

OPERATION MANUAL
DIGITAL VIDEO RECORDER (DVR)

Model: VIDREC

AS USED WITH THE
PORTABLE VIDEO CONTROLLER (PVC)



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DIGITAL VIDEO RECORDER (DVR) MANUAL

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SECTION 1

This manual describes the modes and operation thereof as the DVR is used in the Sentinel Portable Video Controller (PVC)

Features

The DVR is a solid-state audio and video digital video recorder in a cigarette-size package. It is an ideal recording device for covert concealment in objects. Features include:

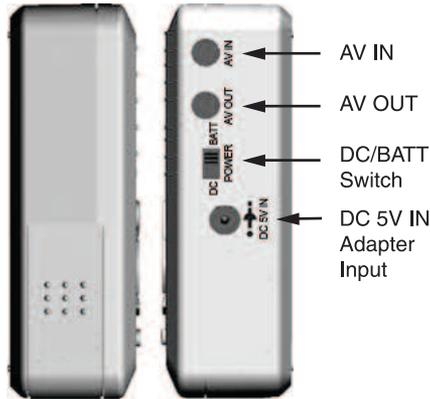
- Support for 1 video channel and 1 audio channel for recording and playback
- Audio and video data recorded directly to an SD card
- Audio and video data are recorded in ASF file format, playable with popular media players
- Record time is about 5 hours for 352 x 240 @ 30 fps with a 1 GB SD card.
- Supports manual and schedule recording modes with independent video size, quality, and frame rate.
- Supports key-lock functions
- Video loss detection
- Contains MPEG4-SP video and G.726 audio codecs

1.1 Front panel buttons and indicators



Power LED	The unit is powered on.
Play LED	The unit is in Play mode.
Menu/Lock LED	LED is lit when the key lock function is ON. Press Menu and Enter together to switch the key lock function ON and OFF.
Rec LED	When the SD card is writing data during recording, the Rec indicator flashes slowly. When the SD card is switched to "read only", the recording function is disabled and the Rec indicator flashes quickly. If attempting to record when an SD card is not inserted, is full, damaged, or locked (in read-only mode) the Play LED, Menu/Lock LED, and Rec LED flash quickly. Press Enter to clear the indication
Stop/Exit button	Stop recording or playback and exit menu.
Rec button	Press to start manual recording.
▲ and ▼ buttons	Move cursor up and down in menus or increment/decrement the value of configuration options.
◀ / - and ▶ / + buttons	During Playback – press to fast rewind and fast forward. Press repeatedly to speed back or forward During pause – press to step back or step forward one frame at a time. Menu mode – press to change selected option
↵ Enter button	Menu – press to enter a submenu Press to release a warning indication. During monitoring or playback, pressed with the Menu button to switch key lock function ON or OFF.
* Display button	Display Status line ON/OFF
▶ Play/Pause button	During Monitoring – press for playback During Playback – press for pause During Pause – press for playback 2 Menu button Press to enter menu setup mode.
☰ Menu Button	Press to enter menu setup mode.

1.2 Side panel components

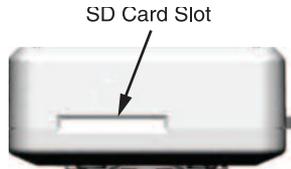


The AV IN and AV OUT jacks require cables with a stereo mini-plug.

The DC 5V IN jack is connected to the DVR Power Plug in the PVC. Set DC/BATT Switch to DC.

1.3 SD card slot

The SD card slot is located at the top of the recorder. An SD card is required for recording.



SECTION 2

Installation and Setup

For complete instructions See PVC (Portable Video Controller) manual page 3

2.1 Connections and power on

1. Insert a standard SD card with a capacity of 256 MB or larger into the card slot on the top of the recorder. Push the card in until it locks into place.
2. During Playback A/V cable should be plugged into the AV OUT jack on the DVR, and attached to an A/V monitor.
When plugging the RCA adaptor cable into the monitor, connect the yellow RCA connector into the video input, and the white RCA connector to the audio input.
3. During Set Up A/V cable (provided) should be plugged into the AV IN connector on the recorder, then attach it to a CCTV camera.
When plugging the cable into the camera, connect the yellow RCA connector to the video output, and the white RCA connector to the audio output. An (RCA to BNC) adapter may be required to attach the camera video output to the cable.
4. Set the Power Select Switch on the PVC to the desired power source, either INT (Internal) or EXT (External)
5. Set the DVR DC/BATT Switch to DC.

5. Power on the camera and the A/V monitor with manual start button on the PVC.
6. After the recorder initializes it enters live monitoring mode.

▲ **NOTE:** During power-on, the system auto-detects its peripherals and tests the SD card for file errors. During SD card testing, the Rec LED flashes. When an image file error is detected, the system automatically attempts to repair the problem.

▲ **NOTE:** If the SD card is not inserted during power up, or the card has a serious problem, the Play, Menu, and Rec indicators will flash. If a card was installed, try reformatting the card to resolve the problem.

▲ **CAUTION:** Do not remove the SD card while the recorder is booting. It may destroy the data stored on the card.

2.2 MAIN MENU

When in Live (camera monitoring) mode, press the Menu button to open the MAIN MENU screen. From the MAIN MENU screen, you can access submenus to configure the date and time settings, video recording quality, setup automated, and other functions.



You can navigate through and setup the configuration of the DVR using the controls on the DVR front panel as follows:

Press ▲ and ▼ to move the highlight (select) bar up or down, or increment or decrement the value of a numeric configuration option.

Press ◀ and ▶ to select a non-numeric configuration option. For example, when selecting the video quality with which to record, use these keys to choose between **Low**, **Medium**, or **High**.

Press **Menu** or **Enter** to open a submenu.

Press **Stop/Exit** to move to the previous menu from a submenu. Pressing **Stop/Exit** when in the

MAIN MENU goes to Live Mode.

Refer to **1.1 Front panel buttons and indicators** for the function and use of other front panel controls.

▲ **NOTE:** The SET MOTION DETECT option is not used when the DVR is in the PVC (Portable Video Controller).

2.3 Search and Play

The SEARCH AND PLAY screen provides one way to view recordings saved on the SD card. The background shown on this screen is an image from the recording selected. Use the ▼ and ▲ keys to select the date a recording was saved; use the ▼ and ▲ keys to choose the file recorded on that day.



After selecting the file to watch, press **Enter**. To stop playing the recording and return to the SEARCH AND PLAY screen, press **Stop/Exit**.

2.4 Set Date/Time

Setting the date and time in the DVR is essential for recording video with an meaningful timestamp. Timestamp detail is used to identify saved video files.



In the **DATE FORMAT** field, select either **Y/M/D**, **M/D/Y**, or **D/M/Y**.

The **SET DATE** format reflects the DATE format option chosen.

The **SET TIME** field is in the format **hh : mm : ss**, where **hh** is 00 ~ 23 hours.

2.5 Manual Record

The MANUAL RECORD menu is used to preset the record options implemented when recording is initiated by pressing the Rec (record) button.



The VIDEO SIZE option determines the maximum FRAME RATE. For:

VIDEO SIZE = 352 x 240, FRAME RATE (max) = 30 FPS

VIDEO SIZE = 704 x 240, FRAME RATE (max) = 24 FPS

VIDEO SIZE = 704 x 480, FRAME RATE (max) = 12 FPS

Image QUALITY is selectable as LOW (LQ), MEDIUM (MQ) and HIGH (HQ).

AUDIO can be either ON or OFF.

2.6 Schedule Record

SCHEDULE RECORD is only used in the CONTINUE RECORD mode. MOTION RECORD does not apply when used with the PVC.



CONTINUE RECORD

CONTINUE RECORD (continuous recording) occurs during the SCHEDULE time when the RECORD parameter is ON. This is the only mode that is useable with the PVC. No other modes will work properly with the PVC as the power is turned off to the DVR until the PVC is triggered by a wireless sensor.



2.7 SD Card Options

The SD CARD OPTIONS screen displays the capacity of the card, provides options to rewrite the card when full, and format the card. When:

SD FULL : LOOP – When SD card storage capacity is full, the DVR will overwrite the oldest video files (auto repeating continuous recordings) with the current recording.

SD FULL : STOP – When SD card is full, it will stop recording.

FORMAT – Formatting removes all data from the card and creates the director DVMPG4 under the root directory.



The duration of video recorded on the SD card depends on the card capacity, video size, quality, frame rate, and audio settings.

2.8 System Status

The SYSTEM STATUS screen displays the version of the firmware loaded in the DVR, the recorder settings for MANUAL, SCHEDULED, and MOTION recordings, and the rewrite setting of the SD card. No configurable options exist on this screen. Press Stop/Exit to return to the MAIN MENU.



2.9 Factory Default

The Factory Default option resets all configuration settings to the factory default values, except for the DATE/TIME setting. At this screen, press Enter to reset the configuration values. Press Stop/Exit to return to the MAIN MENU.

SECTION 3

Operation

3.1 Live mode

During Live mode, video from the camera is displayed on the A/V monitor using the audio and video settings configured in the MANUAL RECORD menu. These settings, and the SD card status, are indicated at the bottom of the screen.



The SD card status icons are defined as:

-  – SD card is missing
-  – SD card is testing files
-  – SD card is functioning normally
-  – SD card is full and overwriting files.

3.2 Record mode

Recording can be initiated in three ways:

- **Manual record** – Pressing the Rec button initiates recording at any time. Video size, frame rate, quality, and audio settings are configured on the MANUAL RECORD menu. Pressing Stop/Exit stops manual recording.
- **Motion detect record** – is not used in the PVC
- **Continuous record** – Continuous recording occurs through out a preset time frame. The time frame (schedule), video size, frame rate, quality and audio enable are configured on the SCHEDULE RECORD, CONTINUE RECORD submenu. The RECORD option in the submenu must be ON to enable continuous recording to occur.



The record mode icons are defined as:

-  – Manual record mode in progress
-  – Scheduled record mode in progress
-  – Motion detection record mode is enabled - do not use with PVC

Use Manual record mode for testing and set up. Use Scheduled record / Continue record when monitoring with the PVC. Video files are saved on the SD card.

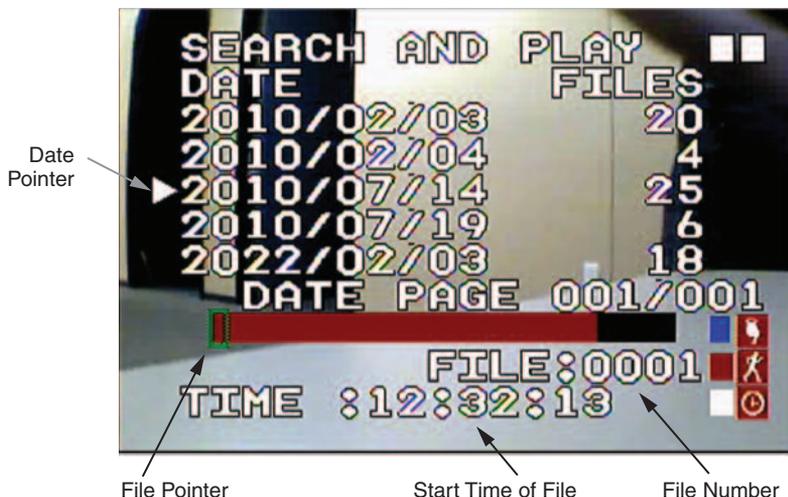
▲ CAUTION: Do not remove the SD card while the recorder is booting or recording. It may destroy the data stored on the card.

Power loss during recording will cause an incomplete video record and may cause errors.

When video loss occurs during recording, the DVR stops recording and saves the file. When the video signal is regained, recording resumes.

3.3 Playback mode

Files can be played back continuously or individually. To find recordings, press Menu and enter the SEARCH AND PLAY submenu.



The SEARCH AND PLAY screen shows the dates when recordings exist, the number of files that exist on that date, and a time line of files recorded on that day, color coded by recording type (blue for manual recordings, red for motion recordings, and white for scheduled recordings). The screen background shows the first frame of the recording under the file pointer.

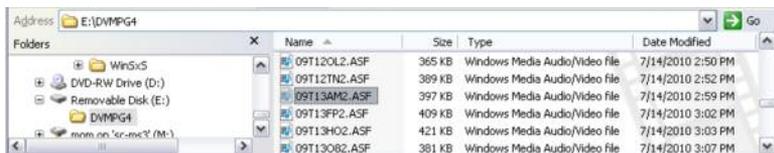
To play recordings, do the following:

- **Select date** – Use the ▼ and ▲ buttons to move the date pointer on the left to the date of the recording you want to play.
- **Select file** – use the ► and ◀ buttons to move the file pointer to the file you want to play. The file number is shown in the FILE field, and the start time of the recording is shown in the TIME field. Also, the cursor (rectangle) on the time bar covers the file position in the string of files recorded on that date. It also covers a color coded block indicating the recording type.
- **Play the file** – Press Play/Pause to start and pause playback. Recordings will play consecutively until stopped. Press Stop/Exit to stop playback. Additional file play controls include:
 - **Fast forward and fast rewind** – while a file is playing, press ►► (press twice) or ◀◀ repeatedly to move forward or back at 2x, 4x, 8x, 16x, or 32x normal speed. Press Play/Pause to return to normal speed.
 - **Skip frame** – while playback is **paused**, press ► or ◀ to move to the next or previous frame of the recording.
 - **Skip file** – while playback is **stopped**, press ► or ◀ to move to the next or previous file recorded on that day.
 - **Clear screen data** – Press Display to enable or disable on-screen data. When data is cleared from the screen, only the video image is shown.

3.4 Playback using a PC

Recordings on the SD card are saved in ASF format and can be played on a Windows PC using Windows Media Player, DivX player, or other ASF file player. Playing ASF files may require a codec such as the Sharp B.726 Audio (45). This codec can be downloaded from the internet. To play recordings using Windows Media Player in Windows XP:

1. Power off the DVR, then remove the SD card.
2. Insert the card into an adapter on your PC and open a file window to show the contents of the card.
3. On the card, find the DVMPG4 folder and open it. Locate the file you want to watch using the Date Modified detail.



4. Open Media Player, then click the File drop down menu.
5. Browse to the file you want to watch and open it.



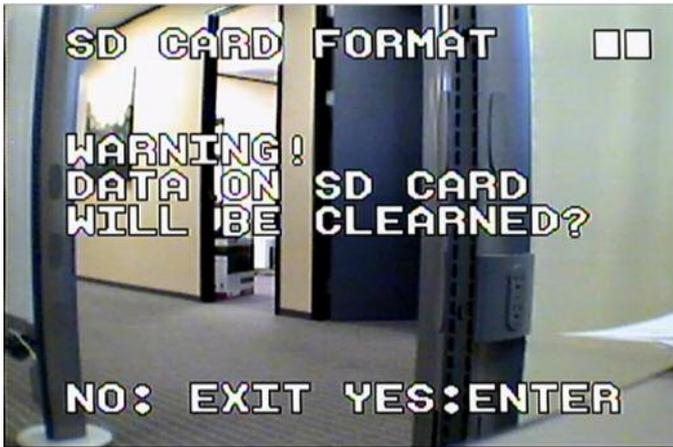
3.5 SD card maintenance

The DVR can write and read SD cards with a FAT16 or FAT32 file system. No other formats are supported. To format a card using the DVR:

1. Power off the DVR.
2. Insert the SD card into the card slot.
3. After the DVR initializes, press MENU.
4. Use the ▼ and ▲ buttons to highlight SD CARD OPTIONS, then press Enter.



5. Press ▼ to highlight FORMAT, then press Enter.



6. Press Enter again to format the card. Allow the process to complete before continuing.

SECTION 4
Specifications

Digital Video Recorder (DVR) as used in the PVC

Video	System	NTSC / PAL Video System and Video Loss Auto Detection			
	Codec	MPEG4-SP ASF File Format			
	Record Frame Rate	1, 2, ... , Maximum fps selectable Maximum: NTSC: 30 fps@352x240/ 24 fps@704x240/ 12 fps@704x480 PAL: 25 fps@352x280/ 20 fps@704x280/ 10 fps@704x560			
	Record Quality	Low / Medium / High			
	Record Time* *it may change for different video content (1GB SD Card)	Frame Rate@ Resolution Quality	30 fps@352x240 25 fps@352x280	24 fps@704x240 20fps@704x280	12 fps@704x480 10 fps@704x560
		Low	400 minutes	240 minutes	240 minutes
		Medium	300 minutes	150 minutes	150 minutes
		High	150 minutes	75 minutes	75 minutes
		Recording Date/Time	Overlay with Video Images in ASF File		
		Input	1 CH Composite Video Line In		
	Output	1 CH Composite Video Line Out			
Audio	Sampling Rate	44.1 Khz			
	Codec	G.726/ 32 kbps			
	Input	1 CH Audio Line In			
	Output	1 CH Audio Line Out			
Storage Media	SD Card (FAT16/ 32) 16 gigabytes max.				
Recording Mode	Only use Schedule Continue mode with PVC				
Motion Detection Setting	Not used with the PVC				
Event Search Function	Not used with the PVC				
Playback Function	Play/Fast Forward/Fast Rewind/Pause/Step Forward/Step Backward				
Playback Speed	x1 / x2 / x4 / x8 / x16 / x32				
Power Supply	Supplied by PVC				
Battery Lasting Time	See Operation Runtime Section in PVC manual				
Weight	89 g (without Battery/ SD card)				
Dimensions	65 mm (W) x 90 mm (H) x 29 mm (D)				
Operating Environment	30% - 80% RH, 5°C ~ 45°C (41°F ~ 113°F)				
Storage Environment	30% - 90% RH, 0°C ~ 50°C (32°F ~ 122°F)				



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