

## Anhang B

### Fragen und Antworten

- **Wie funktioniert die SmartSync DV Technologie?**

Jede moderne Kamera hat eine eingebaute Quarzuhr, die zum Beispiel das „Einsetzen“ von Uhrzeit und Datum ermöglicht. Diese Uhrzeit wird aber auch dann auf das Band geschrieben, wenn sie im Bild gar nicht sichtbar ist. QuadCam nutzt nun den Digitaleingang des Casablanca-Gerätes, um die genaue Uhrzeit jeder Kamera zu messen und die Differenz zwischen der „Casablanca-Uhrzeit“ sowie den einzelnen Kamera-Uhrzeiten in Millisekunden-Präzision zu ermitteln. Aufnahmen von so eingemessenen Kameras werden beim Einlesen vom Band auf die Casablanca-Festplatte automatisch mit dem so gewonnenen Korrekturfaktor belegt und besitzen dann eine gemeinsame Referenzzeit: die „Casablanca-Uhrzeit“.

- **Ist jedes Gerät mit DV-Anschluss für QuadCam und SmartSync DV geeignet?**

Nein, bestimmte Aufnahmegeräte (MicroMV, DVD-Camcorder, DV(D)-Recorder) sind trotz DV- (Firewire-) Anschluss möglicherweise inkompatibel zu SmartSync DV und können nur im manuellen Betrieb verwendet werden.

- **Was tun, wenn die Aufnahmen von unterschiedlichen Kameras sehr unterschiedlich wirken und farblich nicht zueinander passen?**

Vor jeder Aufnahme sollte mit jeder beteiligten Kamera ein (manueller) Weißabgleich durchgeführt werden. Stellen Sie die Kameras am Veranstaltungsort nebeneinander, halten Sie vor jede Kameraoptik ein weißes Blatt Papier und führen Sie den Weißabgleich durch. Kameras ohne manuellen Weißabgleich sind aus diesem Grund auch nur bedingt für QuadCam geeignet.

- **Müssen die Aufnahmen mit der gleichen Kamera als Zuspäler zu Casablanca überspielt werden, mit der auch die Aufnahmen angefertigt wurden?**

Nein, als Zuspäler können Sie im Prinzip jeden DV- oder Digital8-Player mit DV-Ausgang verwenden. Die Zeitinformationen sind ja auf den Bändern gespeichert und müssen von dem Abspielgerät nur gelesen werden. Die interne Uhrzeit des Abspielers hat dabei keinen Einfluss auf das Ergebnis.

- **Muss eine komplette Aufnahme von beispielsweise 60 Minuten Länge auch am Stück bearbeitet werden?**

Nein, dank SmartSync DV ist es möglich, die „Hintergrund“-Szene vor dem „Live“-Videoschnitt mit QuadCam beliebig aufzuteilen und jedes Teilstück einzeln zu bearbeiten. SmartSync DV findet automatisch die zum „Hintergrund“ passenden Teile der Inserts, sobald Sie einen beliebigen Abschnitt als „Hintergrund“ einfügen. Wenn Sie nicht gerade ein Spezialist für Live-Videomitschnitte sind, dann empfehlen wir Ihnen, nie mehr als 5-10 Minuten Material auf einmal zu bearbeiten.

- **Im Eifer des Gefechtes wurde das Einmessen der Kameras vor der Aufnahme vergessen. Muss jetzt manuell geschnitten werden?**

Nein, das Einmessen der Kameras mittels SmartSync DV kann auch nach der Aufnahme erfolgen. Es sollte nur möglichst zeitnah geschehen, also nicht erst viele Stunden später.

- **Wie viel Zeit darf denn zwischen dem Einmessen der Kameras mit SmartSync DV an Casablanca und der Aufnahme liegen?**

Zwischen den beiden Vorgängen sollte möglichst weniger als eine Stunde liegen, deshalb der Begriff „zeitnah“.

- **Laufen einzelne Szenen beim gleichzeitigen Abspielen mehrerer Szenen in QuadCam eventuell nicht völlig synchron ab?**

Minimale Abweichungen während des Abspielvorganges sind technisch bedingt. Diese Abweichungen haben jedoch keinen Einfluss auf das Ergebnis, also auf das fertig geschnittene Video mit den Inserts.

## Anhang C

### Mögliche Ursachen für Synchronisationsprobleme

QuadCam zeigt mit kleinen, farbigen Indikatoren rechts neben „Hintergrund“ und „Insert 1..3“ an, ob eine Szene automatisch synchronisiert werden kann (grün) oder nicht (gelb/rot). Wenn Quadcam trotz vorherigem Einmessen der Kameras mit SmartSync DV keinen Synchronisationspunkt im Videomaterial findet, wenn also einer- oder mehrere Indikatoren „gelb“ oder „rot“ bleiben, dann könnte einer der folgenden Punkte die mögliche Ursache sein:

- **Ausfall der Echtzeituhr einer Kamera**

Eine der beteiligten Kameras hat zwischen dem Einmessen mit SmartSync DV und der Aufnahme ihre Uhrzeit „vergessen“, weil beispielsweise die Uhrenbatterie leer war. Dann können die betroffenen Szenen nicht mehr automatisch synchronisiert werden. Aus diesem Grund sollte bei allen für SmartSync DV vorgesehenen Kameras regelmäßig die Uhrzeit kontrolliert und, falls erforderlich, die Uhrenbatterien getauscht werden. Auch sollte zwischen Einmessen und Aufnahme möglichst ein geladener Akku an der Kamera verbleiben.

- **Versehentliche SmartSync DV Messung**

Vom Zeitpunkt des Einmessens der Kameras mit SmartSync DV bis hin zum Abschluß des Filmprojektes dürfen keine Änderungen im Menü „Kameras einmessen“ vorgenommen werden. Achten Sie daher unbedingt darauf, dass während dieses Zeitraumes weder eine Kamera erneut eingemessen wird, noch dass die Meßwerte gelöscht werden. Streichen Sie den Punkt „Kameras einmessen“ während der Dauer der Bearbeitung möglichst komplett aus Ihrem Gedächtnis!

- **Vertauschte Videobänder**

Waren die Videobänder nicht eindeutig mit „Hintergrund“ sowie „Insert 1..3“ gekennzeichnet, dann kann es schon beim Einspielen in Casablanca zu Verwechslungen kommen.

Auch sollten die entsprechenden Szenen in der Szenenablage sofort nach dem Einspielen eindeutig benannt werden, um fehlerhafte Zuordnungen auszuschließen. QuadCam synchronisiert Szenen nur dann automatisch, wenn die Aufnahmen den jeweiligen SmartSync DV Messungen zugeordnet werden können.

- **Fehlerhaft getrimmte Szenen**

Keine beteiligte Szene darf am Szenenanfang oder Szenenende Bilder aus Fremdszenen oder Bildstörungen enthalten. Trimmen Sie daher nochmals die „IN“- und „OUT“ Punkte einer Szene, wenn keine automatische Synchronisation möglich ist.

- **Störungen im Videomaterial**

Auch sichtbare Fehler im digitalen Zuspielmaterial (Klötzchen, grüne oder graue Bilder, etc.) können eine automatische Synchronisierung verhindern,. Bitte überprüfen Sie in einem solchen Fall den Zuspeler und die entsprechende Kamera. Eventuell muss lediglich eine Bildkopfreinigung durchgeführt werden.

- **Austausch der Hintergrundszene**

Wenn die „Hintergrund“-Szene in mehrere Teilstücke aufgeteilt wurde, dann kann es beim Szenenwechsel unter QuadCam, also beim Austausch eines Teils der Hintergrundszene gegen den Nächsten, in seltenen Fällen vorkommen, dass die Inserts mit einem gelben Punkt gekennzeichnet werden und somit asynchron sind. In diesem Fall sollten nochmals alle Inserts aus dem QuadCam Fenster entfernt und neu ausgewählt werden.



User manual

QuadCam

for Casablanca Avio, Prestige, Kron and Solitaire

## Safety notices

To avoid making mistakes during operation, we recommend that you carefully follow the instructions provided in this manual.

We would also like to point out that **QuadCam** has been designed with the hobby enthusiast in mind.

We have taken a great deal of care while programming and checking this software.

Nevertheless, since it is not possible to guarantee totally error-free software applications in all environments and at any time, we unfortunately cannot rule out the possibility that some errors may have crept in. If, contrary to all expectations, this is indeed the case, we shall remedy any errors in the program and supply the affected customers with the new software free of charge. We cannot, however, accept any liability for loss of data/time or any consequential damages that may occur as a result, particularly since we have no influence over correct software installation and operation by the customer. **MacroSystem Digital Video AG** and its dealers therefore cannot be held liable for any defects or unintentional damage in connection with the installation or use of **QuadCam**.

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# Chapter 1

## Important information

Thank you for purchasing QuadCam from your dealer.

We appreciate your confidence in us.

### 1.1 Scope of delivery

Please check that your purchase is complete. QuadCam includes the following:

- QuadCam software, which your dealer has copied on to a SmartMedia card.
- Manual
- Access code for the QuadCam software

### 1.2 Further information

To prevent any misunderstandings: this manual only explains how QuadCam works. It does not tell you how to operate your Casablanca. We shall be happy to help you with questions outside the scope of this manual, ideas, suggested improvements and technical problems. Please use the address and telephone numbers quoted in your Casablanca manual. Please have the serial number of your Casablanca ready when calling us.





## Chapter 2

### All about QuadCam

QuadCam enables you to play back up to four automatically-synchronised scenes simultaneously. It is then as easy to edit them as it is when using a live mixer.

QuadCam add-on software is therefore eminently suitable for multi-camera recordings of weddings, family celebrations and interviews. Sports videos also make a more professional impression if different camera angles are used.

Until now, editing such recordings was very complicated. First, the recordings had to be synchronised, which was only possible by using a clapper board or flashgun. The individual sequences then had to be minutely pieced together and inserted in the timeline or storyboard.

QuadCam breaks new ground. SmartSync DV takes care of synchronisation - automatically

Editing takes a quite different form: the individual recordings made by two, three or a maximum of four cameras are played back simultaneously in real time in a dedicated window. The recordings are played back synchronously, as when live recordings are made in a TV studio. The editor then has full discretion in deciding when to change to which camera angle.

Once the material has been viewed in this way and a selection of scenes made, QuadCam automatically generates a storyboard containing all the editing decisions. Then editing can take place in the usual way. Effects and titles can be added and any subsequent recutting can take place at any time.

Many hours of editing time can be saved by using QuadCam for multi-camera productions.



## Chapter 3

### Requirements

QuadCam is compatible with all second-generation Casablanca systems, from Casablanca Avio through Casablanca Prestige to Casablanca Kron and Solitaire.

SmartEdit 3.4 or higher system software must be installed on the Casablanca.

You can obtain the most up-to-date version of the software from your dealer.

A DV connection (i-Link or Firewire) between the camera (DV/D8 camcorder) and the Casablanca is also required to use SmartSync DV, the patented, automatic synchronisation system.

In order to be suitable for use with SmartSync DV, each DV/DV8 camera must have the following features:

- An internal clock, which must not “lose” the time set even when the camera is switched off. It makes sense to check the clock battery before using SmartSync, particularly with older camcorders, and replace it if necessary.
- The date and time of the camera clock must be correct, but it need not be running synchronously to the very second. SmartSync DV will compensate for variations running into minutes automatically.
- The date and time output through a DV port works both in record and playback modes.

In addition, at least one camera must make an uninterrupted recording of the event. Using SmartSync DV is impossible without such a “background” recording. .

## Chapter 4

### Installation

QuadCam is installed as add-on software by clicking on the “Install product” menu option, then selecting “System settings”.

Open the “Install product” menu and insert the SmartMedia card containing the QuadCam software in the SmartMedia slot of your Casablanca, as described in your Casablanca manual.

After a short period, “QuadCam” will appear on the list of add-on software.

Select the “QuadCam” entry from this list by clicking on it once to highlight it and then click on the menu option “Run”.

Your Casablanca will now prompt you for the access code which you obtained from your dealer. Enter the 12-character code and confirm it with “OK”.

Successful entry will be confirmed by the display of “active” after the “QuadCam” entry.

In order to install the demo version of QuadCam, click on “Demo” in the access code entry window.

The demo version has the following restrictions compared to the fully-featured version:

- A maximum of 30 seconds of a scene can be cut with QuadCam. The demo version of QuadCam will end “live” cutting after 30 seconds.
- A maximum of 10 QuadCam cutting sequences will be loaded into the Storyboard.



## Chapter 5

### Getting started with QuadCam

QuadCam combines up to four simultaneously-recorded videos to make a film. QuadCam adds freely-selectable inserts from a maximum of three cameras into a “background” scene.

For such synchronised cutting, either a precisely-defined synchronisation point (“clapper board”) must be present in the video material, or the cameras must be connected to Casablanca for “calibration” as close as possible to the time of recording.

QuadCam consists of two programs: “SmartSync DV” for calibrating the cameras and a cutting program for editing the recordings.

Calibrating cameras with SmartSync DV immediately before or after a recording makes working with QuadCam easier, but is not absolutely necessary.

For example, if you have nothing to film at present, you can edit existing “old” video material. We actually recommend doing this before your first experiments with QuadCam, so that you can get to know the program.

#### 5.1 QuadCam without SmartSync DV

This paragraph describes the use of QuadCam without automatic synchronisation by SmartSync DV. At least two video scenes recorded at the same time are required for “live” video editing without SmartSync DV.

##### 5.1.1 Preparing the recordings

Before making each QuadCam video recording, both the video tapes and the cameras should be clearly marked “Background” and “Insert 1/2/3”.

When planning, remember that QuadCam will insert scenes from the “Insert” cameras into the “background” during subsequent “live” video editing. Your soundtrack will therefore come from the “background” scene, whilst the “insert” scenes are cut precisely to the soundtrack.

Accordingly, all the cameras used must make an absolutely continuous recording of the whole event. No camera may be switched to “Pause” during a QuadCam recording and none of the scenes may contain any interruptions.

Position the cameras, start recordings and set a precisely-identifiable synchronisation point before actual recording begins. It must be possible to locate this point to the exact frame in all the recordings, like the well-known clapper board in professional film productions. A flashgun is also suitable, as the flash is recorded by all the cameras in the room at exactly the same time, does not usually cause any disturbance and can be directed at any point in the room.

##### 5.1.2 Preparations for “live” video editing

The simultaneously-recorded scenes are loaded into the Casablanca Scene bin and then trimmed so that they have a common starting point.

Trim the “IN” point of all the scenes involved to the synchronisation point previously set, to the exact frame. If you cannot find a unique visual event in your recordings to use as a synchronisation point, acoustic synchronisation using the audio waveform display is possible in most cases (only available with the Pro Pack on the Casablanca Avio). In this case, trim the scene to the beginning or end of an obvious sound, such as something falling or a handclap.

### 5.1.3 Running QuadCam and inserting scenes

QuadCam is run from the “Edit/Special” menu option.

After starting QuadCam, the box after “Smart-Sync DV” must be unchecked. Working without SmartSync DV is only possible if this box is unchecked.

Clicking on “Start QuadCam” will run the actual cutting program and open the QuadCam editing window.

The four windows in the right-hand half of the QuadCam editing window are marked “Background” and “Insert 1/2/3.”. The video scenes previously recorded will play in these windows.

- Click on the “Background” button.
- Then click on the “Choose scene” button. A scene selection window will open. Make your choice by clicking on the desired scene icon and confirm it by clicking on “OK”. The first image of the desired scene will appear in the “Background” window.
- Repeat the process with the “Insert” windows and add the selected scenes to be inserted.

If you inadvertently select the wrong scene, you can use the “Remove scene” button to take the scene out of the appropriate window and insert another one instead.

### 5.1.4 “Live” video editing with QuadCam

As soon as the “Background” scene and at least one “Insert” scene have been selected, video mixing - i.e. “live” video cutting can commence.

Click on the “Playback” button in the bottom left-hand corner of the QuadCam editing window. Playback of all the scenes displayed will start simultaneously.

- The subsequent sequence, i.e. the playback order, is set during playback. Simply click in one of the playback windows. QuadCam will immediately change to the corresponding video scene and camera angle. The selected scene will now be used until a new selection is made.
- You can change between the individual video scenes as often as you like. If you cannot decide on a specific scene, you can interrupt playback with the “Pause” button and continue later. This is where QuadCam has a distinct advantage over “live” video mixing.

Once the video recordings have been mixed as required, click on the “Stop playback” button and click on “OK” to exit from the QuadCam editing window.

QuadCam will ask you whether you want to load the sequence generated into the Storyboard. If you click “Yes”, QuadCam will generate two sequences of scenes:

- the fully edited sequence of inserts in the Storyboard, i.e. the background scene with all the inserted scenes
- and copies of all the insert scenes in the scene bin, for later editing.

The edited sequence with inserts in the Storyboard can be edited later like any other insert scene. For example, special effects can be added to the copies of the inserts in the Scene bin. The instructions for editing inserts are continued in Chapter 7 (QuadCam insert system) or under “Editing inserts” in your SmartEdit manual.

## 5.2 QuadCam with SmartSync DV

QuadCam will produce accurate results even with manually trimmed video material, but SmartSync DV technology makes working with up to four cameras even easier and more versatile. SmartSync DV provides:

- Automatic synchronisation of video recordings from up to four DV cameras. In particular, videos of events gain enormous impact and professionalism when several cameras with different perspectives are used. SmartSync DV ensures that sound and picture remain synchronised, so that you can concentrate on something more important - the subject of your film.
- The possibility of changing tapes in the "insert" cameras, interrupting individual recordings briefly or of continuing the recording from a camera switched off inadvertently. Only the "background" recording has to be continuous. SmartSync will find the right starting point automatically for the "insert" scenes.

### 5.2.1 Calibrating cameras with SmartSync DV

Only a little preparation is required to use SmartSync DV.

- Set the clocks of the camcorders as close as possible to the current date and time. However, slight differences of several minutes are unimportant. Then check that the cameras are retaining the date and time after being switched off. If not, replace the clock batteries.
- Run QuadCam from the "Edit/Special" menu option and check the box after "SmartSync DV" on the right. Then click on "Measure cameras".
- Select the camera to be used as the "Background" camera" for the uninterrupted "background" recording and the cameras to be used as "Insert 1", "Insert 2" or "Insert 3". Insert suitably-labelled video tapes into the cameras and also mark the cameras appropriately, to prevent confusion.

- Now connect the "Background" camera to the Casablanca by DV cable. Switch the camera to Record ("Record-Pause"), but do not start actual recording yet.
- Click on the "Background" button and then the "Measure" button. The date and time from the camera will be transferred to the Casablanca and displayed under "Time of camera".
- Carry out the same procedure with the "Insert" cameras., i.e. first select the button for the camera ("Insert 1/2/3") and then click on "Measure".
- Confirm the results of calibration with "OK" and exit from the SmartSync DV menu.

### 5.2.2 Preparing the recordings

Multi-camera recording should take place as soon as possible after calibration (see Appendix A). Locate the cameras as desired and start recording in the sequence "Background - Insert 1 - Insert 2 - Insert 3".

#### **Important notes:**

- *The "background" camera must run continuously throughout the entire recording period, so select video tapes with sufficient playing time or use "Long play" mode on the camera, if long tapes are not available.*
- *Recordings by the "Insert" cameras can be interrupted. For example, if the "Insert 1" camera was set to "Pause", QuadCam will simply display black material during subsequent "live" video editing.*
- *If the cameras were not calibrated before recording, they can be calibrated immediately afterwards. However, under no circumstances should hours or days pass between recording and calibration, as increasing deviations in the camera clocks will lead to a loss of synchronisation during QuadCam editing.*



- *The settings determined by SmartSync DV will always apply independently of the project. In this way different versions of the same film (e.g. one long and one short) can be edited in different projects.*
- *The current editing project must be completed before a new one can begin in QuadCam. It is not possible to edit several QuadCam projects at the same time.*

### 5.2.3 Preparations for “live” video editing

When recording has been completed, you can start loading and editing the material at any time. This need not be immediately after recording. Nor need the cameras used for recording be used to load the material on to the Casablanca. It is therefore quite possible to play all the tapes from the various cameras several days, weeks or even months after recording, using a suitable DV player.

Manual trimming to a common “IN” point is also a thing of the past, thanks to SmartSync DV. However, some points must be observed when using SmartSync DV.

- None of the scenes used must contain faulty images or images from outside scenes. It must therefore be ensured that no parts of a previous scene are present before the scene begins or any interference with the image, e.g. from the end of the tape. If necessary, the “IN” and “OUT” points of all the scenes involved must be trimmed for SmartSync DV so that no parts of outside scenes or any interference, e.g. from the end of the tape, remain.
- Inserted scenes can only be trimmed before editing in QuadCam, not divided up. “Insert” scenes with pauses in recording by the camera must therefore be available in full.

### 5.2.4 Running QuadCam and inserting scenes

QuadCam is run from the “Edit/Special” menu option. Clicking on “Start QuadCam” will start the actual editing program and open the QuadCam editing window.

The four windows in the right-hand half of the QuadCam editing window are marked “Background” and “Insert 1/2/3.” The video scenes previously recorded will play in these windows.

- Click on the “Background” button.
- Then click on the “Choose scene” button. A scene selection window will open.
- Make your choice by clicking on the desired scene window and confirm it by clicking on “OK”. The first image of the scene chosen will appear in the “Background” window.
- Repeat the process with the “Insert” windows and add the corresponding “Insert” scenes.

If you make a wrong choice, the scene in question can be deleted from the appropriate window with the “Remove scene” button and another scene inserted instead.

Small coloured indicators (squares after “Background” and “Insert 1/2/3” show whether a scene can be synchronised automatically (green) or not (yellow). At the same time, a message will appear in the left-hand part of the QuadCam window, either confirming successful synchronisation or displaying possible problems.

As soon as the first “Insert” scene is added after the “background” scene, these indicators must change colour from yellow to green and the message “Scenes aligned” must appear in the text window. Should this not happen despite SmartSync DV, you will find a list of possible causes and suggested solutions in Appendix C.

### 5.2.5 “Live” video editing with QuadCam

As soon as the “background” scene and at least one “insert” scene have been selected, video mixing, or “live” video editing, can begin.

- Click on the “Playback” button in the bottom left-hand corner of the QuadCam editing window. Playback of the “background” scene will start immediately, whilst playback of the “insert” scenes will not start until synchronous material, i.e. material recorded at the same time as the “background” is available. If, however, no “insert” material is available for a certain period, e.g. because an “insert” camera was not yet ready to record or was set to “Pause”, the corresponding window will be black throughout this period.
- The subsequent sequence, i.e. the playback order, is set during playback. Simply click in one of the playback windows. QuadCam will immediately change to the corresponding video scene and camera angle. The selected scene will now be used until a new selection is made .
- You can change between the individual video scenes as often as you like. If you cannot decide on a specific scene, you can interrupt playback with the “Pause” button and continue later, This is where QuadCam has a major advantage over “live” video mixing.

Once the video recordings have been mixed as required, press the “Stop playback” button and click on “OK” to exit from the QuadCam editing window.

QuadCam will ask you whether you want to load the sequence generated into the Storyboard as an insert scene. If you click “Yes”, QuadCam will generate two sequences of scenes:

- the fully edited sequence of inserts in the Storyboard, i.e. the background scene with all the inserted scenes
- and copies of all the insert scenes in the scene bin, for later editing.

The edited sequence with inserts in the Storyboard can be edited later like any other insert scene. For example, special effects can be added to the copies of the inserts in the Scene bin. The instructions for editing inserts are continued in Chapter 7 (QuadCam insert system) or under “Editing inserts” in your SmartEdit manual.



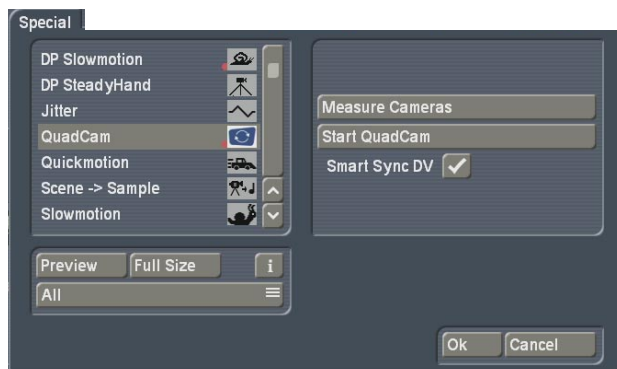
## Chapter 6

### QuadCam Reference

This chapter contains a summary of commands for QuadCam. Camera calibration, preparing recordings and the individual stages from loading the videos to the finished film are described in Chapter 5 (Getting started).

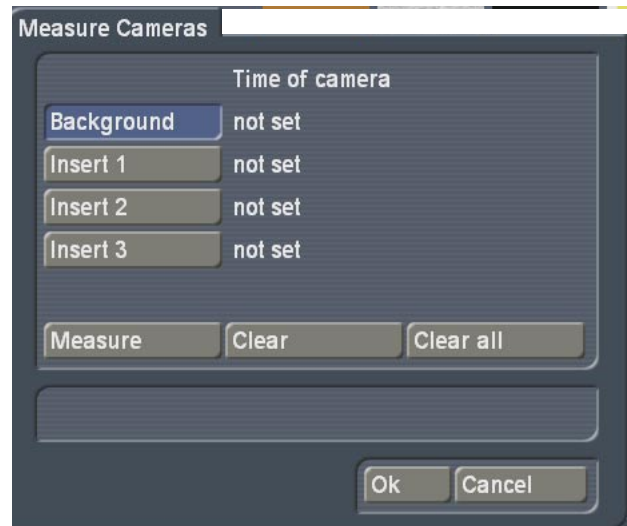
#### 6.1 Running QuadCam

QuadCam is run from the “Edit/Special” menu option. As soon as QuadCam has been selected from the Effects list, three menu options will be displayed in the Selection field on the right.



#### 6.2 Calibrating cameras

The “Measure cameras” option need only be selected once before the beginning of a multi-camera recording automatically synchronised by SmartSync DV. Each camera is connected to the Casablanca once by DV cable, so that the Casablanca can load its date and time.



##### 6.2.1 Background

Click on the “Background” button once to highlight it, for calibrating the “background” camera or deleting the existing “background” calibration. An active button will be highlighted in blue. Continue as described in paragraph 6.2.3 (“Calibration”) or 6.2.4 (“Deletion”).

##### 6.2.2 Insert 1,2 or 3

Click on one of these three buttons if one of the three “Insert” cameras is to be calibrated or if the calibration alongside is to be deleted.

Continue as described in paragraphs 6.2.3 (“Calibration”) or 6.2.4 “Deletion”).

##### 6.2.3 Calibration

Before a DV/D8 camera is calibrated, the appropriate button (“Background” or “Insert 1/2/3”) must be selected and the corresponding camera connected to the Casablanca by DV cable. After the camera has been set to “Record-Pause”, the calibration process can be started by clicking on “Measure”.

**N.B.:**

- *The camera must output its current time for calibration. This is only possible if it is in "Record" mode. In "Playback" mode, the camera would probably not output any readings, or read the recording date of the video tape inserted.*

Shortly after the calibration process has begun, the calibration reading in the form of "date time" will appear after the corresponding "Background" or "Insert 1/2/3" button. You will find further references to this subject in Appendix A.

**6.2.4 Deletion**

Clicking on "Clear" will delete the calibration after the currently active "Background" or "Insert 1/2/3" button.

**6.2.5 Delete all**

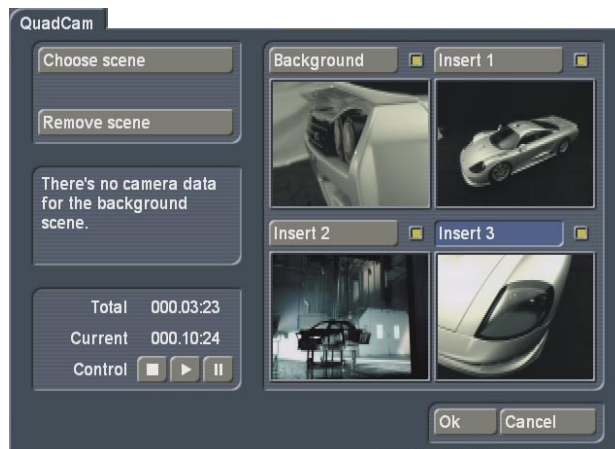
The "Clear all" button will delete all the calibrations after the "Background" and "Insert 1/2/3" buttons.

**6.2.6 OK, Cancel**

Clicking on OK will load the calibrations determined for QuadCam, whilst clicking on "Cancel" will exit from the menu without accepting the results.

**6.3 Start QuadCam**

The "Start QuadCam" button is used to open the actual QuadCam "live" editing menu.

**6.3.1 Background, Insert 1,2, or 3**

Four video windows are located on the right-hand side of the Edit menu, with the buttons "Background" and "Insert 1/2/3". You can select each of these windows either by clicking on the appropriate button or by clicking once in the appropriate video window.

The small squares on the right-hand side alongside the four buttons are SmartSync DV indicators. The different colours of each indicator shows whether the corresponding scene is synchronised and thus indicates whether there are any problems.

- **Green square**  
Synchronisation of the scene successful
- **Yellow square**  
Synchronisation impossible before playback commences
- **Red square**  
Synchronisation lost during playback
- **Colourless square (no content)**  
Either SmartSync DV has not been run or no scene has yet been chosen.

The indicators are complemented by messages in the Status window or a Warning window (see 6.3.6).

### 6.3.2 Choosing a scene

Before “live” video editing begins, a “background” scene and at least one additional “Insert” scene must be added to the initially grey video window on the right-hand side of the screen.

Select the desired video window, as described in paragraph 6.3.1, and then click on the “Choose scene” button. Find the relevant image from the scene in the “Choose scene” window, click on it and confirm by clicking on “OK”. The first image of the scene chosen will then appear in the previously-selected video window. Proceed in the same way with the other scenes.

### 6.3.3 Remove scene

A scene icon can be deleted from the currently active video window with the “Remove scene” button.

### 6.3.4 Total, Current, Control

The lower left-hand section of the QuadCam menu contains the controls for playback and information on the length of the background scene (“Total”) and the current playback position (“Current”). Click on the “Playback” button to start “live” video editing, i.e. simultaneous playback of all the scenes added on the right, Playback can be interrupted at any time by clicking on the “Pause” button. Clicking on the “Pause” button again will restart playback from the same point.

During playback, choosing an active video window (see paragraph 6.3.1) will mean that the scene currently playing in it will be used in the subsequent film. There is no restriction on the number of changes which can be made between the video windows or their frequency. You use this feature to decide the scenes which will make up the later film, like a director at a live event.

Clicking on the “Stop” button will end playback. If the edited result is to be loaded into the Storyboard, “OK” must then be clicked.

Every further click on “Playback” will delete the insert sequences selected and start “live” video editing again.

### 6.3.5 Status bar and message window

Apart from the indicators (see paragraph 6.3.1), various messages provide detailed information on synchronisation status and the QuadCam operating status. Some of these messages appear on the Status bar to the left of the video windows and some in a separate Message window. The messages and their subject are shown below.

- **Aligning Scenes**

This message will only appear briefly during the synchronisation process.

- **Scenes aligned**

Synchronisation using SmartSync DV has been carried out successfully.

- **You need at least 2 scenes**

Only one video window has had a scene loaded into it. However, at least two scenes are required for “live” video editing.

- **There’s no camera data for the background scene**

The “background” camera was not calibrated. Check whether a camera time is present for the “background” camera under “Calibrate cameras”.

- **There’s no camera data for Insert [1/2/3]**

An “insert” camera was not calibrated. Check whether a camera time is present for the “Insert” camera in question under “Calibrate cameras”.

- **Can’t align scenes**

One of the scenes contains no timecode, so no information on the date and time of the recording is available. The scene may not have been loaded on to the Casablanca by DV cable.

- **You need a background scene**

QuadCam always requires a background scene as a basis for inserts.

- **SmartSync DV deactivated**

The box after “SmartSync DV” on the “Special” menu has not been checked.

- **Synchronisation lost.**

Synchronisation was lost during playback. This may be caused by a fault (dropouts, green/grey images or foreign objects (impurities) on the video medium.

- **Failed to read camera date**

No camera has yet been calibrated.

- **The measurement time and the recording time are over 24h away from each other**

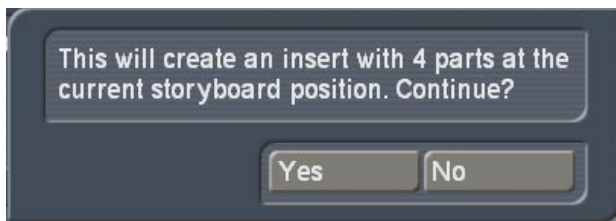
This message will be followed by information on when calibration took place and when the recording was made. Please check whether the wrong scene has been selected.

- **Inconsistent scene length of camera [number]**

The length of the timecode read off the video tape in question does not exactly match the actual length of the scene. The clock of one of the cameras used may have been inaccurate during the recording. This message is only a warning.

### 6.3.6 OK, Cancel

Clicking on "OK" will confirm the editing decision made during "live" video editing. A message window will then appear.



If you continue the process, i.e. by clicking "Yes", the edited sequence will be loaded into the Storyboard. If you click "No", the editing decisions will be rejected.

## Chapter 7

### QuadCam insert method

The result of “live” video editing with QuadCam is an insert scene in the Storyboard. The sound for the insert scene comes from the background scene, continuously, whilst the image comes with from the “background” camera or one of the “insert” cameras, depending upon the editing decisions.

QuadCam insert scenes may themselves be edited, as described in Chapter 4.2 (Editing inserts) of the SmartEdit manual. For example, it is possible:

- To trim inserts using the “Range” button;
- To add transitional effects between two inserts or between an insert and the background scene.

QuadCam also makes trimming inserts considerably easier. By inserting three seconds of “invisible” video material before and after each insert scene during “live” video editing, these inserts can easily be trimmed afterwards to make them longer. A somewhat inaccurate scene change made during “live” video editing can be corrected afterwards by shortening or extending the corresponding insert. However, the procedure differs depending upon the type of scene (background or insert) and the following scene.

#### 7.1 Background - insert to be trimmed Extend the insert to the left

The insert to be trimmed is to be extended to the left into a background scene.

- Select the scene to be trimmed from the Storyboard.
- Click on “Range” and select either “Trim” or “Trim E” mode. (In “Trim” mode the insert to be trimmed is visible whilst the background scene is visible in “Trim E” mode).

- Trim the starting point of the insert into the desired position on the left with “IN”.

- After confirming with “OK”, the insert scene to be trimmed will be correspondingly longer, whilst the background scene will be shortened by the same amount. Synchronisation will thus be maintained.

#### 7.2 Insert - insert to be trimmed: Extend the insert to the left

The insert to be trimmed is to be extended to the left into another insert.

- First, choose the insert on the left of the insert to be trimmed on the Storyboard.
- Click on “Range” and trim the end point of this (first) insert by precisely the period by which you want to extend the next insert, using “OUT”. If, for example, the scene to be trimmed at your “IN” point is to be extended by two seconds, the “OUT” point of the preceding scene must first be shortened by two seconds.
- Now select the scene to be trimmed from the Storyboard.
- Click on “Range” and select either “Trim” or “Trim E” mode. (In “Trim” mode the insert to be trimmed is visible whilst the background scene is visible in “Trim E” mode).
- Trim the starting point of the insert to the left into the desired position with “IN”.
- After confirming with “OK”, the insert scene to be trimmed will be correspondingly longer, whilst the preceding insert scene will be shortened by the same amount.

#### 7.3 Insert to be trimmed - Background: Extend the insert to the right.

The insert to be trimmed is to be extended to the right into a background scene.

- Select the scene to be trimmed from the Storyboard.



- Click on “Range” and select either “Trim” or “Trim E” mode. (In “Trim” mode the insert to be trimmed is visible whilst the background scene is visible in “Trim E” mode)
- Trim the end point of the insert to the right into the desired position “OUT”.
- After confirming with “OK”, the insert scene to be trimmed will be correspondingly longer, whilst the background scene will be shortened by the same amount.

#### **7.4 Insert to be trimmed – insert: Extend the insert to the right**

The insert to be trimmed is to be extended to the right into another insert.

- First, chose the insert on the right of the insert to be trimmed on the Storyboard.
- Click on “Range” and trim the starting point of this (second) insert by precisely the period by which you want to extend the previous insert, using the “IN” button. If, for example, the scene to be trimmed at your “OUT” point is to be extended by two seconds, the “IN” point of the preceding scene must first be shortened by two seconds.
- Now select the scene to be trimmed from the Storyboard.
- Click on “Range” and select either “Trim” or “Trim E” mode. (In “Trim” mode the insert to be trimmed is visible whilst the background scene is visible in “Trim E” mode).
- Trim the end point of the insert to the right into the desired position using “OUT”.
- After confirming with “OK”, the insert scene to be trimmed will be correspondingly longer, whilst the preceding insert scene will be shortened by the same amount.

## Appendix A

### Digital cameras and SmartSync DV

In principle, any DV or Digital8 camera is compatible with QuadCam and SmartSync DV if it fulfils the requirements in Chapter 3.

Nevertheless, some tests should be carried out before the first serious event is filmed to ensure that the cameras are fully compatible with SmartSync DV technology and to check whether the clock battery of the camera needs to be replaced.

- Set the camera clock as accurately as possible, using either a radio-controlled clock or radio time signal.
- Wait 24 hours, then check how far the camera time deviates from the real time. If the deviation exceeds two seconds, it is advisable to change the clock battery ("button cell"). Please consult your camera manual or dealer about how to replace the clock battery.
- Some more recent models of camera no longer have a clock battery. The clock takes its power from the rechargeable camera battery (through an internal "buffer"). The clock in such cameras can deviate significantly even a very short time after disconnection of the rechargeable battery. For this reason, the rechargeable battery should remain connected between calibration and recording.
- It is possible for a camera clock to be somewhat inaccurate. The greater the deviation in the camera clock from real time, the closer the time of calibration must be to the time of recording later. The cameras must therefore be calibrated using SmartSync DV very shortly before the recordings or very shortly afterwards.
- After these tests, connect your camera to the Casablanca with a DV cable and check whether SmartSync DV can load the date and time correctly, as described in paragraph 5.2.1. Please inform us if SmartSync DV fails to detect a specific DV or Digital8 camera.
- Calibrate your cameras with SmartSync DV as described in paragraph 5.2.1 and make a test recording. For example, read a text to the cameras or tap a pencil against a table. Then edit this material with QuadCam, as described in paragraph 5.2.3. Pay particular attention to lip-sync when playing back the finished film. If the picture and sound are already out of sync at this stage, one of the cameras used may not be compatible with SmartSync DV.

## Appendix B

### FAQs

- **How does SmartSync DV technology work?**

Every modern camera has a built-in quartz clock, which makes "time stamping" (adding the date and time) possible. However, this time is recorded on the tape, even if it is not displayed in the picture. QuadCam uses the digital input of the Casablanca unit to download the exact time from each camera and to determine the difference between "Casablanca time" and the camera time, with millisecond accuracy. Recordings from cameras calibrated in this way are automatically allocated the correction factor thus determined when loading from the tape on to the Casablanca hard disc and thus have a common reference time - "Casablanca time".

- **Is every device with a DV connection compatible with QuadCam and SmartSync DV?**

No. Some recorders (MicroMV, DVD Camcorders and DV(D) recorders may be incompatible with SmartSync DV and can only be used in manual mode, although they have a DV (Firewire) port.

- **What can be done if the recordings from different cameras look very different and the colours do not match?**

A (manual) white balance should be carried out on each camera to be used before every recording. Line up the cameras at the location, hold a sheet of white paper in front of each lens and carry out the white balance. QuadCam compatibility with cameras without manual white balancing is therefore restricted.

- **Must recordings be loaded on to the Casablanca using the same camera with which they were made?**

No. In principle, any DV or Digital8 video player with a DV output can be used. The timecode is stored on the tape and the player only needs to read it. The internal clock of the player cannot affect the result.

- **Must a complete recording with a length of e.g. 60 minutes be edited all at once?**

No. SmartSync DV makes it possible to split up the "background" scene as much as is desired prior to "live" video editing with QuadCam and to edit each part individually. SmartSync DV will locate the parts of the inserts which correspond to the "background" automatically as soon as you insert any section as "background". If you don't really have a flair for live video editing, we recommend restricting your editing sessions to 5-10 minutes at a time.

- **In the heat of the moment, calibrating a camera before recording was forgotten. Must the editing now be done manually?**

No, calibrating the cameras with SmartSync DV can also take place after recording. However, it should be done as soon as possible, i.e. not hours later.

- **How much time should be left between calibrating the cameras with SmartSync DV on the Casablanca and making the recording?**

There should be less than an hour between them if possible, which is why we say "as soon as possible".

- **Can some scenes not be fully synchronised when several scenes are played back simultaneously in QuadCam?**

There are technical reasons for minimal variations during playback. However, these variations will not affect the result, i.e. the finished video with the inserts.

## Appendix C

### Possible causes of synchronisation problems

QuadCam uses small coloured indicators to the right of "Background" and "Insert 1/2/3" to show whether a scene can be synchronised automatically (green) or not (yellow/red). If QuadCam cannot locate a synchronisation point in the video material despite prior camera calibration with SmartSync DV, i.e. if one or more indicators is yellow or red, the cause may be one of the following:

- **Failure of the real-time clock in a camera**

One of the cameras used has "lost" its time between calibration with SmartSync DV and recording, e.g. because the clock battery was flat. The affected scenes can then no longer be synchronised. The clock time on all cameras intended for use with SmartSync DV should be checked regularly for this reason and the clock batteries replaced if necessary. A charged battery should also be connected to the camera between calibration and recording.

- **Accidental SmartSync DV calibration**

No changes must be made to the "Calibrate cameras" menu from the time of camera calibration with SmartSync DV until the film project has been completed. Take particular care that no camera is recalibrated and that no settings are deleted during this period. Forget about the "Calibrate cameras" option throughout the editing process.

- **Video tapes mixed up**

If the video tapes are not clearly labelled "Background" and "Insert 1/2/3", they may be confused when loading them into QuadCam.

The corresponding scenes in the Scene bin should be clearly labelled immediately after loading, to prevent them being wrongly allocated. QuadCam will only synchronise scenes automatically if the recordings can be allocated to the respective SmartSync DV readings.

- **Wrongly trimmed scenes**

None of the scenes involved may contain images from other material or picture interference at the beginning or end of the scene. If automatic synchronisation is not possible, trim the "IN" and "OUT" points of a scene again.

- **Interference on the video material**

Visible faults in digital material (foreign bodies, green or grey images, etc) may also prevent automatic synchronisation. If this occurs, examine the player and the corresponding camera. A video head may need cleaning.

- **Replacing the background scene**

If the "background" scene has been divided up into several parts, inserts may occasionally be marked with a yellow square and thus be asynchronous when there is a scene change in QuadCam, i.e. when changing from one part of the background scene to another. In this case all the inserts should be deleted from the QuadCam window and reloaded.