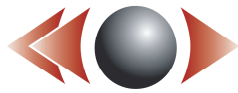


FlashBack-2

MPEG-2 Single & Dual Card Recorder User Guide

Ovation Systems Ltd.
Springfield Barn
London Road
Milton Common
Oxfordshire
OX9 2JY
UK

Imported by Opto Vision France
Fax: +33 (0)5 61 76 51 11
Email: info@optovision.fr
Web: www.optovision.fr



1 Contents

1 Contents.....	2
2 Essential User Information	3
2.1 Deleting Files.....	3
2.2 Using a New Compact Flash Card.....	3
2.3 Playing a Recording.....	3
2.4 Before Making a Recording.....	3
3 Introduction	4
4 FlashBack-1 to FlashBack-2 changes	5
5 Installation With FlashBack-2 Connector Pod.....	6
6 Installation Without Pod.....	8
7 Operation – Single CF Card.....	10
8 Operation – Dual CF Card.....	12
9 Playing Recordings & Managing Cards Via A PC.....	14
9.2 Operation With A New Compact Flash Card.....	15
9.3 Formatting a Flash Card.....	16
9.4 Deleting Files.....	16
9.5 Corrupted Flash Cards.....	17
10 Playback Via Hardware Players	17
11 Configuration.....	18
11.1 Set-up The PC Configuration Utility.....	18
11.2 System Information.....	20
11.3 Record Set-up.....	20
11.4 Audio Only Mode	21
11.5 Record Control.....	22
11.6 On-screen Display	25
11.7 Date & Time.....	25
11.8 Firmware Upgrades	26
12 Record OK Connection	26
13 On-Screen Display of GPS Data	26
14 Specification.....	27
15 Troubleshooting	28
15.1 FlashBack-2 will not operate with a new flash memory card.....	28
15.2 FlashBack-2 indicates the drive is full even though I have deleted all the files on the drive...28	
15.3 Video Playback is “jerky” or “hesitates”.....	28
15.4 FlashBack-2 files will not play using Windows Media Player and attempts to download a new video decoder fail.....	28
15.5 When using Windows Media Player the navigator bar fails to operate.....	28
15.6 Video Playback is “jerky” and the picture is incomplete or has extra lines.....	28
Appendix 1: Downloading an MPEG-2 Decoder for Windows Media Player.....	29
Appendix 2: Installing VLC MPEG-2 Software Player	30

2 Essential User Information

Please read this section before using the FlashBack-2 system.

2.1 Deleting Files.

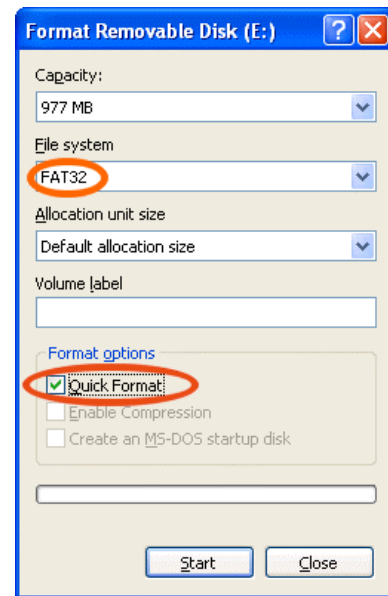
As far as the FlashBack-2 is concerned, deleting files on the Compact Flash (CF) card does not recover disk space. Only a card format will recover disk space. So, once a recording has been made, transfer the file(s) to your PC's hard drive and then undertake a disk format. This can be achieved via the FlashBack-2's On / Format switch (see figure below) or by a PC (quick format is sufficient). For more information see Section 9.2, page 15.

2.2 Using a New Compact Flash Card.

FlashBack-2 will only operate with a CF card formatted with a FAT32 (File Allocation Table) File System. Before using a new card check its File System by inserting into a PC running Windows XP and displaying the card properties by right clicking the disk icon in "My Computer". If supplied as FAT16 reformat to FAT32. For more information see Section 9.2, page 15.

2.3 Playing a Recording.

The files produced by FlashBack-2 are fully MPEG-2 compliant. They may be played directly from the card by inserting it into a PC with a suitable slot / adapter. However, better replay results are usually obtained by transferring the file to the PC's hard drive. For more information see Section 9, page 14.

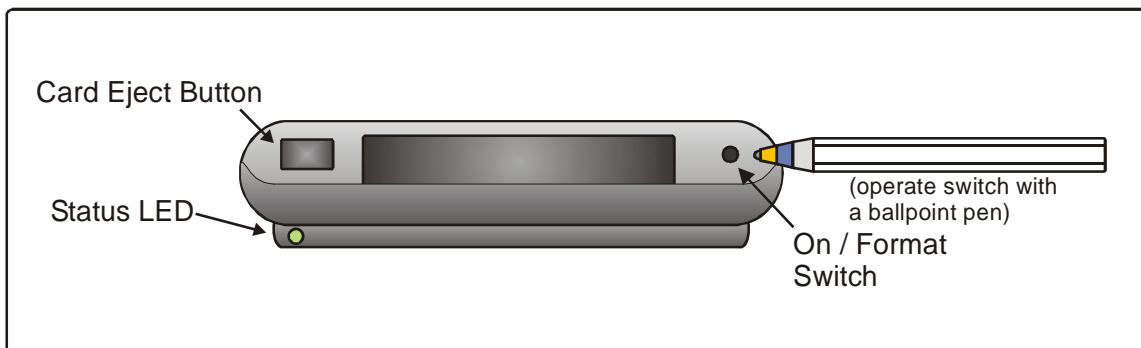


2.4 Before Making a Recording.

Before a recording session, if possible, reformat the card so that maximum disk space is available. Format may be achieved by the FlashBack-2 unit's On / Format switch or via a PC.

Make sure new CF cards are formatted to FAT 32 before use. Quick format is OK.

NB: Ensure any useful recordings have been archived before reformat.



If possible, before a recording session, clear the disk / card by pressing the On / Format switch for 5 seconds. FlashBack-2 then enters its reformat sequence.

3 Introduction

FlashBack-2 is a new range of highly compact digital video recorders (DVRs) especially designed for covert video surveillance applications. FlashBack-2 utilises broadcast standard MPEG-2 video compression to record high quality real-time video and audio to one or two Compact Flash (CF) memory cards. Once a recording has been made, the flash cards may be removed and immediately viewed on a hardware CF media player or a PC. As FlashBack-2 files are fully MPEG-2 compliant, standard applications may be used view and archive recordings to disk or DVD.

The recorder is DC powered and has stereo audio inputs at microphone or line level. FlashBack-2 Dual offers two Compact Flash card slots, doubling the record time and allowing for the “hot swapping” of cards. The system is easily configured for video quality, audio and triggered recording via its RS232 port and a PC application.

Housed in small, rugged metal enclosures, FlashBack-2 is ideal for covert installations. Furthermore, it contains no moving parts so recording in harsh environments, with continual shock and vibration over extended temperatures (-10 to +60°C) is now possible.

With its excellent video performance, ease of playback, compact size and rugged construction FlashBack-2 is the ideal solution for covert and body-worn video recording applications.

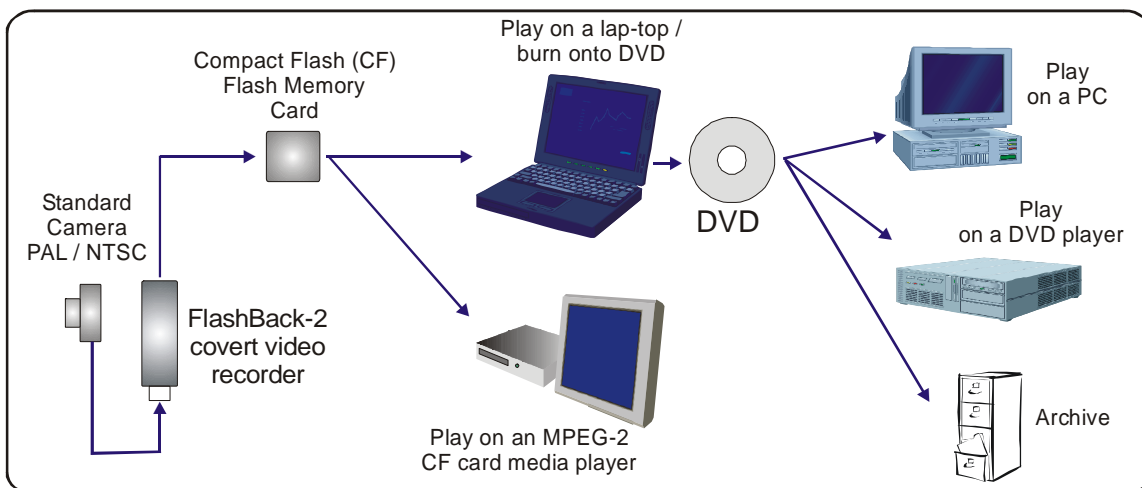


Figure 1: Typical FlashBack-2 Application

4 FlashBack-1 to FlashBack-2 changes

FlashBack-2 is very similar in function and performance to the original FlashBack-1DVR with the following differences:

- Smaller size and weight (see below).
- Operation with Compact Flash cards (FlashBack-1 was PCMCIA).
- Switched DC output for external cameras.
- Recording OK output changed to give a positive voltage when recording is OK (was a connection to ground)
- “Triggered Record” is now the default function for D-Type connector pin 4 input, rather than “Record Stop”.
- Improved audio-only recording performance.
- Single and dual CF card versions.

	FlashBack 1	FlashBack-2 (single CF)
Width	76 mm (3.1 in)	73.5 mm (2.89 in)
Height	17 mm (0.68 in)	16 mm (0.63 in)
Length	125.5 mm (4.94 in)	80 mm (3.15 in)
Volume	162 cm ³	94 cm ³
Weight	180g	110g



Figure 2 FlashBack-1 / FlashBack-2 Size Comparison

5 Installation With FlashBack-2 Connector Pod

The simplest way to initially test / set-up a FlashBack unit is to use the Connector Pod. If a Pod is not available please refer to Section 6.

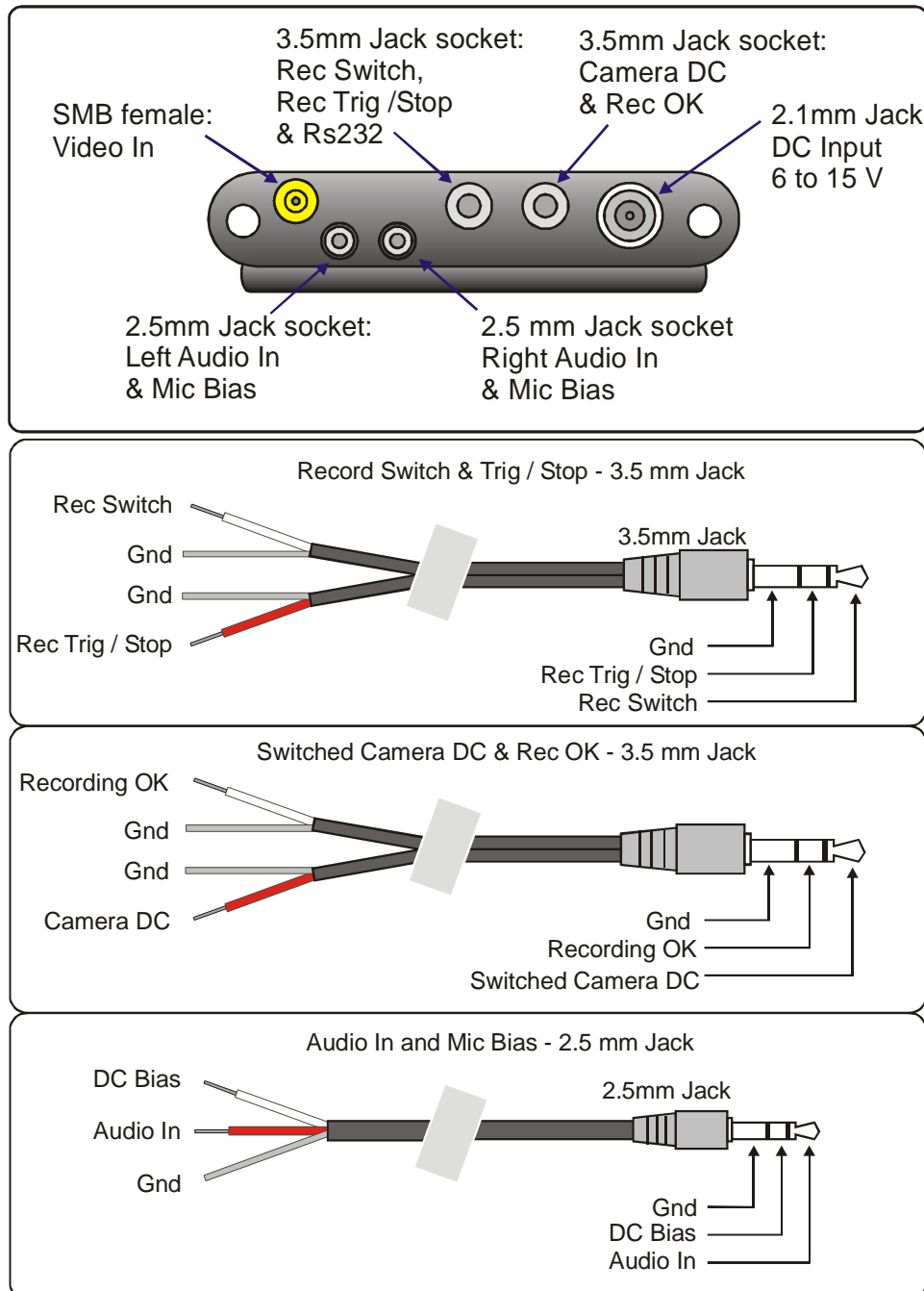


Figure 3: FlashBack-2 Connector Pod

- 5.1 Before proceeding, check the FlashBack-2 is set for the correct video standard (either PAL or NTSC) as shown on the serial number label on the unit. If necessary this can be changed by the FlashBack-2 configuration utility. See Section 11.3.
- 5.2 Ensure a FAT32 formatted CF card is inserted into the FlashBack-2 unit.
- 5.3 Connect the Pod to the FlashBack-2 unit via the 25 way D-type connector.
- 5.4 Connect a suitable video source (camera) to the “Video In” via the SMB to BNC adapter cable provided.
- 5.5 If required, connect 1 or 2 microphones to the “Left Mic” / “Right Mic” inputs with the connections shown above. If required microphone DC bias is provided (see example below).



Figure 4: Example Wiring to Knowles EA Series Microphones

- 5.6 Connect a record switch to the “Rec Switch” input via the cable provided. Make sure the switch is set to its open position.
- 5.7 Connect DC power (6 to 15 Volts) to the DC jack input. As a guide, the system requires approximately 2.5 Watts (200 mA at 12 V DC) when recording.

NB: There is an initial surge of greater than 200 mA at power-up.

- 5.8 The FlashBack-2 status LED (location shown in Figure 6, Page 10) will now illuminate. If static green the unit is ready to record. For other indications, see section Table 2: Status LED Operation, page 11.

NB: On power-up the status LED will light for approximately 30 seconds until FlashBack-2 enters low power stand-by mode. To reactivate the unit, temporarily remove the DC supply, or press FlashBack-2’s On / Format switch (Figure 6, Page 10) for less than a second.

- 5.9 To start recording, set the “Record Switch” to the closed position.
- 5.10 To stop recording, set the “Record Switch” to its open position
- 5.11 To play the recording, remove the Compact flash card and insert into a PC or hardware player (PCMCIA to CF card adapter may be required). Allow the PC a few seconds to recognise the card. The card and its contents should be viewable via Windows Explorer. FlashBack-2 recordings have a file name beginning with FB with an “.MPG” extension. They should be playable with standard Windows Media Player or other MPEG-2 compatible program. See section 9, page 14 for further information.

6 Installation Without Pod

Figure 5 below shows the connections to FlashBack-2's 25 way D-Type socket. Connections may be made with a standard 25 way D-Type plug or with a plug-to flying lead assembly supplied by Ovation Systems.

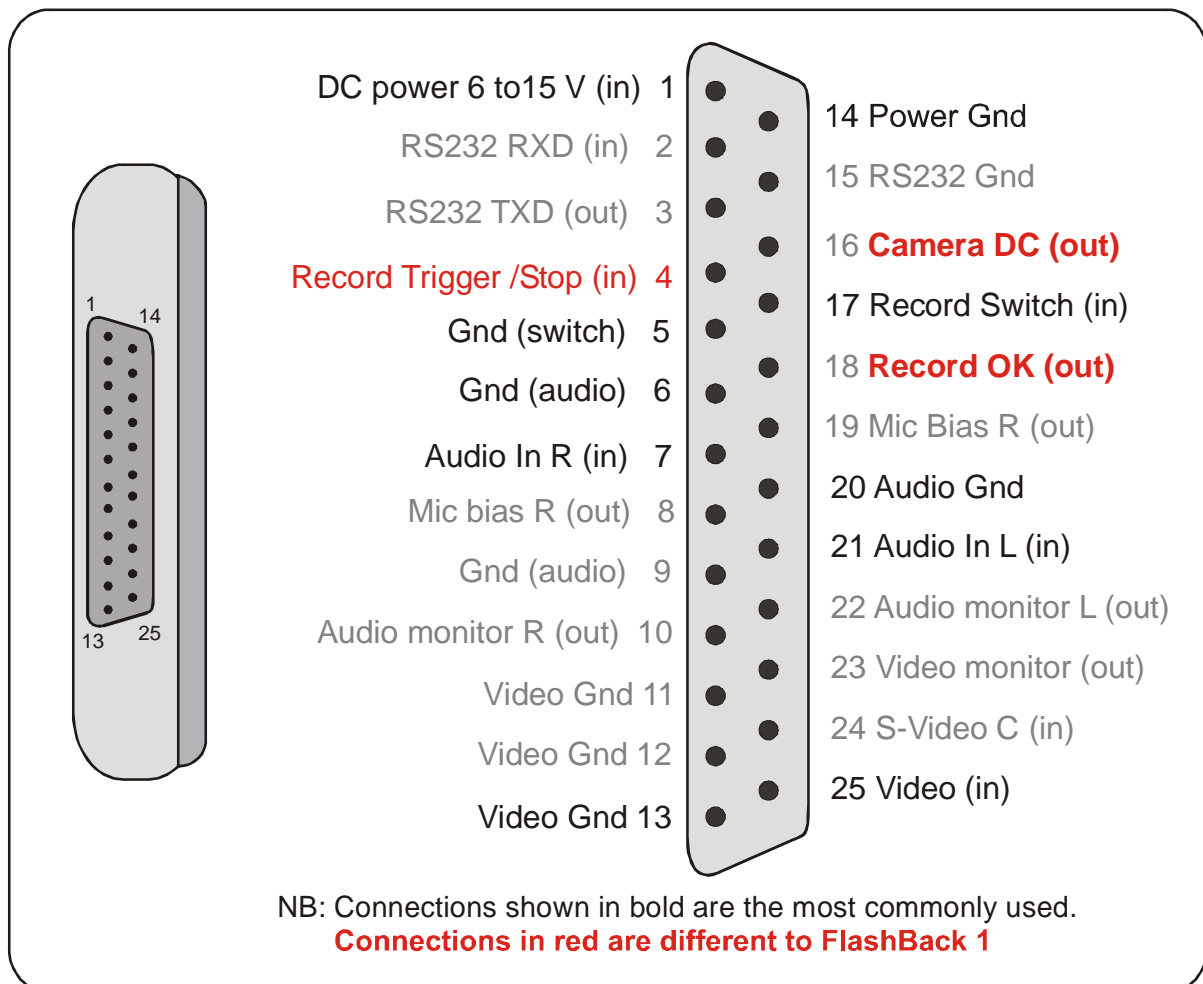


Figure 5: FlashBack-2 Interface Connections

Pin	Name	I/O	Description
1	DC Power	In	6 to 15 volts at ~2.5 Watts (eg ~210 mA at 12 volts, ~420 mA at 6 volts)
2	RS232 RXD	In	RS232 serial data input
3	RS232 TXD	Out	RS232 serial data output
4	Rec Trig / Stop	In	Contact to ground starts recording for a preset (trigger) time. Can be configured to be a record stop input. See Section 11.3.
5	Gnd (switch)	-	Ground for Rec Switch (pin 17) and Rec Trig / Stop inputs (pin 4) See Section 11.522
6	Gnd (audio)	-	Ground for audio inputs pins 7 & 21.
7	Audio R in	In	Left audio input (> 10 K Ω impedance) mic / line level.
8	Mic Bias L	Out	3.3 Volt microphone bias.
9	Gnd (audio)	-	Audio Ground.
10	Audio monitor R	Out	Audio monitor of the right audio input at line level.
11	Video Gnd	-	Video ground.
12	Video Gnd	-	Video ground.
13	Video Gnd	-	Video ground.
14	Power Gnd	-	Power ground.
15	RS232 Gnd	-	RS232 ground.
16	Camera DC out	Out	Switched DC output, with same voltage as the DC input (pin 1) for powering cameras. Active whilst not in stand-by mode. Current limit of ~ 500 mA
17	Rec Switch	In	Unit records when connected to Ground (pin 5).
18	Record OK	Out	2.6 V (with 100 mA current limit) when recording OK. Gnd when not recording. Can be used to drive an LED via a resistor. See Section 12, page 26.
19	Mic Bias R	Out	3.3 Volt microphone bias (~ 1 k Ω impedance).
20	Audio Gnd	-	Audio Ground.
21	Audio L in	In	Left audio input (> 10 K Ω impedance) mic / line level.
22	Audio Monitor L	Out	Audio monitor of the left audio input at line level.
23	Video Monitor	Out	1 Vpp 75 Ω output of the video input. Includes FlashBack-2 onscreen display.
24	S-Video C	In	The "C" input (colour) when configured for YC (S-Video) input. See Section 11.3.
25	Video In	In	PAL or NTSC 1 Vpp 75 Ω video input.

Table 1: 25 Way D-Type Pin Out.

7 Operation – Single CF Card

- 7.1.1 Check if the FlashBack-2 unit is set for PAL or NTSC operation as shown on the label on the underside of the unit.

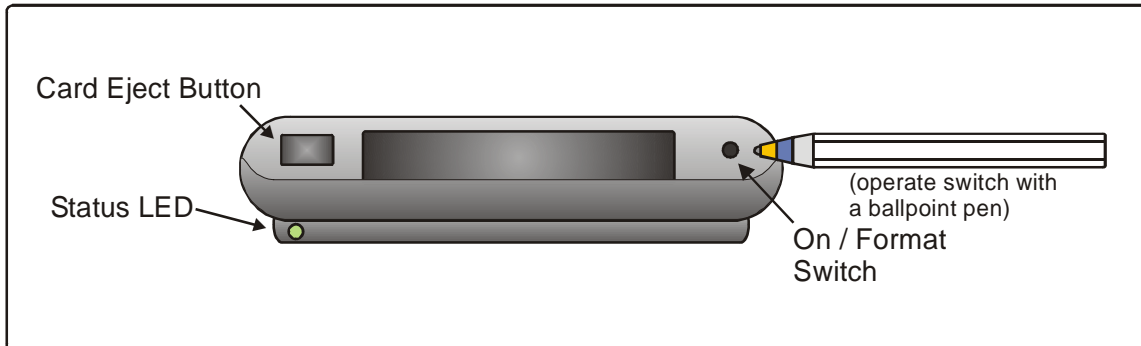


Figure 6: FlashBack-2 Front Panel Controls

7.2 To make a recording:

- 7.2.1 Check that at least video, power and a record switch are connected as described in Section 5 & 6. Ensure the record switch is set to the open position.
- 7.2.2 Apply DC power and the status LED on the front panel will light. If the status LED shows static green the system is ready to record.

NB: If LED is not static green, refer to in Table 2, below.

NB: On power up, the LED will light for approximately 30 seconds before the unit enters a low current stand-by (or sleep) mode.

Important: Before making a recording, ensure there is enough space available on the CF card, preferably by formatting the card before use. Formatting may be achieved using a PC or by pressing FlashBack-2's format switch (see Figure 6) for 5 seconds using a ballpoint pen. See Section 9.2 for more information regarding formatting options.

- 7.2.3 To start recording, close the record switch. The status LED will flash fast red for approximately 1 second as FlashBack-2 prepares to record. Once recording, the status LED will flash green. The longer the green flash, the greater the disk space available.
- 7.2.4 To stop recording, open the record switch. The status LED will revert to showing static green.
- 7.2.5 The card may now be removed and placed into a PC or hardware player for viewing. A PCMCIA to CF card adapter is supplied.

The table below shows the function of FlashBack-2's front panel status LED. In general, a green LED indicates the unit is functioning OK. A red LED indicates a problem of fault condition.






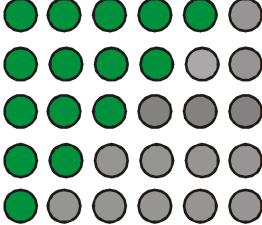


Status LED Operation	Description
 Static green	FlashBack-2 is in stand-by, ready to record (ie video & card OK).
 Flashing long red / short green (with no gaps)	In stand-by (or unable to record) with CF card not present, faulty or full. Video OK.
 Flashing long green / short red (with no gaps)	In stand-by (or unable to record) with video not present but card OK.
 Flashing equally green / red (0.5s red / 0.5s green with no gaps)	Unit is under external control of the FlashBack-2 PC configuration software
 Static red	Unable to record as video & card not present, faulty or full. Or system fault.
 Flashing green with reducing duration	Recording OK. The longer the green flash the greater the card space remaining. Eg: With an empty card the LED will flash for approx 3 seconds. With 50% card capacity remaining the LED will flash 1.5 sec on, 1.5 off. With 10% remaining LED will flash for .3 sec on, 2.7 sec off.
 Fast flashing green / red	Recording audio only. Also during card format.
 Flashing red (fast)	System reset / preparing to record.

Table 2: Status LED Operation

8 Operation – Dual CF Card

FlashBack-2 Dual operates in a very similar way to the single unit. With two blank CF cards the system will start recording to card 1 and automatically switch to card 2 when 1 is full. It is possible to remove / replace the unused card whilst the other is in use. There are two individual card status LEDs with the following function:

LED	Description
Static green	Card OK (with space)
Flashing green	Recording to card
Static red	Card full
Flashing red	Fault / initialising

Table 3: Card Status LED Operation

Two separate format switches are provided allow the formatting of each card individually. It is possible to format the unused card whilst the other card is recording.

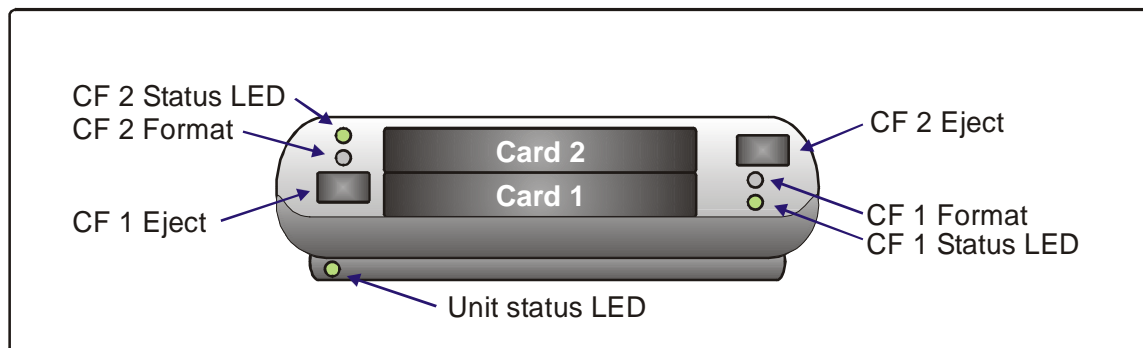
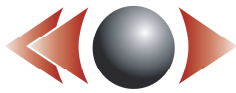


Figure 7: FlashBack-2 Dual Operation

The unit status LED has the same function as FlashBack-2 single (see Table 2) with the green flash time taking into the account disk space available over the two cards.



8.1 FlashBack-2 Dual Card Priorities

As there are two cards, there are a number of possibilities when deciding which card to use. The main card selection guidelines used by FlashBack-2 Dual are:

- If both cards are empty, record to card 1
- Complete a partially full card before writing to an empty card.
- Try to keep recording to the same card until it is full.

Please refer to the tables below showing which card is used from a full power-up or record start / stop whilst powered.

After a full power-up (i.e. not from stand-by / low-power mode)		
Card 1	Card 2	Action
Empty	Empty	Record to card 1
Partially full	Empty	Record to card 1
Partially full	Partially full	Record to card 1
Empty	Partially full	Record to card 2
Full	Empty / partially full	Record to card 2
Full	Full	Can't record.
From low-power mode / stand-by (i.e. not after a full power down)		
Card 1	Card 2	Action
Empty	Empty	Record to card 1
Partially full & was recording to card 1	Empty	Record to card 1
Empty / partially full	Full	Record to card 1
Full	Empty / partially full	Record to card 2
Empty / partially full & was recording to card 1	Empty / partially full	Record to card 1
Empty / partially full	Empty / partially full & was recording to card 2	Record to card 2
Full	Full	Can't record.

Table 4: FlashBack-2 Dual Card Selection Criteria

9 Playing Recordings & Managing Cards Via A PC

Software playback is best achieved under Windows XP. It is also possible to playback under Windows 98 SE and Windows ME with the appropriate drives and software installed.

Important: To play FlashBack-2 files with Windows Media Player, an MPEG-2 decoder driver needs to be installed on your PC. This is normally loaded if a DVD drive or player is present. However, if not, please refer to Appendix 1: Downloading an MPEG-2 Decoder for Windows Media Player. As an alternative, a freeware MPEG-2 player is included in the “Applications” folder of the FlashBack-2 CD see Appendix 2: Installing VLC MPEG-2 Software Player.

- 9.1.1 Insert the flash card into the PC's CF or PCMCIA (via an adapter) slot. If a slot is unavailable there are a number of USB to CF card adapters available from PC vendors.
- 9.1.2 Allow the PC a few seconds to recognise the new card and then run “My Computer” / “Windows Explorer” to show the new drive. Double click to display the card contents. See Figure 8 and Figure 9.

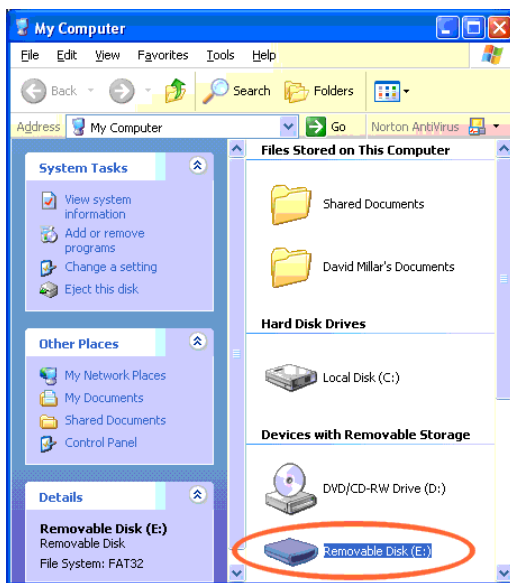


Figure 8: My Computer Removable Drive

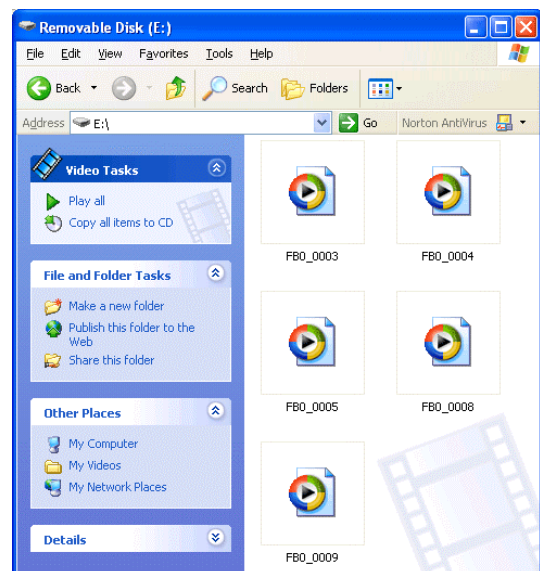


Figure 9: FlashBack-2 Files

9.1.3 FlashBack-2 video files are MPEG-2 compliant and begin with FB with an “.MPG” extension. The files are given sequential numbers starting from 0001. With a standard Windows configuration, they will be seen as Windows Media Player files (see Figure 9). To play, simply double click the file and it will be displayed.

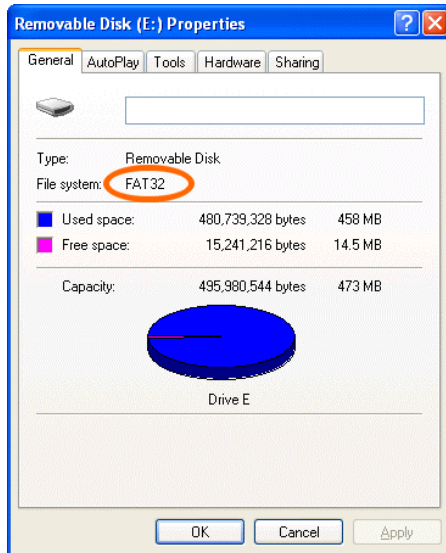
NB: Due to the read speed of some CF card interfaces, **better results are usually obtained by transferring the required file to the PC’s hard disk before playing.**

NB: Other MPEG-2 compliant software players may be used. An alternative player called VLC, is included on the FlashBack-2 CD in the applications folder.

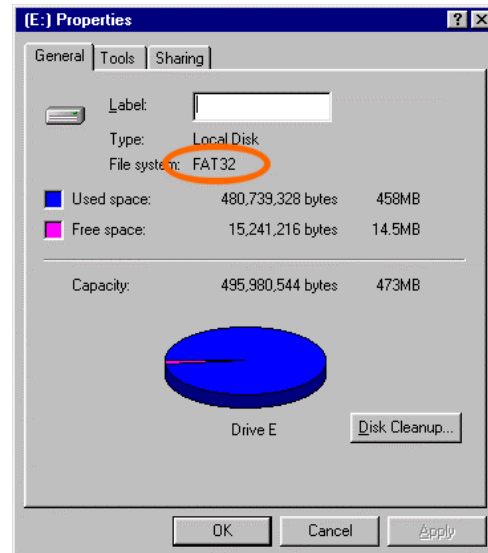
9.1.4 With an appropriate DVD burner & software, FlashBack-2 files may also be burnt onto DVD or Video CD for archiving without modification.

9.2 Operation With A New Compact Flash Card.

Important: FlashBack-2 will only operate with cards formatted with a FAT32 (File Allocation Table) File System. Before using a new card, check its File System by inserting into a PC and displaying the card properties by right clicking the disk icon in “My Computer”. If supplied as FAT16, reformat to FAT32. This is achieved using Windows XP’s “Format Removable Disk” dialogue (see below).



XP - Disk Properties



98 - Disk Properties

Figure 10: Flash Card File System Properties.

9.3 Formatting a Flash Card

Important: If using a new card please ensure it has a FAT 32 File System. See 9.2 above.

- 9.3.1 To format the card within the FlashBack-2 unit, power the system, with the record switch open, and press the format switch on the front of the FlashBack-2 for 5 seconds, with a ballpoint pen. See Figure 6, on page 10. Formatting is indicated by a flashing red status LED.
- 9.3.2 The flash card may also be formatted on a PC using Windows XP. Right click on the disk icon in “My Computer” and choose the “Quick Format” option and ensure the File System is set to FAT32.

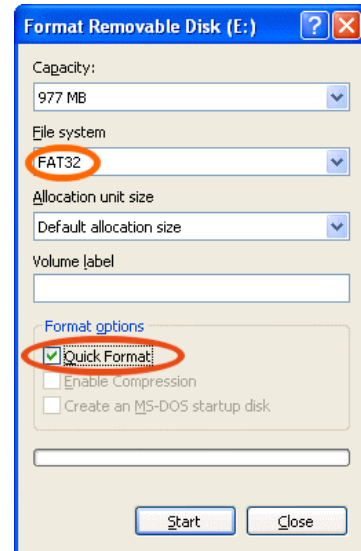


Figure 11: Formatting the flash card on a PC

9.4 Deleting Files

Important: As far as the FlashBack-2 is concerned, deleting files on the flash card does not recover card space. Only a format will recover card space. So, once a recording has been made which you wish to keep, transfer the file to your PC’s hard drive and then perform a reformat of the CF card.

In summary, to regain flash card space, do not delete files. Transfer the required files to a PC for archiving and then reformat the flash card.

9.5 Corrupted Flash Cards

If the FlashBack-2 has the card or power removed whilst recording it is possible the card may become corrupted, or the files are incomplete. In this case run Windows Scan Disk, which will help recover any missing data. To run Scan Disk, right click on the Removable Disk icon in My Computer, then select “Tools”, under Error-checking click “Check Now”. The Check Disk dialogue will now be shown. Check “Automatically fix file system errors” and click the “Start” button.

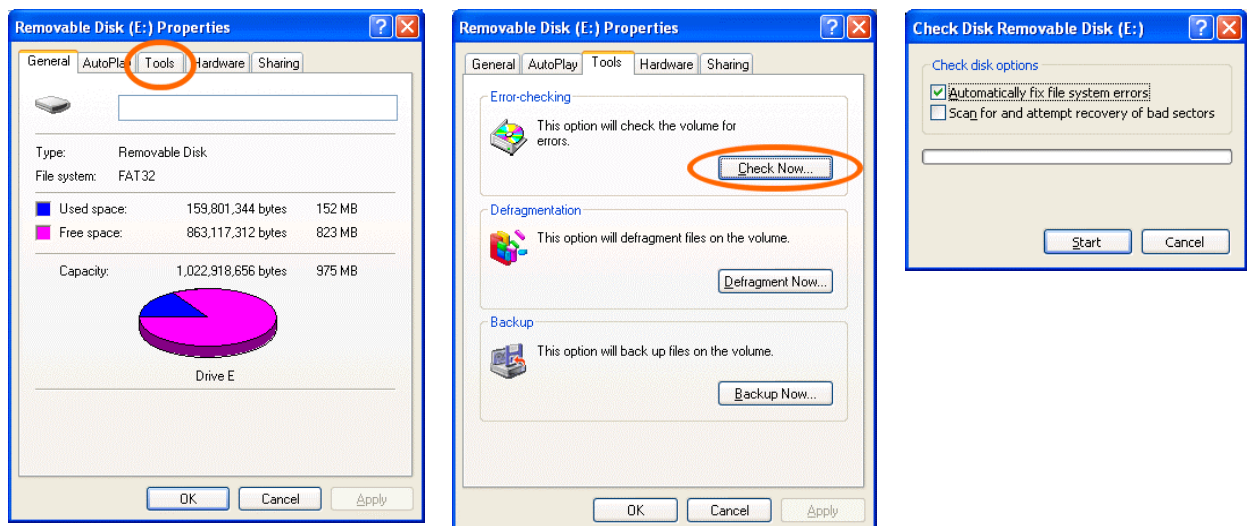


Figure 12: Running Scan Disk To Fix Errors

10 Playback Via Hardware Players

As FlashBack-2 recordings are MPEG-2 compliant, they are compatible with a number of hardware picture / movie viewers on the market. For example the DigiViewer plays FlashBack recordings to a TV monitor directly from the Compact Flash (CF) card.

For more information see www.card-media.co.uk



Figure 13: DigiViewer for Playing FlashBack Recordings to a TV Monitor

11 Configuration

The FlashBack-2 unit may be configured by a PC configuration utility (supplied on CD) that is connected to the FlashBack-2 via a serial lead. Please refer to Figure 14 below.

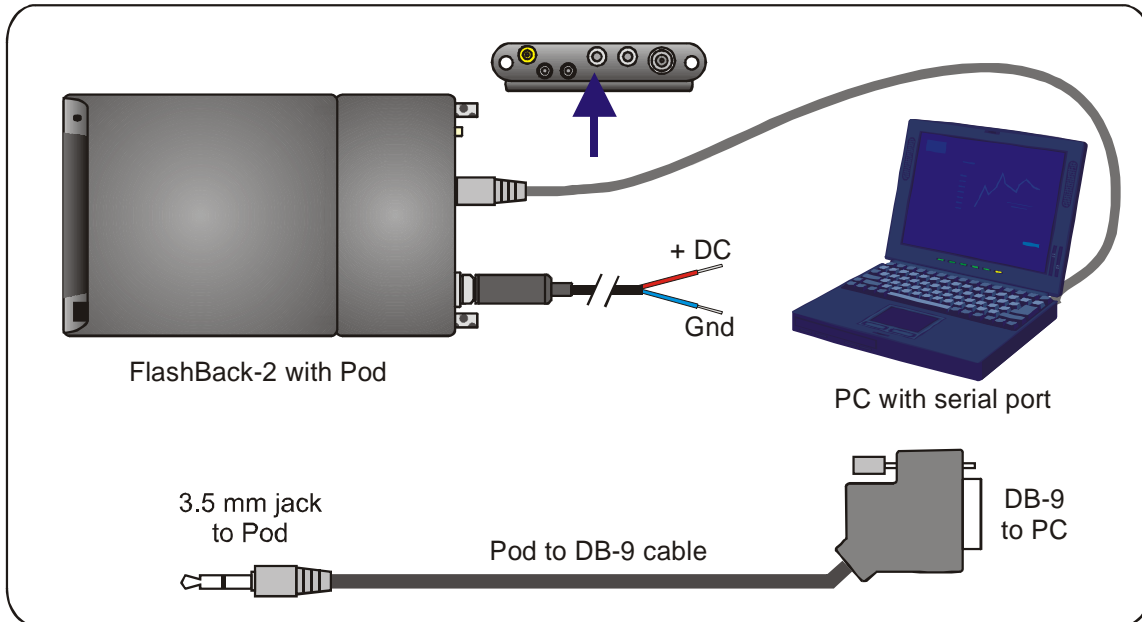


Figure 14: FlashBack-2 Serial Connection via Pod

11.1 Set-up The PC Configuration Utility

11.1.1 Ensure PC has a suitable serial (Com) port. Some PCs are no longer supplied with dedicated serial ports. In this case, a USB to serial adapter should be used.

11.1.2 Install the FlashBack-2 PC configuration utility supplied on CD by "Start" > "Run" > "X:\Setup.exe" (where X = the PC's CD drive)

11.1.3 Connect the FlashBack-2 to the PC's serial port. If the Pod is being used a DB-9 to 3.5 mm cable provided. Alternatively, a DB-25 to DB-9 / DC power cable is available from Ovation Systems. See Figure 15.

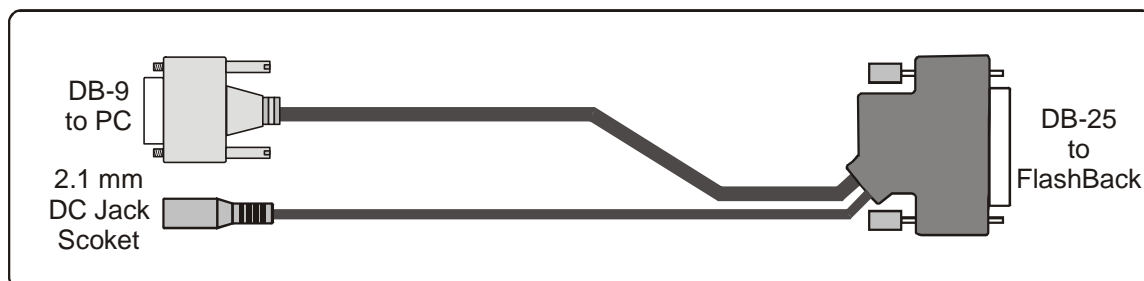


Figure 15: Alternative FlashBack-2 Serial & Power Lead

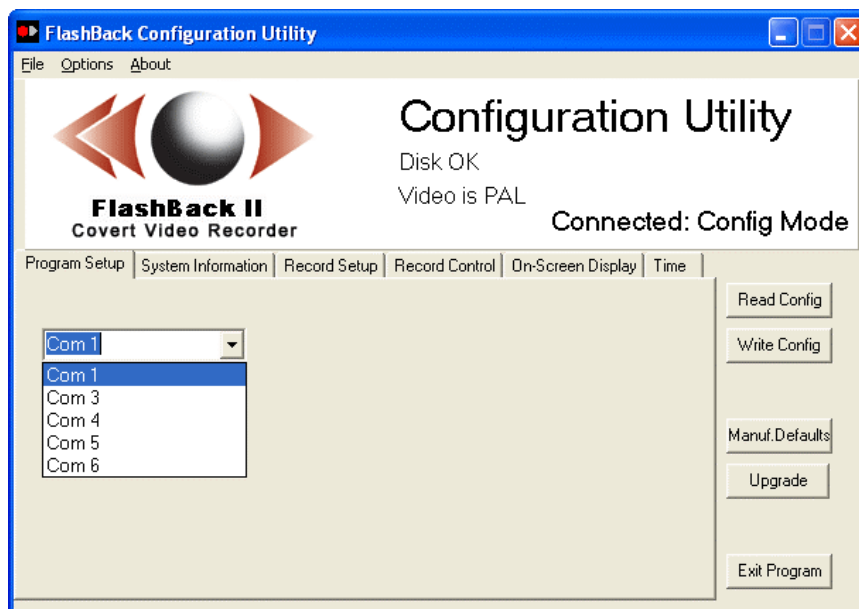


Figure 16: Program Set-Up Screen

- 11.1.4 Run the FlashBack-2 Configuration Utility on the PC and select the appropriate serial port (see above).
- 11.1.5 Connect DC power to the FlashBack-2.
- 11.1.6 The PC application will now recognise the FlashBack-2 unit and show that it has established a connection.
- 11.1.7 The FlashBack-2 status LED will now flash 50:50 red / green indicating it is under control of the PC software.
- 11.1.8 If any changes are made, they should be downloaded to the FlashBack-2 using the “Write Config” button.**

Important: The PC Configuration Utility is only able to establish connection with the FlashBack-2 when it is powered and **not** in stand-by. It may be necessary to “wake up” the FlashBack-2 unit by pressing the On / Format front panel button, or momentarily switching the DC power off to establish a connection.

Important: FlashBack-2 is unable to record whilst under the control of the Configuration Utility.

The Configuration Utility has a number of Tabs, which are described below:

11.2 System Information

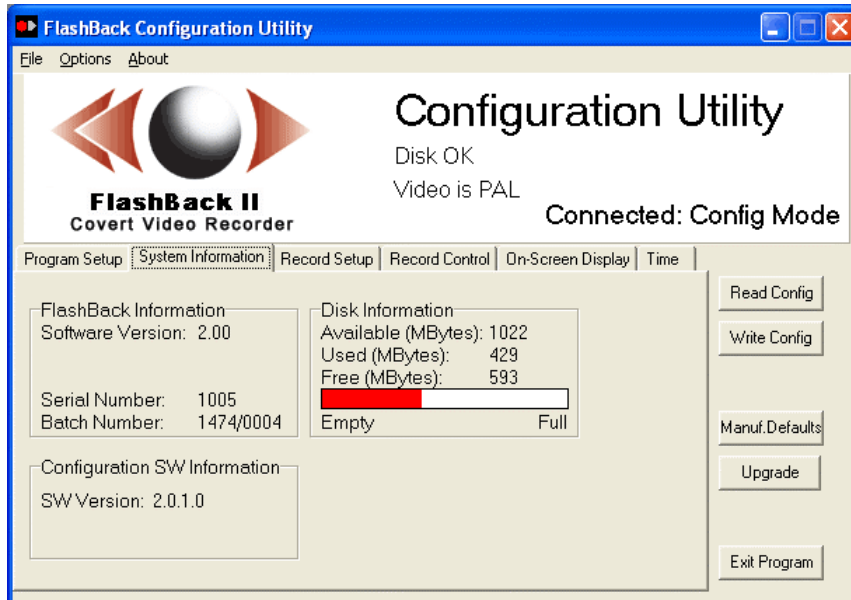


Figure 17: System Information Screen

This screen shows the serial number of the FlashBack unit and PC application software version number. It also gives an indication of the amount of card space used.

11.3 Record Set-up

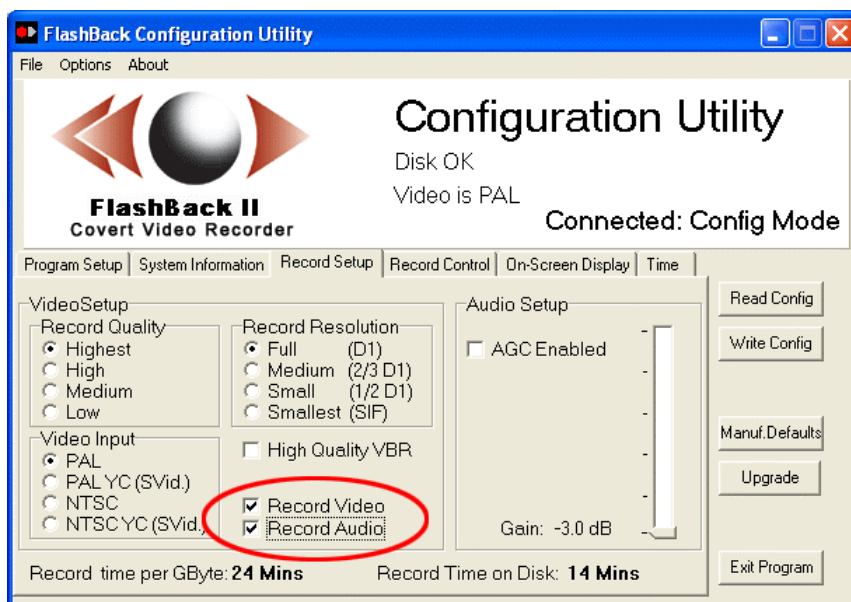
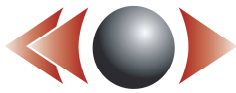


Figure 18: Record Set-up Screen



Record Quality: allows the user to configure the amount of video compression (quality) employed by the system. The “Highest” setting is similar to DVD quality. The software shows an estimate of the record time at the bottom of the screen, depending upon configuration.

Video Input: configures the system to either PAL or NTSC, with either the standard composite or S-Video (YC) input enabled.

NB: If the system is to be used with high resolution monochrome cameras (> 330 TV lines), the best performance will be achieved by setting the FlashBack-2 to S-Video (YC) and connecting the camera to the standard video input (pin 25).

Record Resolution: adjust the resolution of the recordings from full (PAL or NTSC) resolution to SIF.

Resolution	PAL	NTSC
Full (D1)	720 x 576	720 x 480
Medium (2/3 D1)	480 x 576	480 x 480
Small (1/2 D1)	352 x 576	352 x 480
Smallest (SIF)	352 x 288	352 x 240

Table 5: Record Resolutions

NB: If recordings are made at other than full resolution, there may be problems with display and archiving of files. Always test before use.

High Quality (VBR): Improves video quality even further by using MPEG-2 with variable bit rate (VBR) compression. As the data rate is increased up to 9 Mbps (from a maximum of 6 Mbps), this mode may cause problems with slower CF cards and playback software.

Record Video: when checked, Flashback-2 records video (independent of audio setting).

Record Audio: when checked, Flashback-2 records audio (independent of video setting). See 11.4, below.

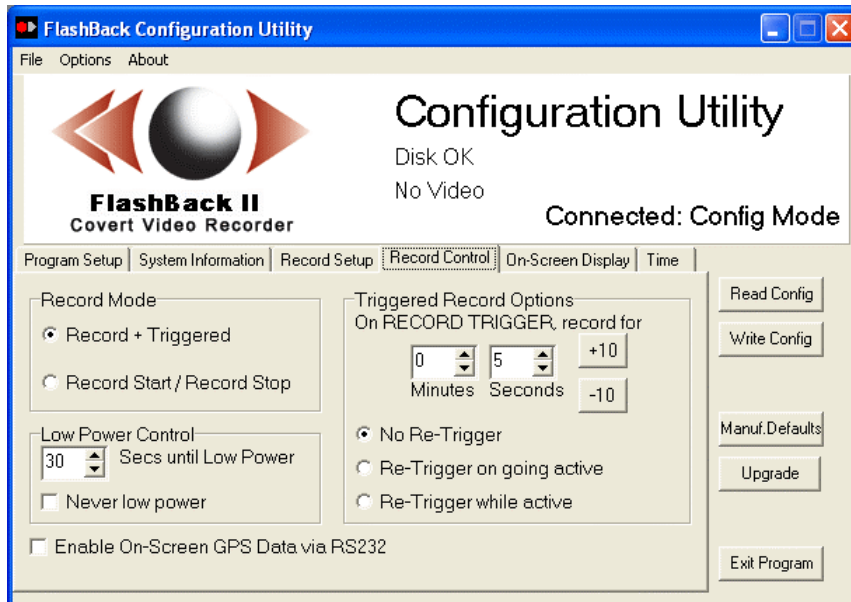
Audio Setup: configures the audio gain, from microphone to line level. There is also an option for AGC (automatic gain control) over 4 gain ranges.

Important: Once any of the above has been adjusted, the new configuration must be downloaded to the FlashBack-2 unit using the “Write Config” button

11.4 Audio Only Mode

If audio only recording is selected, files are made with a “.MPA” extension which are playable via Microsoft Media Player etc. The expected record time for audio only recordings is approximately 7 hours per gigabyte.

11.5 Record Control



FlashBack-2 has two inputs (pins 17 and 4, see Section 6) that control recording which can be configured in a number of different ways.

11.5.1 Record + triggered:

This is the standard configuration for two record control inputs, pins 17 & 4.

Pin 17, "Record Switch": recording starts when connected to ground (e.g. on a switch closure) and stops when the switch is opened.

Pin 4, "Record Trigger / Stop: when is momentarily connected to ground the unit will record for a preset (trigger) time. For more information about triggered recording see Section 11.5.4, below.

NB: FlashBack-2 takes approximately 2 seconds to actually start recording from when the Record input is activated.

11.5.2 Record Start / Record Stop

If required, it is possible to start and stop recording under the control of two inputs. In this mode the unit will start recording as soon as the "Record" input (Pin 17) is connected to ground. The recording will stop when the "Record Trigger / Stop" input (Pin 4) is connected to ground.

NB1: In this mode, only a momentary connection to ground is required to start or stop recording.

NB2: Whilst the "Record" input is connected to ground the unit will continue to record and ignore any activity on the "Record stop" input.

11.5.3 Enable On-Screen GPS Data via RS232

Check if on-screen display of GPS data supplied via the RS232 port is required. See Section 13, page 26.

11.5.4 Triggered Recording:

This mode is useful when the external sensors, such as motion or PIR detectors, are used to start the FlashBack-2. For flexibility, there are three modes of triggered recording as described in the examples below.

No Re-Trigger:

Where FlashBack-2 records for a preset time as soon as the “Trigger” input is connected to ground. During the trigger period, activity on the “Trigger” input is ignored.

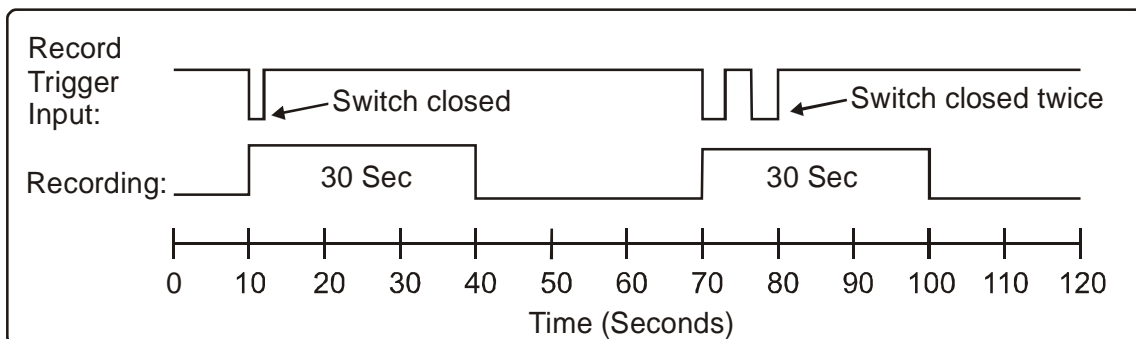


Figure 19: Triggered (Without Re-trigger) Recording Example

In the example above, the FlashBack-2 has been configured for triggered recording of 30 seconds duration, with no re-trigger. As soon as the “Record Trigger” input goes low (e.g. on switch closure) the unit will start recording and continue to record for 30 seconds, no matter how long or how many times the “Record Trigger” input is activated / deactivated during the 30 second trigger period. Please see Triggered Record Notes on page 24.

Re-Triggered OnGoing Active:

As above, but during the trigger period the timer is reset each time “Record Trigger” input is activated.

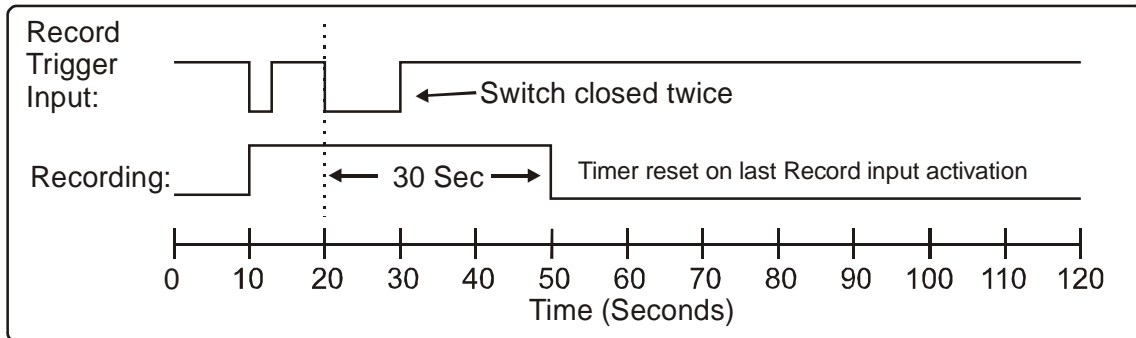


Figure 20: Triggered, with re-trigger on Record going active.

In the above example, the FlashBack-2 timer is re-set to zero every time the “Trigger” input is activated which can extend the record time beyond 30 seconds. Please see Triggered Record Notes on page 24.

Triggered, With Re-Trigger Whilst Record Active:

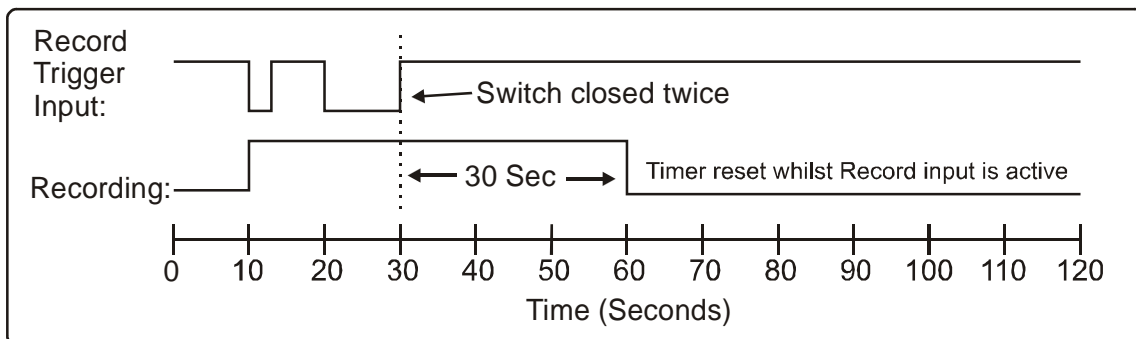


Figure 21: Triggered, with re-trigger whilst Record Input active.

In this final example, the timer is constantly re-set whilst the “Record Trigger” input is active. This effectively adds 30 seconds to the point where the “Record Trigger” input last went inactive. Please see Triggered Record Notes below.

Triggered Record Notes:

- 1: In all modes, if the “Record” input is active when the trigger time is complete then FlashBack-2 will continue to record.
- 2: FlashBack-2 takes approximately 2 seconds to actually start recording from when the “Record” input is activated. The trigger timer starts from when the recording actually starts.

11.6 On-screen Display

This screen allows for the configuration of the on-screen display that is superimposed on the recorded video. The on-screen display may be seen in real-time via the “Video Monitor Output” as described in Section 6, page 8.

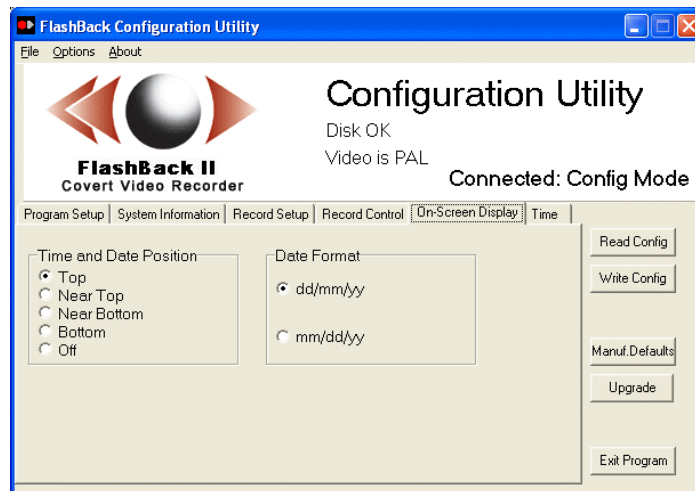
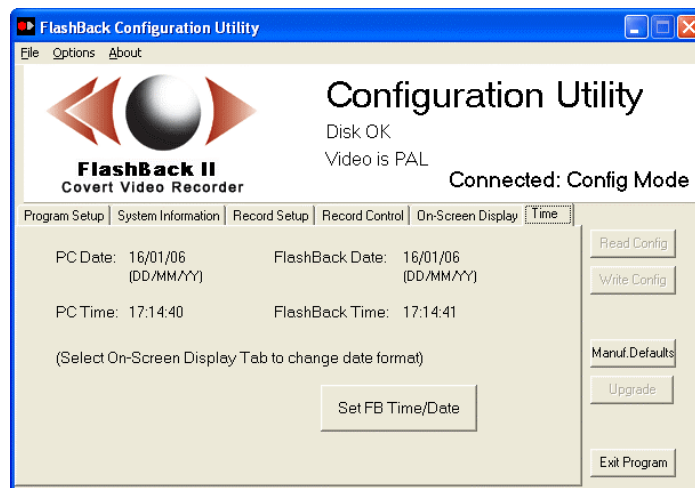


Figure 22: On–screen Display Set-up Screen

Important: Once any of the above has been adjusted, the new configuration must be downloaded to the FlashBack-2 unit using the “Write Config” button

11.7 Date & Time

To set FlashBack-2’s internal clock, simply click the “Set FB Time/Date” button.



NB: This routine uses the current PC clock. Before downloading the time / date ensure the PC clock is correct and adjust if necessary.

11.8 Firmware Upgrades

It is possible to upgrade the FlashBack-2 internal firmware via the PC Configuration Utility. The “System Information” screen shows the current FlashBack-2 firmware version (See Section 11.2, page 20). To upgrade, click the “Upgrade” button and then select the upgrade file (ending in “.FB2”) and then click “Upgrade”.

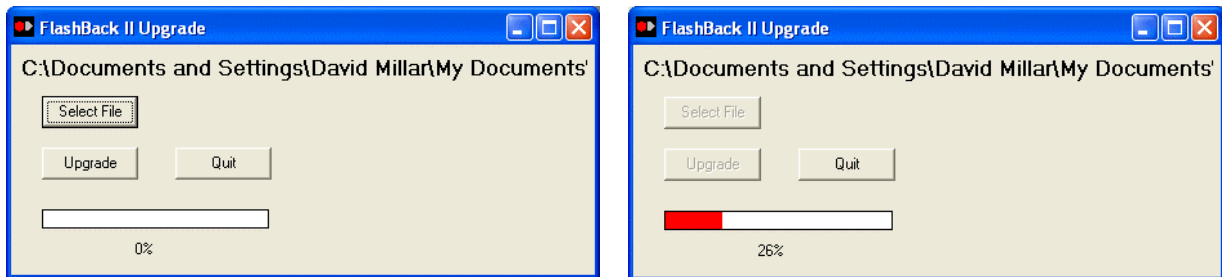


Figure 23: FlashBack-2 Firmware Upgrade

It is planned that upgrade information will be available from the Ovation Systems website, www.ovation.co.uk.

12 Record OK Connection

FlashBack-2 provides an output on pin 18 that may be used to verify the unit is successfully recording. The output goes to 2.6 V when recording and may be used to drive an LED or logic level.

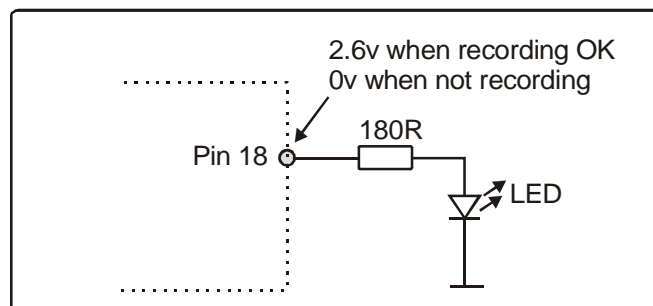
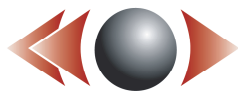


Figure 24: Record OK LED circuit

13 On-Screen Display of GPS Data

If FlashBack-2 is presented with GPS data in the NMEA serial (RS232) format at 4,800 bps the system displays the latitude and longitude on-screen. FlashBack can decode GPS GPGGA sentences with an onscreen format to be finalised. If this function is required, check the “Enable On-Screen GPS Data via RS232” as shown Section 11.5, page 22.



14 Specification

General:

Operating temperature range	0 to +45°C (-10 to + 60°C optional).
Mechanical size (housed)	Single: 75 x 83 x 16 mm. Dual: 75 x 83 x 23 mm.
Finish	Hard anodised aluminium.
Weight (housed, no cards)	Single 115g, dual 145g.
Operating voltage range	6 to 15 V DC.
Power consumption	< 3 Watts.
Current consumption at 12 V	215 mA (approx.) whilst recording.
Standby current consumption	< 220 uA.
Disk interface	1 or 2 Compact Flash (CF) Card.
Input / output connector	25 way D-Type socket.
On-screen display	Date & time (various positions / formats).
Record control	Record on contact to Gnd or Triggered record for preset time.

Video:

Video standards supported	PAL (625 lines), NTSC (525 lines) Composite & S-Video.
Video compression	MPEG-2.
Video input level	1 Vpp \pm 10%, 75 Ohm.
Digital sampling (PAL)	576 lines by 720 pixels. (lower resolutions possible)
Power up to record time	< 2 seconds.
Video monitor output	1 Vpp \pm 10%, 75 Ohm. (includes on-screen display)
Record time (approx)	very high quality: 15 mins / Gbyte high quality: 25 mins / GByte low quality: 1 hour / GByte

Audio:

Number of channels	2.
Input level	+3 to -30 dBV (adjustable) .
Input impedance	> 10 K Ohm.
Mic bias	3.3 V DC, 1 K Ohm.
Audio monitor output	0 dBV (nominal).
Audio monitor output impedance	< 100 Ohm .

15 Troubleshooting

15.1 FlashBack-2 will not operate with a new flash memory card.

The most likely cause is the new card has the incorrect file system. To check the card's File System, insert the card into a PC and display the cards properties. For more information refer to Section 9.2 Operation With A New Compact Flash Card.

15.2 FlashBack-2 indicates the drive is full even though I have deleted all the files on the drive.

As far as the FlashBack-2 is concerned, deleting files on the removable flash drive / card does not recover card space. Only a reformat will recover card space. So, once a recording has been made which you wish to keep, transfer the file to your PC's hard drive and then perform a reformat. For more information see Section 9.2, page 15.

15.3 Video Playback is “jerky” or “hesitates”.

This is normally caused by the transfer rate from the Flash card to the PC not being fast enough.

The solution is to copy the file to the computer's hard disk and then play the copied file. In some situations where the transfer rate is nearly high enough, it is sufficient to pause playback for a few seconds to allow Media Player to fill its buffers and then play. Often the file will play correctly from then on, and this saves the time-consuming transfer to the PC's hard disk.

15.4 FlashBack-2 files will not play using Windows Media Player and attempts to download a new video decoder fail.

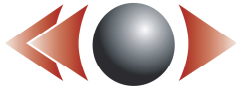
FlashBack-2 files have an MPEG-2 format, the same used by DVD disks. If the PC does not have a DVD drive / player installed, it may be necessary to purchase a plug-in Codec for Media Player or use a third party MPEG-2 player. An alternative freeware MPEG-2 player is included in the applications folder of the FlashBack-2 CD. For more information about downloading / purchasing an MPEG-2 decoder for Windows Media Player see Appendix 1.

15.5 When using Windows Media Player the navigator bar fails to operate.

On some installations using InterVideo's MPEG2 decoder, the navigator bar does not work correctly making navigation difficult. At the moment the only known fix is to install another MPEG Decoder such as PowerDVD from CyberLink. See Appendix 1.

15.6 Video Playback is “jerky” and the picture is incomplete or has extra lines.

Check that the FlashBack-2 is configured for video of the same standard (PAL or NTSC) as the video source. This can be checked using the FlashBack-2 Configuration Utility which will report both how the FlashBack-2 is configured and also the standard of the video source. See section 11.3



Appendix 1: Downloading an MPEG-2 Decoder for Windows Media Player.

NOTE: The suppliers of the software charge for the software recommended in this section. Ovation Systems Ltd has confirmed that this suggested software will fix some problems with Video Playback as described, however it is possible that this download will not fix the problems you are having, or might not work on your particular PC. Ovation Systems Ltd cannot be liable for refunding any money paid for downloading this software whether or not it fixes the playback issues on your PC.

Windows XP:

The MPEG2 decoder required has to be installed as a “plug-in”. More information can be found at:

<http://support.microsoft.com/default.aspx?scid=kb;en-us;306331>

or

<http://www.microsoft.com/windows/windowsmedia/windowsxp/buypacks.aspx>

We recommend CyberLink's DVD Decoder (PowerDVD) as it is known to work well with FlashBack-2 recordings.

http://www.gocyberlink.com/english/products/powerdvd/winxp_plugin.asp

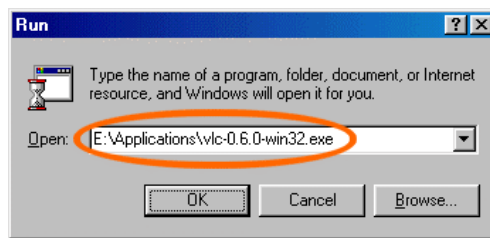
Other Windows Operating Systems:

For earlier versions of Windows 98 (before SE) playback of MPEG2 is only possible using a video card that has support for MPEG2. Supporting all such cards is not possible. Please contact your computer supplier for technical assistance.

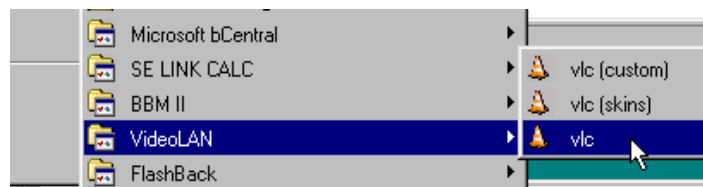
For Windows ME, see <http://support.microsoft.com/default.aspx?kbid=272985>

Appendix 2: Installing VLC MPEG-2 Software Player

A third party freeware MPEG-2 player is included in the “Applications” folder of the FlashBack-2 CD. To install use “Start”> “Run” and enter “x:\Applications\vlc-0.6.0-win32.exe” where “x” is your CD drive letter.



Once installed it may be run from the VideoLAN programme group.



With VLC running choose “File” > “Open File” and then “File” tab and the “Browse” button to select the required file.

In some installations, it may be necessary to set-up the software for successful replay. Try either Direct X or Windows GDI under “Settings” > “Preferences”.

