PACOM
PDR-4L Smart Digital Recorder

4 Channel
Digital Video Recorder
based on embedded OS

Pacific
Communications
CLOSED CIRCUIT VIDEO SYSTEMS

User's Manual

CAUTION

RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK).
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED
SERVICE PERSONNEL.

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock.

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

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Important Safeguards

1. Read Instructions

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

2. Retain Instructions

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

3. Cleaning

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

4. Attachments

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

5. Water and/or Moisture

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

6. Accessories

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

This equipment and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the equipment and cart combination to overturn.

7. Ventilation

Slots and openings in the cabinet and the back or bottom are provided for ventilation, and to ensure reliable operation of the equipment and to protect it from overheating. These openings must not be blocked or covered. Do not block these openings or allow them to be blocked by placing the equipment on a bed, sofa, rug, or bookcase. Ensure that there is adequate ventilation and that the manufacturer's instructions have been adhered to.

8. Power Sources

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

9. Power Cords

Do not allow anything to rest on the power cord. Do not locate this equipment where the cord will be abused by persons walking on it.

10. Lightning

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

11. Overloading

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

12. Objects and Liquids

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

13. Servicing

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

14. Damage requiring Service.

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

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

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

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

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

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

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

15. Replacement Parts

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

16. Safety Check

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

17. Field Installation

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

18. Telnet Communication Cable

Minimum No.26 AWG wire must be used for TNV interconnection Cable.

19. Danger of explosion if battery is incorrectly replaced.

Replace only with same or equivalent type recommended by manufacturer. Discard used batteries according to the manufacturer's instruction.

Table of Contents

List of Illustrations

Chapter 1. Overview

1.1 In This Manual

This manual describes the procedures for programming and operating the four-channel digital video recorder (DVR).   This manual describes each function using text instructions and Graphic User Interface (GUI) buttons and dialog boxes.   Appendix A contains quick reference guide for front panel controls and a dialog box map.

1.2 Features of the Product

Your four-channel color DVR provides viewing and recording capabilities for four cameras or other video sources.   It provides exceptional picture quality in both live and playback modes, and offers the following features:

- NTSC/PAL Compatible (Selector Switch)
- Compact Size
- Dual Recording Modes (Time and Event)
- Remote Monitoring and Playback (Premium Model Only)
- Two Display Formats (Full Screen and 2x2 Screen)
- Live Video Freeze
- On-Screen Display (OSD)
- Programmable Setup of Individual Camera Activity and Intrusion Detection
- User-friendly Graphical User Interface (GUI) Menu System
- 1-Channel Audio Recording and Playback
- ATM/POS Interface Options
- 4-Channel Alarm Input, Alarm Reset Input, 2-Channel Alarm Output, and an Internal Buzzer

Chapter 2. Installation

2.1 Sample Diagram
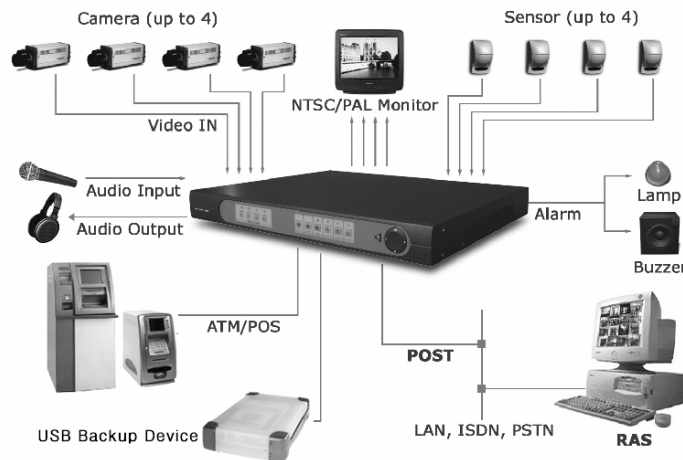
Figure 1   Sample Diagram

2.2 Connecting Components

Rear Panel Connectors
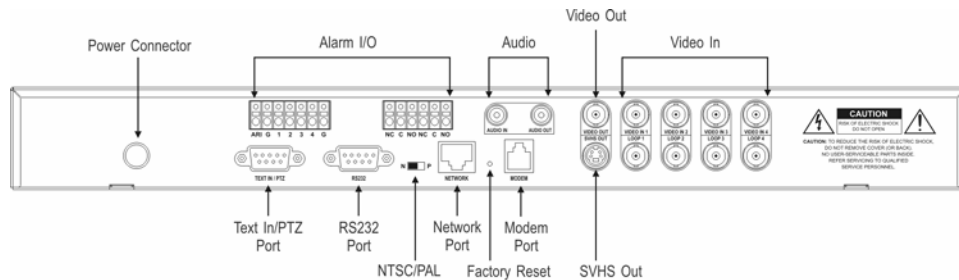
Figure 2   Rear Panel

WARNING: Do not operate the DVR on a carpet or other soft surface that might block ventilation holes.   If you are installing the DVR in a cabinet or rack, make certain there is adequate ventilation.

Your DVR is designed to work a variety of other equipment.   In this section each type of equipment will be discussed.   The basic DVR will consist of a video camera and system monitor.

Video In (1-4)

Four video inputs and four video loop outputs are provided for video source connections using standard BNC connectors.   The video inputs accept monochrome or color composite video signals.   The looping video outputs (Loop 1-4), provided for each camera are used to loop the video signal to other equipment.

NOTE: The BNCs on the DVR are self-terminating.   Do not connect a cable to the Loop connector unless it is connected to a video device because this will defeat the termination.

Video Out

A composite video output is provided on the Video Out BNC for connection to a B/W or color video monitor.   The SVHS output (mini-DIN connector) is provided for SVHS monitor connection.   Both Video Outs can be used at the same time.

Audio In

One audio input is provided on the Audio In RCA connector.   The input only accepts the line-level signal, so an external pre-amplifier is required to connect a microphone.

Audio Out

One mono audio output(line-level) is provided on the Audio Out RCA connector.   This output allows monitoring of live audio signals or audio signal during playback.   An external audio amplifier is required.

Network Port

The Network Port is a RJ-45 port that supports 10/100 Mbps Ethernet connections.

Modem Port

The Modem Port is a RJ-11 port that supports a telephone line connection.

Text In/PTZ Port

The Text In/PTZ Port is used for either text input or PTZ control.   When using for the Text In port, it supports standard RS-232C ASCII text input on a DB-9P connector.   This text source may be from POS devices, cash registers, ATMs, access control systems, or other sources that output asynchronous ASCII information.   When controlling the PTZ camera via RS485 input, the additional RS232 to RS485 converter is required.

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RS232 Port

A second 9-Pin male plug is provided for RS232C serial communication for either an external modem connection or a remote controller connection.

Power In

The power connector is provided for connecting DC 24 volt power supply.   Connect the DC power cord of the adaptor to the DVR, and connect the AC power cord to the adaptor and then to the wall outlet.   AC input specifications of the provided adaptor are 100~250 VAC, 50~60 Hz and 1.0 A.   The output specifications of the adaptor are 24 VDC and 2.9 A.

Terminal Strip Connections

Alarm In

Four alarm inputs (1-4, 2-ground) are provided for manual alarm activation.   The inputs accept switch closures (door contact, panic buttons) or TTL (transistor-to-transistor) open-collector input signals.

Alarm Out

Two external alarm outputs (both either NC or NO contacts) and one internal buzzer (ARI, G) for alarm indication are provided.   The alarm status is monitored using the alarm output connected to a visual or audible indicator (flashing light, bell) and the internal buzzer. Pressing ALARM resets the alarm (both alarm outputs, and internal buzzer) status by releasing alarm output during alarm activation.   Permitted current is up to 0.6 A for 125 VAC or 110 VDC, 2 A for 30 VDC.

NOTE: The NTSC/PAL switch is located between RS232 plug and Network Port, and Factory Reset push button is between Network Port and Modem Port.

2.3 Front Panel

Front Panel Controls
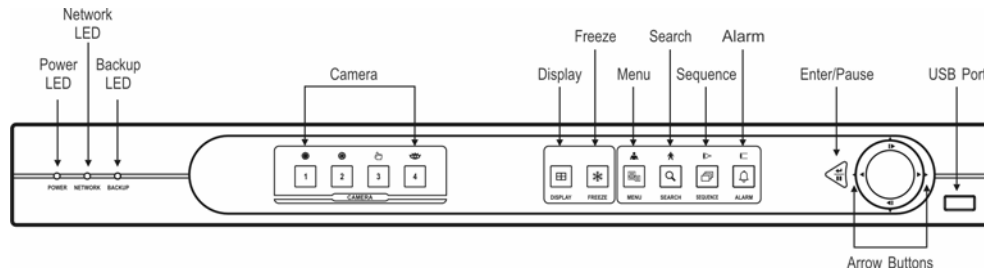
Figure 3   Front Panel

POWER LED

The POWER LED is lit when the DVR is On.

NETWORK LED

The NETWORK LED is lit when the unit is networked either via Ethernet or modem.

BACKUP LED

The BACKUP LED is lit when data is being backed up using the USB port.

CAMERA Number Button (1-4)

• Selects the camera (1-4) image in the live monitoring mode and the playback mode.
• Enters number when entering the password.
• In the PTZ mode, CAMERA 1 and CAMERA 2 control the brightness of the image by opening and closing the IRIS of the PTZ camera.   CAMERA 3 sets up the PTZ preset, and CAMERA 4 loads the PTZ preset.

DISPLAY Button

• Switches between full screen mode and 2x2 screen mode.

FREEZE Button

• Freezes video during live monitoring mode, and releases video freeze by pressing the button again.

MENU Button

- Displays the dialog box for entering password when the password has been preset. Begins the menu mode when the entered password matches, and begins the menu mode direct when the password has not been preset.
- Displays the search menu in the playback mode.
- Closes the current menu or setup dialog box.
- Zooms in on the image of the PTZ camera in the PTZ mode.

SEARCH Button

- Displays the dialog box for entering password when the password has been preset. Begins the playback mode when the entered password matches, and begins the playback mode direct when the password has not been preset.
- Goes to the playback mode in the live monitoring mode.
- Zooms out on the image of the PTZ camera in the PTZ mode.

SEQUENCE Button

- Starts/Ends sequential camera switching.
- Makes the focus of the PTZ camera near in the PTZ mode.

ALARM Button

- Resets an alarm during alarm activation.
- Displays the event log in the live monitoring mode, except during alarm activation.
- Makes the focus of the PTZ camera far in the PTZ mode.

Enter/Pause Button

- Selects the item or finishes GUI control input in the menu setup.
- Stops playback in the playback mode.

Up-Arrow Button

- Selects the next image in the playback mode.
- Navigates through menus and GUI during system setup.
- Tilts the PTZ camera up in the PTZ mode.

Down-Arrow Button

- Selects the previous image in the playback mode.
- Navigates through menus and GUI during system setup.
- Tilts the PTZ camera down in the PTZ mode.

Left-Arrow Button

• Plays the images backward.   Subsequent selection toggles the 1x/2x/8x backward play speed.
• Navigates through menus and GUI during system setup.
• Pans the PTZ camera to the left in the PTZ mode.

Right-Arrow Button

• Plays the images forward.   Subsequent selection toggles the 1x/2x/8x forward play speed.
• Navigates through menus and GUI during system setup.
• Pans the PTZ camera to the right in the PTZ mode.

USB Port

• A USB port is provided to connect external hard disk drives for archiving video.   Position the external hard disk drive close enough to the DVR so that you can make the cable connections usually less than 6 feet.   Use the USB cable provided with the hard disk drive to connect it to the DVR.

2.4 Turning on the Power

The DVR is operational in approximately 30 seconds after the power cable is connected to the DVR.   The Power LED on the front panel will turn ON, and this action signifies the DVR has been turned on properly.

2.5 Turning off the Power

The DVR may be powered down by unplugging the power cord at the rear of the DVR.   No on/off switch is provided.

2.6 Factory Reset

CAUTION: When factory reset is launched, all previously recorded data will be deleted and all programming configurations will be reset as the factory default setting.

1. Remove power from the DVR and reapply.   When the power is reapplied, all front panel LEDs will illuminate.

2. After approximately 20 seconds the front panel LEDs will extinguish.   At this time, press the recessed Factory Reset push button located on the back panel with a sharp pin and maintain the button depression for 10 seconds.   If the factory reset is performed successfully, all of the button LEDs will blink three times.   Otherwise repeat from step 1.

Chapter 3. Configuration

3.1 Overview

Your DVR provides a Graphic User Interface (GUI) for easy system programming and operation.   The front panel push-button controls are used to enter system commands and for programming.   A system video monitor must be connected to the video-out connector (BNC or SVHS) to view the video and programming screens.

3.2 System Setup

Press MENU on the front panel to initialize the Quick Setup screen after confirming the setup password.   Refer to 3.8 Configuring Other Parameters ─ Enable/Disable Password section for details of setting up the password.   Disabling the Quick Setup and closing the Quick Setup screen goes to the Normal Setup screen displaying the GUI with eight programming icons (buttons) at the bottom.   In the system setup mode, press MENU to exit from the setup mode, and go to the live monitoring mode.

3.2.1 Quick Setup

As well as the Normal Setup, the DVR also supports the Quick Setup for system programming. The factory default is the Quick Setup.   In the Quick Setup mode, the user can program the following options for each camera input:

• Quick Setup On/Off
• Recording Speed/Image Quality
• Audio Recording
• Sequence Dwell Time
• System Information
• Camera Selection & Titling
• Network Configuration (Network-supported Premium Model Only)
• Security (Password)
• Date/Time Initialization
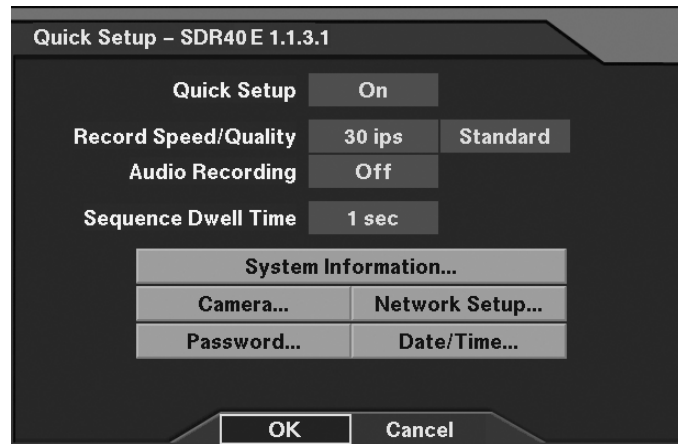
Figure 4   Quick Setup Dialog

Quick Setup

- **Quick Setup**: Enable or disable Quick Setup.
- **Record Speed**: Set the recording speed (1/30ips~30ips).
- **Record Quality**: Set the recording image quality (Very High, High, Standard and Low).
- **Audio Recording**: Enable or disable audio recording (On/Off).
- **Sequence Dwell Time**: Set the camera sequencing dwell time (1 sec~6 sec).
- **System Information**: Set up the system information (Refer to Figure 8 System Information Dialog.).
- **Camera**: Set up camera information (Refer to Figure 10 Camera Setup Dialog.).
- **Network Setup**: Set up network information (Refer to Figure 35 Network Setup Dialog. Network-supported premium model only).
- **Password**: Set up the password (Refer to Figure 46 Password Setup Dialog.).
- **Date/Time**: Set up the date/time (Refer to Figure 6 Date/Time Setup Dialog.)

3.2.2 Normal Setup

To select the Normal Setup, press MENU on the front panel to display the Quick Setup screen first.   Select Off in the Quick Setup field, and exit from the menu by pressing OK. The DVR will reload default settings if Yes is selected.   The Normal Setup screen is then displayed.   To go back to the Quick Setup, select Quick Setup in the Configuration menu. In the Normal Setup mode, the user can program each of eight menu options in detail.   Refer to the Appendix A. Quick Reference ─ Reference Dialog Map for the setup menu configuration.   The menu icons (buttons) at the bottom of the Normal Setup screen can be scrolled through by arrow buttons on the front panel.   Pressing ENTER after selecting the setup menu displays the setup dialog box.   Section 3.3~3.8 describes the detailed instructions to configure programming functions.   The programming operation is described in each section using the PATH description, screen dialog and explanation text.
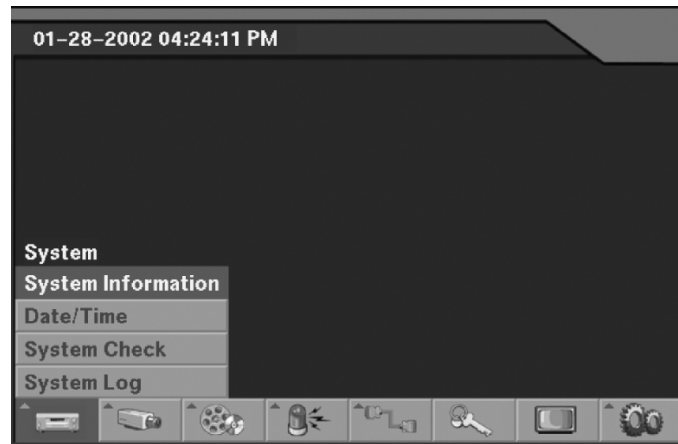
Figure 5   Normal Setup Dialog

System: System Information, Date/Time, System Check, and System Log Setup
Devices: Camera, Alarm-In, Motion Detector, Text-In/PTZ, Alarm-Out, Audio, and RS232 Setup
Record: Time-Lapse Record and Pre-Event Record Setup
Event Action: Alarm-In Action, Motion Action, Text-In Action, and Video Loss Action Setup
Network: Network and Callback Center Setup
Password: Password Setup
Live Monitoring: Sequence Dwell Time Setup, and OSD Setup
Configuration: Quick Setup, Load Default Setup, and Clear All Data Setup

3.3 Configuring System Information

Set up System Date/Time

PATH: MENU ▶ System ▶ Date/Time

1. Move to the Date/Time field, and press ENTER.   Change the values using the up/down-arrow buttons and change the field using left/right-arrow buttons on the front panel. Finish the setting by pressing ENTER.

NOTE: If you change the system time, the DVR will restart.

NOTE: The newly set time starts upon selecting *OK* and entering the Admin password.

2. Move to the Time Zone field, and press ENTER to select the proper time zone from the list shown.
3. Move to the Daylight Savings Time field, and select either On or Off**.**

NOTE: The system time and daylight saving time settings cannot be changed at the same time.   Set the use of daylight saving time first, and then change the system time. The DVR will restart twice in order to change both the system time and the daylight saving time settings.

4. Move to the Holiday Setup button, and press ENTER to display the Holiday Setup dialog box.   Set up the holiday schedule using Add and ☒ buttons.   To add holidays, press the Add button, and set the date then add it by pressing ENTER.   To delete holidays, press the ☒ button next to the target date.

NOTE: Update the holiday(s) every year when the holiday information has been changed for the current year.

5. Move to the Date Format field to select the date format (MM-DD-YYYY, DD-MM-YYYY, YYYY-MM-DD, MM/DD/YYYY, DD/MM/YYYY, or YYYY/MM/DD).
6. Move to the Time Format field to select the time format (24 Hours/12 Hours (AM/PM)).

CAUTION: If you change the time to the past, recorded images dated later than the new date/time are deleted immediately.

Figure 6   Date/Time Setup Dialog

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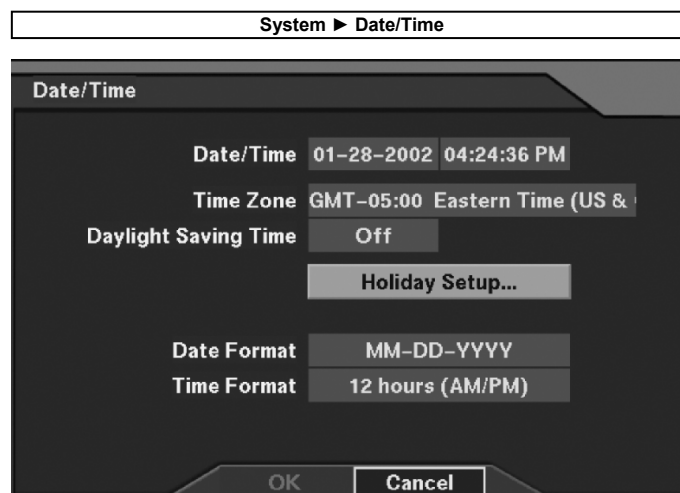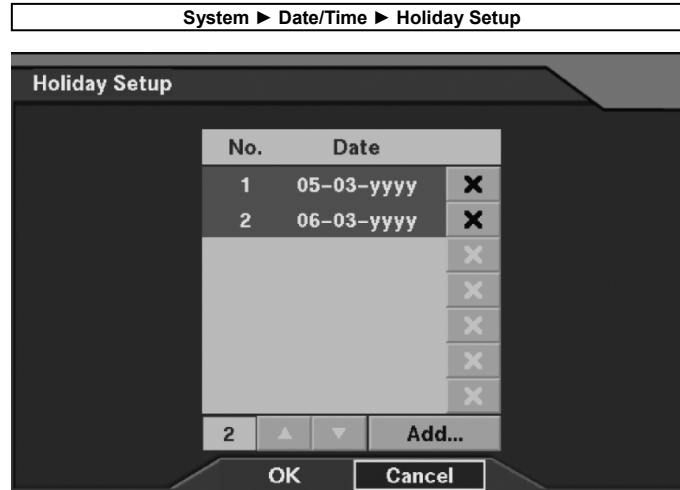
Figure 7   Holiday Setup Dialog

Set up System Location Information

PATH: MENU ▶ System ▶ System Information ▶ Change
(Refer to Figure 8 System Information Dialog.)

1. Move to the Change field, and press ENTER to display the System Information Change
   dialog box.
2. Move to the Site Description field, and enter a title of the location where the system is
   installed using the software keyboard.

NOTE: Software keyboard dialog box
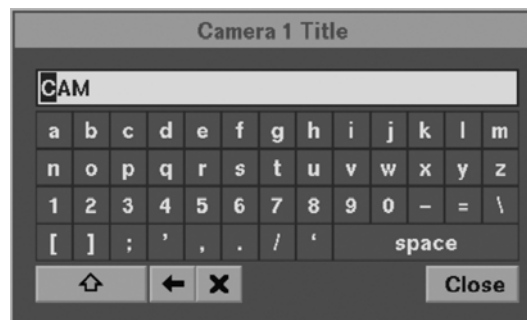
How to use the software keyboard:

1. The edit window displays current information.   Move to the edit window using up/down-arrow buttons on the front panel.
2. Press left/right-arrow buttons to move the cursor one space left or one space right, and press ← (Back Space) or ✖ (Delete) to delete the character in front of or under the cursor.
3. Move to the character you want to enter using arrow buttons, and then press ENTER. Selected character will be inserted under the cursor.   Pressing ⇧ (shift) shifts to another display mode including capital letters and symbols.   Return to the previous mode by pressing ⇧ again.
4. Move to the edit window or the Close button and then press ENTER or MENU to finish composing characters and close the software keyboard dialog box.

Set up Hard Disk Drive Configuration

PATH: MENU ▶ System ▶ System Information ▶ Change

1. Press Change to change the setting.
2. In the End of Disk field, select either Overwrite or Stop.
   • Overwrite: Continue recording by overwriting the oldest recorded images.
   • Stop: Stop recording when HDD is full.
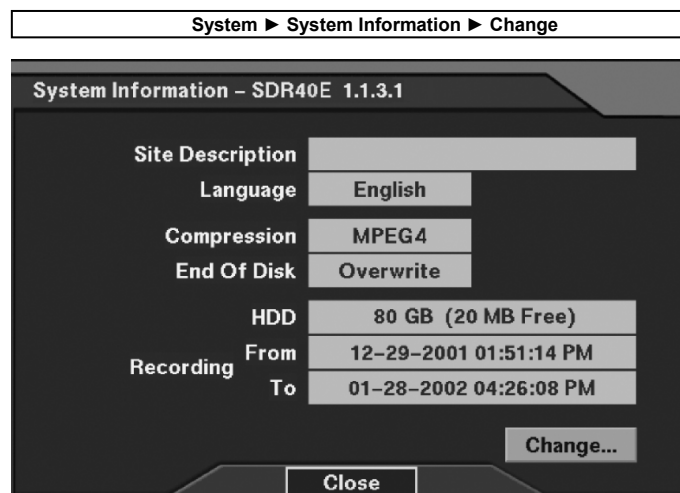
Figure 8   System Information Dialog

Set up the system information.
• Site Description: Enter a title of the location where the DVR is installed.
• Language: Select the language to use (from English, French, German, Italian, and Spanish).
• Compression: Displays the compression engine.

- End Of Disk: Enable or disable using Overwrite in case of recording space shortage.
- HDD: Displays the size of an installed hard disk and the remaining storage space.
- Recording From: The oldest recording time
- Recording To: The latest recording time
- Change: Change the settings for Site Description, Language, and End Of Disk.
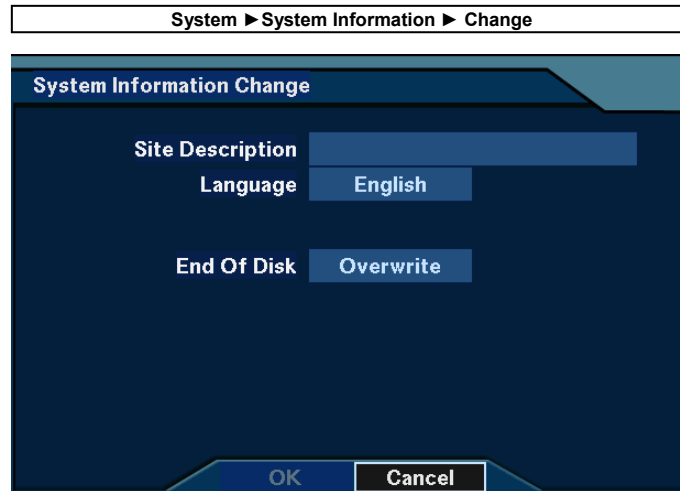
Figure 9   System Information Change Dialog

3.4 Configuring for live Monitoring

Enable/Disable Camera

PATH: MENU ▶ Devices ▶ Camera

1. Move to the On/Off field of the selected camera using arrow buttons on the front panel, and select either On or Off by pressing ENTER.

NOTE: Changing On/Off on the title bar applies the change to all cameras.

NOTE: Deactivate any inputs to which cameras are not connected by selecting *Off*; otherwise the recording speed might be decreased somewhat.

Set up Camera Description (Title)

PATH: MENU ▶ Devices ▶ Camera

1. Move to the Title field of the selected camera.
2. Press ENTER to display the software keyboard, and enter a description or title for the camera (such as LOBBY) using the software keyboard.   A total of 16 characters may be entered.

Select Camera Type

PATH: MENU ▶ Devices ▶ Camera

1. Move to the Setup field of the selected camera, and press ENTER .
2. Move to the Type field, and select the camera type either Color or B&W.

NOTE: When using a B&W camera, change the setting to B&W to reduce noise in the recording and improve image quality.

NOTE: If the selected camera is a PTZ camera, set up PTZ type and PTZ ID.   Refer to the following *Set up PTZ Camera* and *Set up PTZ Port* section for the details of PTZ camera setup.
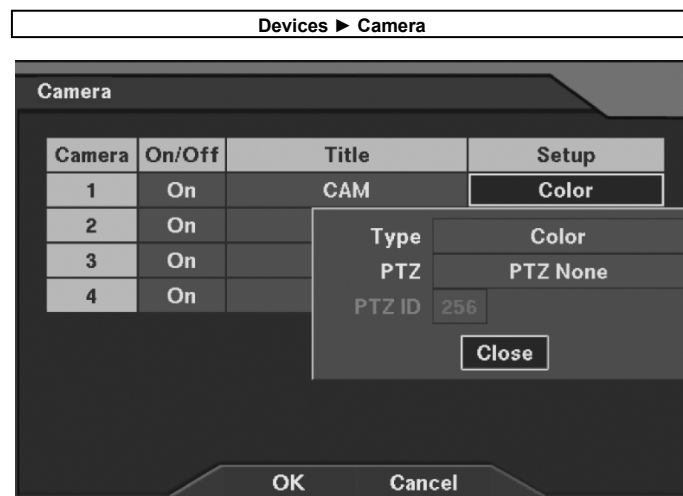
Figure 10   Camera Setup Dialog

Set up PTZ Camera

PATH: MENU ▶ Devices ▶ Camera
(Refer to Figure 10 Camera Setup Dialog.)

1. Move to the Setup field of the selected camera, and press ENTER.
2. Move to the PTZ field, and select the camera name.
3. Move to the PTZ ID field, and set up the PTZ ID (0~256).

Set up PTZ Port

PATH: MENU ▶ Devices ▶ Text-In/PTZ
(Refer to Figure 19 Text-In/PTZ Dialog.)

1. Move to the Port field, and select PTZ.
2. Set up the communication parameters for the PTZ port.

NOTE: When using the PTZ camera, the text-in cannot be used since PTZ control shares a port with text input.

Figure 11   PTZ Setup Dialog

Set up the PTZ port
• Port: Select the PTZ as the port use.

NOTE: Selecting the *Text-In* in the *Port* field returns to the Text-In/PTZ dialog box from the PTZ setup dialog box.

• Baud Rate: Set the baud rate of Comp port (300~115200).
• Data Bit: Set the data bit (7/8).
• Stop Bit: Set the stop bit (1/2).
• Parity: Enable or disable the parity (NONE/ODD/EVEN).

Set up PTZ Preset

1. Press CAMERA 1-4 to preset on the front panel, and press ENTER to enter the PTZ mode.
2. Control the PTZ of the selected camera to desired preset condition.   The camera button
   LED will blink.
3. Press CAMERA 3 to display the PTZ Preset dialog box.
4. Move to the target preset number (1~16).
5. Press ENTER to display software keyboard, and enter a description for the PTZ preset.
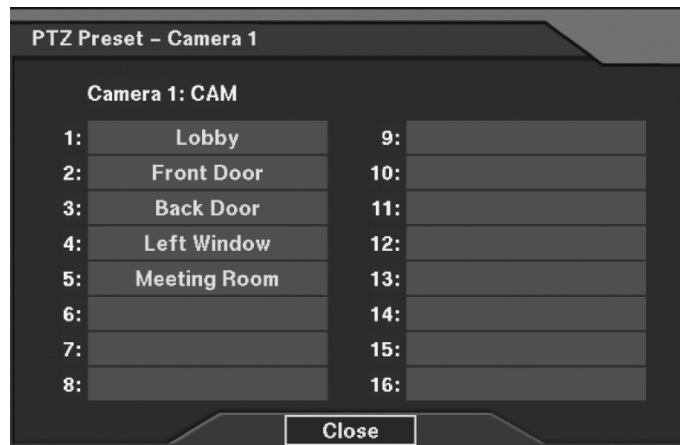
Figure 12   PTZ Preset Setup Dialog

Load PTZ Preset

1. Press CAMERA 1-4 to load the PTZ preset, and press ENTER to enter the PTZ mode.   The
   camera button LED will blink.
2. Press CAMERA 4 to display the Preset View dialog box.
3. Move to the target preset number, and press ENTER to load the PTZ preset of the selected
   camera.
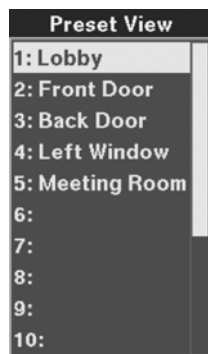
Figure 13   PTZ Preset View Dialog

Set up Camera Sequencing Dwell Time

PATH: MENU ▶ Live Monitoring

1. Move to the Sequence Dwell Time field.
2. Press ENTER to display the Sequence Dwell Time control bar, and set the camera
   sequencing dwell time from 1 second to 6 seconds.
3. Press ENTER to exit control bar.
4. Select OK to exit Sequence Dwell Time.

**NOTE: To select the sequencing operation press SEQUENCE on the front panel.
Sequence Dwell Time controls Live sequencing only.   This dwell time does not affect
camera recording.**

Set up OSD

PATH: MENU ▶ Live Monitoring

1. Move to the OSD option field.
2. Select the OSD option by pressing ENTER.   Multiple selections are available.
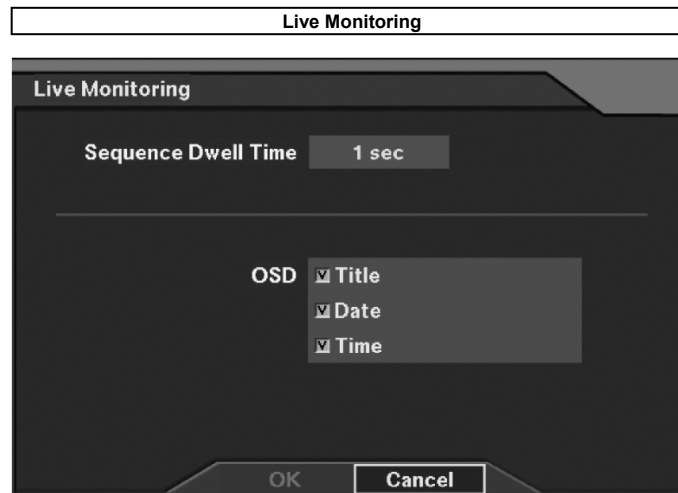
Figure 14   Live Monitoring

3.5 Configuring for Recording

Set up Recording Image Quality

PATH: MENU ▶ Record ▶ Time-Lapse Record Setup

1. Move to the Quality field of the selected camera, and press ENTER.
2. Set the recording image quality from the four options.

NOTE: Changing Quality on the title bar applies the change to all cameras.

CAUTION: Higher quality images require more recording (HDD storage) space. Everything else being equal, Very High quality will require 70% (typical) as much storage as Standard quality, High require 25% much, and Low require 30% less.

Set up Time-Lapse Recording Speed

PATH: MENU ▶ Record ▶ Time-Lapse Record Setup

1. Move to the Speed field of the selected camera, and press ENTER.
2. Set the recording speed in images per second (ips).   The recording speed may be selected from one image per 30 seconds (Time-Lapse) to 30 images per second (Real-Time).

NOTE: Changing Speed on the title bar applies the change to all cameras.

NOTE: The DVR has a maximum recording speed of 30 images per second (ips) that will be applied globally depending on the number of cameras recorded (1 camera = 30ips maximum, 2 cameras = 15ips maximum, 3 cameras = 10ips maximum, 4 cameras = 7.5ips maximum).

Record ▶ Time-Lapse Record Setup					

Time–Lapse Record Setup

Camera	Sched	Mode 1 Speed	Mode 1 Quality	Mode 2 Speed	Mode 2 Quality
1	☑	30 ips	Standard	30 ips	Standard
2	☑	30 ips	Standard	30 ips	Standard
3	☑	30 ips	Standard	30 ips	Standard
4	☑	30 ips	Standard	30 ips	Standard

ips: images per second

Keep the continuous pictures   Off   1 hour

OK   Cancel

Figure 15   Time-Lapse Record Setup Dialog

Set up the time-lapse record for each camera.
- Sched: Schedule the time-lapse mode by time (Refer to Figure 16 Recording Schedule Setup Dialog.).
- Speed: Set the recording speed (1/30ips~30ips).
- Quality: Set the recording image quality (Very High, High, Standard and Low).
- Keep the continuous pictures: Select On to limit the time-lapse recording period and set the number of hours for continuous (time-lapse) recording (Refer to the Limit the Time-Lapse Recording Period in this section for details.).

NOTE: Refer to the *Chapter 4.2 Recording* for details of using Mode 1 and Mode 2.

Set up Time-Lapse Recording Schedule

PATH: MENU ▶ Record ▶ Time-Lapse Record Setup

1. Move to the Sched field(Schedule) of the selected camera, and press ENTER.
2. The recording schedule is configured from Sunday to Saturday and Holidays at 30-minute intervals from 0:00 to 24:00.
3. Move to a specific hour of a specific day, and ENTER to select the record mode: No Recording (no block), Mode 1 (Blue block), or Mode 2 (Yellow block).   Each time you press ENTER, the record mode changes.   Select Mode 1 for normal record setup. For details of using Mode 2 refer to the Chapter 4.
4. To select multiple hours within a single day, move to a specific day in the left side and press ENTER to set the same setting to whole hours of that day.   To select multiple days with the same recording hours, move to the specific hour field at the top of the schedule and press ENTER to set the same setting to whole days of that hour.
5. Move to the empty block on the top left side, and press ENTER to set all days and hours to the same setting.

NOTE: The interval of time setting is 30 minutes.   Selecting the first blank means From 00:00:00 to 00:29:59.
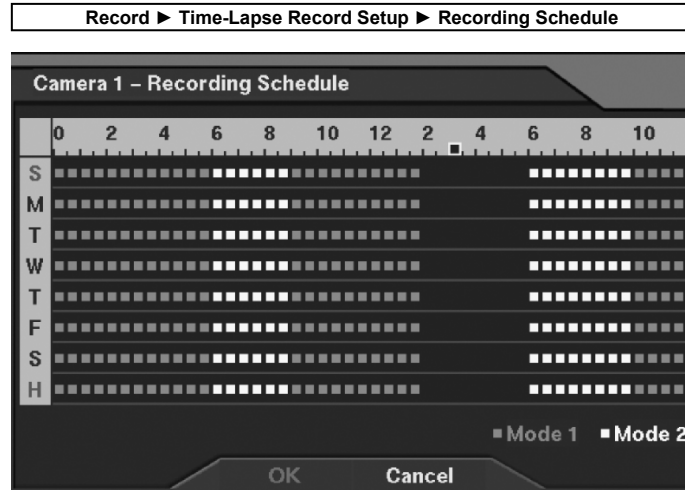
Figure 16   Recording Schedule Setup Dialog

Set up the recording mode by time.
• Mode 1: While recording in time-lapse, the DVR records the image during the selected hours with the recording speed and image quality that have been set under Mode 1 (Blue).
• Mode 2: While recording in time-lapse, the DVR records the image during the selected hours with the recording speed and image quality that have been set under Mode 2 (Yellow).

NOTE: Refer to the *Chapter 4.2 Recording* for details of using Mode 1 and Mode 2.

Limit the Time-Lapse Recording Period

PATH: MENU ▶ Record ▶ Time-Lapse Record Setup
(Refer to Figure 15 Time-Lapse Record Setup Dialog.)

1. Move to the Keep the continuous pictures field and select On.
2. Move to the hour field, and select the number of hours for continuous(time-lapse) recording.

NOTE: The user can set up the maximum time for time-lapse storage such as 24 hours.   Once the DVR has 24 hours of time-lapse video, it starts recording over the older video.   In this way the DVR has the last 24 hours of time-lapse video.   The other remaining space of the hard disk except the time-lapse storage is used for storing video of events.   In the overwrite disk mode, the video of events also starts recording over the older video when the disk full.
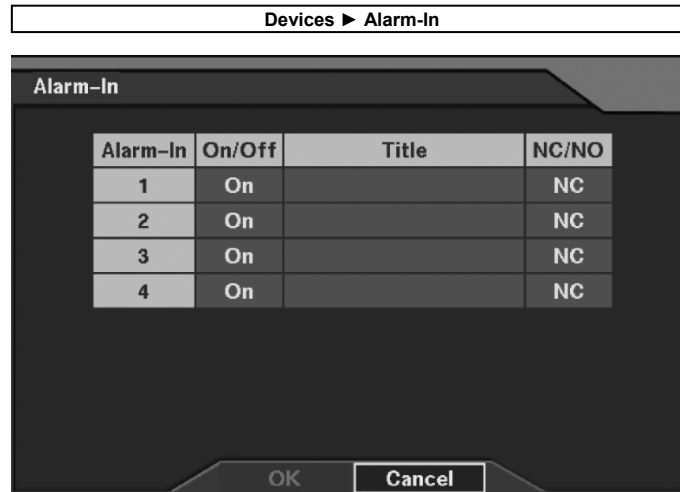
NOTE: The maximum number of hours may be set from one hour to maximum number of hours that can be stored to the hard disk.   However, it cannot be guaranteed since the maximum time will vary according to the image quality settings and other user programmable variables.

Set up Devices for Event-driven Recording

PATH: MENU ▶ Devices ▶ Alarm-In, Motion Detector, or Text-In/PTZ

1. Select On for the Event triggered device (alarm contact, motion detector or text-in device).
2. Select options as desired for each Event triggered device.
3. Set up event action of recording for each device.

NOTE: Refer to the next subsection for setting up event action of recording.

Figure 17   Alarm-In Setup Dialog

Set up the alarm-in information.
- On/Off: Enable or disable the alarm-in device.
- Title: Enter a description of the alarm-in device.
- NC/NO: Select the alarm-in type (NC: Normally Closed / NO: Normally Open).
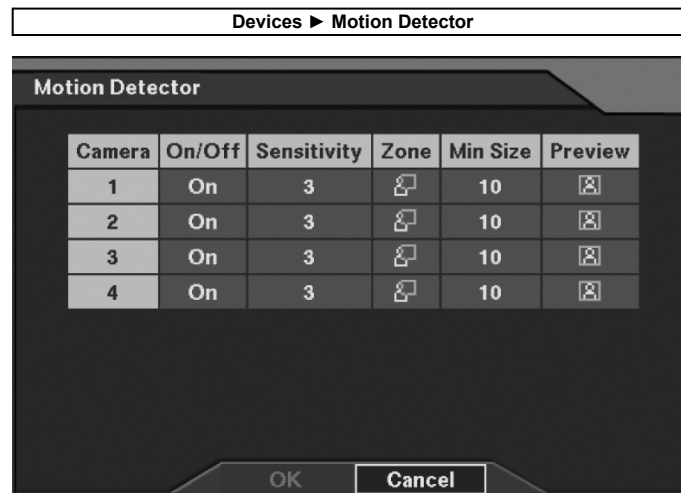
Figure 18   Motion Detector Setup Dialog

Set up the motion detector for each camera.
- On/Off: Enable or disable the motion detector.
- Sensitivity: Set the detection sensitivity (1~5).
- Zone: Set up the detection zone (Refer to Figure 27 Motion Detection Zone Setup Dialog.).
- Min Size: Set the number of minimum detective blocks (1~Selected block numbers in the zone).
- Preview: Previews the motion detector.
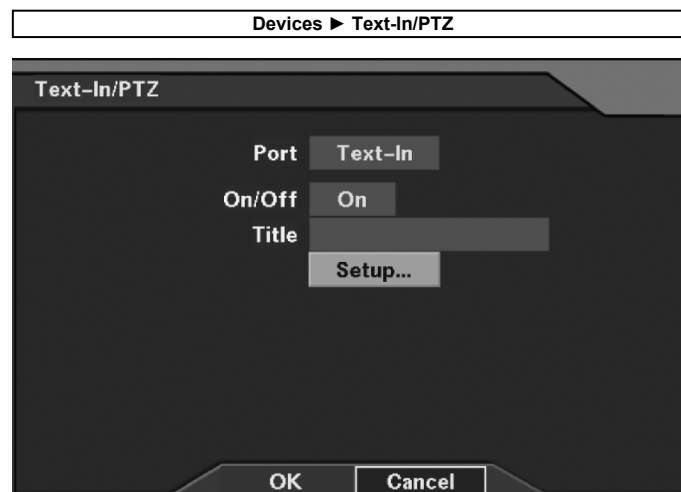
Figure 19   Text-In/PTZ Dialog

Set up the text-in information.
- Port: Select either Text-In or PTZ as the port use.
- On/Off: Enable or disable the text-in device.
- Title: Enter a description of the text-in device
- Setup: Set up the text-in device (Refer to Figure 28 Text-In Setup Dialog.).

Set up Event-driven Recording

PATH: MENU ▶ Event Action ▶ Alarm-In Action, Motion Action, Text-In Action, or Video Loss Action

1. Select the Event Action to record (alarm-in, motion detector, text-in, or video loss).
2. Move to the Camera field in the dialog box of the target event action, and press ENTER to select the camera to be associated with the event.

NOTE: Multiple cameras can be selected.

3. Move to the Speed field, and press ENTER to set the recording speed.   The recording speed may be selected from one image per 30 seconds (Time-Lapse) to 30 images per second (Real-Time).
4. Move to the Quality field, and press ENTER to set the recording image quality (Very High, High, Standard and Low).
5. Move to the Dwell field, and press ENTER to set the recording dwell-time from one second to 300 seconds (5 minutes).

NOTE: Changing Camera, Speed, Quality and Dwell on the title bar applies the change to all event actions.

NOTE: The settings are applicable to enabled devices in Event Action.

Figure 20   Alarm-In Action ─ Record Setup Dialog

Set up the event-driven recording in case of alarm-in detection.
Action Type ─ Record: Set up the camera to record in case of alarm-in detection.
• Sched: Set the operating mode by time of the selected camera in case of alarm-in detection (Refer to Figure 21 Alarm-In Action Schedule Setup Dialog.).
• Camera: Select the camera(s) to record in case of alarm-in detection.

NOTE: Multiple cameras can be selected.

• Speed: Set the recording speed of an associated camera in case of alarm-in detection (1/5ips~30ips).
• Quality: Set the recording image quality of an associated camera in case of alarm-in detection (Very High, High, Standard and Low).
• Dwell: Set the recording dwell time of an associated camera in case of alarm-in detection (1sec~300 sec).
Action Type ─ Alarm-Out: Set up the alarm-out in case of alarm-in detection (Refer to Figure 31 Alarm-In Action ─ Alarm-Out Setup Dialog.).
Action Type ─ Notify: Set up the Notify function in case of alarm-in detection (Refer to Figure 40 Alarm-In Action ─ Notify Setup Dialog.   Network-supported premium model only).
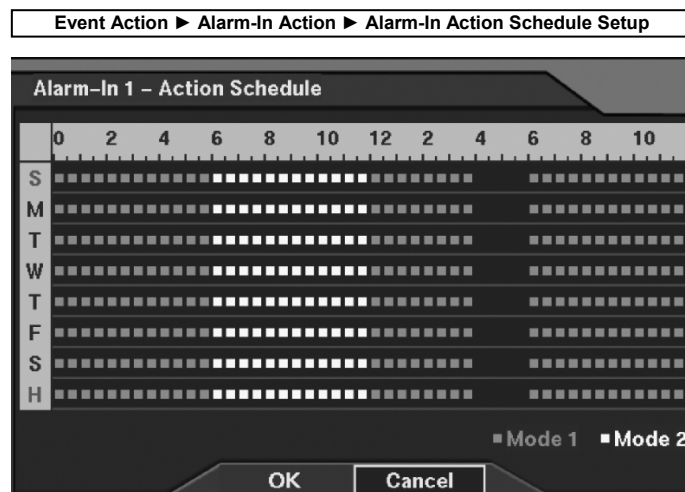
Figure 21   Alarm-In Action Schedule Setup Dialog

Figure 22　Motion Action ─ Record Setup Dialog

Set up the event-driven recording in case of motion detection.
Action Type ─ Record: Set up the camera to record in case of motion detection.
• Sched: Set the operating mode by time of the selected camera in case of motion detection
   (Refer to Figure 21 Alarm-In Action Schedule Setup Dialog.)
• Camera: Select the camera(s) to record in case of motion detection.

NOTE:　Multiple cameras can be selected

• Speed: Set the recording speed of an associated camera in case of motion detection
   (1/5ips~30ips).
• Quality: Set the recording image quality of an associated camera in case of motion
   detection (Very High, High, Standard and Low).
• Dwell: Set the recording dwell time of an associated camera in case of motion detection (1
   sec~300 sec).
Action Type ─ Alarm-Out: Set up the alarm-out in case of motion detection (Refer to Figure
32 Motion Action ─ Alarm-Out Setup Dialog.)
Action Type ─ Notify: Set up the Notify function in case of motion detection (Refer to Figure
41 Motion Action ─ Notify Setup Dialog.　Network-supported premium model only).
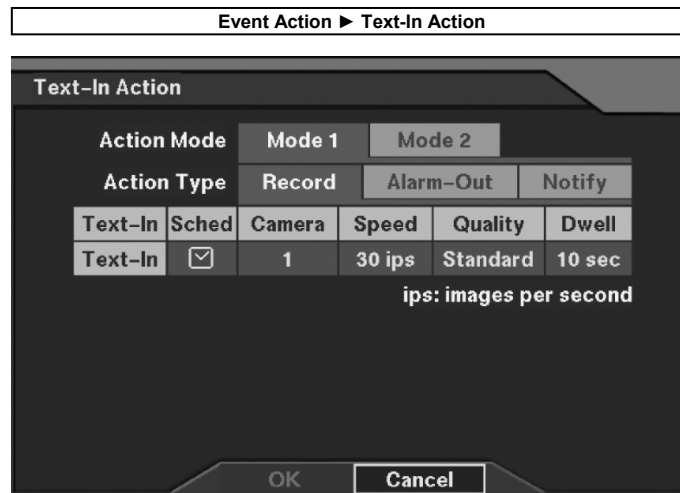
Figure 23　Text-In Action ─ Record Setup Dialog

Set up the event-driven recording in case of text-in detection.
Action Type ─ Record: Set up the camera to record in case of text-in detection.
• Sched: Set the operating mode by time of the selected camera in case of text-in detection
  (Refer to Figure 21 Alarm-In Action Schedule Setup Dialog.).
• Camera: Select the camera(s) to record in case of text-in detection.

NOTE:　Multiple cameras can be selected.

• Speed: Set the recording speed of an associated camera in case of text in detection
  (1/5ips~30ips).
• Quality: Set the recording image quality of an associated camera in case of text-in detection
  (Very High, High, Standard, and Low).
• Dwell: Set the recording dwell time of an associated camera in case of text-in detection
  (1sec~300sec).
Action Type ─ Alarm-Out: Set up the alarm-out in case of text-in detection (Refer to Figure
33 Text-In Action ─ Alarm-Out Setup Dialog.).
Action Type ─ Notify: Set up the Notify function in case of text-in detection (Refer to Figure
42 Text-In Action ─ Notify Setup Dialog, Network-supported premium model only).

Figure 24   Video Loss Action ─ Record Setup Dialog

Set up the event-driven recording in case of video loss detection.
Action Type ─ Record: Set up the camera to record in case of video loss detection.
• Sched: Set the operating mode by time of the selected camera in case of video loss
  detection (Refer to Figure 21 Alarm-In Action Schedule Setup Dialog.).
• Camera: Select the camera(s) to record in case of video loss detection.

NOTE: Multiple cameras can be selected.

• Speed: Set the recording speed of an associated camera in case of video loss detection
  (1/5ips~30ips).
• Quality: Set the recording image quality of an associated camera in case of video loss
  detection (Very High, High, Standard, and Low).
• Dwell: Set the recording dwell time of an associated camera in case of video loss detection
  (1sec~300 sec).
Action Type ─ Alarm-Out: Set up the alarm-out in case of video loss detection (Refer to
Figure 34 Video Loss Action ─ Alarm-Out Setup Dialog.).
Action Type ─ Notify: Set up the Notify function in case of video loss detection (Refer to
Figure 43 Video Loss Action ─ Notify Setup Dialog.   Network-supported premium model
only).

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Enable/Disable Pre-Event Recording

PATH: MENU ▶ Record ▶ Pre-Event Record Setup

1. Move to the On/Off field of the selected camera, and select either On or Off.
2. When selecting On to enable pre-event recording, set the recording speed, image quality, dwell time (recording period).

NOTE: Changing On/Off, Speed, Quality and Dwell on the title bar applies the change to all cameras.

NOTE: Pre-event recording will NOT be made during the time-lapse recording period. The DVR keeps Time-Lapse recording according to its schedule even though pre-event recording has been enabled.

Record ▶ Pre-Event Record

Pre-Event Record Setup

Camera	On/Off	Speed	Quality	Dwell
1	On	30 ips	Standard	10 sec
2	On	30 ips	Standard	10 sec
3	On	30 ips	Standard	10 sec
4	On	30 ips	Standard	10 sec

ips: images per second

OK   Cancel
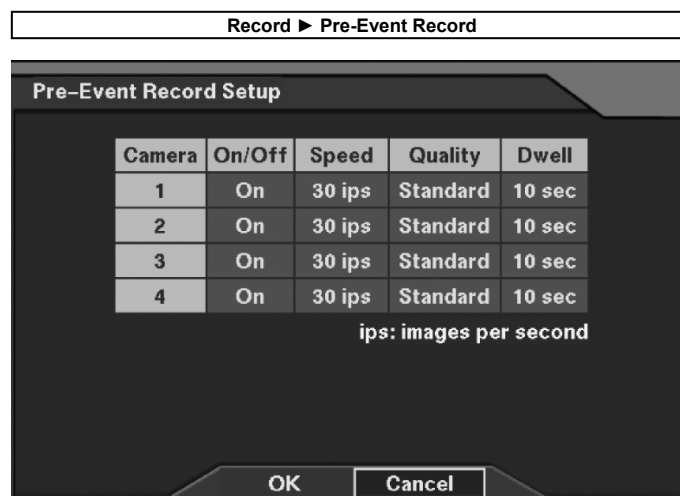
Figure 25   Pre-Event Record Setup Dialog

Set up the pre-event recording for each camera.
• On/Off: Enable or disable the pre-event recording.
• Speed: Set the pre-event recording speed (1/5ips~30ips).
• Quality: Set the image quality for pre-event recording (Very High, High, Standard, and Low).
• Dwell: Set the pre-event dwell time (1 sec~300 sec).

Set up Event-driven Recording Schedule

PATH: MENU ▶ Event Action ▶ Alarm-In Action, Motion Action, Text-In Action, or Video Loss Action
(Refer to Figure 20, Figure 22, Figure 23, or Figure 24.)

1. Select the Event action from the event-driven recording options: alarm-in, motion detector, text-in, or video loss.
2. Move to the Sched field(Schedule) of the selected event, and press ENTER.
3. The recording schedule is configured from Sunday to Saturday and Holidays at 30-minute intervals from 0:00 to 24:00.
4. Move to a specific hour of a specific day, and press ENTER to select the record mode: No Recording (no block), Mode 1(Blue block), or Mode 2 (Yellow block). Select Mode 1 for normal record setup. For details of using Mode 2 refer to the Chapter 4.2 Recording.
5. To select multiple hours within a single day, move to a specific day in the left side and press ENTER to set the same setting to whole hours of that day. To select multiple days with the same recording hours, move to the specific hour field at the top of the schedule and press ENTER to set the same setting to whole days of that hour.
6. Move to the empty block on the top left side, and press ENTER to set all days and hours to the same setting.

NOTE: The interval of time setting is 30 minutes.   Selecting the first blank means From 00:00:00 to 00:29:59.

Set up Audio Recording

PATH: MENU ▶ Devices ▶ Audio

1. Move to the Audio field, and enable or disable the audio recording by selecting On or Off.
2. Move to the Mute field, and enable or disable the audio output by selecting On or Off.

NOTE: The DVR will NOT record audio when the recording speed is set to less 1 ips.
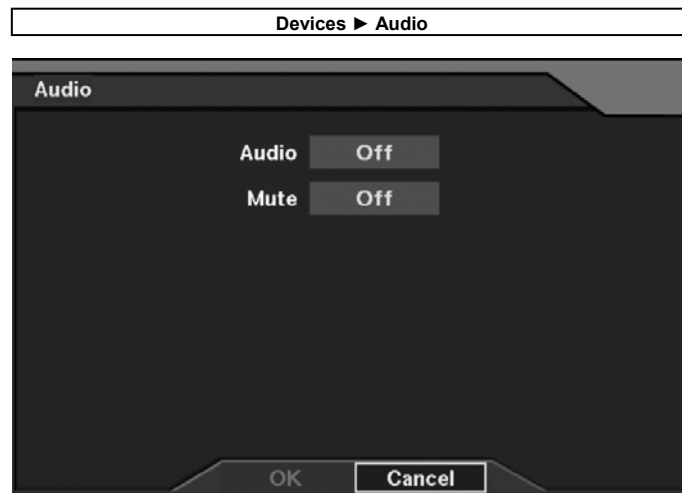
Figure 26   Audio Setup Dialog

3.6 Configuring for Alarm-In/Out

Enable/Disable Alarm-In

PATH: MENU ▶ Devices ▶ Alarm-In
(Refer to Figure 17 Alarm-In Setup Dialog.)

1. Move to the selected alarm-in channel (1-4).
2. Move to the On/Off field and select either On or Off.
3. Move to the Title field of the selected alarm-in channel.
4. Press ENTER to display the software keyboard and enter a description title for the alarm.
   A total of 16 characters may be used.

Set up Alarm-In Type

5. Move to the NC/NO field and select either NC or NO.

NOTE: *NO* stands for Normally Open, and the alarm output is active when the terminal is closed.

NOTE: Changing the selection on the title bar applies the change to all alarm inputs.

Enable/Disable Motion Detector

PATH: MENU ▶ Devices ▶ Motion Detector
(Refer to Figure 18 Motion Detector Setup Dialog.)

1. Move to the selected motion detector camera.
2. Move to the On/Off field and select either On or Off.

NOTE: Changing On/Off on the title bar applies the change to all cameras.

Set up Motion Detection Sensitivity

3. Move to the Sensitivity field and press ENTER.   The sensitivity may be adjusted in five steps (1 to 5).   Higher numbers result in more sensitivity.
4. Move to the Min. Size field and press ENTER.   The minimum size refers to the minimum number of detective blocks.   Lower numbers result in more sensitivity.

Set up Motion Detection Zone

5. Move to the Zone field and press ENTER, the video monitor will display a full screen window with predefined blocks defined as the motion zone.
   • The minimum motion zone is defined by four individual block units.   The zone block is positioned within the video using the front panel arrow buttons.
   • Each block segment of the zone block (in four block segments) is selected/released using the front panel camera buttons.

NOTE: Each block segment is used for only zone block setup.   The entire block surrounding individual detectors will be sensitive when the detector is turned on.

6. The following functions may be selected after pressing ENTER.
   • Close this menu: Closes the menu, but remains in full screen view.
   • Select Current 4 Blocks: Sets the current four blocks for motion detection zone.
   • Clear Current 4 Blocks: Releases the current four blocks from motion detection zone.
   • Select All Blocks: Sets all blocks for motion detection zone
   • Clear All Blocks: Releases all blocks from motion detection zone.
   • Reverse All Blocks: Reverses the settings for all blocks.
   • Exit Zone Setup: Select this menu to finish the setup and close the Motion Detection Zone Setup dialog box.   When selecting this menu, a dialog box will be presented to confirm the save option of the motion zone if changes occurred.
7. Move to the View field and press ENTER to preview the captured image.   Press ENTER again or press MENU to exit the preview mode.
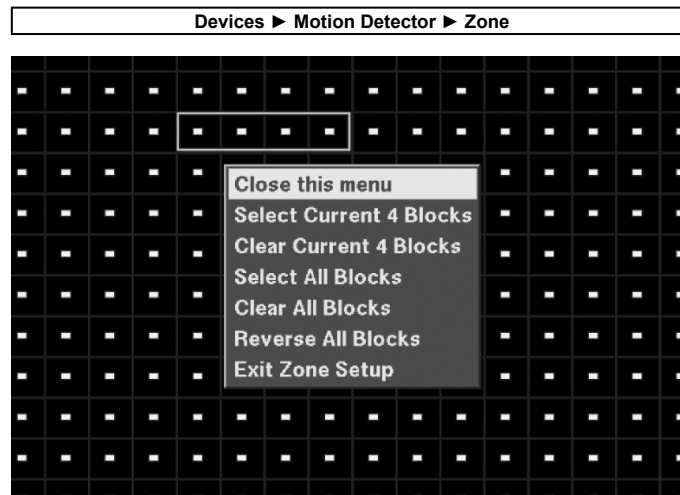
Figure 27   Motion Detection Zone Setup Dialog

Enable/Disable Text-In

PATH: MENU ▶ Devices ▶ Text-In/PTZ
(Refer to Figure 19 Text-In/PTZ Dialog.)

1. Move to the Port field, and select Text-In**.**
2. Move to the On/Off field, and select either On or Off to enable or disable the Text-In function.
3. Move to the Title field and press ENTER.
4. Enter the device name of the device using the software keyboard.   A total of 16 characters may be used.

Set up Text-In Port and Keyword

5. Move to the Setup field and press ENTER.
6. Enter the following information using the software keyboard:
   - Keyword 1: Enter the first keyword that is used for the transaction of reporting in the event log.
   - Keyword 2: Enter the second keyword that is used for the transaction of reporting in the event log.
   - Delimiter: Enter the character string that divides each text-in line.   The line feed character **^J** has been entered as a default, and the user can enter additional delimiters as required.   When using multiple delimiters, each delimiter must be separated with a space.   When entering any control character, enter the character with ^ after pressing Shift key.
   - Line Count: Enter the line count of one complete transaction
7. Set up the communication parameters for the text-in port.

NOTE: When any string among preset character strings in the *Delimiter* field is reported repeatedly as many times as preset number in the *Line Count* field, it will be considered one complete transaction.   At this time, the character string next to the Keyword 1 or Keyword 2 is saved as a key value and used for searching text-in log.
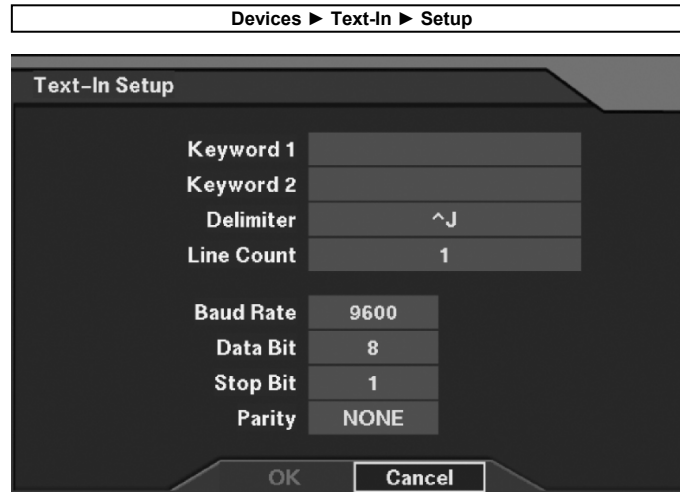
Figure 28   Text-In Setup Dialog

Set up the text-in device.
• Keyword 1: Enter the first keyword for transaction field detection.   The keyword detects any word after itself as transaction field, and reports text-in information in the event log.
• Keyword 2: Enter the second keyword for transaction field detection.
• Delimiter: Enter the character string that divides each text-in line.
• Line Count: Set the line count of one complete transaction.
• Baud Rate: Set the baud rate of Comp port (300~115200).
• Data Bit: Set the data bit (7/8).
• Stop Bit: Set the stop bit (1/2).
• Parity: Enable or disable the parity (NONE/ODD/EVEN).

Set up Alarm-Out

PATH: MENU ▶ Devices ▶ Alarm-Out

1. Move to the Title field of the selected alarm-out channel.
2. Press ENTER to display the software keyboard and enter a description title for the alarm. Up to 16 characters may be used.
3. Move to the Sched field (Schedule) of the selected alarm-out channel, and press ENTER.
4. Move to the hour field of the specific target day using front panel arrow buttons, and press ENTER to select No Alarm-Out, On, or Event.
   • No Alarm-Out: No alarm output during the target hours.
   • On: The alarm output is always active during the target hours.   For example, this can be used to turn on/off the light.
   • Event: The alarm output is active during the target hours when any event is detected.

NOTE: Changing Sched on the title bar applies the change to all alarm-outputs.
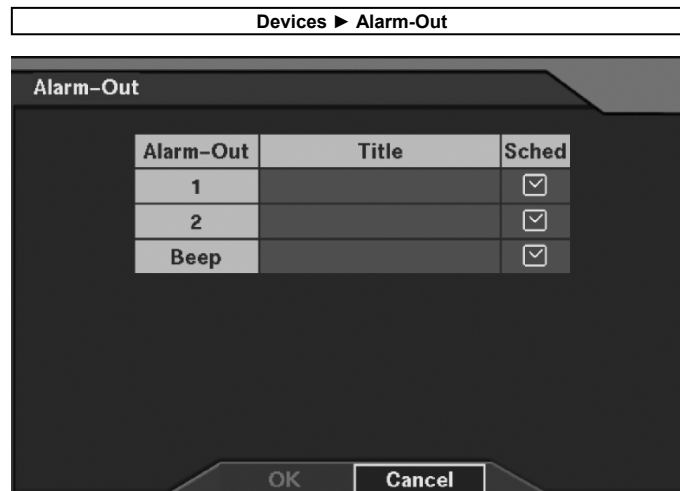
Figure 29   Alarm-Out Setup Dialog
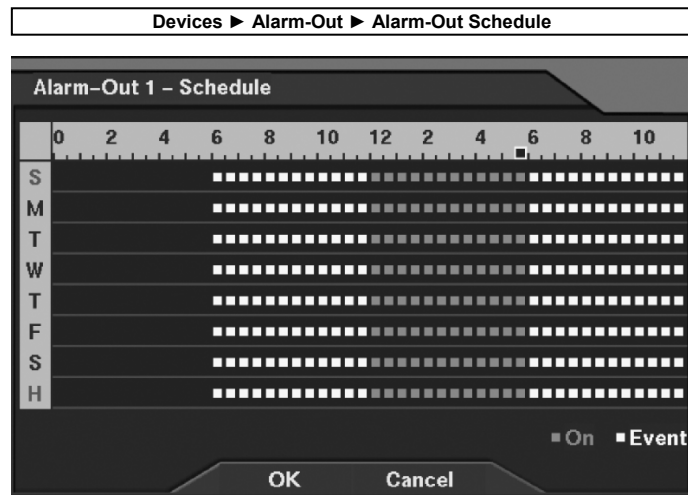
Figure 30   Alarm-Out Schedule Setup Dialog

Set up the operating status of the alarm-out device by time.
• On: The alarm output is always active during the target hours.
• Event: The alarm output is active according to preset event settings during the target hours when any event is detected.
• Empty space: No alarm output during the target hours.

Set up Alarm-Out when Event (Alarm-In, Motion, Text-In, or Video Loss) Driven

NOTE: Set up event-triggered devices (alarm-in, motion detector, text-in, or video loss) in advance before setting up this Alarm-Out feature.   Refer to *3.5 Configuring for Recording — Set up Devices for Event-driven Recording* section for details of setting up each device.

PATH: MENU ▶ Event Action ▶ Alarm-In Action, Motion Action, Text-In Action, or Video Loss Action

1. Select the alarm-out action from alarm-in, motion detector, text-in, or video loss option.
2. Select Alarm-Out in the Action Type field, and press ENTER to select the target alarm-out channel in the Alarm-Out field.
3. Press ENTER in the Dwell field, and set alarm-out dwell time from one second to 300 seconds. (5 minutes).

NOTE: Changing Alarm-Out and Dwell on the title bar applies the change to the all channels of the target event action.

NOTE: The settings can be made only for the event action(s) enabled in the Devices menu.

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Figure 31   Alarm-In Action — Alarm-Out Setup Dialog

Set up the alarm-out in case of alarm-in detection.
• Sched: Set the operating mode of the target alarm-out by time in case of alarm-in detection (Refer to Figure 21 Alarm-In Action Schedule Setup Dialog.).
• Alarm-Out: Select the alarm-out device to associate in case of alarm-in detection (multiple selections among Alarm-Out 1, 2 and Beep available).
• Dwell: Set the dwell time of an associated alarm-out device in case of alarm-in detection (1 sec~300 sec).

Figure 32   Motion Action — Alarm-Out Setup Dialog

Figure 33   Text-In Action ─ Alarm-Out Setup Dialog

Figure 34   Video Loss Action ─ Alarm-Out Setup Dialog

3.7 Configuring for Networking

NOTE: The networking functions are only available for the network-supported premium model.

Set up Network (LAN)

PATH: MENU ▶ Network ▶ Network Setup

1. Move to the Connection field, and select LAN as the connection type.
2. Move to the Setup button, and press ENTER to display the LAN Setup dialog box.
3. Enter the appropriate IP Address, Gateway, and Subnet Mask acquired from the network administrator.

NOTE: Default LAN Setup
   • IP Address: 192.168.1.129
   • Gateway: 192.168.1.254
   • Subnet Mask: 255.255.255.0

4. Select OK to exit the LAN Setup.

Set up Networking Transfer Speed

5. Set the networking transfer speed (images per second) in the Transfer Speed field.   This can only be set when using LAN.
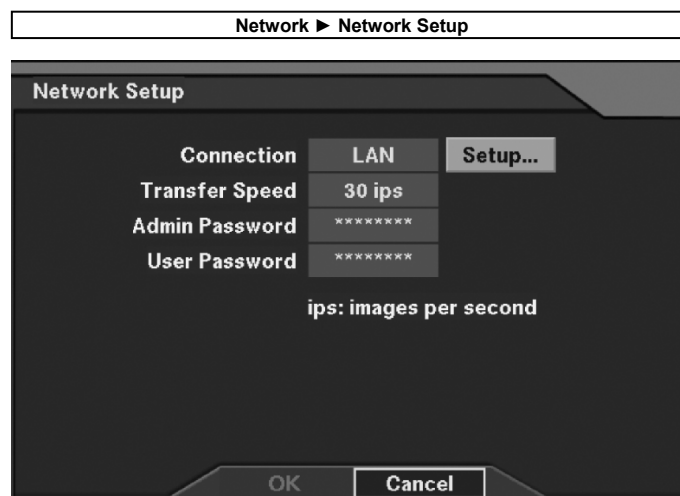
Figure 35   Network Setup Dialog

Network Setup
- Connection: Select either LAN or Modem as the networking type.
- Transfer Speed: Set the networking transfer speed per second that can be set up only when using a LAN (1 image~30 images).
- Admin Password: Set up the administrator-level user's password for remote access.
- User Password: Set up the typical user's password for remote access.

NOTE: The factory default of Admin/User Password for remote access is 12345678. A password can be composed of up to eight digits, and is entered using camera buttons (1-4) on the front panel.

- Setup: Press the Setup button to display the LAN/Modem Setup dialog box
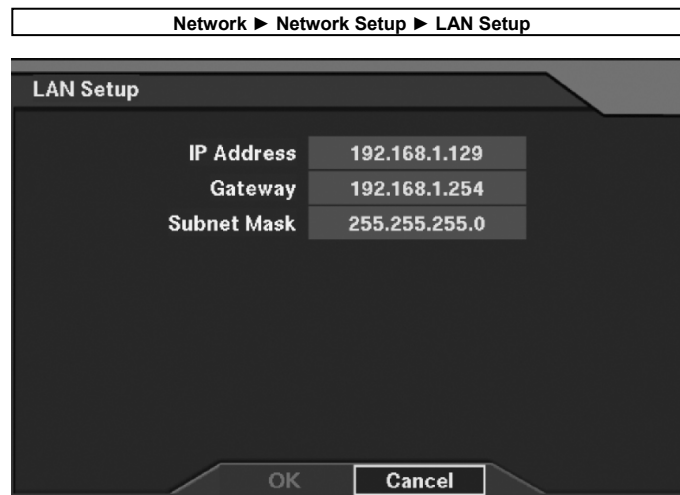
Figure 36   LAN Setup Dialog

Set up Network (Modem)

PATH: MENU ▶ Network ▶ Network Setup
(Refer to Figure 35 Network Setup Dialog.)

1. Move to the Connection field, and select Modem as the connection type.
2. Move to the Setup button, and press ENTER to display the Modem Setup dialog box.
3. Set up the port communication for the modem.

NOTE: If the RS232 port is currently being used for the remote controller, the message that the external modem cannot be used will be displayed when selecting *External Modem* as the modem type in the *Use* field.   Move to the RS232 setup, and change the RS232 port use from the remote controller to the external modem first, and then try again.

NOTE: An internal modem may have compatibility problem with the modem used for the RAS (Remote Administration System).   Please contact your dealer/installer for available models for the RAS.

Network ► Network Setup ► Modem Setup
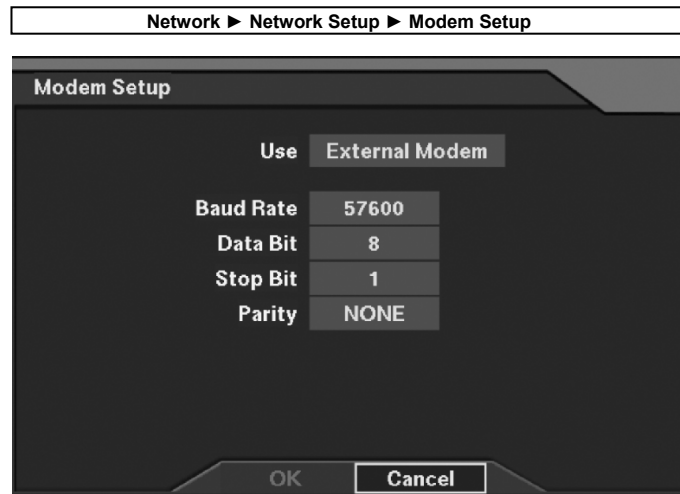
Figure 37   Modem Setup Dialog

Modem Setup
• Use: Select either Internal Modem or External Modem as the modem type to use (An internal modem is optional.).
• Baud Rate: Set the Baud Rate of a modem (300~115200).
• Data Bit: Set the data bit (7/8).
• Stop Bit: Set the stop bit (1/2).
• Parity: Enable or disable the parity (NONE/ODD/EVEN).

Set up the Administrator Password for Remote Access (default is 12345678)

PATH: MENU ► Network ► Network Setup
(Refer to Figure 35 Network Setup Dialog.)

1. Move to the Admin Password field, and press ENTER to edit the password using software keyboard.

Set up the Typical User Password for Remote Access (default is 12345678)

2. Move to the User Password field, and press ENTER to edit the password using software keyboard.

NOTE: When using a User Password for remote access, the user cannot change the remote system settings, and cannot control the image color.

NOTE: To cancel the editing, press MENU .

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Set up Callback Center (LAN)

PATH: MENU ▶ Network ▶ Callback Center

1. Move to the IP Address field, and enter the IP address of the callback center.
2. Move to the Retry field, and set the retry count (1~10).

NOTE: Callback Center setup is related with the RAS (Remote Administration System). Refer to the RAS User's Manual for details of the Callback Center feature.

Network ▶ Callback Center (LAN)

Callback Center

IP Address 192.168.1.129
Retry 5

OK Cancel
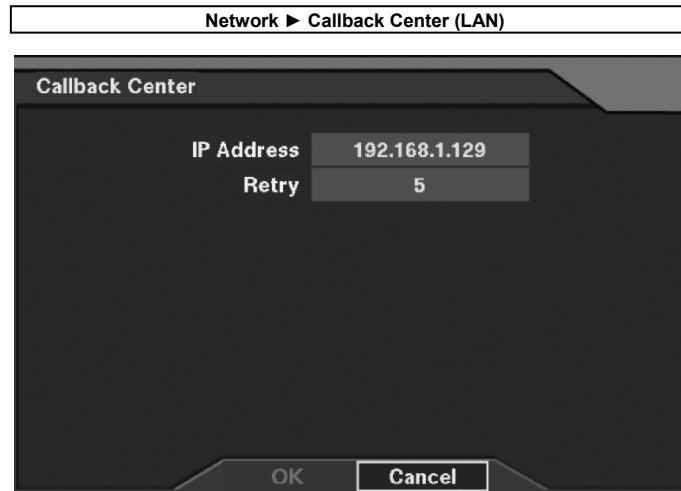
Figure 38   Callback Center (LAN) Setup Dialog

Set up the callback center information.
• IP Address: Enter the IP address of the callback center to be notified upon event detection. The values of each address field are entered by selecting the up/down-arrow buttons on the front panel.   The values may be indexed slowly by depressing the button or faster by holding down the button.
• Retry: Set the retry count when failing notifying the event detection (1~10).

Set up Callback Center (Modem)

PATH: MENU ▶ Network ▶ Callback Center

1. Move to the Pager Number field, and enter the pager number.
2. Move to the Mailbox field, and enter the pager number to call when the pager uses a voice mailbox.
3. Move to the Site ID field, and enter the site ID (1~999).

NOTE: This setup only works if the networking of the DVR is configured by the modem.

CAUTION: Event notification using the callback function inserts a one-minute-pause after the initial paging or telephone call.   This means an event detected within one-minute pause from the previous paging notification will not initiate a new callback. Maintaining this pause prohibits the DVR from holding the telephone line for an extended period for paging notification.

NOTE: Callback message includes the following message:
Site ID (three-digit number) + Event (one-digit number)
e.g. 0752 => Site ID: 75,   Event: 2

Figure 39   Callback Center (Modem) Setup Dialog

- Pager Number: Enter the target pager number.
- Mailbox: Enter the number for paging when the target pager uses a voice mailbox.
- Site ID: Enter the site ID to be included in the callback message (1~999).
- Event: Displays event numbers to be included in the callback message.

Notify Event to Callback Center

NOTE: Set up event-triggered devices (alarm-in, motion detector, text-in, or video loss) in advance before setting up this Notify feature.   Refer to the *3.5 Configuring for Recording — Set up Devices for Event-driven Recording* section for details of setting up each device.

PATH: MENU   ▶   Event Action   ▶   Alarm-In Action, Motion Action, Text-In Action, or video Loss Action

1. Select the notify action from the alarm-in, motion detector, text-in, or video loss option.
2. Select Notify in the Action Type field, and press ENTER.
3. Select either On or Off for the selected channel.

NOTE: Changing Notify on the title bar applies the change to all channels of the target event.
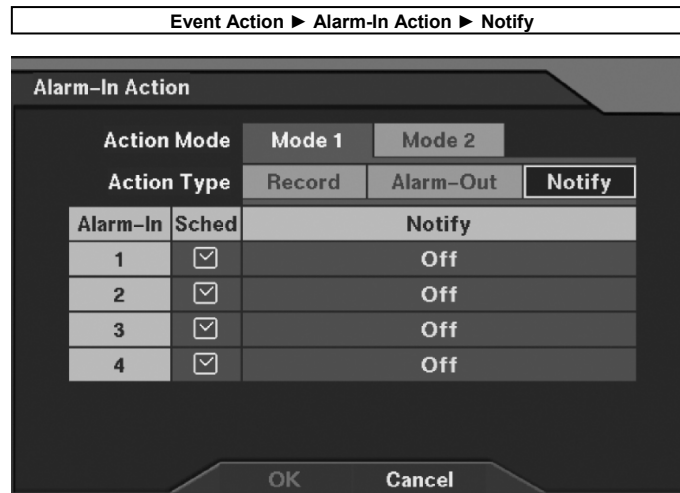
Figure 40   Alarm-In Action ─ Notify Setup Dialog

Set up the Notify function in case of alarm-in detection.
- Sched: Set the operating mode of the target alarm-out by time in case of alarm-in detection (Refer to Figure 21 Alarm-In Action Schedule Setup Dialog.).
- Notify: Enable or disable the Notify function.

Figure 41   Motion Action ─ Notify Setup Dialog

Event Action ► Text-In Action ► Notify

Figure 42　Text-In Action ─ Notify Setup Dialog

Event Action ► Video Loss Action ► Notify

Figure 43　Video Loss Action ─ Notify Setup Dialog

3.8 Configuring Other Parameters

Reset All System Settings to Default Settings

PATH: MENU ▶ Configuration ▶ Load Default Setup

1. Select the Load Default Setup from the Configuration menu.
2. The DVR will request an administrator password since only administrator can change this setting.
3. If the password matches, a dialog box will appear confirming selection of default settings.
4. Select the Yes button and then press ENTER to reset all system settings to default settings.

NOTE: The DVR will keep the current time zone, daylight saving time, and network settings regardless of loading default settings.
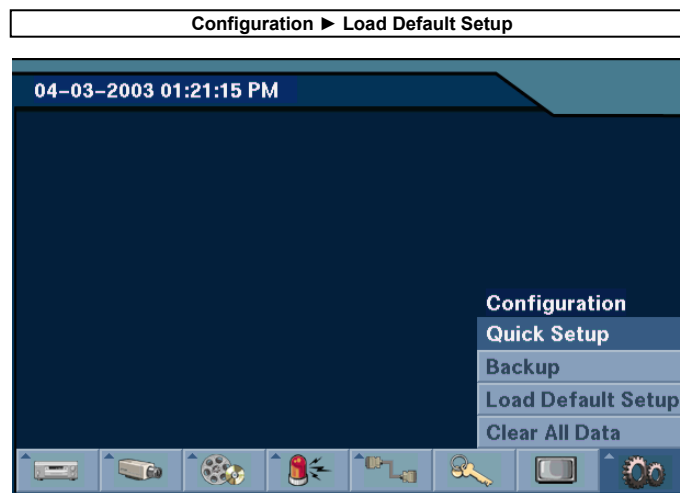
Figure 44   Main Menu Dialog

Archive Video to an External USB Drives

PATH: MENU ▶ Configuration ▶ Backup

1. Select the Backup from the Configuration menu.
2. Move to the USB HDD field, and press ENTER to select the USB drive type to use for archiving between USB HDD and USB CD-RW.
3. Move to the From field, and set the backup start time and date.   You can choose to archive video from the first image by selecting the First.
4. Move to the To field, and set the backup end time and date.   You can choose to archive video to the last image by selecting the Last.
5. Move to the Camera field, and select the camera to archive.

6. Move to the File Name field.   And press ENTER to display software keyboard, and enter a file name for video you are archiving.   The DVR will automatically add the camera number (for example "01") and ".exe" to the file name.   If you want to save the file in a specific folder, enter the folder name followed by a "/".   For example: "folder/filename".

NOTE: Do not back up files larger than 2GB.

CAUTION: The recording speed might decrease while archiving video to an external USB hard disk drives or USB CD-RW drives.   Also, CD burning might not be successful if other tasks such as recording, playback, remote access, etc. are running or initiating during CD burning.   During archiving the title bar will first display Preparing backup, then it will show the progress.   Once archiving is complete, the title bar will display Backup is completed.

CAUTION: Do NOT Do NOT disconnect the USB cable or the power from the external drive while archiving video.   If the external drive is shut down or the USB cable is disconnected while archiving, THE DVR SYSTEM MAY NOT WORK NORMALLY OR THE EXTERNAL DRIVE COULD BE DAMAGED, and you will get an error message the next time you try to archive.   You will need to power down the DVR and restart it to get rid of the error message.   Once the file system of the USB-IDE hard disk drive has been corrupted, this error message cannot be dismissed.   Even after restarting the DVR it may automatically restart while preparing a backup.   You must recover the file system by using the recovery program, or you must reformat the hard disk drive.

Figure 45   Backup Setup Dialog

Enable/Disable Password

PATH: MENU ▶ Password

1. Move to the target permission field and select either On or Off.
• Playback: A password is required when pressing SEARCH.
• User Setup: A password is required when pressing MENU.
• Admin Setup: A password is required before performing the following setup.
    Loading default setup
    Clearing all data
    Changing system date/time
2. The dialog boxes asking the current and new password and then confirming the new
    password will appear when selecting On.
3. The dialog box asking the current password appears when selecting Off. If the password
    does not match, selecting Off will not be applied.

**NOTE: A password can be composed of up to eight digits, and is entered using
camera buttons (1-4).**

**NOTE: The factory default of Playback password and User Setup password is 1234
and Admin Setup password is 4321 that have been entered by camera buttons.**

**NOTE: The password will NOT be changed when the Old password does not match, or
the New password and Confirm do not match.**

Figure 46   Password Setup Dialog

Set up the password for playback and setup change.
• On/Off: Enable or disable the password for playback and setup change.

NOTE: When selecting *Off*, the user can access the features without a password.

• Password: Set up the password (up to eight digits may be entered).
• Key Lock On: Disable using the buttons on the front panel.

NOTE: Refer to the following Enable/Disable Key Lock section for details of setting up the key-lock mode.

Enable/Disable Key Lock

PATH: MENU ▶ Password
(Refer to Figure 45 Password Setup Dialog.)

1. Move to the Key Lock On button, and press ENTER to key-lock the DVR.
2. The dialog box asking the key-lock password appears when any button is pressed.   Enter the password 4231 to release a key-lock function.

Initialize Storage Space

PATH: MENU ▶ Configuration ▶ Clear All Data
(Refer to Figure 44 Main Menu Dialog.)

1. Enter the password in the dialog box asking an administrator password.
2. If the password matches, the DVR confirms whether clearing all recorded data or not.
3. Select the Yes button to delete the data.   The DVR will restart automatically.

CAUTION: ALL RECORDED DATA WILL BE LOST BECAUSE THE HARD DISK WILL BE INITIALIZED.

Query System Log

PATH: MENU ▶ System ▶ System Log

1. Shows the current system log.
2. Go to the previous and next system log pages by selecting the up/down-arrow buttons at the left-bottom of the dialog box with the ENTER.

System ▶ System Log		
System Log		
No.	Event	Date/Time
2566	Setup Begin (Local:User)	01-28-2002 04:44:14 PM
2565	System Started	01-28-2002 04:44:10 PM
2564	Setup Begin (Local:User)	01-28-2002 04:28:49 PM
2563	System Started	01-28-2002 04:28:45 PM
2562	Setup Begin (Local:User)	01-28-2002 04:27:47 PM
2561	Setup End (Local:User)	01-28-2002 04:27:39 PM
2560	Setup Begin (Local:User)	01-28-2002 04:23:00 PM
2566 ▲ ▼		
	Close	

Figure 47   System Log Dialog

Show the system log information.
2566 : Displays the total log numbers.

NOTE: This button can be used to go to a specific event by changing the number. Press ENTER on this button, and set the target event number using up/down-arrow buttons on the front panel.

▲ ▼ : Go to the previous or next page using the up/down-arrow buttons.

Change System Check List

PATH: MENU ▶ System ▶ System Check

1. Move to the target check point, and select either On or Off.
2. When selecting On set the checking interval to be alarmed or to be recorded.

NOTE: This System Check feature is related with local setup.   Once you enable this and set the checking interval, the DVR will report a fault condition if there is no recording or no alarm during the entered time.

NOTE: For the enabled check point (s), the log information will be recorded if the recording or alarming has not been made during the preset intervals.   Or, the RAS (Remote Administration System) software checks the DVR at regular times, and reports its status (Network-supported premium model only).

System ▶ System Check

System Check

Check Point	On/Off	Interval	Status
Record	On	1 hour	Good
Alarm–In 1	On	1 hour	Good
Alarm–In 2	On	1 hour	Good
Alarm–In 3	On	1 hour	Good
Alarm–In 4	On	1 hour	Good

OK   Cancel
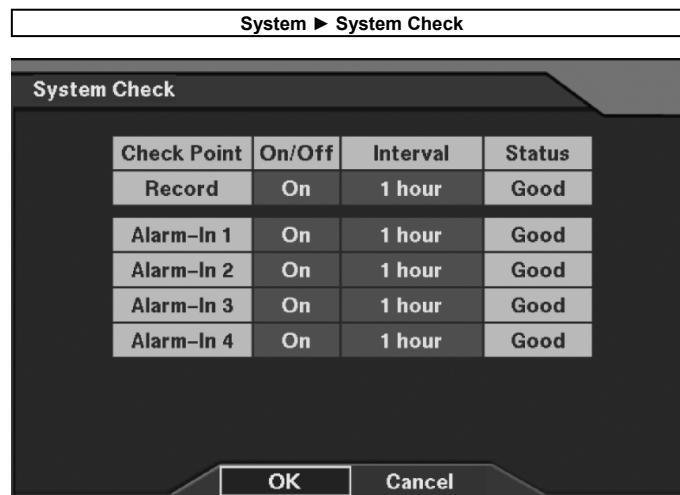
Figure 48   System Check Setup Dialog

Set up the information of the system check.
- On/Off: Enable or disable checking the status of each check point.
- Interval: Set the checking intervals (1 hour~30 days).
- Status: Displays the system status (Good/No Good).

Query Event Log

PATH: SEARCH ▶ MENU ▶ Event Search
(Refer to Figure 51, Figure 52, and Figure 53.)
PATH: ALARM

1. The event log maybe entered using one of two methods:
- MENU in the playback mode: Select the Event Search.
- ALARM : Displays the event log, except during alarm activation, and functions as an alarm reset during alarm activation.
2. Event log window appears.
3. Go the previous or next event log using the up/down-arrow buttons.
4. Select the target event log using the up/down-arrow buttons, and press ENTER to display the image of that event. Press SEARCH to return to the Live mode of operation.
5. Pressing the Query button provides the following search filters:
- Move to the Search By field, and select either Event or Camera.
- Move the From/To field, and set the starting and ending time.
- Select the target events.
- When selecting the Text-In, a transaction number can be entered in the TR field using the software keyboard.
6. Press the Search button to display search results. Return to step 4 to select target event and view the search image.

NOTE: Refer to the *Chapter 4.3 Image Playback* for details.

Control System via RS232 Port

PATH: MENU ▶ Devices ▶ RS232

1. Move to the RS232 field, and select Remote Controller.
2. Set up the port communication for the remote controller.

NOTE: If the networking is configured by the external modem, the message that the remote controller cannot be used will be displayed when selecting *Remote Controller* as the port use in the *RS232* field. Move to the Network setup, and change the networking type from the external modem to LAN or the internal modem first, and then try again. Please contact your dealer/installer for the protocol information for remote controller connection.
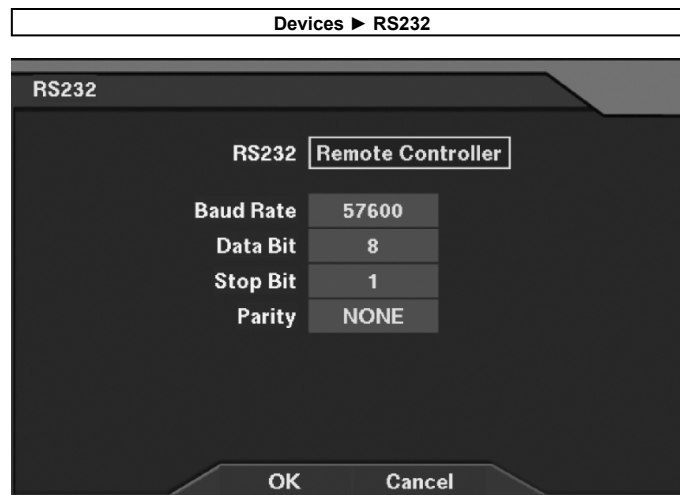
Figure 49   RS232 ─ Remote Controller Setup Dialog

RS232 Setup
• RS232: Select either Remote Controller or External Modem as the port use.

NOTE: Once *Remote Controller* is selected, the following options are available.

• Baud Rate: Set the Baud Rate of a modem (300~115200).
• Data Bit: Set the data bit (7/8).
• Stop Bit: Set the stop bit (1/2).
• Parity: Enable or disable the parity (NONE/ODD/EVEN).

NOTE: Selecting the *External Modem* in the *RS232* field only decides the RS232 port is used for the external modem connection.   The external modem setup in detail will be configured in the Modem Setup dialog box.   Refer to the *3.7 Configuring for Networking ─ Set up Network (Modem)* section for details of setting up the external modem.

Chapter 4. Operation

4.1 Live Monitoring

Your DVR has four video inputs and four video loop outputs, and two video output connectors are provided: a BNC connector and an S-VHS connector. Press any CAMERA 1-4 on the front panel to display live pictures from that camera on the monitor.   And press DISPLAY to switch between full screen mode and 2x2 screen mode.   The user can freeze live video by pressing FREEZE and release it by pressing FREEZE again.   Press SEQUENCE to switch the camera display at preset intervals.   The sequencing of the cameras will continue until SEQUENCE is pressed again.   Refer to the 3.4 Configuring for Live Monitoring for the details of programming.   When using the PTZ camera, press CAMERA 1-4 and then press ENTER to enter the PTZ mode.   The camera button LED will blink when the DVR is in the PTZ mode.

NOTE: Check the PTZ settings are correct if the camera button LED does not blink in the PTZ mode.   Use buttons on the front panel to control the PTZ.

- **Left/Right-Arrow:** Pan Left/Right
- **Up/Down-Arrow:** Tilt Up/Down
- **MENU/SEARCH:** Zoom In/Out
- **SEQUENCE/ALARM:** Focus In/Out
- **CAMERA 1/2:** Iris Open/Close
- **CAMERA 3/4:** Preset Save/Load

4.2 Recording

The DVR provides Pre-Event, Time-Lapse recording and Event-driven recording.   The DVR provides both automatic and manual recording of video and audio to the hard disks according to the schedule configured by the user and from external and internal events such as alarm-in. The schedule is configured day-by-day and hour-by-hour for each camera.

4.2.1 Recording Mode

Both time-lapse recording mode and event-driven recording mode are provided, and the images recorded according to each recording mode are stored separately.   The user can limit the time-lapse recording period.   If the user sets up the maximum time for time-lapse storage as 24 hours, the DVR starts recording over the older video once the DVR has 24 hours of time-lapse video.   The other storage space will be used for storing video of events.   Refer to the 3.5 Configuring for Recording ─ Limit the Time-Lapse Recording Period section for details.   In the time-lapse recording and event-driven recording, two different modes (Mode 1, Mode 2) can be programmed.   Each recording mode has two different speeds and image qualities during its recording schedule.   As an example, an effective use of these two modes is when working hours and closing hours have different recording setups.   The programming of these two modes may be applied to each event action: alarm-in, motion detector, text-in or video loss.

4.2.2 Recording Schedule

Time-lapse recording and event-driven recording are scheduled individually.   Refer to the 3.5 Configuring for Recording for details of scheduling.   The DVR can select the type of recording (No Recording, Mode 1 or Mode 2) at 30-minute intervals for each camera, and also have the different recording schedule and recording type for each day including holidays. When the time-lapse recording and event-driven recording periods coincide, the DVR executes event-driven recording in the case of event detection, and time-lapse recording for normal (non-event) recording.

4.2.3 Pre-Event Recording

Using pre-event recording, the DVR stores not only recorded images after event detection but also images recorded before event detection.   To record pre-event images, set up event-driven recording for the target event, and enable pre-event recording.   Pre-Event recording period, speed and image quality can be set to each camera individually.   Refer to the 3.5 Configuring for Recording ─ Enable/Disable Pre-Event Recording section for details of setting up the pre-event recording.

4.2.4 Audio Recording

The DVR can record audio with an image.   Refer to the 3.5 Configuring for Recording ─ Set up Audio Recording section for details of setting up the audio.

4.2.5 Deleting All Recorded Data

The user may delete all recorded data on the hard disk and initialize the hard disk.   In the Configuration menu, select Clear All Data The Admin password is required.   If the password matches, a dialog box confirming data deletion will appear.   Select Yes button and press ENTER to confirm the deletion.   The DVR reboots automatically after deleting the recorded data, and the deletion event will remain in the system log.

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4.3 Image Playback

4.3.1 Starting/Ending Playback

In the live monitoring mode, start the playback mode by pressing SEARCH on the front panel. To return to the live monitoring mode, press SEARCH again.   When playing the images back for the first time, the DVR displays the newest recorded image.   For subsequent playback sessions, the DVR begins playback with previous image recalled and displayed.

Playback Commands

1. ►: To play the images forward at the regular speed, press the right-arrow button on the front panel.
2. ►: To play the images forward at high speed (2x, 8x), press the right-arrow button a second time.   Subsequent selection of the right-arrow button toggles the 1x/2x/8x forward play speed.
3. ◄: To play the images backward at the regular speed, press the left-arrow button on the front panel.
4. ◄: To play the images backward at high speed (2x, 8x), press the left-arrow button a second time.   Subsequent selection of the left-arrow button toggles the 1x/2x/8x backward play speed.
5. ▮►: After selecting Pause, to advance to the next image, press the up-arrow button.
6. ◄▮: After selecting Pause, to review the previous image, press the down-arrow button.
7. Go to First: To go to the first recorded image, press MENU and select Go to First in the playback stop mode.
8. Go to Last: To go to the last recorded image, press MENU and select Go to Last in the playback stop mode.
9. ▮▮ : To stop playback and display the still image, press ENTER.   When this button is pressed a second time, the On-Screen Display (OSD) information (date and time) disappears.   The OSD information will not reappear until a playback button is pressed.

NOTE: During local playback operation, the DVR will STOP recording.

4.3.2 Calendar Search

In the playback stop mode, press MENU and then select Calendar Search to display the dialog box including the calendar and time bar.   The color of the dates represents whether stored images of a certain date are available.   The dates having recorded data are highlighted. Select a specific date by pressing ENTER, and the time bar showing the recording and the time bar showing the recording status of that date by time is displayed.   Select the time bar using the up/down-arrow buttons on the front panel.   The bar will change to a light blue when selected.   Select a specific selection of the time bar using the left/right-arrow buttons. The time bar having no recorded data is transparent.   When selecting any part of a specific time range, the oldest recorded image of that time range will be displayed.

NOTE: The time bar having recorded data does NOT always mean that there are recorded data throughout the hour within the selected time range, BUT means there are some recorded data during the hour, since the recording information shows in hour basis in the timetable.

Figure 50   Calendar Search Dialog

4.3.3 Date/Time Search

In the playback stop mode, press MENU and then select Date/Time Search to display the dialog box asking the Go-To date and time.   Enter the date and time desired and then select OK, the recorded still image at that specific date and time will be displayed.   If there is no video at that time, the screen for that camera is black.
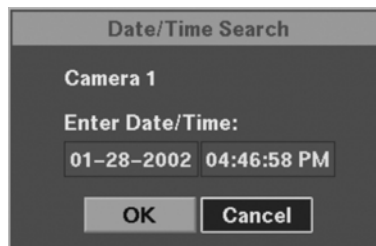
Figure 51   Date/Time Search Setup Dialog

4.3.4 Query Event Log

In the playback stop mode, press MENU and then select Event Search.   As the result, the DVR shows all event logs in order from the latest.   The user may extract and search only results they want by pressing Query button on the screen and setting specific search conditions.   To display the first image of the target event, select the target event item and then press ENTER.

Figure 52   Event Log Dialog

4.3.5 Query Dialog

Set up the event search information in this dialog box.   The DVR provides searching by event or camera.   First, move to the Search By field and select either Event or Camera. Press Find button after setting search period and target events.   The search results will be displayed in the Event Log dialog box.

NOTE: When selecting *Search By Event*, search text-in events that have the identical value to any specific transaction number entered in the *TR* field.   Otherwise, search all text-in events when the *TR* field is empty.

Figure 53   Event Search Dialog (1)

Figure 54 Event Search Dialog (2)

- Search By: Selects either Event or Camera as the search option.
- From: If this box is checked, search from the first recorded data.   If you want to a specific search starting date/time, remove a check and then set the desired date/time.
- To: If this box is checked, search until the last recorded data.   If you want to a specific search ending date/time, remove a check and then set the desired date/time.
- Alarm-In, Motion, Video Loss, Text-In: Select target channel(s) of each event-triggered device (Search by Event only).

NOTE: When selecting *Text-In* as the event option, search text-in events that have the identical value to any specific transaction number entered in the *TR* field.   Otherwise, search all text-in events when the *TR* field is empty.

- Camera/Event: Select target camera channel(s) associated with each event, and select event option(s) (Search by Camera only).

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Appendix A. Reviewing Backup Images

NOTE: It is suggested that the computer used for the Player program has at least an 800MHz Pentium III.   If your CPU is slower than this, backup files recorded at maximum speed with very high image quality will be played back slowly.

Disconnect the external USB-IDE hard disk drive or USB CD-RW drive from the DVR, and connect it to your PC.   Double-clicking the target backup file starts the Player program.

NOTE: You do not need to install any special software on your personal computer to review the video.   The backup file contains the Player program.
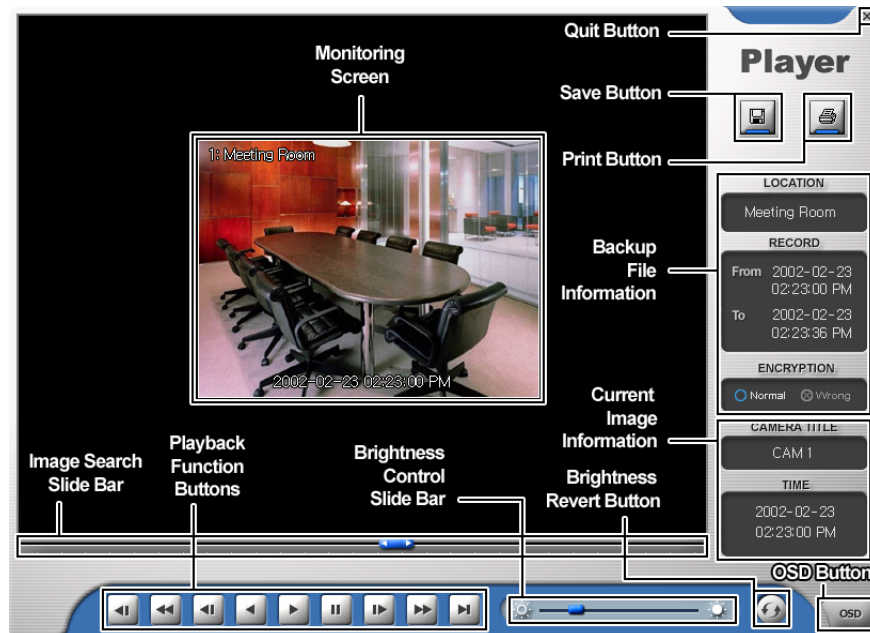
Figure 55   Player Screen

The Monitoring Screen displays the backed up images.   Clicking the right mouse button on the images switches the screen size between 320x240 and 640x480.

Clicking the Quit button exits the Player program.

Click the Save button to save the current image in a bitmap file format to the local hard disk drive or floppy disk.

Click the Print button to print the current image on the printer connected to your computer.

The Backup File Information window displays information regarding the backup file. Location displays the site description of the DVR where the backup was made.   Record displays the time span of the video backup file.   Encryption displays whether the backup file has been tampered with.   Normal means the file has not been tampered with, Wrong means the system has detected tampering, and no mark means the user cancelled the encryption check.

The Current Image Information window displays information about the current image. Camera Title displays the camera name of the current image, and Time displays the date and time the image was recorded.

The Image Search Slide Bar displays the current playback position.   The user can move to another image clicking the mouse and dragging along the slide bar.

The Playback Function Buttons include fast backward, backward, play, pause, fast forward, go to the first image, go to the previous image, go to the next image, and go to the last image buttons.

The Brightness Control Slide Bar adjusts the brightness of the backup images by clicking the mouse and dragging along the slider bar.   Minute brightness change can be made by using the arrow buttons located at each end of the bar.

The Brightness Revert Button reloads to the original image.

Clicking the OSD (On-Screen Display) Button switches the OSD option.   The OSD information includes camera location and date/time.

Appendix B. Quick Reference

Buttons on the Front Panel

Button	Operation
CAMERA (1-4)	Displays corresponding camera image.
	Enters password.
DISPLAY	Switches between full screen mode and 2x2 screen mode.
FREEZE	Freezes live video.
ARROW	Moves the cursor in the setup dialog boxes.
	Plays, fast forwards and reviews in the playback mode.
	Controls pan in the PTZ mode.
ENTER	Selects an item in the setup dialog boxes.
	Enters to or exits from edit mode in the setup dialog boxes.
	Pauses in the playback mode.
MENU	Displays the menu dialog box.
	Zooms in in the PTZ mode.
SEARCH	Searches the images.
	Zooms out in the PTZ mode.
SEQUENCE	Turns on/off camera sequencing.
	Used for near focus in the PTZ mode.
ALARM	Resets an alarm during alarm activation.
	Shows event list if alarm is not active.
	Used for far focus in the PTZ mode.

LEDs

LED	Description
POWER	The DVR is on.
NETWORK	The DVR is networked either via Ethernet or modem.
BACKUP	Data is being backed up using the USB port.
CAMERA (1-4)	Corresponding camera image is displayed.
MENU	The DVR is in the setup mode.
SEARCH	The DVR is in the playback mode.
SEQUENCE	The DVR is in the sequence mode.
ALARM	Alarm output is activated.

Reference Dialog Map

```
                    MENU
                    │
                    ├──── System
                    │           ├──── System Information
                    │           ├──── Date/Time
                    │           ├──── System Check
                    │           └──── System Log
                    │
                    ├──── Devices
                    │           ├──── Camera
                    │           ├──── Alarm-In
                    │           ├──── Motion Detector
                    │           ├──── Text-In/PTZ
                    │           ├──── Alarm-Out
                    │           ├──── Audio
                    │           └──── RS232
                    │
                    ├──── Record
                    │           ├──── Time-Lapse Record Setup
                    │           └──── Pre-Event Record Setup
                    │
                    ├──── Event Action
                    │           ├──── Alarm-In Action
                    │           ├──── Motion Action
                    │           ├──── Text-In Action
                    │           └──── Video Loss Action
                    │
                    ├──── Network
                    │           ├──── Network Setup
                    │           └──── Callback Center
                    │
                    ├──── Password
                    │
                    ├──── Live Monitoring
                    │
                    └──── Configuration
                                ├──── Quick Setup
                                ├──── Backup
                                ├──── Load Default Setup
                                └──── Clear All Data
```

Appendix C. Technical Specifications

VIDEO	
Signal Format	NTSC or PAL, selectable switch
Video Input	Composite: 4 looping, auto-terminating
Monitor Outputs	Composite: 1 output SVHS: 1 output
Video Resolution	720 x 480 (NTSC), 720 x 576 (PAL)
Live Monitoring	Single / Quad
Playback / Record Speed	Max. 30 ips (NTSC), 25 ips (PAL)
INPUTS / OUTPUTS	
Alarm Inputs	4 switch closurers or TTL open-collector Inputs, programmable as NC/NO
Alarm outputs	2 relay
Alarm Reset Input	1 dry contact
Internal Buzzer	80dB at 10cm
PTZ Control	1 output / RS-232C / Async, shared port with Text Insertion
Text Insertion	1 input / RS-232 / Async
Network Connectivity	10/100 Mbps Ethernet RS-232C for external modem
Audio Input	1 line
Audio Output	1 line
CONNECTORS	
Video Input	Composite: 4 looping, BNC
Monitor Outputs	Composite: 1 BNC SVHS: 1 Y/C
Audio In / Out	1/1 RCA
Alarm In / Out	4/2 screwless, push button type, terminal blocks
Alarm Reset In	1 terminal block
Network	RJ-45
Telephone	RJ-11 (option)
Text Insertion / PTZ Control	DB9 (P) connector
External Modem	DB9 (P) connector
STORAGE	
Primary Storage	EIDE hard disk drive (up to 2)
Secondary Storage	N/A
GENERAL	
Dimensions (W x H x D)	16.9" x 1.7" x 13.9" (430mm x 44mm x 352mm)
Shipping Dimensions	21.3" x 6.9" x 20.1" (540mm x 175mm x 510mm)
Unit Weight	10.8 lbs (4.9kg)
Shipping Weight	15.2 lbs (6.9kg)
Operating Temperature	41°F~104°F (5℃~40℃)
Operating Humidity	0%~90%
Power	Adaptor (+24VDC, 2.9A)
MISCELLANEOUS	
Options	Internal modem
Approvals	FCC, CE

Specifications are subject to change without notice.