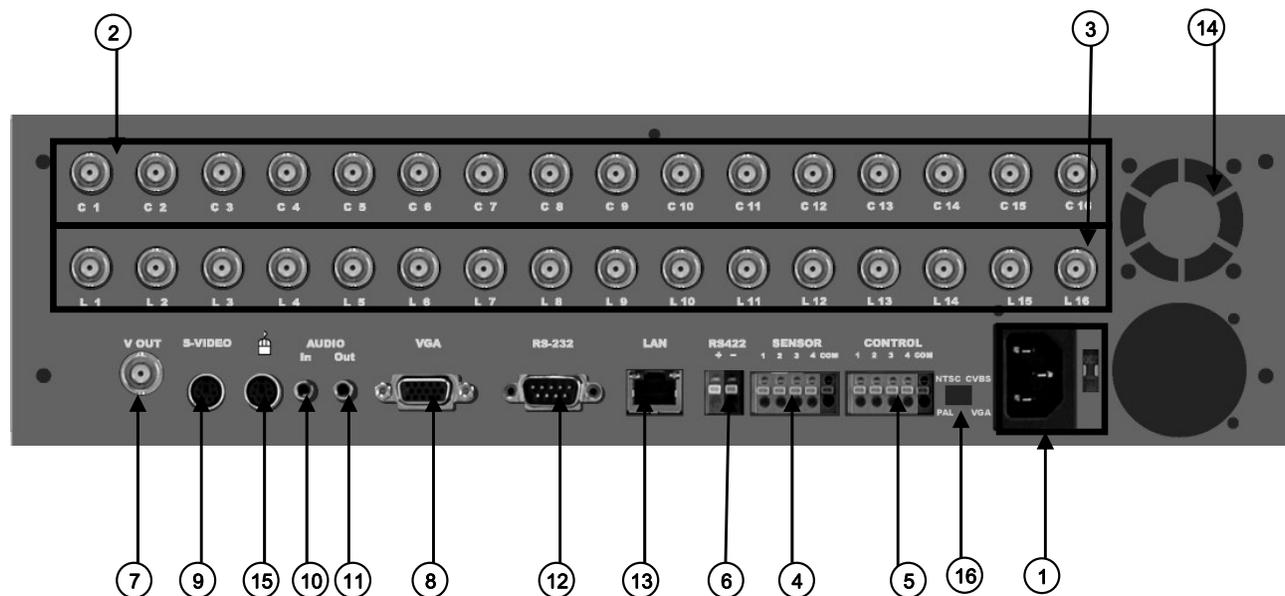
**\* Removable Disk support**

No.	Name	Company	USB Version
1	AnyDrive	AL-tech	Ver 1.1
2	Unidrive	KMIT	Ver 1.1
3	Nexdrive	JUNGSOFT	Ver 1.1
4	SHELLGINO N4	SHELLGINO	Ver 1.1
5	TRANSCEND JF A 128M	Transcend	Ver 1.1

- 13 [POWER LED]  
 • When power switch is on, the LED gives green light.

### 1.1.2 System Functions on the Rear Side

The following describes keys and ports on the rear part of the system and their functions:



[Figure 1-2. System rearview]

① [Power Connector]

- Power cable input for system's main power supply.
- 110V ~ 220V power can be connected to the system.



[Caution]

- Due to possible electrocution, please read [Safety Warnings and Cautions] on Page 7.

② [Camera Video Input BNC]

- Camera inputs for channels 1~16.
- The system supports both NTSC and PAL.

[Loop Through Output]

- ③
- Video input ports for connecting cameras in order to loop the recording through to another monitor.
  - The system supports both NTSC and PAL.



[Caution]

- According to the grounding status of the power, electric current that can cause an electric shock may flow in the video line (coaxial cable). Therefore turn off the system first before connecting the video line to the BNC port.

**4** [Sensor Input Port]

- External sensor inputs for channels 1~4.
- The system supports NC and NO sensor types.

## [Control Output Port]

- 5**
- Control output for connecting control devices for channels 1~4.

**[Caution]**

- Since control devices use output in a contact point format without a polarity at the control output port, do not connect AC 110V ~ 220V of the power cable or supply DC power. Otherwise, you may cause a fire.
- When controlling DC power, it is recommended that you cut the (-ve) line.

**6** [RS-422 Output Port for P/T/Z Control]

- RS-422/RS-485 output for controlling P/T/Z cameras.

## [Video Output Port]

- 7**
- Video output for connecting with TV monitor.
- Supports both NTSC and PAL video format depending on the input.

## [VGA Output Port]

- VGA output for connecting with PC monitor.

**8**

## [S-Video Output Port]

- S-Video output for connecting with TV.
- Supports both NTSC and PAL video format depending on the input.

**9**

## [Audio In]

- Audio input for recording sound.

## [Audio Out]

- 10**
- Audio output for hearing the recorded sound.

## [External Modem Terminal]

- Provide a connection to the external modem for a remote access.

**11**

## [LAN]

- Ethernet 10/100 connection port for connecting the system through network.

**12****13**

- ⑭ [Cooling Fan]
- Cooling fan for allowing hot air to ventilate the system.

[MOUSE]

- ⑮ • Mouse input for using a mouse with the system.
- If the mouse has a mouse wheel, the wheel can be used as system's shuttle dial.



**[Note] Support for Mouse Wheel**

- The wheel mouse types supported by the system are listed in the table below.
- The wheel mouse types other than listed below may not be supported by the system.

**\* Applicable Wheel Mouse List**

No.	Mouse Name	Model Name or Type	Support wheel feature	Place of Manufacture	Remarks
1	SOLID YEAR	SYM1320 SOLID YEAR	YES	China	
2	A4TECH	SWW-35	YES	China	
3	SAMSUNG	SMP2000WX	YES	CHIC TECH/China	
4	TriGem	M-S48a	YES	Logitech(China)	

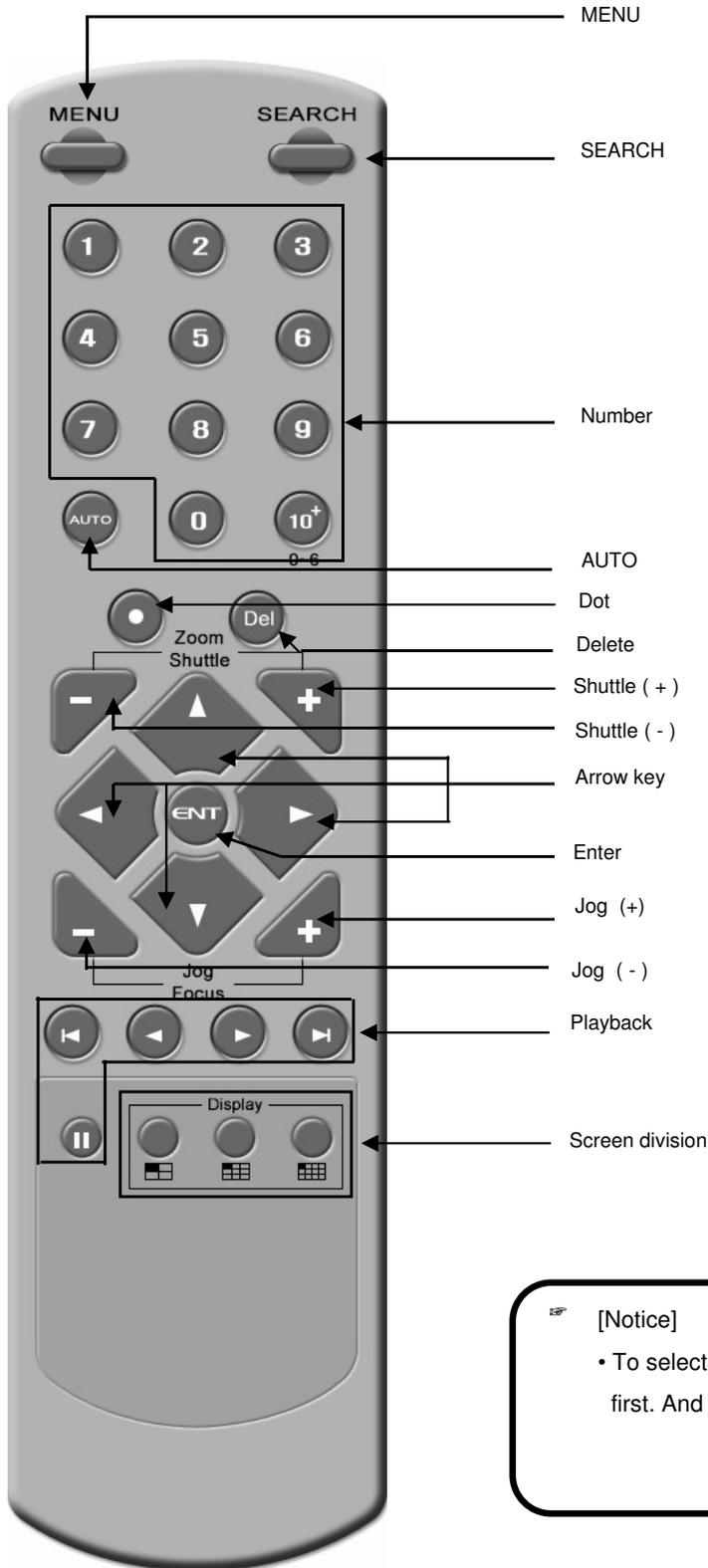
- ⑯ [Image Input/Output Switch]

Image Input/Output terminal options

- NTSC, PAL : Default settings for input video format.
  - CVBS, VGA : Image output types; when CVBS is selected, the image will be displayed on the external monitors; when VGA is selected, the image will be displayed on the computer monitors.
- (but, when VGA is selected, the surveillance image will not be separated on the monitor while rebooting)

## 1.2 Remote Control

Below picture shows the description of each feature in remote control. All the feature is same with the front buttons in the system.



## 2. Surveillance Mode

### 2.1 Screen Layout



[Figure 2-1. Main Surveillance Mode]

- ① [Camera Number]
  - Displays camera number.
- ② [Camera Name]
  - Displays camera name.
- ③ [Recording Status]
  - Display camera recording mode.
- ④ [P/T/Z Status]
  - Displays Pan/Tilt camera status.
- ⑤ [Audio Recording Status]
  - Displays audio recording status.

Recording Mode	Available Recording Modes and Screen Display	
<ul style="list-style-type: none"> <li>• C: Continuous Recording</li> <li>• M: Motion Recording</li> <li>• S: Sensor Recording</li> <li>• P: Pre-alarm Recording</li> </ul>	• No recording	No Display
	• Continuous Recording	Red REC
	• Motion Recording	Orange REC
	• Sensor Recording	
	• Motion & Sensor Recording	
	• Motion & Pre-alarm Recording	
	• Sensor & Pre-alarm Recording	
• Motion & Sensor & Pre-alarm Recording		

[Table 2-1. Available Recording Modes and Screen Display]

## 2.2 Enlarging channel and Automatic channel rotation



[Figure 2-2. 16-splitscreen mode]

[Enlarging a channel]

- Press any 1~16 keys on the system to enlarge the camera channel and view the channel in fullscreen.

[Selecting 4-splitscreen]

- Press the splitscreen button  to select 4-splitscreen.

[Selecting 9-splitscreen]

- Press the splitscreen button  to select 9-splitscreen.

[Selecting 16-splitscreen]

- Press the splitscreen button  to select 16-splitscreen.

[Automatic channel rotation]

- When one channel is enlarged, press the **Auto** key on the system to view all camera channels in rotation (see page 54 – OSD/Dwell Time for details on changing Auto option).



[Figure 2-3. 9-splitscreen mode]



[Figure 2-4. Fullscreen mode]

### 3. Pop-up menu using mouse

#### 3.1 Pop-up menu in live mode

Pop-up menu will appear when you click right mouse button on surveillance mode, search mode or Pan / Tilt mode.



[picture 3-1. Pop-up menu using mouse on surveillance mode]

① [MENU]

- Main menu for system setup
- Click left mouse button over the 'Menu' icon or press 'Enter' on the front of the system.

④ [AUTO]

- Click this menu to see the live image by single, quad, 9ch, and 16 channel mode.

② [SEARCH]

- Menu to go to Search mode
- Use direction key on the front of the system or move mouse pointer to 'Search' button, and click left mouse button or press 'Enter' on the front of the system.

⑤ [Multi Screen]

- Click this menu to toggle between 4 [  ] 9 [  ] and 16 [  ] screen surveillance mode.
- Use direction key on the front of the system or move mouse pointer to 'Control' button, and click left mouse button or press 'Enter' on the front of the system.

③ [CONTROL]

- Menu to go to Control menu.
- Use direction key on the front of the system or move mouse pointer to 'Control' button, and click left mouse button or press 'Enter' on the front of the system.

**[Notice] Right mouse click**

- Click right mouse button to activate or deactivate pop-up menu in the surveillance mode.
- Right mouse click in the setup mode will bring previous screen.

### 3.2 Pop-up menu on PAN/TILT mode

This menu appears by clicking right mouse button on the camera supporting Pan/Tilt on full screen mode of surveillance status.



[Pic. 3-2. Pop-up menu on Pan/Tilt mode

#### ① [PTZ]

- Button to go to Pan/Tilt control mode.
- Select the camera that supports Pan/tilt and click make it fullscreen. Then lick right mouse button.
- Use direction key on the front of the system or move mouse pointer to 'PTZ' button, and click left mouse button or press 'Enter' on the front of the system.

#### ④ [FOCUS IN / OUT]

- Adjust focus of the camera lens.  
(This is not supported by the camera with auto focus)

#### ② [Pan/Tilt]

- Control the camera in Pan/Tilt mode

#### ③ [ZOOM IN]

- Zoom in or out at Pan/Tilt or Speed Dome type camera.

#### [Notice] Right mouse click

- Use right mouse click to create or remove the Pop-up menu.

### 3.3 Pop-up menu on playback mode

This menu appears when you click right mouse button while playing back the recorded image.

( Please refer to page.37 to learn how to playback the recorded image. )



① [Goto initial search mode]

- Goes back to initial status of search mode

② [Goto Backup mode]

- Goes back to initial status of backup mode.  
(Refer to page 38 for details of backup procedure)

③ [Buttons for search]

- Use this button to go to the first or last frame of the recording while playback in backward or forward.

[Pic. 3-3. Mouse pop-up menu on multiple channel playback screen]



④ [Direction Key]

- Left and right direction button runs for jog and shuttle in multiple and single channel playback.
- While playing back single channel full screen or original size image playback is possible using direction key of upward and downward.

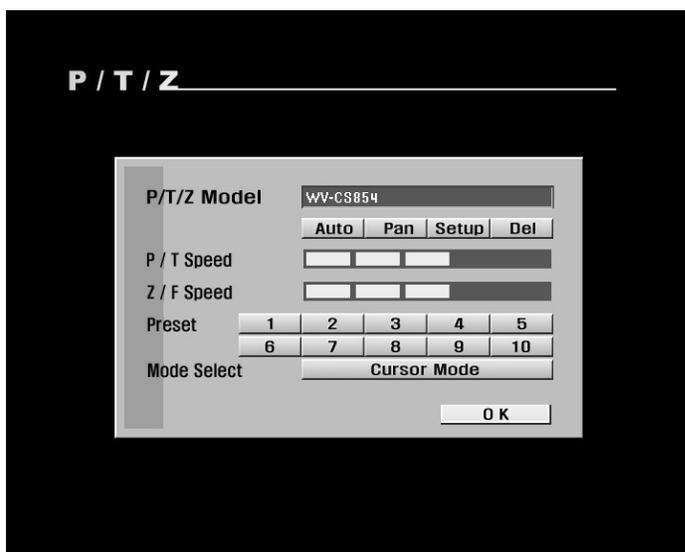
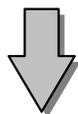
[Pic 3-4. Mouse pop-up menu on single channel playback screen]

## 4. Pan/Tilt Camera

### 4.1 Switching to Pan/Tilt control mode



[Figure 4-1. Enlarged P/T/Z channel]



[Figure 4-2. P/T/Z control mode]

[Pan/Tilt Camera Control]

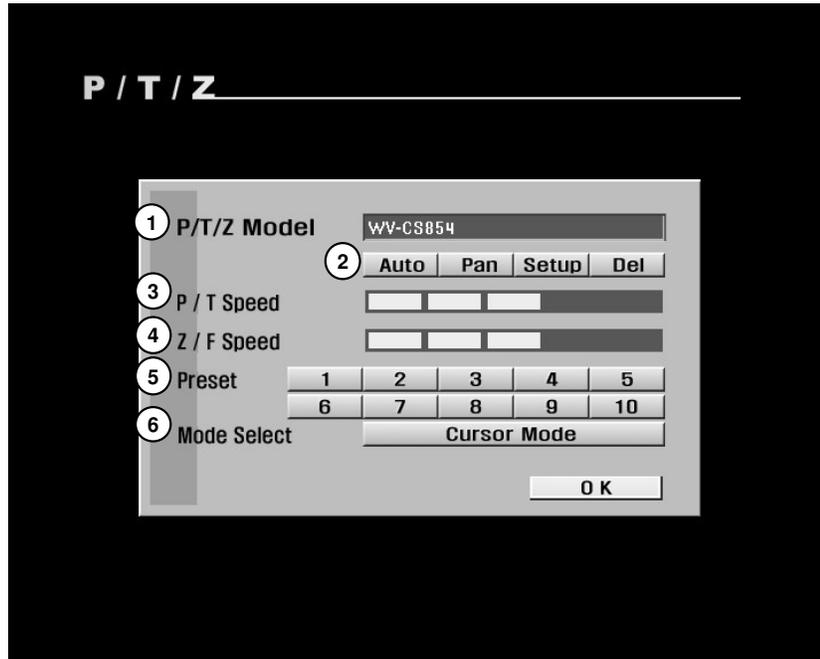
- Select the camera channel connected to the P/T/Z camera by using the **camera number** keys on the system. This will enlarge the channel.
- Once the channel is enlarged, press **Enter** to access [P/T/Z control mode]. Pan/Tilt controls may differ depending on the connected camera model.

[Exiting P/T/Z control mode]

- Press [OK] button to return to Surveillance mode.

## 4.2 Pan/Tilt Camera Control

In P/T/Z menu, you can switch the P/T/Z camera controls to manual control, as well as changing Zoom, Focus, and Auto Pan settings.



[Figure 4-3. P/T/Z menu]

### ① [P/T/Z Model]

- Displays the P/T/Z camera model.

[P/T/Z function buttons]

- ### ②
- You can enable or disable P/T/Z camera functions by selecting the options you wish to use by using the **mouse** or the **directional** keys and **Enter** key.
  - Some functions may differ depending on the P/T/Z camera model you are using.

[P/T Speed]

- ### ③
- Use the directional keys on the system to set the speed of the movement of the Speed Dome camera when controlling it manually.
  - P/T Speed only applies if you are using a Speed Dome camera.

### ④ [Z/F Speed]

- Use the **jog/shuttle** on the system to set the camera zoom/focus rate.
- Z/F Speed only applies if you are using a Speed Dome camera.

[Preset]

- ### ⑤
- When you have the Speed Dome camera positioned with a Preset button, pressing that button will move the camera to its preset position (see [Mode Select]).
  - Preset only applies if you are using a Speed Dome camera.

[Mode Select]

- ### ⑥
- Mode button is used to set the position of the Speed Dome camera to its Preset position.
  - Select the [Cursor Mode] button using the **directional** keys, then press **Enter** to change it to [P/T Mode].
  - To set the position of the Speed Dome camera to Preset buttons, change the [Cursor Mode] to [P/T Mode], then move the camera position using the **directional** keys. Once the camera is in the position you wish to set, change the [P/T Mode] back into [Cursor Mode].

## 4.3 Supported Pan/Tilt Camera List

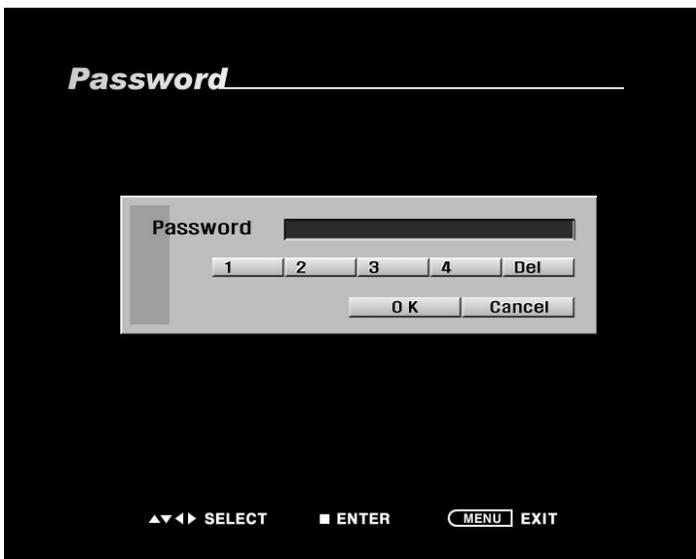
No.	Manufacturer	Model Name	P/T	P/T Speed	Zoom	Focus	Z/F Speed	Preset	Manual Control and other functions	IRIS	Note
1	KALTECH	KRE-301 RX	Yes	No	Yes	Yes	No	No	Yes	No	
2	UNIMO	KRX-3200 RX	Yes	No	Yes	Yes	No	No	No	No	
3	UNIMO	KRX-2101 RX	Yes	No	Yes	Yes	No	No	Yes	No	
4	NIKO	NK-97 SD	Yes	Yes	Yes	Yes	No	Yes	Yes	No	
5	SAMSUNG	SPD-1600 SD	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	
6	SAMSUNG	SCC-641	Yes	Yes	Yes	Yes	No	Yes	Yes	No	
7	PANASONIC	WV-CS854	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	
8	DONG-YANG	DRX-501A	Yes	No	Yes	Yes	No	No	Yes	No	
9	SUNG-JIN	CCR-20G RX	Yes	No	Yes	Yes	No	No	Yes	No	
10	PELCO	PELCO-D SD	Yes	Yes	Yes	Yes	No	Yes	Yes	No	
11	PELCO	C1489M-D SD	Yes	Yes	Yes	Yes	No	Yes	Yes	No	
12	HONEYWELL	GC-755	No	No	Yes	Yes	Yes	Yes	No	No	
13	PHILIPS	LTC SD	Yes	Yes	Yes	Yes	Yes	Yes	No	No	
14	TOA (CBC)	C-CC554 SD	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	
15	HITRON	FASTRAX	Yes	Yes	Yes	Yes	No	Yes	Yes	No	
16	SAMSUNG	SCC-93IT	No	No	Yes	Yes	Yes	Yes	Yes	No	

[Table 4-1. Supported Pan/Tilt camera list]

## 5. Search

### 5.1 Accessing Search Mode

To access Search mode, press **Search** button on the system. You will then be asked to enter password as shown below:

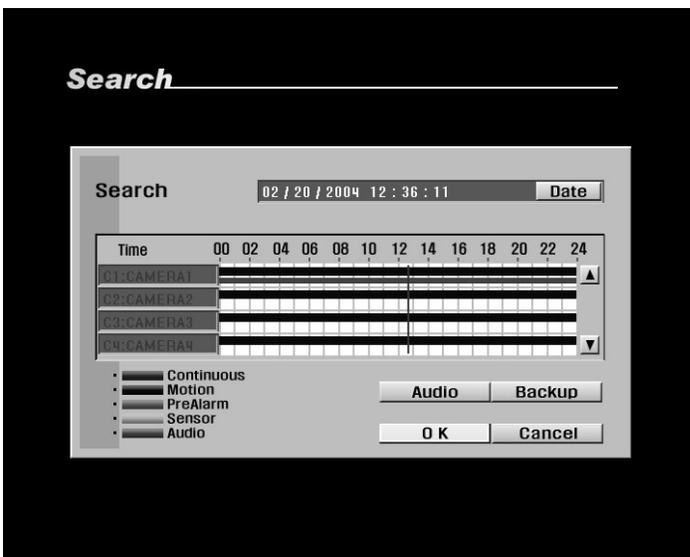


[Figure 5-1. Password screen]

- Use the **number** keys to enter the correct 4-digit password, then press **Enter** (The system has no password under factory settings).
- If you forget your password, you will not be able to access Search or Setup mode, or change your password. We strongly recommend that you write your password and keep it somewhere safe.
- See page 48 for instructions on how to change password.
- To return to Surveillance mode, press **Search** button again.

### 5.2 Search mode display

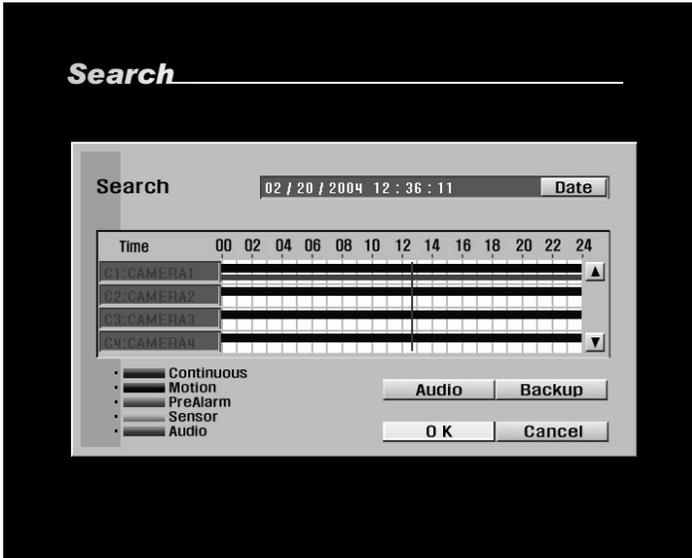
After you enter the correct password, Search mode display will appear as shown below. You can select different options using the **mouse** or the **directional** keys.



[Figure 5-2. Search mode display]

- In Search mode display, you can select the year/month/day, time, and the camera channels you wish to view.
- To choose the date you wish to view, select the [Date] button. This will display a calendar. From there, select the date you wish to view (see pages 34 for details).
- The recording for each camera will be displayed in the time graph.
- If a camera is connected to Audio input, the system will play both video and audio at the same time.
- After selecting the year/month/day/time and camera number, press [OK] button to view the recording.
- When the system is playing the recording, you can enlarge a channel into fullscreen (see page 37 for details).
- Press the [Up] and [Down] (  ) arrow buttons to scroll the time graph up and down.

5.2.1 Graph color display



• Recorded data shown on the time graph will be displayed in different color depending on the recording type (see table 5-1).

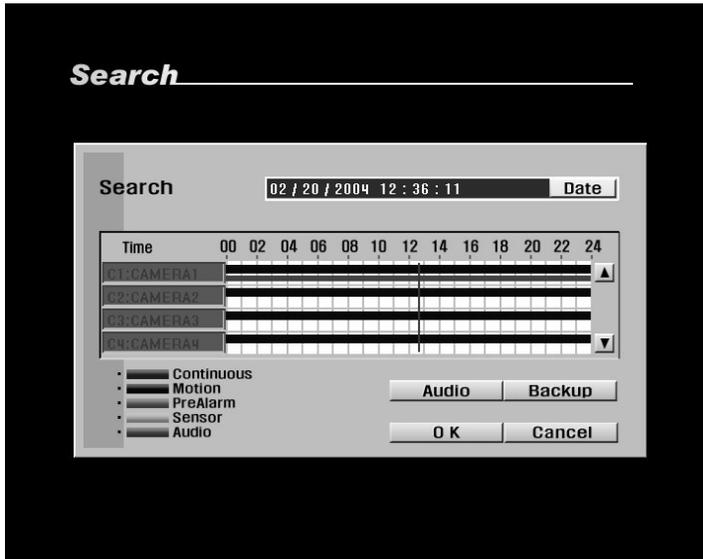
[Figure 5-3. Graph color display]

Color	Description	Display
• Purple	Continuous Recording	
• Blue	Motion-detection Recording	
• Green	Pre-alarm Recording	
• Orange	Sensor Recording	
• Red	Audio Recording	

[Table 5-1. Graph color description]

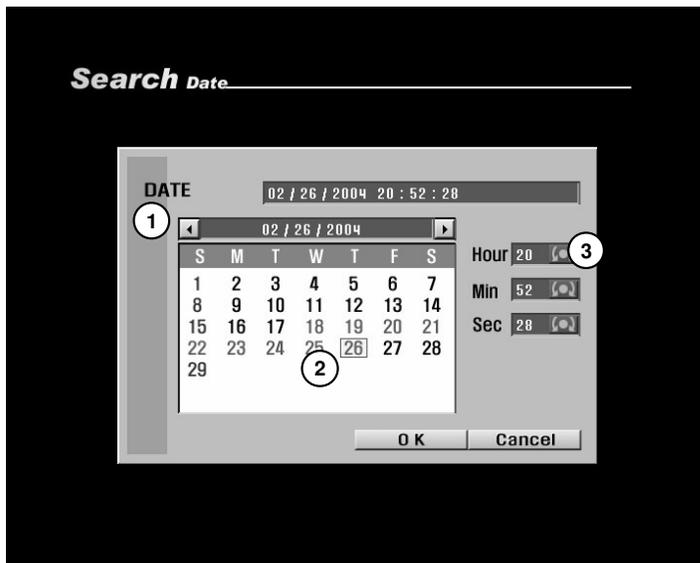
### 5.3 Selecting date and time

#### 5.3.1 Selecting date



[Figure 5-4. Selecting [Date] button]

• To select the date you wish to view, use the **directional** keys to select [Date] button, then press **Enter**. This will display a calendar (refer to page 18 for information on system keys).



[Figure 5-5. Calendar display]

① [Changing Year/Month]

• Press the arrow buttons (  ) the calendar to change year/month.

[Selecting Date]

② • Use the **directional** keys to select the date and press **Enter**.

• Dates containing recorded data is displayed in orange color (see table 5-2 for color descriptions).

[Selecting Hour/Minute/Second]

• Use the **shuttle** on the system or the **mouse wheel** to change hour/minute/second.

③

**[Note] Jog and Shuttle Keys**

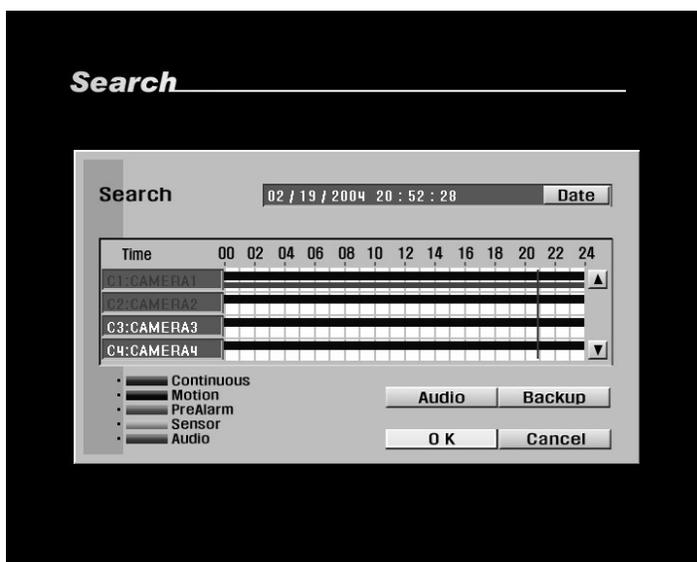
- **Jog** Key: Changes hour/minute/second or any other setup value one unit at a time.
- **Shuttle** Key: Changes hour/minute/second or any other setup value quickly.

Color	Description	Example
• Orange	Date With Recorded Data	10
• Red	Holidays/Weekends	10
• Black	Date without Data	10
• Yellow Box	Selected Date	
• Blue Box	Cursor Location	10
		10

[Table 5-2. Calendar date colors]

- After selecting the date you wish to view, press the [OK] button to return to Search mode display. The system will display the selected date's recording in the time graph.

### 5.3.2 Selecting cameras and changing graph bar line



[Figure 5-6. Selecting cameras and graph bar line]

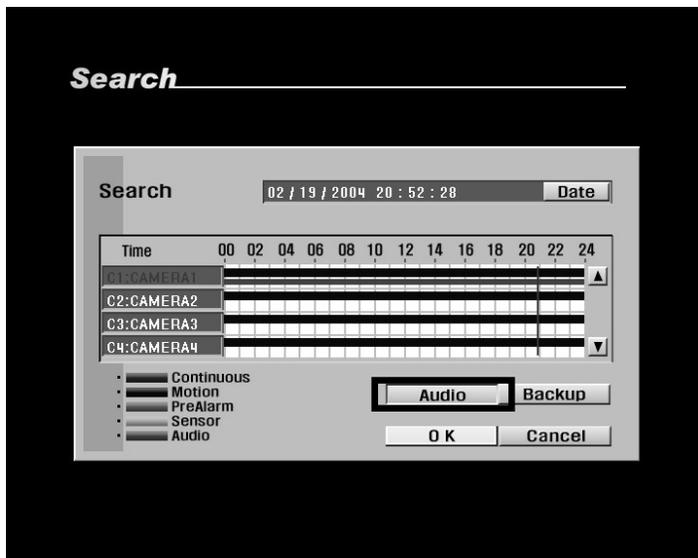
[Selecting cameras]

- Use the **mouse** or the **directional** keys to select cameras from the graph. Once done, when you press [OK] button, the system will display the selected cameras' recording.

[Changing graph bar line]

- To shift the graph bar line, use the **shuttle** on the system or the **mouse wheel** to shift the bar left or right. Shifting the graph bar line will change the time of the recording you will view.

### 5.3.3 Audio Output



[Figure 5-7. Selecting audio]

[Audio]

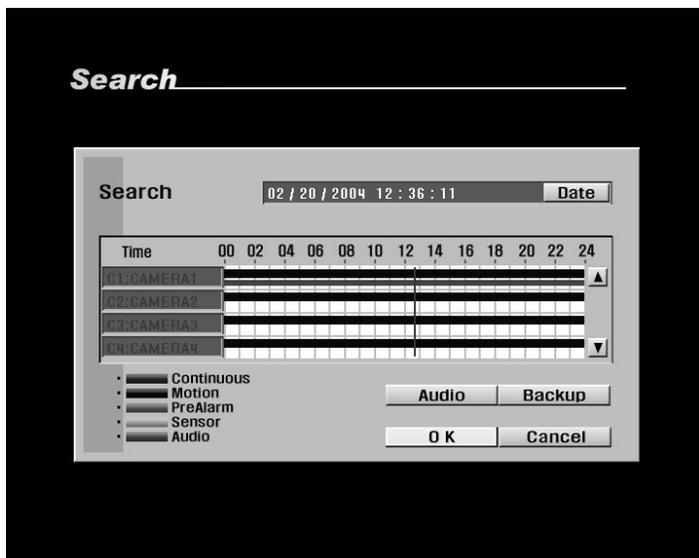
- The system can play the recorded video with sound, provided an audio recording device is connected to a channel.
- To play the recording with sound, use the **mouse** or the **directional** keys on the system to select [Audio] button, then press **Enter**. Once selected, you will hear sound when the system plays the recording.



#### [Note]

- You can only connect audio recording to one channel.
- When [Audio] button is selected, you can only play the recording of one channel. Select the channel with audio recording to hear sound.
- You can connect the audio input into any of the 16 camera channels.

### 5.3.4 Playing the recording



[Figure 5-8. Search mode display]

[Playing Recorded data]

- After selecting the date, time, and the cameras, press [OK] button to play the recording using the **mouse** or the **Enter** key.

[Enlarging a channel]

- To enlarge a channel during playback, use the **number** keys 1~16 on the system to select the channel you wish to enlarge.
- When a channel is selected, use **▲▼** (**zoom in/zoom out**) keys to increase or decrease the screen size.

[Changing playback speed]

To play the recording, press or button.

(Reverse Play) : Play the recording in

reverse. When pressed again, the recording will play faster.

(Forward Play) : Play the recording

forward. When pressed again, the recording will play faster.

(Pressing the **play** button during fast play or reverse play will return the playback speed to normal forward play.)

[Returning to Search mode display]

- To return to Search mode display, press the **Enter** button.



[Figure 5-9. Search mode playback]

	Move to the very beginning of the date's recording
	Reverse Play
	Stop
	Forward Play
	Move to the very end of the date's recording.

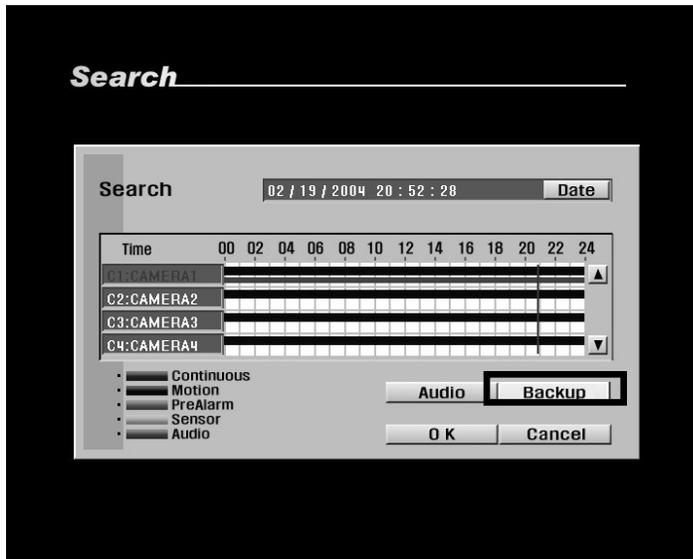
[Table 5-3. Search mode playback buttons]

## 6. Backup

### 6.1 Saving backup into local drive

- From Search screen display, select [Backup] button to save a backup copy of the recording using the system's CD-RW, USB HDD, or a portable hard drive such as USB memory stick. The backup files can be saved as AVI, BMP, JPEG, or KDB formats.

#### 6.1.1 Still Image backup



[Figure 6-1. Selecting [Backup] button]

- When the system is playing the recording, press **Pause** to select the frame you wish to save, then press **Enter** (see page 37 for playback controls).

- As shown in Figure 6-1, press [Backup] button to view backup options display (Figure 6-2).

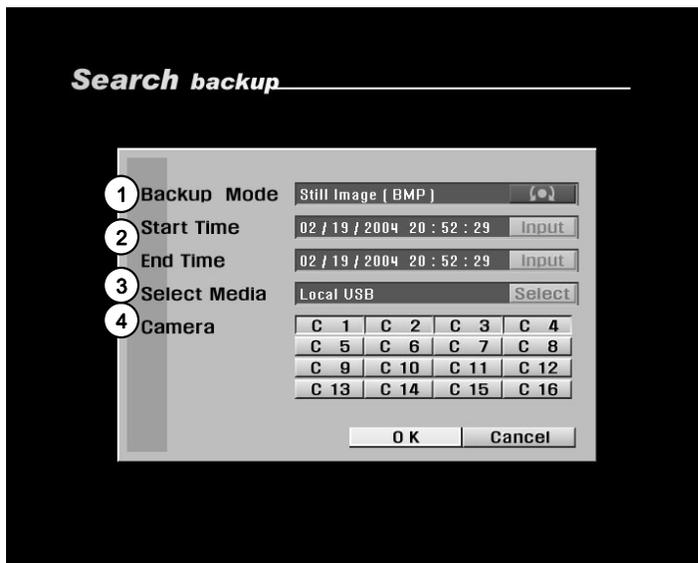
#### ① [Backup mode – Still Image]

- To select BMP or JPEG backup mode, use the **mouse wheel** or the **directional** keys to highlight [Backup Mode] then use the **jog/shuttle** to change the option.

#### ② [Start Time] and [End Time]

- Select the starting time and ending time of the recording you wish to save.

- When Still Image mode is selected, [Start Time] and [End Time] will indicate the time the selected frame is recorded. [Input] button will be disabled.



[Figure 6-2. Backup options display]

#### ③ [Select Media]

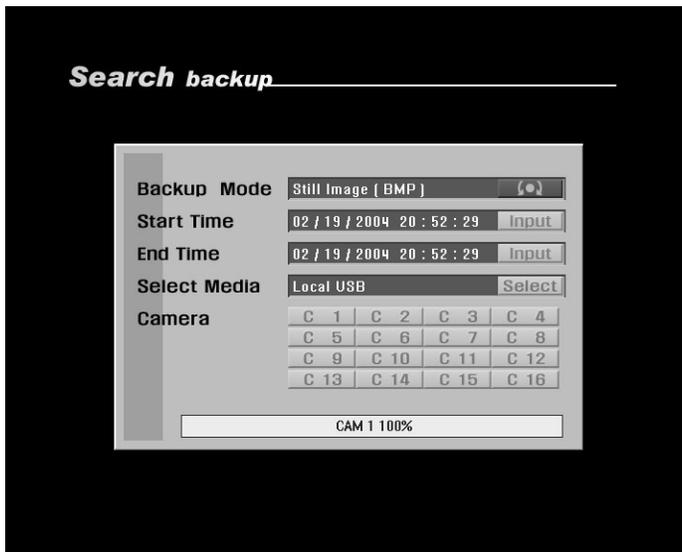
- Select the media used for saving backup.

- When Still Image mode is selected, you can only choose Local USB drive.

#### ④ [Camera]

- Select the camera number that contains the recording you wish to save.

- When Still Image mode is selected, you can only choose cameras that were selected in Search mode display. Camera channels that does not contain any data will also be disabled.



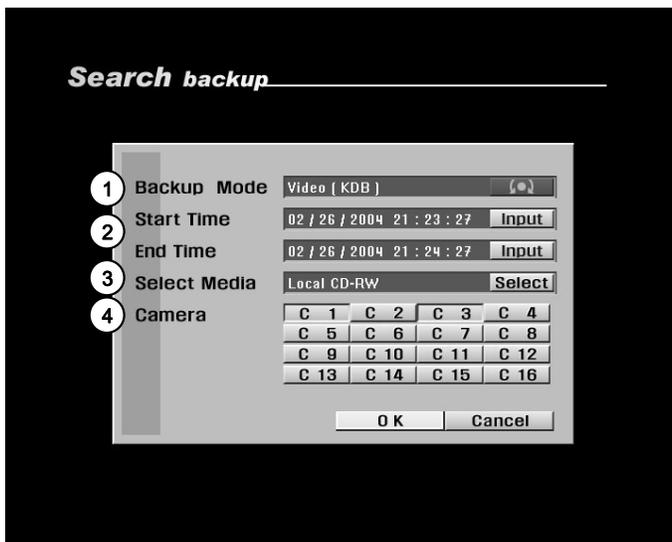
[Figure 6-3. Backup progress bar]

- Press [OK] button to begin backup. You will see the backup progress through the progress bar.
- When no USB drive is connected, the system will return to Search mode display.
- Once backup is complete, the system will return to Search mode display.

① [Backup mode – Video]

- To select KDB or AVI backup mode, use the **mouse** or the **directional** keys on the system to highlight [Backup mode], then use the **mouse wheel** or the **jog/shuttle** to change the option.

### 6.1.2 Video backup



[Figure 6-4. Backup options display]

② [Start Time] and [End Time]

- Select the starting time and ending time of the recording you wish to save.
- To change the [Start Time] and [End Time], use the **mouse** or the **directional** buttons to highlight [Input] button, then click **left mouse button** or press **Enter** (see page 40 for details).

③ [Select Media]

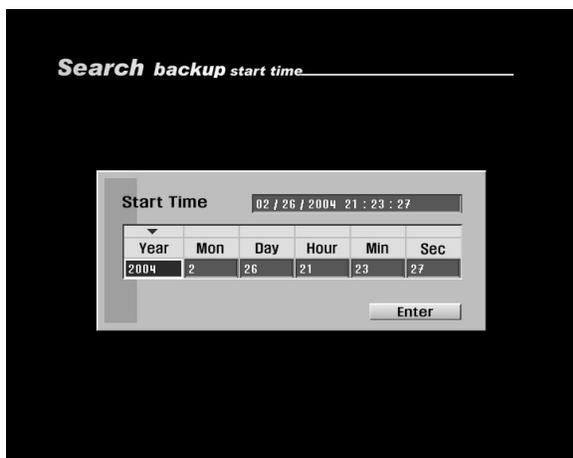
- Select the media used for saving backup.
- Press the [Select] button to choose different media types (see page 40 for details on selecting Local Drive backup).

④ [Camera]

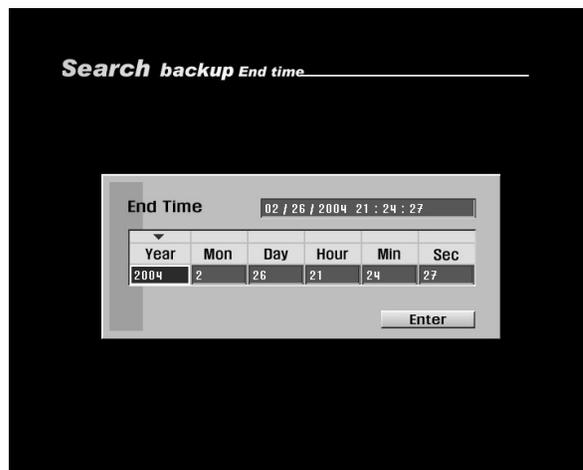
- Select the camera number that contains the recording you wish to save.
- When saving backup in KDB format, you can select multiple camera channels.
- When saving backup in AVI format, you can only select one camera channel.
- When saving backup in Video mode, you will see  displayed on the corresponding camera channels in Surveillance mode.

**[Note]**

- To play a backup file saved in AVI format, the latest DivX Codec must be installed to the PC you are using. If you do not have DivX Codec installed, please use the Internet resources to download the required Codec.
- KDB backup enables to backup the video with audio data. However, the other types of backup such as AVI, BMP, JPG do not include audio.
- When the is archived to CD-RW in KDB format the viewer will be copied together automatically. (For more information on the viewer program please refer to page 96.)



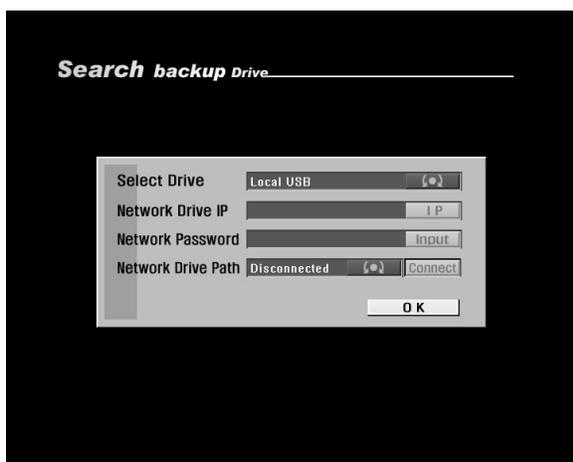
[Figure 6-5. Start Time]



[Figure 6-6. End Time]

[Start Time] and [End Time] setup

- To select [Start Time] and [End Time], use the **mouse** or the **directional** keys to select the year/month/day and hour/minute/second, then use the **mouse wheel** or the **shuttle** to select the time the recording you wish to save was recorded.
- Select [OK] button to apply the select time.



[Figure 6-7. Selecting Local Drive]

[Selecting Media – Local USB, Local CD-RW]

- Use the **mouse wheel** or the **jog/shuttle** to select Local USB, Local CD-RW, or Remote Drive.
- To save backup using a local drive, select Local USB or Local CD-RW (see page 42 for remote backup).
- Memory devices you can connect through the USB port include USB Hard Disk Drive and USB memory stick. When saving backup using Local USB, the system will automatically scan for the connected USB drive.



**[Note] Supported USB versions**

- DW716 support USB 1.1 and USB 2.0 device is also supported in USB 1.1 speed.
- Recommended USB portable Hard Disk Drives include Iomega and Noble.
- It is possible to burn the image data onto CD-RW or CD-R media up to 100 times, but it varies depending on the image size.



[Figure. 6-8. Message of storage space shortage]

[Storage space shortage]

- When the storage space for USB HDD or memory, CD-RW is short of warning message will be shown as left.

- A window will appear to ask whether to change backup media or not.

- [Yes]

Backup will start when you click [Yes] after changing the backup media.

- [No]

Backup will not progress when you click [No] and will go to the previous menu.

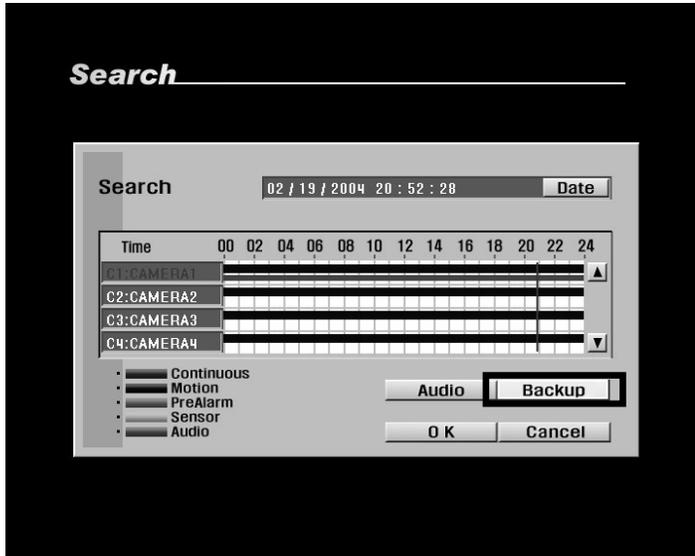
 **[Notice]**

- Recording speed might be slower when the backup using USB HDD, CD-RW, or remote backup is going on.
- Do not plug out the USB cable or turn off USB devices during backup. It may cause a problem in the system.

## 6.2 Saving backup using remote drive

### 6.2.1 Remote backup

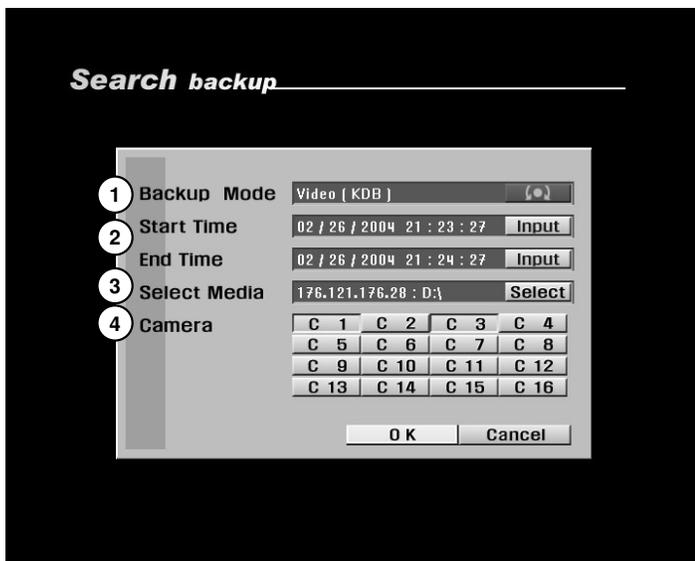
- From Search screen display, select [Backup] button to save a backup copy of the recording using a remote drive. The backup files can be saved as AVI, BMP, JPEG, or KDB formats.



[Figure 6-9. Selecting [Backup] button]

- 1 [Backup mode – Video]
  - To select KDB or AVI backup mode, use the **mouse** or the **directional** keys on the system to highlight [Backup mode], then use the **mouse wheel** or the **jog/shuttle** to change the option.
  - You can only select Video mode when saving backup using a remote drive.

- 2 [Start Time] and [End Time]
  - Select the starting time and ending time of the recording you wish to save.
  - To change the [Start Time] and [End Time], use the **mouse** or the **directional** buttons to highlight [Input] button, then click **left mouse button** or press **Enter** (see page 43 for details).



[Figure 6-10. Backup options display]

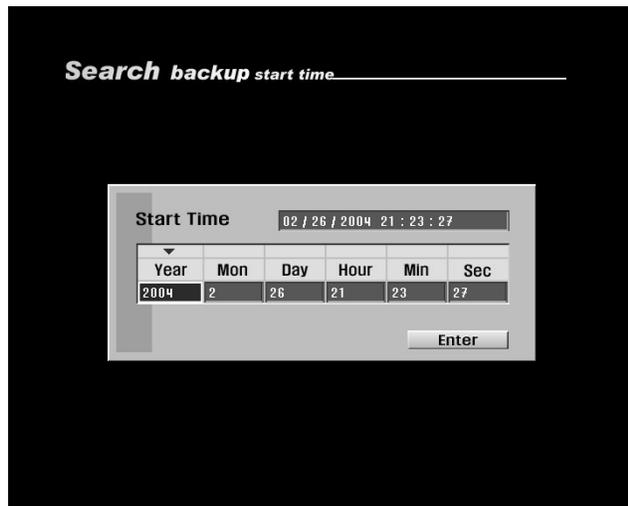
- 3 [Select Media]
  - Select the media used for saving backup.
  - Press the [Select] button to choose different media types (see page 43 for details on selecting Remote Drive backup).

- 4 [Camera]
  - Select the camera number that contains the recording you wish to save.
  - When saving backup in KDB format, you can select multiple camera channels.
  - When saving backup in AVI format, you can only select one camera channel.
  - When saving backup in Video mode, you will see   
 displayed on the corresponding camera channels in Surveillance mode.

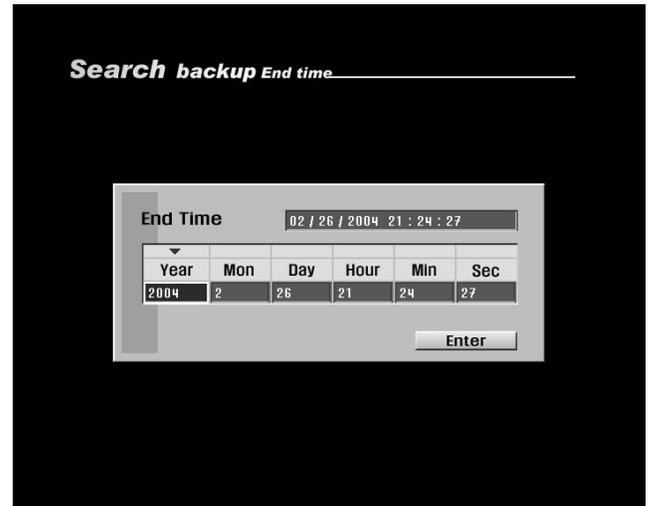


**[Note]**

- When saving a backup in Still Image mode, you cannot select Remote Drive backup.



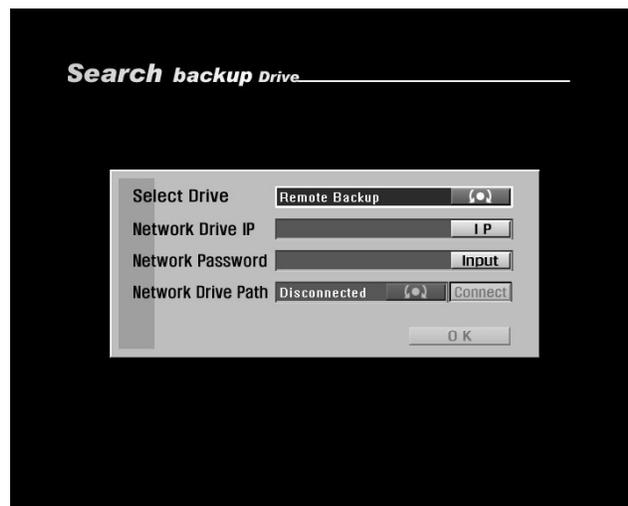
[Figure 6-11. Start Time]



[Figure 6-12. End Time]

[Start Time] and [End Time] setup

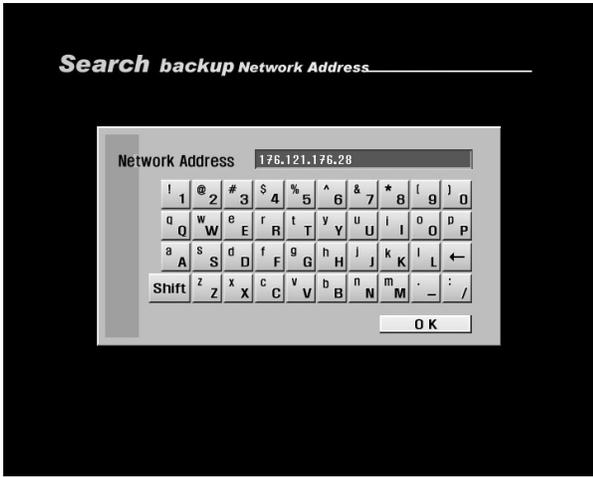
- To select [Start Time] and [End Time], use the **mouse** or the **directional** keys to select the year/month/day and hour/minute/second, then use the **mouse wheel** or the **shuttle** to select the time the recording you wish to save was recorded.
- Select [OK] button to apply the select time.



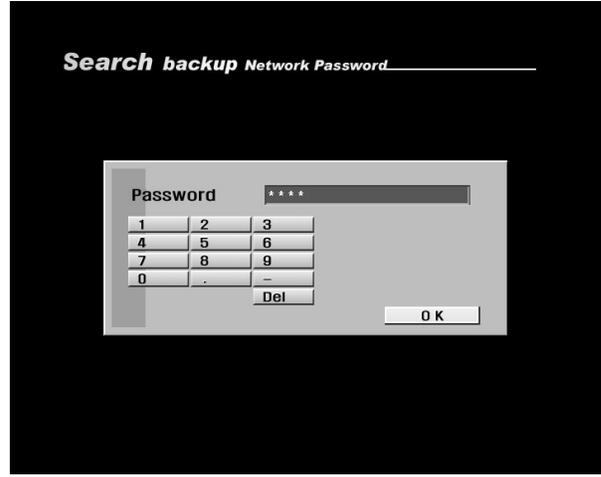
[Figure 6-13. Remote Drive setup]

[Select Media – Remote Drive]

- Use the **mouse wheel** or the **jog/shuttle** to select Local USB, Local CD-RW, or Remote Drive.
- If the system is connected through LAN or Internet line, you can save a remote drive backup by entering the correct IP address.
- When saving a remote drive backup, the receiving PC or fileserver must have Center Program installed with Backup Server Program running.
- To save a remote drive backup, you will need the IP address and the password of the receiving PC or fileserver.
- To enter IP address and password, use the **directional** keys to highlight [Input] button, then press **Enter**.



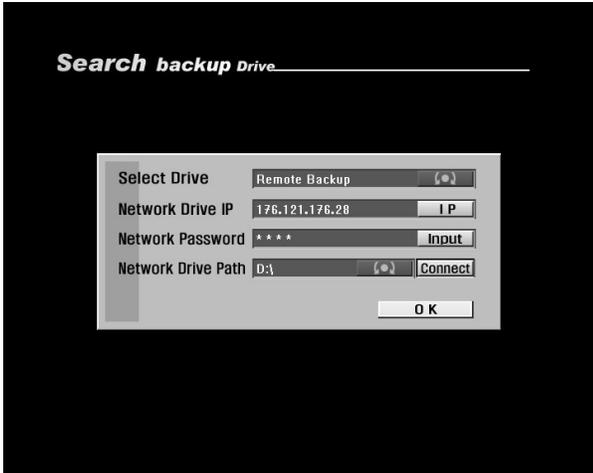
[Figure 6-14. Entering IP]



[Figure 6-15. Entering password]

[Network Drive IP] and [Network Password]

- To enter the Network Drive IP address and Network password, use the **mouse** or the **directional** keys and **Enter** button to select the numbers and letters. Press [OK] button to apply the selected IP address and password.



[Figure 6-16. Remote drive setup]

[Connecting]

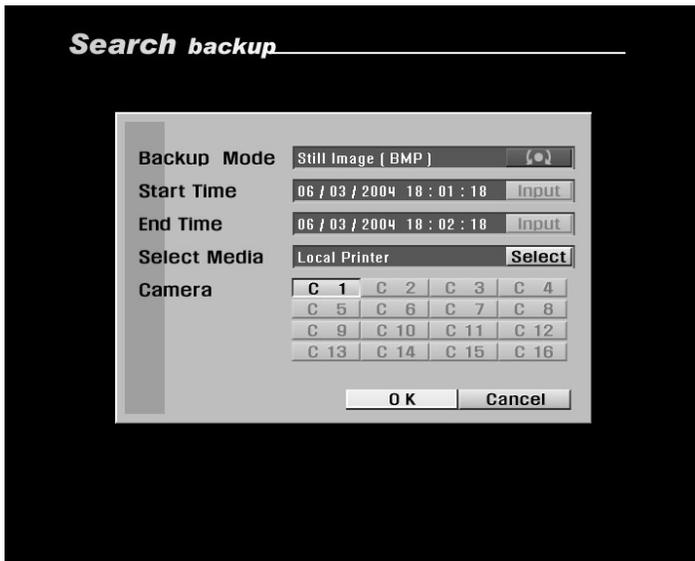
- Press the [Connect] button to connect the system to the receiving PC or fileserver in order to save a remote drive backup. Once connected, you will be able to select Network Drive path.
- Depending on the connection status, the system will display either "Connect", "Disconnect", or "Connect fail" message.

## 6.3 Printing image

- It is possible to print out the recorded image using the printer that supports PostScript. Choose the camera to print out while playing back the recorded and press [OK].

If you click [Backup] button in the search screen below image will appear.

### 6.3.1 Printing still image



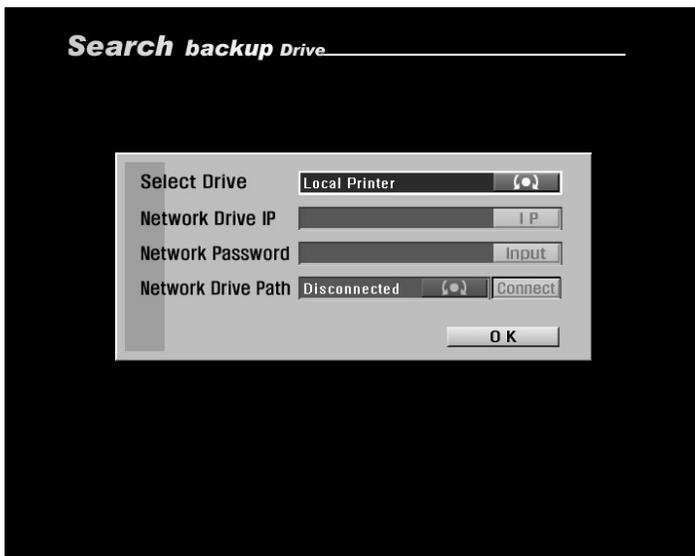
[Figure 6-17. Backup options display]

- 1 [Save image]
  - Select BMP or JPEG to print out in still image.
  - Backup method can be selected by moving mouse pointer over backup mode menu and rolling wheel or using directional keys in the DVR.

- 2 [Start Time] and [End Time]
  - The time of the paused image will be shown.
  - When Still Image mode is selected, [Start Time] and [End Time] will indicate the time the selected frame is recorded. [Input] button will be disabled.

- 3 [Select Media]
  - Use the **mouse** or the **directional** keys on the system to print a still image and then click **left mouse button** or press **Enter**
  - Select Local Printer

- 4 [camera]
  - Select the camera number that contains the recording you wish to save.
  - When printing out in BMP or JPEG only selected cameras during playback will be activated.



[Figure 6-18. Printer setup]

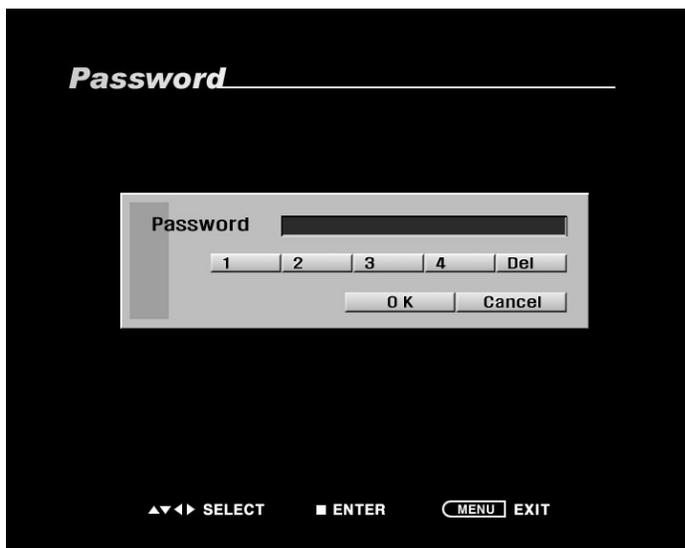
[Local Drive-Local Printer]

- Use the **mouse wheel** or the **jog/shuttle** on the system to select Local Printer and press [OK] button.

## 7. System Setup

### 7.1 Accessing Setup mode

To access Setup mode, press **Setup** button on the system. You will then be asked to enter password as shown below:



[Figure 7-1. Password screen]

- Use the **number** keys to enter the correct 4-digit password, then press **Enter** (The system has no password under factory settings).
- If you forget your password, you will not be able to access Search or Setup mode, or change your password. We strongly recommend that you write your password and keep it somewhere safe.
- See page 48 for instructions on how to change password.
- To return to Surveillance mode, press **Search** button again.

### 7.2 Setup menu

After you enter the correct password, Setup menu will appear as shown below. You can select different options using the **mouse** or the **directional** keys.



[Figure 7-2. Setup menu]

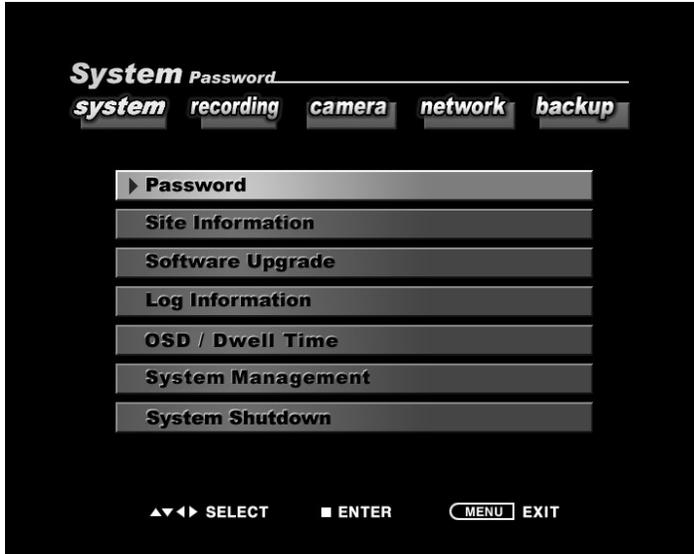
- You can change various system functions in Setup Mode to customize the system's recording setting.
- See table 7-1 for brief outline of the settings you can change.
- To return to Surveillance mode, press **Menu** button or click **right mouse button**.

Main Menu	Setting Options	Description
• System Setup	Password	Change and set system password.
	Site Information	Change site code, date display type, and time.
	Software Upgrade	Update system program
	Log Information	Show recorded log information
	OSD/Dwell Time	Turn OSD on/off, and set automatic channel rotation setting
	System management	Change system hardware settings
	System Shutdown	Shutdown or restart the system
• Recording Setup	Recording setup	Set brightness, frame rate, and audio recording.
	Motion Detection	Set motion detection area and beep sound of each camera.
	Recording Schedule	Select recording mode and set camera schedule.
	Quality / Resolution	Set the recording channel size and resolution.
• Camera Setup	Camera Name	Change camera name.
	P/T/Z Model	Select Pan/Tilt camera model.
	Sensor Setting	Set sensor connection to the system.
	Sensor/Control link	Change sensor and control connection and options.
	Sensor/Camera link	Change sensor and camera connection and options.
	Network	Select network type.
• Communication Setup		
	ID/PASSWORD	Logging in ADSL require ID/PASSWORD.
	Site IP	Enter IP address of the system.
	Subnet Mask	Enter subnet mask address of the system.
	Gateway	Enter gateway address of the system.
	Center IP	Enter IP address of the Center PC.
	Center Telephone Number	Enter telephone number of the Center PC.
	Transfer Time	Change the time the system transfers data when alarm sensors are triggered.
	Alarm Sensor	Select the alarm sensors.
• Backup Setup	Backup Schedule	Setup automatic backup schedule

[Table 7-1. Setup menu options]

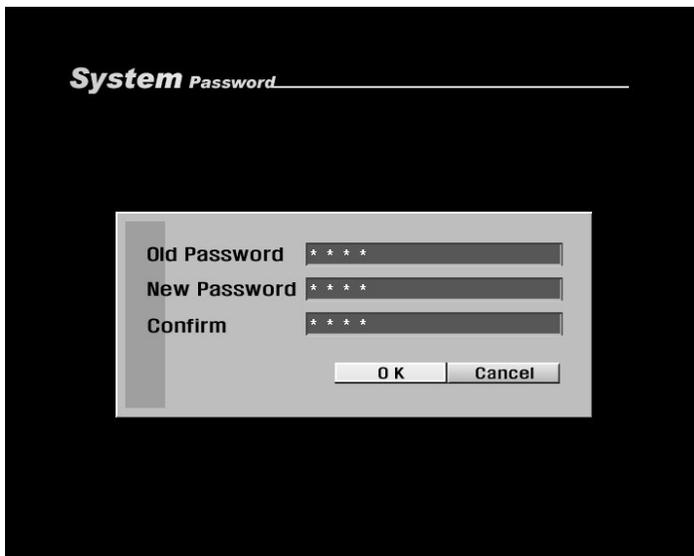
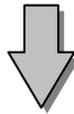
## 7.3 System Setup

### 7.3.1 Password



[Figure 7-3. Password Setup]

- Select [Password] in system Setup menu to change password.



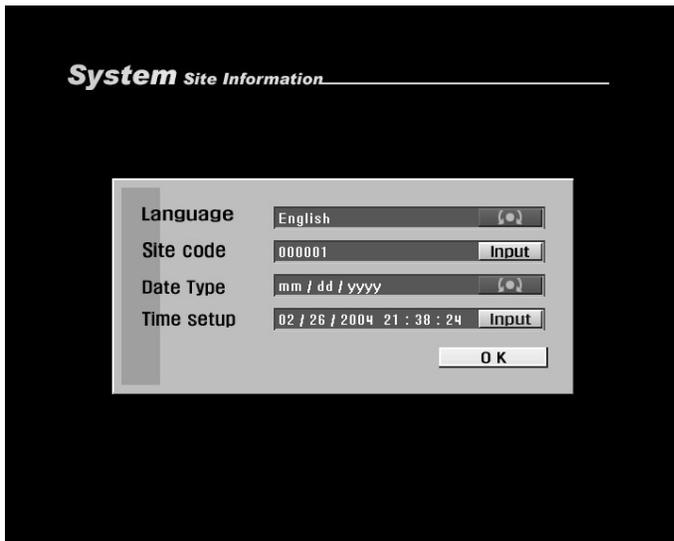
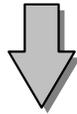
[Figure 7-4. Password setup]

- To change password, enter the correct [Old Password], then enter [New Password] and [Confirm] by entering the new password again. Then select [OK] button to apply the new password.

## 7.3.2 Site Information



[Figure 7-5. Site Information]



[Figure 7-6. Site Information setup]

- In [Site Information], you can change the [Site Code], [Date Type], and [Time Setup] options.

[Language]

- Select the language you wish to use.

[Site Code]

- You can assign an ID code to the system to make it recognizable when multiple systems are connected through network (see page 47 for details).

[Date Type]

- You can change the date display format (see page 50 for details).

[Time Setup]

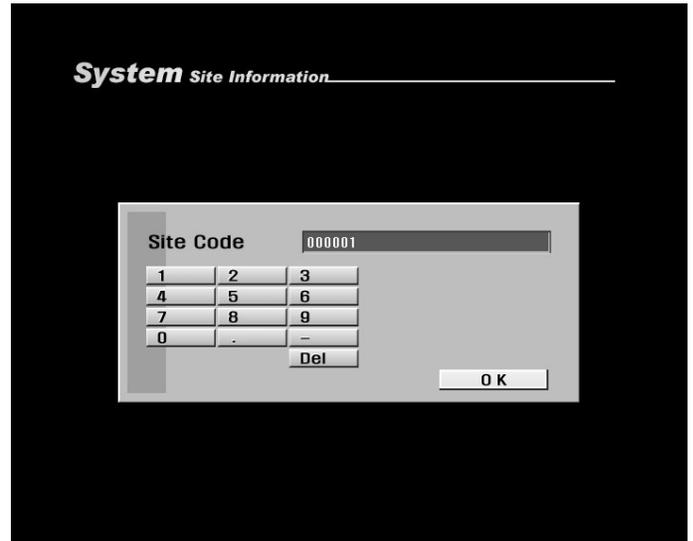
- You can change the date and time (see page 49 for details).

**[Note]**

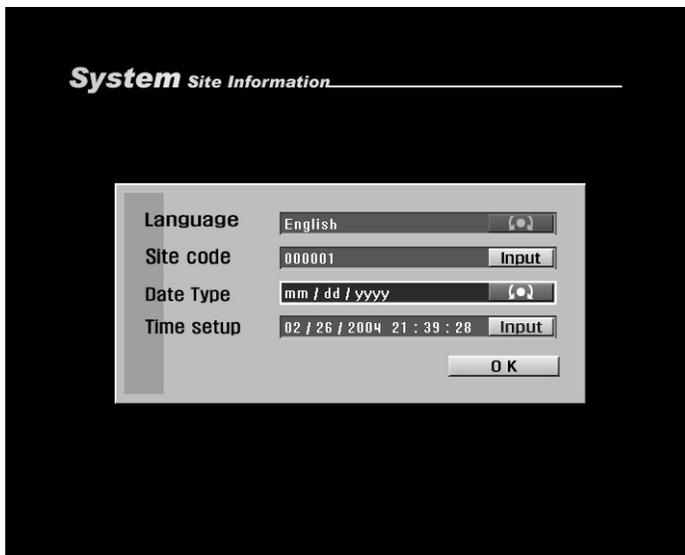
- This system is equipped with high performance crystal clock and might have 20 ppm of time difference. Therefore, it might have a little bit of time difference from the international standard time. Please make sure to check the time in case of long duration. For detailed time adjustment manual refer to the manual.

[Site Code]

- You can assign an Site code to the system to make it recognizable when multiple systems are connected through network.
- The Site Code is comprising 6 digits including numbers and “-” (dash) symbol. When entering Site Code, you can enter a maximum of 6 digits.
- Use the **mouse** or the **directional** keys to type in the Site Code. Once you select [OK] button, the new Site Code will apply immediately.



[Figure 7-7. Side Code setup]



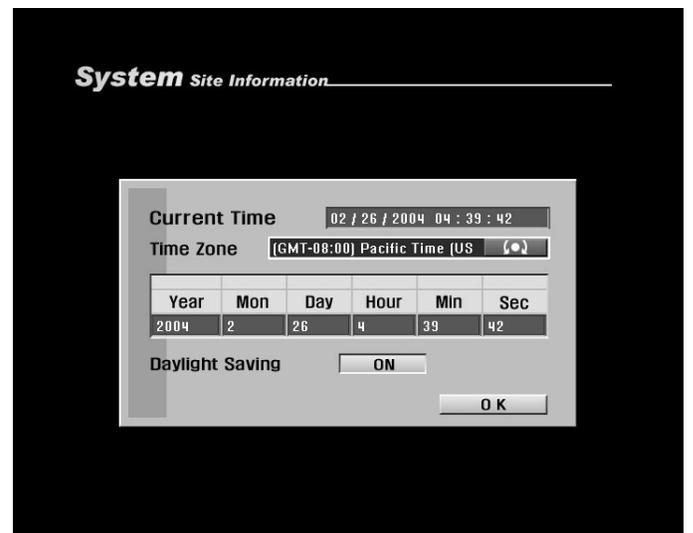
[Figure 7-8. Date Type setup]

[Date Type]

- You can change the date display format.
- Available date format is listed below:  
yyyy/mm/dd, yyyy-mm-dd, yyyy.mm.dd  
mm/dd/yyyy, mm-dd-yyyy, mm.dd.yyyy  
dd/mm/yyyy, dd-mm-yyyy, dd.mm.yyyy

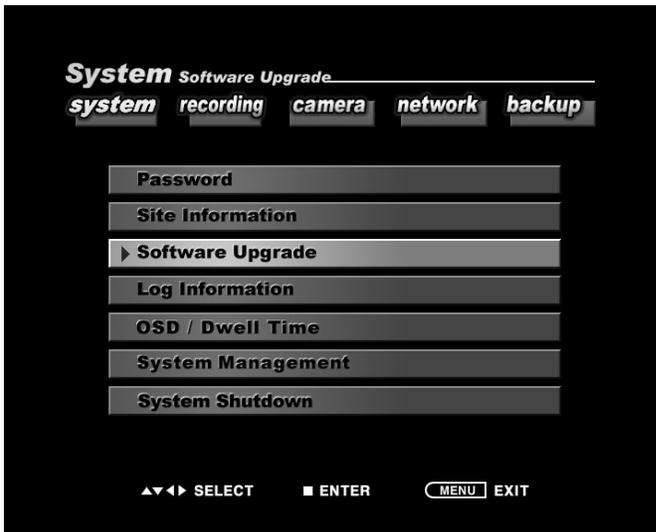
[Time Setup]

- You can change the date and time.
- Check the time zone of your region, then use the **mouse wheel** or the **jog/shuttle** to set the [Time Zone].
- To change year/month/day and time, use the **mouse** or the **directional** keys on the system to highlight the option you wish to change, then use the **mouse wheel** or the **jog/shuttle** to change the option. If Daylight Saving applies in your region, select the [Daylight Saving] option.

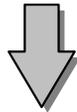


[Figure 7-9. Date/Time setup]

## 7.3.3 Software Upgrade



[Figure 7-10. Software Upgrade]



[Figure 7-11. Software Upgrade menu]

- In [Software Upgrade] menu, you can update your system program to improve system performance and/or functions.

[Package Select]

- You can upgrade the system program by using a portable storage device. Connect the storage device containing an upgrade package to the USB port, then press [Select]. The system will display the available upgrade packages in a table.

[Upgraded Version]

- After a portable storage device is connected, you can select the [Upgrade Version] using the **mouse wheel** or the **jog/shuttle** on the system.

[Current Version]

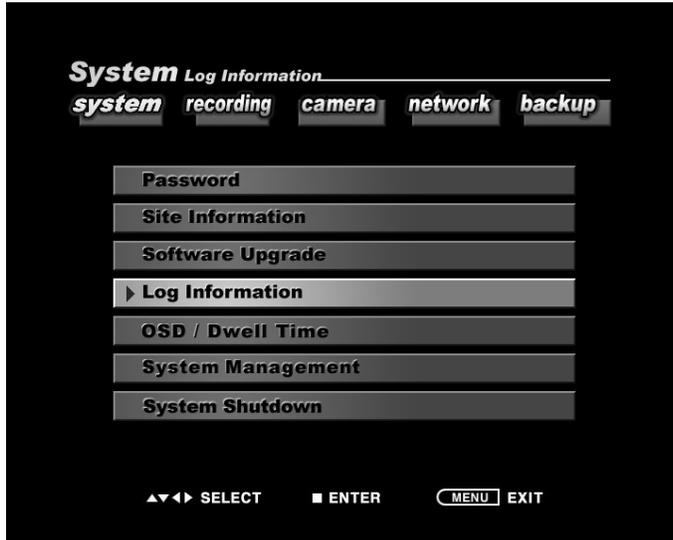
- You can view the current system program version.
- Check to make sure the upgrade package version is better than the current version, then select [Start] to begin the upgrade.



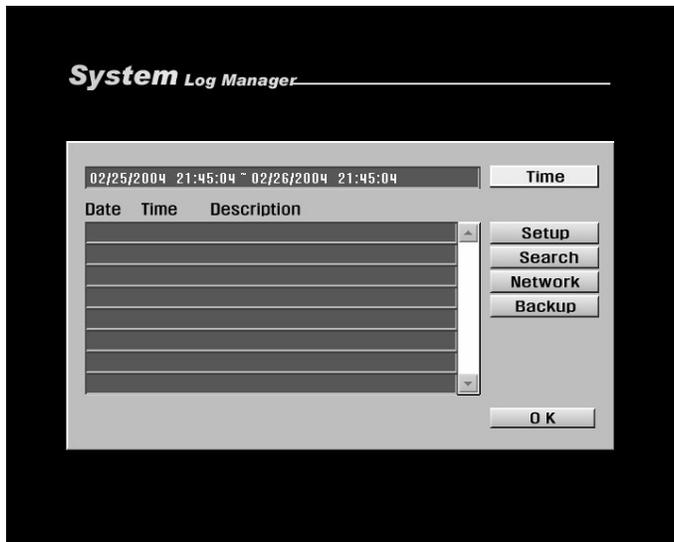
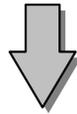
## [Caution]

- When upgrading is in progress, do not switch off the system or unplug the portable storage device containing the upgrade package until the upgrade is complete. Otherwise, the system may malfunction.

7.3.4 Log Information



[Figure 7-12. Log Information]



[Figure 7-13. Log Information]

- In [Log Information] menu, you can view the log information on Setup history, Search history, network connection history, and backup history.

[Time]

- Displays selected date and time.

[Setup]

- Displays log information on any changes made to Setup menu.

[Search]

- Displays log information on Search history.

[Network]

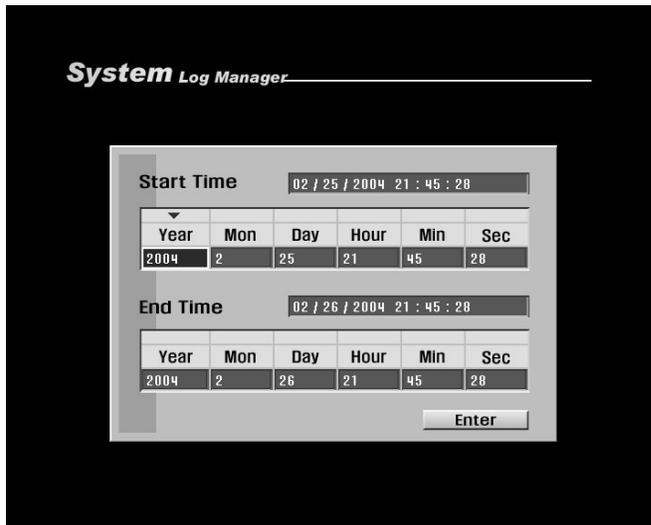
- Displays log information on network connection history.

[Backup]

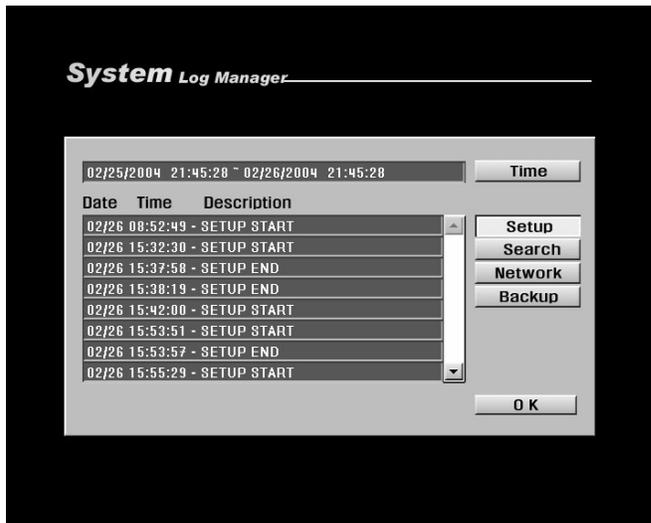
- Displays log information on backup history.

[OK]

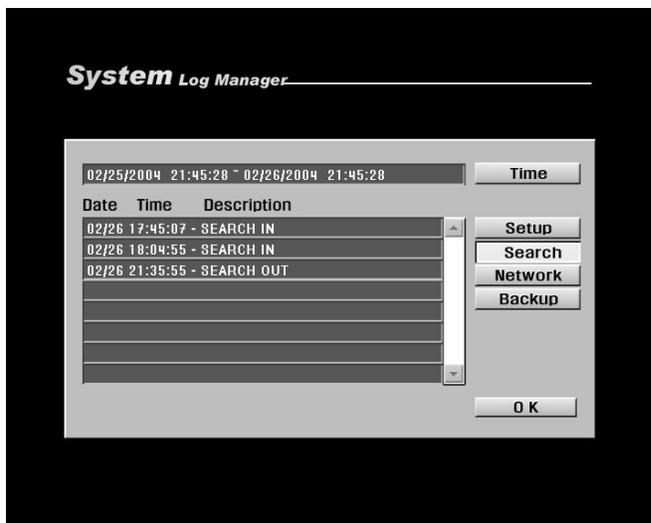
- Select [OK] button to return to Setup menu.



[Figure 7-14. Selecting Time]



[Figure 7-15. Log Information – Setup history]



[Figure 7-16. Log Information – Search history]

[Time]

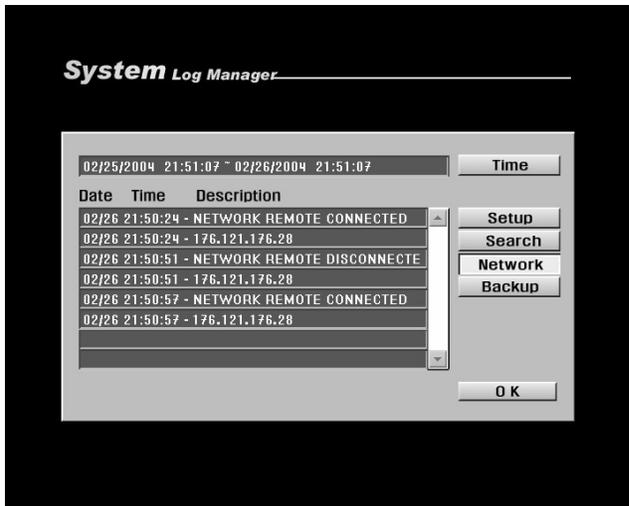
- Select [Time] to change time to view log information recorded on different date/time.
- Change [Start Time] and [End Time] using the **mouse** and **mouse wheel** or the **directional** keys and the **jog/shuttle**, then press [OK] button. The system will display the log information recorded during this period.

[Setup]

- The system records the date and time Setup mode is accessed whenever changes are made to the system Setup.
- Select [Setup] button to view the log information on Setup mode history. You will see "SETUP START" when Setup mode was accessed and "SETUP END" when Setup mode was exited.

[Search]

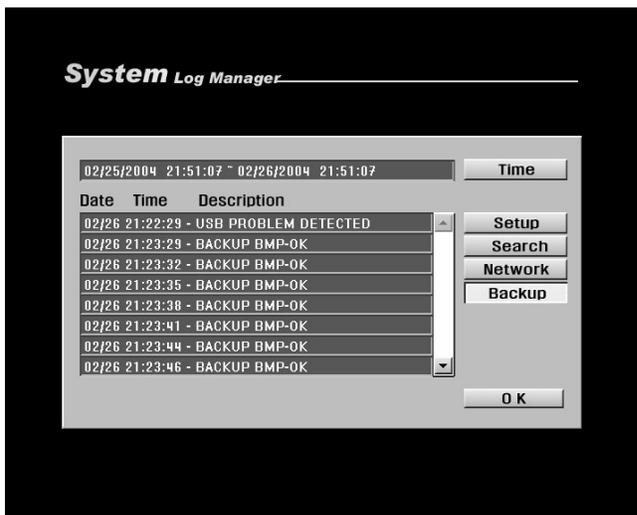
- The system records the date and time whenever Search mode is accessed for viewing the recording.
- Select [Search] button to view the log information on Search mode history. You will see "SEARCH IN" when Search mode was accessed and "SEARCH OUT" when Search mode was exited.



[Figure 7-17. Log Information – Network connection history]

[Network]

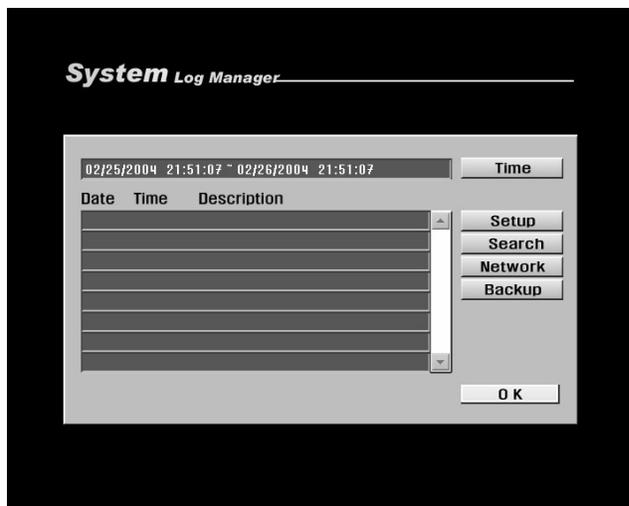
- Whenever the system is connected through network by remote Center program, the system will record the IP address and the date and time the connection is made.



[Figure 7-18. Log Information – Backup history]

[Backup]

- Whenever the system saves a backup, it records the date, time, and the location of the backup saved.

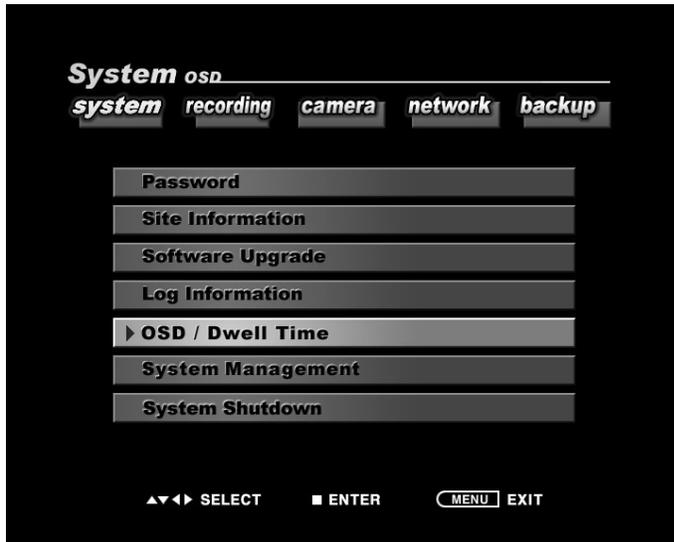


[Figure 7-19. Exiting Log Information menu]

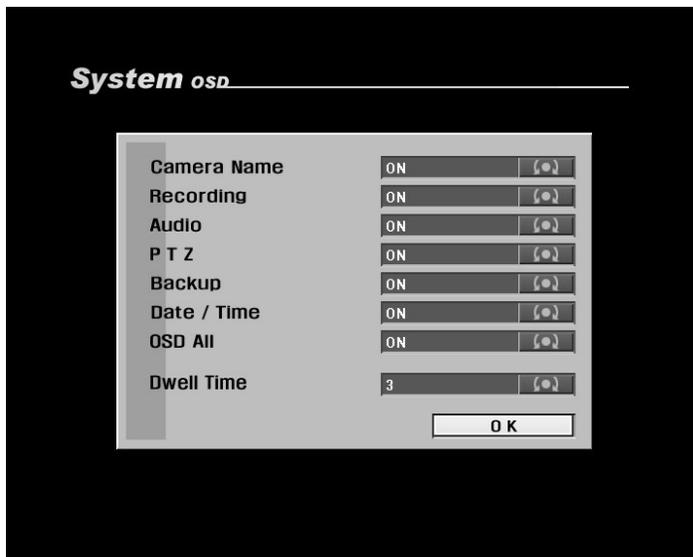
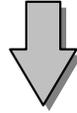
[OK]

- Select [OK] button to return to Setup menu.

## 7.3.5 OSD/Dwell Time



[Figure 7-20. OSD/Dwell Time]



[Figure 7-21. OSD/Dwell Time setup]

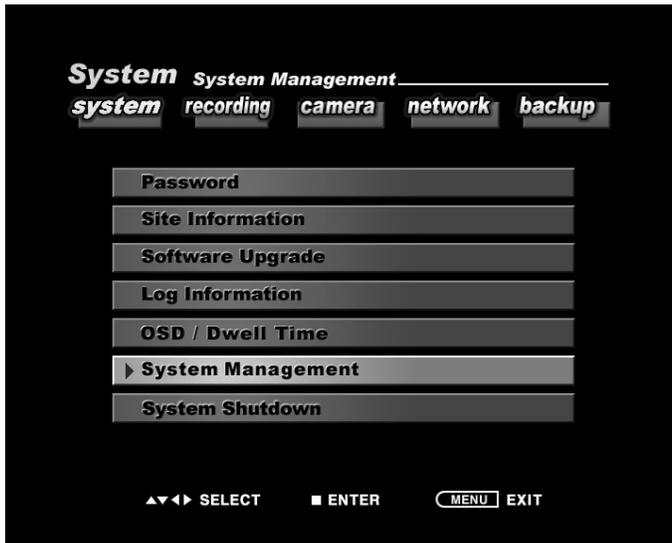
- You can change the options on OSD – On Screen Display – and Automatic channel rotation.

- You can turn the display settings in Surveillance mode on or off, such as [Camera Name], [Recording], [Audio], [P/T/Z], and [Date/Time] displays.

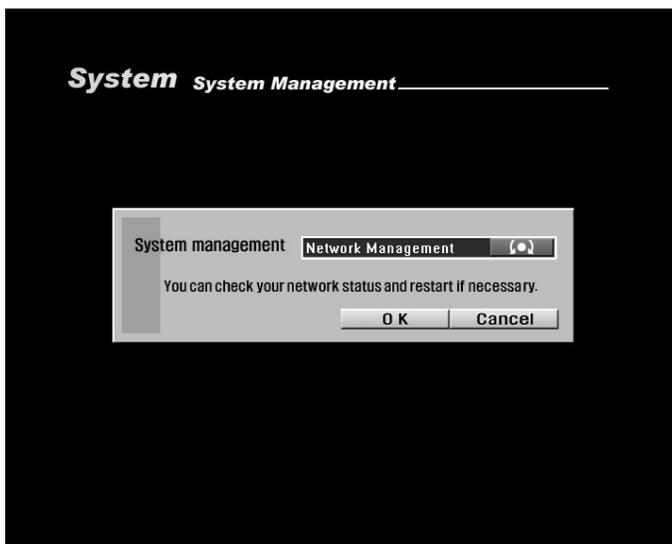
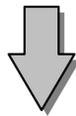
- Select [OSD All] to turn all screen displays on or off.

- You can set the Automatic channel rotation time from 1 second to 60 seconds by changing the value of [Dwell Time] by using the **mouse wheel** or the **jog/shuttle**.

## 7.3.6 System Management



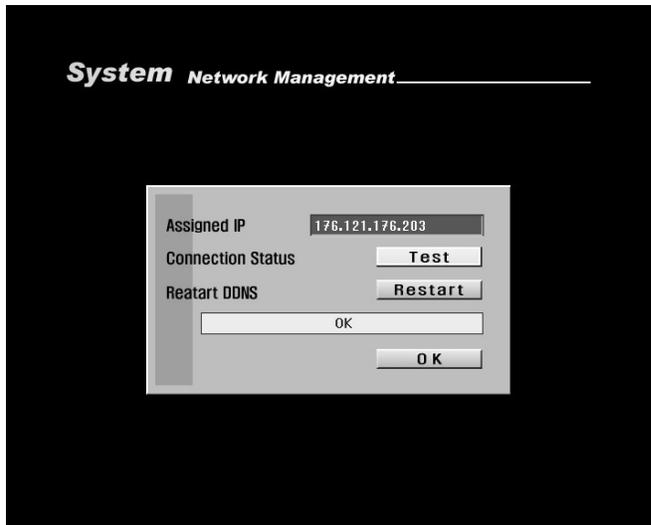
[Figure 7-22. System management]



[Figure 7-23. Selecting Network Management]

- System Management allows you to check network connection status, certify Dynamic DNS (DDNS), change Video input Type, and format HDD.

- Use the **mouse wheel** or the **jog/shuttle** to select [Network Management], [ DDNS Authentication], [Video-In Type], and [HDD Format] options.
- After selecting the option you wish choose, press [OK] button.



[Figure 7-24. Network Management]

## [Assigned IP]

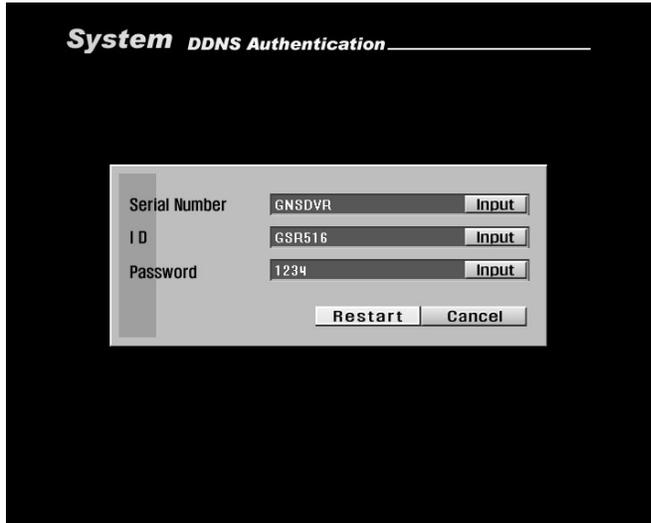
- Assigned IP displays the system's IP address used for remote backup and remote monitoring.

## [Connection Status]

- Connection Status indicates whether the current assigned IP address can be used to connect to the Internet. If it is possible, the system will display "OK" in the progress bar. Otherwise, the system will display "Failed".

## [DDNS Restart]

- Receive a new DDNS authentication



[Figure 7-25. DDNS Authentication]

- DDNS authentication allows you to use Internet using the IP address (ADSL, DHCP).

## [Authentication Number]

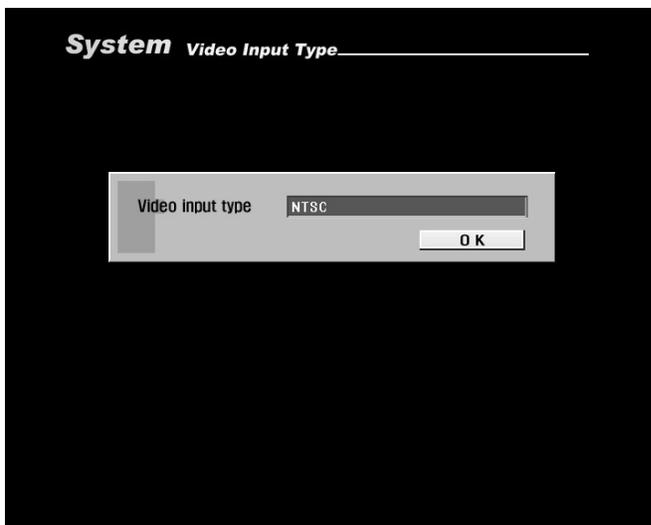
- Enter the DDNS authentication number.

## [ID]

- Enter DDNS ID.

## [Password]

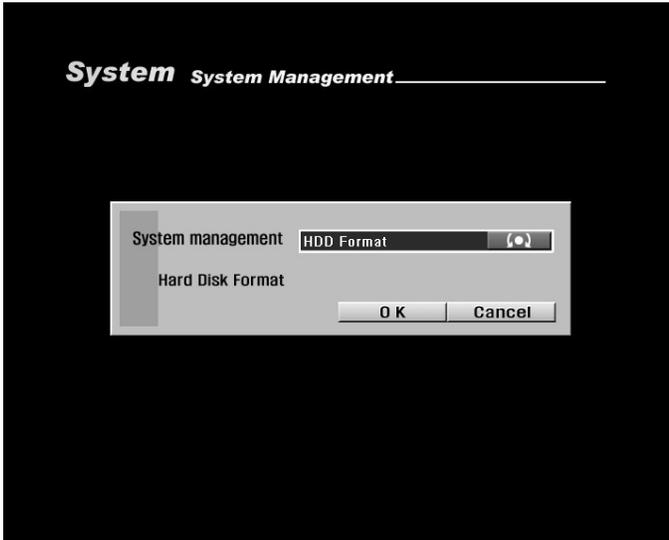
- Enter DDNS password.



[Figure 7-26. Video Input Type]

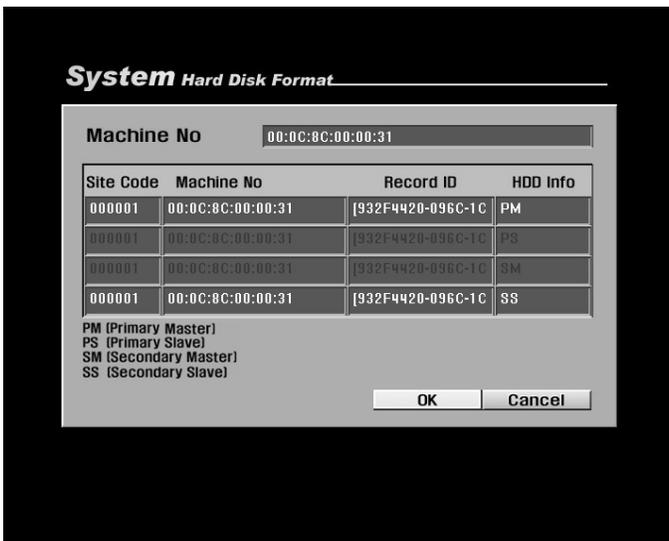
## [Video-In Type]

- Displays supported Video input types. The system supports both NTSC and PAL.



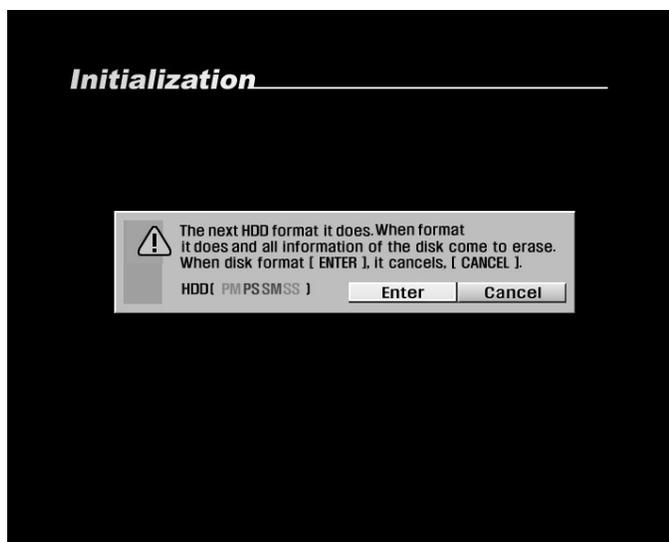
[Figure 7-27. HDD Format]

- You can format the system's built-in HDD to erase all recordings stored in your Hard Disk Drive. Use the **mouse wheel** or the **jog/shuttle** to select [HDD Format], then select [OK] button.
- As shown in Figure 7-28, the system will display the installed HDD in a table.



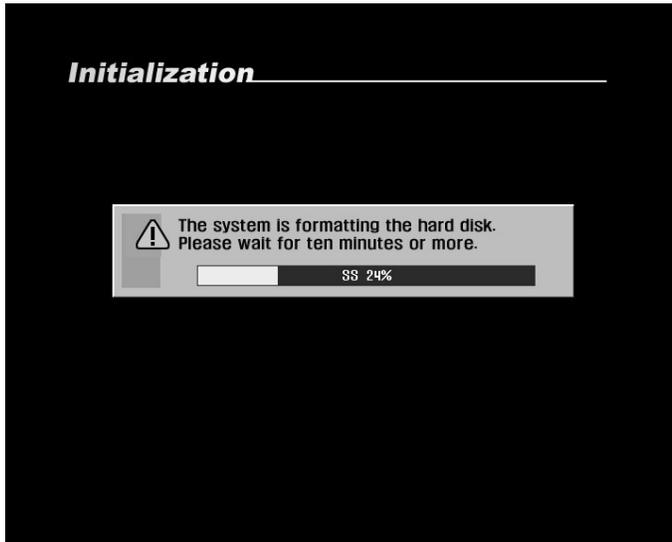
[Figure 7-28. HDD table]

- The table shows the system's built-in HDDs and their information. You can install up to 4 HDDs into the system.
- From the table, you can select the HDD you wish to format, then select [OK] button. The system will display a confirmation message shown in Figure 7-29.
- Select [Cancel] button to return to Setup mode.



[Figure 7-29. Confirmation message ]

- The system will display a warning message. To confirm and proceed with formatting the selected HDD, press [OK] button. To cancel format and return to HDD table, select [Cancel] button.



[Figure 7-30. HDD format progress]

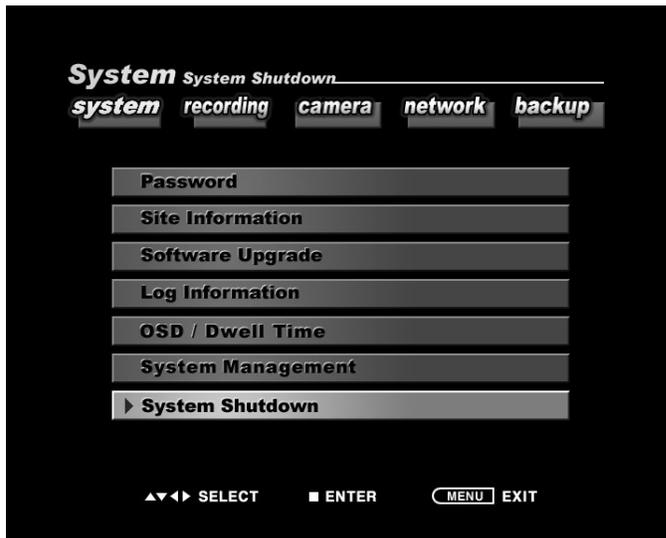
- You can view the HDD format progress through the progress bar.
- The system will restart once the format is complete.



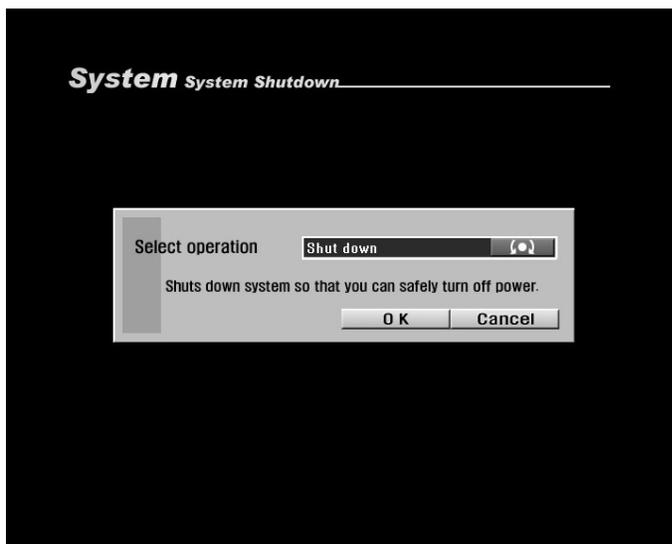
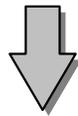
**[Caution]**

- Any newly installed HDD must be formatted.
- Formatting will erase all data stored in the selected HDD. Please make sure you have saved all important data before proceeding with HDD format (see page 38 for details on saving backup).

## 7.3.7 System Shutdown



[Figure 7-31. System Shutdown]



[Figure 7-32. System Shutdown menu]

- In [System Shutdown] menu, you can safely shutdown, restart, or add reboot schedule to DW716.
- Use **mouse wheel** or the **jog/shuttle** to select [Shutdown], [Restart], or [Add Schedule], then press [OK] button.

[Shut down]

- Shut down the system.

[Restart]

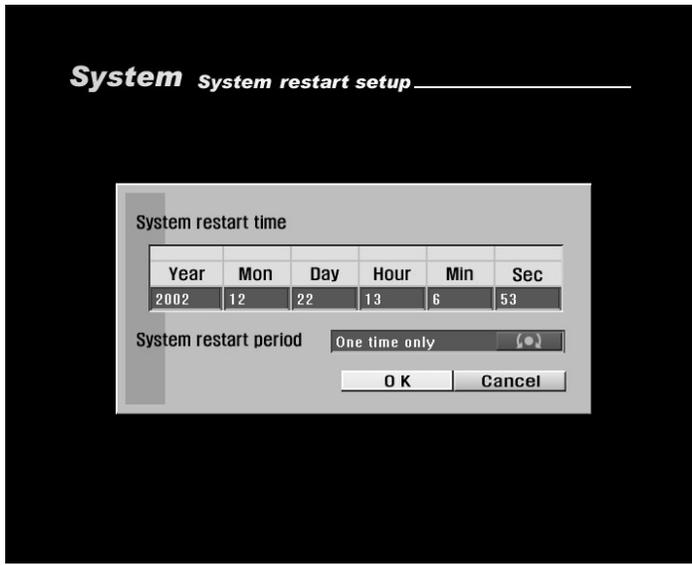
- Restart the system.

[Add schedule]

- Add automatic reboot schedule (see page 55 for details).

**[Caution]**

Press ENTER for 3 seconds to restart the system which was turned off.



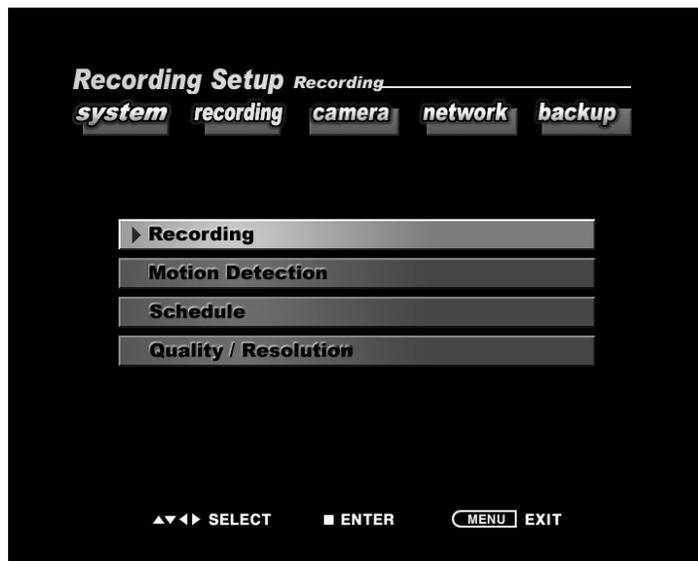
[Figure 7-33. System restart schedule]

[Add schedule]

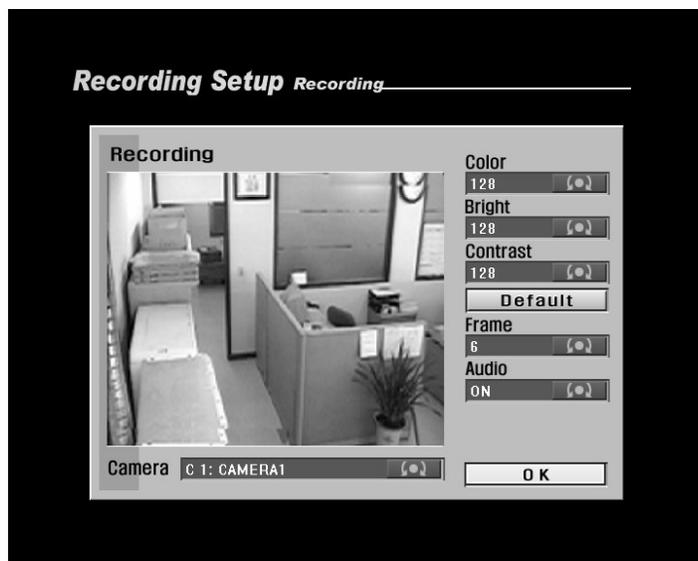
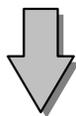
- You can set the time and the system will automatically restart.
- Use the **mouse wheel** or the **jog/shuttle** to select [System Restart Period]. You can assign the system to automatically restart [One time only], [Daily], [Every 2 days], [Every 3 days], [Weekly], [Every 2 weeks], [Every 3 weeks], or [Monthly].
- Restarting the system on regular basis may help to stabilize the system performance.

## 7.4 Recording Setup

### 7.4.1 Recording Setup



[Figure 7-34. Recording setup]



[Figure 7-35. Recording setup]

- In [Recording] setup menu, you can change the color, brightness, contrast, and the frame rate for each cameras as well as setting audio recording.

#### [Color/Brightness/Contrast]

- You can set the color, brightness, and contrast of the selected camera.
- Use the **mouse wheel** or the **jog/shuttle** to set the value of each option between 0~255.

#### [Default]

- Select [Default] button to set the color, brightness, and contrast to their default value (128).

#### [Frame]

- You can set the number of recording frame rate between 1~30 fps for each camera (total of 120 frames) by using the **jog/shuttle** on the system.

#### [Audio]

- To record sound with the selected camera, switch the [Audio] option to "ON" using the **jog/shuttle** on the system.
- Audio recording is supported for one camera channel only. Setting the [Audio] option to "ON" will automatically switch all other channels to "OFF".

#### [Camera]

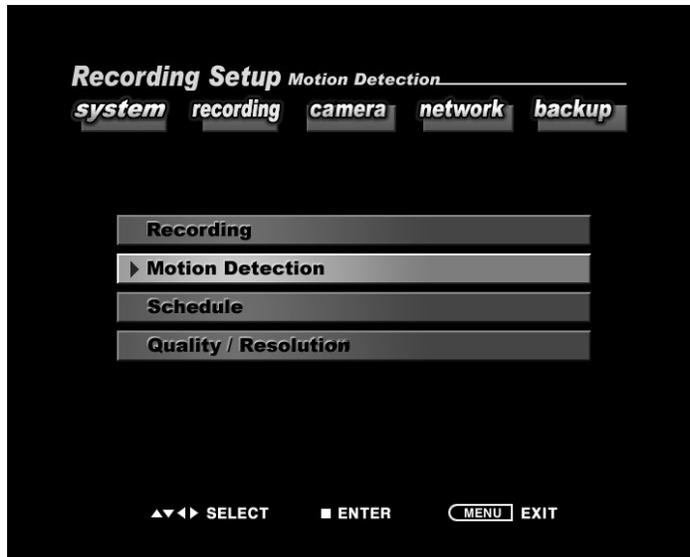
- Use the **jog/shuttle** on the system to select the camera for changing its options.



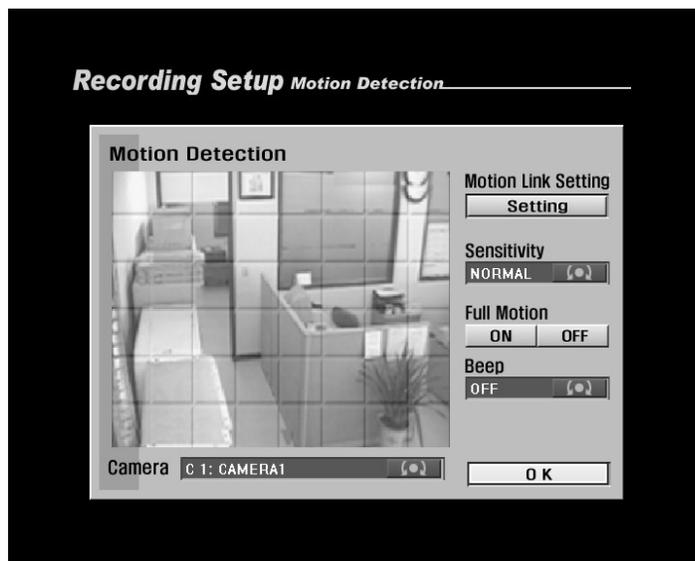
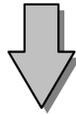
#### [Caution]

Recording frame rate might vary depending on the number of installed camera or system load.

## 7.4.2 Motion Detection



[Figure 7-36. Motion Detection]



[Figure 7-37. Motion-detection setting]

## [Motion link setting]

- You can set a motion-link recording for each camera.
- When the camera detects movement in the motion-detection area, the linked camera will begin recording as well, regardless of its recording schedule.
- To use Motion-link recording, the camera detecting the movement must be set to Motion-Detection recording in the schedule. If the camera's schedule is set to Continuous Recording, Motion Link will be disabled.
- In Surveillance mode, when the camera detects movement in its motion-detection area, the linked camera channel will flash 'REC' and begin recording.

- In [Motion Detection] menu, you can set motion detection area, set motion sensitivity, and enable or disable alert sound.

## [Setting Motion Detection]

- To set Motion Detection area, highlight a block of the area of the channel screen by using the **directional** keys, then press **Enter** key to select the block.
- The channel screen is divided into 48 blocks. You can select any and as much blocks as you wish.

## [Sensitivity]

- You can set the motion-detection sensitivity of each camera to "LOWEST", "LOW", "NORMAL", "HIGH", or "HIGHEST".

## [Full Motion]

- To set the whole channel screen to motion-detection area, switch the [Full Motion] option to "ON". To cancel the whole screen from motion-detection area, switch the option to "OFF".

## [Beep]

- To hear a 'beep' warning sound when the system detects movement in motion-detection area, set the [Beep] option to "ON". To hear no warning sound, set the option to "OFF".

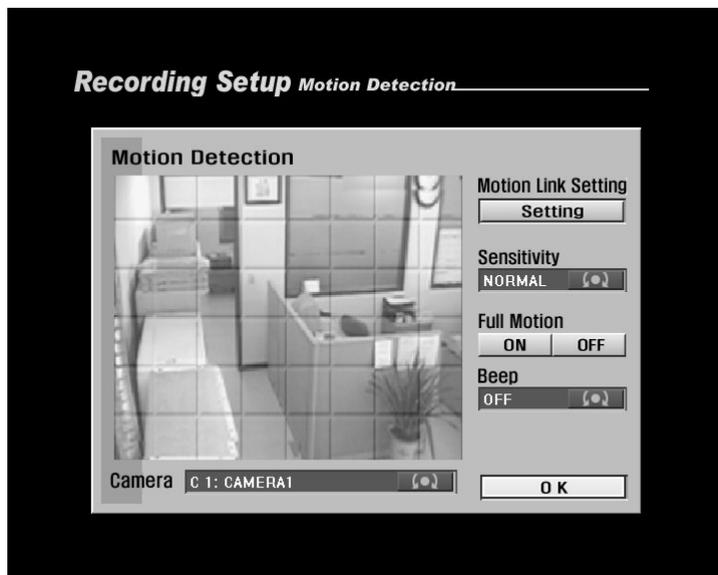
## [Camera]

- Use the **jog/shuttle** on the system to select the camera for changing its options.

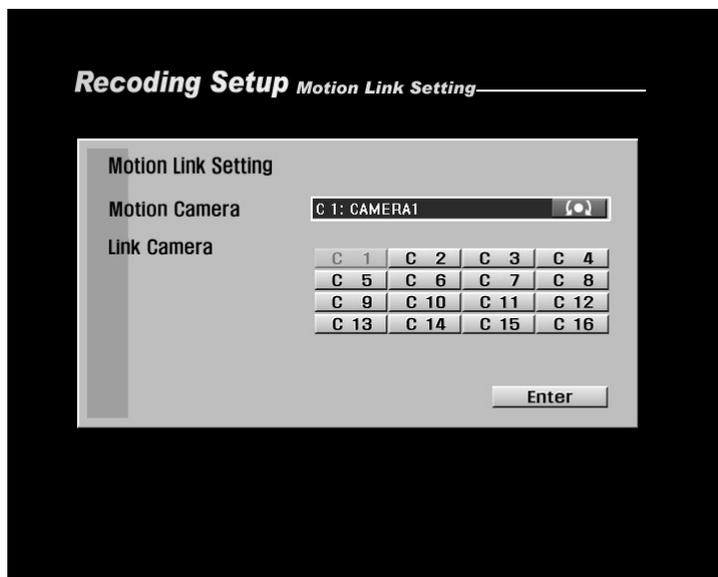
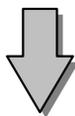
## [OK]

- Press [OK] button to accept any changes made and return to Setup menu

## 7.4.3 Motion Link setting



[Figure 7-38. Motion Link setting]



[Figure 7-39. Motion Connection Setup Screen]

- To access Motion Link setting, use the **mouse** or the **directional** keys to select [Setting]. The system will display Motion link setup as shown in Figure 7-38.

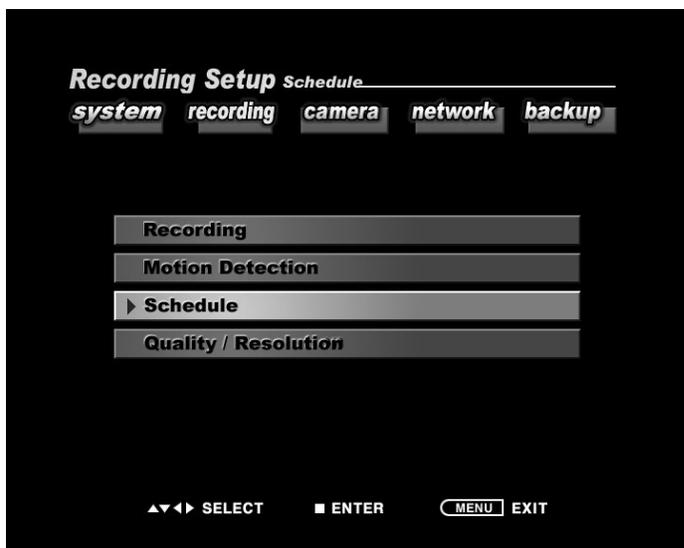
[Motion Camera]

- Select the camera that will detect the movement in its motion-detection area by using the **mouse wheel** or the **jog/shuttle** on the system.

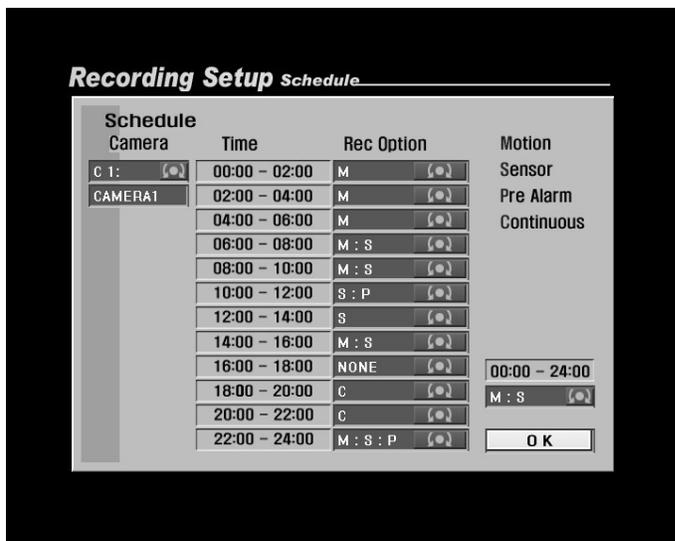
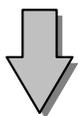
[Link Camera]

- Select the cameras that will be linked to the [Motion Camera] by using the **mouse** or the **directional** keys. You can link multiple cameras to the [Motion Camera].

7.4.4 Schedule



[Figure 7-40. Schedule]



[Figure 7-41. Schedule Setup]

• In [Schedule] menu, you can set automatic schedule for each camera and their recording mode.

[Camera]

• Use the **mouse wheel** or the **jog/shuttle** to select the camera to change its schedule.

[Recording Mode]

• You can select a recording mode for the selected camera by using the **mouse** or the **direction** keys to highlight the time you wish to set, then use the **mouse wheel** or the **jog/shuttle** to change the recording mode.

• The 7 available recording modes are listed on the table below. You can also set a camera to cease recording during certain time.

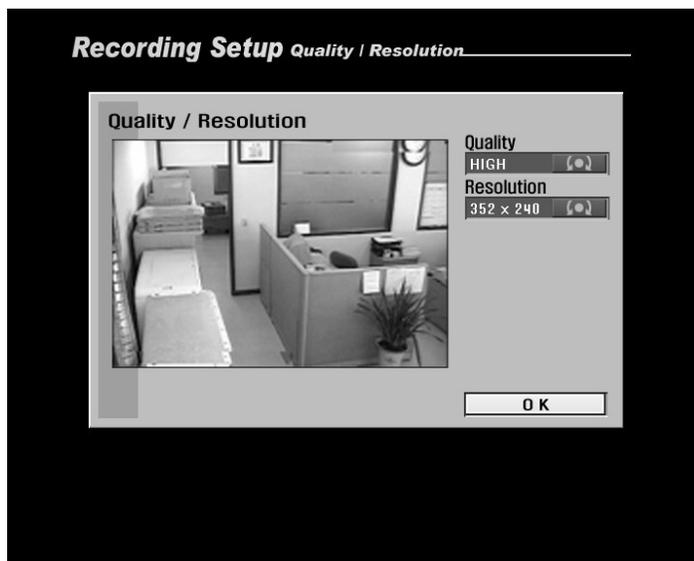
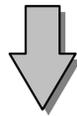
Recording Mode	Available Recording Modes	Schedule Setup Display	Channel Display
<ul style="list-style-type: none"> <li>• C: Continuous Recording</li> <li>• M: Motion Recording</li> <li>• S: Sensor Recording</li> <li>• P: Pre-alarm Recording</li> </ul>	• No Recording	None	None
	• Continuous Recording	C	Red REC
	• Motion Recording	M	Orange REC
	• Sensor Recording	S	
	• Motion & Sensor Recording	M : S	
	• Motion & Pre-alarm Recording	M : P	
	• Sensor & Pre-alarm Recording	S : P	
• Motion & Sensor & Pre-alarm Recording	M : S : P		

[Table 7-2. Recording modes]

## 7.4.5 Quality/Resolution



[Figure 7-42. Quality/Resolution]



[Figure 7-43. Quality/Resolution setup]

- In [Quality/Resolution] menu, you can change the video quality and resolution by using the **mouse wheel** or the **jog/shuttle**.
- Any changes made to quality and resolution will apply to all cameras.

## [Quality]

- You can change the video quality to "LOWEST", "LOW", "NORMAL", "HIGH", and "BEST".

## [Resolution]

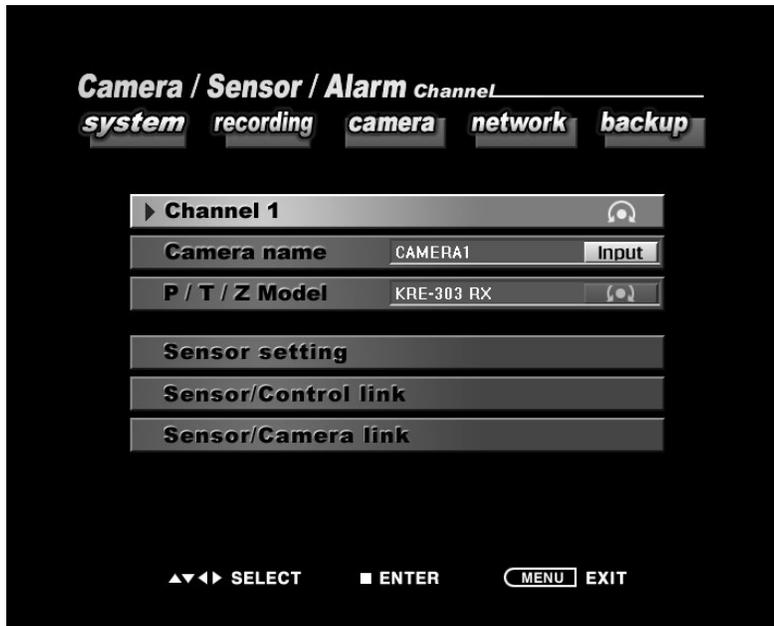
- You can change the video resolution to 352 X 240 or 704 X 240 (PAL : 352 X 288, 704 X 288)

## [OK]

- Select [OK] button to accept any changes made and return to Setup menu.

## 7.5 Camera Setup

- In [Camera] setup menu, you can setup Pan/Tilt mode and change the connection setting between sensors and controls.



[Figure 7-44. Camera setup menu]

### [Selecting channel]

- Select a camera to change its options on P/T/Z model type, sensor settings, sensor/control link settings, and sensor/camera link settings.
- Use the **mouse wheel** or the **jog/shuttle** on the system to select a camera channel.

### [Camera Name]

- You can enter a name for the selected camera (see page 68 for details).

### [P/T/Z Model]

- You can select a P/T/Z model for a camera, provided the camera supports P/T/Z function.
- Use the **mouse wheel** or the **jog/shuttle** on the system to select a Speed Dome or an RX-Receiver model name.

### [Sensor setting]

- You can change the settings for the camera channel linked to the sensors (see page 69 for details).

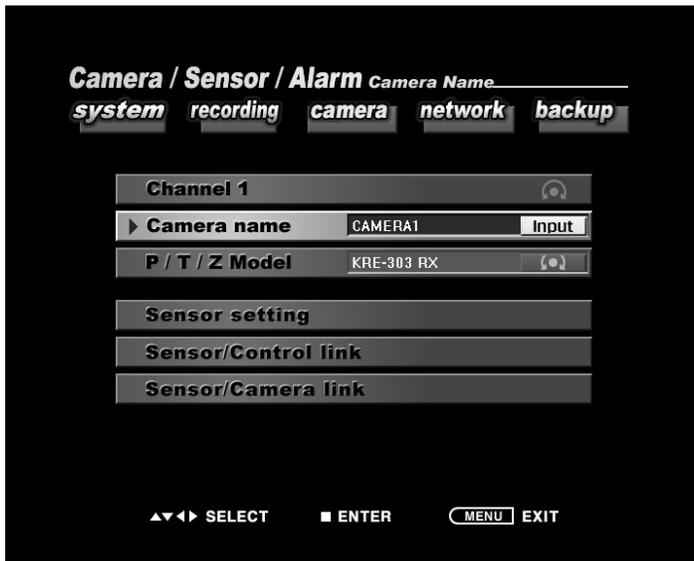
### [Sensor/Control Link]

- You can link the control devices to a sensor (see page 70 for details).

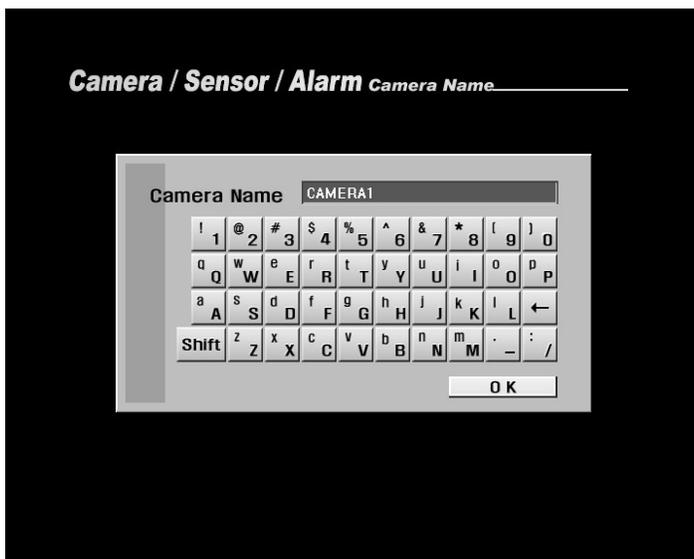
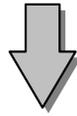
### [Sensor/Camera Link]

- You can link the camera channels to a sensor (see page 71 for details).

## 7.5.1 Camera name



[Figure 7-45. Camera name option]



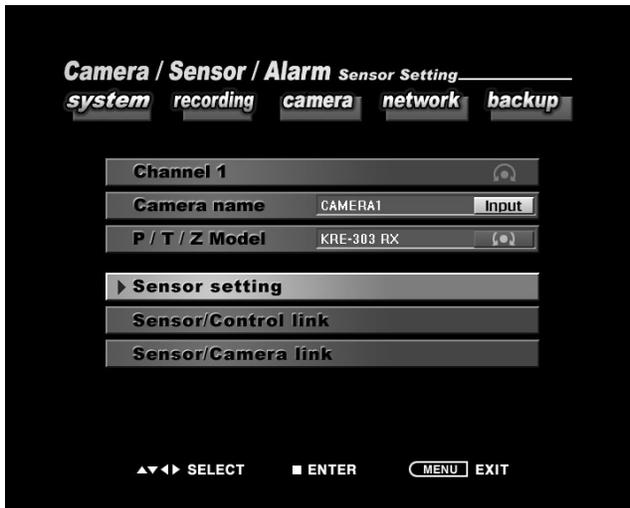
[Figure 7-46. Selecting camera name]

- Press [Input] button next to [Camera name] option to give the selected camera a name.

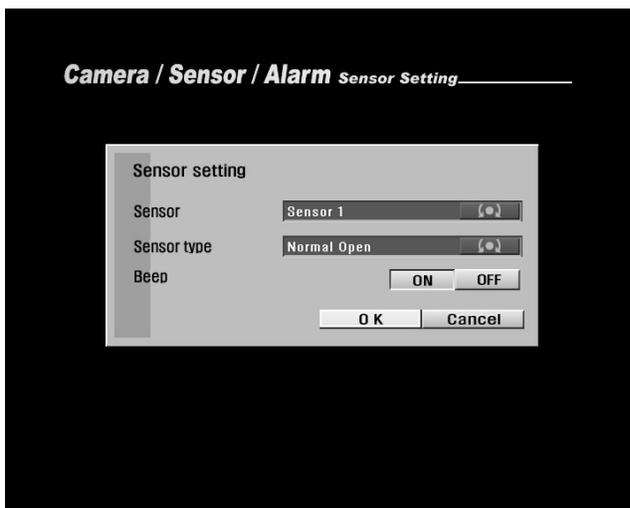
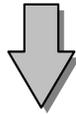
[Selecting camera name]

- Use the **mouse** or the **directional** keys and **Enter** key to enter the camera name.
- You can only enter up to 8 characters.
- Press [OK] to accept camera name and return to Camera setup menu.

## 7.5.2 Sensor setting



[Figure 7-47. Sensor setting]



[Figure 7-48. Sensor setting]

- In [Sensor setting] menu, you can select a sensor type for the connected sensors, and enable or disable alarm sound.

## [Sensor]

- Use the **mouse wheel** or the **jog/shuttle** to select a sensor.

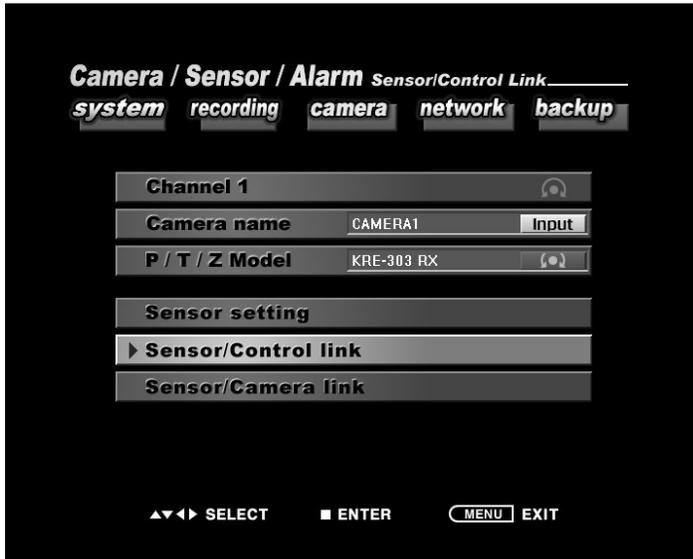
## [Sensor Type]

- Use the **mouse wheel** or the **jog/shuttle** to select "Normal Open" or "Normal Close" sensor types.
- Normal Close type = If the door/object with the sensor installed is not closed, the sensor will trigger.
- Normal Open type = If the door/object with the sensor installed is not opened, the sensor will trigger.

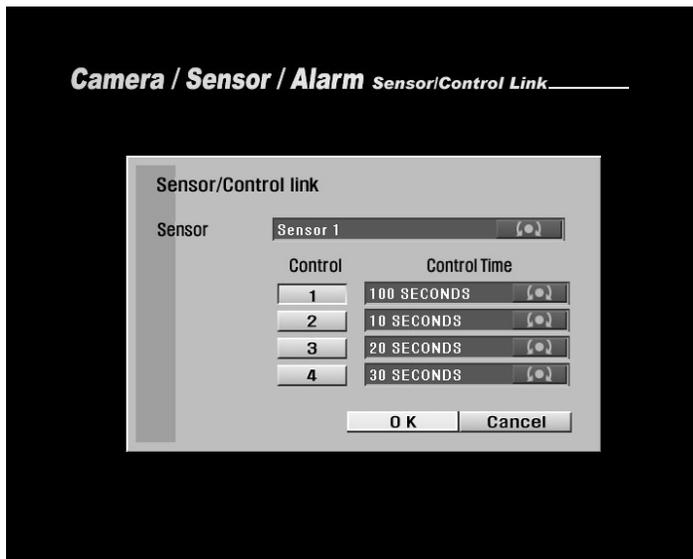
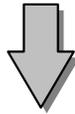
## [Beep]

- When sensors are triggered, the system will produce "beep" alarm sound through its internal speakers. Select "ON" to enable alarm, and select "OFF" to disable it.

7.5.3 Sensor/Control link



[Figure 7-49. Sensor/Control link]



[Figure 7-50. Sensor/Control link setup]

- In [Sensor/Control link] menu, you can link a sensor with controls and set control time.

[Sensor]

- Use the **mouse wheel** or the **jog/shuttle** to select a sensor.

[Control]

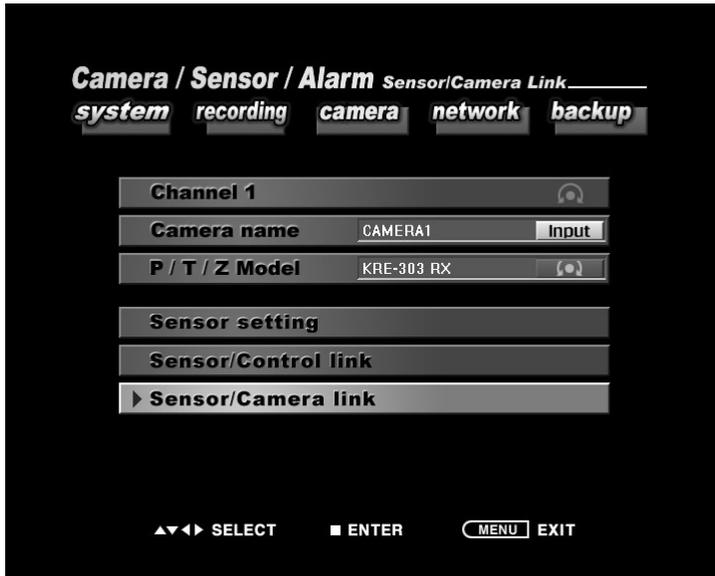
- You can link a sensor with control devices. When a sensor is triggered, the linked control device(s) will automatically activate.

[Control Time]

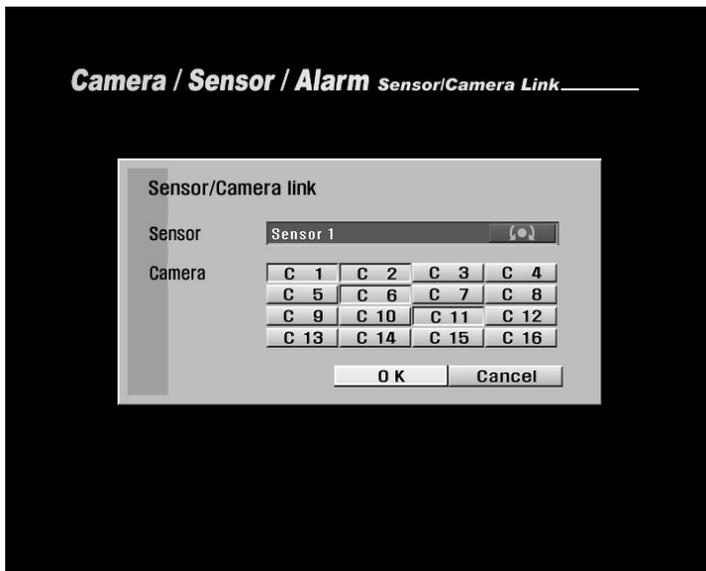
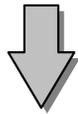
- You can set how long the control devices will stay activated. The value can be changed in 10 seconds basis up to maximum of 300 seconds.

- Use the **mouse wheel** or the **jog/shuttle** to change [Control Time].

7.5.4 Sensor/Camera Link



[Figure 7-51. Sensor/Camera Link]



[Figure 7-52. Sensor/camera link setup]

- In [Sensor/Camera Link] menu, you can link cameras to Sensors.

[Sensor]

- Select the sensor you wish to link by using the **mouse wheel** or the **jog/shuttle**.

[Camera]

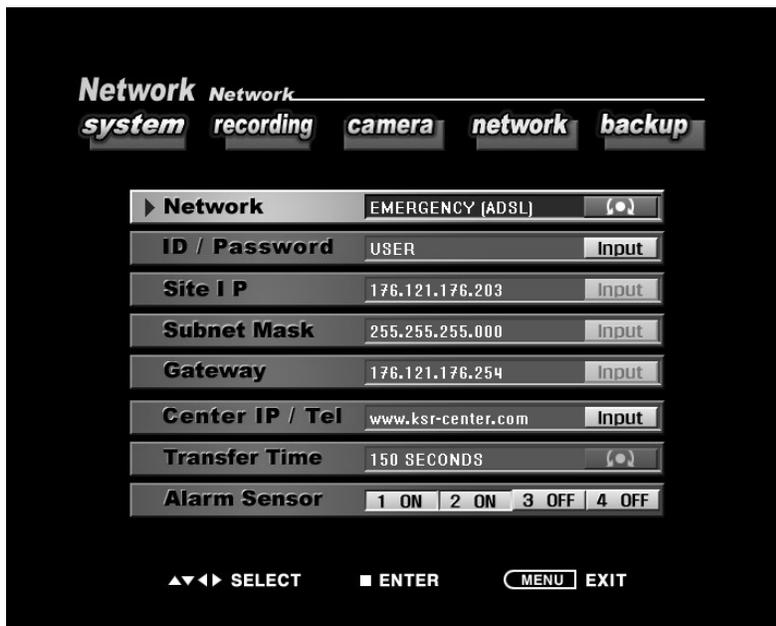
- Select the cameras you wish to link with the selected sensor by using the **mouse** or the **directional** keys and **Enter** key.
- When the sensor is triggered, its linked camera(s) will automatically begin recording.

**[Note]**

- To have the cameras automatically record when a sensor is triggered, the schedule for the linked cameras must be set to "S", "S:P", "M:S", or "M:S:P" (see page 65 for details on schedule setup).

## 7.6 Network Setup

- In [Network] setup menu, you can set the system's IP address in order to connect to the Center Program, as well as setting up Center IP address and telephone number, recording transfer time, and alarm sensor transfer.



[Figure 7-53. Network Setup Screen]

### [Network]

- The system supports network connection through LAN using IP address, as well as DHCP, ADSL, and modem.
- Select the network option you wish to use by using **mouse** or the **jog/shuttle**.
- LAN is the standard network connection for DW716. Modem is optional and an external modem must be installed to use model network.

### [ID/PASSWORD]

- Logging in ADSL require ID/PASSWORD.

### [Site IP]

- You can enter the system's IP address for connecting DW716 to a remote Center via LAN (see page 73 for details).

### [Subnet Mask]

- You can enter the system's subnet mask in order to communicate with the Center program when connected through LAN (see page 74 for details).

### [Gateway]

- You can enter the system's gateway address in order to communicate with the Center using LAN.

### [Center IP]

- You can enter the IP address of the computer with the Center installed in order to transfer the recording to Center through LAN (see page 74 for details).

### [Center Tel Number]

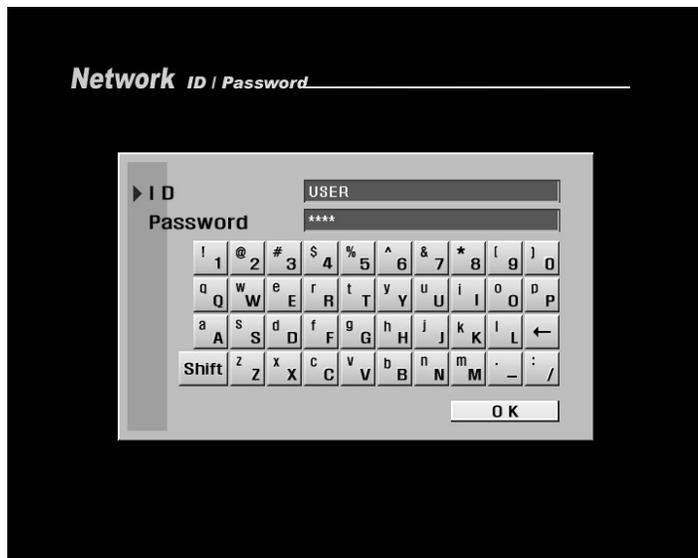
- You can enter the telephone number of the computer with the Center Program installed in order to transfer the recording to Center through modem (see page 75 for details).

### [Transfer Time]

- Transfer Time determines how long the system will transfer the recording to the computer with the Center installed that is connected through LAN or modem. You can set the [Transfer Time] in 30 seconds basis up to maximum of 150 seconds by using the **mouse wheel** or the **jog/shuttle**.

### [Alarm Sensor]

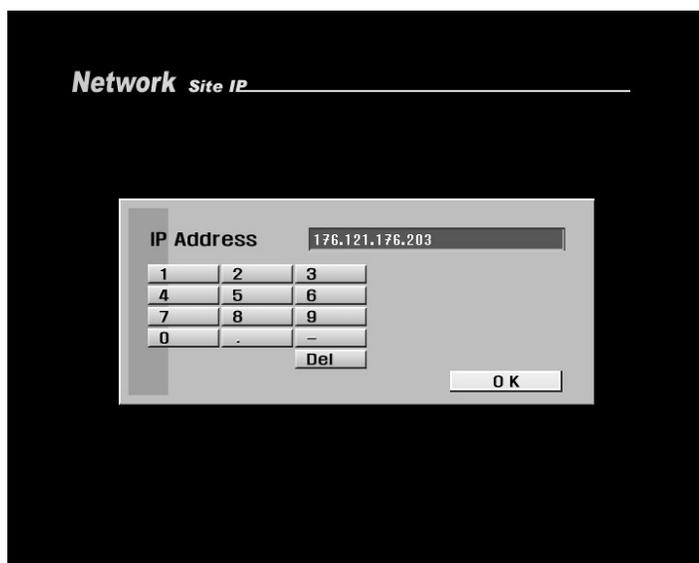
- You can designate any sensors connected to DW716 into Alarm sensors by selecting the sensor numbers on [Alarm Sensor] option.
- When an Alarm sensor is triggered, the system will automatically transfer the recording data to the remote Center connected to the system through network.



[Figure 7-54. ID/Password setup]

[ID/Password setup]

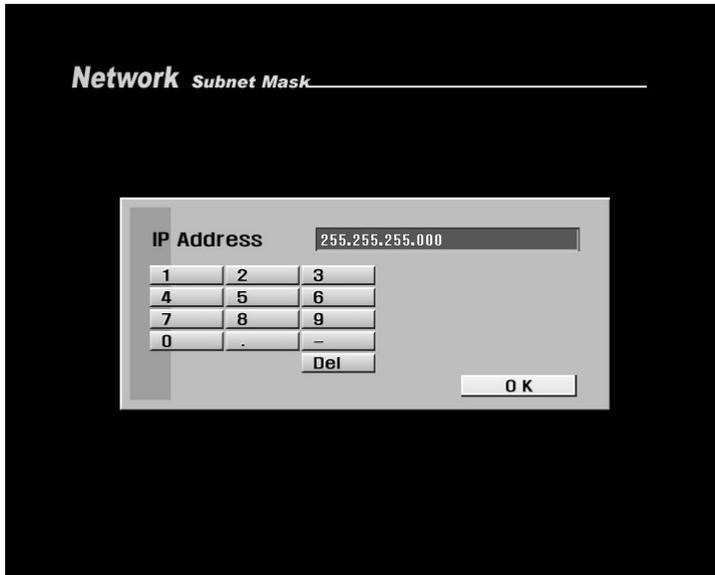
- When using ADSL or VDSL network, you must enter the ID and password of remote back up server.
- Use the **mouse** or the **directional** keys and **Enter** key to enter the ID and password.



[Figure 7-55. Site IP Address setup]

[Site IP address setup]

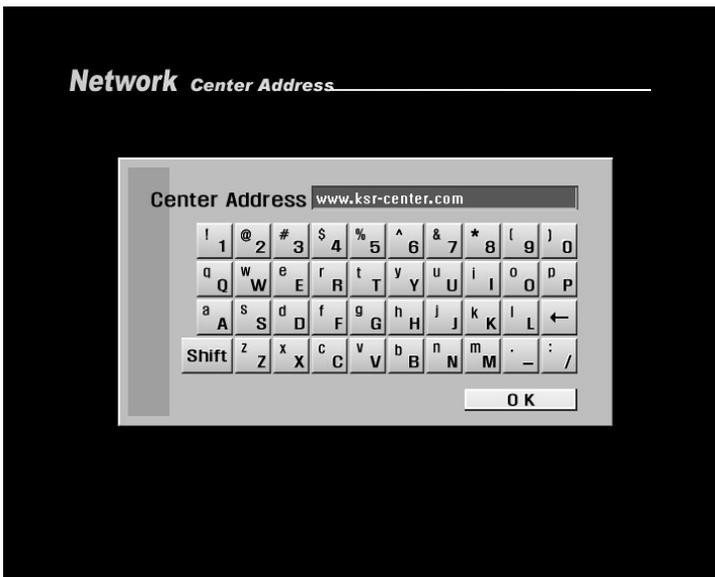
- When using LAN, you must enter the system's IP address or domain address.
- Use the **mouse** or the **directional** keys and **Enter** key to enter the IP address.



[Figure 7-56. Subnet Mask/Gateway setup]

[Subnet mask/Gateway setup]

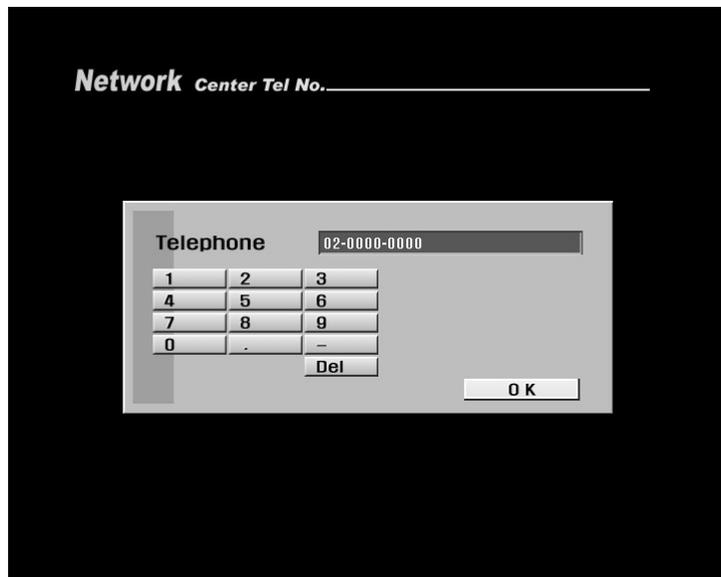
- To use Subnet mask or Gateway, you must enter the IP address.
- Use the **mouse** or the **directional** keys and **Enter** key to enter IP address.



[Figure 7-57. Center IP address setup]

[Center IP address setup]

- When using LAN, you must enter the IP address of the computer installed with the Center Program.
- Use the **mouse** or the **directional** keys and **Enter** key to enter the IP address.

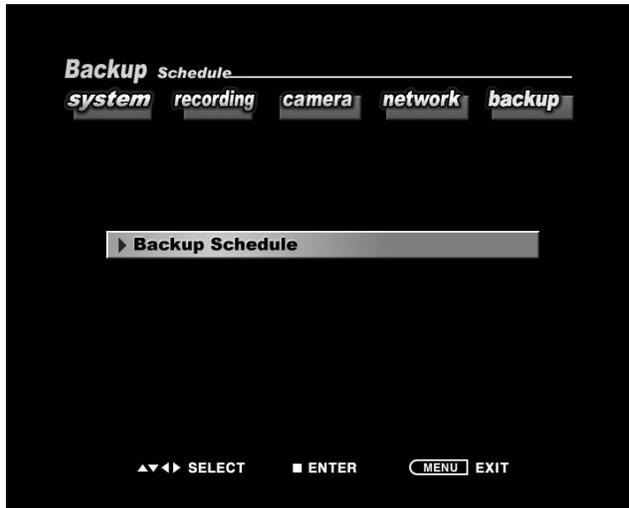


[Figure 7-58. Center Tel No. setup]

[Center Tel No. setup]

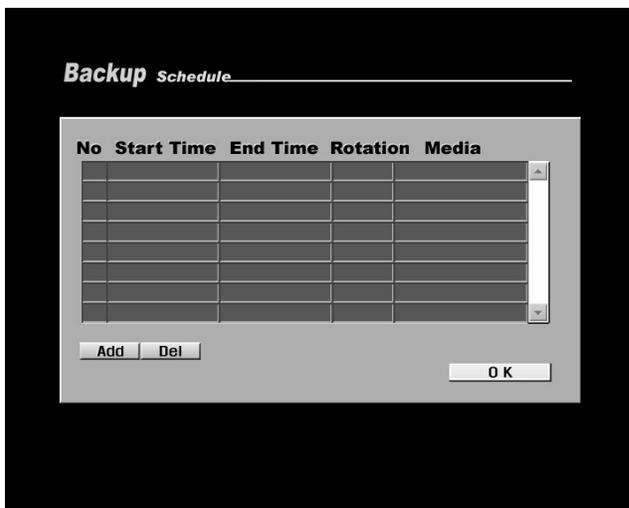
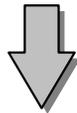
- When using modem, you must enter the telephone number of the computer installed with the Center Program.
- Use the **mouse** or the **directional** keys and **Enter** key to enter the telephone number.

## 7.7 Backup Schedule



[Figure 7-59 Backup Schedule]

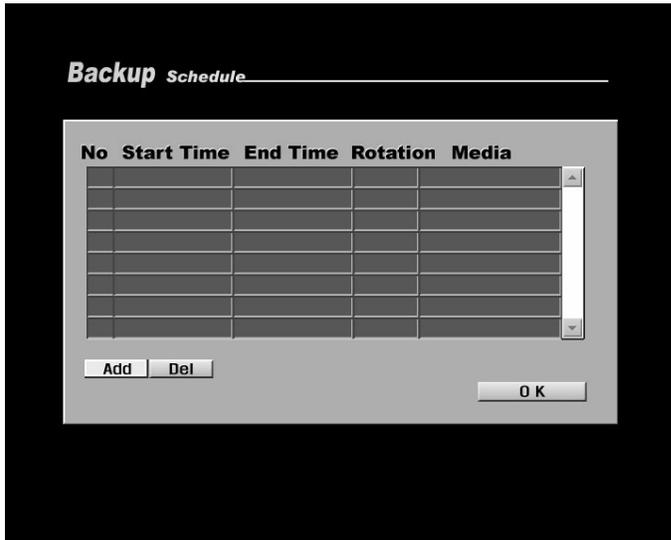
- In [Backup Schedule] menu, you can set up system backup schedule to have the system automatically save backup copies of its recording.



[Figure 7-60. Backup schedule setup]

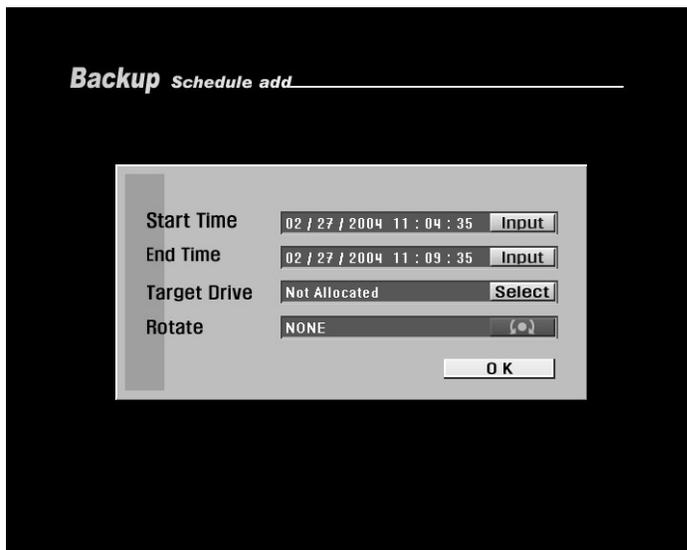
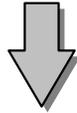
- Backup Schedule programs the system to save a backup copy of the recorded data to a designated storage device set on the schedule.
- You can only schedule the system to save a backup copy of the recording that will be recorded in the future, and you cannot schedule the system to save a backup that has been recorded before the present date. To do this, you must access the Search mode (see page 38 for saving backup).

## 7.7.1 Adding Backup schedule



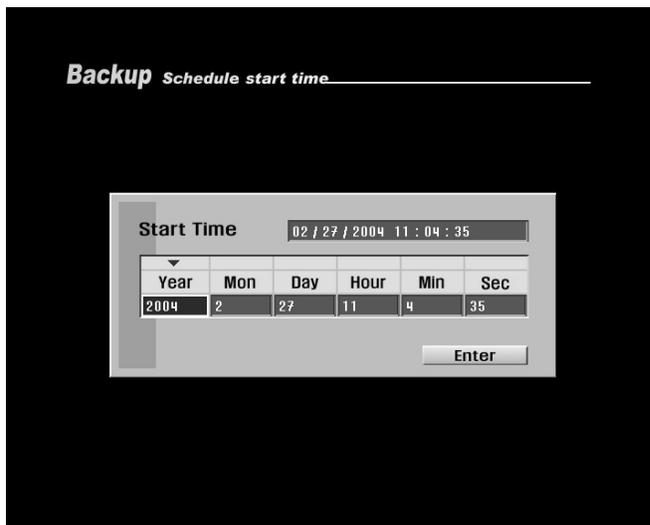
- To add a backup schedule to the list, select [Add] button.

[Figure 7-61. Adding backup schedule]

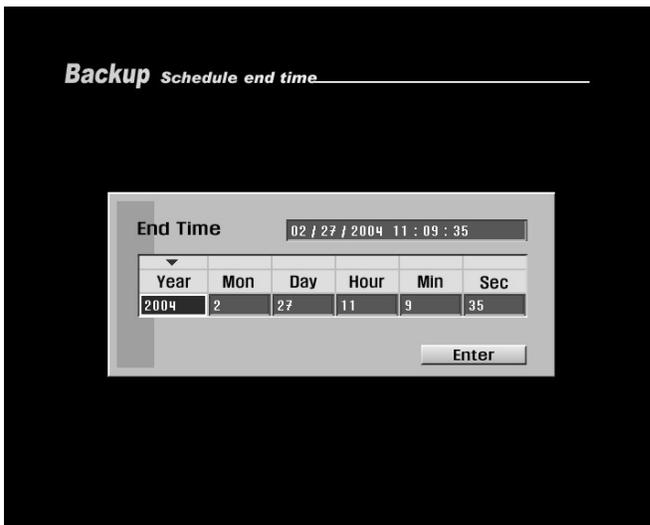


- To add a backup schedule, you must set the [Start Time] and [End Time], [Target Drive], and [Rotate] options.

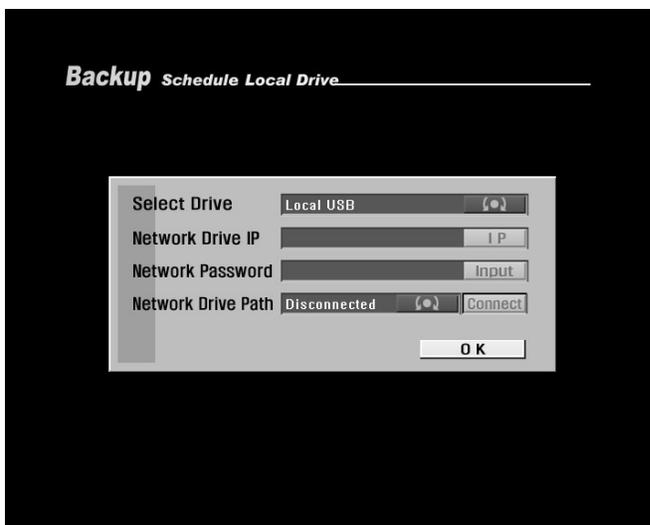
[Figure 7-62. Adding backup schedule]



[Figure 7-63. Start Time setup]



[Figure 7-64. End Time]



[Figure 7-65. Selecting Target Drive]

[Start Time / End Time]

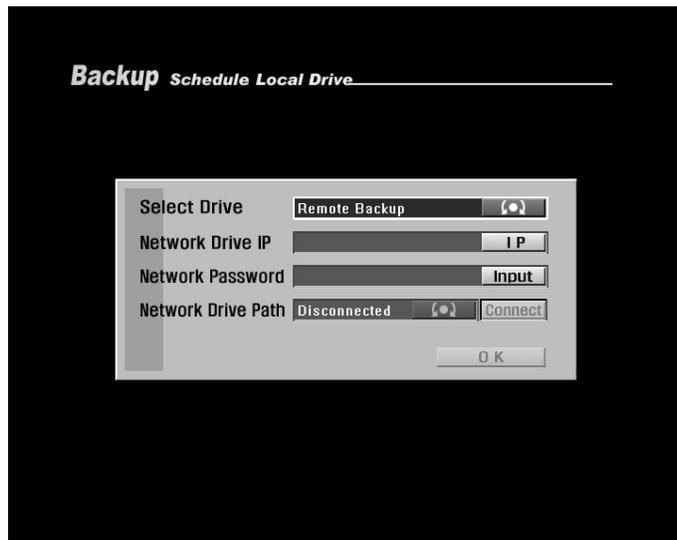
- To select [Start Time] and [End Time], use the **mouse** or the **directional** keys to select the year/month/day and hour/minute/second, then use the **mouse wheel** or the **shuttle** to select the time the recording you wish to save was recorded.
- Select [OK] button to apply the select time.

[Target Drive]

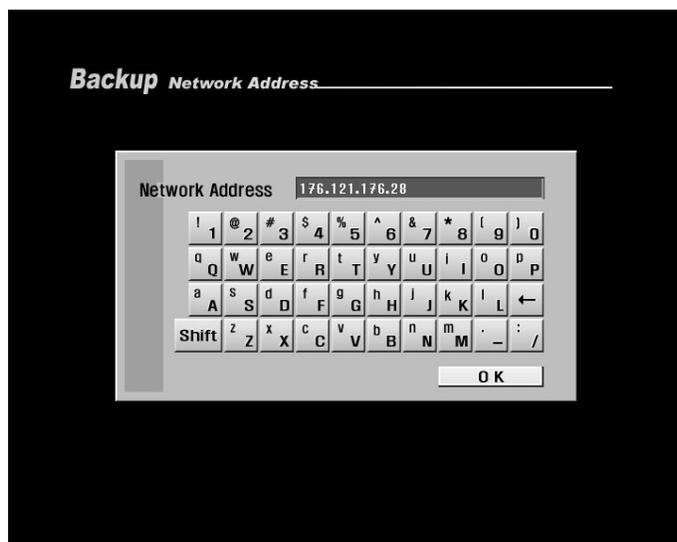
- Select the target drive that will be used for saving the backup of the recording
- There are 2 types of storage devices you can choose: a portable storage device connected through the USB port, and a remote drive connected to the system through network. However, you can only select Remote Drive for Backup Schedule.

**[Note]**

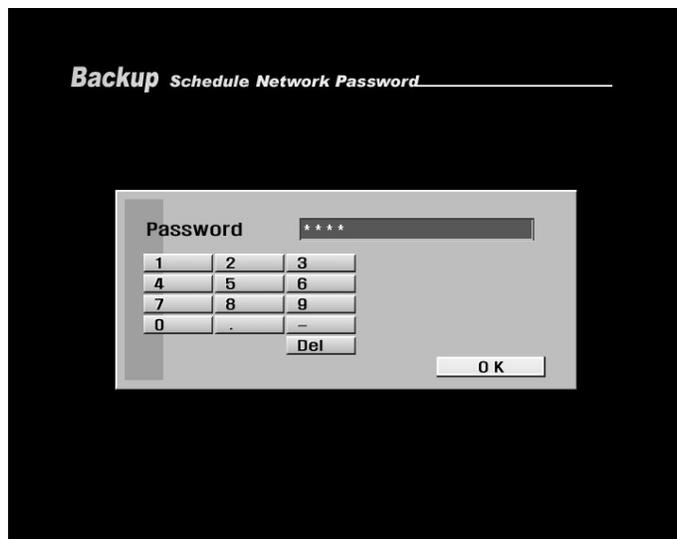
- Archiving images onto CD-RW is supported in supported in Playback mode only.



[Figure 7-66. Remote Drive setup]



[Figure 7-67. Remote Drive IP Address]



[Figure 7-68. Remote Drive Password]

[Target Drive – Remote Drive]

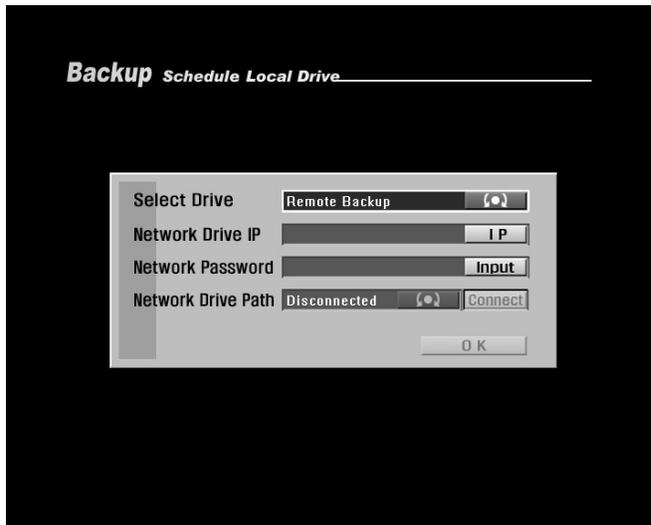
- Use the **mouse wheel** or the **jog/shuttle** to select Local USB, or Remote Drive.
- If the system is connected through LAN or Internet line, you can save a remote drive backup by entering the correct IP address.
- When saving a remote drive backup, the receiving PC or fileserver must have the Center Program installed with Backup Server Program running.
- To save a remote drive backup, you will need the IP address and the password of the receiving PC or fileserver.
- To enter IP address and password, use the **directional** keys to highlight [Input] button, then press **Enter**.

[Saving Point – Remote Drive IP]

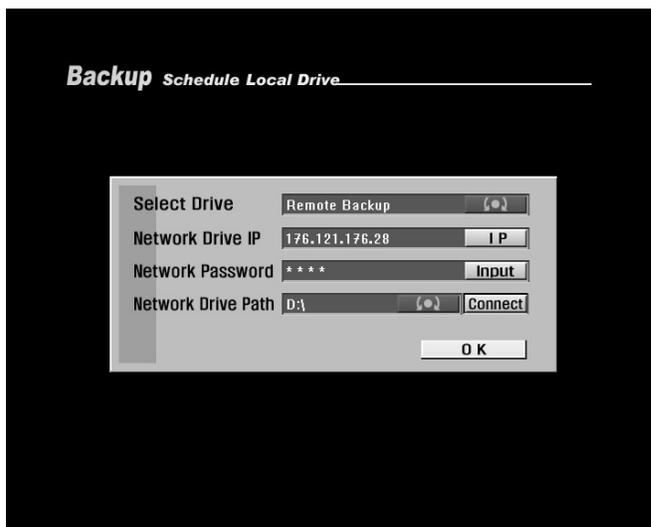
- To set the [Remote Drive], enter the IP address of the remote place that is connected to the network where the center program and the remote backup server are installed.
- Enter the IP address of the remote place by pressing direction keys and Enter key on the front part of the system

[Network Drive IP] and [Network Password]

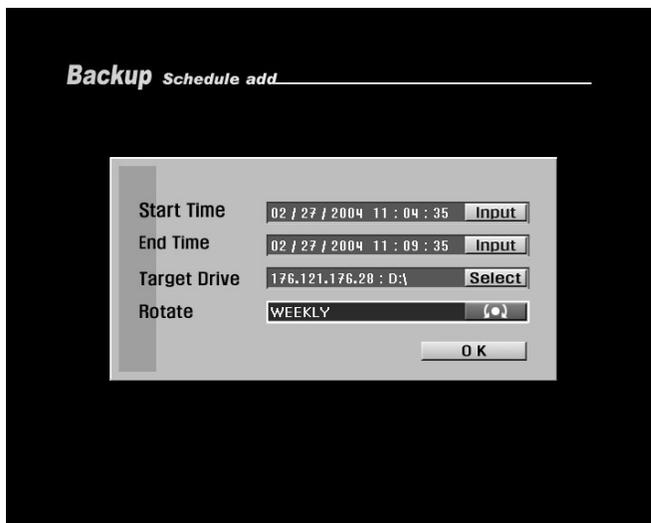
- To enter the Network Drive IP address and Network password, use the **mouse** or the **directional** keys and **Enter** button to select the numbers and letters. Press [OK] button to apply the selected IP address and password.



[Figure 7-69. Remote Drive setup]



[Figure 7-70. Remote Drive Setup]



[Figure 7-71. Remote Drive setup]

[Connecting]

- Press the [Connect] button to connect the system to the receiving PC or fileserver in order to save a remote drive backup. Once connected, you will be able to select Network Drive path.

- Depending on the connection status, the system will display either "Connect", "Disconnect", or "Connect fail" message.

[OK]

- Once you have entered the [Network Drive IP], [Network Password], and [Network Drive Path], select [OK] button to return to Backup Schedule list.

[Rotate]

- You can schedule the system to save backup of the selected time in daily, weekly, monthly, or yearly basis. To do so, use the **mouse wheel** or the **jog/shuttle** to select a rotation cycle.

[OK]

- Once you have selected the [Start Time], [End Time], [Target Drive], and [Rotate], press [OK] button to add it to backup schedule list.

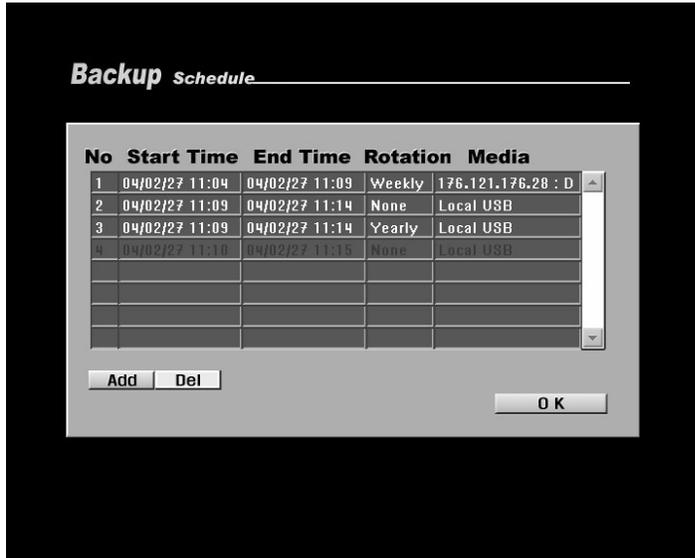


[Backup Schedule List]

- You will see the added schedule on the Backup Schedule list. Select [OK] button to accept the schedule and return to Setup menu.

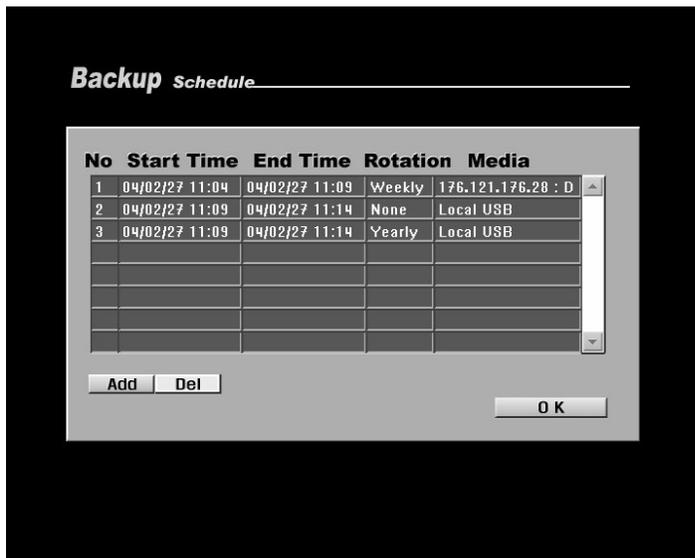
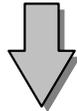
[Figure 7-72. Backup Schedule list]

## 7.7.2 Deleting Backup Schedule



- To delete a schedule from the list, select the schedule you wish to delete by using the **directional** keys and **Enter** key. Then select [Del] button to delete the schedule.

[Figure 7-73. Deleting backup schedule]



- Select [OK] button to accept the schedule and return to Setup menu.

[Figure 7-74. Deleting backup schedule]

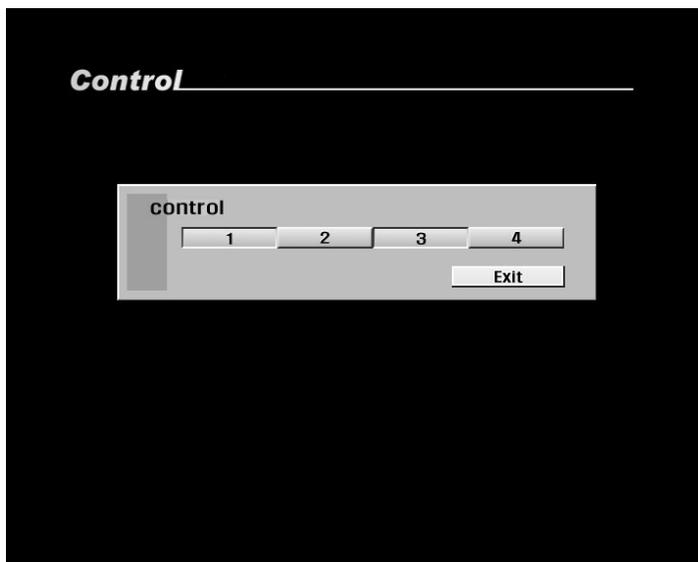
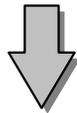
## 8. Controls - Manual Control

### 8.1 Switching to Control Mode

If you wish to use the control devices manually, select the 16-splitscreen mode in Surveillance mode, then press **Enter** key. You will then be able to select the control devices you wish to use manually.



[Figure 8-1. 16-splitscreen mode]



[Figure 8-2. Control Screen]

[Control]

- Use the **mouse** or the **directional** keys and **Enter** key to select the control device numbers you wish to control manually.

[Exiting Control mode]

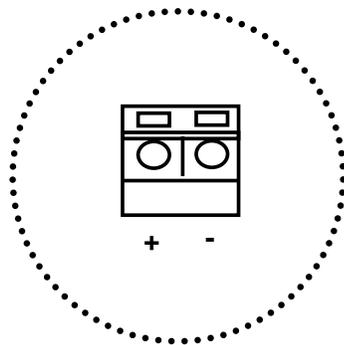
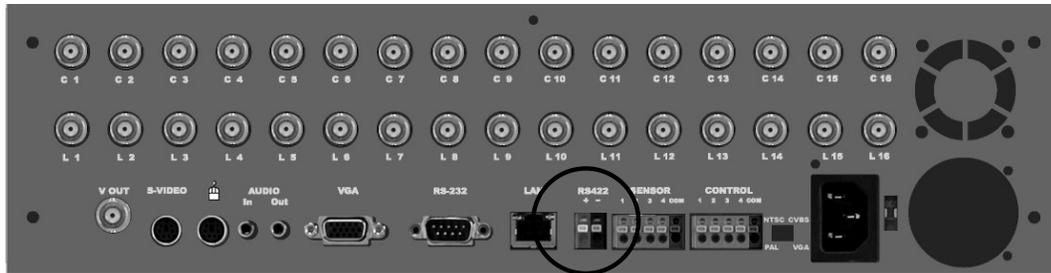
- Press [OK] button to return to Surveillance mode.

# Contents

## Chapter 2. DW716 DVR Installation

<b>1. Pan/Tilt Connection</b> .....	<b>85</b>
<b>2. Connecting LAN/PSTN Communication Lines</b> .....	<b>86</b>
2.1 LAN, ISDN (with the Router), and Dedicated Line Connection.....	86
2.2 PSTN (telephone line) Connection (optional).....	87
<b>3. RX Receiver (KRE-303) Connection Diagram (optional)</b> .....	<b>88</b>
3.1 Name of Each Part and Description.....	89
<b>4. External Sensor Connection (Input)</b> .....	<b>90</b>
<b>5. External Control Port Connection (Output)</b> .....	<b>91</b>
<b>6. Adding HDD</b> .....	<b>92</b>
6.1 Installing new HDD.....	92
6.2 Checking HDD Database.....	93
<b>7. HDD Smart Check</b> .....	<b>94</b>
7.1 HDD Smart Check.....	94

## 1. Pan/Tilt Connection



RS-422 Signal Cable Connection Port  
(Used for connecting RX-Receiver)

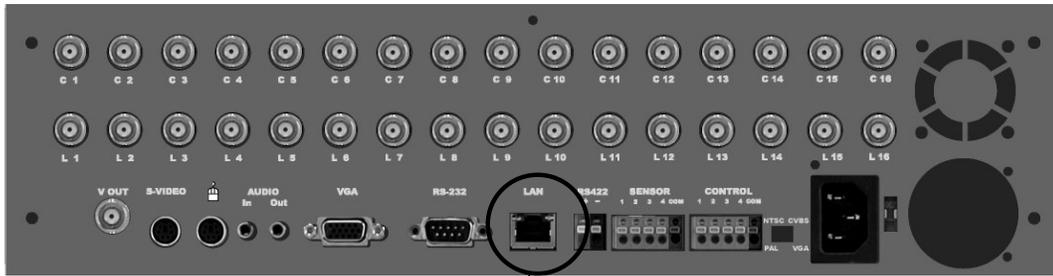


**[Caution]**

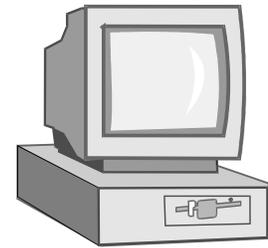
- Please beware of (+ve) and (-ve) poles of the signal cable when connecting it. Wrong connection may cause malfunction to the system.
- If you wish to use an RX-receiver not manufactured by KALTECH , please contact your dealer beforehand.

## 2. Connecting LAN/PSTN Communication Lines

### 2.1 LAN and Dedicated Line Connection



LAN  
(Used for connecting to DW716 UTP port)



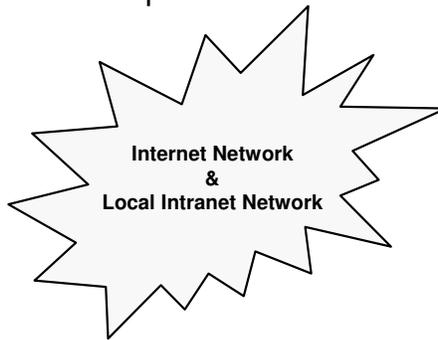
Center PC



Router



DSU  
(Dedicated Modem)



LAN  
(Used for connecting UTP port of the LAN Card)

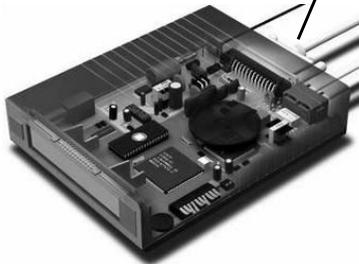
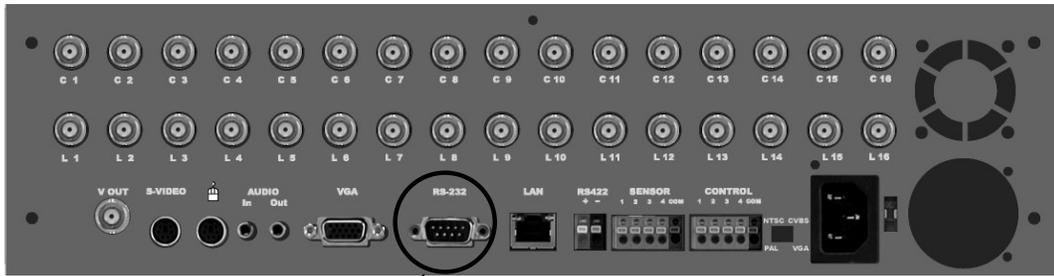


DSU  
(Dedicated Modem)

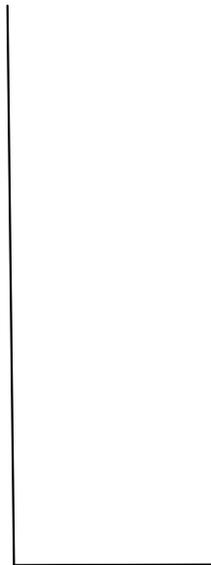


Router

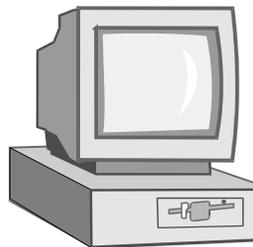
## 2.2 PSTN (telephone line) Connection (options)



MODEM  
(DW716 RS-232 connection)

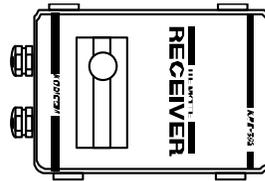


MODEM

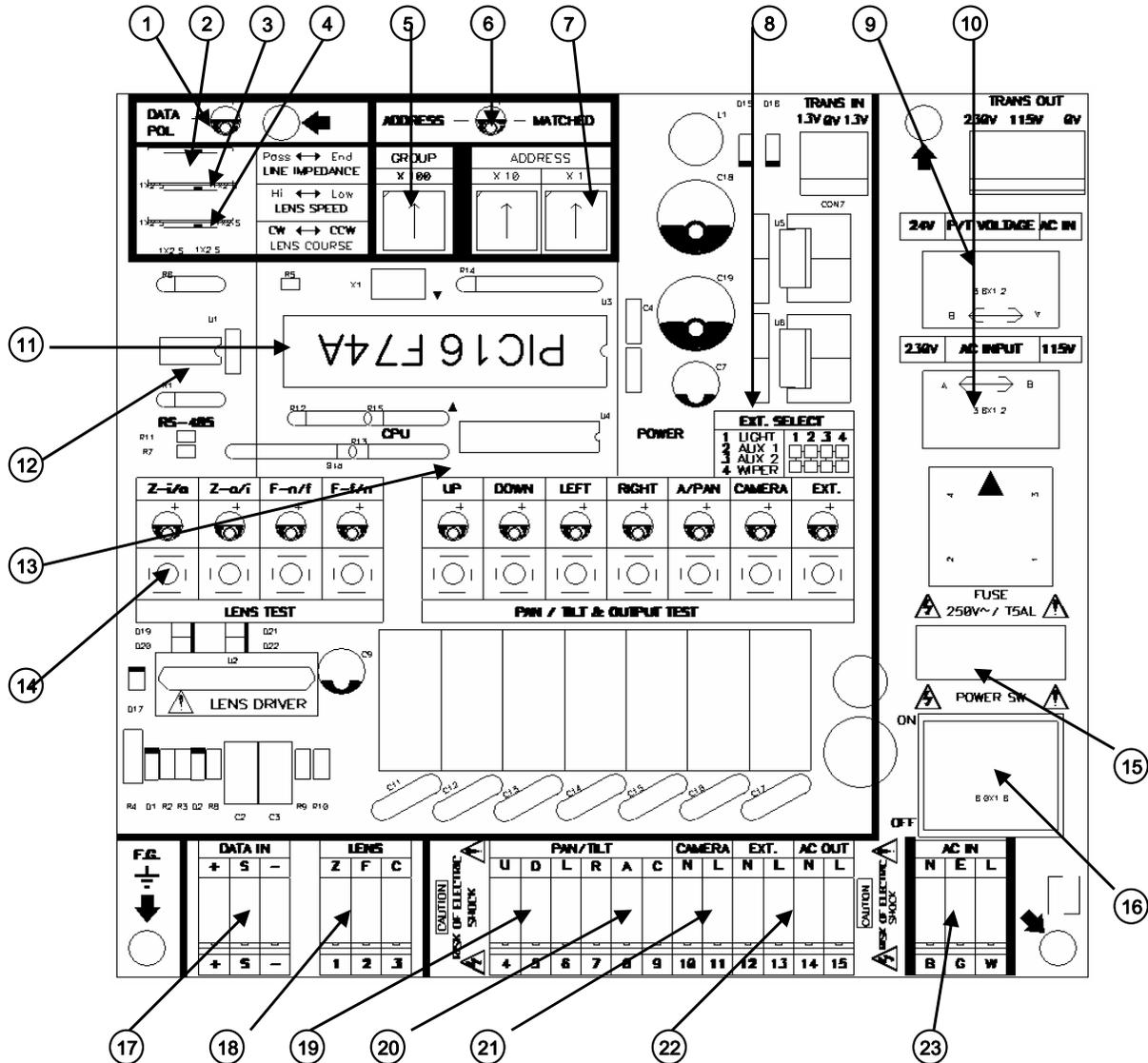


CENTER PC

### 3. RX Receiver (KRE-303) Connection Diagram (optional)



RX-RECEIVER Internal View



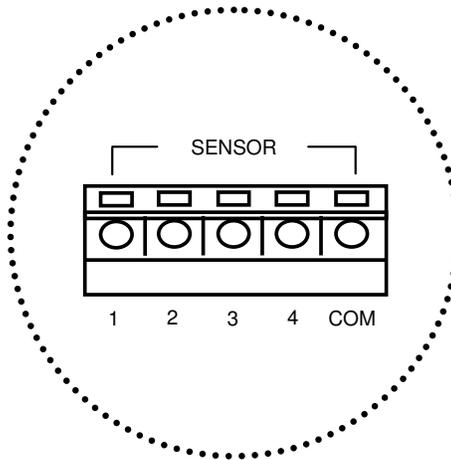
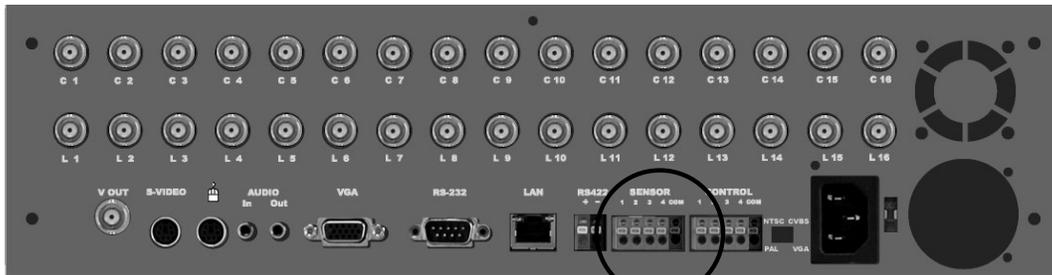
**[WARNING]**

The voltage of the light controlling output port is the same as the AC input voltage. The operating voltage of the camera lens is fixed to DC 12V.

### 3.1 Part Name and Description

- ① Turns "ON" when polarity of data lines connected correctly.
- ② Used for ON-OFF of the cross resistance according to the international standard, EIA-485.  
DC±6V when it is LOW, DC±12V when it is HIGH.
- ③ Used for reversing the polarity of ZOOM/FOCUS control output.
- ④ Used along side with MATRIX CARD, else it is "0"
- ⑤ Turns "ON" when summoned camera number from DVR or TX match.  
Created from the left in order of "100/10/1"
- ⑥ Output of EXT is adjustable from DVR depending on the condition at site.
- ⑦ P/T control voltage output is classified into AC24V and input voltage. The default is AC24V.
- ⑧ Input voltage selection switch for AC 110V/220V. The default is AC220V.
- ⑨ High end commercial usage only, PIC 16F74  
Can be replaced with National N75176-Japan or Maxim MAX485 IC-USA.
- ⑩ Used to check the condition of PAN/TILT and ON-OFF output.
- ⑪ Used to check the condition of MOTORIZED ZOOM LENS output.
- ⑫ Input power is 250V/10A when AC 110V is selected, and is 250V/5A when AC220V is selected.
- ⑬ Main power switch capable of ON-OFF on 2 lines at the same time.
- ⑭ Data input terminal capable of receiving RS-485EIA signal; be cautious of polarity.
- ⑮ 3 lines per output, in order of ZOOM(1)/FOCUS(2)/COMMON(3)
- ⑯ Arranged in order of UP/DOWN/LEFT/RIGHT/AUTO PAN/COMMON (4,5,6,7,8,9 consecutive)
- ⑰ Power output related to camera and its housing; AC voltage output.  
LIGHT/AUX 1,2/AUDIO – Maximum of 1KW of AC voltage output
- ⑱ AC power source used for installation/repair, usable by connecting to wall outlet.
- ⑲ Used in main power input terminal of AC 110V, or alternate power of 220V.
- ⑳
- ㉑
- ㉒
- ㉓

## 4. External Sensor Connection (Input)



Connect one (of two) signal lines of sensor (infrared sensor, magnetic) to COM port, and connect the other signal line to the desired sensor number.

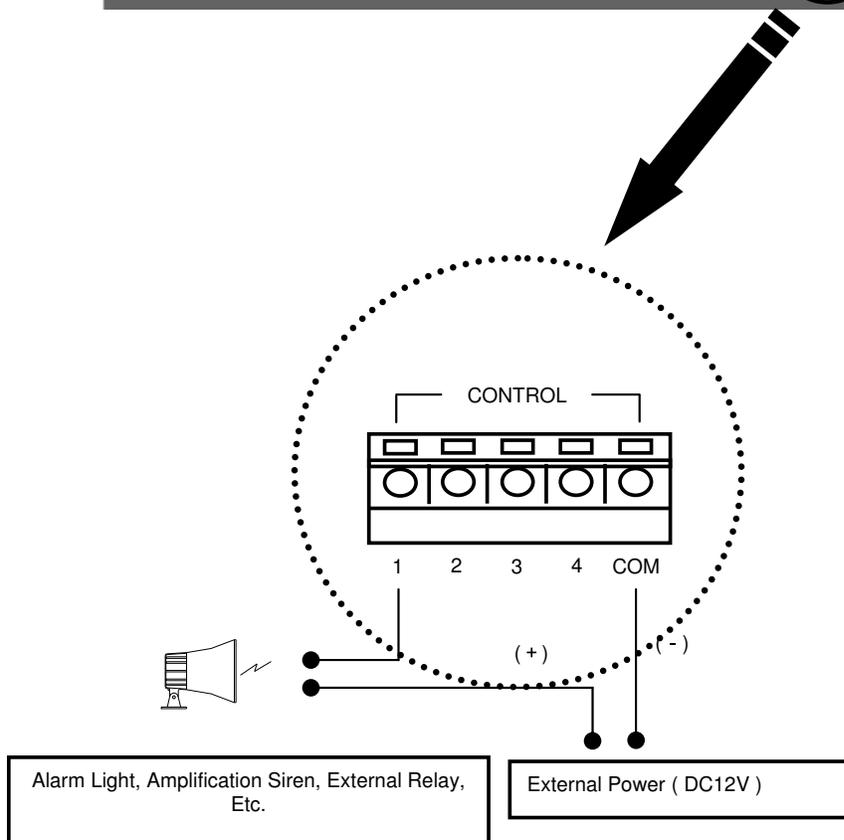
(Set the sensor "NC, NO" type in "Set Camera" menu See Page 69 for details on Sensor type setting)



**[WARNING]**

Use a separate adapter to supply power to each sensor.

## 5. Control Port Connection (Output)



- During automatic controlling of an external sensor, the control output port is interworked (the value set in “Set Camera” menu) and “COM” port is connected.
- In normal occasions, the control output is kept in “NO” status.
- When control is triggered, the control output changes to “NC” status.

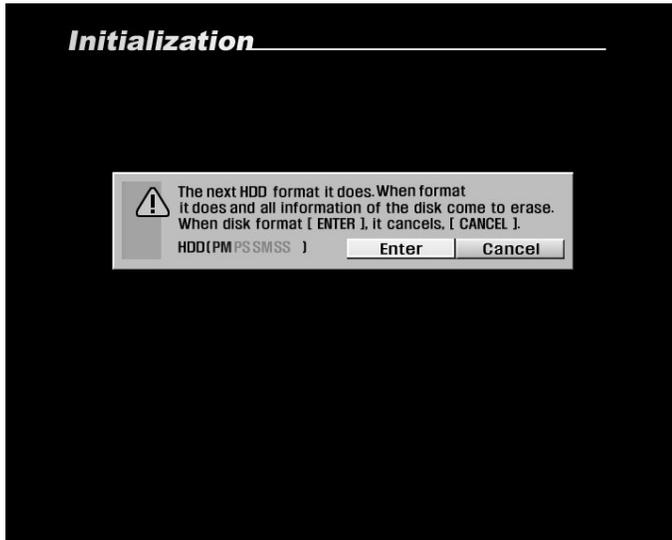


### [WARNING]

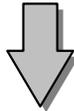
- The operating voltage should be maximum 12V, 300mA.
- When controlling lights and other devices operated by AC power, use a separate external relay.

## 6. Adding HDD

### 6.1 Installing new HDD



[Figure 6-1. HDD Format]



[Figure 6-2. HDD Format progress]

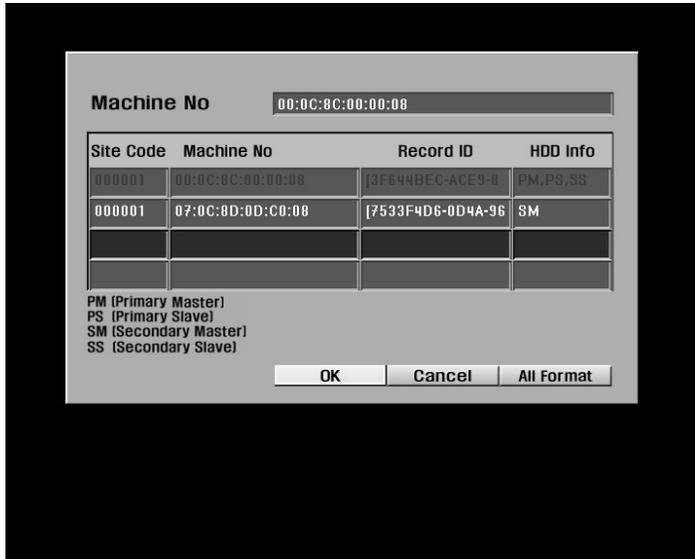
- Turn the system off and install the new HDD into the system.
- Turn the system back on and wait for the HDD format message.
- The message will ask you to confirm HDD format. HDD format is a necessary procedure before using the newly installed HDD.
- Press [Yes] button to being formatting the new HDD. Pressing [No] button will cancel HDD format and shutdown the system.

- Once the system begins formatting the HDD, you can view the progress through the progress bar.
- Once HDD is complete, the system will restart.

#### [Caution]

- Before attaching a new HDD to the system, please refer to both the original HDD and the new HDD interface jumper and set the MASTER and SLAVE.
- Any newly installed HDD must be formatted
- Formatting will erase all data stored in the selected HDD. Please make sure you have saved all important data before proceeding with HDD format (see page 38 for details on saving backup).

## 6.2 Checking HDD Database

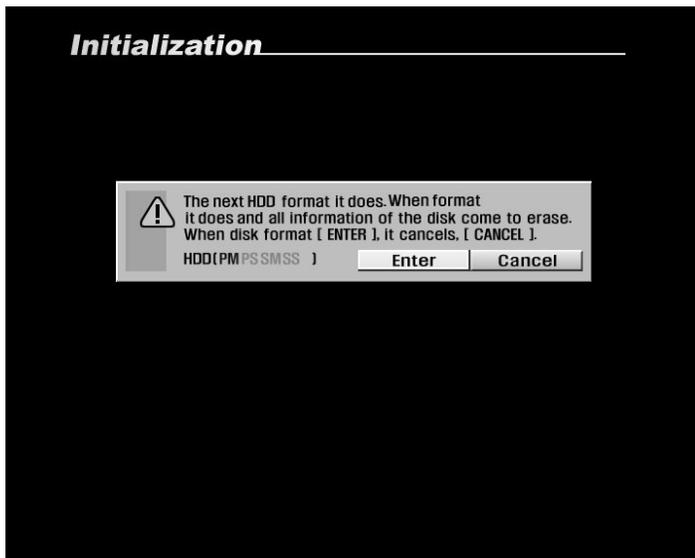


[Figure 6-3. HDD Table ]

- If the newly installed HDD database does not correspond with the original HDD, the system will display the HDD table.
- If the database of the HDDs do not correspond, you must format either the system's original HDD or the newly installed HDD.
- From the table, you can select the HDD you wish to format, then select [OK] button. The system will display a confirmation message shown in Figure 6-4.
- Select [Cancel] button to exit HDD table screen.

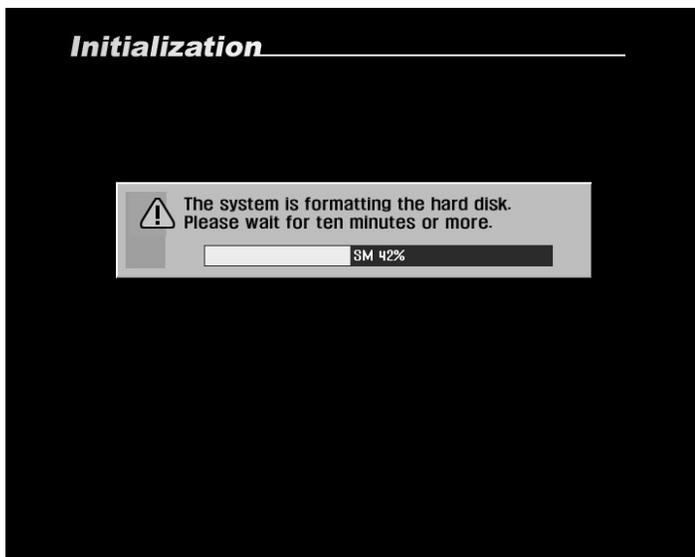
[All Format]

- Press [All Format] button to format all existing HDDs.



[Figure 6-4. HDD confirm message]

- The system will display a warning message. To confirm and proceed with formatting the selected HDD, press [OK] button. To cancel format and return to HDD table, select [Cancel] button.



[Figure 6-5. HDD Format progress]

- You can view the HDD format progress through the progress bar.
- The system will restart once the format is complete.



### [Caution]

Any newly installed HDD must be formatted

- Formatting will erase all data stored in the selected HDD. Please make sure you have saved all important data before proceeding with HDD format (see page 38 for details on saving backup).

## 7. HDD Smart Check

### 7.1 HDD Smart Check

This is a function to notify the user possibilities of HDD crash in advance.

This prevents the HDD from losing data or crashing that may come from bad sector or overheat by warning the user in advance.



[Figure 7-1. Main surveillance screen]

① [HDD warning icon]

- When the installed HDD has a problem such as bad sector or overheated DVR will beep or this icon will appear.
- It is strongly recommended to replace HDD when the HDD warning icon appears or beeps.
- The beep will appear every 10 second.



**[Notice]**

HDD smart check function is supported only when the use of HDD that supports S.M.A.R.T

- Check whether the HDD installed supports S.M.A.R.T..
- Avoid using old HDD or low capacity HDD.

# Appendix

## Appendix

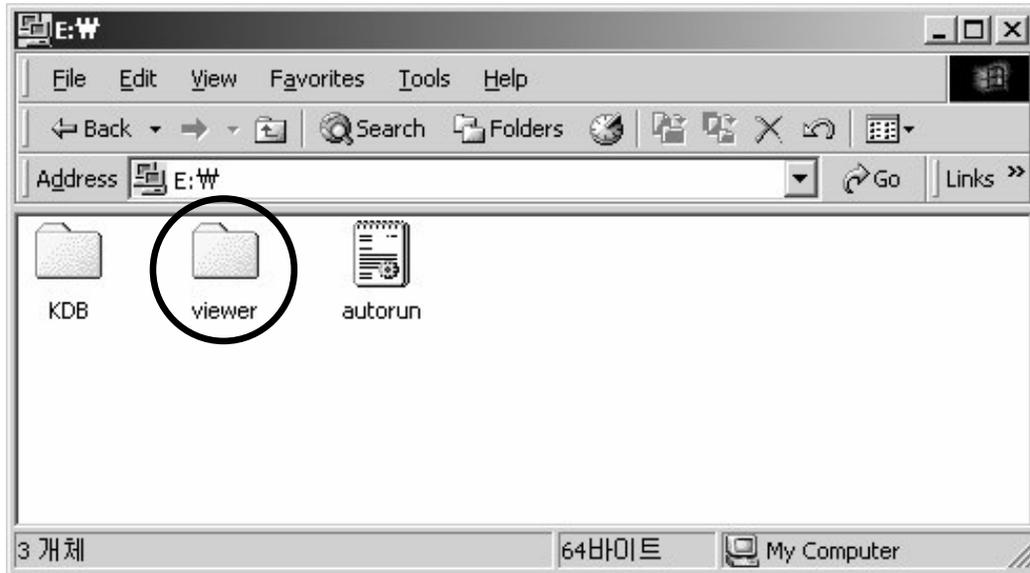
---

1. Viewer for KDB data.....	96
2. Specifications .....	100
3. Q & A .....	102

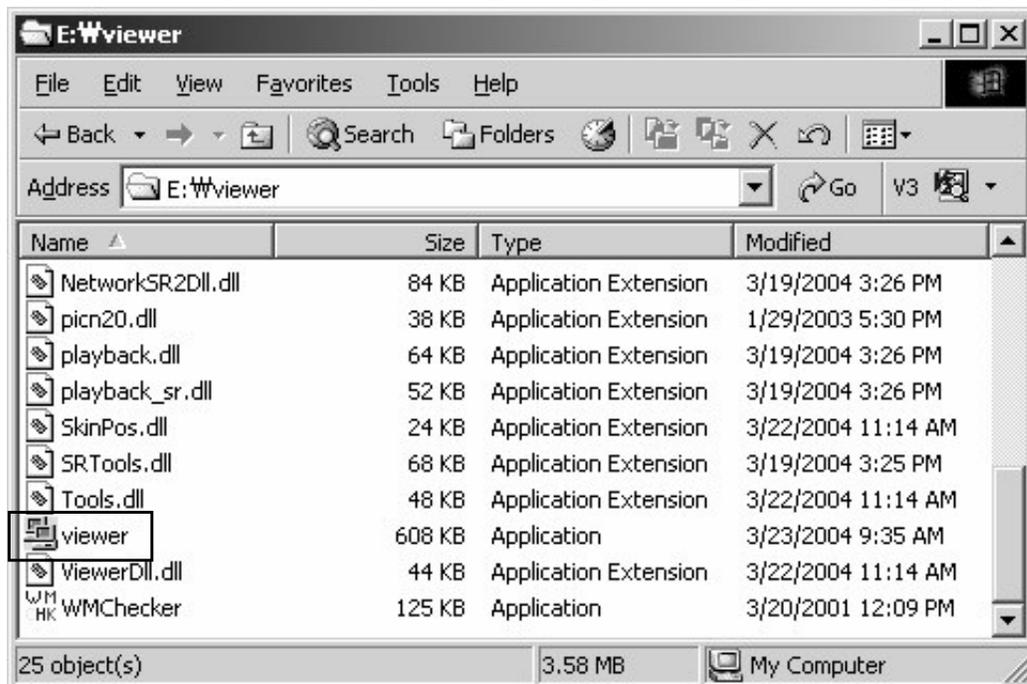
# 1. Viewer for KDB data

## 1.1 How to run Viewer

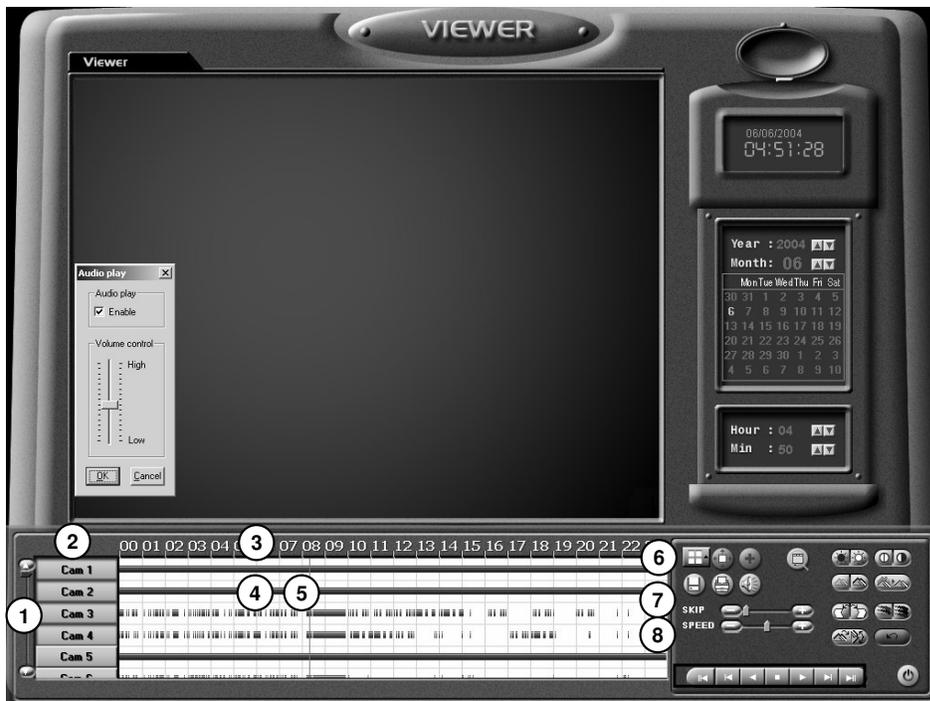
- ① When you insert the CD containing KDB type data burned on built-in CD-RW you can see below screen by entering the folder that contains Viewer. Then, double click Viewer folder.



- ② Viewer will work when you double-click Viewer.exe



## 1.2 전용 Viewer 메인화면



## ① [Scroll button for camera]

- This function is to scroll search cameras.

[Camera]

## ② • Select a camera number you wish to search.

- If you click on the camera number, the corresponding camera number's graph color will change.

## ③ [Time indication and magnifying graph territory]

- It indicates time for stored data.
- When you click on time, you can clearly check the graph territory by three phrases (hourly).

## ④ [Indication for stored amount]

- This function indicates recording type and storing time in a graph.
- Pink bar indicates 'Continuous Recording',
- Blue bar indicates 'Motion Recording',
- Dark Yellow bar indicates 'Sensor Recording',
- Green bar indicates 'Pre Alarm',
- and there will be no graphic bar if nothing was recorded.

## ⑤ [Search Bar]

- This indicates time line for presently searching data.
- Move the bar to the left and right to search the stored data.

## ⑥ [Split Screen setup]

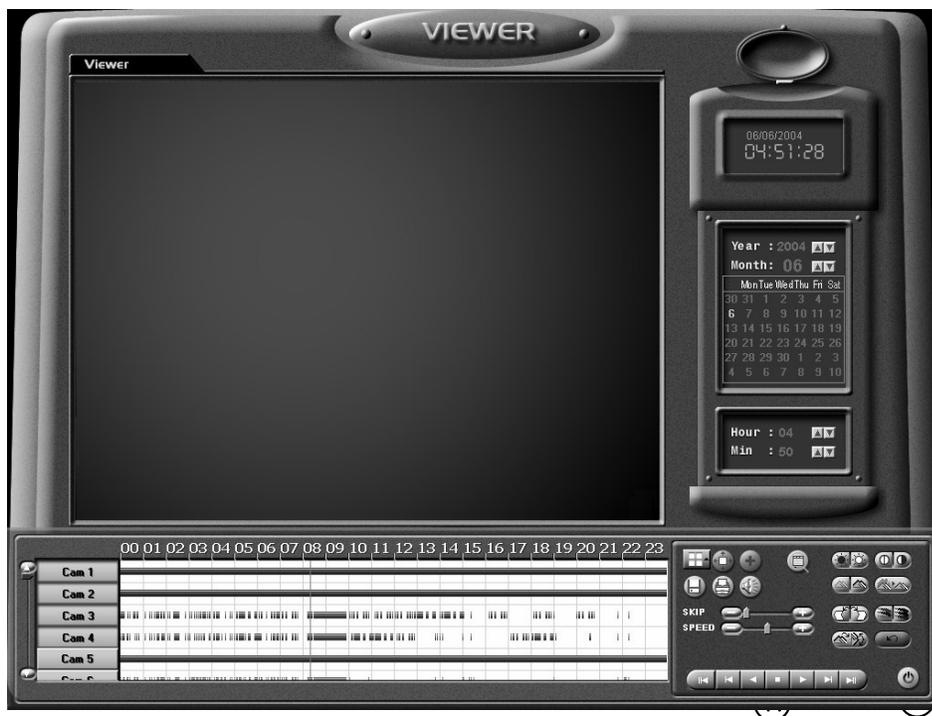
- When you click the button, split mode from search screen will automatically change according to the number of cameras you choose in a form of 4, 9, or 16 split screen.

## ⑦ [SKIP]

- Searched output of image will be ignored as much as designated output number. It will then give the output to a monitor.
- Designated number is not the number for the images but it is an internal value for OSR Center program.

## ⑧ [SPEED]

- This indicates the time that takes for one image to output to a monitor.



9 [Zoom]



This function is to zoom in and out the stored image and it can zoom in the image in a five phrase.

10 [Digital Zoom]

- When you click on Digital Zoom button, you can change the screen size among [Zoom out/ in/ move].

[Zoom In]

When you click on image using right mouse button, this function will zoom in the image for the selected part using up to 13 phrase.



[Zoom Out]



When you click on magnified image using right mouse button, selected image size will be reduced.

[Move]

This function is to zoom in the image by using right mouse button and dragging.



11 [Playback search screen]

- You must fix number of camera with date and time before running.
- You can playback with SKIP and DELAY.



Move to selected date and initial data

Playing one picture backward

Reverse playback

Stop

Forward playback

Playing one picture forward

Move to very last data from selected date

12 [Backup]



While you are searching for recorded data, select the image to backup and click this icon. Then "Backup" window will appear. ( Refer to page 44 of OSR Center manual)



13 [Print]



Print the selected image. Printing is possible when you select [Print] button only with one magnified screen.

14 [Audio Play Configuration]

- When you want to playback audio, select the channel with recorded audio from "Audio Play Configuration" window.

(Audio play is supported only for one channel search.)

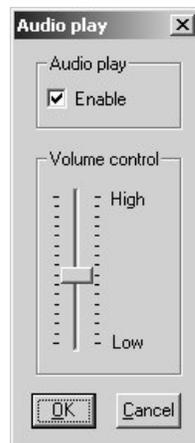
- When you click the 'Audio Play' icon, The audio play configuration window like right appears.



- Check on "Enable" on 'Audio Play' item.



- Adjust the volume properly using 'Volume control'.



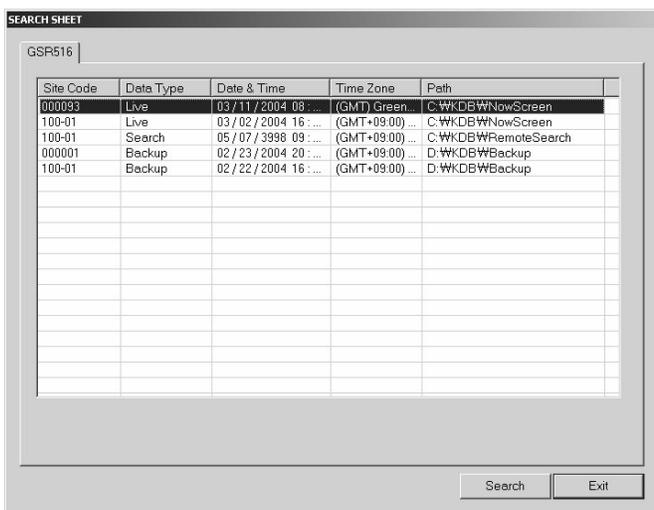
15 [Enhancement of playback image]

- Image quality during playback can be enhanced.

(Refer to page 44 of OSR Center manual)

16 [Search Sheet]

- When you click the icon to search the backup data below window will appear.
- Select the model that contains backup data and click 'Search' ( Please refer to page 44 for more details on Search Sheet)



17 [Quit]

- Exit the Viewer program.

# 1. Specifications

## System Specifications

- HDD : Max. HDD x 4
- O/S : Embedded Linux
- LAN : Ethernet 10/100 MB
- Modem : 56Kbps. External-type modem is supported. (Optional)

## Video Input

- 16Ch Composite Video (NTSC/PAL)

## Video Output

- General Monitor Spot Output (BNC)
- S-Video Output Port
- VGA Output Port
- Video Loop Through Port for Each Video Input

## Recording Frame

- NTSC : Max 112 Frame/Sec
- PAL : Max 96 Frame/Sec

## Audio Recording

- 1Channel Audio Support

## Compression Method

- Engine-X

## Display Mode

- x1, x4, x9, and x16 Screen Division – NTSC : 480 Frames/sec, 16Ch Multi-media Monitoring  
PAL : 400 Frames/sec, 16Ch Multi-media Monitoring

## Auto Switching

- Automatic channel rotation in order of x1, x4, x9, and x16 Screen Division

## Playback Display Mode

- Playing in splitscreen mode up to 16-splitscreen is possible
- Enlarging an image to fullscreen is possible

## Sensor Input

- 4 sensor input

## Alarm Output

- 4 alarm output

➤ **Motion Detection** - Yes

➤ **Camera/Sensor link** - Yes

➤ **Pan/Tilt/Zoom Control** - Yes

➤ **Backup**

- Auto/Manual backup through USB portable storage device, CD-RW or remote drive through network

➤ **Mouse ( PS/2 )**

➤ **Power:**

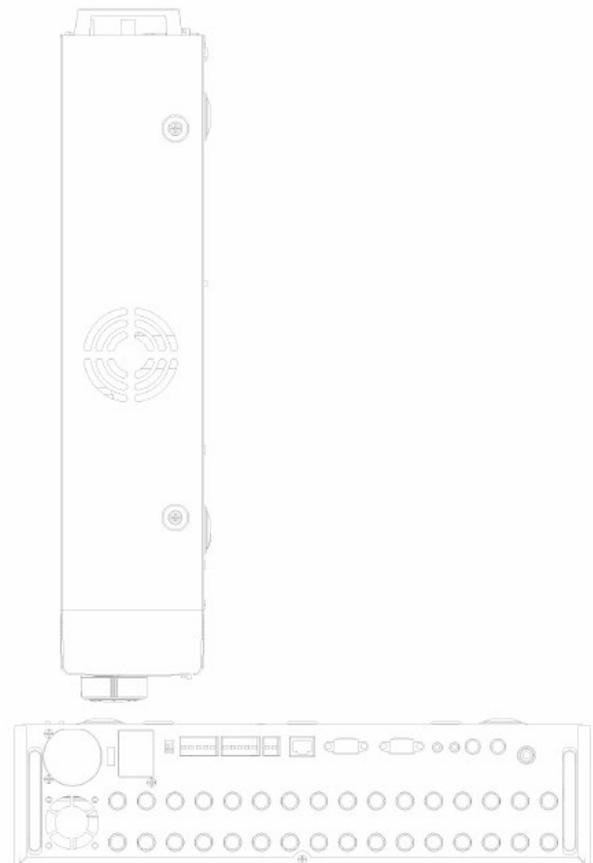
- The rated voltage might vary depending on the specification of the power supply.

Model	Input Voltage
ENP-0812A	AC 100-127V/200-240V, 60/50Hz, 4A/2A
ENP-2320	AC 115-230V, 60-50Hz, 4-2A

➤ **Weight:** 10.14Kg ( HDD x 4 )

➤ **Dimensions**

- Body (mm): 400 (W) x 480 (L) x 105 (H)



## 2. FAQ



### **The system power does not turn on.**

- ☞ Check if the power cable is connected correctly.
- ☞ Check if the input voltage is correct.
- ☞ If the system power does not turn on when the power cable is connected correctly, please contact the service center.



### **The system power is turned on, but no video data is displayed on the monitor.**

- ☞ Check if the monitor power cable is connected properly
- ☞ Check to make sure the monitor is turned on.
- ☞ Check if the video output cable of DW716 DVR is properly connected to the monitor.
- ☞ Unplug the power cable and plug in again..



### **The camera numbers are displayed on the screen, but camera images are not displayed.**

- ☞ Check if the camera video output is connected to DW716 DVR system correctly.
- ☞ Check if the power cable on the camera is connected correctly.
- ☞ Check if the video cable connecting the camera to DW716 DVR system has a problem.
- ☞ This problem can occur because of weak video signal if the video data is transferred by the video data distributor when the video is connected to multiple systems. Connect the camera directly to DW716 DVR.
- ☞ Turn off DW716 system and turn it on again.



### **The camera video is shown on the screen, but the system doesn't record video.**

- ☞ Check to make sure the recording mode in the recording setting mode is not set to "NONE".
- ☞ Turn off the DW716 DVR and turn it on again.



### **It is impossible to search through the recorded video.**

- ☞ Check if there is a recorded video data at the time that you are trying to search on the table.
- ☞ If there is no recorded video data, check to make sure the recording mode in the recording setting mode is not set to "NONE".



### **Audio data recorded with video data is not playing.**

- ☞ Check if the audio recording option is correctly set to the camera you wish to record audio.
- ☞ Check if the audio play option in the Searching mode is selected.
- ☞ Check if the microphone and speaker port on the rear of DW716 system are connected correctly.
- ☞ Check if the connected microphone is working properly.
- ☞ Check if the connected speaker is working properly.

**Color of some camera videos are strange or videos are shown abnormally.**

- ☞ Check if the camera connected to the system has a problem. Check to make sure the camera is not damaged by trying another camera into a working video output.
- ☞ Check if the video system setting is the same with your camera system. Depending on your region, the camera system can support either PAL, or NTSC. Depending on the camera system, the video process can differ greatly, therefore it can be difficult to recognize the video data if the video system setting is different from the camera system.

**There are a lot of (screen) noise on the image.**

- ☞ Check if the video signal output from the camera has a problem. Check to make sure the camera is not damaged by trying another camera into a working video output.
- ☞ Check if the video cable connecting the camera and DW716 DVR is cut, cross-wired, or shorted.
- ☞ Check if there is a high voltage wire around the video cable connecting the camera to DW716 DVR system. It can cause the noise problem to decrease video quality.
- ☞ Check if the video cable connecting the camera to DW716 DVR system is the correct video cable. When a normal power-supplying cable is used instead of the video cable, screen noise can be generated.

**Sometimes the system restarts itself.**

- ☞ The system can restart itself due to watchdog function when any problem occurs to DW716 DVR.

**The connected sensor is not operating.**

- ☞ Check if the type of sensor in camera setting is the same with the connected sensor.
- ☞ Check if the system is set to use the sensor in recording schedule window in the recording setting menu.
- ☞ Check if the power cable of the sensor is properly connected.
- ☞ Check if the signal cable of the sensor is properly connected.

**The connected control device is not operating.**

- ☞ Check if the system is set to use the control device in the camera setting menu.
- ☞ Check if the power cable of the controller is properly connected.
- ☞ Check if the signal cable of the controller is properly connected.

# Warranty Information

The quality of this product is guaranteed by strict quality control process and tests.

If the product is damaged despite following the instructions provided in the manual, this warranty will be in effect, provided the product is damaged within 1 year of purchase.

## Warranty Information

- Check the Product Warranty Sheet to make sure it is still in effect.
- Check the problem again and contact your dealer you purchased from.
- About product repair, exchange, or refund, we follow the “compensation regulation for customer’s loss” announced by “the Economic Planning Board”.

## Warranty

- If the product is damaged despite following the instructions provided in the manual, this warranty will be in effect, provided the product is damaged within 1 year of purchase.
- Service fee and replacement parts will be charged in below cases:
  1. Damaged the user’s carelessness.
  2. Damaged due to a natural disaster.
  3. Damaged due to the user not following the instructions and cautions written in the user’s guide.
  4. Damaged due to incorrect power voltage, and/or frequency being used.
  5. If the Product Warranty sheet is expired.
  6. Damaged due to an engineer not employed by KALTECH modifying the system.
- If your system is damaged after the warranty period, free repair service will not be available. If you wish the system to be repaired, service fee and replacement parts will be charged.

## Product Warranty

Product/ Model Name		
Serial Number		
Purchasing Dealer		
Purchasing Date		
Warranty Period		1 year from the purchasing date.
Customer	Name	
	Address	

- The Product Warranty Sheet will not be issued again.
- The Product Warranty Sheet must be filled on the same day of the product's purchase.
- It will be requested to show this warranty to receive free repair service.



If you have any questions about this product, you may call:  
**Kaltech Enterprises Tech Support Center**  
**1-866-446-3595**  
**[helpdesk@kaltech.net](mailto:helpdesk@kaltech.net)**