ADEMCO VIDEO

SINGLE-CHANNEL DIGITAL VIDEO RECORDER
USER'S MANUAL

Duplex mode (Simultaneous recording and playback)

Multiple Recording Speeds - up to 60ips NTSC (50ips PAL)

Interface with ADEMCO Video and other manufacturer's Multiplexers

Highly efficient compression engine maximizes recording duration

Looks, feels and operates like VCR (Familiar controls)

Various recording modes (Time-lapse recording / Event recording)

Quick and easy search modes

Single-channel audio recording

Removable hard disk drive

Multiple types of remote access (PSTN, ISDN, ADSL, LAN)

USB interface for data extraction

WARNING

RISK OF ELECTRIC SHOCK
DO NOT OPEN

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

COMPLIANCE NOTICE OF FCC:

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

WARNING: CHANGES OR MODIFICATIONS NOT EXPRESSLY APPROVED BY THE PARTY RESPONSIBLE FOR COMPLIANCE COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.

THIS CLASS OF DIGITAL APPARATUS MEETS ALL REQUIREMENTS OF THE CANADIAN INTERFERENCE-CAUSING EQUIPMENT REGULATIONS.

The information in this manual is believed to be accurate as of the date of publication. ADEMCO Video is not responsible for any problems resulting from the use thereof. The information contained herein is subject to change without notice. Revisions or new editions to this publication may be issued to incorporate such changes.

Important Safeguards

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

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

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

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

5. Water and/or Moisture
Do not use this equipment near water or in contact with water.

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

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

8. Power Cords
Operator or installer must remove power and TNT connections before handling the equipment.

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

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

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

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

13. Damage requiring Service
Unplug this equipment from the wall outlet and refer servicing to qualified service personnel under the following conditions:

A. When the power-supply cord or the plug has been damaged.
B. If liquid is spilled, or objects have fallen into the equipment.
C. If the equipment has been exposed to rain or water.
D. If the equipment does not operate normally by following the operating instructions, adjust only those controls that are covered by the operating instructions as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the equipment to its normal operation.
E. If the equipment has been dropped, or the cabinet damaged.
F. When the equipment exhibits a distinct change in performance — this indicates a need for service.

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

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

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

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

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

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

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

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

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

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

Table of Contents

List of Illustrations

Chapter 1 — Introduction

Features

Your single-channel color digital video recorder (DVR) provides recording capabilities for either a single camera or an alternative video source. It provides exceptional picture quality in both live and playback modes, and offers the following features:

- Single-channel Composite or SVHS Input and Output Connections
- Single Camera Input or Multiplexed Input from Most Popular Quads and Multiplexers
- Compatible with Color (NTSC or PAL) and B&W (CCIR and EIA-170) Video Sources
- Multiple Search Engines (Time/Date, Calendar, Event)
- Records up to 60 Images per Second for NTSC (50 Images per Second for PAL)
- "Loop-Through" Video Connector (Composite Input Only)
- Continuous Recording in Disk Overwrite Mode
- Front Panel Displays Time, Date, Recording Mode and Remaining Storage Capacity and More
- Removable Hard Disk Drive
- Video Archiving via USB Interface
- Continues Recording while Archiving, Transmitting to Remote Site and during Playback
- User-friendly Graphical User Interface (GUI) Menu System in Multiple Languages
- Two Record Modes (Time and Event)
- Audio Recording and Playback
- Alarm Connections Include: Input, Output and Reset Input
- Built-in Alarm Buzzer
- Cascade Multiple DVRs ("Series" Feature)
- Live or Recorded Video Access via Ethernet or External Modem (Premium Model Only)

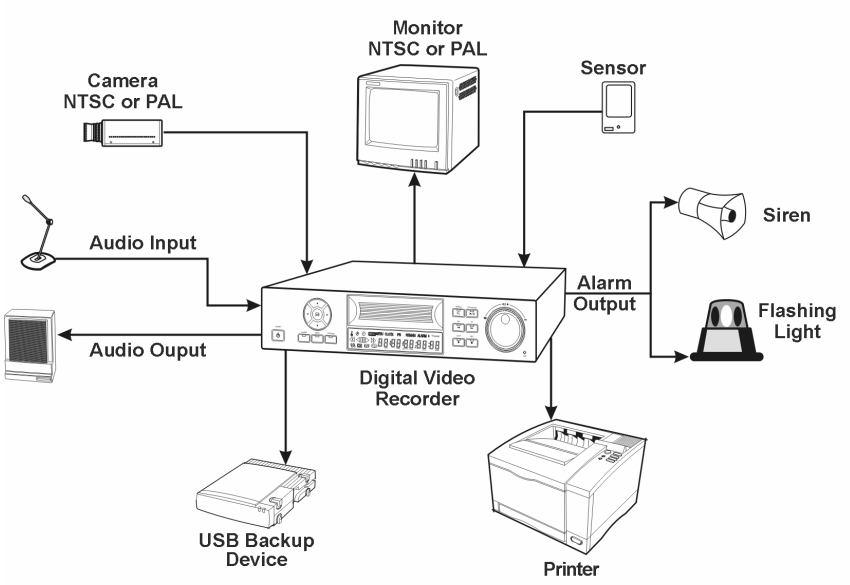


Figure 1 — Typical DVR installation (1)

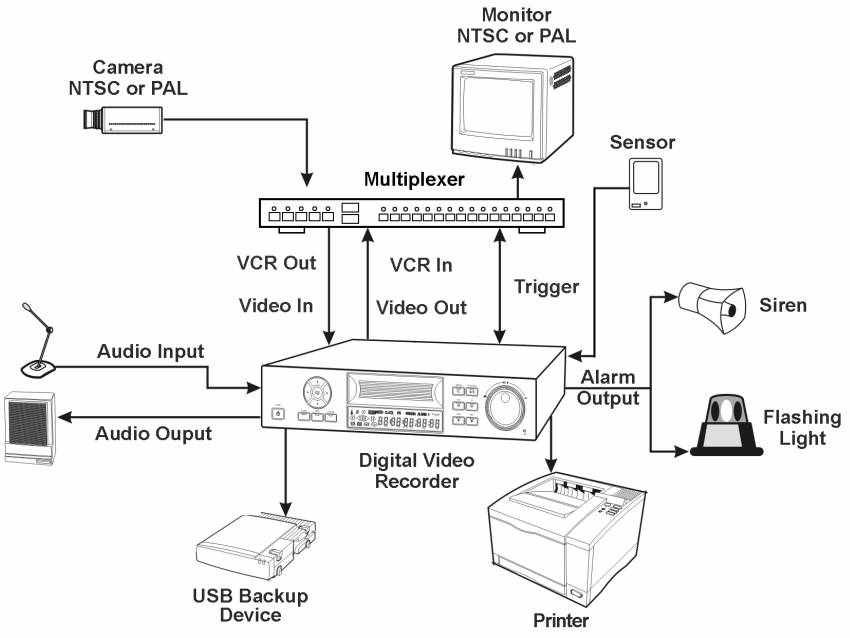


Figure 2 — Typical DVR installation (2)

Technical Overview

Your single-channel DVR can be used as a replacement for a time-lapse VCR in a security installation. However, it has many features that make it much more powerful and easier to use than even the most advanced VCR.

The single-channel DVR converts analog NTSC or PAL video signals to digital images and records them on a removable hard disk drive. Using a hard disk drive allows you to access recorded video almost instantaneously; there is no need to rewind tape. The technology also allows you to view recorded video while the DVR continues recording video.

Digitally recorded video has several advantages over analog video recorded on tape. There is no need to adjust tracking. You can freeze frames, fast forward, fast reverse, slow forward and slow reverse without image streaking or tearing. Digital video can be indexed by time or events, and you can instantly view video after selecting the time or event.

Your DVR can be set up for event or time-lapse recording. You can define times to record, and the schedule can change for different days of the week and user defined holidays.

The DVR can be set up to alert you when the hard disk drive is full, or it can be set up to record over the oldest video once the disk is full.

Your DVR uses a proprietary encryption scheme making it nearly impossible to alter video.

You can view video and control your DVR remotely by connecting via modem or Ethernet. A standard PostScript™ computer printer can be connected to the DVR to print frame captures. There is a USB port that can be used to archive video to external hard disk drives.

Chapter 2 — Installation

Package Contents

The package contains the following:

- Single-Channel Digital Video Recorder
- Case with Removable Hard Disk Drive
- Power Cord
- User's Manual (This Document)
- Multilingual User's Manual (CD-ROM)
- RAS User's Manual (Premium Model)
- Multilingual RAS Installation Software and User's Manual (CD-ROM, Premium Model)
- Rack-mount Kit

Required Installation Tools

No special tools are required to install the DVR. Refer to the installation manuals for the other items that make up part of your system.

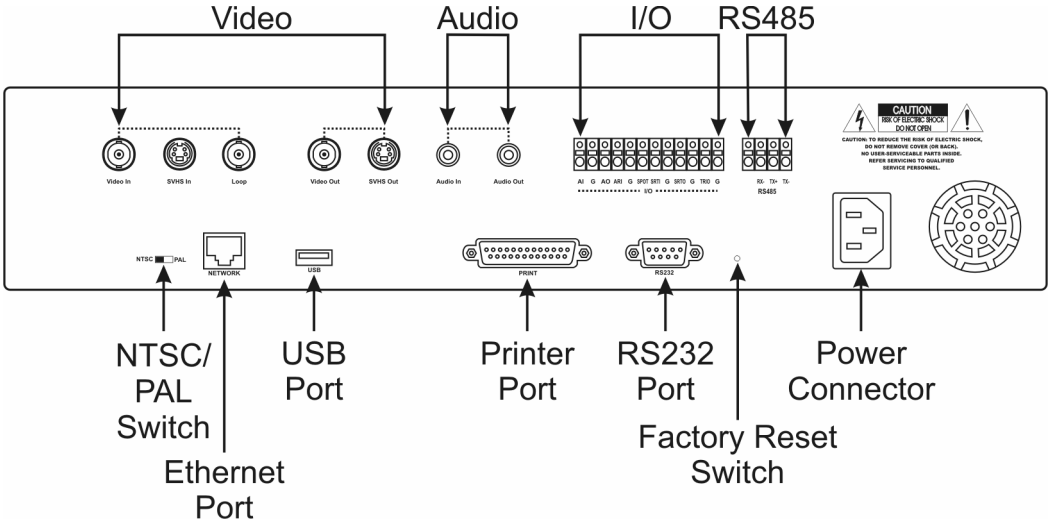


Figure 3 — DVR rear panel

Setting Unit for NTSC or PAL

Figure 4 — NTSC/PAL switch

Your DVR can be used with either NTSC or PAL equipment. Before turning on the DVR, set the switch NTSC or PAL to match your equipment.

NOTE: You cannot mix NTSC and PAL equipment. For example you cannot use a PAL camera and an NTSC monitor.

Connecting the Video Source

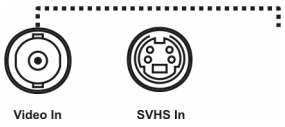


Figure 5 — Video Input connector

Connect the coaxial cable from the video source to the BNC Video In connector. If your video source has an SVHS output, connect it to the SVHS In connector.

NOTE: You cannot use two video sources at the same time. The user selects either the BNC (composite) or SVHS video input connector during setup.

Connecting the Loop Through Video

Figure 6 — Video Loop Through connector

If you would like to connect your video source to another device, you can use the Loop BNC connector.

NOTE: The Loop BNC is auto terminated. Do NOT connect a cable to the Loop BNC unless it is connected to another terminated device because it will cause poor quality video. Only video input from the BNC can be looped through.

Connecting the Monitor

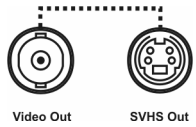


Figure 7 — Video Output connectors

Connect the monitor to either the Video Out or SVHS Out connector.

NOTE: If your monitor has an SVHS input, use it because it will give you better quality video display.

NOTE: The *Video Out* (BNC) and *SVHS Out* connections may be connected to individual monitors for simultaneous operation.

Connecting Audio

NOTE: It is the user's responsibility to determine if local laws and regulations permit recording audio.

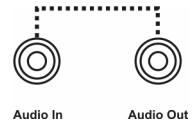


Figure 8 — Audio In and Out connectors

Your DVR can record audio. Connect the audio source to Audio In. Connect Audio Out to your amplifier.

NOTE: The DVR does not have amplified audio output, therefore, a speaker with a built-in amplifier is required. The audio input can be from an amplified source or directly from a microphone.

Connecting Alarms

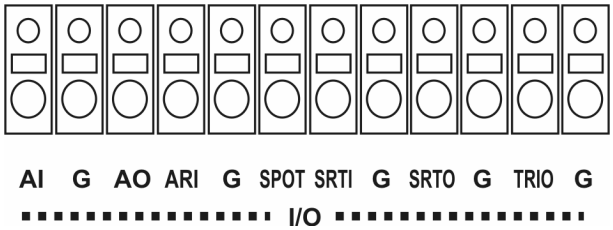


Figure 9 — Alarm connector strip and circuit diagrams

NOTE: To make connections on the Alarm Connector Strip, press and hold the button and insert the wire in the hole below the button. After releasing the button, tug gently on the wire to make certain it is connected. To disconnect a wire, press and hold the button above the wire and pull out the wire.

AI (Alarm In)

You can use external devices to signal the DVR to react to events. Mechanical or electrical switches can be wired to the AI (Alarm In) and G (Ground) connectors. The threshold voltage is 4.3V and should be stable at least 0.5 seconds to be detected. See *Chapter 3 — Configuration* for configuring alarm input.

G (Ground)

NOTE: All the connectors marked *G* are common.

Connect the ground side of the Alarm input and/or alarm output to the G connector.

AO (Alarm Out)

The DVR can activate external devices such as buzzers or lights. Connect the device to the AO (Alarm Out) and G connectors. AO is an active low open collector output which sinks 5mA@12V and 30mA@5V. See *Chapter 3 — Configuration* for configuring alarm output.

ARI (Alarm Reset In)

An external signal to the ARI (Alarm Reset In) can be used to reset both the Alarm Out signal and the DVR's internal buzzer. Mechanical or electrical switches can be wired to the AI and G connectors. The threshold voltage is 4.3V and should be stable at least 0.5 seconds to be detected. Connect the wires to the ARI (Alarm Reset In) and G connectors.

SPOT (One Shot Recording)

An external device can be used to trigger the DVR to record one image. Mechanical or electrical switches can be wired to the SPOT (One Shot Recording) and G connectors. The threshold voltage is 4.3V and should be stable at least 0.5 seconds to be detected.

NOTE: One Shot Recording is enabled when the red LED on the REC button is lit.

SRTI (Record Start In)

The SRTI (Record Start In) performs the same function as pressing the Record button. When the hard disk drive on the "master" DVR is full, it sends a signal to the "slave" DVR to start recording. Connect the SRTO (Record Stop Out) and G of the "master" DVR to the SRTI and G of the "slave" DVR (respectively).

NOTE: If the "slave" DVR is already in the record mode a signal on the *SRTI* connector will cause no change.

SRTO (Record Stop Out)

The SRTO (Record Stop Out) sends a signal to a "slave" DVR to start recording when the "master" DVR's hard disk drive is full. Its main use is to trigger additional DVRs when they are installed in series. Connect the SRTO and G of the "master" DVR to the SRTI and G of the "slave" DVR (respectively).

NOTE: If the DVR is set up in the overwrite mode, it will NOT send a signal on the *SRTO* connector when the hard disk drive is full. Instead, it will continue recording by overwriting the oldest video.

TRIO (Trigger Out)

The TRIO (Trigger Out) outputs a signal each time the DVR records an image. It is used to synchronize the DVR with a multiplexer. Connect the TRIO connector to the trigger pulse input on the multiplexer. Connect the DVR ground (G) to the ground pin on the multiplexer. See *Chapter 3 — Configuration* for configuring Trigger Out.

NOTE: When using a multiplexer with the DVR, it is strongly recommended to connect the *TRIO* with the multiplexer trigger pulse input. This ensures that the multiplexer and the DVR are synchronized.

Connecting to RS485

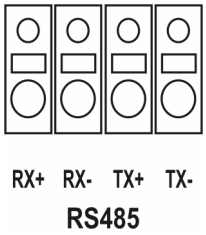


Figure 10 — RS485 connector

The DVR can be controlled remotely by an external device or control system, such as a control keyboard, using RS485 half-duplex serial communications signals. Connect RX+, RX-, TX+ and TX- of the control system to the TX+, TX-, RX+ and RX- (respectively) of the DVR. See *Chapter 3 — Configuration* for configuring the RS485 connection.

Connecting to the Network Port

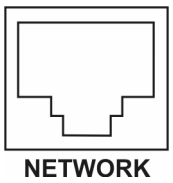


Figure 11 — Network connector

The DVR can be networked using the 10/100Mb Ethernet connector (Premium Model Only). Connect a Cat5 cable with an RJ-45 jack to the DVR connector. The DVR can be networked with a computer for remote monitoring, searching, configuration and software upgrades. See *Chapter 3 — Configuration* for configuring the Ethernet connections.

Connecting to the USB Port

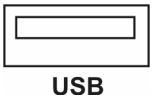


Figure 12 — USB connector

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. See *Chapter 4 — Operation* for archiving video to an external USB-IDE hard disk drive.

Connecting to the Printer

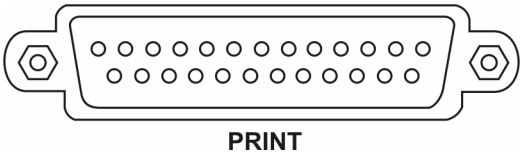


Figure 13 — Printer connector

You can print images from your DVR on PostScript™ printers. The DVR supports PostScript™ 2.0 and higher. If you have a color PostScript™ printer, you can print color images. Place the printer on a sturdy surface near enough to the DVR so that you will be able to make the cable connections. Connect the DB-25P end of the cable to the DB-25S Printer connector on the back of the DVR. Connect the other end of the cable to the printer. See *Chapter 4 — Operation* for printing images.

NOTE: Only PostScript™ printers will work with the DVR.

NOTE: The DVR is not supplied with a printer cable, and many printers are not supplied with cables. Make certain you have the correct cable when purchasing the printer.

Connecting to the RS232 Port

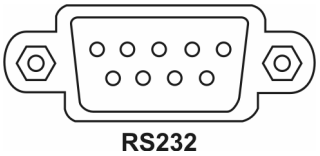


Figure 14 — RS232 connector

An RS232 port is provided to connect an external modem for remote monitoring, searching, configuration and software upgrades. Use a modem cable with a DB-9S (female) connector to connect to the DVR. See *Chapter 3 — Configuration* for configuring the modem.

NOTE: The DVR is not supplied with a modem cable, and many modems are not supplied with cables. Make certain you have the correct cable when purchasing the modem.

Factory Reset

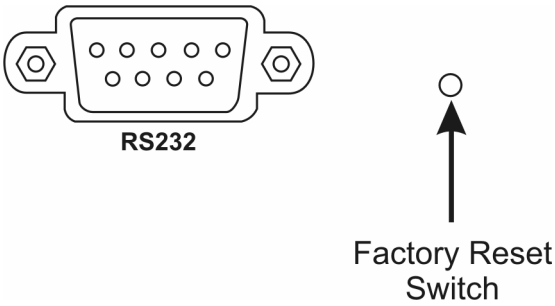


Figure 15 — Factory reset switch

The DVR has a Factory Reset switch to the right of the RS232 connector. This switch will only be used on the rare occasions that you want to return all the settings to the original factory settings.

CAUTION: When using the *Factory Reset*, you will lose any setting you have made.

To reset the unit, you will need a straightened paperclip:

1. Turn the DVR off
2. Turn it on again.
3. While the DVR is initializing, poke the straightened paperclip in the unlabeled hole to the right of the RS232 connector.
4. Hold the switch until all the LEDs and all the segments on the Front Panel Display are lit.

NOTE: When the DVR successfully resets to factory defaults all the LEDs and the segments on the Front Panel Display flash three times.

5. Release the reset switch. All of the DVR's settings are now at the original settings it had when it left the factory.

Connecting the Power Cord

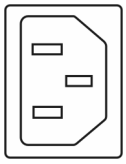


Figure 16 — Power cord connector

Connect the power cord to the DVR and then to the wall outlet.

NOTE: The DVR has an auto-selecting power supply.

WARNING: ROUTE POWER CORDS SO THAT THEY ARE NOT A TRIPPING HAZARD. MAKE CERTAIN THE POWER CORD WILL NOT BE PINCHED OR ABRADED BY FURNITURE. DO NOT INSTALL POWER CORDS UNDER RUGS OR CARPET.
THE POWER CORD HAS A GROUNDING PIN. IF YOUR POWER OUTLET DOES NOT HAVE A GROUNDING PIN RECEPTICLE, DO NOT MODIFY THE PLUG.
DO NOT OVERLOAD THE CIRCUIT BY PLUGGING TOO MANY DEVICES IN TO ONE CIRCUIT.

Your DVR is now ready to operate. Refer to *Chapter 3 — Configuration*.

Chapter 3 — Configuration

NOTE: Your DVR should be completely installed before proceeding. Refer to *Chapter 2 — Installation*.

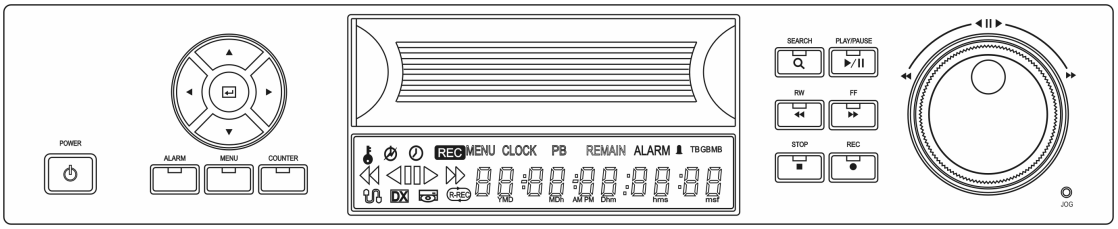


Figure 17 — DVR front panel

Installing Hard Disk Drive

Your DVR comes with a removable hard disk drive and you can purchase additional drives from your supplier. Before turning on the DVR, you must install the hard disk drive.

1. Directly above the Front Panel Display is the hard disk drive door. Open the door by pressing on the right-hand side of the door where it is labeled PUSH OPEN.

NOTE: The hard disk drive door cannot be opened when the power is on.

2. Open the case with the hard disk drive and remove the drive.

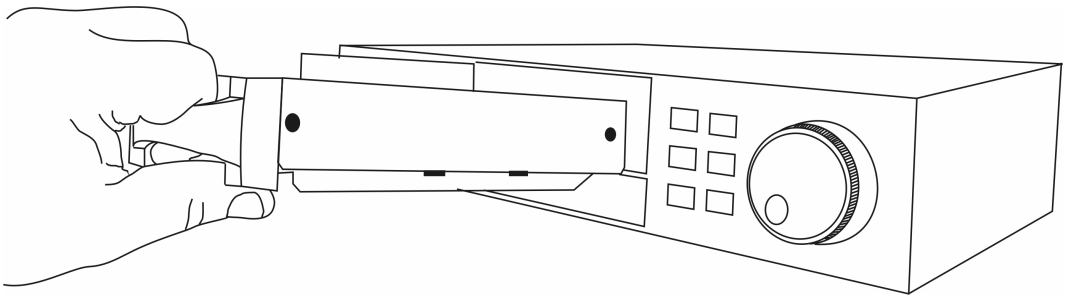


Figure 18 — Hard disk drive orientation

3. Holding the hard disk drive by the handle, slide it gently into the DVR until it stops. (See Figure 17 for correct orientation.)
4. Close the door by pressing on the PUSH OPEN. This action slides the drive the rest of the way into the DVR and completes the electrical connections.

Front Panel Buttons & Controls

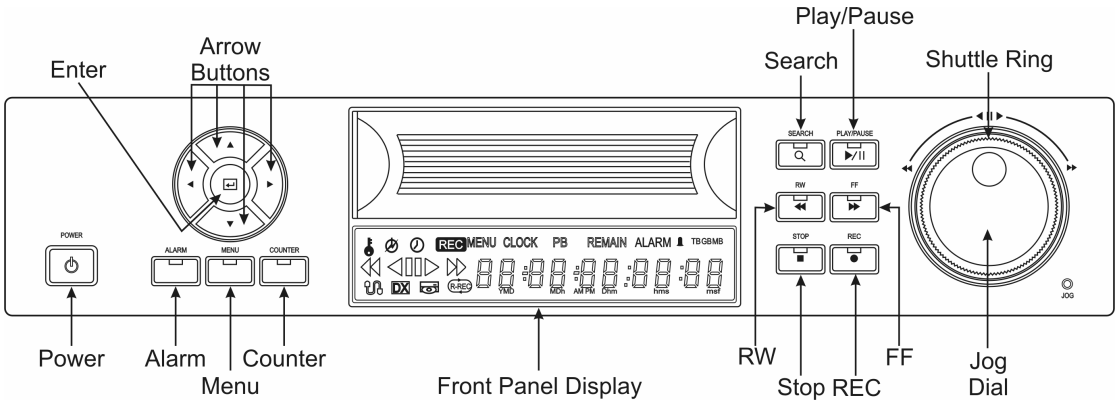


Figure 19 — Front panel buttons and controls

The front panel looks and operates much like a VCR. Many of the buttons have multiple functions. The following describes each button and control. Take a few minutes to review the descriptions. You will use these to initially set up your DVR and for daily operations.

POWER Button

The POWER button turns the unit on and off. When turning off the DVR, you need to confirm that you want to turn off the unit, and you will be asked for an administrator password.

Up, Down, Left, Right Arrow Buttons

The ▲, ▼, ◀, ▶ buttons are used to navigate through menus and GUI and enter passwords.

Enter Button

The ↵ button selects a highlighted item or completes an entry that you have made.

ALARM Button

The ALARM button has two functions. First, it will reset the DVR's outputs including the internal buzzer during an alarm. Second, it will display the event log when you are in the live monitoring mode unless there is an active alarm. This operation can be user password protected.

MENU Button

Pressing the MENU button enters the Main Menu. You will need to enter the administrator password to access the Main Menu. Pressing the button again closes the current menu or setup dialog box.

COUNTER Button

Pressing the COUNTER button switches between the Clock and Remaining Storage Capacity modes on the front panel display.

SEARCH Button

Pressing the SEARCH button displays the Search Menu. Pressing the button again will exit the Search Menu. This operation can be user password protected.

PLAY/PAUSE Button

Pressing the PLAY/PAUSE button plays back images at regular speed. Pressing the button while in the playback mode will pause the video. The screen displays ▶ when the DVR is playing back video. The screen displays ⏸ when in the Pause mode.

Entering Playback mode from Live Monitoring mode can be user password protected.

RW (Rewind) Button

Pressing the RW button plays video backward at high speed. Pressing the button again toggles the playback speed from ◀◀ , ◀◀◀ and ◀◀◀◀. The screen displays ◀◀ , ◀◀◀ and ◀◀◀◀ respectively.

Entering Fast Backward Playback mode from Live Monitoring mode can be password protected.

FF (Fast Forward) Button

Pressing the FF button plays video forward at high speed. Pressing the button again toggles the playback speed from ▶▶, ▶▶▶ and ▶▶▶▶. The screen displays ▶▶, ▶▶▶ and ▶▶▶▶ respectively.

Entering Fast Playback mode from Live Monitoring mode can be password protected.

STOP Button

Pressing the STOP button during Playback mode returns the DVR to the Live Monitoring mode.

REC (Record) Button

Press the REC button to set the DVR so that it is ready to record video. A red dot appears on the screen and REC appears on the counter display when the DVR is recording video. Press the button again to stop recording video.

Shuttle Ring

The Shuttle Ring only functions in the Playback mode. The Shuttle Ring is spring loaded and returns to the center position when released. Turning the ring clockwise plays video forward. Turning the ring counterclockwise plays video backward. Playback speed varies with the amount the ring is turned. The playback speeds are ◀x0.5, ◀◀, ◀◀◀, ◀◀◀◀, ▶x0.5, ▶, ▶▶, ▶▶▶ and ▶▶▶▶.

When you release the ring, it snaps back to the center position and the video pauses.

Jog Dial

The Jog Dial only functions when playback video has been paused. By turning the jog dial clockwise, you can play video forward image-by-image. By turning the jog dial counterclockwise, you play video backward image-by-image.

Turning on the Power

NOTE: The DVR power cannot be turned on if the hard disk drive door is open.

Press the POWER button to turn on the DVR. The unit will take approximately 30 seconds to initialize. While it is initializing, the DVR will display HELLO. Then, the HELLO will start moving to the left.

NOTE: If after initializing the unit displays *Error*, it is most likely that the hard disk drive is not installed. Unplug the power cord, and make certain the hard disk drive is installed. If you still get the *Error* message after correctly installing the hard disk drive, contact your dealer or installer.

The POWER button can also be used to turn off the power once the DVR has completed its initialization process. However, this is a protected feature requiring an administrator password.

Review of Front Panel Display

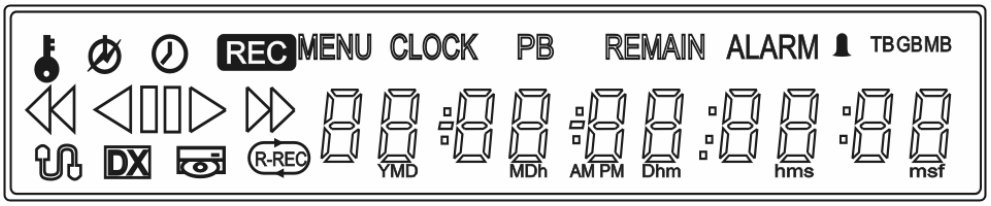


Figure 20 — Front panel display

The key icon displays when the unit is in the Key Lock mode.

The circle with the broken line displays whenever the system was not properly shut down such as a power failure.

The clock icon displays when the DVR is in the Timer Record mode.

REC REC displays while the unit is recording.

MENU MENU displays when the DVR is in Menu mode.

CLOCK CLOCK displays when the digits are displaying the current time.

PB PB displays when video is being played back and the digits are displaying the time of the recording.

REMAIN REMAIN displays when the digits are displaying the remaining hard disk drive capacity.

ALARM ALARM displays when event-driven recording is enabled.

The bell icon displays during alarm activation.

TBGBMB These light when the display is in the remaining disk capacity mode.

TB = TeraBytes, GB = GigaBytes and MB = MegaBytes

This icon displays when video is being played backward at fast speed.

This icon displays when video is being played backward at slow speed.

This icon displays when video is paused

This icon displays when video is being played forward at regular speed.

This icon displays when video is being played backward at fast speed.

The network icon displays when the unit is networked either via Ethernet or modem.

DX displays when the DVR is operating in the Duplex mode.

The disk icon displays when data is being backed up using the USB port.

R-REC R-REC displays when the DVR is in the Repeat Record mode. The DVR will continue recording when the hard disk drive is full by recording over the oldest video.

The digits display Time, Date and Remaining Capacity.

Initial Unit Setup

Before using your DVR for the first time, you will want to establish the initial settings. This includes items such as time and date, display language, camera, audio, remote control, record mode, network and password. Your DVR can be set up using various screens and dialog boxes.

Press the MENU button to enter the Main Menu screen. The Admin Password screen appears.

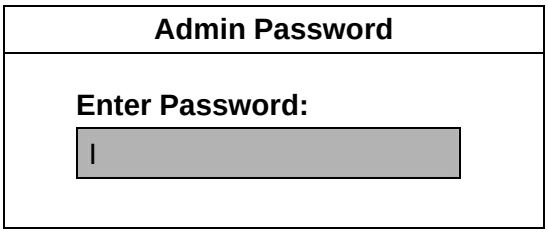


Figure 21 — Admin Password screen

Enter the password by pressing the appropriate combination of arrow buttons and then the ↵ button. The factory default password is ◀ ▶ ▲ ▼ (Left, Right, Up, Down arrow buttons in order). The Main Menu screen appears. Once you are in the menu screens and dialog boxes, the arrow buttons are used to move through the selections. Once the selection you want is highlighted, press the ↵ button, and that menu will appear.

NOTE: If connected to a multiplexer, place the multiplexer in tape review mode.

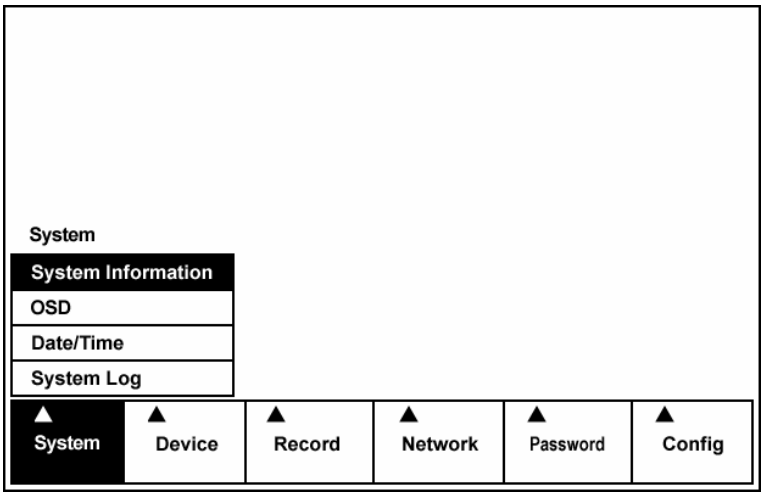


Figure 22 — Main menu screen

System Information

Highlight System Information and press the ↵ button. The System Information screen appears.

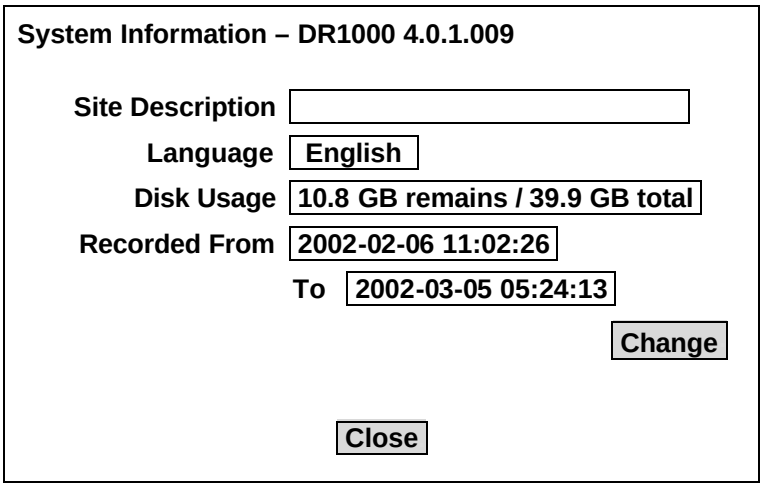


Figure 23 — System Information screen

In the System Information screen, you can name the site location and select the language the screens are displayed in. Highlight Change and press the ↵ button. The System Information Change screen appears.

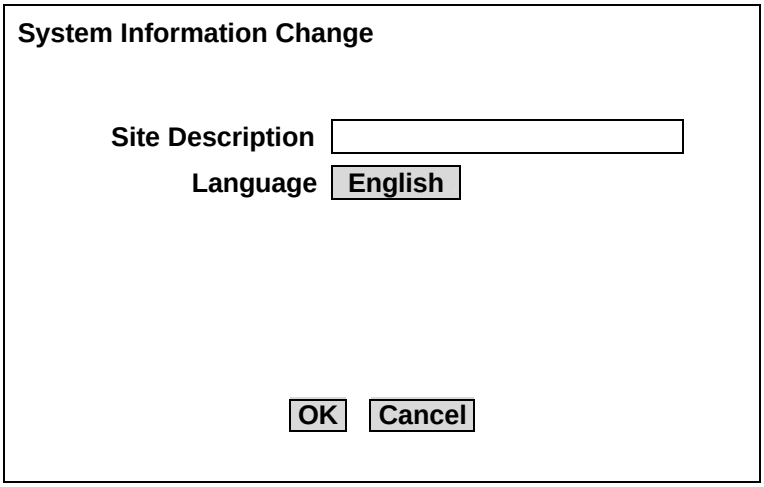


Figure 24 — System Information Change screen

Highlight the box beside Language and press the ↵ button. A drop-down menu displays the available languages. Highlight the desired language and press the ↵ button.

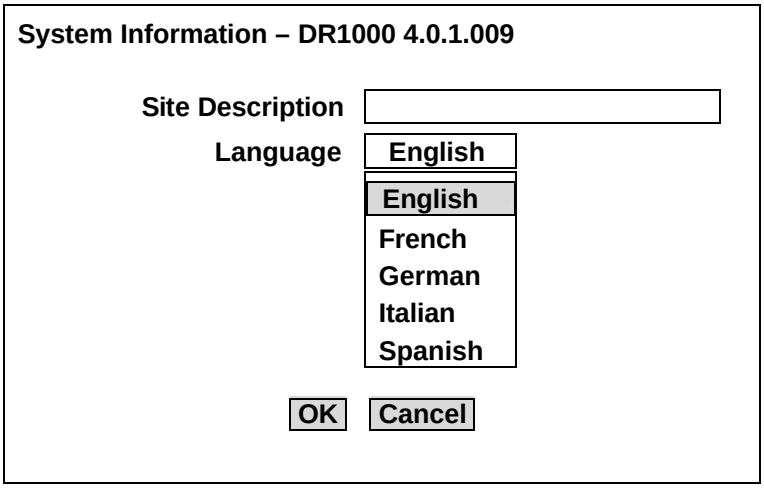


Figure 25 — Language drop-down menu

Highlight the box beside Site Description and press the ↵ button. A virtual keyboard displays.

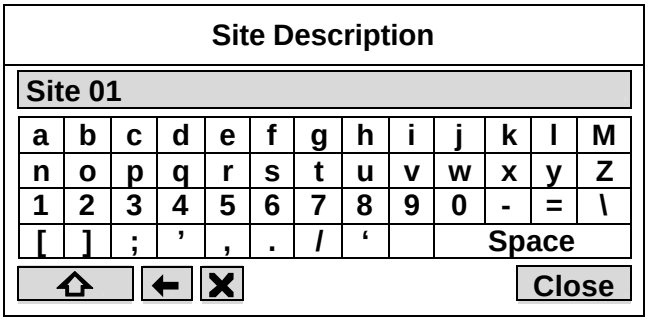


Figure 26 — Virtual keyboard

Use the arrow buttons to highlight the first character you want in the Site Description and press the ↵ button. That character appears in the title bar and the cursor moves to the next position. ⇧ toggles between the upper and lower case keyboards, ← backspaces, and ✕ deletes entered characters. You can use up to 20 characters including spaces in your title.

Once you have entered your title, highlight Close and press the ↵ button.

After you have created a title and selected a language, you can save your changes by highlighting OK and pressing the ↵ button. Selecting Cancel exits the screen without saving the changes.

OSD (On-Screen Display) Setup

Highlight OSD in the Main Menu and press the ↵ button. The OSD Setup screen appears.

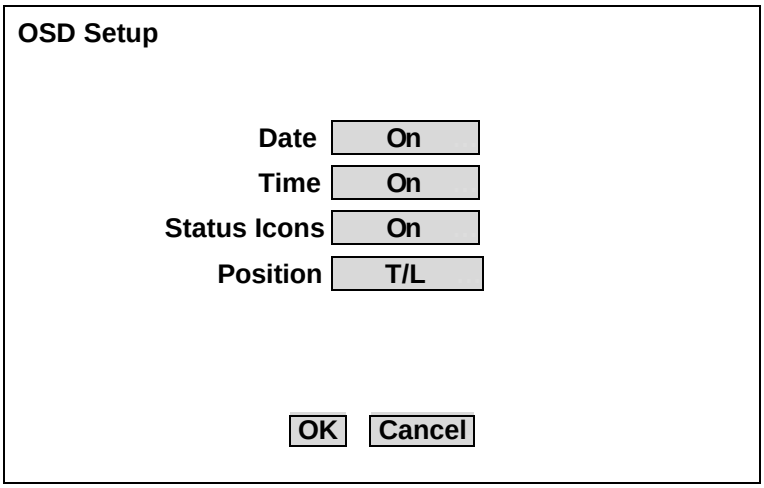


Figure 27 — OSD Setup screen

In the OSD Setup screen you can select whether or not to display Date, Time and Status Icons. You can also select where the OSD appears. The choices are: top left, top right, bottom left, bottom right and center of the screen. Highlight your selection and press the ↵ button.

You can save your changes by highlighting OK and pressing the ↵ button. Selecting Cancel exits the screen without saving the changes.

Date/Time Setup

Highlight Date/Time in the Main Menu and press the ↵ button. The Date/Time setup screen appears.

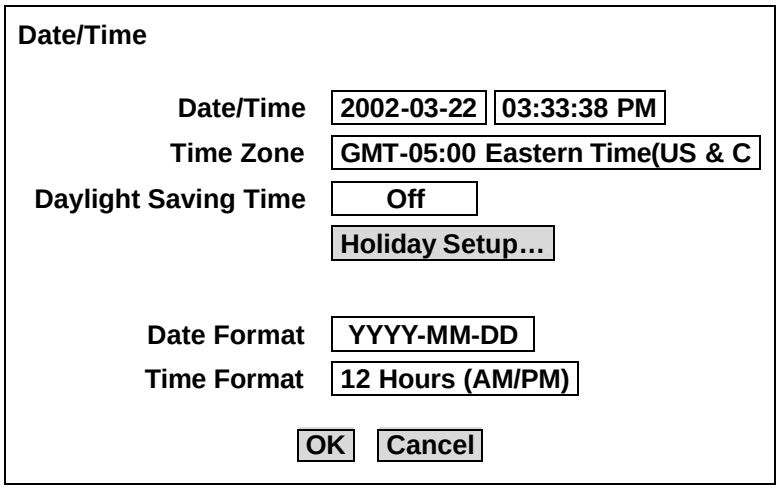


Figure 28 — Date/Time setup screen

Highlight the first box beside Date/Time and press the ↵ button. The individual sections of the date highlight. Use the Up and Down arrow buttons to change the number. Use the Left and Right arrow buttons to move between month, date and year. Once you have the correct date, press the ↵ button.

Highlight the second box beside Date/Time and press the ↵ button. The individual sections of the time highlight. Use the Up and Down arrow buttons to change the number. Use the Left and Right arrow buttons to move between hour, minutes and seconds. Once you have the correct time, press the ↵ button.

NOTE: The clock will not start running until you have restarted the unit, so you may wish to set the time last.

Highlight the box beside Time Zone and press the ↵ button. Select the time zone you are in from the list and press the ↵ button.

Highlight the box beside Daylight Saving Time and press the ↵ button. Pressing the ↵ button toggles between On and Off.

Highlight the Holiday Setup… box and press the ↵ button. You can set up holidays by highlighting Add: and pressing the ↵ button. The current date appears.

Highlight the month and day and change them by using the Up and Down arrow buttons. Press the ↵ button to add the date. Dates can be deleted by highlighting the X beside the date and pressing the ↵ button.

NOTE: Holidays that do not fall on the same date each year should be updated once the current year's holiday has passed.

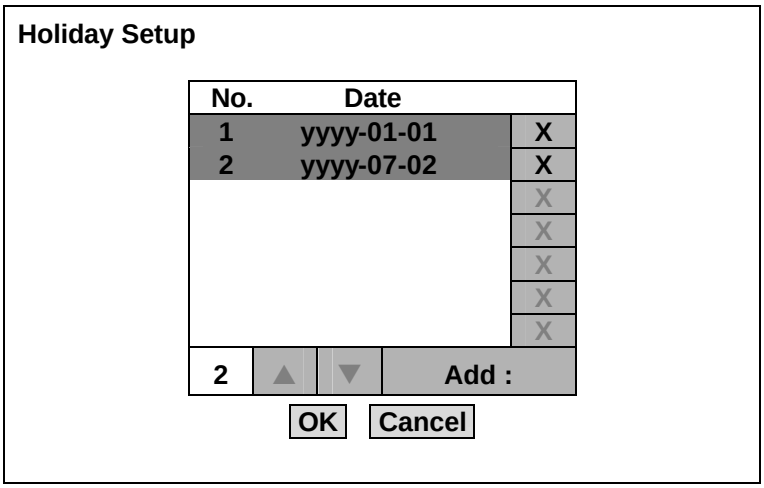


Figure 29 — Holiday Setup screen

You can save your changes by highlighting OK and pressing the ↵ button. Selecting Cancel exits the screen without saving the changes.

Highlight the box beside Date Format and press the ↵ button. A list of date formats appears. Highlight the format you wish to use and press the ↵ button. The choices are:

MM-DD-YYYY
DD-MM-YYYY
YYYY-MM-DD
MM/DD/YYYY
DD/MM/YYYY
YYYY/MM/DD

To change the time format, highlight the box beside Time Format and press the ↵ button. The DVR toggles between 12 Hours (AM/PM) and 24 Hours (military time).

You can save your changes by highlighting OK and pressing the ↵ button. Selecting Cancel exits the screen without saving the changes.

System Log

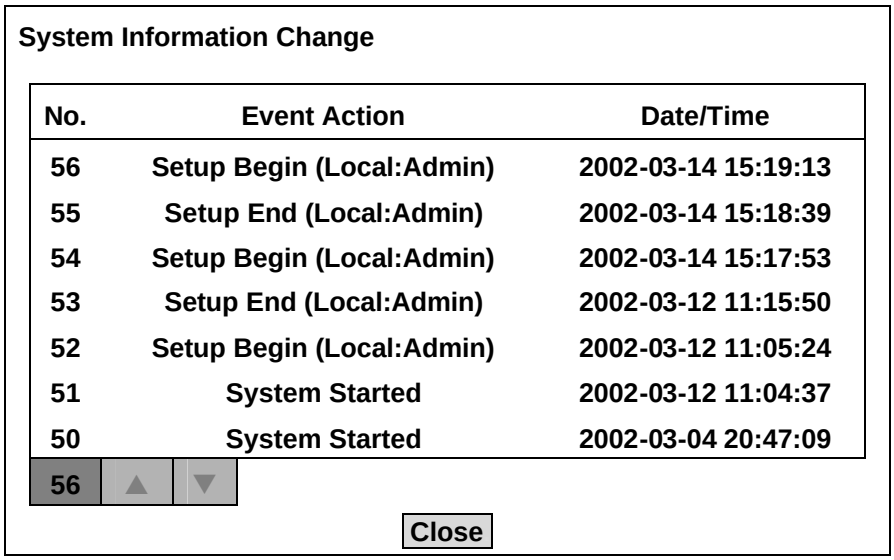


Figure 30 — System Log screen

The System Log screen displays a record of various events logged by the DVR. The list shows the dates and times the system was turned on and off, power failed, recording was started or stopped, playback was started or stopped, setup changes were made, and data banks were cleared.

The events are listed from the most recent to the oldest. You can scroll through the list a page at a time by selecting the Up and Down arrow buttons on the screen and pressing the ↵ button. You can go directly to an event number by highlighting the event number box (left of the Up arrow button), pressing the ↵ button, using the arrow buttons to change the number, and pressing the ↵ button.

Configuring Input Devices

You can configure the video, audio and remote control devices connected the DVR.

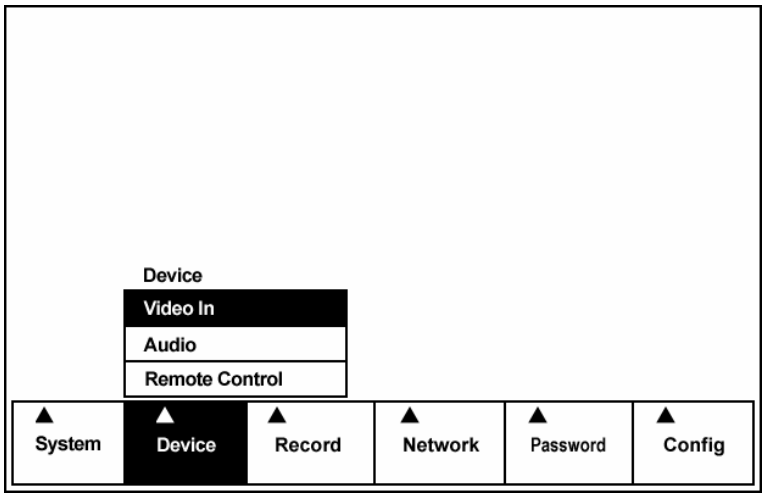


Figure 31 — Device menu screen

Video In Setup

Highlight Video In in the Main Menu and press the button. The Video In Setup screen appears.

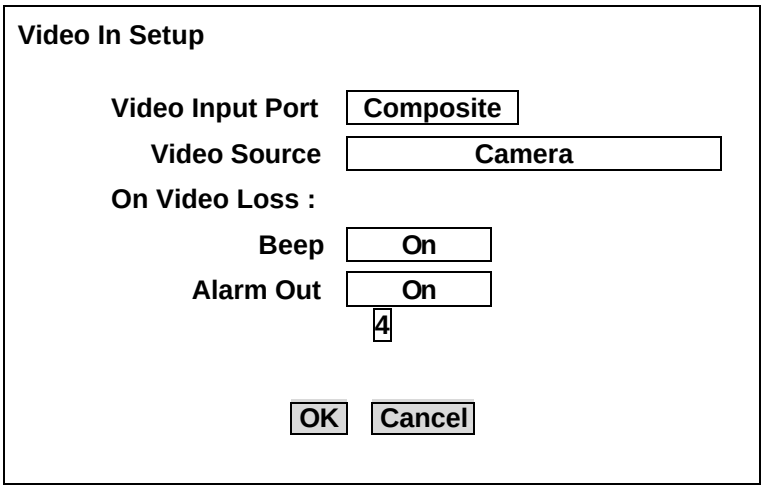


Figure 32 — Video In Setup screen

Highlight the box beside Video Input Port. Pressing the ↵ button toggles between Composite and SVHS (S-Video). This determines which video input connector is active: BNC or SVHS.

Highlight the box beside Video Source and press the ↵ button. A list of input devices appears. You can select a single camera, a quad, or from a list of multiplexers.

NOTE: When selecting *Other Multiplexer* from the list, much more hard disk drive storage space will be used.

You can set the DVR to react to a loss of video signal. It can be set to sound the internal buzzer and/or activate the Alarm Out port. Both of these setting can be toggled On or Off by highlighting the box beside Beep or Alarm Out and pressing the ↵ button.

You can save your changes by highlighting OK and pressing the ↵ button. Selecting Cancel exits the screen without saving the changes.

Audio Setup

Highlight Audio in the Main Menu and press the ↵ button. The Audio Setup screen appears.

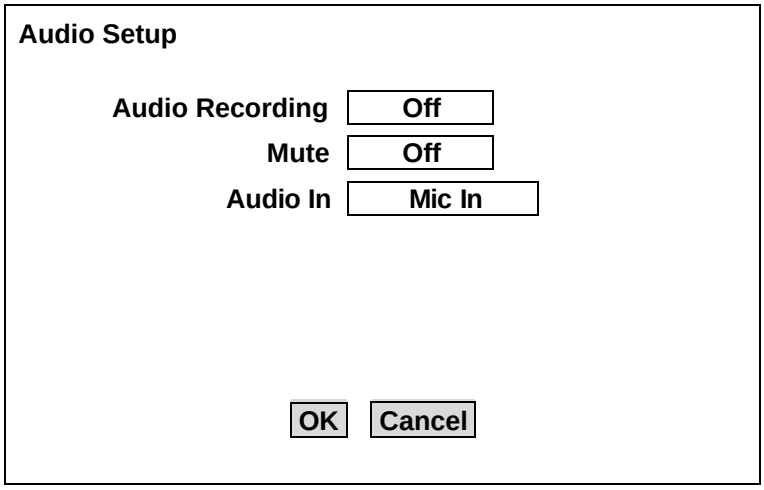


Figure 33 — Audio Setup screen

Highlight the box beside Audio Recording and press the ↵ button. This toggles between On and Off. When it is On, the DVR also records audio when it is recording video.

Highlight the box beside Mute and press the ↵ button. This toggles between On and Off. When it is On, the DVR will NOT play live or recorded audio.

Highlight the box beside Audio In. Pressing the ↵ button toggles between Mic In and Line In. Mic In is for an unamplified source while Line In is for an amplified source.

You can save your changes by highlighting OK and pressing the ↵ button. Selecting Cancel exits the screen without saving the changes.

NOTE: The DVR will NOT record audio when the recording speed is set to less 15 ips (8-hours mode) for NTSC and 12.5 ips (12-hours mode) for PAL.

Remote Control Setup

Highlight Remote Control in the Main Menu and press the ↵ button. The Remote Control Setup screen appears.

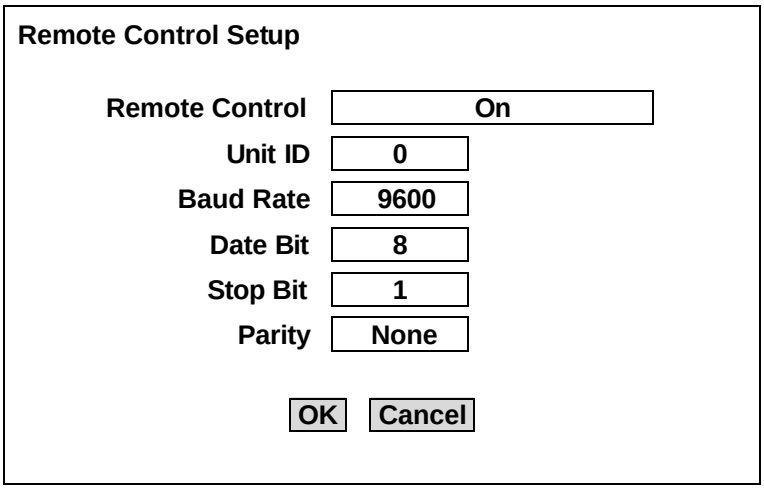


Figure 34 — Remote Control Setup screen

Highlight the box beside Remote Control and press the ↵ button. This toggles between On and Off.

NOTE: When Remote Control is *Off*, none of the settings can be changed.

Highlight the box beside Unit ID and press the ↵ button. You can use the slider bar to set the unit ID from 0 to 99.

CAUTION: Each DVR should have different Unit ID number so that the controller can differentiate between DVRs when multiple DVRs are connected via RS485.

Highlight the box beside Baud Rate and press the ↵ button. A list of baud rates ranging from 300 to 115,200 appears. Highlight the baud rate for your system and press the ↵ button.

Highlight the box beside Data Bit. Pressing the ↵ button toggles between 7 bit and 8 bit formats.

Highlight the box beside Stop Bit. Pressing the ↵ button toggles between 1 bit and 2 bits.

Highlight the box beside Parity and press the ↵ button. A drop-down list appears. You can select from None, Odd or Even parity.

You can save your changes by highlighting OK and pressing the ↵ button. Selecting Cancel exits the screen without saving the changes.

Configuring Recording Settings

Your DVR offers a variety of flexible recording modes. You can set it up to record all the time or to only record events. It can be set up to continue recording once the hard disk drive is full by recording over the oldest video, or you can set it up to alert you when the hard disk is full and stop recording.

Record Mode Setup

Highlight Record Mode in the Main Menu and press the ↵ button.

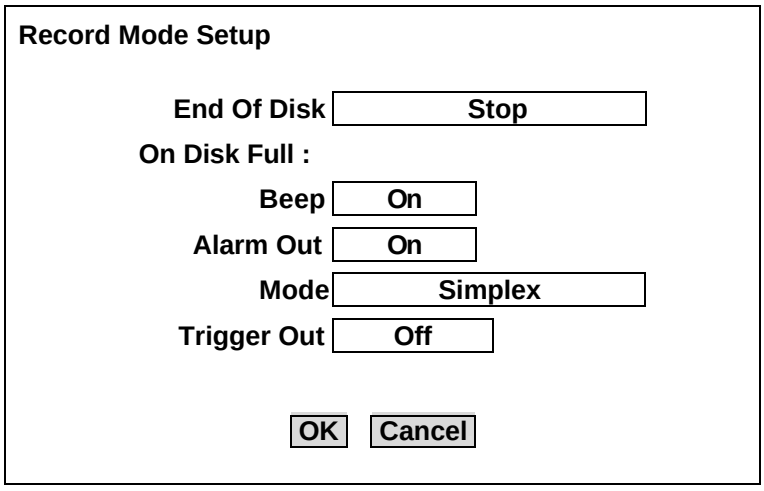


Figure 35 — Record Mode Setup screen

Highlight the box beside End Of Disk and press the ↵ button. This toggles between Stop and Overwrite. When in the Stop mode, the DVR stops recording when the hard disk drive is full. When in the Overwrite mode, the DVR continues recording when the hard disk drive is full by overwriting the oldest video.

If the DVR is set to the Stop mode, you can set it to beep and/or activate the Alarm Out port when the hard disk drive is full. Highlight the box beside Beep and press the ↵ button to toggle between On and Off. Highlight the box beside Alarm Out and press the ↵ button to toggle between On and Off.

Highlight the box beside Mode. Pressing the ↵ button toggles between Simplex and Duplex. In the Simplex mode, the DVR can record up to 60 images per second for NTSC (50 images per second for PAL). However, in the Simplex mode, you can only record or play back video, but not both. In the Duplex mode, you can record and play back video at the same time. However, you can only record up to 30 images per second for NTSC (25 images per second for PAL) while in the Duplex mode.

NOTE: The maximum playback speed is 30 ips for NTSC (25 ips for PAL) while playing back video in the Duplex mode even if it was recorded at 60ips for NTSC (50 ips for PAL) in the Simplex mode. Video that was recorded at 60ips for NTSC (50 ips for PAL) in the Simplex mode will play back slower in the Duplex mode, and will have poor quality audio.

Highlight the box beside Trigger Out. Pressing the ↵ button toggles between On and Off. When set to On, the DVR send a pulse to a connected multiplexer signaling that it is recording an image. This helps synchronize the multiplexer with the DVR.

You can save your changes by highlighting OK and pressing the ↵ button. Selecting Cancel exits the screen without saving the changes.

Time-Lapse Record Mode Setup

Highlight Time Lapse Record in the Main Menu and press the ↵ button.

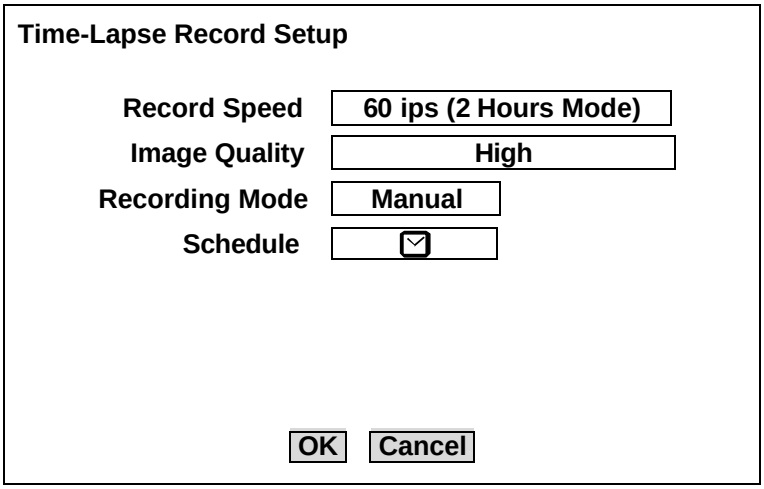


Figure 36 — Time-Lapse Record Setup screen

Highlight the box beside Record Speed and press the ↵ button. A drop-down list of record speeds appears. You can select from 0.125 to 60 images per second for NTSC (0.152 to 50 images per second for PAL).

NOTE: The VCR equivalent recording speeds (in hours) are listed with each setting. This is not an indication of how long the system will record video.

NOTE: Make certain you select a record speed recognized by your multiplexer, otherwise the DVR and multiplexer will not synchronize. Refer to your multiplexer user manual for available record speeds.

NOTE: If you have set the DVR for *Duplex* mode, you will not be able to select 60 ips for NTSC (50 ips for PAL).

Highlight the box beside Image Quality and press the ↵ button. A drop-down list appears. You can select from Very High, High, Standard and Low image quality. All other variables being equal; Very High will require 600% more hard disk space than Standard, High will require 250% more, and Low 30% less than Standard.

NOTE: Higher quality images require more storage space and will reduce the recording capacity of the hard disk drive.

Highlight the box beside Recording Mode. Pressing the ↵ button toggles between Manual and Timer. In the Manual mode, you must press the REC button to start recording. In the Timer mode, the DVR starts recording based on the schedule you establish and the red LED on the REC button is lit.

NOTE: If the DVR is set to *Manual*, you will not be able to set up a recording schedule.

Highlight the box beside Schedule and press the ↵ button. A weekly calendar appears.

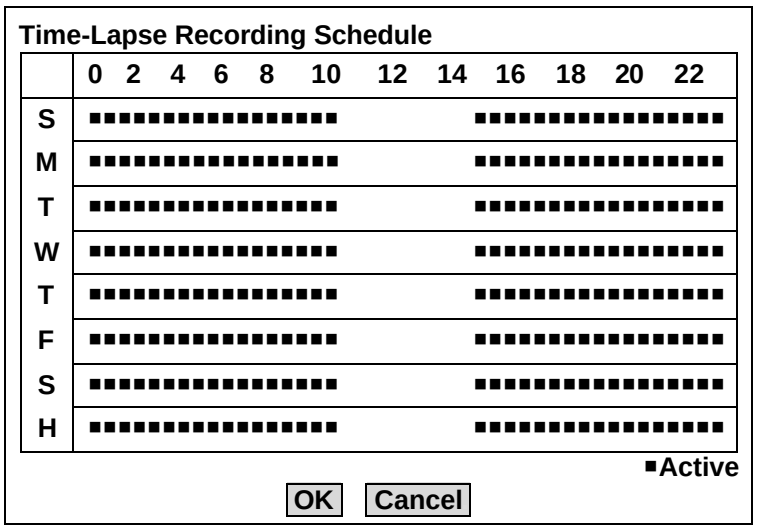


Figure 37 — Time-Lapse Recording Schedule screen

You can program the DVR to record only during certain times based on time, day of the week, and holidays. The smallest time segment you can use is 30 minutes. A blue rectangle indicates the DVR is set to record during those 30 minutes. When there is no rectangle, the DVR will not record during those 30 minutes.

There are several ways to set recording times:

- You can highlight an individual block and toggle it On or Off by pressing the ↵ button.
- You can change a 30-minute segment for all days by placing the cursor on the time line and pressing the ↵ button to toggle the segment On or Off.
- You can change an entire day by placing the cursor on the day of the week and pressing the ↵ button to toggle the day On or Off.
- You can change the entire calendar by placing the cursor in the upper left-hand box (above "S" and to the left of the time line) and pressing the ↵ button to toggle the entire calendar On or Off.

NOTE: The Holiday (H) schedule applies to the dates you established as holidays when setting Date/Time.

You can save your changes by highlighting OK and pressing the ↵ button. Selecting Cancel exits the screen without saving the changes.

Event Record Mode Setup

When the DVR is set to record at an image rate lower than the maximum, it is possible to change the recorded image rate and picture quality settings when an event occurs. When the DVR senses an event on the Alarm Input port, it will change the image rate, picture quality and continue recording at that rate for the user-defined length of time. Highlight Event Record in the Main Menu and press the ↵ button.

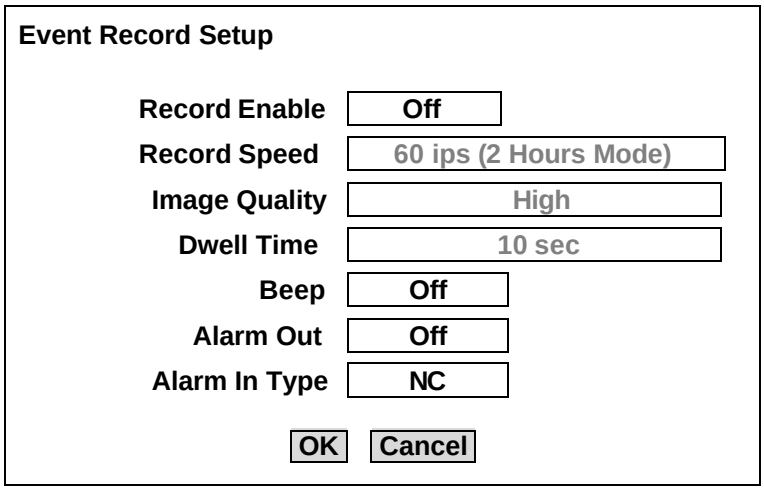


Figure 38 — Event Record Setup screen

Highlight the box beside Record Enable. Press the ↵ button to toggle between On and Off.

NOTE: When Record Enable is set to *Off*, you will NOT be able to set Record Speed, Image Quality or Dwell Time.

Highlight the box beside Record Speed and press the ↵ button. A drop-down list of record speeds appears. You can select from 0.125 to 60 images per second for NTSC (0.152 to 50 images per second for PAL). The VCR equivalent speeds are listed with each setting.

NOTE: Make certain you select a record speed recognized by your multiplexer, otherwise the DVR and multiplexer will not synchronize. Refer to your multiplexer user manual for available record speeds.

NOTE: If you have set the DVR for *Duplex* mode, you will not be able to select 60 ips for NTSC (50 ips for PAL).

Highlight the box beside Image Quality and press the ↵ button. A drop-down list appears. You can select from Very High, High, Standard and Low image quality.

NOTE: Higher quality images require more storage space and will reduce the recording capacity of the hard disk drive.
Highlight the box beside Beep and press the ↵ button to toggle between On and Off. When set to On the DVR will beep any time an event occurs.

Highlight the box beside Alarm Out and press the ↵ button to toggle between On and Off. When set to On the DVR will activate the Alarm Out port.

Highlight the box beside Alarm In Type. Pressing the ↵ button toggles between NC (Normally Closed) and NO (Normally Open). Select the setting that matches the type of alarm you are using.

You can save your changes by highlighting OK and pressing the ↵ button. Selecting Cancel exits the screen without saving the changes.

Network Setup

NOTE: The network features can be set only on the Premium Model DVR. The network features are "grayed" out and inactive on the non-Premium Model.

In the Network Setup screen you can set up the DVR for LAN and modem connections. You will be able to make all the necessary settings for either type connection. Highlight Network in the Main Menu and press the ↵ button.

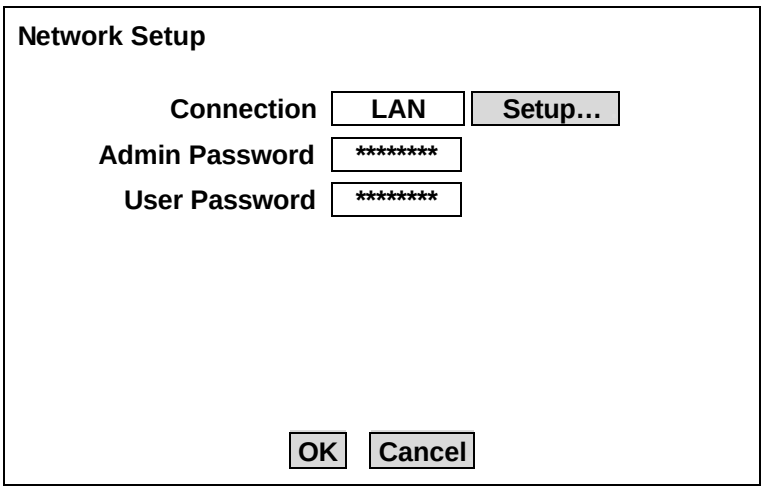


Figure 39 — Network Setup screen

Highlight the box beside Connection. Press the ↵ button to toggle between LAN and Modem.

Highlight the Setup… box and press the ↵ button. Depending on whether you selected LAN or Modem, the setup screens will differ.

LAN Setup

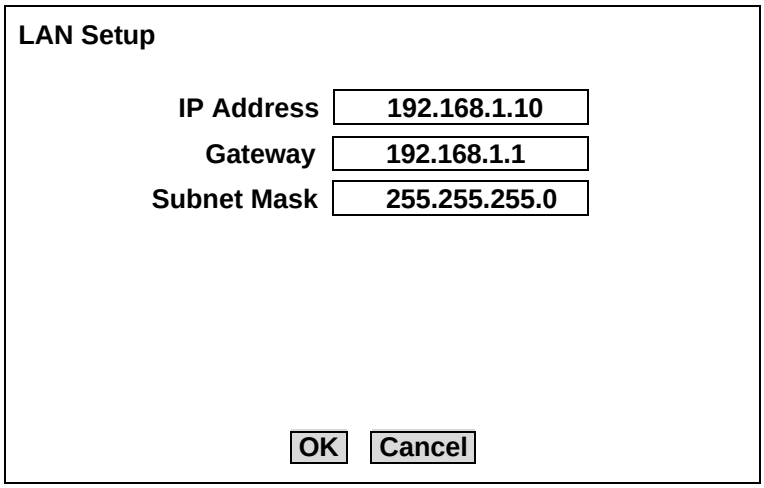


Figure 40 — LAN Setup screen

NOTE: You will need to get the appropriate IP Address, Gateway and Subnet Mask from your network administrator.

Change the numbers by highlighting them and using the Up and Down arrow buttons to increase or decrease the number.

The factory default LAN settings are:

IP Address: 192.168.1.129
Gateway: 192.168.1.254
Subnet Mask: 255.255.255.0

You can save your changes and return to the Network Setup screen by highlighting OK and pressing the ↵ button. Selecting Cancel exits the screen without saving the changes.

Modem Setup

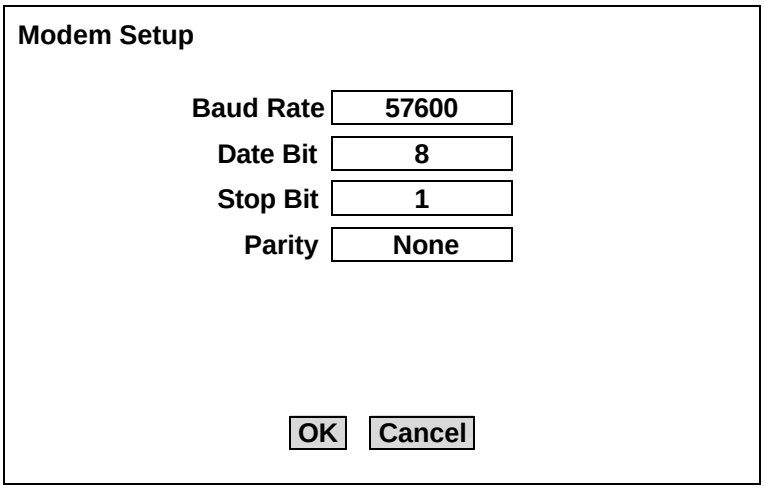


Figure 41 — Modem Setup screen

Highlight the box beside Baud Rate and press the ↵ button. A list of baud rates ranging from 300 to 115,200 appears.

Highlight the box beside Data Bit. Pressing the ↵ button toggles between 7 bit and 8 bit formats.

Highlight the box beside Stop Bit. Pressing the ↵ button toggles between 1 bit and 2 bits.

Highlight the box beside Parity and press the ↵ button. A drop-down list appears. You can select from None, Odd or Even parity.

You can save your changes and return to the Network Setup screen by highlighting OK and pressing the ↵ button. Selecting Cancel exits the screen without saving the changes.

Highlight the box beside Admin Password and press the ↵ button. A virtual keyboard appears. You will first be asked to enter the current password. Then you can enter a new password; you will be asked to confirm the new password before it is accepted.

Highlight the box beside User Password and press the ↵ button. A virtual keyboard appears. You will first be asked to enter the current password. Then you can enter a new password; you will be asked to confirm the new password before it is accepted.

NOTE: These passwords are for network use. They are different from the Admin and User passwords for the DVR itself.

NOTE: The passwords are case sensitive. The factory default password for both Administrator and User is *12345678*.

CAUTION: Write the password down and keep it in a safe place. Once the password has been reset, the default will no longer work. If the password is forgotten, the unit must be reset using the *Factory Reset Button* and all data settings will be lost.

You can save your changes by highlighting OK and pressing the ↵ button. Selecting Cancel exits the screen without saving the changes.

Password Setup

An Administrator password is required to turn the system off, enter the setup screen, load default setups, clear all data, change system date and time and change the Administrator password. Highlight Password in the Main Menu and press the ↵ button to enter the Password screen.

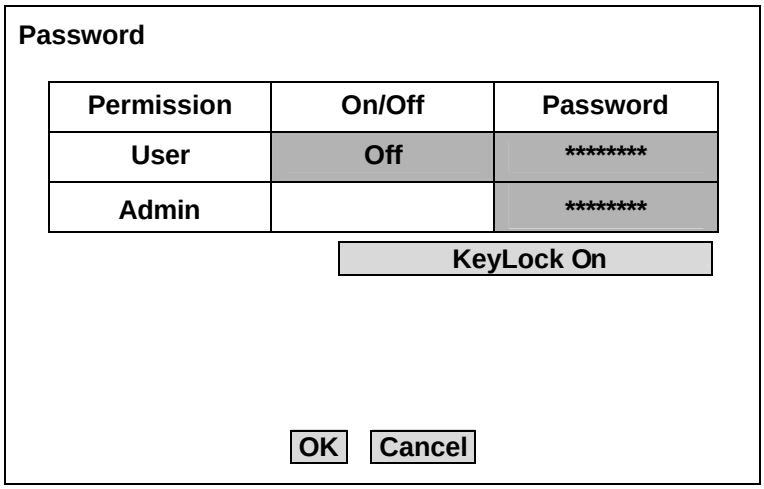


Figure 42 — Password screen

Highlight the box beside User and press the ↵ button to toggle between On and Off. If the password is On, you will be asked to enter the password. If the password is Off, you will be asked for the new password and to confirm it.

The Administrator password cannot be turned On and Off. You can change the Administrator password by first entering the current password, entering a new password and finally confirming the new password.

To change the password, highlight the Password box and press the ↵ button. A window appears asking you to enter the current password. If you enter the correct password, another window appears asking you to enter a new password using a combination of arrow buttons. After you press the ↵ button, another screen appears asking you to confirm the new password.

NOTE: The Admin and User passwords are composed of up to eight combination presses of the arrow buttons. The default Admin password is: *Left, Right, Up, Down* arrow buttons in order.

CAUTION: Write down the new password and safe it in a secure place. If the password is forgotten, the unit must be reset using the *Factory Reset Button* and all data settings will be lost.

To lock front panel buttons, highlight Key Lock On and press the ↵ button. Once the buttons are locked, pressing any front panel button will cause a password screen to display. You will need to enter the correct password to unlock the keys. The Key Lock password is Down, Right, Up, Left arrow buttons in order.

You can save your changes by highlighting OK and pressing the ↵ button. Selecting Cancel exits the screen without saving the changes.

Config (Configuration) Menu

The Config menu is used to perform functions such as backing up video, loading default setup and clearing all data.

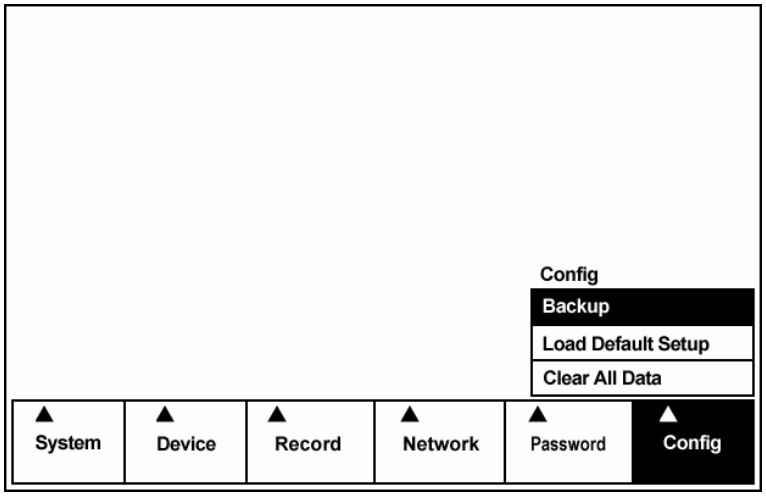


Figure 43 — Config screen

Backup

The Backup screen can be used to back up video to an external USB-IDE hard disk drive.

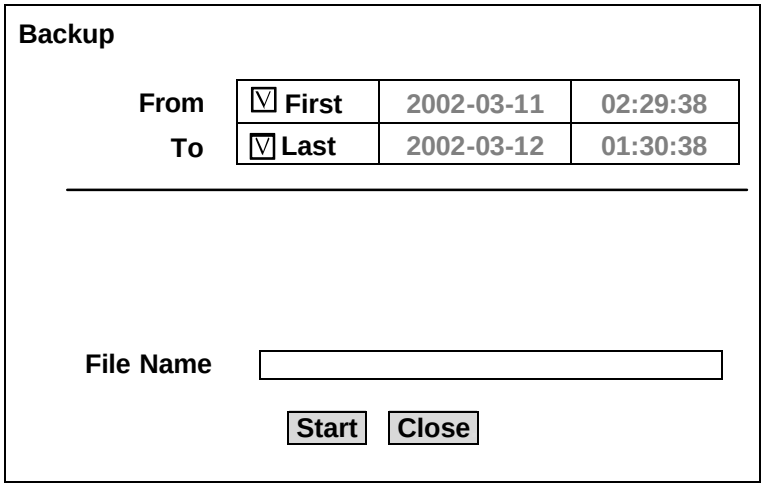


Figure 44 — Backup screen

The default video segment to be backed up is from the first to last frame. However, you can define how much video to back up by changing the start and end times and dates. You will need to enter a file name before the video will back up. A virtual keyboard appears allowing you to enter a file name. See *Chapter 4 — Operation* for archiving video to an external USB-IDE hard disk drive.

Load Default Setup

Highlighting and selecting Load Default Setup will bring up screens asking you if you really want to load default settings and confirm it with a password.

NOTE: *Loading the Default Setup* will not change the current time, time zone, daylight saving time or network settings.

Clear All Data

Highlighting and selecting Clear All Data will bring up screens asking you if you really want to clear all data and confirm it with a password.

CAUTION: Selecting *Clear All Data* will erase all recorded video.

Chapter 4 — Operation

NOTE: This chapter assumes your DVR has been installed and configured. If it has not, please refer to *Chapters 2* and *Chapters 3*.

The DVR's controls are similar to a VCR. As with a VCR, the main functions are recording and playing back video. However, you have much greater control over recording and playing back video. You can establish recording schedules based on time of day and day of the week. The DVR allows you to search through the recorded video using much more sophisticated tools than those available with VCRs. Additional DVR features that are not available with VCRs are remote control and viewing, recording video at the same time you are watching previously recorded video, and printing images to a standard printer.

The front panel display and controls are described in *Chapter 3 — Configuration*.

Turning on the Power

Once you have installed the DVR following the instructions in *Chapter 2 — Installation*, it is ready to record. Press the POWER button, and the unit will go through its self-diagnostics.

NOTE: The DVR power cannot be turned on if the hard disk drive door is open.

The unit will take approximately 30 seconds to initialize. While it is initializing, the DVR will display HELLO. Then, the HELLO will start moving to the left.

NOTE: If after initializing the unit displays *Error*, it is most likely that the hard disk drive is not installed. Shut the unit down, and make certain the hard disk drive is installed. If you still get the *Error* message after correctly installing the hard disk drive, contact your dealer or installer.

Live Monitoring

As soon as the DVR completes its initialization process, it will begin showing live video on the attached monitor and sounding live audio through the attached speaker. It displays live video and sounds live audio until the user enters another mode.

Recording Video

Once you have installed the DVR following the instructions in *Chapter 2 — Installation*, it is ready to record. Unless you change the setup, the DVR will start recording when you press the REC button and will continue recording until the hard disk drive is full.

Although you will be able to record without changing the unit from its original factory settings, you will want to take advantages of the DVR' s many tools. See *Chapter 3 — Configuration* for detailed descriptions of the recording mode options. Here is a brief description of some of the settings:

- Stop or Overwrite when the hard disk drive is full. The factory default is Stop. The DVR can be set to continue recording once the hard disk drive is full. It does this by recording over the oldest video.
- Simplex or Duplex. The factory default mode is Simplex recording. In the Simplex mode you can either record or play back video, but you cannot do both at the same time. In the Duplex mode, you can both record and play back video at the same time. The advantage to the Simplex mode is that you can record at 60 images per second for NTSC; while Duplex mode has a recording maximum of 30 images per second for NTSC (50 and 25 images per second for PAL).
- Manual or Timer. You can set the unit to record whenever the REC button is pressed or based on a schedule. The factory default is Manual recording.

NOTE: The DVR only records video when the red LED on the REC button is lit. When the DVR is set for *Timer* recording, the red LED on the REC button indicates the unit is ready to record. The red REC segment on the display will light and a red dot appears on the monitor when the clock reaches a scheduled recording time and the DVR starts recording video.

Recording Audio

If the DVR was set up to record audio, it will record audio when video is recording.

NOTE: Make certain you comply with all local and federal laws and regulations when recording audio.

Playing Recorded Video

Once video has been recorded, you can view it by pressing the PLAY/PAUSE button. When playing video for the first time, the DVR will display the most recent image. When playing video subsequent times, the DVR will start playing video from the last recalled image.

NOTE: If the DVR is set in the *Simplex* mode, you will need to stop recording before playing back video.

Pressing the PLAY/PAUSE button again will freeze the video on the screen.

RW (Rewind) Button

Pressing the RW button plays video backward at high speed. Pressing the button again toggles the playback speed from ◀◀, ◀◀◀ and ◀◀◀◀. The screen displays ◀◀, ◀◀◀ and ◀◀◀ respectively.

FF (Fast Forward) Button

Pressing the FF button plays video forward at high speed. Pressing the button again toggles the playback speed from ▶▶, ▶▶▶ and ▶▶▶▶.The screen displays ▶▶, ▶▶▶ and ▶▶▶▶ respectively.

Entering Fast Playback mode from Live Monitoring mode can be password protected.

STOP Button

Pressing the STOP button during Playback mode returns the DVR to Live Monitoring mode.

Shuttle Ring

The Shuttle Ring only functions in the Playback mode. The Shuttle Ring is spring loaded and returns to the center position when released. Turning the ring clockwise plays video forward. Turning the ring counterclockwise plays video backward. Playback speed varies with the amount the ring is turned. The playback speeds are ◀x0.5, ◀◀, ◀◀◀, ◀◀◀, ▶x0.5, ▶, ▶▶, ▶▶▶ and ▶▶▶▶.

When you release the ring, it snaps back to the center position and the video pauses.

Jog Dial

The Jog Dial only functions when playback video has been paused. By turning the jog dial clockwise, you can play video forward image-by-image. By turning the jog dial counterclockwise, you play video backward image-by-image.

Searching Video

Pressing the SEARCH button displays the Search Menu.

NOTE: If connected to a multiplexer, place the multiplexer in tape review mode prior to pressing the SEARCH button.

Figure 45 — Search Menu

- Go to First — Displays the first recorded image.
- Go to Last — Displays the last recorded image.
- Date/Time Search… — Searches by date and time (see below for more details).
- Calendar Search… — Searches using a calendar (see page 53 for more details).
- Event Search… — Select video from the event log (see page 54 for more details).
- Print… — Prints selected images (see page 55 for more details).

Date/Time Search

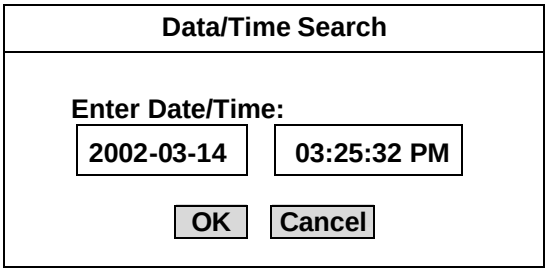


Figure 46 — Date/Time Search screen

Move the cursor over the date and press the ↵ button. You can use the Left and Right arrow buttons to highlight the year, month and day. Use the Up and Down arrow buttons to change to the date you want to search for video. Once you have set the date you want, press the ↵ button.

Move the cursor over the time and press the ↵ button. You can use the Left and Right arrow buttons to highlight the hour, minutes and seconds. Use the Up and Down arrow buttons to change to the time you want to search for video. Once you have entered the time you want, press the ↵ button.

Once you have set the date and time you want to search, highlight OK and press the ↵ button. The selected date and time will display. (If no video was recorded at the selected time, a blank screen will display.) The PLAY/PAUSE, RW, FF, Jog and Shuttle can now be used to review the surrounding video.

Calendar Search

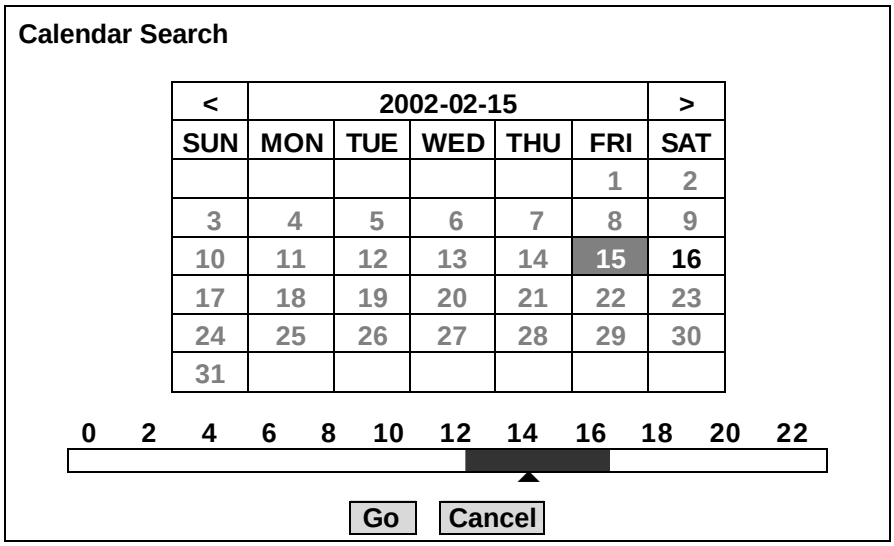


Figure 47 — Calendar Search screen

Days with recorded video are displayed on the calendar with white numbers. You can highlight the days with recorded video by using the arrow buttons. Once you have highlighted a day, press the ↵ button to select it.

A time bar will display at the bottom of the calendar. Hours in which video was recorded will be highlighted. You can use the Up and Down arrow buttons to highlight the time bar. Once the time bar is highlighted, you can select the time by using the Left and Right arrow buttons.

NOTE: The time bar is in one-hour segments. If a segment is highlighted, it means that some video was recorded during that hour. However, it does NOT mean video was recorded for the entire hour.

Once you have set the date and time you want to search, highlight GO and press the ↵ button. The selected date and time will display. The PLAY/PAUSE, RW, FF, Jog and Shuttle can now be used to review the surrounding video.

Event Search

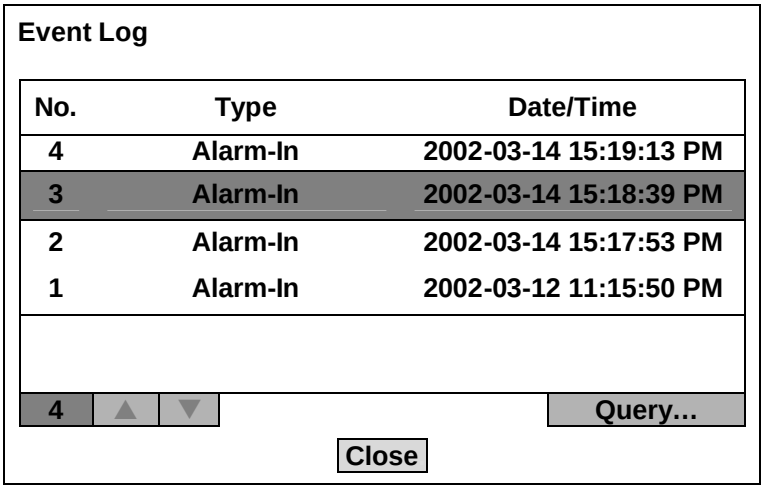


Figure 48 — Event Log screen

The DVR maintains a log of each time the Alarm Input port is activated. The Event Search screen displays this list. Use the arrow buttons to highlight the event for which you would like to see video.

Pressing the ↵ button will display the beginning image of the event. Pressing the PLAY/PAUSE button will start playing the "event" video segment. Pressing the STOP button returns to live monitoring. Pressing the SEARCH button returns to the Event Log.

You can also narrow your event search by selecting Query… and entering a new search range.

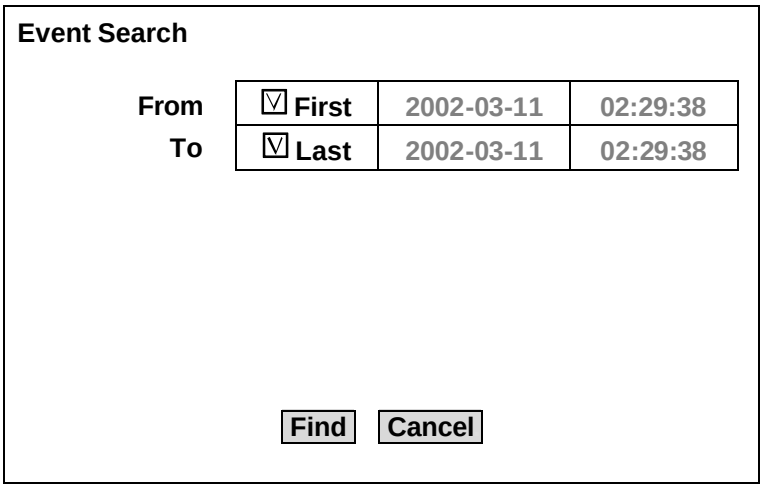


Figure 49 — Event Search screen

Printing

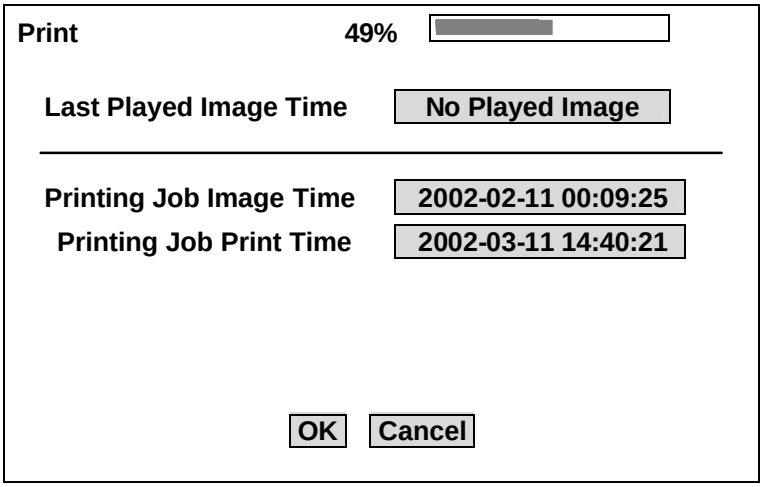


Figure 50 — Print screen

It is possible to print images to a PostScript™ printer. Pause the video on the desired image and press the SEARCH button. Select Print… from the menu, and the Print screen appears. The date and time of the paused images displays in the Last Played Image Time box. Selecting Start will begin printing the image. When the DVR is connected to a multiplexer, the camera channel of the printed image will not match the camera channel of the currently displayed image on the monitor. To match the image, use the "tape mode" in the multiplexer.

Archiving

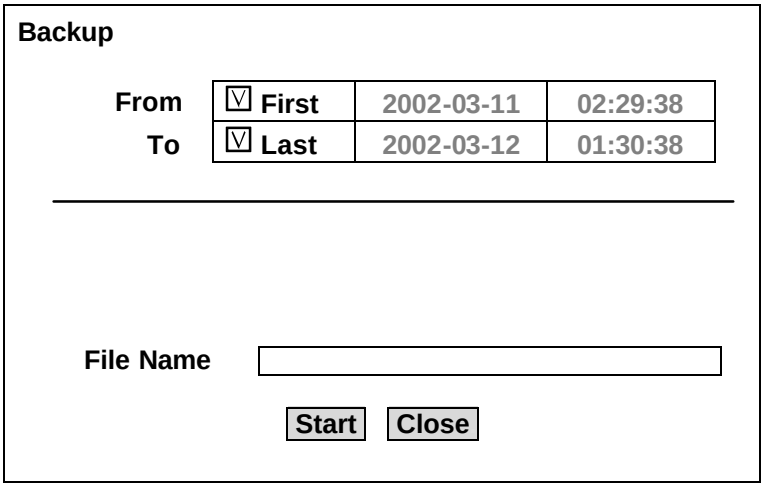


Figure 51 — Backup screen

It is possible to archive video to an external USB-IDE hard disk drive. The archived images can be viewed on computers running Microsoft Windows 98, ME or 2000. Refer to the *Appendix A — USB Hard Disk Drive Preparation* for information on preparing the external drive for archiving.

CAUTION: Do NOT disconnect the USB cable or the power from the external drive while archiving video. If external drive is shut down or the USB cable is disconnected while archiving, THE DVR SYSTEM MAY NOT WORK NORMALLY OR THE FILE SYSTEM OF 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.

You can choose to archive video from the first to last recorded images, or you can set the start and stop times and dates.

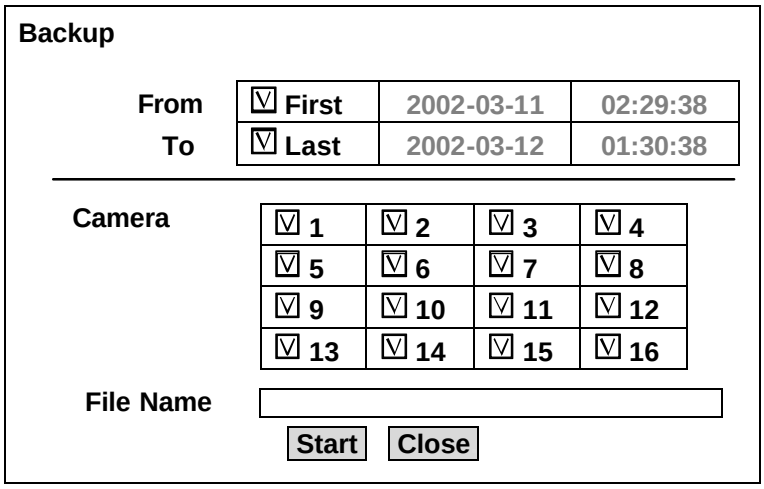


Figure 52 — Multiplexer Backup screen

When the DVR is configured for use with a multiplexer, you can choose which cameras you want to archive video from. Place a checkmark in the boxes beside the camera numbers for which you want to archive video.

Highlight the File Name box and press the ↵ button. A virtual keyboard appears. Enter a file name for the video you are archiving and select Close. 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"

Once you have given the video a file name, highlight Start and press the ↵ button.

The DVR will display the USB drive capacity, the backup file size and ask if you want to continue.

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

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.

You can end the archiving process at any time by highlighting Stop and pressing the ↵ button.

NOTE: You can use other functions on the DVR while video is being archived. To do this, highlight *Close* and press the ↵ button. You can return to the *Backup* screen at any time to check the progress.

Refer to *Appendix B — Reviewing Backup Images* for instructions on how to review the images you have archived.

NOTE: Any recorded audio will not be backed up.

Appendix A — USB Hard Disk Drive Preparation

Preparing USB-IDE Hard Disk Drive in Windows 2000

1. Connect the USB-IDE hard disk drive to your computer using the USB Cable.
2. Turn on your computer.
3. The USB device icon should display on the Taskbar.
4. If the USB-IDE hard disk drive is partitioned or has data, it will show up in *My Computer* as a hard disk drive icon. Check the file system by right clicking on the icon and checking under *Properties* → *General* → *File System.* If the file system is NOT FAT32 format, format the USB-IDE hard disk drive using the FAT32 format.
5. If the USB-IDE hard disk drive is not partitioned, go to *Administrative Tools* in *Control Panel* and launch *Computer Management*. Open *Disk Management* in *Storage* and right click an unallocated region of the USB-IDE hard disk drive. Then, click *Create Partition*.
6. In the *Create Partition wizard*, click *Next* then *Primary Partition*, and follow the instructions on the screen. Make sure that the FAT32 is selected for the file system.

NOTE: The partition size should be less than 32GB because of the limitations of Windows 2000.

After formatting is complete, the USB-IDE hard disk drive will be added to *My Computer.*

7. Connect the USB-IDE hard disk drive to the DVR.

Preparing USB-IDE Hard Disk Drive in Windows 98

NOTE: Preparing a USB-IDE hard disk drive under Windows ME is almost identical to Windows 98.

1. Connect the USB-IDE hard disk drive to your computer using the USB Cable.
2. Turn on your computer. The *Add New Hardware wizard* window will appear.
3. Install the device driver for the USB backup device following the instructions provided with your USB hard disk drive.
4. If the USB-IDE hard disk drive is partitioned or contains data, it will show up in *My Computer* as a hard disk drive icon. Check the file system in *Properties* → *General* → *File System*. If the file system is NOT FAT32 format, format the USB-IDE hard disk drive with FAT32 format.
5. Run the FDISK utility by clicking *Start* then *RUN.* Type "fdisk" and click OK.
6. When the MS-DOS command prompt appears, type "Y" and hit the enter key.

7. In the FDISK Option menu, choose *"5. Change current fixed disk drive."* Make sure that you fdisk the correct drive.
8. Choose the appropriate letter corresponding to the USB-IDE hard disk drive.
9. In the FDISK Option menu, choose *"1. Create DOS partition or Logical DOS Drive."*
10. In the Create DOS Partition or Logical DOS Drive menu, choose *"1. Create Primary DOS Partition."* And Type "Y" to use all available space and hit the enter key. Hit ESC to exit the screen after the USB-IDE hard disk drive partition is created.
11. Restart your computer and verify the newly created drive is in *My Computer*.
12. Convert the file system of the USB-IDE hard disk drive to FAT32: Click *Start* → *Program* → *Accessories* → *System Tools* → *Drive Converter (FAT32)*, and convert the USB-IDE hard disk drive file system to FAT32.
13. After conversion is complete, the USB-IDE hard disk drive will be added on *My Computer* as a hard disk drive icon, and will be available to the DVR.
14. Connect the USB-IDE hard disk drive to the DVR.

Appendix B — Reviewing Backup Images

Disconnect the external USB-IDE hard disk 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.

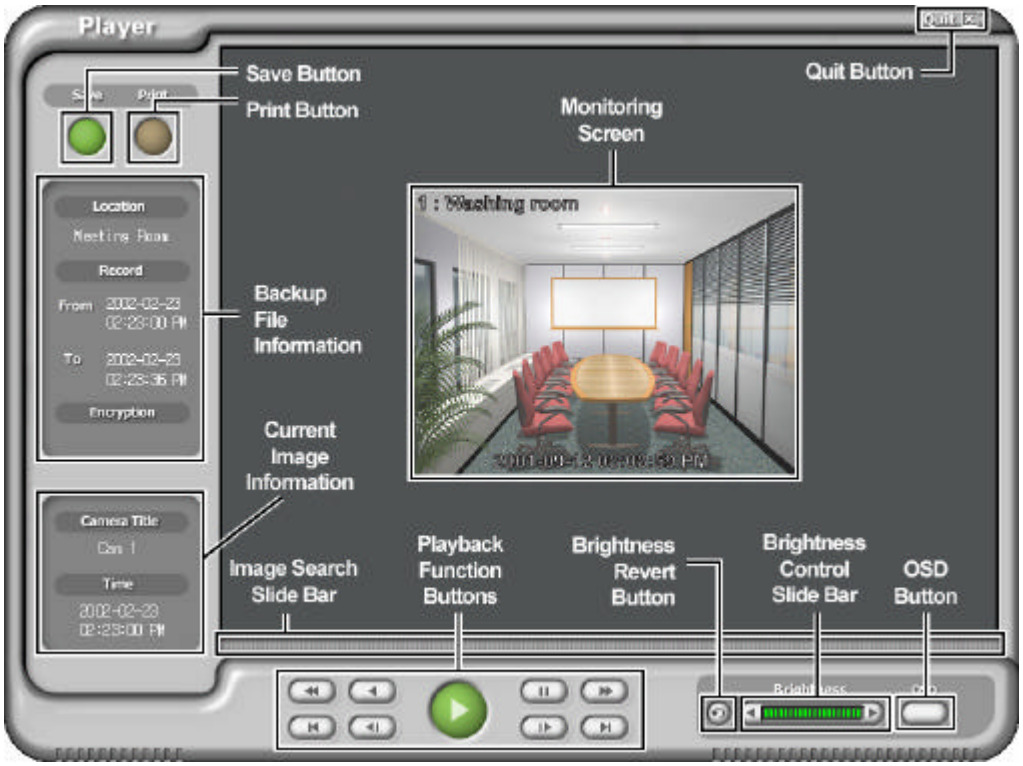


Figure 53 — Player screen

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 Unknown 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 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 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 Brightness Revert Button reloads to the original image.

The Brightness Control Slide Bar adjusts the brightness (-256 ~ +256) 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 OSD (On-Screen Display) Button selects whether the OSD information of the current image is displayed or not. The OSD information includes camera location and date/time.

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

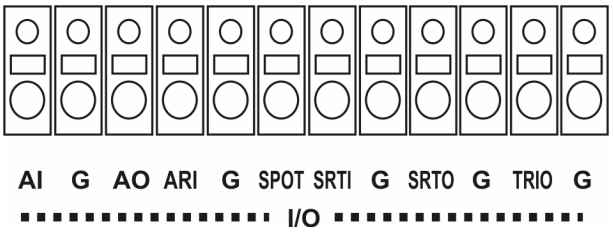
Clicking the Quit Button exits the Player program.

Appendix C — Troubleshooting

Problem	Possible Solution
No Power	• Check power cord connections. • Confirm that there is power at the outlet.
No Live Video	• Check camera video cable and connections. • Check monitor video cable and connections. • Confirm that the camera has power. • Check camera lens settings.
Live Video Very Bright	If a cable is attached to the "Loop" connector, make certain it is connected to a properly terminated device.
DVR Displays "Error"	Confirm that the hard disk drive is installed.
Cannot Set Network Settings	Make certain you have a Premium Model.
REC LED is Lit but DVR is not recording	Unit is set in Timer Mode. It will only record during designated times.
DVR has stopped recording	If hard disk drive is full, you will either need to delete video or set the DVR to the Overwrite Mode.
DVR displays an error message stating that the last recorded image date and time is later than the current date and time setting of the DVR.	The DVR will automatically reset the time and date of the unit, according to the time and date of the last recorded image. If this is not the correct time and date, reset the time and date manually. If the correct time and date is earlier than the last recorded image, any video with a later time and date will be lost when resetting the correct time and date.

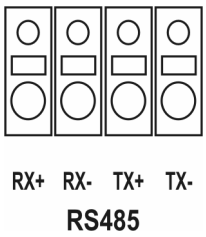
Appendix D — Connector Pin Outs

I/O Connector Pin Outs



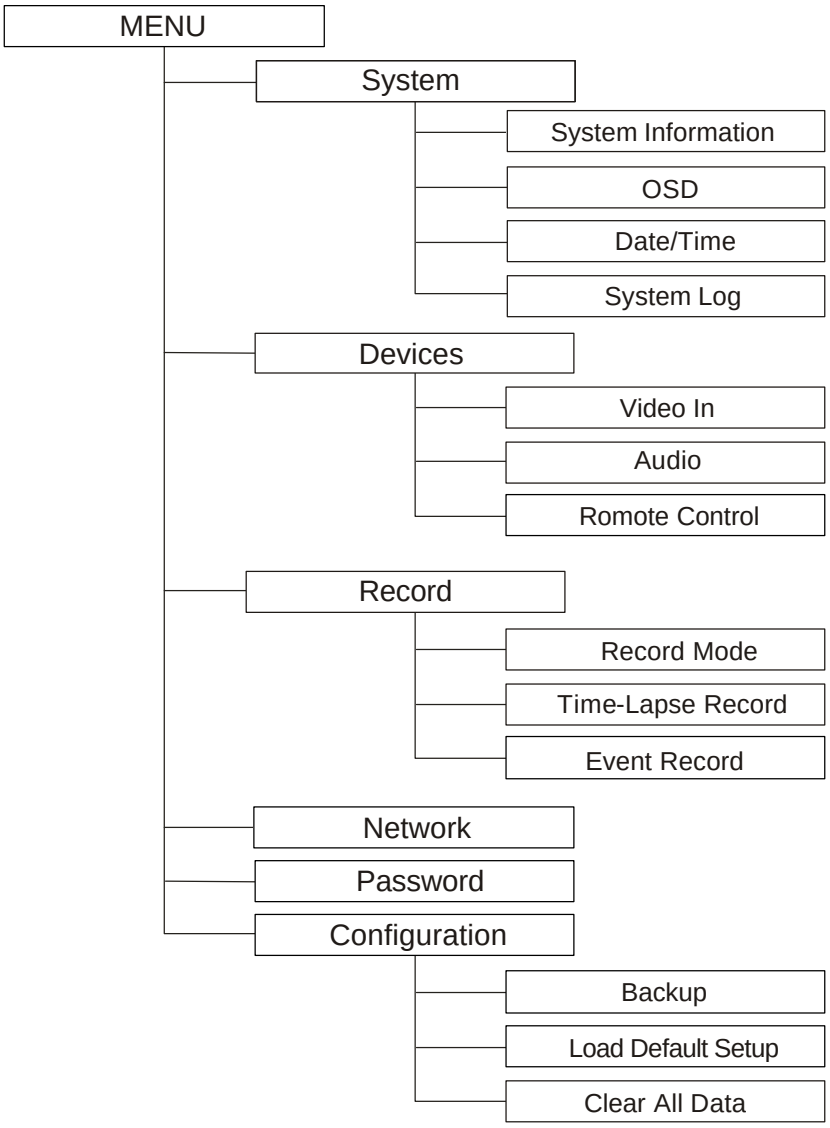
AI	Alarm In
G	Chassis Ground (5 connectors)
AO	Alarm Out
ARI	Alarm Reset In
SPOT	One Shot Recording
SRTI	Record Start In
SRTO	Record Stop Out
TRIO	Trigger Out

RS485 Connector Pin Outs



Master Unit				Slave Unit
RX+	→	To	→	TX+
RX-	→	To	→	TX-
TX+	→	To	→	RX+
TX-	→	To	→	RX-

Appendix E — Map of Screens



Appendix F — Specifications

VIDEO	
Signal Format	NTSC or PAL (selector switch)
Video Input	Composite: One looping input, 1 Vp-p, auto-terminating, 75 Ohms SVHS: One
Monitor Outputs	Composite: One, 1 Vp-p, 75 Ohms SVHS: One
Loop Video	Composite: One
Video Resolution	720x480 (NTSC), 720x576 (PAL)
Playback/Record Speed (images per second)	Simplex: 60ips (NTSC), 50ips (PAL) Duplex: 30ips (NTSC), 25ips (PAL)

INPUTS/OUTPUTS	
Alarm Input	1 dry contact, NC/NO programmable, 4.3V threshold
Alarm Output	1 dry contact (open collector), 5mA@12V, 30mA@5V
Alarm Reset Input	1 dry contact, 4.3V threshold
Internal Buzzer	80dB at 10cm
One Shot Recording	1 dry contact, 4.3V threshold
Trigger Out	1dry contact
Record Start In	1dry contact
Record Start Out	1dry contact
Record Stop Out	1dry contact
Network Connectivity (Premium Model only)	10/100 Mbps Ethernet RS-232 for external modem
Audio Input	One, "line in" or "mic" programmable
Audio Output	One, "line"

Specifications are subject to change without notice.

CONNECTORS	
Video Input	Composite: BNC SVHS: Y/C
Video Loop	Composite: BNC
Monitor Output	Composite: BNC SVHS: Y/C
Audio In	RCA connector
Audio Out	RCA connector
Alarms	Terminal block with 12 connectors
Ethernet Port	RJ-45
RS232 Serial Port	DB9 (P)
RS485 Serial Port	Four-connector terminal block
USB Port	One

STORAGE	
Primary Storage	EIDE hard disk drive (removable)
Secondary Storage	USB

GENERAL	
Dimensions (W x H x D)	16.9" x 3.5" x 13.8" (430mm x 88mm x 350mm)
Unit Weight	16.5 lbs. (7.5kg)
Shipping Weight	24.7 lbs. (11.2kg)
Shipping Dimensions (W x H x D)	21.5" x 11.2" x 19.7" (547mm x 285mm x 500mm)
Operating Temperature	41 °F to 104 °F (5 °C to 40 °C)
Operating Humidity	0% to 90%
Power	100 to 240 VAC, 1 to 2 A, 60/50Hz

APPROVALS	
FCC	FCC PART 15 Subpart B, Class A
CE	EMI: EN55022, 1998, Class A Safety: EN60950 Immunity: EN50130-4, 1998, Alarm Standard
UL	cUL60950

Specifications are subject to change without notice.

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