IMPORTANT SAFEGUARDS

1. Read Instructions - All the safety and operating instructions should be read before the unit is operated.
2. Retain Instructions - The safety and operating instructions should be retained for future reference.
3. Heed Warnings - All warnings on the unit and in the operating instructions should be adhered to.
4. Follow Instructions - All operating and use instructions should be followed.
5. Cleaning - Unplug the unit from the outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
6. Attachments - Do not use attachments not recommended by the product manufacturer as they may cause hazards.
7. Water and Moisture - Do not use this unit near water - for example, near a bath tub, wash bowl, kitchen sink, or laundry tub; in a wet basement; near a swimming pool; in an unprotected outdoor installation; or any area which is classified as a wet location.
8. Accessories - Do not place this unit on an unstable stand, tripod, bracket, or mount. The unit may fall, causing serious injury to a person and serious damage to the unit. Use only with a stand, tripod, bracket, or mount recommended by the manufacturer or sold with the product. Any mounting of the unit should follow the manufacturer's instructions and should use a mounting accessory recommended by the manufacturer.

   An appliance and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the appliance and cart combination to overturn.
9. Ventilation - Openings in the enclosure, if any, are provided for ventilation, to ensure reliable operation of the unit, and to protect it from overheating. These openings must not be blocked or covered. This unit should not be placed in a built-in installation unless proper ventilation is provided or the manufacturer's instructions have been adhered to.
10. Power Sources - This unit 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 supply you plan to use, consult your appliance dealer or local power company. For units intended to operate from battery power or other sources, refer to the operating instructions.
11. Grounding or Polarization - This unit may be equipped with a polarized alternating-current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug.
    Alternately, this unit may be equipped with a 3-wire grounding-type plug, a plug having a third (grounding) pin. This plug will only fit into a grounding-type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the grounding-type plug.
12. Power Cord Protection - Power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords and plugs, convenience receptacles, and the point where they exit from the appliance.
13. Power Lines - An outdoor system should not be located in the vicinity of overhead power lines or other electric light or power circuits or where it can fall into such power lines or circuits. When installing an outdoor system, extreme care should be taken to keep from touching such power lines or circuits as contact with them might be fatal. U.S.A. models only - refer to the National Electrical Code Article 820 regarding installation of CATV systems.
14. Overloading - Do not overload outlets and extension cords as this can result in a risk of fire or electric shock.
15. Object and Liquid Entry - Never push objects of any kind into this unit through openings, 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 unit.
16. Servicing - Do not attempt to service this unit yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.
17. Damage Requiring Service - Unplug the unit from the outlet and refer servicing to qualified service personnel under the following conditions:
    a. When the power supply cord or plug is damaged.
    b. If liquid has been spilled or objects have fallen into the unit.
    c. If the unit has been exposed to rain or water.
    d. If the unit 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 unit to its normal operation.
    e. If the unit has been dropped or the cabinet has been damaged.
    f. When the unit exhibits a distinct change in performance--this indicates a need for service.
18. Replacement Parts - When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, or other hazards.
19. Safety Check - Upon completion of any service or repairs to this unit, ask the service technician to perform safety checks to determine that the unit is in proper operating condition.
20. Coax Grounding - If an outside cable system is connected to the unit, be sure the cable system is grounded. U.S.A. models only — Section 810 of the National Electrical Code, ANSI/NFPA No.70-1981, provides information with respect to proper grounding of the mount and supporting structure, grounding of the coax to a discharge unit, size of grounding conductors, location of discharge unit, connection to grounding electrodes, and requirements for the grounding electrode.
21. Lightning - For added protection of this unit 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 cable system. This will prevent damage to the unit due to lightning and power line surges.

FCC & ICES INFORMATION

(U.S.A. and Canadian Models Only)

WARNING - 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 and ICES-003 of Industry Canada. 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 radiates 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 the user will be required to correct the interference at his own expense. Intentional or unintentional changes or modifications not expressly approved by the party responsible for compliance shall not be made. Any such changes or modifications could void the user's authority to operate the equipment.

If necessary, the user should consult the dealer or an experienced radio/television technician for corrective action. The user may find the following booklet prepared by the Federal Communications Commission helpful: "How to Identify and Resolve Radio-TV Interference Problems." This booklet is available from the U.S. Government Printing Office, Washington, DC 20402, Stock No.004-000-00345-4.

Warning: This is a Class A product. In a domestic environment, this product may cause radio interference in which case the user may be required to take adequate measures.

For additional information or to speak to a representative, please contact the Philips Communication, Security & Imaging location nearest you:

The Americas: 1 800 326 3270
Europe & Middle East: 31 40 278 1222
Asia Pacific Region: 65 350 1859

or visit our Web site at www.philipscsi.com.

SAFETY PRECAUTIONS

CAUTION: TO REDUCE THE RISK OF ELECTRICAL SHOCK, DO NOT OPEN COVERS. NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

This label may appear on the bottom of the unit due to space limitations.

The lightning flash with an 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 to persons.

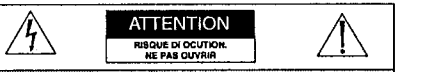
The exclamation point within an equilateral triangle is intended to alert the user to presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING
TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE UNITS NOT SPECIFICALLY DESIGNED FOR OUTDOOR USE TO RAIN OR MOISTURE.

Attention: Installation should be performed by qualified service personnel only in accordance with the National Electrical Code or applicable local codes.

Power Disconnect. Units with or without ON-OFF switches have power supplied to the unit whenever the power cord is inserted into the power source; however, the unit is operational only when the ON-OFF switch is in the ON position. The power cord is the main power disconnect for all units.

SECURITE



DANGER: POUR ÉVITER TOUT RISQUE D'ÉLECTROCUTION, NE PAS OUVRIR LE BOÎTIER. IL N'Y A PAS DE PIÈCES REMPLAÇABLES À L'INTÉRIEUR. POUR TOUTE RÉVISION, S'ADRESSER À UN TECHNICIEN SPÉCIALISÉ.

En raison de limitation de place, cette étiquette peut être placée sur le dessous de l'appareil.

L'éclair fléché dans un triangle équilatéral, avertit l'utilisateur de la présence d'une "tension dangereuse" non isolée à l'intérieur de l'appareil et d'une valeur suffisante pour constituer un risque d'électrocution.

Le point d'exclamation contenu dans un triangle équilatéral, avertit l'utilisateur de la présence, dans la documentation qui accompagne l'appareil, de consignes d'utilisation et de maintenance importantes.

ATTENTION
POUR ÉVITER LE RISQUE D'ÉLECTROCUTION OU D'INCENDIE, NE PAS EXPOSER À LA PLUIE OU À L'HUMIDITÉ UN APPAREIL NON CONÇU POUR UNE UTILISATION EXTÉRIEURE.

Attention: L'installation doit être effectuée uniquement par du personnel de service qualifié conformément à la réglementation du Code Electrique National ou à la réglementation locale.

Disjonction de l'alimentation. Les appareils avec ou sans commutateurs ON-OFF sont alimentés à chaque fois que le cordon d'alimentation est branché à la source d'alimentation; toutefois, les appareils disposant de commutateurs ON-OFF ne fonctionnnent que lorsque le commutateur ON-OFF est sur la position ON. Le cordon d'alimentation est la disjonction d'alimentation principale pour tous les appareils.

WARNING: Electrostatic-sensitive device. Use proper CMOS/MOSFET handling precautions to avoid electrostatic discharge.

NOTE: Grounded wrist straps must be worn and proper ESD safety precautions observed when handling the electrostatic-sensitive printed circuit boards.

CAUTION: Lithium Battery

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer.

SICHERHEITSVORKEHRUNGEN

VORSICHT: UM EINEN ELEKTRISCHEN SCHLAG ZU VERMEIDEN, ABDECKUNG NICHT ENTFERNEN. WARTUNGEN ALLER ART QUALIFIZIERTEM PERSONAL BRLASSEN.

Aus Platzgründen kann diese Warnung auf der Unterseite des Gerätes angebracht sein.

Das Blitzsymbol im gleichseitigen Dreieck soll den Benutzer auf nicht isolierte "Hochspannung" im Gehäuse aufmerksam machen, die eventuell stark genug ist, um einen elektrischen Schlag zu verursachen.

Das Ausrufezeichen im gleichseitigen Dreieck soll den Benutzer auf wichtige Bedienungs- und Wartungsanleitungen in der dem Gerät beigefügten Literatur aufmerksam machen.

WARNUNG
UM FEUER ODER ELEKTRISCHE SCHLÄGE ZU VERMEIDEN, SETZEN SIE DAS GERÄT NIEMALS REGEN ODER FEUCHTIGKEIT AUS.

Achtung! Die Installation sollte nur von qualifiziertem Kundendienstpersonal gemäß jeweilig zutreffender Elektrovorschriften ausgeführt werden.

Netzanschluß. Geräte mit oder ohne Netzschalter haben Spannung am Gerät anliegen, sobald der Netzstecker in die Steckdose gesteckt wird. Das Gerät ist jedoch nur betriebsbereit, wenn der Netzschalter (EIN/AUS) auf EIN steht. Wenn man das Netzkabel aus der Steckdose zieht, dann ist die Spannungszuführung zum Gerät vollkommen unterbrochen.

PRECAUCIONES DE SEGURIDAD

PRECAUCION: PARA REDUCIR EL RIESGO DE CHOQUE ELÉCTRICO, FAVOR NO ABRIR LA CUBIERTA. ESTE EQUIPO NO CONSTA DE PIEZAS O PARTES QUE REQUIEREN SERVICIO O MANTENIMIENTO. PARA REPARACIONES FAVOR REFERIRSE A UN TÉCNICO CALIFICADO.

Debido a limitaciones de espacio, esta etiqueta puede aparecer en la parte inferior de la unidad.

El símbolo representado por un relámpago con punta de flecha dentro de un triángulo equilátero, se muestra con el objetivo de alertar al usuario que existen "voltages peligrosos" sin aislamiento, dentro de la cubierta de la unidad. Dichos voltages pueden ser de tal magnitud que constituyen un riesgo de choque eléctrico a personas.

El símbolo de exclamación dentro de un triángulo equilátero, se muestra con el objetivo de alertar al ususario de que instrucciones de operación y mantenimiento importantes acompañan al equipo.

PELIGRO
PARA EVITAR EL PELIGRO DE INCENDIO Ó CHOQUE ELÉCTRICO, NO EXPONGA A LA LLUVIA Ó HUMEDAD, EQUIPOS QUE NO HAN SIDO DISEÑADOS PARA USO EXTERIOR.

Atención: La instalación de este equipo debe ser realizada por personal capacitado, solo en acuerdo, y en cumplimiento de normas del "National Electric Code" (Código Eléctrico Nacional) ó las normas del Gobierno Nacional Local.

Para Desconectar la Alimentación: Unidades no equipadas con interruptores ON/OFF, son alimentadas cuando el cable de alimentación es conectado a la corriente eléctrica. Las unidades equipadas con interruptores son alimentadas de igual forma, pero adicionalmente requieren que el interruptor esté posicionado en ON. El cable de alimentación es el medio principal de desconexión del equipo.

SECTION 1: INTRODUCTION TO THE DVR1 SERIES DIGITAL VIDEO RECORDERS

1.1 Guide to This Manual

This manual contains all of the information necessary to safely install, program, and operate Philips' DVR1 Series Digital Video Recorders. Step-by-step procedures and sample menus guide you through each phase of the DVR1's setup and programming.

The DVR1 package includes the Remote Viewer software, which allows remote access to a DVR1 through a network interface. Complete installation and operation instructions for the Remote Viewer program are included in this manual.

NOTE: A separate Archiving Addendum detailing compatible Archiving Devices and general configuration/operation instructions is included for your reference.

1.2 Unpacking

Unpack carefully. This is electronic equipment and should be handled with care to prevent damage to the unit. Check for the following items:

- ✔ Digital Video Recorder unit (Model DVR1, DVR1EP, DVR1EP2, or DVR1EP2A)
- ✔ Installation Instructions (this manual)
- ✔ Archiving Addendum
- ✔ Accessories PCB (printed circuit board)
- ✔ One (1) 12-volt power supply with two (2) power cables
- ✔ Rack mount kit
- ✔ Remote Viewer software (CD)

If any items appear to have been damaged in shipment, replace the item(s) properly in the shipping carton and notify the shipping company. If any items are missing, notify your nearest Philips CSI Sales Representative or Customer Service Representative:

The Americas: 1 800 326 3270
Europe & Middle East: 31 40 278 1222
Asia Pacific Region: 65 350 1859

NOTE: The shipping carton and all packing materials should be retained, in case transporting the unit is necessary. This will ensure safe transport of all components.

1.3 Understanding the DVR1 Series

The DVR1 Series of Digital Video Recorders provide a digital alternative to traditional time-lapse VCRs. Digital video recording allows continuous recording on a hard disk, eliminating the need to replace or rewind videotapes. The DVR1 Series provide menu-based search capabilities for recorded events, as well as access to live or recorded data via the Ethernet.

Additionally, the DVR1 Series offer the following operating features:

- Single-channel composite or S-video input/output connections.
- Ample hard disk storage: 30 GB min for **DVR1**; 80 GB min for **DVR1EP**; 160 GB min for both the **DVREP2** & **DVREP2A**.
- Accepts a single camera or up to 32 multiplexed inputs from most popular multiplexers.
- Multiple recording rates from 0.1 up to 60 pictures per second (pps; also referred to as images per second, or IPS).
- Two hard disk recording modes: continuous recording (overwrite mode) or no overwrite.
- Two recording quality modes: S-video or VHS.
- Compatibility with many archiving devices (refer to the **Archiving Addendum** included in the DVR1 package).
- **Remote Viewer** software allows remote viewing of live or recorded images on a PC, as well as many other features (see **Section 7**).

NOTE: Refer to the Philips Web site, **www.philipscsi.com**, for a listing of the latest approved external archiving devices.

SECTION 2: INSTALLING THE DVR1

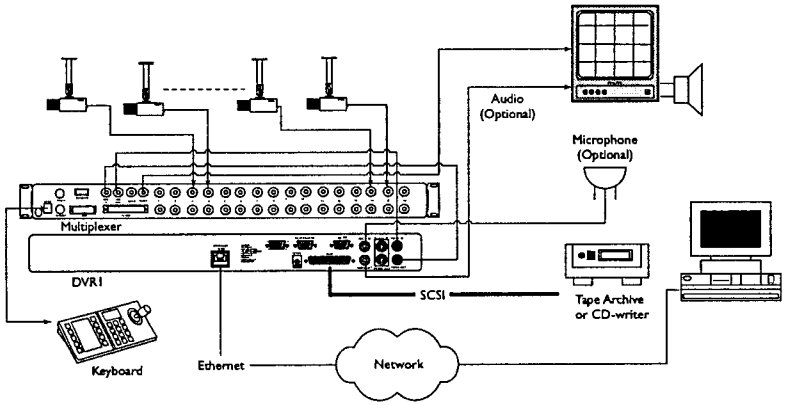


Figure 2A – Sample DVR1 System Installation

Figure 2A provides an illustration of a typical DVR1 system installation. Consider the peripheral devices necessary for your system application, and perform the system connections according to the following installation instructions.

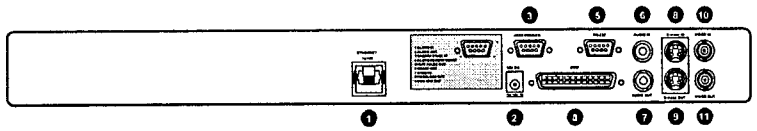
2.1 Mounting

The DVR1 is supplied as a desktop unit. If desired, your unit may be rack mounted using the rack mount kit (included with the unit). Ensure that the mounting/installation location provides adequate ventilation and protection from moisture. Do not obstruct the ventilation holes at the sides of the unit.

2.2 Connecting the DVR1

Rear Panel Connections

1. Refer to **Figure 2B** for details on the input/output connections supplied by the DVR1.



1. **Ethernet Port:** For viewing Live or Recorded Images on a PC via the Ethernet (network).
2. **Power Connector:** Connect 12 Volt AC external power supply (provided).
   NOTE: Ensure that the site's AC Power is stable and within the rated voltage of the external power supply. If the site's AC power is likely to have spikes or power dips, use power line conditioning or an Uninterruptible Power Supply (UPS).
3. **Accessory I/O Port:** Used to connect peripheral devices such as alarm devices, alarm relays, or the VEXT (Video External Pulse) connection (see additional pertinent information, including pinout details, in this section).
4. **SCSI Port:** For connecting a SCSI compatible archive device.
5. **RS-232 Serial Port:** Serial port for Flash Upgrading of software. Also used for external control of unit.
   NOTE: The RS-232 port does NOT work with a modem. Use a Null Modem type cable (Philips 5138S cable) to connect to this port.
6. **Audio In (specified version only):** Unbalanced, RCA style jack.
7. **Audio Out (specified version only):** Unbalanced, RCA style jack.
8. **S-video In:** Y/C video input with 4-pin mini-DIN style connector.
9. **S-video Out:** Y/C video output with 4-pin mini-DIN style connector.
10. **Video In:** Composite video input with BNC style connector.
11. **Video Out:** Composite video output with BNC style connector.

Figure 2B – DVR1 Rear Panel Connections

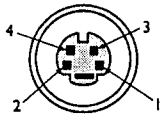
2. Connect all peripherals (e.g. cameras, monitors, etc.) to the corresponding inputs/outputs on the DVR1 rear panel.

   CAUTION: DO NOT connect both S-video and Composite inputs at the same time. A hardware conflict will occur, which could damage the unit.

3. When all connections have been completed, apply power to the system.

S-Video

- Cable must be purchased separately.



Pin Signal
1. GND (Y)
2. GND (C)
3. Y-signal IN or OUT
4. C-signal IN or OUT

Ethernet Port

Ethernet port uses standard pinout configuration.

- For a DVR1 that connects directly to a Hub, use a straight-through connection.
- For a DVR1 that connects directly to a PC, use a crossover connection.

Accessories Port Connections

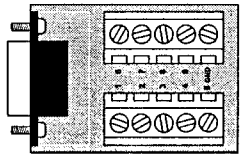
The rear panel of the DVR1 is equipped with an Accessories Port (DB-9 style connector). Connect the Accessories PCB (supplied with the unit) to the Accessories Port, then wire all accessories to the Accessories PCB.

DB-9 Connector on Rear Panel

If the Accessories PCB is lost or missing, contact Philips Customer Service for a replacement (Part Number 0900-0127a).

As an alternative to using the PCB connector, you may purchase a female DB-9 connector and perform wiring and connections as detailed in the following pin-out.

Pin 1:	Alarm In	**Pin 6:**	Error Out
Pin 2:	Alarm Out	**Pin 7:**	Ground
Pin 3:	Record Start In	**Pin 8:**	Videoloss Out
Pin 4:	Alarm Record Reset (future feature)	**Pin 9:**	Disk End Out
Pin 5:	VEXT Pulse Out	**Pin 10:**	Ground



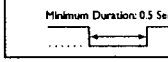
Accessories PCB

NOTE: Refer to the multiplexer and other peripheral device manuals for pertinent connection and synchronization information.

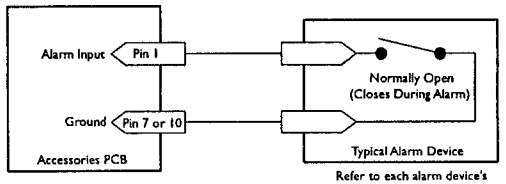
Functional descriptions of the connections provided by the DVR1 Accessories Port follow:

Alarm In: An alarm condition can be activated by an **Active Low TTL** input, or by relay contact devices such as pressure pads, passive infrareds, door switches, or similar devices

Input: Active Low TTL with pull-ups or Normally Open Relay.
High: 5V (12V tolerant)
Low: Ground



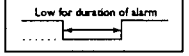
Normally Open Relay Alarm Connection



Refer to each alarm device's manual for specific wiring details.

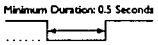
Alarm Out: The **Alarm Output** is activated when a teletext alarm is read, or while the Alarm Input is active. The Alarm output is only active for the duration of the alarm event.

Input: Active Low
High: 12V
Low: Ground
Current Out: 50 mA Max
Short Circuit Protected.



Record Start In: When activated, this connection places the unit in record mode. Compatible with the **Disk End Out** signal from a second unit.

Input: Active Low TTL with pull-ups or Normally Open Relay.
High: 5V (12V tolerant)
Low: Ground



Alarm Record Reset: This feature is for future development and has not yet been implemented.

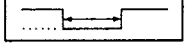
VEXT Pulse Out: The **Video External Pulse Connection** (VEXT) simplifies multiplexer operation by automatically synchronizing the multiplexer with the DVR1.

The DVR1 sends a VEXT pulse to the multiplexer, indicating that it is ready to record the next image. The multiplexer responds by sending the next image to the **Video Input** on the DVR1.

The VEXT connection is especially beneficial for units configured with dual record speeds (Normal and Alarm).

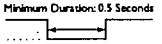
NOTE: Use of the VEXT connection is highly recommended when connecting the unit to a multiplexer.

Output: Active Low
High: 5V
Low: Ground (0.8V Max)
Current Out: 50 mA Max
Short Circuit Protected.



Error Out: The **Error Out** signal is activated when the unit experiences any operational or internal error.

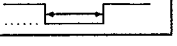
Output: Open Collector
High: Transistor Off
Low: Transistor On
Active When On.
Current Out: 10 mA Max



Videoloss Out: The **Videoloss Out** signal is activated when the unit experiences loss of video on the selected video input (Composite or S-video).

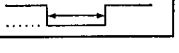
In the event of loss of video, VIDEOLOSS will be indicated near the upper left-hand corner of the primary monitor.

Output: Open Collector
High: Transistor Off
Low: Transistor On
Active When On.
Current Out: 10 mA Max



Disk End Out: The **Disk End Out** is activated when there are 5 minutes of recording space left on the hard disk.

Output: Open Collector
High: Transistor Off
Low: Transistor On
Active When On.
Current Out: 10 mA Max

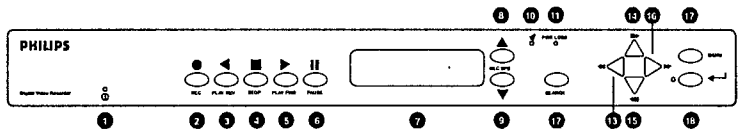


SECTION 3: GUIDE TO THE DVR1 CONTROLS

Before attempting DVR1 programming, you should become familiar with the function of the DVR1 controls. This section provides a summary of the front panel controls and indicators, as well as hints for navigating the DVR1 menus and entering values via the front panel controls.

3.1 DVR1 Front Panel Controls

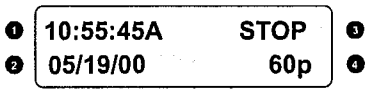
Figure 3A provides an illustration of the DVR1 front panel controls and their functionality. Figure 3B shows the components of the Front Panel LCD display.



1. **Power On Indicator:** Indicates power is ON when LED is lit.
2. **Record Button:** Press **RECORD** to begin recording.
3. **Play Reverse Button:** Press **PLAY** to play back video in reverse at the normal record speed.
4. **Stop Button:** Press **STOP** to stop recording or playback.
5. **Play Forward Button:** Press **PLAY FORWARD** to play back video at the normal record speed.
6. **Pause Button:** Press **PAUSE** to pause playback.
7. **LCD:** Displays the time, date, mode, and record or playback speed in pictures per second (pps). (Refer to **Figure 3B** for details.)
8. **Increase Record Speed Button:** Press this button to increase the record or playback speed.
9. **Decrease Record Speed Button:** Press this button to decrease the record or playback speed.
10. **Alarm Indicator:** Indicates an alarm condition when this LED is lit.
11. **Power Loss Indicator:** Indicates power loss when this LED is lit.
12. **Search Button:** Press **SEARCH** to enter the search filters menu or to activate certain commands.
13. **Rewind Button:** Press **REWIND** to perform high-speed reverse playback.
    NOTE: Rewind is also used to navigate the menus and may be referred to in this manual as the **left arrow** button.
14. **Single Frame Advance Button:** Press this button to perform a single frame advance while in Pause mode.
    NOTE: Single Frame Advance is also used to navigate the menus and may be referred to in this manual as the **up arrow** button.
15. **Single Frame Rewind Button:** Press this button to perform a single frame rewind while in Pause mode.
    NOTE: Single Frame Rewind is also used to navigate the menus and may be referred to in this manual as the **down arrow** button.
16. **Fast Forward Button:** Press **FAST FORWARD** to perform high-speed playback.
    NOTE: Fast Forward is also used to navigate the menus and may be referred to in this manual as the **right arrow** button.
17. **Menu Button:** Press **MENU** to enter the menu system. Also used to ***EXIT without saving*** while in the menu system.
18. **Enter Button and LED Indicator:** Press **ENTER** to make or confirm a selection. When lit, this LED indicates that the menu system is active.

Figure 3A – DVR1 Front Panel Controls

3.2 DVR1 Front Panel Display



1. **Time:** Displays the current time in **record** and **stop** modes. Displays the time the event was recorded in **play** and **pause** modes.
   NOTE: If the letter **A** follows the time (#1 in the above diagram), the unit is configured to record or play back audio.
2. **Date or Capacity:** In **record** and **stop** modes, this field displays the **current** date; in **play** and **pause** modes, it displays the date in which the event was recorded. Or, depending on the programmed **display setting**, this field may show the remaining storage capacity of the hard drive instead (this display is shown in **time** remaining).
3. **Mode:** Displays the current mode that the unit is in.
4. **Record Speed:** Displays the normal record or playback speed in pictures per second (pps).

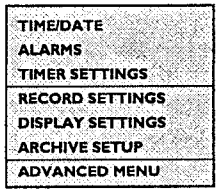
Figure 3B – DVR1 LCD Display

3.3 Navigating with the DVR1 Controls

Navigating and entering parameter values with the DVR1 controls are designed to be easy and intuitive. Most menus use the same navigation for programming operations.

Pull-down Menus

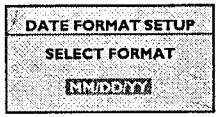
Pull-down menus are the top-level menus, and are accessed by pressing MENU. For example, the following DVR1 Main Menu is a pull-down menu.



- Use the Left/Right Arrows to scroll through the items or fields shown in a menu. When the desired item is highlighted, press ENTER to select that item.
- Choosing an item from a pull-down menu typically leads to a sub-menu (i.e., a **pop-up** menu). Changes to operating parameters are usually made in pop-up menus.
- To exit the program menu or menu level (after all parameter changes have been made), press MENU.

Pop-up Menus

Pop-up menus usually have a parameter(s) from which you can select or change the value. A sample pop-up menu is shown below.



- Use the Left/Right Arrows to move between fields in the menu.
- Press ENTER to select any item.
- Use the Up/Down Arrows to scroll through the values of that particular parameter.
- To save changes and exit the pop-up menu: select [OK] and/or press ENTER.
- To exit the menu ***without making changes***: press MENU or select [CANCEL], and press ENTER.

Programming Notations in this Manual

Throughout the programming sections in this manual, programming instructions appear in special subheadings, as in the following example:

Main Menu → Record Settings → Normal Record Speed

Meaning: At the **Main Menu**, select RECORD SETTINGS, then ENTER. This opens another menu. In this menu, select NORMAL RECORD SPEED, then press ENTER. A pop-up menu will appear.

On-screen Representations

On-screen representations are shown in this manual as follows (note the distinction between items that appear highlighted on-screen and those that do not):

Not highlighted: **Highlighted:**

SECTION 4: DVR1 MAIN MENU PROGRAMMING

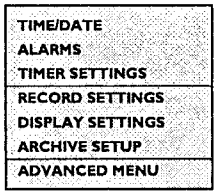
4.1 Overview of the DVR1 Main Menu

The DVR1 Series **Main Menu** allows quick and easy programming of vital system data and operating parameters. The following table provides a summary of user actions that are accessible via the DVR1 Main Menu.

User Action	Corresponding Menu Item/Sub-menu
Set Time/Date	TIME/DATE
Configure Alarms	ALARMS
Configure Scheduled Recordings	TIMER SETTINGS
Configure Recording Parameters	RECORD SETTINGS
Configure On-screen Display Options	DISPLAY SETTINGS
Manage Archive Storage	ARCHIVE SETUP
Access the Advanced Menu	ADVANCED MENU

NOTE: Upon initial power up, the DVR1 will be set to the factory default parameters (see **Appendix A** for a complete listing of the **Factory Default Settings**).

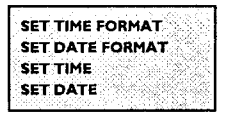
To access the DVR1 Main Menu, press MENU. The menu below will appear on the system's primary monitor.



4.2 Setting the Time/Date

Main Menu → Time/Date

Use this menu to specify the following:

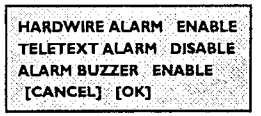


- The time format: 12 or 24 hours.
- The date format: MM/DD/YY, DD/MM/YY, or YY/MM/DD.
- The time: HH/MM/SS.
- The date: MM/DD/YY/DAY.

4.3 Configuring Alarms

Main Menu → Alarms

Use this menu to specify the following:



- Whether the DVR1 will activate an alarm condition when the unit detects a signal on the Alarm In connection of the Accessories PCB. (Parameter: HARDWIRE ALARM – ENABLE/DISABLE.)
- Whether the DVR1 will activate an alarm condition corresponding to the teletext alarm signal of a multiplexer or other device. (Parameter: TELETEXT ALARM – ENABLE/DISABLE.)
- Whether the DVR1 will sound its internal buzzer during an alarm condition. (Parameter: ALARM BUZZER – ENABLE/DISABLE.)

4.4 Configuring Scheduled Recordings

Main Menu → Timer Settings

This menu allows the scheduling of a timed-recorded event. A sample menu is shown here.

DAY	START	STOP	SPD (pps)	QUALITY	ON/OFF
31	16:45	17:05	20	VHS	ON
SAT	7:55	8:10	10	SVHS	OFF
MON-FRI	9:56	11:05	60	VHS	ON
SAT-SUN	14:23	14:50	60	SVHS	ON
MON-SUN	2:23	3:34	20	VHS	OFF
–	--:--	--:--	--	–	–

[OK]

EDIT MODE HIT "ENTER" TO TOGGLE EDIT MODE

The fields to be programmed in the above menu are as follows:

- **Day**: The date or day(s) on which the recording will occur. Choose from the following:
  - 1 through 31 (any period of calendar days named)
  - Monday–Sunday (any individual day)
  - Monday–Friday (weekdays)
  - Saturday–Sunday (weekends)
  - Monday through Sunday (all week long)
- **Start**: Hours/Minutes of the starting time for the scheduled recording (24-hour clock time). Note that hours and minutes are edited separately.
- **Stop**: Hours/Minutes of the ending time for the scheduled recording (24-hour clock time). Note that hours and minutes are edited separately.
- **Spd (pps)**: Capture rate for the scheduled, normal recording in pictures per second. Choose from the following:
  - 60, 30, 20, 10, 5, 3, 2, 1, 0.5, 0.2, 0.1, 0.0*

  ***NOTE:** 0.0 corresponds to **Alarm Only** recording.
- **Quality**: Choose from either **SVHS** (highest picture quality) or **VHS** (standard picture quality, with a longer recording time).
- **On/Off**: Choose from one of three parameters:
  - **On** (recording starts as scheduled)
  - **Off** (recording does not start)
  - **Delete** (all recording schedule parameters are deleted)

NOTE: The fields in the Timer Settings menu can be edited easily using the Left/Right Arrows to move between fields and Up/Down Arrows to scroll through the various options at each parameter. When you finish setting the parameters, press ENTER. Use the Left/Right Arrows to navigate, then highlight [OK], and press ENTER.

4.5 Configuring the Recording Parameters

Main Menu → Record Settings

RECORD INPUT
NORMAL RECORD SPEED
ALARM RECORD SPEED
VIDEO QUALITY

This menu allows you to set the recording speed and quality for both normal and alarm conditions. Use this menu to specify the following:

- Video input (composite video or S-video) on the DVR1 rear panel.
- Record speed (in pictures per second) for normal recording.
- Record speed (in pictures per second) for an alarm condition.
- Video quality (i.e. compression ratio/image quality) for recorded images (SVHS or VHS). Note that higher compression (VHS) corresponds to standard quality images, with a longer recording time.

NOTE: If a single camera input is connected to the unit, select NONE. See **Section 5.8** for details on Multiplexer applications.

4.6 Configuring On-screen Display Options

Main Menu → Display Settings

CURRENT TIME / DATE
RECORD CAPACITY
ARCHIVE STATUS
LAST ALARM
PLAYBACK TIME / DATE

Use this menu to specify the status information to be displayed on the primary monitor (usually shown in the upper righr or upper left corner of the screen).

Each of the following parameters may be set ON or OFF for the on-screen display:

- Current time and date.
- Remaining amount of time before the hard disk runs out of record capacity (automatically counts down from days/hours to hours/minutes to minutes/seconds).

  NOTE: Record capacity will only display if:
  - The unit is recording **and**
  - The hard disk overwrite mode is set to ***no overwrite*** or ***overwrite once*** mode (see **Section 5.3**).

  NOTE: Turning this parameter ON will also show the record capacity on the fronr panel LCD display, replacing the date field.
- Status of a system archive device connected (i.e. ready/not ready for recording).
- Time and date of the last alarm. Note that the system displays NONE if no previous record(s) of alarm(s) exist.
- During Playback, the time/date in which the recording was made.

4.7 Managing Archive Storage

NOTE: For more information regarding archiving, refer to the **Archiving Addendum** supplied with the DVR1.

Due to the complexity of the **Archive Setup** process, detailed instructions follow.

Main Menu → Archive Setup

SELECTIVE ARCHIVE
RESTORE FROM ARCHIVE
BACKGROUND ARCHIVE
ARCHIVE OVERWRITE MODE
ERASE ARCHIVE MEDIUM

Use this menu to accomplish the following:

- Select data to be archived and begin the archiving process.
- Restore data from the archive device.
- Turn Background Archiving On or Off.
- Set Archive Overwrite mode.
- Erase archived tape data.

Main Menu → Archive Setup → Selective Archive

The **Selective Archive** feature allows archiving of recorded data from the hard disk of the DVR1 to an archive device. If the archive device is a CD-writer, you must play back the archived video from a PC's CD-ROM drive using the Remote Viewer software (included with the DVR1 package). If the archive device is a tape drive, you must use the DVR1 to play back the video.

The **Archive Search Filters Menu** allows you to search the hard disk for recorded events (e.g., an alarm condition or a previous recording session), then select those events to be archived for later viewing (note that each activation of **Record** mode is considered to be a separate recording session).

ARCHIVE SEARCH FILTERS

START DATE: 12/25/00 [ ] (MM/DD/YY)
STOP 01/01/01 [ ] (MM/DD/YY)

START TIME: 11:11:21 [ ]
STOP 12:34:34 [ ]

1 2 3 4 5 6 7 8
CAMERA: [ ][ ][ ][ ][ ][ ][ ][ ]

ALARM: [ ]

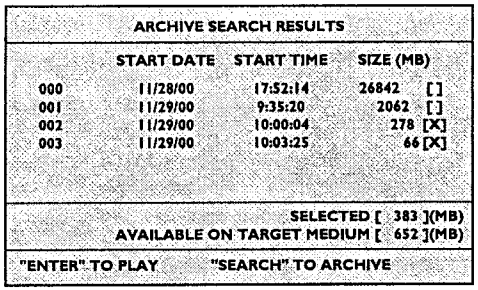
[CANCEL] [START SEARCH]

Use this sub-menu to specify:

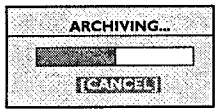
- Start and stop date of the search.
- Start and stop time of the search.
- Which camera(s) to search.
- A search for recorded alarms.

NOTE: The default settings for **Selective Archive** are set to show a list of all of the files that are on the hard drive. It may be necessary to limit the size of an archive file so that it will fit on the archive medium. The file size for archiving (time span) can be customized by designating start/stop time and date within the archive search filters window. File size can be further reduced by specifying only the cameras of interest.

When all required search criteria has been entered, highlight [START SEARCH], then press ENTER. The **Archive Search Results** window will appear.



Use the **Left/Right Arrows** to navigate the **Search Results** menu, highlighting the recorded event you wish to select. Use the **Up/Down Arrows** to select a recorded event by placing [X] in the check box.



To begin archiving the selected event(s), press SEARCH. The Archiving progress bar will appear. Press ENTER to cancel archiving at any time.

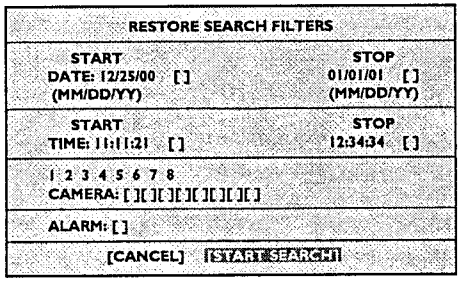
When the unit has finished archiving, the **Archiving Completed** message will appear. Press ENTER to acknowledge the message and complete the archiving process.

Main Menu → Archive Setup → Restore From Archive

This menu is used to either play back archived video from a tape archive device or restore the video to the DVR1's hard drive.

NOTE: If video was archived on a CD-ROM, you must play back video from a PC using the Remote Viewer software (no audio capabilities are present in this archive format).

The Restore Search Filters menu functions similar to the **Archive Search Filters** menu (as described previously). When the search completes, a **Restore Search Results** menu appears.



Main Menu → Archive Setup → Background Archive

This archive feature enables automatic and continuous archiving in the ***background*** while other system operations continue (i.e., all information going to the DVR1 hard drive is continuously sent to the system archive device). If this mode is enabled, the archive device must provide the required data transfer and storage capacity.

NOTE: Background Archiving should never be used with CD-writer archive devices or with the unit recording at the 60 ips recording rate.

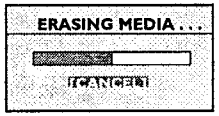
Main Menu → Archive Setup → Archive Overwrite Mode

This archive feature is only applicable when used with an Autoloader and in the **Background Archive** mode. This setting determines what happens when the archive tapes are full. The three options are: **Write once, No overwrite,** and **Continuous**.

- Write Once: When the tapes are full, archiving stops. Archiving will resume after the user acknowledges that the tape is full and that archiving should resume.
- No Overwrite: When the tapes are full, archiving stops. Archiving will resume only after a user enters the advanced menu, manually erases the tapes, and resumes archiving.
- Continuous: When the tapes are full, archiving goes to the first tape (oldest video), erases its header, and automatically resumes archiving without any user interaction. This process will continue indefinitely, overwriting one tape at a time.

Main Menu → Archive Setup → Erase Archive Medium

The Erase Archive Medium feature is intended for use with **Tape** archive devices only.



NOTE: The DVR1 archiving operation is designed to minimize complexity and ensure the integrity of the archiving operation. For this reason, all archive tapes must first be erased before being overwritten.

NOTE: Before starting the erasing process, the DVR1 must be set to Selective Archive, and **Background Archive** must be set to OFF.

To erase the archived data, press ENTER. The **Erasing Media** progress bar appears. Press ENTER to cancel.

When the unit is finished erasing the pointers to the data, the message box at right appears. Press ENTER to acknowledge the message.

4.8 Accessing the Advanced Menu

For information on accessing the **Advanced Programming** menu, please refer to Section 5 in this manual. Note that the **Advanced Menu** is password protected.

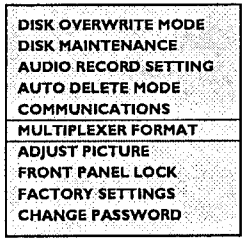
SECTION 5: DVR1 ADVANCED MENU PROGRAMMING

5.1 Overview of the DVR1 Advanced Menu

Enhanced DVR1 operating features are programmed via the **Advanced Menu**. The following table provides a summary of these actions that are accessed via the DVR1 Advanced Menu.

User Action	Corresponding Menu Item/Sub-menu
Overwrite the Hard Disk	DISK OVERWRITE MODE
Erase, Delete, and Recover Hard Disk Data	DISK MAINTENANCE
Invoke Audio Recording	AUDIO RECORD SETTING
Use the Auto Delete Feature	AUTO DELETE MODE
Configure Communications	COMMUNICATIONS
Configure Multiplexer Format	MULTIPLEXER FORMAT
Adjust Picture Qualities	ADJUST PICTURE
Lock Out the Front Panel	FRONT PANEL LOCKOUT
Restore Factory Defaults	FACTORY SETTINGS
Change the Password	CHANGE PASSWORD

Press MENU to enter the DVR1 Main Menu. Use the **Left/Right Arrows** to highlight the ADVANCED MENU title and press ENTER. The Advanced Menu (shown below) appears.



IMPORTANT NOTE: Please review the information in **Section 3** regarding navigation through the DVR1 menus. **Advanced Menu** programming should be designated to qualified systems personnel only.

5.2 DVR1 Passwords

The DVR1 Series is equipped with two (2) passwords.

The first password provides access to the DVR1's **Advanced Menu**. This password can be changed by the System Administrator to prevent unauthorized access to the Advanced Menu functions. Store the password in a secure location. The default password for the Advanced Menu is **0000**, as stated in **Section 5.11**. The second password is used to set the DVR1 to its original factory default setings. This password cannot be altered and is set (permanently) at **0000**.

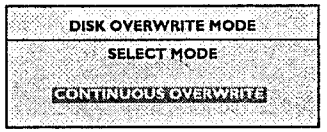
Accessing the Advanced Menu Using the Password

1. Select ADVANCED MENU from the **Main Menu**, then press ENTER. The **Password Box** appears.
2. Enter the Advanced Menu password. Use the **Up/Down Arrows** to select a character, then press ENTER to move to the next character.
3. Pressing ENTER on the last character completes password entry. If the password was correctly entered, the Advanced Menu is displayed.

5.3 Overwriting the Hard Disk

Advanced Menu → Disk Overwrite Mode

Use this menu to specify how disk overwrite issues are handled once the hard disk becomes full. Select one of three options:



- No Overwrite (i.e., recording stops when the disk is full). An on-screen message indicates when the disk is full and the unit has stopped recording. You must acknowledge the message by pressing ENTER. Note that recording will not continue until the data is either erased or deleted.
- Overwrite Once. Recording always starts at the end of the last recording. The unit overwrites all previously recorded data, then stops before it overwrites any newly recorded data (from the current record session). When the end of the disk is reached, the unit displays an on-screen message stating that the disk is full. You must acknowledge the message by pressing ENTER. Note that recording will not continue until RECORD is pressed.
- Continuous Overwrite. Recording always starts at the end of the last recording. When the disk is full, recording continues by overwriting the oldest video first. In this mode, the unit never stops recording (note that the LCD display does not count down the remaining time till the hard disk is full).

5.4 Erasing, Deleting, and Recovering Hard Disk Data

Advanced Menu → Disk Maintenance

Three options are provided for disk maintenance:

- Delete Video: Once video has been deleted, it may be restored with the **Undelete** option if the video has not been overwritten.
- Undelete Video: Restores video if it has not yet been overwritten.
- **Erase** Video: Video is removed with no possibility of restoration.

5.5 Invoking Audio Recording

Advanced Menu → Audio Record Setting

Use this menu to accomplish the following:

- Select OFF to disable the audio recording capability.
- Select **G.711** to enable the audio recording capability.

5.6 Using the Auto Delete Feature

Advanced Menu → Auto Delete Mode

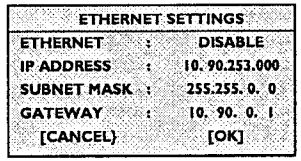
Configuring the unit with the **Auto Delete** mode ON prevents the unit from displaying or archiving any data that is more than 30 days old. This feature may be required by law in some jurisdictions; please consult your local authority.

5.7 Configuring Communications

Advanced Menu → Communications

Use this menu to specify the following (select one only):

- Data transfer rate for the RS-232 serial port (select 1200 to 57,600 baud).
- Enable or disable Ethernet connection (network address) settings for the unit.
  - IP address, Subnet Mask, and Gateway. Contact your IT department for details regarding basic network configuration.



5.8 Configuring the Multiplexer Format

Advanced Menu → Multiplexer Format

The DVR1 Series recorders are compatible with several brands of multiplexers. Use this menu to specify the type of multiplexer connected to the DVR1. ***Making the correct selection for your system configuration ensures proper playback.***

NOTE: If a single camera input is connected to the unit, select NONE.

NOTE: The list of compatible multiplexers continues to expand. Please see the Philips Web site at **www.philipscsi.com** for the most current listing.

NONE
KALATEL
ROBOT
DM
PHILIPS
SANYO
PELCO

5.9 Adjusting Picture Qualities

Advanced Menu → Adjust Picture

Use this menu to specify the Brightness, Contrast, and Saturation of the video input. Adjustments made to the video input affect images being recorded, as well as the current display.

For each of these parameters, use the **Left/Right Arrows** to navigate the fields in the sub-menu. Use the **Up/Down Arrows** to increase/decrease the setting.

BRIGHTNESS
CONTRAST
SATURATION

5.10 Locking Out the Front Panel

Advanced Menu → Front Panel Lock

This menu option locks or unlocks the front panel. ***Exception***: the Main Menu will still display when MENU is pressed.

UNLOCK KEYBOARD
LOCK KEYBOARD

5.11 Restoring Factory Defaults

Advanced Menu → Factory Settings

Use this menu to restore the DVR1 to the factory defaults.

NOTE: When the factory settings are restored, all programmed settings and volume partitions for archive retrieval are erased.

PASSWORD BOX
PLEASE ENTER THE FACTORY PASSWORD
0---

The factory password is fixed at **0000**. Therefore, you can repeatedly press **ENTER**, and press **ENTER** to complete entry and restore the unit to its factory default settings.

5.12 Changing the Password

Advanced Menu → Change Password

Use this menu to change the **Advanced Menu Password**. It is recommended that the System Administrator changes this password to prevent unauthorized access to the menu.

PASSWORD BOX
ENTER A NEW PASSWORD
0---

Use the **Up/Down Arrows** to select a character, then press ENTER and move to the next character.

Pressing **ENTER** on the last character opens the **Confirmation Box**.

Reenter the New password.

Pressing **ENTER** on the last character completes the password selection.

CONFIRMATION BOX
PLEASE RE-ENTER THE PASSWORD
0---

If the password in the **Confirmation Box** *matches* the password from the **Password Box**, the message at right will appear.

Press **ENTER** to select [OK] and exit the menu.

MESSAGE
THE NEW PASSWORD HAS BEEN ACCEPTED
[OK]

If the password in the **Confirmation Box** does *not* match the password from the **Password Box**, the message at right will appear.

Press **ENTER** to select [OK] and exit the menu.

MESSAGE
THE PASSWORD WAS NOT CHANGED!
[OK]

SECTION 6: OPERATING THE DVR1 SERIES

Operating the DVR1 requires general knowledge in three areas:

- Recording
- Playback
- Searching

Certain operating parameters must be set/programmed as part of initial startup of the DVR1. These activities are outlined in the following section.

6.1 Initial Startup

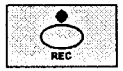
On initial power-up of the DVR1, the following settings must be programmed:

- Time/Date
- Alarms
- Password

Please refer to **Main Menu Programming, Section 4** for detailed information regarding these functions.

6.2 Recording

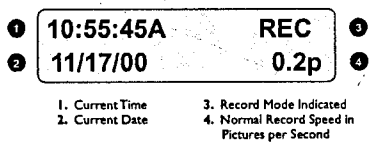
To begin recording, press REC. The message, RECORD appears briefly in the upper left-hand corner of the primary monitor. The unit always starts recording at the end of the previously recorded data.



Record Button

Recording continues until one or more of the following occurs:

- Another mode is selected.
- The disk is full (**No Overwrite** and **Overwrite Once** modes). See Section 5.3 for details regarding **Disk Overwrite** modes.
- Video loss is detected. In the event of video loss, VIDEOLOSS will be indicated in the upper left-hand corner of the primary monitor.



1. Current Time
2. Current Date
3. Record Mode Indicated
4. Normal Record Speed in Pictures per Second

Figure 6A - LCD in Record Mode

Normal Recording

The unit records at the normal record speed until an alarm condition is detected. The normal record speed is indicated on the LCD and can be altered using **Up/Down Record Speed**, or in the menu system.

Record Speed Buttons

For information about altering the normal record speed from the menu system, see **Section 4.5**.

The normal record speed can be altered while the unit is recording. The unit continues recording while the menu system is active.

Alarm Recording

When an alarm condition is detected, the unit automatically switches to the alarm record speed. The alarm condition is indicated in several ways:

Alarm Indicator

- The word ALARM is displayed on the primary monitor, in the upper left-hand corner of the screen.
- The red **LED Alarm Indicator** on the front panel of the unit is lit.
- The internal buzzer sounds, if activated via the menu. For information about activating the internal buzzer during alarms, see **Section 4.3**.
- By an external device connected to the alarm output of the unit (if the unit is configured with an alarm output).
- The alarm record speed cannot be changed using **Up/Down Record Speed** on the front panel; it must be changed via the menu system. See **Section 4.5** for details.
- The front panel LCD displays the record speed during an alarm condition. The unit returns to the normal record speed once the alarm condition ends.

Disk Full Notification

This message will appear on the primary monitor to indicate that the unit has stopped recording because the disk is full.

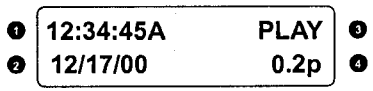
MESSAGE
DISK FULL. RECORDING HAS STOPPED.
[OK]

In **No Overwrite** mode, the unit will not record over previously recorded data. To continue recording, the user must acknowledge the *disk full* message by pressing ENTER, then ERASE (or DELETE).

In **Overwrite Once** mode: The user must acknowledge the on-screen message by pressing ENTER.

The unit will resume recording when the user presses RECORD.

6.3 Playback



1. Time the Data was Recorded
2. Date the Data was Recorded (If the letter **A** precedes the record rate, the unit is configured to record or play back audio).
3. Play Forward Mode Indicated
4. Normal Record Speed in Pictures per Second

Figure 68 - LCD during Playback

Play Forward

To begin normal playback in the forward direction, press Play Forward.

Play Forward Button

Playback is indicated via the following:

- PLAY appears briefly in the upper left-hand corner of the primary monitor.
- PLAY> appears on the LCD.

Reverse Play

To begin reverse playback, press Play Reverse. Reverse playback is indicated via the following:

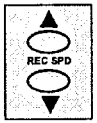
Play Reverse Button

- REVERSE PLAY appears briefly in the upper left-hand corner of the primary monitor.
- PLAY< appears on the LCD.

If there is only one recording session on the hard disk, the unit will indicate START OF DATA on the primary monitor.

Playback Speed

The unit plays back the data at the rate at which it was recorded. The user can alter the playback speed using Up/Down **Record Speed**.



Record Speed Buttons

Altering the playback speed overrides the speed of any incoming alarms. To clear the override, press STOP, then PLAY to resume playback at the speed that the data was recorded.

NOTE: For clear audio, playback should be at the same speed at which it was recorded.

Fast Forward

During playback, pressing **Fast Forward** allows viewing of data at a faster than normal rate (see the **Archive Addendum** for details on how Fast Forward affects playback performance).

Fast Forward Button

Fast Forward is indicated via the following:

- FAST FORWARD appears briefly in the upper left-hand corner of the primary monitor.
- FFWD appears on the LCD.

Rewind

During playback, press REWIND to view the data (in reverse) at a faster than normal rate.

Rewind Button

Rewind is indicated via the following:

- REWIND appears briefly in the upper left-hand corner of the primary monitor
- REW appears on the LCD.

Pause

During playback, press PAUSE to pause playback and display a single frame on-screen.

Pause Button

Pause is indicated via the following:

- PAUSE appears briefly in the upper left-hand corner of the primary monitor.
- PAUSE appears on the LCD.

Single Frame Advance & Single Frame Rewind

During **Pause** mode, press Single Frame Advance or Single Frame Rewind to view the frame directly before or after the frame displayed on-screen.

Single Frame Rewind Button

Single Frame Advance Button

Start of Data & End of Data

If the start or end of data is encountered during playback, START OF DATA or END OF DATA is indicated in the upper left-hand corner of the primary monitor.

6.4 The Search Interface

Search Button

The **Search Interface** feature allows the user to search the hard disk for recorded events, such as an alarm condition or a previous recording session.

NOTE: Each time the **Record** mode is activated, it is considered to be a separate recording session.

To enter the Search Filters menu, press SEARCH. The Search Filters menu is displayed on the primary monitor.

Use this screen to specify the following:

- Start and stop date of the search.
- Start and stop time of the search.
- Which cameras to search exclusively.
- Which recorded alarms are to be searched.

Use the **Left/Right Arrows** to navigate between the various fields in the menu. Use the **Up/Down Arrows** to scroll through and change the available parameters for each field. When all search criteria has been specified, press **ENTER** to exit the **Edit** mode, then highlight [START SEARCH] and press ENTER.

SEARCH FILTERS		
	START	STOP
DATE:	12/25/00 [ ] (MM/DD/YY)	01/01/01 [ ] (MM/DD/YY)
	START	STOP
TIME:	11:11:21 [ ]	12:34:34 [ ]
	1 2 3 4 5 6 7 8	
CAMERA:	[ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]	
ALARM: [ ]		
[CANCEL]	[START SEARCH]	

The **Search Results** menu will appear.

Use the **Up/Down Arrows** to select a recorded event. Press ENTER to select the event, or press MENU to exit the **Search Results** menu.

SEARCH RESULTS			
	START DATE	START TIME	DAYS HH MM SS
000	01/01/20	00:07:14	0 00:00:36
001	01/01/20	23:35:20	0 00:08:11
002	02/12/20	23:43:30	0 00:33:49
003	02/12/20	00:17:23	0 01:38:18
"ENTER" TO PLAY EVENT			

SECTION 7: REMOTE VIEWER PROGRAM

7.1 Introduction to Remote Viewer

This section provides instructions for installing and using the Remote Viewer program that is included with the DVR1 unit. The **Remote Viewer** software allows the following functions from a remote PC via an ethernet (network) connection:

- Viewing live video from the DVR1.
- Storing, searching, and reviewing recorded video from the DVR1's hard drive.
- Taking snapshots of live video and saving them as files (for e-mailing or printing).
- Enhancing images.
- Playing back CD-archived video at a PC.

7.2 Installing the Remote Viewer Program

Before proceeding with installation of the Remote Viewer program, ensure that the PC meets the following hardware requirements:

CPU	Pentium 166 MHz or faster
RAM (memory)	16 MB minimum
Hard Disk Drive	6 MB free hard disk space (minimum)
Monitor (SVGA)	1024 x 768, 24-bit color
Operating System	Windows® 95/98/2000 or Windows NT®

The Remote Viewer program is provided in two different formats: CD-ROM or ZIP file.

To install the Remote Viewer program on the PC from the CD-ROM:

1. Close all applications currently running on the PC.
2. Place the Remote Viewer CD in the CD-ROM drive.
3. Choose **RUN** from the **Windows Start** menu, entering the program to be executed: **d:\setup.exe** (where **d** is the drive letter of the CD-ROM), then press **OK**.
4. Follow the instructions for installation as they appear on-screen.
5. After installation is complete, the Remote Viewer program can be found via the **Windows Start/Programs** menu (it will be listed as **Philips DMX-16 Remote Viewer**).

To install the Remote Viewer program on the PC from the ZIP file:

1. Copy the ZIP file to a temporary directory on the hard disk.
2. Open the ZIP file by double clicking on it.
   NOTE: WinZip® software is required to open the file (can be obtained as Shareware or Freeware).
3. Run **setup.exe** by double clicking on the **setup.exe** file in the WinZip® window.
4. Follow the instructions for installation as they appear on the screen.
5. When the installation has completed successfully, delete the temporary directory and its contents. The Remote Viewer program can now be found via the **Windows Start/Programs** menu (it will be listed as **Philips DMX-16 Remote Viewer**).

7.3 The Remote Viewer Main Window

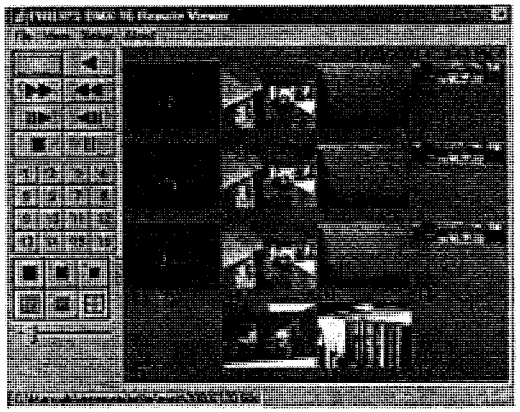


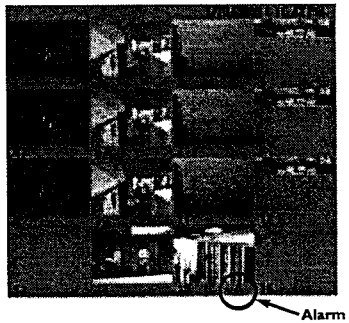
Figure 7A – Remote Viewer Main Window

7.3.1 Components of the Remote Viewer Main Window

Time/Date: Shown in the upper right corner of the main video window; indicates the time/date of the video being displayed.

The Menu Bar: Provides access to the functions of the Software including **File, View, Setup, About** (all with pull-down menus).

The Main Viewing Area: Pictures are displayed in this area in 1, 2 x 2 or 4 x 4 screens and are sized appropriately to fit on the screen.



Camera #: The camera number (shown at the lower left corner of each video image in the main viewing area) corresponds to the camera input of the multiplexer.

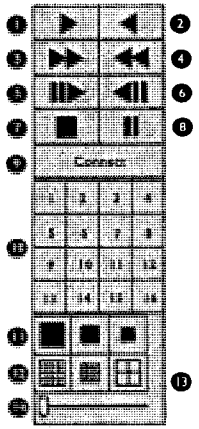
Alarm Indicator: The Letter **A** (in red on-screen) indicates an alarm condition for that camera (in the sample screen above, the indicator is shown, circled, with camera #15).

Slide Bar: Located directly below the button panel on the lower left side of the screen. Moving the slide bar to the right moves the video forward in time.

The Status Bar: Located at the bottom left corner of the main viewing area, the status bar displays messages, current connection status information, and the pathname of recorded video files.

Copy Button (Optional): This button (appearing in the middle of the button panel) is enabled via the **Snapshot Setup** menu and allows an image to be saved. The snapshot feature is detailed in **Section 7.10.**

The Button Panel:

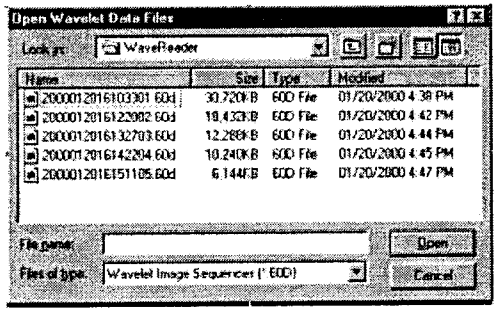


1. **Play Forward:** Plays recorded video at the speed in which it was recorded.
2. **Play Reverse:** Plays video in reverse at the speed in which it was recorded.
3. **Fast Forward:** Plays recorded video at high-speed in the forward direction.
4. **Rewind:** Plays recorded video in the reverse direction.
5. **Single Frame Advance:** If in the **Pause** mode, steps the video in the forward direction, one frame at a time.
6. **Single Frame Rewind:** If in the **Pause** mode, steps the video backwards, one frame at a time.
7. **Stop:** Stops playback and moves the Progress Bar to the beginning of the data file.
8. **Pause:** Freezes playback until **Pause, Play Forward,** or **Play Reverse** are pressed again.
9. **Connect:** Connects the Remote Viewer software to the DVR1's specified IP Address (see **Section 7.5.2**).
10. **Number Buttons:** Used to select a camera whose video will be displayed.
11. **Single Camera Display Size:** Choose Small, Medium, or Large display.
12. **16-way Multiscreen:** Choose Small or Large displays
    NOTE: Smaller sized images generally use less data. If bandwidth is limited, it is advisable to use smaller images so that the update rate increases. The data size for each image depends on the **Quality Settings** used, as detailed in **Section 7.7.**
13. **Quad Multiscreen:** Displays a large 2 x 2 window. Each click of this button toggles the display to the next four groups of cameras (e.g., cameras 1–4, then 5–8, then 9–12, then 13–16).
14. **Progress Bar:** Indicates the position of playback. Drag the bar to navigate forward or backward.

7.4 Using Remote Viewer to View Archived Video Files

When a CD-writer is connected to the DVR1 unit, video files can be stored on CD-ROM. These files must be reviewed from a PC using the **Remote Viewer** software.

1. Place the CD containing the archived video files into the PC's CD-drive.
2. From the Remote Viewer Menu Bar, click **FILE**, then **OPEN**. The following window will appear:



Guidelines for using the Wavelet File Directory:

- Select the **Drive** and the **Directory** (normally the CD-ROM drive) containing the video files archived from the digital recorder. Files should appear as shown above.
- The long filenames identify the time/date of the recording and the order in which they were placed on the CD-ROM.

EXAMPLE: **20000120161033O1.60d**

2000	01	20	16	10	33	01
YY	MM	DD	HH	MM	SS	No.

- The default file extension (.60d) is defined as a Wavelet video clip in a proprietary data format.
- The default file extension (.60h) is a Wavelet header file that automatically turns on the disk analysis screen during **Play** mode of a Wavelet video clip.

  NOTE: If a .60d file is copied from the DVR1 to the PC's hard drive, there is no .60h file available for the header information. Both .60d and .60h files are created when copied from the unit to the CD-ROM writer.

3. Select the file to be displayed, then click **OPEN** to load the file. The selected video will be displayed in the Remote Viewer Window.
4. Click **PLAY FORWARD** to view the video file. (The **Play Forward** button turns green to indicate that the Play mode is ON.)

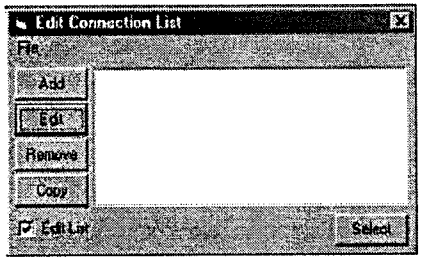
7.5 Viewing DVR1 Video from a Remote PC

Using the Remote Viewer software enables viewing of the DVR1's video at a remote location. This is easily accomplished by following these steps:

1. Add the DVR1 to the **Connection List** in the Remote Viewer program.
2. Select the DVR1 from the **Connection List.**
3. Connect to the DVR1.

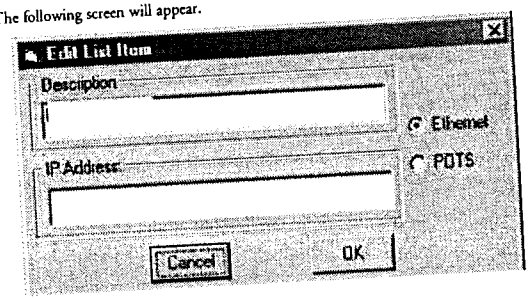
7.5.1 Adding a DVR1 to the Remote Viewer Connection List

1. From the Remote Viewer menu bar, select **Setup** → **Unit Address Setup.**
2. From the **Select a Connection** window, check the **Edit List** box in the lower left corner.
3. The following window will be displayed.



Function	Description
Add	Adds a DVR1 to the list of possible units for remote connection. When a DVR1 is added to the list, you must select a description and an IP address for the unit.
Edit	Edit an existing description and IP address.
Remove	Remove a DVR1 unit from the list.
Copy	Copy the DVR1's description and IP address to the list. This function may be used to quickly add new DVR1(s) having similar names and IP addresses.

4. Select ADD. The following screen will appear.

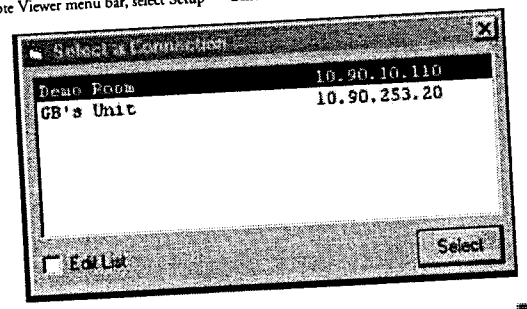


5. Type in a Description for the DVR1.
6. Type in the IP address of the DVR1.
7. The DVR1 does not offer a **POTS** (plain old telephone system) connection. Be sure that ETHERNET is selected, then press OK. Pressing CANCEL exits without saving.

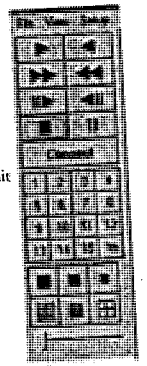
NOTE: To connect the DVR1 via a modem line, refer to the following document: **www.philipscai.com/PDF/dialinconfig.pdf**.

7.5.2 *Selecting the DVR1 from the Connection List*

1. From the Remote Viewer menu bar, select Setup → Unit Address Setup. The Select a Connection box will appear.



2. Choose the DVR1 (description and IP address) that you wish to connect to.
3. Click SELECT, and you will be returned to the Remote Viewer main window. A Connect button will appear.



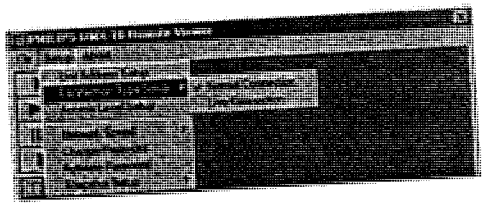
7.5.3 *Connecting to the DVR1*

1. Click CONNECT to establish ethernet connection with the selected DVR1 unit.

NOTES:

- Upon connection, the Remote Viewer's status bar indicates the IP address of the selected unit (shown in the lower left corner of the screen). At this point, the Connect button is replaced with a Disconnect button.
- If unable to connect, a Time-out button appears over the Connect button, and a Message window appears, stating: "Unable to Connect to the unit at this time." Press OK to acknowledge this message.

2. To begin viewing images, click Play. (The Play button turns green when selected).



7.6 Selecting the Type of Connection

Two types of ethernet connections can be established between the Remote Viewer software and the DVR1:

- Normal Connection. There are two viewing modes within a Normal Connection:
  - Live Look-in Mode: Live Video
  - Playback: Recorded Video
- Live Connection

7.6.1 *Normal Connections*

NOTE: Only one user at a time may connect to a DVR1 unit in the **Normal** mode. If a second user attempts to connect in the Normal mode, the user with lowest Access Level (see Section 7.8) will be disconnected. If both users have the same user level, the first one to establish a connection will remain connected, and the second user will be unable to connect.

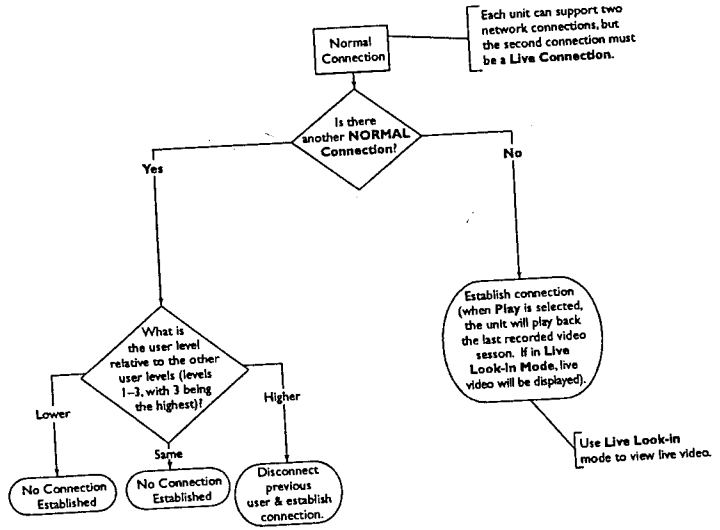
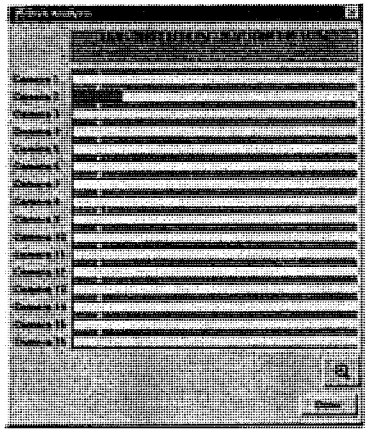


Figure 7B – DVR1 *Normal Connection* Logic Flows

7.6.1.1 The Playback Mode

The Playback mode allows you to view and search recorded data from the DVR1's hard disk. Once a connection has been established, pressing PLAY on the Remote Viewer panel causes the selected recorded images to be displayed. The Disk Analysis window will also appear (see Section 7.11).



7.6.1.2 The Live Look-in Mode

To enter the Live Look-in mode, select Setup → Enter Live Look-In Mode.

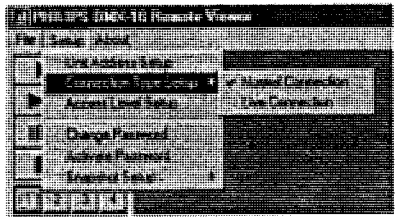
NOTE: This option is available on the **Setup** menu only after a normal connection has been established. Once the Live Look-in mode is entered, the ***Enter Live Look-in Mode*** menu option will be replaced with ***Leave Look-in Mode.***

- To begin viewing live images, click PLAY.
- When you are finished viewing live video, select Setup → Leave Live Look-In Mode.

7.6.2 *Live Connections*

To establish a Live Connection, the DVR1 unit must be recording, or a normal connection must be established (refer to **Figure 7C**) Select Setup → Connection Type Setup → Live Connection from the Remote Viewer menu.

Click PLAY to view the video.



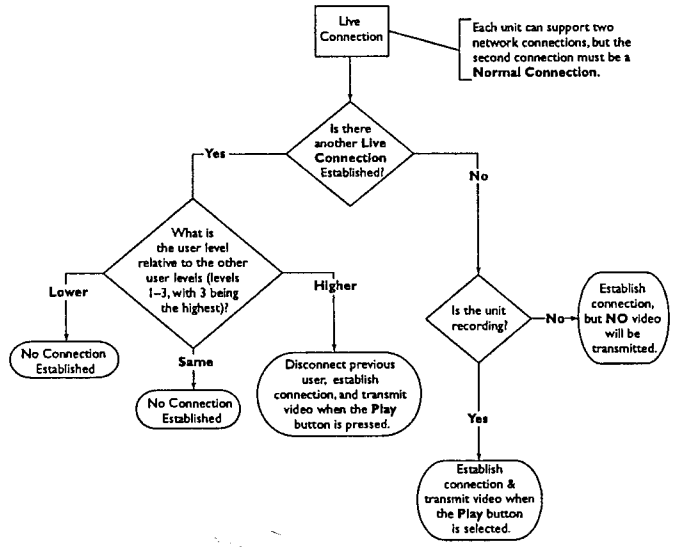


Figure 7C – DVR1 ***Live Connection*** Logic Flow

7.7 Setting the Image Quality

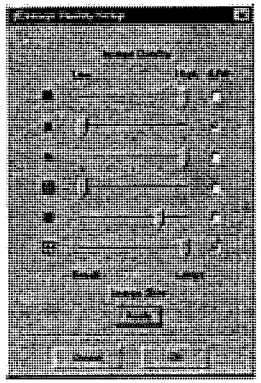
The settings in the **Image Quality Setup** menu enable you to adjust the following:

- Image quality for each type of display available with the Remote Viewer software.
- Selection of Black & White or Color image for the display

NOTE: Quality directly relates to bandwidth consumption.

7.7.1 Accessing the Image Quality Setup Menu

1. Select Setup → Image Quality Setup. The Image Quality Setup menu will appear.



Description	Explained
Picture Format Icons	The icons on the left side of the window indicate the image/picture formats available.
Image Quality Settings (Slider Bars)	Use the slider bars in the center of the window to adjust the quality settings for each of the display formats (Low to High). Lower quality increases the update rate.
B/W Selection	Place a check mark in the **B/W** box for each format that should send monochrome images. The monochrome (B/W) setting increases the update rate.
Apply	Accepts the changes made.
OK and Cancel	Click **OK** to save changes, or **CANCEL** to discard the changes.

7.8 Setting Access Levels

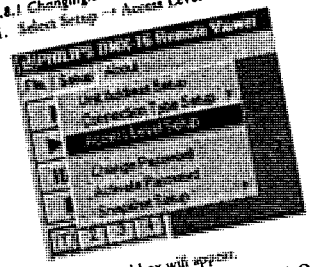
Each DVR1 can support only one Normal and one Live Connection simultaneously. To manage potential conflicts, **Access Levels** (provided by the Remote Viewer software) prioritize control of the DVR1's menus. Users with a lower access level (i.e., Level 1) will relinquish control to users with higher access levels (i.e., Levels 2 or 3).

If a user, having a higher access level, attempts to access a DVR1's hard drive after a user with a lower access level has already established a connection, the lower access level user's connection will be terminated, and a termination message will be displayed.

NOTE: Establish an **administrator password** for each PC (see **Section 5.12**). If this password is forgotten, the Remote Viewer software will need to be reinstalled.

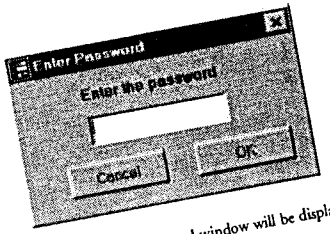
7.8.1 Changing/Setting the Access Level

1. Select **Setup → Access Level Setup**



2. A password box will appear.

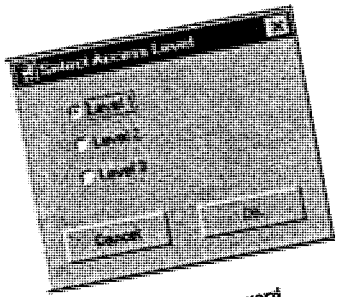
   Enter the correct password and click **OK**.



3. The Select Access Level window will be displayed.

   Select the desired Access Level and click **OK**.

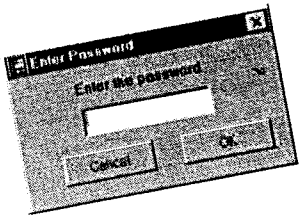
   Press Cancel to back out.



7.9 Changing the Password

The **Activate Password** feature requires the user to type in a password to enter the **Access Level Setup** menu.

1. To change the password, select **Setup → Change Password**. The **Enter Password** box will appear.



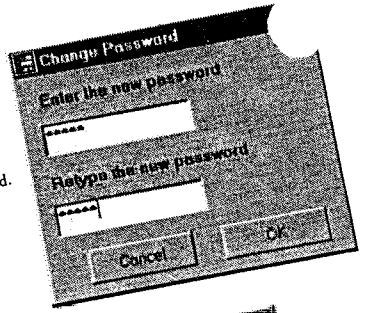
2. Enter the current/correct password, then click **OK**.

   NOTE: If the password was never changed from initial startup, use the **default password**, 12345.

3. If the correct password was entered, the **Change Password** box will be displayed. Click the box labeled ***Enter the new password***, then type the new password.

4. Click in the box labeled ***Retype the new password***, and type the new password again, then click **OK**.

5. Selecting **CANCEL** causes the password to remain unchanged.



If the new password is accepted, a message appears stating this.

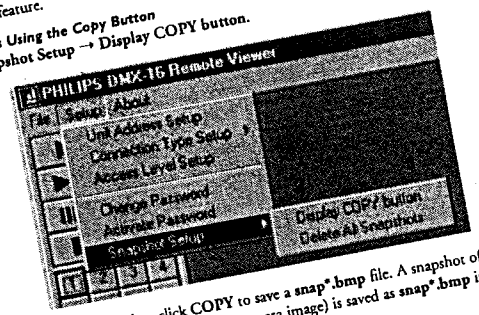
7.10 Using the Remote Viewer Snapshot Feature

The Remote Viewer program provides three ways of taking/saving snapshots:

- Use the **Copy** button to save an image as a bitmap file (*.bmp extension).
- Use the menu bar (**File → Save**) to save the image as a JPEG image (*.jpg extension).
- Use the **WaveStudio** feature.

7.10.1 Saving Snapshots Using the Copy Button

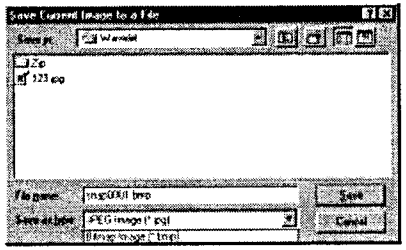
1. Select **Setup → Snapshot Setup → Display COPY button.**



2. While viewing live or recorded video, click **COPY** to save a **snap*.bmp** file. A snapshot of the displayed image (whether the image is a multiscreen view or single-camera image) is saved as **snap*.bmp** in the same directory as the **Wavelet.exe** file (e.g., Snap001, Snap002, etc.).

7.10.2 Saving Snapshots Using the File Menu

While viewing either a live or recorded image (multiscreen or single-camera), select **File → Save**. This **Save Current Image...** window displays all snapshots previously saved. Type the desired name for the snapshot, specifying the file type as either ***.bmp** or ***.jpg**.



7.10.3 Capturing Snapshots Using WaveStudio

While playing a live, recorded, or paused image, select **File → Wavestudio**).

This captures the current image. Click the **Load** button to refresh with the current image.

7.10.4 Enhancing Snapshots

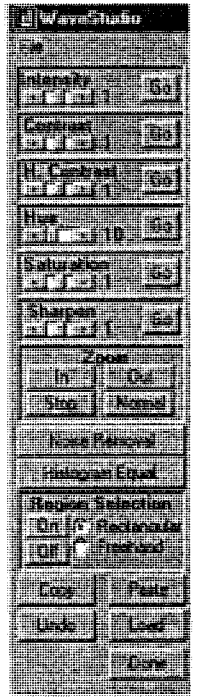
After a snapshot image is saved, you can enhance the image using the WaveStudio Feature. From the Remote Viewer menu bar, select **File → Wavestudio** (if you used WaveStudio to capture a snapshot, you will already be in the program).

The following enhancement options/buttons are available in the WaveStudio feature:

- **Intensity**: Changes the overall brightness (intensity) of the image.
- **Contrast**: Increases or decreases the contrast of the image.
- **H. Contrast**: Increases or decreases the contrast of the image, using a histogram to determine the median brightness.

  NOTE: This method finds the median brightness of the image, brightens the pixels with values above the median, then darkens the pixels with values below the median.
- **Hue**: Changes the hue of colors in the image. A positive change takes red towards green, green towards blue, and blue towards red. A negative rotation has the opposite effect.
- **Saturation**: Negative values decrease the saturation of colors. Positive values increase the saturation.
- **Sharpen**: Increases or decreases the sharpness of the image. Negative values decrease and positive values increase the sharpness of the image.

- **Zoom**: Click **IN** or **OUT** to cause the image to increase or decrease in size. Click **STOP** to stop zooming. Click **NORMAL** to return the image to the original size.
- **Noise Removal:** Changes the color of each pixel in the bitmap to the average color of the pixels surrounding it.
- **Histogram Equalization:** Use this function to bring out detail in the dark areas of an image.
- **Region Selection:** Used to isolate sections of an image for enhancement. Select **RECTANGULAR** to drag a box over the desired picture area. Select **FREEHAND** to draw borders around the desired area.
- **Copy & Paste:** Use these buttons to copy images to or from the clipboard.
- **Undo:** Undoes all changes made to the image.
- **Load:** See **Section 7.10.3** for details.
- **Done:** Press **DONE** to close the WaveStudio program.



7.10.5 Deleting Snapshots

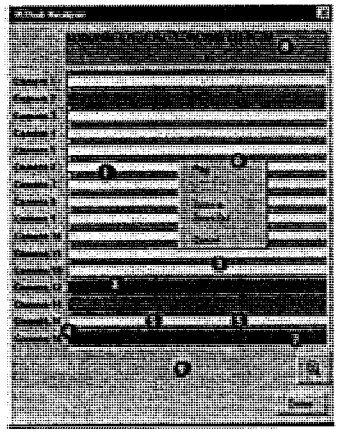
Select **Setup → Snapshot Setup → Delete all Snapshots**.

NOTE: This feature deletes all ***.bmp** snapshots, *NOT* ***.jpg** files.

7.11 Using the View Menu and Disk Analysis Screen

The **View** menu is not seen when Remote Viewer first starts. This menu option appears when the following occurs:

- A **Normal Connection** is established.
- Images from a CD, recorded directly from a DVR1, are played back. This menu also provides access to the disk analysis screen for the playback file by selecting **View → Disk Analysis Screen.**



Horizonal Bar

1. **Green:** Standard video.
   - **Black:** Disabled/Video loss.
2. **Red:** Alarm mode.
3. **Blue:** Video loss.
   - **White:** End of disk.

Vertical Bar(s)

4. **Light Blue (one bar):** Play indicator, positioned by progress slider bar.
5. **Red (two bars):** Left and right markers for data block, corresponding to date and time.

Other Items

6. **Pop-up Menu:** Left-click to pull up menu (see following details).
7. **Zoom Button:** (See folowing details).
8. **Time/Date:** Shows current play position.
9. **Invalid Data Message & Refresh Button:** When the DVR1 is recording and in the **disk overwrite** mode, the data on the hard disk will be constantly updated. In this case, the Disk Analysis screen will not reflect the current status and a message, ***Data invalid - please refresh,*** plus a **Refresh** button will appear at the bottom of the screen. Either ignore this message or refresh the Disk Analysis screen.

7.11.1 The Disk Analysis Pop-up Menu

Place the cursor on the **Disk Analysis** screen and left-click to display the Pop-up menu (shown in the preceding image).

The Pop-up menu items are **Play, Zoom In, Zoom Out,** and **Cancel.**

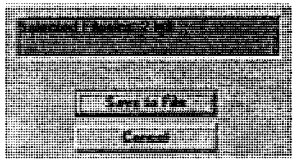
- **Play** allows the user to play a selected location of data (between the left and right red vertical color bar markers).

  NOTE: If video was saved directly to the PC's hard drive, **Disk Analysis** will not start.

- **Zoom In** and **Zoom Out** change the time period between the red bands. Smaller time periods equate to smaller file sizes.

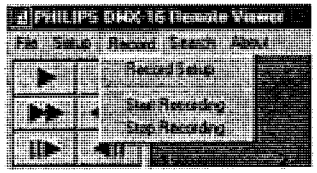
- **Save File (* MB)** is used to capture video on the PC's hard drive. This option is only available if Remote Viewer is communicating with the DVR1. In order to maximize data storage, first define a section of video to be captured using the **Disk Analysis** window, then save the file.

  - Press **SAVE TO FILE** when the screen at right appears.
  - Enter the file name, file extension, and a directory location to save the file, then press **OK.**
  - A progress bar will be shown on the screen.
  - Press **CANCEL** to back out.



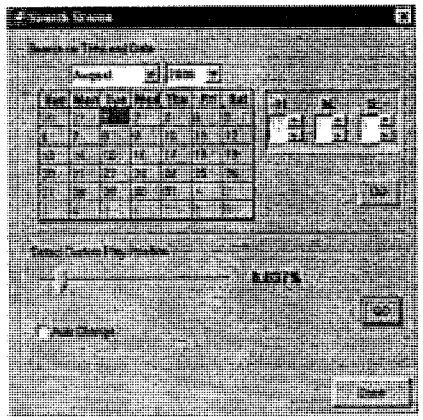
7.12 Using the Remote Viewer Search Menu

Once a **Normal Connection** has been established, select **Search → Display Search Screen.**



7.12.1 Using the Search Screen

The **Search Screen** allows you to quickly search for video based on the date, time of day, or both. Once the criteria have been entered, press **GO** and the DVR1 will begin transmitting images from the point closest to the time and/or date selected.

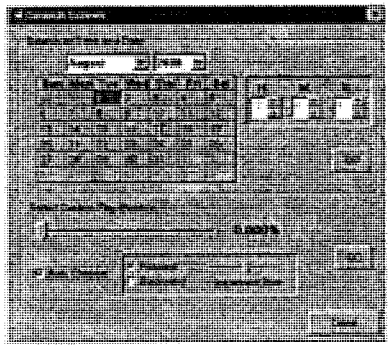


Search options are as follows:

- **Calendar:** Enter the month, date, and time, then press **GO** to retrieve video.
- **Select Custom Play Position:** Moves to a position on the hard drive (based on a percentage of total recorded video). Move the slider, then press **GO** (to the right of the slider). If using this feature, the calendar setting will have no effect.
- **Done:** Clears this window and returns the Remote Viewer software to normal operations.

- **Auto-change:** When the **Auto Change** box is checked, **GO** advances the video by an incremental percentage each time it is pressed. If this box is checked, the window will expand, showing the **Increment Size** slide bar (as shown bottom right on the screen shown at right).

  - **Increment Size:** This slide bar changes how the program advances through recorded video each time **GO** is pressed. Move the slide bar to the right to increase and to the left to decrease.
  - **Forward** and **Backward** Selection: Determines whether the incremental advances are in the forward or backward direction.

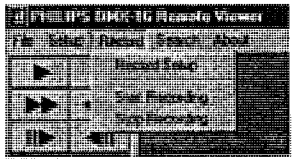


7.13 Using the Remote Viewer to Record and Play Back Video

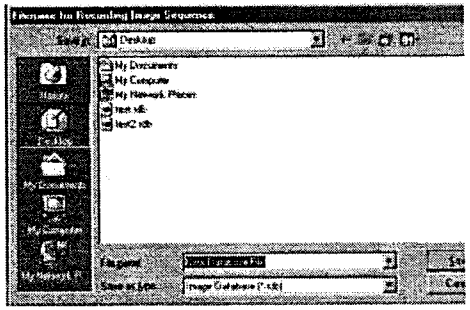
7.13.1 Recording Video to the PC Using Remote Viewer

Remote Viewer allows you to record video clips directly from the DVR1 to the PC's hard disk.

Select **Record → Record Setup.**



The **Filename for Recording Image Sequence** menu will appear



1. Type the desired file name in the **File name** box, then press **SAVE** (the new file will have the ***.rdb** file type extension).
2. Press **PLAY** to start playback.
3. Select **Record → Start Recording.**
4. Select **Record → Stop Recording.**

*7.13.2 Playing Back Recorded Video (from the *.rdb File)*

To play back video that was recorded to the PC's hard drive (with the *.rdb file extension), proceed as follows:

1. Select **File → Open.** The **Open Wavelet Data Files** window will appear.
2. Select **Wavelet Image Recordings (*.rdb)** from the **Files of Type** box.
3. Select file location from the **Look in** box, or type file name in **File name** box.
4. Click **OPEN.**
5. Click **PLAY.**

SECTION 8: SERVICE AND RETURNS

8.1 Maintenance

Programmer maintenance of this unit is limited to external cleaning and inspection.

8.2 Factory Service

Ensure that the cooling vents are not blocked and that the unit is installed in a well ventilated location. In addition, do not place the unit on top of other equipment, which may increase the operating temperature of the unit.

WARNING!

DO NOT OPEN THE TOP COVER OR ATTEMPT TO SERVICE THE UNIT AS THIS MAY EXPOSE YOU TO DANGEROUS VOLTAGES AND OTHER HAZARDS.

DOING SO WILL VOID THE WARRANTY!

Refer all servicing to qualified personnel.

Contact the local Philips Representative for Services.

Service Centers
U.S.A. & Canada: 800-366-2283
Mexico & Central America: 52-5-564-2726
Europe & Middle East: 011-32-1-440-0711
South America: 54-11-4956-0837
Asia Pacific Region: 011-65-481-4422

***All of our products now come with a 3 year warranty.**

*recorder heads, monitor tubes, and TC model parts are the only exceptions and carry a one year warranty.

APPENDIX A: FACTORY DEFAULT SETTINGS

FUNCTION	SETTING
Time Format	24 Hour
Date Format	MM / DD / YY
Normal Record Speed	60 pictures per seconds (NTSC) or 50 pps (PAL)
Alarm Record Speed	60 pictures per seconds (NTSC) or 50 pps (PAL)
Record Quality	SVHS
Disk Overwrite Mode	Overwrite Once
Archive Overwrite Mode	Overwrite Once (Not available for single-tape device)
Auto Delete Mode	Off
Background Archive Mode	Off
Input	Composite
Front Panel Locked	Off
Brightness	50%
Contrast	50%
Saturation	50%
Display Current Time and Date	Off
Display Record Capacity	Off
Display Last Alarm	Off
Display Archive Status	Off
Display Playback Time and Date	Off
Baud Rate	9600
Hardwire Alarm	Enabled
Teletext Alarm	Enabled
Alarm Buzzer	Disabled
Multiplexer	None
Audio	Off

APPENDIX B: TECHNICAL SPECIFICATIONS

GENERAL	
Power Supply	90 V-264 VAC/DC
Input Voltage	12 Volt DC
Power Consumption	DVR1 & DVR1EP = 40 Watts Max DVR1EP & DVR1EP2A = 55 Watts Max
Operating Temperature Range	Operating: 0 to 40 °C Storage: –20 to 60 °C
Relative Humidity Range (Noncondensing)	Operating: 10% to 80% Storage: 10% to 95%
Dimensions	Inches: 17.5 x 14 x 1.75 mm: 444 x 356 x 44
Weight	DVR1 & DVR1EP = 11.46 lb (5.2 kg) DVR1EP & DVR1EP2A = 13.8 lb (5.98 kg)

CONNECTIONS	
Ethernet Port	RJ-45 10 or 100 Mb
Power Connector	2.1 mm Barrel Connector, Center Positive
Accessory I/O Port	DB-9 Connector
SCSI-2 Port	50-pin male high density, SCSI-2 connector
RS-232 Serial Port	DB-9 Connector
S-Video In	4-pin mini-DIN connector (see caution below)
S-Video Out	4-pin mini-DIN connector
Composite Video In	BNC connector (see caution below)
Composite Video Out	BNC connector

CAUTION: Do not connect both video inputs at the same time.

AUDIO/VIDEO	
Video Signal Input	0.7 to 1.4 Volts peak-to-peak, with Automatic Gain Control
Video Signal Output	1 Volt peak-to-peak into 75 ohm
Termination	75 ohm
Colors	Y:U:V 4:4:2, 16.8 Million Colors
Gray Scale	256 Levels
Horizontal Resolution	720 Pixels (NTSC & PAL)
Vertical Resolution	484 Lines (NTSC) 586 Lines (PAL)
Compression Standard	Video = Wavelets Audio = G.711
Audio In	RCA jack, 315 mV, 40 kΩ, unbalanced
Audio Out	RCA jack, 315 mV, 600 Ω, unbalanced

ON-SCREEN VIDEO INDICATORS		
Archive Status	Pause	Rewind
End of Data	Play	Start of Data
Fast Forward	Record Capacity	Time and Date
Last Alarm	Reverse Play	Video Loss

PART NUMBERS	
Power Supply	For DVR1:4010-0016 For DVR1EP2 / DVR1EP2A: 4010-0020
Accessories PCB	0900-0127a
Rack Mount Kit	0110-R301. Fits 1U, 19-inch rack unit.
Installation Instructions (this manual)	3935 890 36811
Archiving Addendum	3935 890 38212
Remote Viewer Software CD	0151-0003
Remote Viewer Software Manual	Within this manual

3935 890 36811 01-34

DVR1 Series
Digital Video Recorders

Addendum

Eng

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PHILIPS

For additional information or to speak to a representative, please contact the Philips Communication, Security & Imaging location nearest you:
The Americas: 1 800 326 3270
Europe & Middle East: +31 40 278 1222
Asia Pacific Region: +65 350 1859
or visit our Web site at www.philipscsi.com.

1 REO QUICK INSTALL GUIDE

1.1 Introduction

This guide provides the steps necessary to install the DVR1 in combination with a REO Multiplexer or REO Switcher Monitor. If you are not familiar with the operations of the DVR1 and the REO Monitor, refer to the corresponding instruction manuals.

1.2 Required Software Version

Ensure that the DVR1 and REO monitor's software version is equal to or higher than noted below.

Product	Software Version
DVR1 (all models)	1.14 or higher (available at www.philipscsi.com)
REO Multiplexer Monitor	2.01c or higher
REO Switcher Monitor	1.00 or higher

1.3 Installation

1.3.1 Connection of Audio/Video Cable (A/V Cable)

To record camera images, the REO VCR In/Output allows connection of the DVR1. Connect the Mini Din plug to the VCR connector of the REO System Monitor.

1. Connect the BNC connectors to the **VIDEO IN** and **VIDEO OUT** of the DVR1.

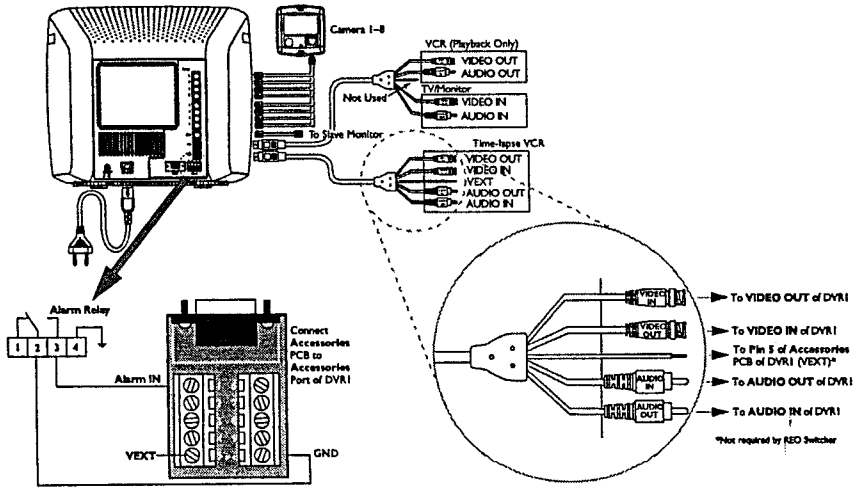
ATTENTION:
VIDEO IN of the A/V cable must be connected to **VIDEO OUT** of the DVR1.
VIDEO OUT of the A/V cable must be connected to **VIDEO IN** of the DVR1.

2. Connect the black VEXT cable (located in the A/V cable) to the VEXT-pulse output of the DVR1 (**Pin 5** of **Accessories port**) for proper synchronization between the System Monitor and DVR1.
3. If the DVR1 also has audio recording capabilities, connect the RCA connectors to **AUDIO IN** and **AUDIO OUT** of the DVR1.

ATTENTION:
AUDIO IN of the A/V cable must be connected to **AUDIO OUT** of the DVR1.
AUDIO OUT of the A/V cable must be connected to **AUDIO IN** of the DVR1.

1.3.2 Connection of Alarm Contact

In case of an alarm, the output relay contact of the REO System Monitor can change the recording speed from **Normal** recording to **Alarm** recording until the alarm is acknowledged by the user or automatically resets after the programmed alarm time has expired.



1.4 Programming the REO System monitor

No special programming is required for the REO Switcher. If using the REO Multiplexer, ensure that the *Record* mode is set to **Multiplexing** (verify this via the REO Main Menu > Settings > VCR).

1.5 Programming the DVR1

To view the DVR1's menu screen using the REO System Monitor:

- On the REO System Monitor, press **MENU > SWITCH TO PLAYBACK VIEW**
- On the DVR1:
  - Select **MENU > ADVANCED MENU**, then press **ENTER**
  - Enter the correct password (default is 0000) and **ENTER**
  - Press **ENTER** to access the ***Advanced Menu***
  - Select **MULTIPLEXER FORMAT**, then **ENTER**
  - Select **PHILIPS REO**, then **ENTER**
  - Press **MENU** twice to exit.

1.6 Remote Viewing Considerations

The following pertains to the **Remote Viewer Software** (included with the DVR1; allows Remote Viewing of video via a PC with this software loaded).

The Ethernet port connection depends on the network configuration:

- For a DVR1 connected directly to a Hub, use a ***Straight Through*** cable.
- For a DVR1 connected directly to a PC, use a ***Crossover*** cable.
- For a DVR1 connected via standard phone line (POTS) using LAN modems, refer to the Philips CSI Web site.* A PSTN-LAN* modem can be used for remote access to one of the Philips digital products through a POTS line.

*Refer to our Web site at **www.philipscsi.com** under **Tech Tips, #12 Applications Notes, *3COM OfficeConnect 56K LAN Modem.***

Further information regarding connection of optional equipment is found in the DVR1 Instruction Manuals.

2 INSTALLATION GUIDE FOR THE COMBINED PHILIPS MULTIPLEXER, INTUIKEY KEYBOARD & DVR1 SERIES SYSTEM

2.1 Overview

The latest software for the Philips ***System4®*** Multiplexers, IntuiKey Keyboard, and DVR1 greatly improves the functionality of the system. This new software simplifies retrieval of the DVR1's recorded video via the IntuiKey keyboard.

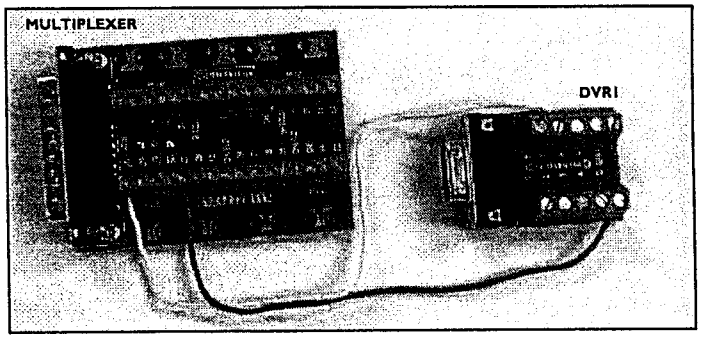
2.2 Required Software Version

Ensure that the keyboard, DVR1, and Philips Multiplexer software versions are equal to or higher than those noted below. Software for these products is available at **www.philipscsi.com.**

Product	Software Version
System4 Multiplexer	3.05 or higher
IntuiKey Keyboard (all models)	1.03 or higher
DVR1 (all models)	1.14 or higher

2.3 Installation

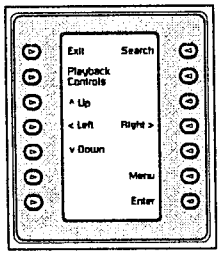
1. Connect an RS-232 null modem cable (Philips model #S1385) from the Multiplexer's Console port to the DVR1's RS-232 port.
2. Connect the IntuiKey keyboard to the Multiplexer's KYBD port using a standard keyboard cable.
3. Connect a Vext Cable from the Multiplexer to the DVR1 for proper video synchronization between the Multiplexer and DVR1, as follows:
   - Vext Pulse Out: DVR1 Pin 5 to Multiplexer Pin 21.
   - Ground: DVR1 Pin 7 to Multiplexer Pin 25.



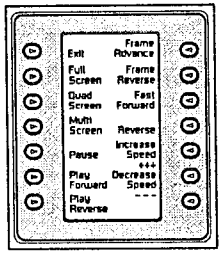
4. Multiplexer Setup (refer to the Multiplexer's Instruction Manual for further details):
   - Connect the Monitor to MON A output of the Multiplexer.
   - Execute the following Multiplexer ***Advanced Menu*** commands:
     - **ADVANCED SETUP → VCR SETUP → RECORD SETUP VCR OUT → VEXT INPUT "ON"**
     - **ADVANCED SETUP → VCR SETUP → RECORD SETUP VCR OUT → SELECT VCR "DVR1"**
     - **ADVANCED SETUP → PC/PRINTER → CONNECT TO VCR "SERIAL PORT 96,N,8,1"**
5. DVR1 Setup (refer to the DVR1 Instruction Manual for further details):
   - Connect the Monitor to **VCR output** of the DVR1.
   - Execute the following DVR1 ***Advanced Menu*** commands:
     - **ADVANCED MENU → MULTIPLEXER FORMAT "PHILIPS"**
     - **ADVANCED MENU → COMMUNICATIONS → BAUD RATE "9600"**
6. Connect the DVR1's **VCR OUTPUT** to the Multiplexer's **VCR INPUT**. Also connect the Multiplexer's **MON A** output to the Monitor.

2.4 DVR1 Keyboard Menus

There are two new keyboard menus that provide direct access to the DVR1 menus and its recorded video (refer to the keyboard's instruction manual for further information on keyboard menus).



DVR1 Controls



DVR1 Playback Controls

2.4.1 *DVR1 Controls Menu*

To view the **DVR1 CONTROLS** menu, at the Keyboard's **MULTIPLEXER MAIN MENU**, select **RECORDER CONTROLS**, then **DVR1 CONTROLS**. The multiplexer will enter the VCR *View* mode.

When this screen is selected, the DVR1 output signal switches to **MON A** of the multiplexer (the multiplexer *Playback* mode remains unchanged).

Below is a list of the new Keyboard Softkey buttons for the *DVR1 Controls* menu along with an explanation of the functions they perform.

Softkey	Functions
Exit*	• Presents the previous keyboard menu (**RECORDER CONTROLS**). • Output signal of the Multiplexer is switched to MON A.
Playback Controls	• Presents the DVR1 **PLAYBACK CONTROLS** menu (see **Section 2.4.2**). • The Multiplexer is forced into *Playback* mode to decode playback video from the DVR1.
Search	• Presents the DVR1's *Search* screen. • Video selected directly from this menu is not decoded unless the Multiplexer is in *Play* mode. Press **PLAYBACK CONTROLS** on the DVR1 to properly view decoded video.
Up, Down, Left, Right	Navigate the DVR1's menu screens
Enter	Equivalent to the DVR1's *Enter* command.
Menu	Equivalent to the DVR1's *Menu* button.

*To stop playback and resume recording, **EXIT** the **DVR1 CONTROLS** and **RECORDER CONTROLS** menus, then press **PLAY** on the Multiplexer's Main menu.

NOTES:

1. The front panel buttons of the Multiplexer and AllPlex keyboard do not provide direct access to the DVR1's *Search* menus.
2. When the IntuiKey keyboard is in the **DVR1 CONTROLS** menu, all **MON A** display keys from the front panel and Allplex keyboard are blocked except the following:
   - ALARM ACK
   - ACTION ACK
   - ALT, MON B
   - Display keys for **MON B** are not blocked (except for **Freeze**).
3. If connection has been broken while the Multiplexer is in **DVR1 CONTROLS** mode (via the IntuiKey keyboard), the Multiplexer **MON A** display becomes locked in this mode. To force the Multiplexer out of **DVR1 CONTROLS** mode, execute the following command via the Multiplexer front panel: **ALT, 1, VCR, SEQ**.
4. If the Multiplexer was placed in *Menu* mode via front panel buttons, and the IntuiKey keyboard goes into **DVR1 CONTROLS**, the Multiplexer remains in Multiplexer *Menu* mode. However, the **DVR1 CONTROLS** keys on the IntuiKey keyboard will still control the DVR1. To display the DVR1 menus, first leave the Multiplexer menus (from the front panel), then leave and reenter **DVR1 CONTROLS** on the IntuiKey keyboard.

2.4.2 *DVR1 Playback Controls Menu*

Below is a list of the new Keyboard Softkey buttons for the *DVR1 Playback Controls* menu along with an explanation of the functions they perform.

Softkey	Functions
Exit	• Presents the previous keyboard menu (**DVR1 CONTROLS**). • Output signal of the DVR1 is switched to MON A.
Full, Quad, Multi	Presents the various viewing options of the multiplexer.
Pause, Play Forward, Play Reverse, Frame Advance, Frame Reverse, Fast Reverse, Fast Forward, Increase Speed, Decrease Speed	Equivalent to the DVR1's front panel buttons.

3 RS-232 REMOTE PROTOCOL

3.1 Supported Command Sequences

The DVR1 supports the following command sequences, entered via PC once communication has been established between the PC and the DVR1. The Baud Rate should be set at 9600 Baud, with 1 Stop Bit, 8 Data Bits, and Parity at None.

All byte values entered at the PC must be in hexadecimal values. Each command string begins with an STX (02) character and ends with an ETX (03) character.

		START				END
COMMAND	CHARACTERS	1	2	3	4	5
Play Forward	FPL	02	46	50	4C	03
Record	REC	02	52	45	43	03
Stop	STO	02	53	54	4F	03
Pause	PAU	02	50	41	55	03
Fast Forward	FWD	02	46	57	44	03
Rewind	REW	02	52	45	57	03
Frame Advance	FAD	02	46	41	44	03
Reverse Frame Advance	RAD	02	52	41	44	03
Play Reverse	RPL	02	52	50	4C	03
Set Clock	*See instructions for setting clock in the following section.*					
Increase Speed	ISP	02	49	53	50	03
Decrease Speed	DSP	02	44	53	50	03
Search	SEA	02	53	45	41	03
Arrow Up	ARU	02	41	52	55	03
Arrow Down	ARD	02	41	52	44	03
Arrow Left	ARL	02	41	52	4C	03
Arrow Right	ARR	02	41	52	52	03
Menu	MEN	02	4D	45	4E	03
Enter	ENT	02	45	4E	54	03

Example:

To **Play Forward**, enter the following command at the PC keyboard, using the starting and ending characters and hexadecimal equivalent of the **FPL** from the above chart: **02 46 50 4C 03 <Enter>**

3.2 Setting the Clock

The following table shows the command sequence for setting the clock.

COMMAND	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VALUE	02	43	4C	4B	20	y1	y2	2D	m1	m2	2D	d1	d2	2C	h1	h2	3A	f1	f2	03

The gray cells in the ***Value*** row of the table indicate the correct positions for each byte of data in the command string.

Place the hexadecimal value of the desired ASCII character into the command string, entering two digit values for Year, Month, Day, Hour, and Minute into the command string. The year is a 2-digit number, and the time is military time (24-hour clock).

See the example to follow.

SET CLOCK Example:

In this example, 14:39 on December 25, 2000 is used to demonstrate the **Set Clock** Command String.

	Notation Used in Value Column	ASCII Character of Desired Value	Hex Value Entered into Command String
Year Character #1	y1	0	30
Year Character #2	y2	0	30
Month Character #1	m1	1	31
Month Character #2	m2	2	32
Day Character #1	d1	2	32
Day Character #2	d2	5	35
Hour Character #1	h1	1	31
Hour Character #2	h2	4	34
Minute Character #1	f1	3	33
Minute Character #2	f2	9	39

The final **Set Clock** Command String for 14:39 on December 25, 2000 is as follows:

COMMAND	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VALUE	02	43	4C	4B	20	30	30	2D	31	32	2D	32	35	2C	31	34	3A	33	39	03

OR:

02 43 4C 4B 20 30 30 2D 31 32 2D 32 35 2C 31 34 3A 33 39 03 <Enter>

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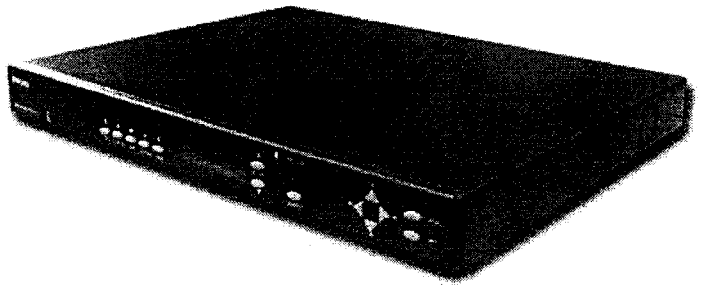
3935 890 41811 02-18

DVR1 & DMX Series
Digital Video Recorders

Archiving Addendum

Eng



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1 INTRODUCTION TO ARCHIVING

1.1 Archiving Applications Explained

The following sections explain the usage of the Extended Archiving, Backup Archiving, and Selective/Manual Archiving applications for the DVR1 and DMX Series Digital Video Recorders.

1.1.1 Extended Archiving Applications

- Explained: In this application, the DVR is in a Background Archiving Mode. Hence, all recorded video is sent to the archive device in a continuous fashion. Tapes are changed to provide a certain number of days of video storage.
- Typical Usage: All video recorded on the DVR's hard drive is automatically sent to the tape archive device. When the tape medium (or tape cartridge) is full, it is automatically ejected from the tape drive. It is up to the user to store the tape(s) in a safe location and promptly replace the unit with a new tape when necessary. This process continues until the archiving period is met.
- Cycle: After the archiving period is met, the tapes will be recycled, using the oldest tape first. In order to prevent accidentally overwriting the tapes, the DVR will not overwrite a tape until it has first been erased.

NOTE: Tapes may be reused; however, before recording over old video, one must completely erase the tape, eliminating the possibility of any data recovery.

1.1.2 Backup Archiving Applications

- Explained: This is basically another Background Archiving Mode, where all video is sent to the tape archive device. However, in this case, archiving is used simply to *Back up* the DVR's hard drive.

NOTE: This application is not served well by single tape devices, because each time the tape is prepared for overwriting, all previous video is lost due to the necessary erasing procedure.

- Typical Usage: In this application, interaction with the archiving device should be minimal. Therefore, when all tapes in the autoloader are full, the unit loads the first tape (oldest), prepares it for overwriting (erases the tape), and begins the recording cycle all over again.
- Cleaning Cycle: DDS tape heads require regular cleaning. One tape slot of the autoloader should be occupied by a cleaning tape.

1.1.3 Selective/Manual Archiving Applications

- Explained: If the DVR's internal hard drive provides sufficient storage to accommodate your requirements, then all that is needed is a way to extract specific video events. The following devices can be used for selective archiving.

Device	Advantages
Single Tape	Large amount of video storage.
Autoloader Tape Device	Very large amount of video storage.
CD-writer	Low cost medium, must be played back at the PC; graphical disk analysis feature of the remote viewer software can be utilized.
PC Software	No cost for archive Device. Use the remote viewer software to retrieve video from the DVR's hard drive to a PC's hard drive (the Disk Analysis feature will be lost with this type of file extraction).

- Typical Usage: After an incident is identified, the video segment is isolated and then stored on a PC. The file can then be stored on a network or some other storage medium.

2 USING CD-WRITERS

NOTE: It is strongly recommended to use only approved archiving devices (see the Approved Archiving Devices section at the back of this Addendum, or refer to the Philips Web site (www.philipscsi.com) for possible additions to this list).

NOTE: For complete instructions on how to use your CD-writer, please refer to the manufacturer's instruction manual.

2.1 Minimum Requirements

The following lists the minimum requirements when using a CD-writer.

- Minimum Write Speed: 4X.
- Minimum Read Speed: 16X.
- Interface: SCSI-2.
- Medium: CD-R, CD-RW.

2.2 Connecting the CD Recorder

1. Connect an appropriate SCSI cable from the CD-writer to the SCSI port of the digital recorder (digital video recorders require a standard 50-pin high density male SCSI-2 connector).
2. Set the CD-writer's SCSI address to zero (0).

   CAUTION: The SCSI device address MUST be set to zero (0) or the device will not be recognized. Consult the device's manual for instructions on setting the address. Units are not always shipped with the address set to zero.
3. Ensure the SCSI cable is properly terminated at 110 Ohms. If the CD-writer does not have a built-in termination, then a terminator will be needed.

   CAUTION: The SCSI bus must be terminated properly, otherwise the system will not operate properly. Units are not always packaged with the cables and terminators.

4. Using the DVR's (DVR1 or DMX) menu system, set the unit for Selective archiving.
5. Remove power from the DVR unit.
6. Apply power to the CD-writer and allow it to initialize.
7. Apply power to the DVR unit.
8. Be sure that the CD-writer is recognized by the DVR unit. This may take a few minutes (to view the archive status, enable the Archive Status display via the menus of the DVR unit).
9. Before archiving, make sure the CD is properly inserted into the unit. Otherwise, a MEDIUM NOT PRESENT error message will appear.

2.3 Creating a CD-ROM with Video Files

1. Set the digital video recorder for Selective Archive operation (refer to the appropriate DVR manual for further instructions).
2. Open the search menu of the DVR and select the file(s) for archiving (for details, please refer to the digital recorder's Instruction Manual).
   - Select the files from the list of those available on the digital recorder hard disk. Be aware that a CD can hold only about 550 MB (including housekeeping restrictions, while there are several Gigabytes in the digital recorder).
   - If the search shows a file that is larger than this, it will be necessary to *filter* the search (place tighter restrictions on it) until the search results return a file size that can be archived.
   - When multiple small files are selected for archive, the total available space on the CD must be less than 550 MB.
   - CD archiving supports multiple sequential recording sessions. This allows the recording of a video clip, the ejection of the CD, then the insertion of the same CD at a later time for the recording of sequential video clip(s).
3. Initiate Archiving (refer to the appropriate DVR manual for further instructions).
   - While the CD-writer is recording, the DVR unit will indicate the progress of the CD-write operation.
   - While the CD-RW is still in the CD-writer, multiple files can be recorded onto the CD-RW medium.

2.4 Limitations on CD Operations

- Restoring (copying a wavelet file with a .60d extension from the CD to the digital recorder hard disk drive) is not supported.
- Erasing a wavelet file with a .60d extension on CD is not supported.
- Playback of .60d extension files stored on a CD from a digital recorder is not supported. These files are to be played back from a PC running the remote viewer software.
- Background archiving to CD disk is not supported.
- While archiving a CD, the unit can not record to hard disk.

3 USING SINGLE TAPE DRIVES

NOTE: For complete instructions on loading your tape device, please refer to the manufacturer's instruction manual.

NOTE: It is strongly recommended to use only approved archiving devices (see the Approved Archiving Devices section at the back of this Addendum, or refer to the Philips Web site (www.philipscsi.com) for possible additions to this list).

3.1 Minimum Requirements

The following lists the minimum requirements when using a Single Tape Drive.

- Minimum Data Transfer Rate: For background archiving: 4 MB/sec.
- Interface: SCSI-2.
- Medium: Use the recommended medium for the tape drive.

3.2 Connecting the Tape Drive

NOTE: Do not set the tape devices into High Compression mode. This mode is not supported.

1. Connect an appropriate SCSI cable from the tape drive to the SCSI port of the digital recorder (digital video recorders require a standard 50-pin high density, SCSI-2 connector).
2. Set the tape drive's SCSI address to zero (0).
3. Be sure that the SCSI cable is properly terminated at 110 Ohms. If the tape drive does not have a built-in termination, then a terminator will be needed (after connecting the active terminator, make sure its LED is lit. This insures proper communication).
4. Using the DVR's (DVR1 or DMX) menu system, set the unit for either Selective or Background archiving.

NOTE: Current tape devices can not record greater than 30 ips. Therefore, do not attempt background archiving with the DVR1 set for a recording speed of 60 ips.

5. Remove power from the DVR unit.
6. Apply power to the tape drive and allow it to initialize.
7. Apply power to the DVR unit.
8. Make sure that the tape drive is recognized by the DVR unit. This may take a few minutes. To view the status, enable the Archive Status display via the menus of the DVR unit.
9. Before archiving, make sure that the tape is properly inserted into the unit. Otherwise, a MEDIUM NOT PRESENT error message will appear on the monitor output of the DVR.
   - The Medium Not Present message will also appear when the unit is in the test mode and while loading and unloading tapes.
   - When the tape device is archiving, its BUSY LED will blink.

3.3 Limitations of Single Tape Drives

- In order to write over a tape with existing video on it, the tape header must first be erased. When tape headers are erased, video from that tape can not be recovered.
- Single tape drives are not recommended for continuous background archiving. These units have a diagnostic routine that stops the recording operation after 24 hours.
- During the cleaning process, archiving is suspended. If the 2 MB archive buffer is filled before archiving can continue, some video may not be archived.
- Tapes can not be played back through a PC (this applies even when a PC is running the Remote Viewer Software).
- Tapes can be played back by another DVR only if it is the same type of DVR unit (e.g., a DVR1 tape can not be read by a DMX unit).
- The EJECT button on the front panel of the tape device will remain enabled. Do not press the EJECT button while archiving. This will result in a loss of video and possible corruption of the entire tape.
- Current tape devices can not record greater than 30 ips. Therefore, do not attempt background archiving with the DVR1 set for a recording speed of 60 ips.

NOTE: Single tape Autoloader operations are very similar to the multiple tape Autoloader operations. See the next section for additional information.

4 USING AUTOLOADERS

Most multitape drives (Autoloaders) have a SELECT key, an EJECT key, an ENTER key, an LCD display, and two status LEDs (Tape Present and Busy). The SELECT key is automatically disabled during the tape loading sequence and whenever the tape device's busy light is illuminated. Tape selection will be controlled by software. The EJECT key will unload a tape from the drive and eject the full magazine from the Autoloader. The magazine has a write-protection tab, which prevents data from being written to all tapes in the magazine.

4.1 Autoloaders Explained

NOTE: For complete instructions regarding the loading of your Autoloader, please refer to the manufacturer's instruction manual.

NOTE: Do not set the tape devices into high compression mode. This mode is not supported.

4.1.1 Volume Information

The wavelet data headers that are stored at the beginning of a tape are also stored in special files on the hard disk to enable the contents of a tape to be recovered quickly. This might be required if the tape drive was powered down while recording.

The volume information on the disk is also used to reference the other tapes in the magazine. This speeds up the magazine loading process, as only one tape has to be read to know the contents of the other tapes in the magazine. ***For this reason, it is not advisable to change the order of the tapes in a magazine.***

The software currently supports 32 volume partitions on the hard disk. When all available partitions on the hard disk have been allocated, the oldest partition will be cleared and reused. Each time a tape is loaded, the time stamp in the corresponding partition is updated. ***When factory settings are selected, all volume partitions on the hard disk are erased.***

4.1.2 Restoring Tape Headers

- If the SCSI link between the digital recorder and the tape drive fails while data is being written to the tape, as much data as possible is restored when the link is reestablished. Most of the header information is recovered from the disk, with the remaining data being recovered from the tape. This recovery operation typically takes several minutes, depending on the relative position of the data from the start of the tape.
- If the power to the drive is interrupted while the drive is writing data to tape, the data recovery process may take considerably longer because the position of the last valid data must be determined. The data recovery process can be aborted by changing the Archiving Mode to OFF.

4.1.3 Write-protection

The magazine can be write-protected by moving the write-protect tab to the Save position. In addition, individual tapes can be write-protected by opening the write-protect tab on the tape.

- If a write-protected tape is chosen for selective archiving, no data will be written to the tape.
- If a write-protected tape is loaded during background archiving, the tape is returned to the carousel, and the next tape in sequence will be loaded.

4.1.4 Blank Tapes

If any blank tape is detected during the loading process, the tape will automatically be divided into two partitions, and a blank set of headers will be written to the tape. At that point, the tapes will be ready to receive recordings.

4.1.5 Tape Capacity

Estimated tape capacity is read from the drive when a new tape is loaded. This capacity may vary with the make of the drive and tape and is used in computing the percentage of space left while background archiving (or when selecting events to be archived).

During background archiving, information is written until the physical end of medium (EOM) is encountered. When a tape has been filled, the full capacity will be used rather than the estimated capacity reported by the drive. When the tape is not full, it will continue to be used until it is erased, after which the estimated capacity will be used again.

4.1.6 Erase Medium

If more than one volume is detected, the user can use the Erase Medium menu of the DVR to select one or more volumes to erase. By default, all selections will be set to OFF. More than one volume can be selected per erase operation.

- If the selected volume is already loaded into the tape drive, the header partition on the tape is erased.
- If the selected volume is not already loaded into the drive, the selected tape is loaded and the headers are read. The tape is erased only if the header read from the tape matches the header of the disk for that position in the magazine.

- If the header on the tape is different from the header on the disk, the tape positions in the magazine must have been changed, in which case, the tape is not erased. The tape in position one must be removed, a new reading of the magazine begins, and the tapes are erased.
- If the erase function is cancelled, any tape that has had its Volume ID erased will be completely erased. Any tape that was not loaded will be saved.

The progress bar tracks the erase operation. It reaches 100% when all selected tapes have been erased. The bar is not updated smoothly, but rather in stages during the erase operation. The progress bar does not change while a tape is being selected (up to 3 minutes). The tapes are erased in sequence, starting with the lowest selected ID, regardless of which tape was originally loaded into the drive.

NOTE: In order to use the Erase feature, background archiving must be turned off.

4.1.7 Stuck Tapes

The Autoloaders do not always boot reliably when powered on with a tape in the drive. During the initialization sequence, one of the tapes from the magazine may become dislodged from the magazine and will have to be removed manually from the Autoloader and replaced in the magazine. As a result:

- The use of an uninterruptible power supply (UPS) is recommended when using the Autoloader.
- Be sure that the magazine is ejected from the Autoloader before removing power.

NOTE: If the Autoloader is powered on with a tape in the drive, the header from that tape is read (and restored if necessary), and the loaded tape is used as the reference tape.

If this occurs, the SELECT key on the Autoloader is enabled until a different tape is loaded.

Do not press the SELECT key at this time. Doing so will cause a new tape to be loaded.

4.1.8 Cleaning Cycle

The cleaning tape is loaded during background archiving without any user intervention. It is loaded when (a) it is the next tape in sequence, and (b) at least two tapes have been written to the End of Medium. After the heads are cleaned, the next tape in sequence is loaded.

- If the magazine volume information is not found to be on the hard disk during the initial loading sequence, the cleaning tape is loaded.
- If (a) all the tapes in the magazine are full, (b) at least two tapes have received data since the last cleaning cycle, and (c) the background archiving mode is either No Overwrite or Write Once, the heads are cleaned before the magazine is ejected.

NOTE: During the cleaning cycle, archiving is suspended. Any video being recorded while the DVR is in Background Archive Mode will be sent to an Archive Buffer. If the archive buffer is filled before archiving can resume, video will be lost.

The 2 MB buffer capacity can hold approximately 2–3 minutes of SVHS quality video at 24 ips. The cleaning and reloading cycle takes about 2–4 minutes. Setting the unit to 5 ips will significantly minimize any possibility of missing video.

4.1.9 Drive Operation

When a magazine is inserted into the Autoloader, the changer cycles through all of the tapes to ensure that the magazine is full.

NOTE: Refer to Section 4.3 for Alternative Modes of Operation.

Once all tapes have been detected, Tape 1 is loaded into the drive. The tape header is read and compared to the volume file on the disk to find a march.

- If a matching volume is found, the volume files for the other tapes in the magazine are sought on the hard disk of the DVR unit, then no other tapes are loaded.
- If no matching volume file is found on the hard disk, then all of the tapes in the magazine are loaded in sequence. Each tape's header is saved to the disk.

Only when the headers from all of the tapes in the magazine have been stored on the disk can the device be used for archiving. This process may take several minutes.

4.2 Autoloader/Data Transfer Operations

The following describes the four Data Transfer Operations: Selective Archive, Restore from Archive, Play from Tape, and Background Archive.

4.2.1 Selective Archive Mode

If more than one volume is found, a list of available volumes is displayed. The loaded volume is selected by default. Selecting a volume deselects the previously selected volume.

When a volume has been selected and the menus have been exited, pressing the SEARCH key displays (1) the selected events on the disk and (2) the free capacity of the selected volume. Pressing the appropriate key (RECORD key for DMX-16 units, SEARCH key for DVR1 units) starts the copying of events from the disk to the tape.

If the selected tape is not the tape loaded into the drive, the other tapes in the magazine are loaded in succession until the matching tape is found. If no matching tape is found, no information is archived to the tape. It is possible to select only events that will fit on the tape. The capacity of the tape is determined when the tape is loaded.

The Remaining Capacity parameter is only an approximate value. In some cases, the EOM may be encountered before the complete event has been written. In this case, the header on the tape is updated and a message appears indicating that not all information was archived.

4.2.2 Restore from Archive Mode

NOTE: In order to use this feature, background archiving must be turned off.

If more than one volume is found, a list of available volumes is displayed. The loaded volume is selected by default. Selecting a volume deselects the previously selected volume.

When a volume has been selected, and the menus have been exited, pressing the SEARCH key displays (1) the selected events and (2) the free capacity of the selected volume. Pressing the RECORD key starts the copying of events from the tape to the disk. This process may take several minutes, depending on the amount of data being recorded.

If the selected tape is not the tape in the drive, the other tapes in the magazine are loaded in succession until the matching tape is found. If no matching tape is found, no information is restored from the tape.

4.2.3 Play from Tape Mode

If more than one volume is found, a list of available volumes is displayed. The loaded volume is selected by default. Selecting a volume deselects the previously selected volume.

When a volume has been selected and the menus have been exited, pressing the SEARCH key displays (1) the selected events on the disk and (2) the free capacity of the selected volume.

Pressing the ENTER key plays back an event from the Restore Results screen. If the selected tape is not the tape loaded into the drive, the other tapes in the magazine are loaded in succession until the matching tape is found. If no matching tape is found, nothing is played back. Do Not cancel a search or start another search while the Autoloader is unloading or loading tapes.

4.2.4 Background Archive Mode

If the Autoloader is being used with a single tape in Slot 8, the Autoloader functions as a single tape drive. The tape is unloaded when full, regardless of the background archiving setting.

When background archiving begins, all tapes in the magazine are searched to find the most recent event. If all the tapes are blank, Tape 1 is selected.

NOTE: When the Background Archive Mode is active, certain tape functions are not available, such as Erase Medium. In order to erase a tape, switch to Selective Archive Mode.

During background archiving, the Archive Percentage and Time Left parameters indicate the estimated time left for the magazine, not just for the current tape. Information is written until the EOM is encountered. This may be slightly greater or less than the reported tape capacity. The remaining time left is recalculated when the next tape is loaded to overcome this difference. If a loaded tape is write-protected or not usable, the archive time is adjusted accordingly when the next tape is loaded.

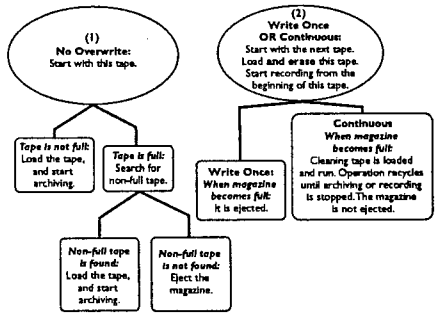
There are three different settings for background archiving in the Video Archive Setup menu: No Overwrite, Write Once, and Continuous.

NOTE: The magazine changeover operations described to follow may take several minutes. In some cases, the archive buffer could be filled before the transfer takes place, causing some loss of data (see Note in Section 4.1.8 for more information on the archive buffer).

- No Overwrite: In this setting, the tape with the most recently recorded event is the starting point.
  - If that tape is not full, it is loaded, and the archiving begins.
  - If full, the magazine is sequentially searched for a tape having some free space.
  - If one is found, it is loaded, and archiving begins. Otherwise, the magazine is ejected (see flow chart below).
- Write Once: In this setting, the tape with the most recent recorded event is found, and the next tape in sequence is selected as the starting point. This tape is loaded and erased, so that archived information starts at the beginning of the tape. When the tapes in the magazine are full, the magazine is ejected.
- Continuous Setting: In this setting, the tape with the most recently recorded event is found, and the next tape in sequence is selected as the starting point. This tape is loaded and erased so archived information starts at the beginning of the tape. When all tapes are filled, the cleaning tape is loaded. This operation recycles until archiving or recording is turned off. The magazine is not ejected in this mode.

The following chart summarizes the sequence of operation for each type of Background Archiving.

First, find the tape with the most recently recorded event. Then, follow (1) or (2):



4.2.5 Archiving Error Messages

Archiving Error Messages have been expanded to display different text strings. The alarm relay will only be set if the string is Archiving Failed. Refer to the following chart for Error Message descriptions.

ARCHIVING ERROR MESSAGES		
MODE	**MESSAGE**	**REASON**
Selective Archive	Medium Not Present	Tape Can Not Be Selected at This Time
Selective Archive	Not All Data Was Archived	1) Reached EOM on the Tape 2) Archive Mode Is Turned OFF
Selective Archive	Medium Is Write-protected	Can Not Write to Tape - Write Tab Is Open
Selective Archive	Archiving Failed†	1) Write Command Failed 2) Drive Is Disconnected
Restore from Archive	Medium Not Present	Tape Can Not Be Selected at This Time
Restore from Archive	Not All Data Was Archived	Archive Mode Is Turned OFF
Restore from Archive	Can't Read Medium	1) Read Command Failed 2) Drive Is Disconnected
Play from Tape	Can't Read Medium	1) Read Command Failed 2) Drive Is Disconnected
Background Archive	Archiving Failed†	1) Write Command Failed 2) Drive Is Disconnected

†The alarm relay is set if this message appears.

4.2.6 The Archiving Icon

When the unit exits the Record mode during archiving, a white tape icon appears in the bottom right hand corner of the monitor. It indicates that archiving is in progress. The icon remains until all information has been written to tape and the tape headers have been updated.

If the tape or magazine becomes full before all the information has been written to the tape, the magazine is ejected and the archive icon remains on the monitor. The icon is cleared when a new tape or magazine is loaded.

Turning off the Archive mode in the menus can also clear the icon. This action also flushes the remaining data buffers. This operation may take a while if a tape is being loaded or the magazine is being ejected.

NOTE: The digital recorder should not be turned off if the archive icon is visible and data is still being written to tape.

4.3 Alternate Modes of Operation

NOTE: The tape drives listed below may not work with your DVR model. Refer to the back of this manual for the list of Approved Archiving Devices or go to the Philips Web site (www.philipscsi.com) for the latest list of Approved Archiving Devices.

4.3.1 One Data Tape

SONY TSL-S11000L: This unit requires a single data tape in Slot 8. Proceed as follows:

1. The tape should be labeled as Tape 1 before being inserted into the magazine. In this mode, the Autoloader functions as a single tape drive device.
2. If Slot 8 of the magazine contains a cleaning tape, the cleaning tape will be loaded into the drive, the tape heads will be cleaned, and the tape will be returned to the magazine.

4.3.2 Four Data Tapes

SONY TSL-SA500C: This unit requires four data tapes in the magazine. Proceed as follows:

1. The tapes should be labeled as Tapes 1 to 4 before they are inserted into the magazine.
2. All four tapes must be loaded in order for this unit to work.
3. Insert Tapes 2 and 1 (in that order) into the bottom shelf.
4. Insert Tapes 3 and 4 (in that order) into the top shelf.

4.3.3 Seven Data Tapes

SONY TSL-S11000: This unit requires seven data tapes and one cleaning tape in the magazine. Proceed as follows:

1. The tapes should be labeled as Tapes 1 to 7 before they are inserted into the magazine.
2. The magazine should contain seven tapes in Slots 1 to 7, and a cleaning tape in Slot 8 to operate correctly.

4.3.4 Eight Data Tapes

SONY TSL-S11000: This unit requires eight data tapes and no cleaning tape. Proceed as follows:

1. In this case, it is the operator's responsibility to clean the tape drive periodically.

NOTE: Because data can be lost if the heads become dirty during archiving, this mode of operation is not recommended for continuous background archiving.

2. The tapes should be labeled as Tapes 1 to 8 before they are inserted into the magazine.
3. Insert Tapes 3, 2, and 1 (in that order) into the bottom shelf.
4. Insert Tapes 4, 5, 6, and 7 (in that order) into the top shelf.
5. Insert Tape 8 into the last slot. Tape 8 is a data tape.

5 APPROVED ARCHIVING DEVICES

NOTE: The table below is accurate as of the printing of this manual. Additions to this table are made on a regular basis. For the latest list of Approved External Archiving Devices, contact your Philips representative or visit our Web site at www.philipscsi.com and navigate to the appropriate DVR section.

APPROVED EXTERNAL ARCHIVING DEVICES			
		Philips Digital Recorders (Series)	
Philips Kit Part Number	**Description**	***DVR1 Series***	***DMX16 Series***
DTD1*	Sony®, (1) SDT-D11000 (single DAT tape drive, 20 GB); (1) SCSI cable; (1) SCSI terminator	✓	✓
DTD8*	(1) Sony®, TSL-S11000, (DAT Autoloader), (8) 20 GB tapes; (1) SCSI cable, (1) SCSI terminator		✓
ARCAIT2S	(1) Sony®, SDX-S500C/NB (AIT-2, single tape) (1) SCSI cable, (1) SCSI terminator	✓	✓
ARCAIT2A	(1) Sony®, TSL-SA500C (AIT-2, 4-tape Autoloader), (1) SCSI cable, (1) SCSI terminator		✓
ARCCDW	Yamaha® CRW-2100SXZ, (external CD-writer), (1) SCSI cable, (1) 10-pack of CD-RWs (**NOTE**: Only use for selective archiving)	✓	✓

***DAT Tapes are sold individually and not included in the above kit package.**

Philips part numbers for DAT and AIT tapes are as follows:

Part Number	Description
DT-20	20 GB DAT Tape
DT-50	50 GB AIT-2 Tape
DT-CLD	DAT Cleaning Tape
DT-CLA	AIT Cleaning Tape

6 ALTERNATE SOURCES FOR ARCHIVING DEVICES AND ACCESSORIES

ALTERNATE SOURCES		
Tape Drives		
Source	**Part Number**	**Description**
http://www.storagebysony.com/	All Sony® Drives	See list above for approved devices
Terminators		
Source	**Part Number**	**Description**
http://www.cable4pc.com/	X-824	CN50-M, active, for Sony® DAT drive
http://www.cable4pc.com/	X-854	HPDB68M, active, for Sony® AIT drives
CompuPlus	40-0027	Centronics® 50-pin male, active, for Sony® DAT drives
CompuPlus	40-0025	High density 68-pin male, active, for Sony® AIT drives
Cables		
Source	**Part Number**	**Description**
http://www.cable4pc.com/	X-656	HPDB50-M - CN50-M, 50-pin Centronics® male to 50-pin high density male, for Sony® DAT
http://www.cable4pc.com/	X-776	HPDB68M - HPDB50-M, 68-pin high density male to 50-pin high density male, Sony® AIT
CompuPlus	40-0036	50-pin Centronics® male to 50-pin high density male, for Sony® DAT
CompuPlus	40-0021	68-pin high density male to 50-pin high density male, for Sony® AIT
Yamaha CD-R SCSI Cables		
Source	**Part Number**	**Description**
http://www.cable4pc.com/	X-673	HPDB50-M - HPDB50-M, 50-pin high density male to 50-pin high density male
CompuPlus	40-0032	50-pin high density male to 50-pin high density male

Cable 4 PC, 1 Winter Street, Edison, NJ 08820 • Tel: (732)494-2444 Fax: (732) 549-6447 • http://www.cable4pc.com/ • World Wide Shipping Available

CompuPlus, Inc., 130 McCormick Ave. Suite 106, Costa Mesa, CA 92626 • Tel: (714) 438-1100 Fax: (714) 438-1106 • http:/www.compuplusinc.com/ • World Wide Shipping Available

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