

H A S S E L B L A D



User Manual

Hasselblad CF Digital Camera Back Range

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CF

H A S S E L B L A D

Welcome to Hasselblad!

The Hasselblad CF line of digital backs offers 22 and 39 Mpix digital capture at a professional level for unbeatable results. Together with the option of an i-Adapter, Hasselblad's interchangeable camera interface, this capability extends beyond medium format into the world of large format too. In addition, the option of true color multi-shot capture provides the possibility of moiré free captures in world class exhibiting stunning quality. The CF line matches the functionality of the Hasselblad H2 camera perfectly, giving you access to the H System's range of high performance, central shutter-based lenses, and extended digital features such as Digital APO Correction technology and Instant Approval Architecture.

In short, the Hasselblad CF line brings unprecedented flexibility to the professional photographer, and enables you to take full advantage of all that leading edge digital photography can offer.

22 or 39 million pixels

The CF line uses a 22 or 39 megapixel sensor that is more than twice the physical size of today's 35mm sensors. This sensor holds more and larger pixels, which guarantees superior image quality and provides moiré free color rendering without gradation break-ups in even the finest lit surfaces. Images shot with a CF digital back have unsurpassed clarity and sharpness. The 39 Mpix sensor produces the largest digital files currently available for professional photography, making them ideal for the most demanding, high resolution printing applications and give the photographer increased flexibility and creative control when cropping or enlarging. The finest image capture quality is possible when used on an H System camera as Hasselblad's unique Digital APO Correction lens optimization techniques are accessible. In addition, Hasselblad's Natural Color Solution optimizes color reproduction.

In a studio environment, the CF line enables you to increase the color resolution of your captures by means of a unique multiple-exposure technique controlled by the optional Multi-Shot Module (patent pending). The result is unsurpassed color resolution and absolutely moiré free images. The Hasselblad CF can be upgraded with the 4*Res module at any time. The Hasselblad CFMS comes with the Multi-Shot Module already built in.

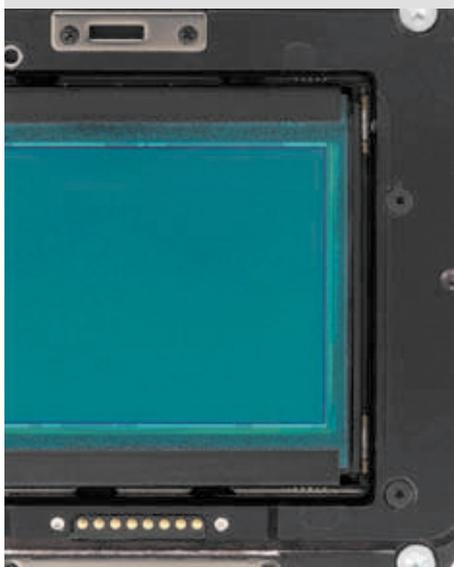
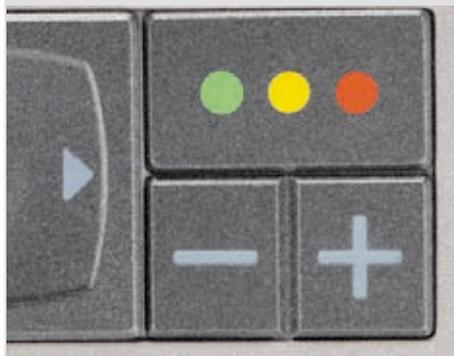
Today's photographers demand higher resolution, less noise, and improved composition, all of which the CF digital backs provide. Every feature and aspect of their performance represents the superior quality and design that go into each Hasselblad product.

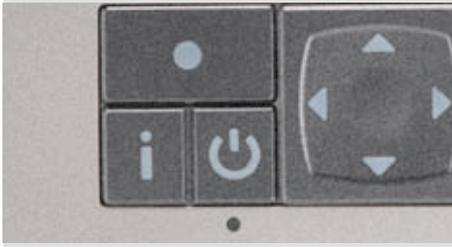
H2 platform for Digital APO Correction

In conjunction with an H2, CF backs capture an extended set of metadata and then perform an automated correction for color aberration effects with every shot. This means that your digital captures are automatically optimized to provide the finest detail that a given lens can resolve. We have named this feature "Digital Auto Correction" (DAC), signifying the digital, APO chromatic correction of the images that takes place. Implementation of this feature includes detailed mapping of each H system lens model, ensuring that each image represents the best that your equipment can produce. We are confident that the image quality you achieve as a result of the DAC functionality will make you - and your customers - look twice.

Unique Hasselblad Natural Color Solution

In the past, color management solutions have imposed limitations on professional digital photographers, because of the need to choose a specific color profile to suit a specific job in order to capture various skin tones, metals, fabrics, flowers, etc. Hasselblad has helped solve this dilemma, with the development of a new, powerful color profile to be used with its FlexColor imaging software. Working with the new Hasselblad Natural Color Solution enables you to produce outstanding and reliable out-of-the-box colors, with difficult colors reproduced easily and effectively.





We have developed a new Hasselblad raw file format called 3F RAW (3FR) to help implement our new unique color system. The new 3FR file format is designed to ensure that images captured on Hasselblad digital products are quickly, effectively and safely stored on the available media (CF card, ImageBank-II, etc). The file format includes lossless image compression, which reduces the required storage space by 33%. Combined with the architecture of the Hasselblad backs, this allows you to capture up to 35 shots per minute.

The 3FR file defines the colors in the Hasselblad RGB color space with its out-of-the-box quality, and used in FlexColor it removes both the need for experimenting with different color profiles to obtain optimal colors and the need for selective color corrections.

DNG File Format

3FR files can be converted directly into Adobe's raw image format DNG ('Digital NeGative'), bringing this new technology standard to the professional photographer for the first time. The DNG file format enables raw, compressed image files to be opened directly in Adobe Photoshop. This enables photographers to operate quickly and efficiently, reducing the 'downtime' taken to process image data and enabling final images to reach the customer more quickly. Hasselblad image files carry a full set of metadata, including capture conditions, keywords and copyright, facilitating work with image asset management solutions. For specialist commercial photographers, the full productivity and creative freedom offered by Hasselblad's FlexColor workflow software is also available when importing the DNG file.

Capable of working with multiple cameras

Hasselblad CF digital backs can be attached to most of the professional medium-format SLR and large-format view cameras on the market with a simple 4-screw attached adapter plate, enabling you to bring digital capture to your favorite cameras and lenses with one convenient digital back.

Instant Approval Architecture

Limitless digital image capture loses some of its potential if the photographer cannot quickly review and select the best images to present to the client. Building on the success of its Audio Exposure Feedback technology, Hasselblad has created Instant Approval Architecture (IAA), an enhanced set of feedback tools, designed to liberate the photographer to focus on the shoot rather than the selection process. IAA triggers audible and visual signals for each image captured, notifying the photographer immediately of its classification status. The information is recorded both in the file and in the file name, providing a quick and easy way to classify and select images, in the field or in the lab. CF backs are fully integrated with the Hasselblad Instant Approval Architecture, bringing automated image classification into your digital workflow from the split second of capture. IAA is a Hasselblad trademark and Hasselblad has a patent pending on the invention. Large enhanced OLED displays on the new Hasselblad products provide a realistic, high quality and perfect contrast image view, even in bright sunlight, to allow instant on-site image approval.

FlexColor workflow

FlexColor offers an image processing workflow with the highest degree of control for the studio photographer. In tethered operation, tools like overlay masking help bring productivity to advanced set composition. The latest FlexColor version allows the photographer to manipulate color temperature and compare image details across multiple images for precise image selection. FlexColor processes the raw 3FR files generated by the Hasselblad CF backs. FlexColor runs natively on both Macintosh and Windows computers and is licensed to allow you to provide free copies for all your co-workers and production partners.

Three modes of operation and storage

Optimum portability and image storage are critical for the professional photographer. The Hasselblad CF offers a choice of storage devices: portable CF cards, the flexible ImageBank-II or a computer hard drive with extended, special capture controls. With these three operating and storage options, you are able to select a mode to suit the nature of the work in hand, whether in the studio or on location.

"Instant" user interface

The CF backs are operated via an easy-to-use user interface, utilizing a series of "instant" one-button-click operations including instant capture, instant browse, instant approval, instant zoom, and instant image info.

All in all, the Hasselblad CF line of digital backs provides the discerning photographer the optimum in freedom for professional level digital capture, so remember —

The supreme Hasselblad potential is there, it's up to you to exploit it!

Computer system requirements



Digital files naturally end up on a computer for processing. Image-storage and correction requires a certain minimum standard regarding computer capabilities. Large images will require a high-performance computer with plenty of memory, advanced graphics capabilities and a recent operating system. In most cases, the computer should include a FireWire 800/400 connector, which will enable you to load images directly from the camera or ImageBank-II. To load images stored on the removable compact-flash card, you could instead use a compact-flash card reader, but FireWire is recommended for maximum flexibility.

A CF digital back saves images as 3FR files which are Hasselblad raw digital-camera capture standards. From FlexColor, you can optimize the files and export them into other formats. A CF digital back includes the Hasselblad FlexColor image-capture and editing application and native versions of FlexColor are provided for both Macintosh and Windows platforms. Please see the FlexColor manual for complete system requirements.

Warnings and restrictions

- *If you want to power the back from a PC laptop (as opposed to a Macintosh laptop), you must ensure that the FireWire port on the computer is capable of supplying power.*
- *Keep the digital back (and all computer equipment) away from moisture wherever possible. If your camera becomes wet, disconnect from power and allow it to dry before attempting to operate again.*
- *Always take great care when you remove the sensor back for cleaning—the exposed CCD sensor protective filter is vulnerable to damage.*
- *Keep all cables connected to or from your camera and computer out of the way where they will not be tripped over.*
- *Never cover the ventilation openings on a CF digital back when it is running.*

Before you start

Leave protective covers on as much as possible. A CF digital back, in line with all Hasselblad products, has a robust construction and is capable of withstanding fairly rough treatment but nevertheless is a precision instrument and will serve you longer if treated with respect from the beginning. Please keep purchase details and the warranty in a safe place.

In addition to the digital back itself, a CF User Manual CD, the FlexColor software CD and a FlexColor user manual CD, the items illustrated below are also included. If anything is missing or seems faulty in any way then you should contact your Hasselblad dealer immediately.



CF-Flash card



Flash sync input cable



Flash sync output cable



FireWire cable



E-wipes



Grey Card



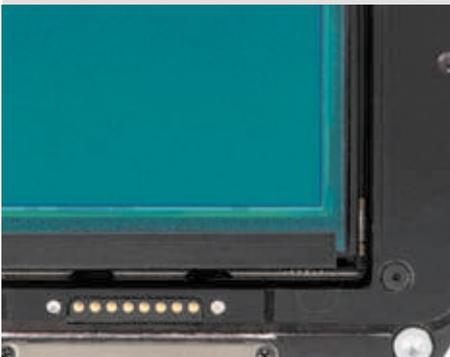
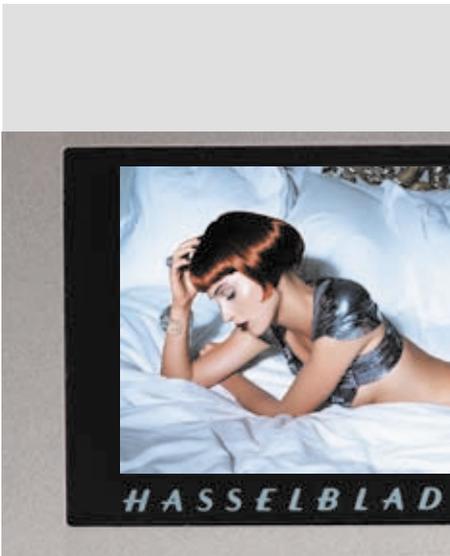
Protective Case

Working digitally

If you have only worked with film before, you will find that working with a digital back is not so very different in many ways. Several changes in routine are needed and a certain amount of experience with digital products and computers is advantageous to lower the learning curve at the beginning. However, practically all of your analogue photographic knowledge is still relevant to achieve optimum results.

The following is in no way intended to be a digital primer but simply aims to highlight some main differentiating points to get started. There are many excellent books on the market that explain in great detail the various aspects of digital photography and post-capture processing.

1. **It is essential to ensure you have a fully-charged battery, a spare fully-charged battery, access to battery recharging or access to a computer, depending on how you work. Remember too that a film magazine can act as a reserve for emergencies.**
2. **The digital back has an internal rechargeable battery to retain the correct Time & Date settings which appear on files and file folders to assist sorting and archiving. This battery is automatically charged by the main battery or FireWire cable when the back remains ON. It is important, therefore, to regularly attach a charged battery or connect a FireWire cable for a few hours once a week or so, when the camera is not in regular use. For this purpose, the back should be left ON and, in the case of a FireWire connection, ensure that the computer remains active and not set to 'power down' mode.**
3. **If you intend to work with a CF card, you must ensure you either have enough capacity on the card for the job in hand or have access to a card reader/separate hard disk/computer to off-load the images.**
4. **The sensitivity ("ISO/film speed") of the sensor can be altered according to circumstances just as you would choose a fast or slow film, thereby providing a range of "speeds". Just as with film, the lower "speed" settings produce finer quality.**
5. **Always check the three basic settings before starting:**
 - ISO ("film speed")
 - White balance (color temperature)
 - Media (where the captured images will be stored).
6. **Remember the size of the sensor causes an 'increase' in the focal length of lenses in practical terms. Compose within the masking on the focusing screen.**
7. **Remember there can be specific restrictions regarding longer exposure times and working with flash/strobe.**
8. **The OLED screen produces an image as a visual guide only. A histogram display will provide you with the technical information about the optimum exposure.**
9. **Minor color casts on the preview screen can be ignored as there are opportunities to adjust the files later in processing.**
10. **Be extra aware when photographing surfaces with a small regular pattern in the coloring or structure (for example, fine-weave fabrics) as a moiré effect can be produced in certain circumstances.**
11. **Most other usual photographic practices apply such as using a lens shade, using a tripod when you can, checking for depth of field etc. However good your post-capture skills are on the computer, for optimum results you should still aim for optimum image capture!**



1

General overview

CF

In very simple terms, a CF digital back holds a light sensitive sensor in place at the film plane. The electronic signals from the sensor are then processed and stored as a digital file.

As an electronic colour image is made up of three components – red, green and blue which combine to form a so-called RGB image – the sensor's task is to convert a multi spectrum light image into three digital files (red, green and blue) for combination later on.

A CF digital back uses a CCD (Charged Couple Device) type sensor that has 22 or 39 million light sensitive areas on its surface each of which creates a pixel.

Each pixel in the sensor is filtered to create the three separate red, green and blue files. Software then processes these electronic files as a package to produce the various formats – RAW, TIFF, JPEG etc.

The three components of the image file are later recombined on the computer screen to produce the familiar full colour image.

The image file can be temporarily stored either in a CF digital back with a CF card, on a Hasselblad ImageBank-II or the hard disk on a computer. Processing of these images is carried out in conjunction with the included FlexColor software. See the separate FlexColor manual for further details

The Hasselblad CF digital back is designed for use with most professional SLR medium format cameras as well as view cameras on the market. Attachment is made by way of an adapter plate that is screwed to the camera. Please see the Ixpress Adapter Kit user manual for full details.

A CF digital back is an electronic device and consequently attention to power access is vital. When working untethered it is therefore important to plan either battery loading or battery replacement to ensure continued workflow.

Likewise, image storage is limited, particularly when using flash cards and appropriate steps should also be taken when planning a shoot.

External storage is accomplished by FireWire connection to a separate hard disk or a computer.

When attaching and removing the back, pay particular attention to the image sensor area. The sensor itself is covered and therefore protected by the glass IR filter but take great care when handling. If you need to clean the filter, see later section for specific details. When storing separated from the camera, always ensure you have replaced the protective cover.

If you scratch or mark the filter in any way, it will show up on every shot. Replacements are expensive so treat the glass surface with at least as much care as you would a lens.

The sensor itself is not accessible for any kind of cleaning or maintenance by a user. Do not attempt any such action as you will almost certainly damage it irreparably.

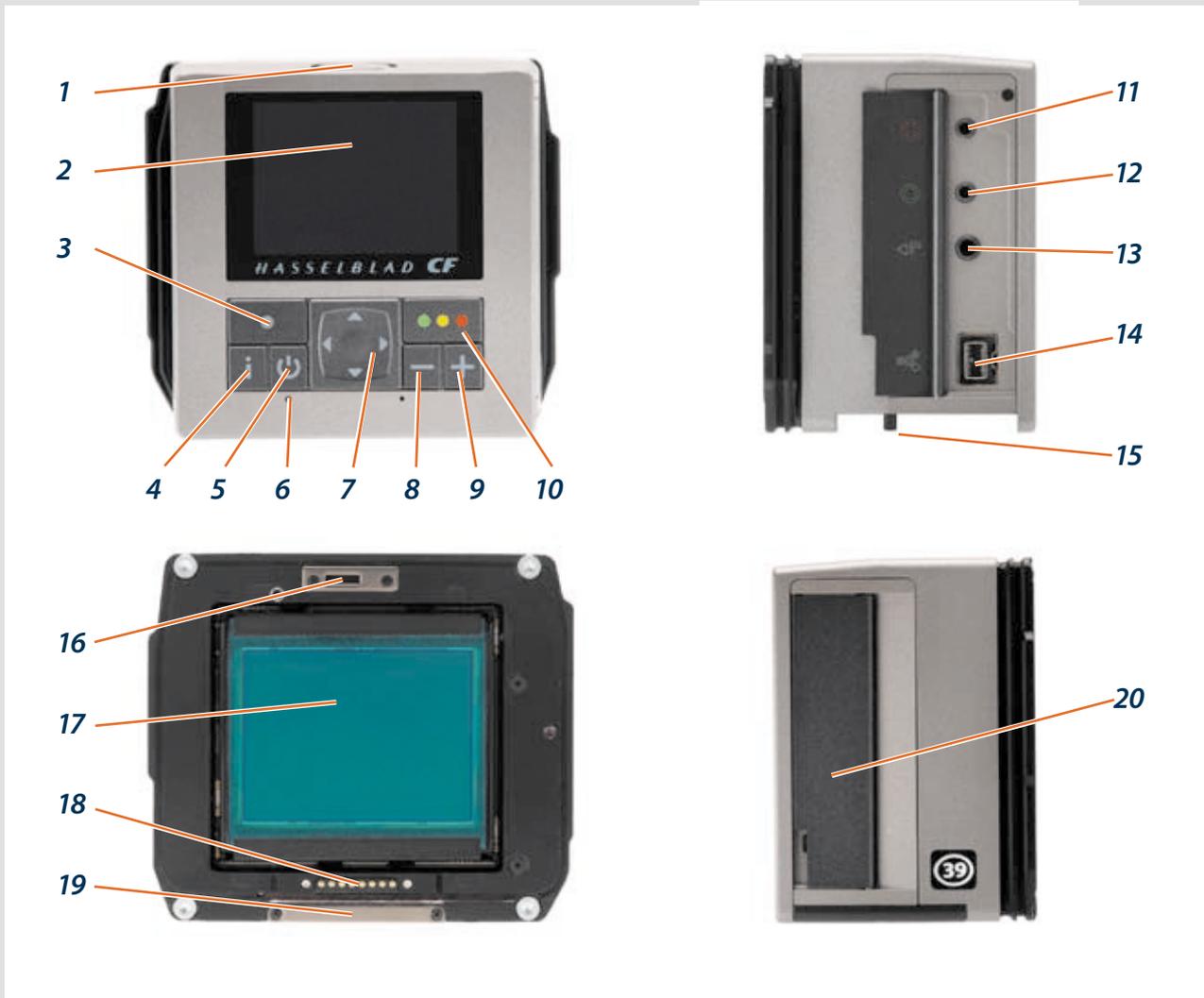
As is the case with all electronic devices pay extra care when working in damp environments and avoid damp conditions for storage.

The menu can be displayed in one of seven different languages:

English, French, German, Italian, Spanish, Japanese or Chinese

Look at the section INITIAL GENERAL SETTINGS > CHANGING THE MENU LANGUAGE if you want to make a language choice before reading further.





Parts, components & control panel buttons

The control panel has an OLED screen that provides a bright, high-contrast view even in bright surroundings and at fairly acute angles. The panel is the main graphical interface for image checking and settings changes when not connected to a computer.

The buttons are used for browsing images and navigating the menu system. Two of the buttons, located at the bottom-right and -left of the screen, are given an on-screen label that changes according to the current context (e.g., the bottom-right button sets the approval rating when browsing images, but confirms settings when using the menus).

Ventilator

1

Ensures the sensor is kept cool.

OLED preview screen

2

Displays preview images and the menu system even in bright light and from acute angles.

MENU / (EXIT) button

3

 Opens and closes the menu system. Also used for various other tasks (EXIT button, for example) as you issue

commands within the menu system indicated by a description beside the button on the preview screen.

View-mode button

4

 Steps through the various view modes for the preview image: standard, histogram overlay, image details, screen off and full-screen.

ON / OFF button

5

 Powers the digital back.

Ready light indicator	6	Flash sync output	13
Flashes red to indicate that the digital back is performing an operation (such as saving a new capture) and is not available for new commands. Glows steady green when the back is ready.		Used when working with studio / strobe flash units. Allows connection to the lens sync contact via the flash sync cable to ensure correct synchronisation	
Navigation button	7	FireWire connector	14
 A four-way rocker button enabling you to step through preview images and navigate the menu system. To use it, press the side of the button that corresponds to what you wish to do (e.g., move up, left, right or down).		Allows the connection to a computer or ImageBank-II. The digital back requires an 800 connector whereas the computer can be either an 800 or 400.	
Zoom-out button / SELECTION (- button)	8	Battery retaining catch	15
 Zoom-out button (to make the view smaller) for the preview image. You can continue to zoom out to view several small images at once and finally to view and select batches and media. Also acts as a selection button for value setting on the menu.		Holds battery in place. Press to remove battery.	
Zoom-in button / SELECTION (+ button)	9	Digital back retaining hook slots	16
 Zoom-in button (to make the view larger) for the preview image. Also acts as a selection button when viewing available image batches, media and value setting on the menu.		Accepts digital back/magazine retaining hooks on camera body.	
Instant Approval / (OK) button	10	CCD and IR filter	17
 This button steps through the three approval levels, thereby assigning an approval status to the image currently displayed (or selected) in the preview screen (part of the Instant Approval Architecture system). The colour coding is based on the traffic signal convention of green, amber (yellow) and red.		This is the light-sensitive element, which is positioned behind a permanently mounted IR filter. Usually, this assembly will either be inside the camera or protected by the cover. Always be very careful not to touch or scratch the surface of the filter when it is exposed and to replace the plastic cover whenever the digital back is not mounted on a camera.	
Also acts as a confirmation button (OK button) for some types of menu operations, such as deleting images; indicated by a label beside the button on the preview screen.		 WARNING: never attempt to remove the glass filter—you will probably ruin the CCD if you do so.	
Flash sync input	11	Databus connectors	18
Used when working with studio / strobe flash units. Allows connection to the unit via the flash sync protector cable to ensure correct synchronisation as well as providing protection for the digital back.		For communicating with a Hasselblad ELD model camera body or with a modified Hasselblad 202/203/205 model camera body.	
Camera communication port	12	Digital back support slots	19
Used with certain camera models only. See adapter user manual for details.		Accepts digital back/magazine support hooks on camera body.	
		Flash card slot cover	20
		Protects card slot.	

Initial setup

A CF digital back is delivered with a protective cover in place. This must be removed in order to fit the i-Adapter and re-attached if the digitalback is to be stored or transported separately as protection for the CCD/filter.

To remove the cover, use the TORX T10 screwdriver supplied to unscrew all four screws (illus A). You can then fit the i-Adapter that suits your camera model.



CAUTION

Be very careful not to touch or scratch the CCD/filter surface while it is exposed and always attach the protective cover for transportation or storage.

Fitting an i-Adapter

After removing the protective cover, check that the adapter is facing the correct way (so that it will connect with the camera body) and position it in place on the back (illus B). Depending on model, there may be a data connector to be aligned and inserted into the back too. Take very great care when placing the adapter to ensure that no part of it touches the CCD/filter. When correctly positioned, the adapter is held in place by the four TORX T10 screws supplied. Make sure the screws are firmly tightened but not overly tight.

Powering the digital back

As with all digital products, it is essential that you maintain a constant check on battery condition and preferably have a fully-charged reserve battery with you at all times when not tethered to a computer. A CF digital back requires power either from the battery (7.2V Sony InfoLithium L type – NP-F550 for example) or from a computer via a FireWire cable.

To attach a battery:

1. Firstly, ensure the battery is fully charged (see user appropriate manual for battery and charger).
2. Remove the protective plate by sliding it as in illustration C.
3. Position the battery as in the illustration D.
4. Press the battery towards the camera. This automatically depresses the battery retaining catch.
5. Slide the battery into the final position ensuring the contact prongs on the camera are inserted into the battery. The battery retaining catch will now return to the safety position

To remove a battery:

1. Depress the battery retaining catch and slide the battery over it. It can then be freely removed.

FireWire connection:

1. Simply connect the FireWire cable between the FireWire connector on the digital back and the USB port on the computer (illus E).

ON / OFF button

With a fully charged battery fitted or when tethered to a computer, press the **ON/OFF** () button to activate the digital back. An audible signal will be heard and a Hasselblad logo splash screen will appear on the OLED. The back will enter standby mode after the preset time to save the battery. Press the **ON/OFF** button again to turn the digital back off. An audible signal will be heard again to confirm this.



Storage & Shooting



Image storage modes / shooting

The CF digital back can store captured images in three ways:

1. Untethered / Compact flash card mode

In this mode a CF digital back acts independently of other connections. Images are stored on the internal, removable compact-flash card.

- *The main advantage with this mode is the freedom of cables and extra equipment.*
- *The main disadvantages with this mode in the field are the battery power capacity and the size of the card's holding capacity.*

Please note that the recommended types of CF cards are Sandisk Extreme-III or Lexar Professional 133x. Other cards will work but offer a reduced capture rate.

2. Semi-tethered / ImageBank-II mode

This mode enables you to attach the camera to a portable Hasselblad ImageBank-II via a FireWire cable. The ImageBank-II features massive storage capacity and high-speed data transfer. It is small, lightweight, battery powered and easily clips to your belt, so the solution is just as portable as the untethered option.

- *The main advantage with this mode is the great number of images that can be stored without a pause.*
- *The main disadvantage with this mode is the extra equipment and cabling needed that might restrict mobility in some cases.*

3. Tethered / Studio mode

This mode enables you to connect your CF digital back directly to a computer and to operate the system using Hasselblad FlexColor software and store images on a computer hard-disk.

- *The main advantages with this mode are the almost limitless storage capacity and being able to work on the images (with Hasselblad FlexColor) on a large screen.*
- *The main disadvantage with this mode is the lack of mobility to any great extent.*

Selecting the current medium

A choice has to be made concerning where the captured images will initially be stored. The current storage medium is the location to which new shots are saved and from which you can browse using the navigation button. In many cases, the destination medium is selected automatically, for example:

- *When you are connected to a computer, then images are always saved directly to the computer hard disk.*
- *When only one medium is connected (e.g., a compact-flash card), then this medium is automatically selected.*

However, if you are working away from your computer and have several media attached (e.g., both a card and an ImageBank-II, then you may need to select a medium explicitly if you want to browse its contents and store images new to it.

There are two ways of selecting the current storage medium:

- See “Selecting the Current Storage Medium” for details.
 - Use the zoom-out button to zoom all the way up to the top level, which shows all connected media, and then zoom in on the appropriate medium and batch.
- See “Navigating Media and Batches” for more information about selecting media and batches in this way.

Using compact flash memory cards

When shooting to a compact-flash card, a CF digital back is completely self-contained. No additional wires or connectors need to be attached.

A CF digital back is shipped with a 2GB compact-flash card. Lossless compression is applied to the images, so the actual size of each capture can vary, thereby affecting the total number of shots you can fit on the card.

Inserting a card

1. Open the CF card cover to reveal the CF slot.
2. Hold the CF card so that the connector holes face into the slot, with the brand label facing in the same direction as the preview screen. Gently press the card into the slot.

If you encounter resistance, it might be because you are holding the card backwards or upside down.

When the card is completely inserted, swing the cover shut again.

Removing a card

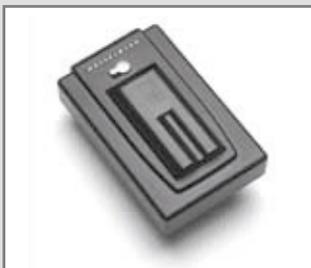
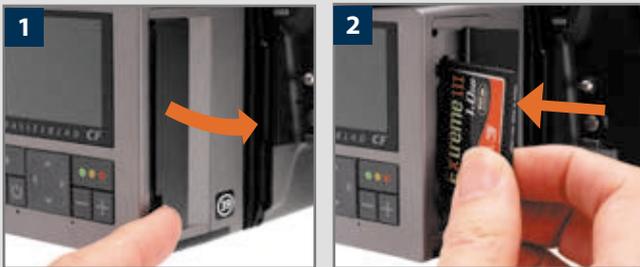
1. With the CF card cover open, press gently on the card removal button (1a) and then release it. It will now extend out from its original position, as in the illustration (1b).
2. Press firmly on the card removal button (2a) to eject the card for removal (2b).

Working with an ImageBank-II

There are no practical differences between storage on the internal CF card or on an ImageBank-II. However, when several media are mounted, you must be sure to select the correct destination medium (see also “Working with Media and Batches”).

Working with a Hasselblad ImageBank-II

The ImageBank-II is an optional add-on for your digital camera system. It is essentially an external FireWire hard disk optimized for digital photography, providing extensive storage space and high-speed data transfer. It is small, light and battery powered. You can easily clip it to your belt, so the solution is nearly as portable as the stand-alone camera.



 Older digital backs in the 'Iexpress' line used a different external disk and controller called simply the "Image Bank". This older ImageBank is not compatible with a CF digital back. Only use the Hasselblad ImageBank-II with a CF digital back.

To use an ImageBank-II with a CF digital back, simply assemble it as described in its manual and connect the two with a standard FireWire 800 (IEEE 1394b) cable. See the ImageBank-II manual for complete details.

To remove the ImageBank-II, simply disconnect the FireWire cable. The back will then revert to saving and browsing images on the internal flash card (if available).

Tethered to a computer

Even if you never shoot while connected, you will probably connect the camera to your computer each time you want to download your images, though you might instead use a compact-flash card reader and/or connect your ImageBank-II or FireWire disk directly.

Connecting to a computer

To connect to a computer, simply attach a FireWire cable from the FireWire port on your computer to the port on the side of the CF digital back. The port is protected behind a sliding cover.

Removing from a computer

To remove the camera from a computer, simply disconnect the FireWire cable when all image loading activity has finished.

Shooting with FlexColor running

When you are connected to a computer, the following rules apply (see Connectivity Diagram and related issues for full information about sync cables etc):

- **The destination medium and location are controlled from FlexColor.**
- **The screen and menu system on a CF digital back are disabled.**
- **A CF digital back will take power from the FireWire cable if it is available (please note that not all computers supply power this way, notably PC laptops).**

When initiating a shot from FlexColor, the computer sends a signal to the CF digital back, which in turn triggers the shutter and flash/strobe (if any). The back then sends the image over the FireWire connection to the computer, where it is displayed on the computer screen and saved as a 16-bit-per-colour 3F file in the currently selected folder of the computer hard disk.

3F is a proprietary Hasselblad format for storing raw captures. It contains the complete raw image exactly as it was captured by the camera, plus technical details that enable FlexColor to process and display the image correctly. It furthermore stores a complete history of the FlexColor settings that you have applied to each image and stores meta-data such as camera settings, image name, photographer, copyright, etc. When you load images into FlexColor from the camera or external media, the 3FR files are converted into the 3F format. If you prefer not to use FlexColor, then you can export files directly to DNG or other format and use Adobe Photoshop, for example.

Please refer to the FlexColor Software Reference manual for further instructions about taking pictures using FlexColor.



2

Initial general settings

CF



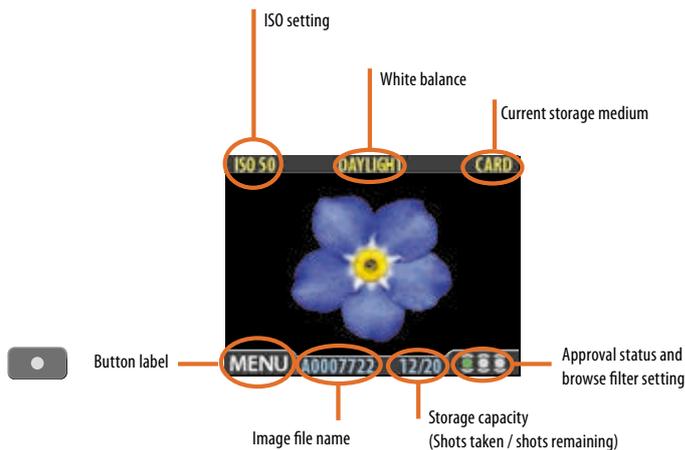
General

Using the menu on a CF digital back is very similar to using a menu on a cell phone or similar. When you enter the menu (by pressing the **MENU** / ) button) you will see an initial list:

- ISO
- White Bal.
- Media
- Browse
- Storage
- Settings

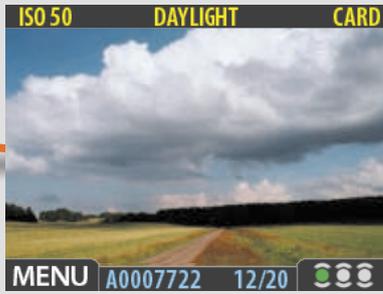
It is advisable to initially quickly skim through this section of the manual to build up a picture of the menu structure and its various sections.

Note that some of the buttons have a double function while others remain single function. For example, the navigation button always leads you through the menu in the direction that the arrowhead illustrates. The Zoom in/out buttons ( and ) though, for example, act as image enlargers and reducers as well as confirmation buttons, according to where you are on the menu.



The standard preview display is the one shown when you first turn on the camera and is probably the view you will use most often. It features a preview of your most recent shot and basic information about the settings and the image itself. Several other display modes are also available, including histogram, capture details, full-screen and battery saver. Please see **Preview Modes** for details.

Furthermore, the display enables you to navigate the menu system and make camera settings; see **Working with the Menus** for details.

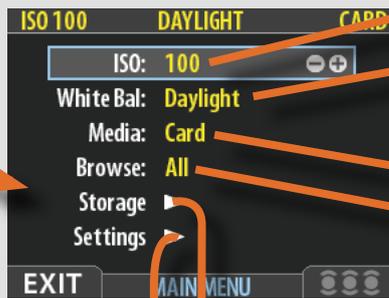


By using the buttons on the control panel you can navigate down through the various levels in the menu. It provides the source of information about image files and also provides a way of making custom settings so the digital back suits your way of working.

Below is a simple overview of what is available and where it is situated on the menu.

Overview of menu structure

MENU



ISO

Sets the light sensitivity of the sensor. Equivalent to 'film speed'.

WHITE BALANCE

Set to match the color temperature of light used.

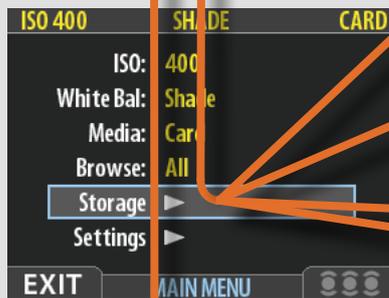
MEDIA

Determines where files will be stored (flash card, ImageBank-II).

BROWSE

Sets the approval status (classification) filter for easier and quicker image browsing.

STORAGE



DELETE

For single or multiple deletion of images.

FORMAT

Used to format compact flash cards and ImageBank-IIs for optimum use.

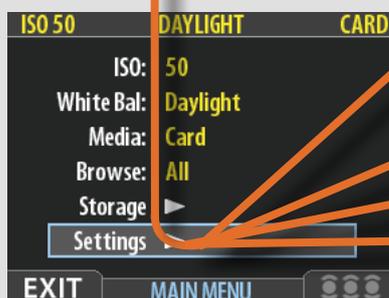
BATCH

Used to create new storage folders (batches) and name them.

DEFAULT APP LEVEL

Assigns a default approval status (classification) to all new images.

SETTINGS



USER INTERFACE

Sets menu language, power down, sound, date & time and several other custom settings.

CAMERA

Sets which type of camera body is being used with the digital back.

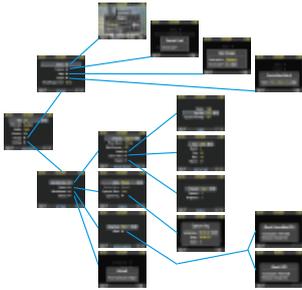
ABOUT

Displays serial number and firmware version.

DEFAULT

Resets all custom settings back to the original factory settings.

Simple introductory overview of menu access, navigation and settings choice.



The menu is structured in a manner similar to cell phones and similar electronic devices.

Various branches within the tree system are accessed by pressing the navigation button until you reach the point where a choice has to be made.

The OK (Approve) button or SELECTION (Zoom-in/Zoom-out) buttons are then used to confirm choice.



After pressing the MENU button, the main menu list appears. The blue frame highlights where you are on the menu. Press on the 'up' and 'down' symbols on the navigation button to move up and down the list.

You can return to the standard image view by pressing either on the 'left' symbol on the navigation button or on the EXIT/MENU button again.



The need to continue further into the menu is indicated by the arrow symbol beside the menu item.

Press the 'right' arrow symbol on the navigation button to access the next part of the menu.



When you reach the final destination of your choice (this might take several moves), PLUS and MINUS symbols appear to the right in the frame round the item.

You then press the Zoom-in /Zoom-out /SELECTION buttons to access a loop list of choices.

In the example on the left, 50 is the ISO value shown. By pressing either button the alternatives appear – 100, 200, 400 and then back to 50 again – both on the list as well as on the upper low to the left (in the case of ISO value).

Pressing the EXIT/MENU button will then confirm the new setting.



In the next example on the left, the name of a new batch is changed by pressing a combination of the Zoom-in /Zoom-out /SELECTION buttons as well as the navigation button. You can then confirm your choice with the OK (Approve) button or revert to the previous status by pressing the EXIT/MENU button. Note that how the MENU button is now described as EXIT on the screen, and the Instant Approval button is described as the OK button.

See later sections for more comprehensive information.

In this manual you will see the following kind of description regarding settings changes (as opposed to general viewing and browsing etc).

The method is the same for all changes, some stages taking a little longer than others and being a little more involved.

The initial general setting is language choice. Then, just as in analogue photography, an ISO setting should be made, though in the digital world it matches the job in hand and circumstances as opposed to the sensitivity of the film chosen. A white balance setting should also be made. Yet again, this is for your convenience regarding the appearance of the image on the OLED and monitor; it will not affect the raw file.

ISO and White Balance are available at the top level of the menu system so you can get to them quickly and easily. They are also shown on-screen in most preview modes, so you can easily keep an eye on them as you work.

 *Don't forget to regularly attach a battery or make a FireWire connection to retain Date & Time settings. See under 'Working digitally' for details.*

The description below is a general illustration of how settings are changed. See later section in this manual for details regarding **ISO** and **White Balance**.

Language

If you have not already done so, you may wish to change to your chosen language now. You can choose between:

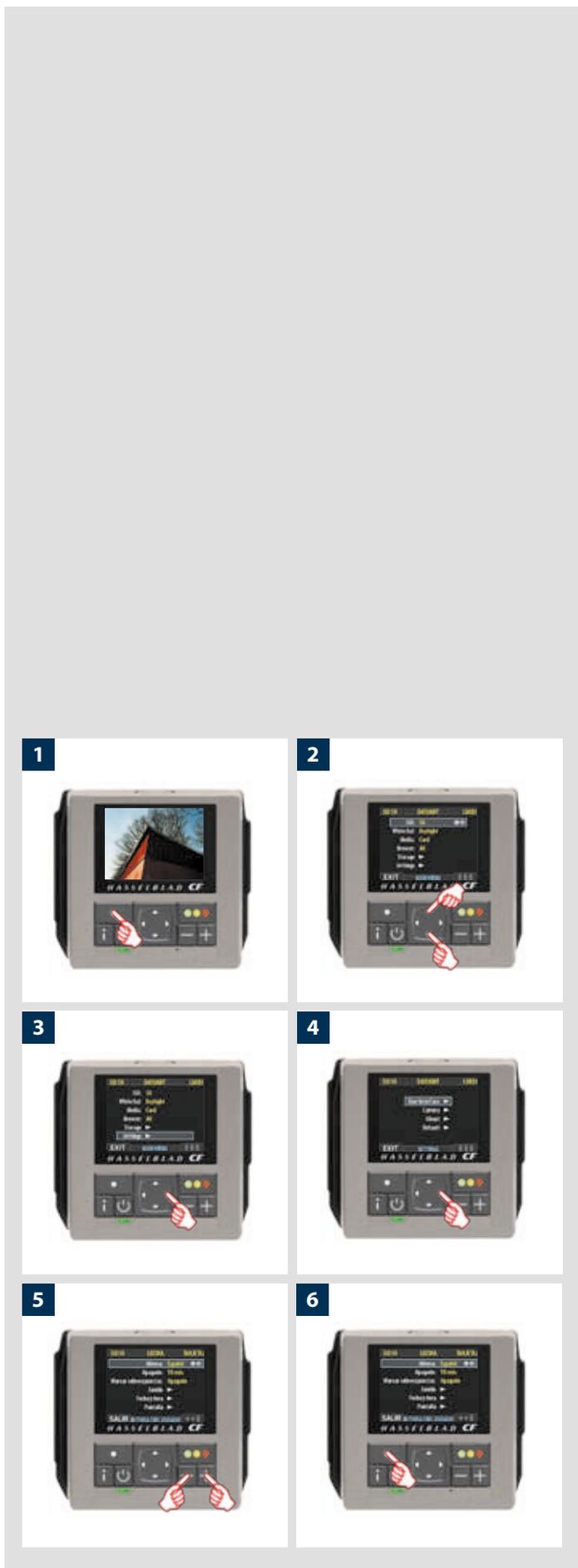
ENGLISH
GERMAN
FRENCH
ITALIAN
SPANISH
JAPANESE
CHINESE

Setting the menu language

The menu is available in English, French, German, Italian, Spanish, Japanese and Chinese.

To choose any of the above languages, proceed as follows:

1. Press the **MENU/EXIT** () button to open the menu.
2. Press the **NAVIGATOR** button ( and ) to select the **SETTINGS** sub-menu.
3. Press the **NAVIGATOR** button () to open the **SETTINGS** menu.
4. Press the **NAVIGATOR** button () to select the **USER INTERFACE** sub-menu.
5. Press either **ZOOM** button ( or ) to choose a new language (in this case, Spanish).
6. Press the **MENU/EXIT** () button again to close the menu.



3

Storage overview – Working with media and batches

CF

General

With a new CF card (or a newly formatted CF card) inserted or with an ImageBank-II, a new folder (called a batch) is created automatically after the first image has been captured. More batches can be created whenever you choose and named for easier sorting. You should name them straight away though as they can only be changed later on (if required) when they have been transferred.

Organizing your work with batches

Batches help you to organize your shots as you work. They function exactly as folders on a computer. Batches have the following properties:

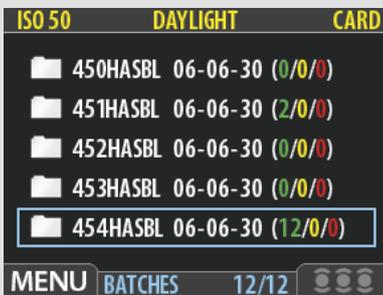
- *When you create a new batch, you assign a name to it and it is created as a new folder.*
- *When you copy images from a compact-flash card, each batch is saved as a sub-folder on the destination disk.*
- *When deleting multiple images, you are able to restrict your delete command so that it affects just a single batch.*
- *When browsing images, you will only see images from the current batch.*
- *You can change between batches by using the navigation controls of the sensor unit front panel.*
- *The batch name also shows the date on which it was created (using the Year/Month/Day convention).*

 *Please note that each new image will be saved in the latest created batch only. You cannot select any other batch to save a new image in.*

Navigating media and batches

The camera always works with a **current medium** and a **current batch**. This is the location at which the camera will save all new shots and the location in which you can browse using the navigator button on the front panel. There are two ways of selecting the current medium and/or batch:

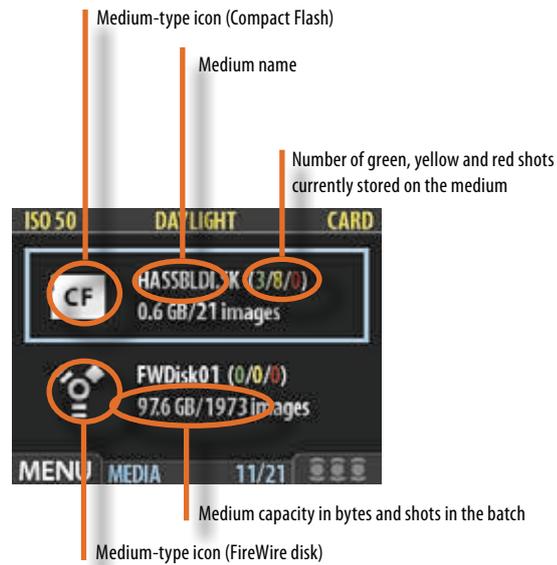
- *Using the zoom and navigator buttons of the front panel. This method enables you to select any existing batch and is therefore useful even when only one type of medium is attached. This method is explained in the procedure below.*



The MEDIA list.

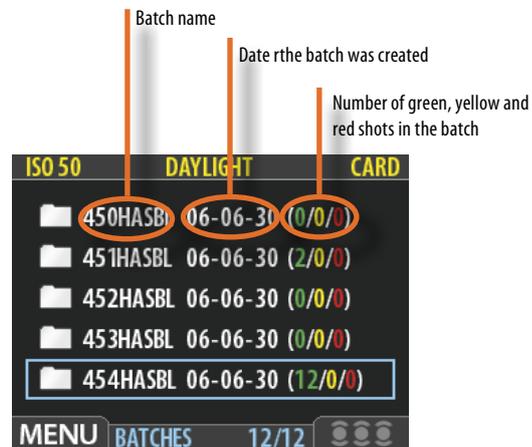
In this example a CF card and a FireWire disk are illustrated and therefore connected.

The blue frame around the CF card symbol tells you that captured images will be saved to the CF card and not the FireWire disk. This is the Current Medium



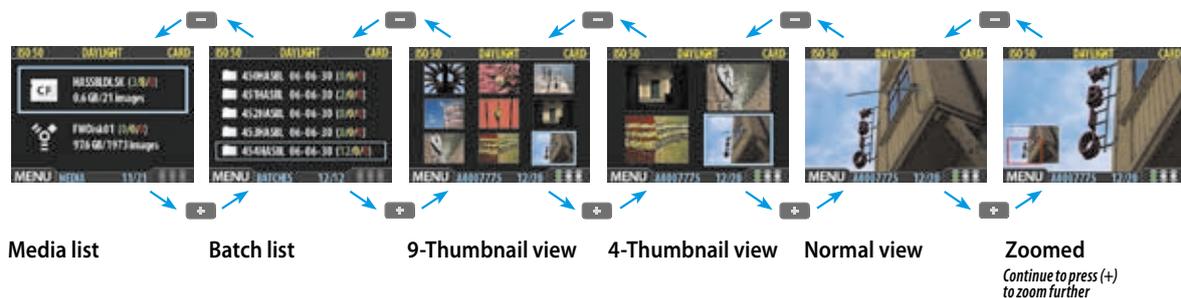
The BATCH list.

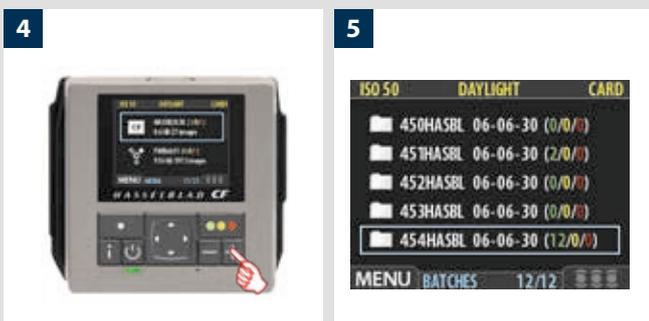
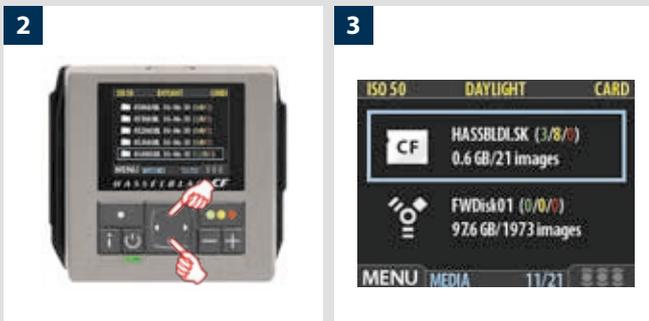
The blue frame around a folder tells you that it is the Current Batch.



You work your way deeper into the menu branching off the selected item (framed in blue) each time you press the **+** button to view media, batch, thumbnail view etc.

Conversely, you work your way back out of the menu each time you press the **-** button.





- Choose **MAIN MENU > Storage** to select a medium. This is only relevant when more than one medium is attached (e.g., both a compact flash card and an Imagebank). When you use this function, you will always go to the most recently created batch from the medium you select. Please see **Selecting the Current Storage Medium** for a complete description of this method.

To select the current medium and view batches using the browse controls:

1. Press the zoom-out () button repeatedly until you are all the way at the top zoom level. If you start with the single-image preview view, then you pass through the following views to get there:
 - Single-image preview (as in fig 1a)
 - Four-thumbnail view
 - Nine-thumbnail view (as in fig 1b)
 - Batch list (as in fig 3)
 - Media list (as in fig 4)
2. Each medium shows a name, total size and an estimate for how many images will fit on it. To the right of the medium name is a set of three coloured numbers in parentheses. These indicate the total number of images of each approval status (green, yellow and red) that currently exist on that medium. For example, if you see a card that shows (18 / 5 / 3), then that card contains a total of 26 images: 18 green (**APPROVED**), 5 yellow (**UNCLASSIFIED**) and 3 red (**DELETE**). If more than one medium is listed, then use ▲ and ▼ to highlight the medium you wish to use.
3. The currently selected medium shows a blue border.
4. Press the zoom-in () button to zoom-in on the currently highlighted medium.
5. A list of batches on this medium now appears. Each batch appears as a folder icon with a name and the date on which it was created. As with the media list, you can read the number of shots of each approval status that are stored in each batch.
6. As with media, use ▲ and ▼ to highlight the batch you wish to view.
7. The currently selected batch shows a blue border.
8. Press the zoom-in () button to zoom in on the currently highlighted batch.
9. The nine-thumbnail view of your selected batch now appears.

Please note the difference between 'selecting' a medium and 'browsing' a batch. Each new image will automatically be saved in the latest created batch only on the selected medium. You cannot 'select' a batch for storage.

Creating new batches

You can create any number of batches on each medium. To create a new batch, first make sure you have selected the correct current medium (see **Navigating Media and Batches**) and then use the **MAIN MENU > STORAGE > BATCH** item of the menu system to create the new batch. See **Creating Batches** for a detailed procedure.

Using Instant Approval Architecture

The Instant Approval Architecture system helps you to classify your images as quickly as you take them. It works by supplying immediate audio feedback, which tells you instantly whether each new picture is exposed correctly or likely to be over- or underexposed. Thereafter, the system enables you to assign each image one of three status levels. Though you can use the system any way you like, the intention (based on the 'traffic light' convention) is that you should assign the levels as follows:

- **GREEN** for your best shots.
- **YELLOW (AMBER)** for images that need closer inspection.
- **RED** for images that should probably not be used.

 Please note, when the current storage medium is full, red-status images will be deleted (one at a time) to make room for new shots. You can continue shooting until no red-status images remain; if you then try to take additional new shots you will get a medium-full message.



Image File Name
Green images start with "A"
Yellow images start with "B"
Red images start with "C"

 Press the approve button to change the status of the currently selected image

 Press **and hold** the approve button to change the status of the currently selected image

Current approval status (green) and browse-filter setting (show all)

 Show all

 Show green and yellow only

 Show green only

 Show yellow only

 Show red only

 Please note the two different actions of pressing (or quickly clicking) the approve button to change the status and pressing and holding to change the browse filter!

One of the greatest advantages of digital photography compared to film is that it costs no more to shoot 100 images that it does to shoot one. Photographers therefore tend to take many more pictures when shooting digitally. By assigning approval levels as you work, it can be much easier to sort through and select images when you get back to your computer.

Standard Instant Approval workflow

The standard method of working with the Instant Approval Architecture is as follows:

1. Take a shot.
2. The camera analyzes the shot to find out if it seems to be over- or underexposed. If it suspects a problem, it does the following:



- Provides audio feedback (if this option has been chosen) by making a warning sound, which immediately alerts you to a possible problem even if you are not looking at the screen. The warning sound is a rapid string of notes going up the musical scale if the image is judged as overexposed or conversely a rapid string of notes going down the musical scale if the image is judged as underexposed.
- Downgrades the approval status to yellow (if Approval is set to 'Auto').

Note that some shots may trigger the warning even though they are exposed according to your intentions. You should consider these warnings only as a guideline.

3. If no problem is detected, then the image is saved with green status.

If you set Approval to 'Auto', all images will be stored as Green if judged as correct and Yellow if judged as technically doubtful. No images are ever stored as Red automatically!

4. When you are browsing through your shots, keep an eye on the approval status of each and consider whether you should promote or demote each shot based on its appearance on the preview screen. You can also apply a browse filter to, for example, browse only red shots when looking for images to delete or to browse only green shots to make sure you have a good version of each shot that you need.

5. When you begin working with the images on your computer, use the approval status as a guide for organizing your work. For example, you might begin by opening and optimizing the green shots and then go to the yellow shots only if you still need more images and then, finally, check the red shots as a last resort.

Note that the system is very flexible so you can use it in any way that you like. For example, you can set the camera to assign all new images a yellow or green status regardless of the exposure warning. Be careful when assigning red status because red images may be deleted if the current storage medium becomes full.

Reading and changing the approval status

The current approval status of each shot is indicated in two ways:

- In most preview modes, the current status is indicated by a coloured dot in the bottom-right corner of the screen.
- Each image is given a name that indicates its approval status. Approved (green) image names start with "A" (e.g., "A000043"); warning (yellow) images start with "B" (e.g., "B000043"); and images marked for delete (red) start with "C". Because of this naming convention, you will also be able to sort your image files by status after you have copied them to your computer (e.g., by listing the folder by file name).

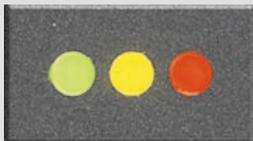
By keeping an eye on the file name and/or coloured dot as you browse your images at the single-image, four-thumbnailed or nine-thumbnailed level, you can easily see the current approval status of each of them.

To change the approval status of the currently displayed/selected image, simply press the approval button until the desired approval status is shown.

Note that you can set the camera to filter by approval status as you browse, which means that some images may be hidden (though they are still there). See "Browsing by Approval Status", below, for details about how to work with the filter.

Be careful when assigning red status because red images may be deleted if the current storage medium becomes full.





Browsing by approval status

You can set the camera to browse by approval status, which means, for example, that you will see only green-status images as you browse a batch (or both green and yellow, or only red, etc.). The current filter setting is indicated on-screen, as illustrated. Filtered images are still there, but they will not be shown until you change the filter setting. Also, if you change the status of an image, the image may ‘disappear’ if it no longer passes the filter. For example, if you have set the camera to browse only green-status images and then change an image to yellow status, that image will not be shown again until you change the browse filter.

There are many ways to make use of this feature. For example:

- **Set the filter to show only yellow images. Then step through each image and decide whether any of them should be promoted to green or demoted red.**
- **If you are running out of space, set the filter to show only red images and then step through to find shots you can delete.**
- **Set the filter to show only green images. Then step through to make sure you have at least one ‘good’ example of each shot that you need.**

There are two ways to set the browse filter:

- **Press and hold  until the filter you want to use is shown by the indicator.**
- **Use the MAIN MENU > Browse item of the menu system. See **Setting the Browse Filter** for a detailed procedure.**

Deleting by approval status

There are many ways to delete images, including one-at-a-time and multiple delete by batch, media and/or approval status. When deleting several images, you first pick the medium or batch from which you want to delete and then use the **MAIN MENU > STORAGE > Delete** item to specify the status of the images to delete. You can choose to delete:

- **All red-status images from the selected batch or medium**
- **All red- and yellow-status images from the selected batch or medium**
- **All images from the selected batch or medium**

See **MAIN MENU > Delete** for detailed procedures describing each of the delete options.

Setting the default status

As outlined in **Standard Instant Approval Workflow**, a CF digital back normally works by assigning a green status to all images that pass a basic exposure test and a yellow status to all images that fail the test. However, you can change this behaviour if you prefer an alternative workflow. You have the following options:

- **Auto: works as described in Standard Instant Approval Workflow.**
- **Green: gives all new images a green status, regardless of the exposure warning.**
- **Yellow: gives all new images a yellow status, regardless of the exposure warning.**

Regardless of this setting, audio feedback will still be provided if an image is judged to be badly exposed (if this option is chosen).

Use the **MAIN MENU > BROWSE** item to make this setting. See also **Setting the Default Approval Status** for a detailed procedure.

4

Overview of viewing, deleting and transferring images



Basic image browsing

The large, full-colour OLED display enables you to inspect your shots while you are still on-location. The display offers full-screen previews, high-magnification zoom, two levels of thumbnails and analysis tools including a full histogram and camera settings.

When you first turn on the camera, the display opens in standard browse mode, showing the last image taken (if any) for the current medium and batch. Likewise, after each new shot, the display shows a preview of the shot.

To browse the images of the current batch, simply press the left (◀) and right (▶) arrows of the navigator button.

Choosing the current batch

When you browse using the navigator button, you will only see images from the current batch on the current medium. To view another batch, you must navigate to it by zooming out to the batch or media level and then zooming in on the appropriate folder. See **Navigating Media and Batches** for complete details about how to select the current medium and/or batch.

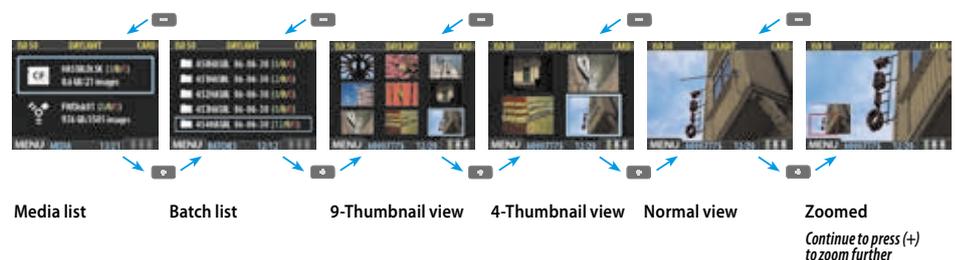
Browsing by approval status

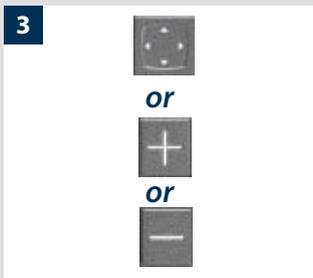
It is possible to set the camera to browse only images of one or more specific approval levels from the current batch. You can use this, for example, to review all of your red-status shots to make sure you don't need them or to review all of your yellow-status shots to decide whether they should be moved to green or red status. When you use the browse filter, you will not see images excluded by the filter, but they are still there.

See **Using Instant Approval Architecture** for complete details about how to check and set the browse filter.

Zooming in and out

As illustrated below, you can use the [ZOOM OUT] or [ZOOM IN] button to see various levels of detail in your images. You can furthermore zoom all the way out to view and select batches and media.





Zooming in for more detail

The preview display has a much lower resolution than your images. You can therefore zoom very far into the images to inspect small details. To do this:

1. Browse to the image you wish to zoom into with the navigation button.
2. Press the zoom-in (⏏) button to zoom in one step. The screen updates to show both a zoomed image and a thumbnail image that includes a red box outlining the portion of the images currently shown.
3. You can now do the following as needed:
 - Use the navigator button to move the zoom area if you wish to inspect a different part of the image.
 - Zoom further by pressing the zoom-in (⏏) button more times.
 - Zoom back out one step by pressing the zoom-out (⏏) button.
4. When you are finished, press and hold the zoom-out (⏏) button to return to browsing at the standard zoom level.

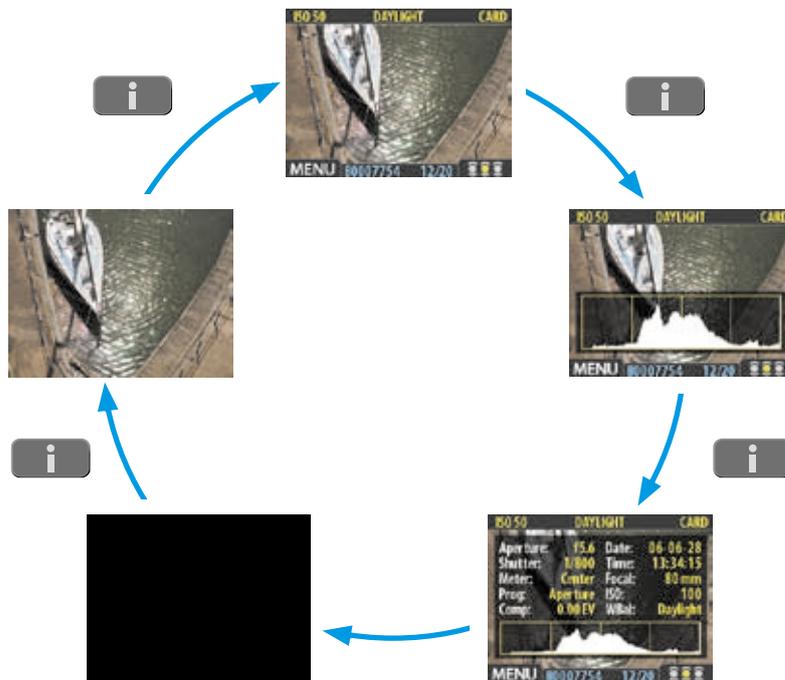
Thumbnail views

Preview thumbnails are small versions of each preview, sized to fit either four or nine images on the screen at once. Use them to get an overview of your work so far and to help find specific shots.

To see the thumbnails, start with the standard preview display and press the zoom-out button once to see four thumbnails or twice to see nine.

When viewing thumbnails, the selected image shows a blue border. When an image is selected, you can zoom in on it using the zoom-in button or delete it using **MAIN MENU > STORAGE > Delete** (see also **MAIN MENU > STORAGE > Delete** for a detailed procedure). Use ▲ and ▼ to scroll the thumbnails when you have more shots than can be shown.

If you continue to zoom out beyond the nine-thumb view, you will come to the batch list and then to the media list. You can use this to select the current medium and batch for browsing and for storing new images. See Working with Media and Batches for details.



You can cycle through all the available preview modes by pressing the View-Mode button.

Preview Modes

Choosing the Preview mode

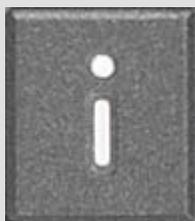
You can use the view-mode button to cycle through the available preview modes. The preview screen works in several different modes:

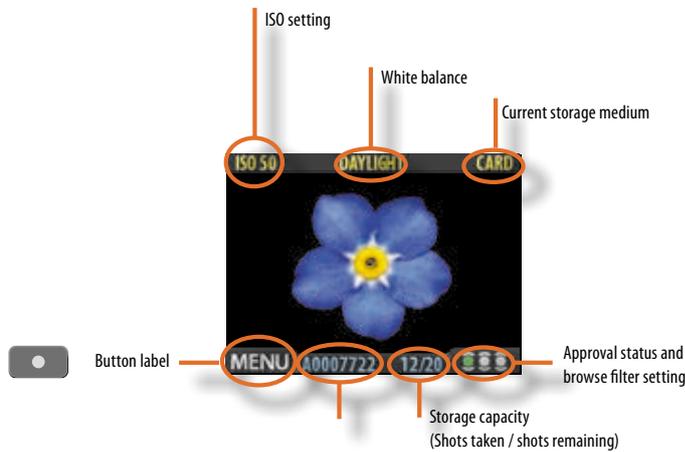
- **Standard preview:**
shows a preview image surrounded by a display of few important settings.
- **Histogram:**
shows a preview image overlaid with a histogram.
- **Histogram and full details:**
shows a preview image overlaid with both a histogram and camera-setting details.
- **Battery saver:**
turns off the screen, but you can still use the menus and take pictures.
- **Full-screen preview:**
shows the preview only, with no frame or settings information.

To cycle through the various modes, press the view-mode button on the front panel. The order is circular, as listed above. Each mode is described in detail in the sub-sections below.

Regardless of the current mode, if you zoom in on the image or zoom out to the thumbnails, the display reverts to showing the “standard” preview frame, which shows information about the current image and camera settings around the edges. When you return to the standard zoom level, however, you will then also return to your last-selected preview mode.

Note that the screen can also operate in menu mode, which does not show a preview, but enables you to make sensor unit settings. To enter menu mode, press the menu button. See **Working with the Menus** for details.





The standard preview display is the one shown when you first turn on the camera and is probably the view you will use most often. It features a preview of your most recent shot and basic information about the settings and the image itself. Several other display modes are also available, including histogram, capture details, full-screen and battery saver. Please see **Preview Modes** for details.

Furthermore, the display enables you to navigate the menu system and make camera settings; see **Working with the Menus** for details.

Using the histogram

The histogram provides a graph that indicates the total number of pixels at each brightness level, with brightnesses going from black on the left to white on the right. It is a valuable tool for evaluating your exposure. A well-exposed shot usually has a full range of levels, while under- and overexposed shots tend to show levels concentrated at the left or right part of the scale, respectively.

Look at the histogram examples and the explanations below:



A

Underexposure

A

A histogram display that is concentrated on the left with few pixels elsewhere indicates a likely underexposure. Many details will be lost in the shadows.



B

Even exposure

B

A histogram display that is spread across the full range indicates a likely good exposure. There may still be a few pixels at the extremes, indicating a few spectral highlights and saturated shadows, but this is often normal in a good exposure.



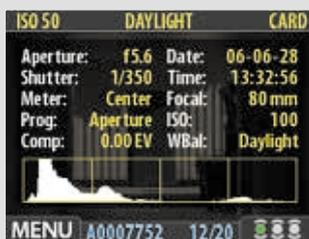
C

Overexposure

C

A histogram display that is concentrated on the right with few pixels elsewhere indicates a likely overexposure. Many details will be lost in the highlights.

The histogram is only an indicator that should be interpreted—there are many situations in which a questionable histogram will match an exposure that is perfectly fine for the intended effect (and vice-versa).



D

Full-details mode

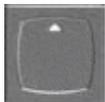
D

In full-details mode, you can read a complete list of camera settings, plus see the histogram and, in the background, a darkened preview of the image.

The camera-setting details are stored with the image, so you can refer to them using FlexColor even after you have loaded the image to your computer and stored it in your archive.

1**2**

Overexposure indicator shortcut!



There is also a one-button shortcut for toggling the overexposure marker on and off.

To use it, press and hold ▲ until the indicator is working as you would like (enabled or disabled).

Battery-saver mode

In this mode, the digital back is fully responsive, so you can take pictures but the screen is not lit up, thereby saving battery power.

You can enter the menu system while shooting in this mode (which activates the screen until you exit the menu system again) but the approval, zoom and navigator buttons have no effect.



You can also save battery power by turning down the brightness and/or contrast of the display using the items of the MAIN MENU > SETTINGS > USER INTERFACE > DISPLAY menu. See Making Display Settings for details.



Other ways to save battery power include setting a display time-out and/or a power-down time-out (each of these is disabled by default). Use MAIN MENU > SETTINGS > USER INTERFACE > Power Down to set a power-down time out. Use MAIN MENU > SETTINGS > USER INTERFACE > DISPLAY > Timeout to set a display time-out. See also Items of the USER INTERFACE Menu and Making Display Settings for details about these settings.

Full-Screen Mode

1

In full-screen mode, you can browse your images at standard preview resolution without any distracting data surrounding them.

Because the current approval setting is not shown in full-screen mode, the approval button has no effect. This will prevent you from accidentally assigning the wrong status without knowing it.

Overexposure indicator

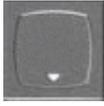
2

Though the histogram shows you when some of your pixels are overexposed, it does not tell you which ones. In a shot with many bright areas, it can be hard to know whether the key parts of your image are just bright or completely overexposed. To help you find them, the digital back can provide an overexposure indicator, which shows precisely which areas of your shot are overexposed (i.e., pixels that are at maximum brightness, thereby eliminating details).

When enabled, the overexposure indicator flashes the overexposed pixels from black to white.

To enable or disable the overexposure indicator, use the MAIN MENU > SETTINGS > USER INTERFACE > Mark Overexp. item.

Delete shortcut!



There is also a one-button shortcut for deleting single images. To use it, select a target image and then press and hold the ▼ until the confirm-delete dialog opens.

Deleting images – general

A CF digital back enables you to delete images using any of the following techniques:

- **Delete the currently selected image only.**
- **Delete all images from the current batch**
- **Delete all images from the current medium**
- **Delete all red-status images from the current batch**
- **Delete all red-status images from the current medium**
- **Delete all red- or yellow-status images from the current batch**
- **Delete all red- or yellow-status images from the current medium**

 Another way of working is to simply assign unwanted images as Red. In this way, you retain the option (for a while) of changing your mind later while allowing the system to automatically delete the unwanted images as the storage medium fills up.

 You will always be asked to confirm each delete operation.

For complete details about how to use the menu system to delete single or multiple images, please see **MAIN MENU > STORAGE > Delete**.

Transferring images

Transferring to a computer

To transfer images stored on the compact-flash card to your computer, simply connect the digital back to a computer using a FireWire cable and then run FlexColor, which will automate the process. See your FlexColor manual for details.

See also **Connecting to the Computer** for details about how to connect to a computer.

5

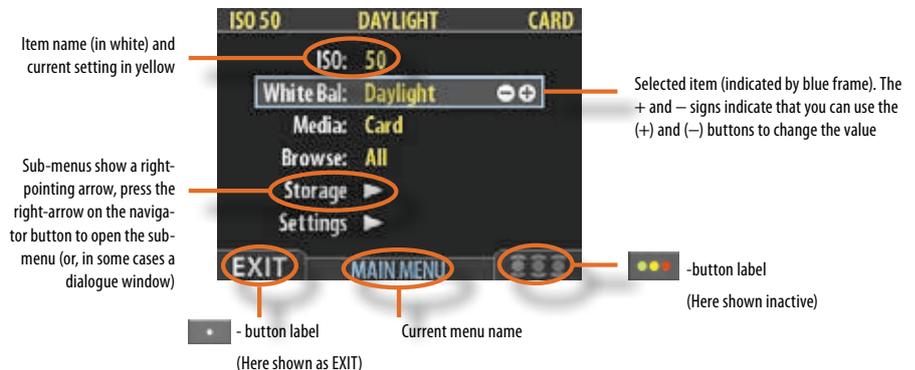
MENU –

- **ISO**
- **White balance**
- **Media**
- **Browse**

CF

Menu system overview

The main menu contains those settings that you will need to access most often as you work on an assignment. It also provides sub-menus that give you access to all other settings, most of which you will need less often.

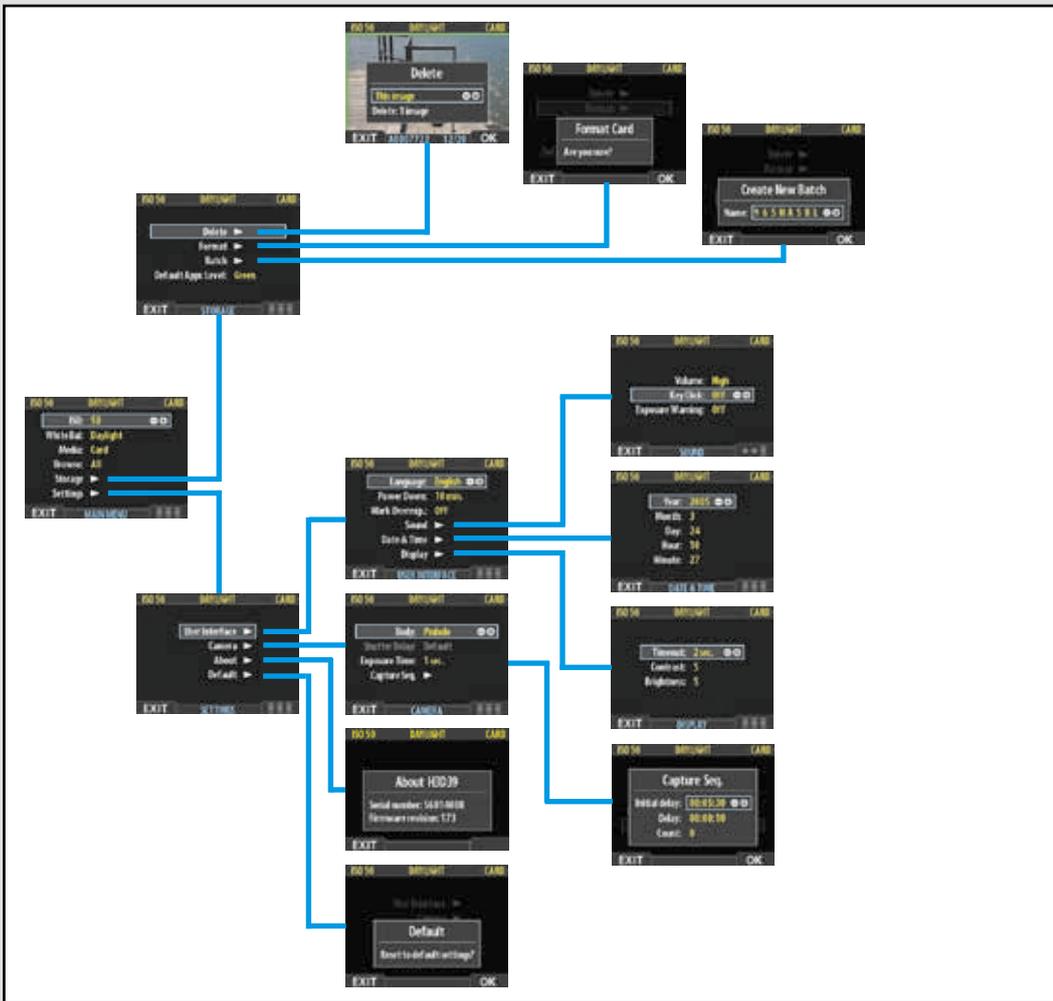


Navigating the menu system

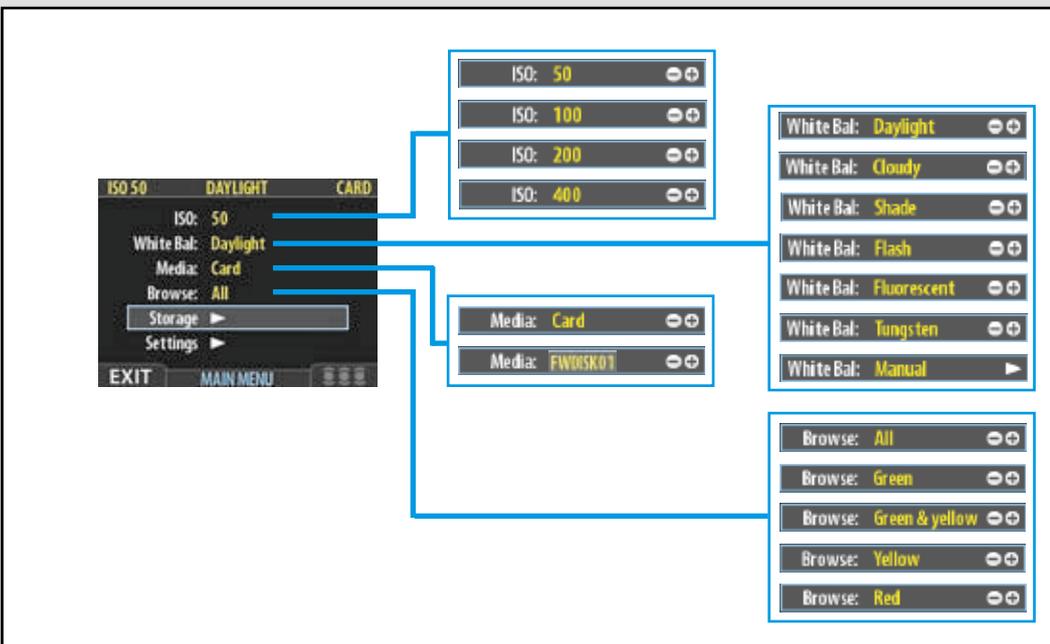
To enter to the menu system, press the **MENU** button on the panel. Any image visible is then replaced by the first level of the menu. Use the navigator button to scroll through the menu items and use the **+** and **–** buttons to change the selected setting. See also **The Control Panel** for button diagrams and descriptions.

Any given menu may include both items and/or sub-menus.

- **Items are settings that are available at the current menu level; they show their current settings next to the item name. To make an item setting, use the navigator (▲) button to select the item and then use the zoom (■ and ■) buttons to select the desired option for that item**
- **Sub-menus do not have settings at the current level; they lead to another menu or dialog. Sub-menus show a right-pointing arrowhead (▶) instead of a value. To open a sub-menu, use the up/down arrowheads (▲ and ▼) of the navigator button to select the sub-menu and then press the right side of the button to open it. There can be several levels of sub-menus.**
- **When you are in a sub-menu, you can go back to the parent menu by pressing the left arrowhead (◀) of the navigator button.**
- **Some sub-menus open a dialog. Dialogs require that you either make a setting or exit the dialog (e.g., to confirm or cancel a delete command). The left arrowhead will have no effect.**



Menu structure



Items on the main menu



Language choice

As a practical example, a **MAIN MENU > SETTINGS > USER INTERFACE > Language** item instruction would involve the following procedure:

1. Press the menu (**MENU**) button to open the menu.
2. Use **▲** and **▼** to select the **SETTINGS** sub-menu.
3. Press **▶** to open the **SETTINGS** menu.
4. Press **▶** to select the **USER INTERFACE** sub-menu.
5. Press either the **◀** or **▶** button to choose a new language (in this case Spanish).
6. Press the **MENU/EXIT** button again to close the menu.

Note also that the menu and approval buttons are situated just outside the bottom-left and bottom-right corners of the screen. As you work through the various menu items, the screen shows a label for each of these buttons. In the text, we therefore give the generic name for the button and the screen name. For example we will refer to: the menu (**MENU**) button, the menu (**EXIT**) button, or the approval (**OK**) button.

Settings check

ISO, White Balance, Media and **Browse** settings should be checked before each session. They are therefore placed at the top level of the menu for quick and easy access. They are also shown on-screen in most preview modes, so you can easily keep an eye on them as your work.



ISO

The digital back can be set to use a light-sensitivity rating equivalent to ISO 50, 100, 200 or 400 film. Note, however, that the “natural” sensitivity of the CCD is ISO 50, so you will get best results with this setting if the light conditions allow.

To set the ISO:

1. Select the **MAIN MENU > ISO** item. This is the top item of the top menu, so it will be selected by default when you enter the menu system. (See also **Navigating the Menu System** for details about how to find this setting.)
2. Use the **+** or **-** button to step through the available ISO settings until the setting you want is shown.
3. Either move on to another setting by using the navigator button or press the menu button to exit the menu system and keep your setting.

 **Note that the default sensitivity of the CCD sensor is ISO 50. Higher ISO settings result in progressively noisier images (just as higher ISO film becomes grainier). It is recommended that you use the lowest ISO setting possible for the lighting situation.**

White balance / Grey Balance

There are several ways to make a white/grey balance adjustment. When untethered on location you might prefer to make a quick preset adjustment setting at the same time that you check the **ISO** and **Media** settings. Tethered in the studio you might prefer to take the first shot of a grey scale and make the adjustment in FlexColor for that session.

Please note that white balance settings are for your viewing convenience only. The setting is temporary and in no way affects the raw file which remains 'neutral' awaiting further processing.

To select a preset white balance:

- 1a. Press the **MENU** button on the digital back.
- 2a. Use **▲** and **▼** to select the **White Bal:** sub-menu.
- 3a. Use the **■** or **■** button to step through the available choices until the one you want is shown.
- 4a. Either move on to another setting by using the navigator button or press the **MENU** button to exit the menu system and keep your setting.

To make a manual white balance setting:

1. Select the **MAIN MENU > White Bal > Manual** item.
2. Use the **▶** button to call up the 'Manual White Balance' screen.
3. Here, you can adjust the color temperature to a specific numeral setting in degrees K with the **+** or **-** buttons.

Alternatively, you can position the central spot in the view-finder over an area that you consider should be rendered as neutral in color in the image (a 'grey card' or even a sheet of white paper is ideal) and make a test exposure (ensure the exposure is approximately correct otherwise you will get a warning message). A small rectangle appears on the OLED marking that particular area. Calculations then take place automatically so that the following shots use the area chosen as the new 'white balance' standard. Using this method you can also read off the screen what the color temperature of the light source has been judged to be in degrees Kelvin.
4. Press the **MENU** button to exit the menu system and keep your setting.

New settings are retained even when the camera has been turned off and re-activated, so don't forget to make new settings when required.



There are seven 'White Balance' settings to choose from.



White Bal. Setting	Setting description
Daylight	For general outdoor use in direct sunlight.
Cloudy	For general outdoor use in cloudy weather.
Shade	For general outdoor use in shady locations out of direct sunlight.
Flash	For general indoor use when using a normal flash/strobe system.
Fluorescent	For use when using fluorescent lighting (strip lights).
Tungsten	For use when shooting indoors under standard tungsten/B lamps.
Manual	For a manual setting



Color temperature can be set manually or read off after a test exposure.



White Balance Shot screen appears after test exposure to illustrate the area chosen for white balance calculation.

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Media

The storage setting controls where your digital back will store new images and which stored images will be visible in the browse window.

Often, you have just one type of storage media available—the internal compact-flash card. However, if you have several media attached (e.g., a card and one or more external disks), then you may need to switch between them.

If your selected storage medium has more than one batch (folder) on it, then the batch selected when you use the storage menu item will be the one you most recently created.

To select the medium to which to save new shots and from which to browse previous shots:

1. Press the **MENU** button.
2. Use **▲** and **▼** to select the **MEDIA** sub-menu.
3. Use the **◀** or **▶** button to step through the available media until the name for destination/source you wish to use is shown.
4. Either move on to another setting by using the navigator button, or, press the **MENU** button to exit the menu system and keep your setting.

 *Note that you can also select media using just the (+) and (-) buttons while browsing images. This method also enables you to select a batch as you zoom in from media to batch to thumbnails to preview. See Navigating Media and Batches for complete details about this method.*

Browse

The browse filter complements the instant-approval system by enabling you to browse through images according to their approval status. You have the following choices:

- **All:** browses all of the images in the current batch, regardless of their approval status. This is the default.
- **Red:** browses only red-status images from the current batch. These are images that you have marked for likely deletion. You might browse these images to make sure you have not eliminated any usable images and/or to find images that you can delete to make room for new shots.
- **Green:** browses only green-status images from the current batch. These are either new shots that did not trigger an exposure warning or shots that you manually assigned to green after overriding an exposure warning.
- **Green & Yellow:** browses green and yellow-status images, but does not show red-status images. These are probably images that you have either decided to keep or not yet checked for approval status.

For more information about using the instant-approval system, please see **Using Instant Approval Architecture**.

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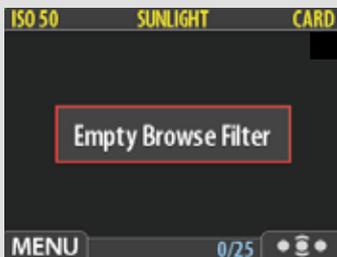
3



To set the browse filter using the menus:

1. Select the **MAIN MENU > Browse** item. The current setting is displayed here.
2. Use the  or  button to step through the filter options (described above) until you have selected the filter you wish to use.
3. Either move on to another setting by using the navigator button or press the menu button to exit the menu system and keep your setting.

The appearance of the 'Empty Browse Filter' message signifies that there are no images with that particular approval status.



 **Browse shortcut !**



There is also a one-button shortcut for changing the browse filter.

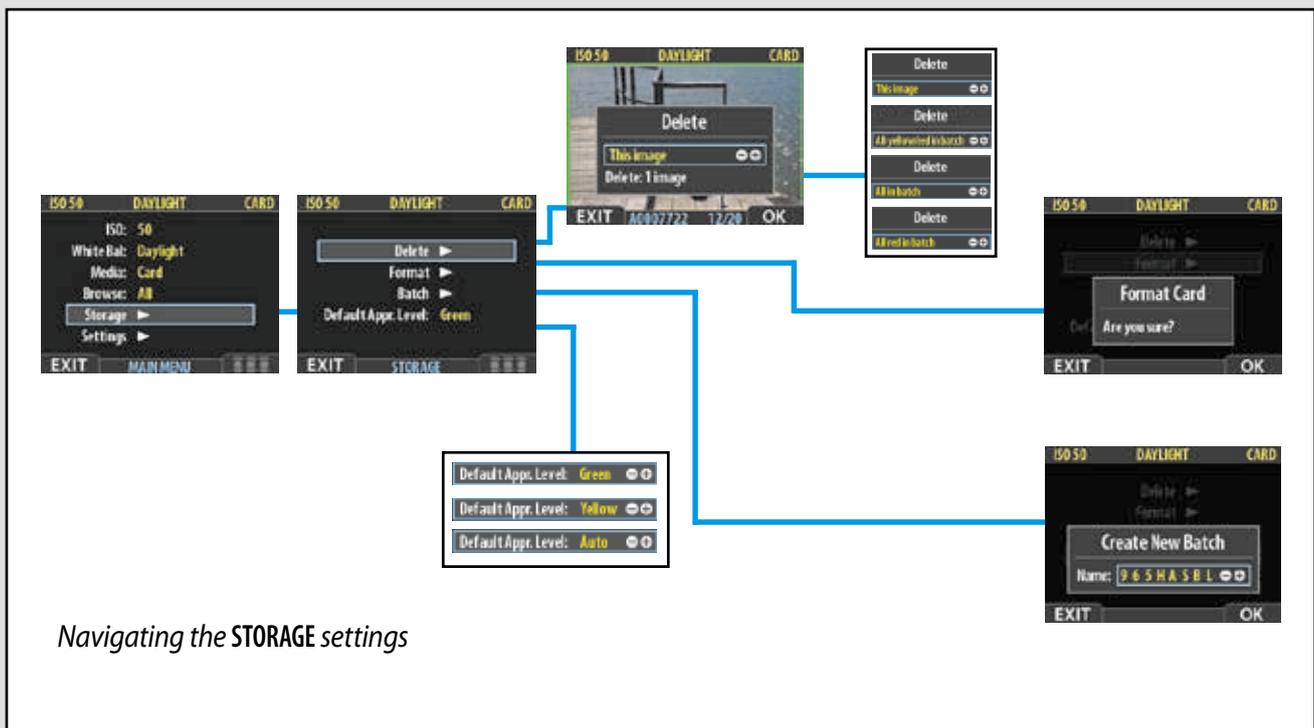
To use it, press and hold (do not click!) the Instant Approval button until the approval status colour appears. Browsing will then only display the images with that classification.

6

MENU –

- *Storage*

This section describes file storage, file transference, storage organization, file classification and related subjects.



Navigating the STORAGE settings

MAIN MENU > STORAGE

The **Storage** menu provides items for working with storage media. Here, you can format media, copy images from the back to a computer and create new batches on available media. You can also set the initial approval status (green or yellow) assigned to new pictures.

The first item on the storage list is file deletion. The great advantage of digital capture is of course the ability to judge images on the spot, delete them immediately if necessary and thereby make room for more valuable captures. There are several ways to delete images:

- *Delete a single image*
- *Delete all images from a batch*
- *Delete all images from a medium*
- *Delete all images of a specified approval status (e.g., red) from a batch or medium*

DELETE

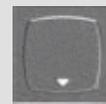
In this example, one image is to be deleted from a batch containing nine images.

To delete a single image:

1. From a preview image (which is being kept), use the  button to go to the nine-thumbnail (in this case) view.
2. Use the navigator button to select the image you wish to delete. When you are viewing thumbnails, the selected image has a coloured border around it. When you are viewing single images, the selected image is the one currently shown. (You can delete an image either from single image view or from thumbnail view).
3. Select **MAIN MENU > STORAGE**
4. Press  to open the **Delete** dialog.
5. You are now shown a full-size preview of the selected image and asked to confirm the delete. Press **OK**.
6. You now return to the main menu. Notice that the unwanted image has now been deleted and the batch only contains the three remaining images. Either move on to another image by using the navigator button or press the menu button to exit the menu system.

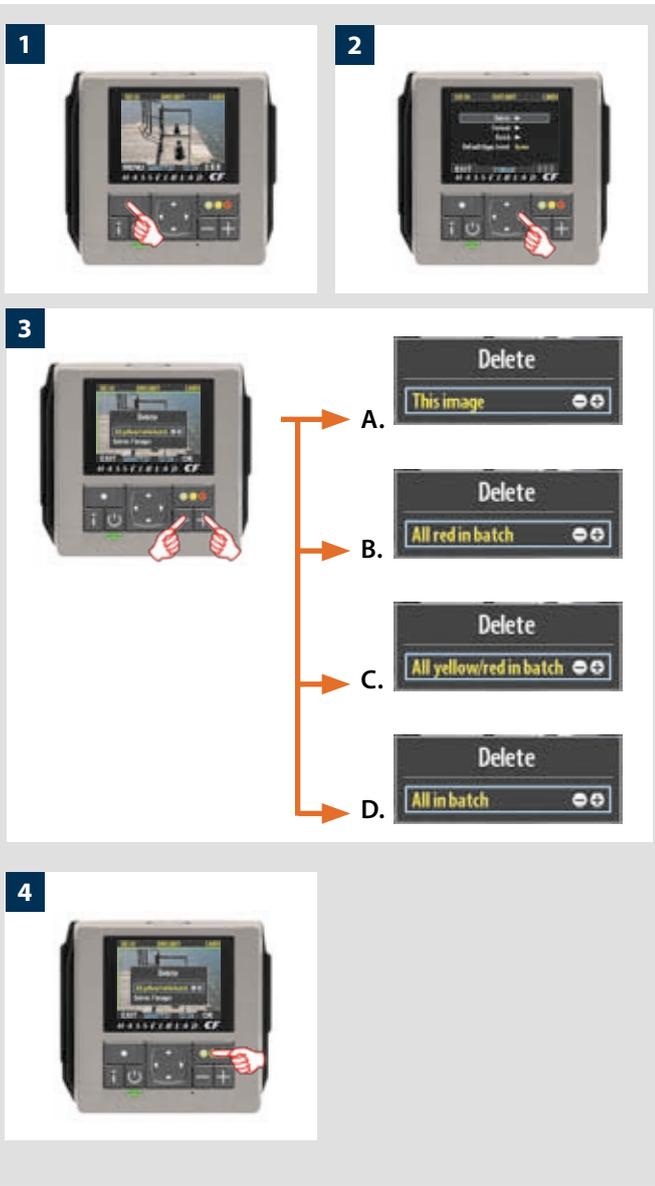
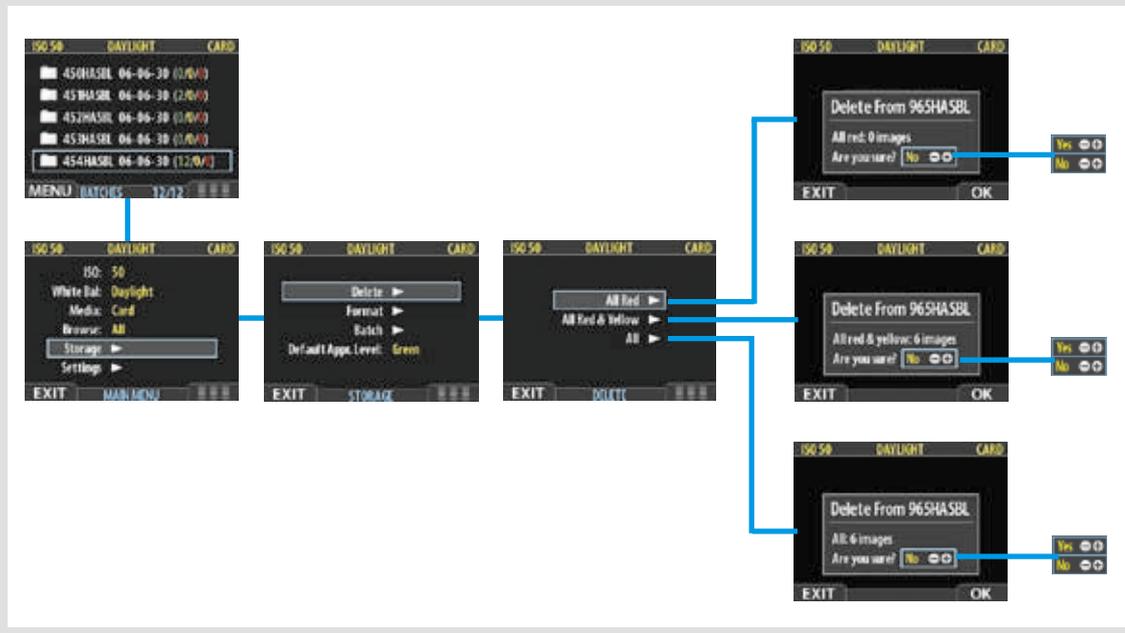


Delete shortcut !



There is also a one-button shortcut for deleting single images. To use it, select a target image and then press and hold the  until the confirm-delete dialog opens.

Menus for deleting several images from a batch.



Deleting several images from a batch

To delete several images from a selected batch:

1. Starting at the single-image preview display, Select MAIN MENU > STORAGE > Delete. (See also Navigating the Menu System for details about how to find this setting.)
2. Use ► to enter the Delete submenu.
3. Use the ◀ or ▶ button to select:
 - This image - deletes the current image only
 - All Red in batch - deletes all red images in the current batch
 - All yellow/red in batch - deletes all yellow and red images in the current batch
 - All in batch - deletes all images in the current batch
4. Press OK to confirm the delete. To exit without delete, press EXIT

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5. You now return to the main menu. Either move on to another setting by using the navigator button or

6. Press the menu (EXIT) button to exit the menu system.

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Deleting several images from a selected medium

To delete several images at once:

1. Starting at the single-image preview display, press the  button until you reach the media list.
2. Use  and  to select the medium from which you wish to delete. You will be deleting from all batches stored on that item.

 Note that both each listed medium shows a set of three coloured numbers in parentheses to the right of the medium name. These indicate the total number of images of each approval status (green, yellow and red) that exist on the medium. For example, if you see a medium that shows (18/5/3), then the medium contains a total of 26 images: 18 green (approved), 5 yellow (unclassified) and 3 red (marked for probable delete).

3. Select **MAIN MENU > STORAGE > Delete**. (See also **Navigating the Menu System** for details about how to find this setting.)

4. Press  to open the **Delete Image** dialog.

Menus for deleting several images from all batches storage from a selected storage medium.



5. You must now select the approval status that you wish to delete. All images from the selected medium that are also of the status that you select here will be deleted by the operation.

Use ▲ and ▼ to select All Red, All Red & Yellow or All.

6. Then press ► to open the delete dialog for your selected status.

You are now asked to confirm the delete.

7. • To confirm, press the = button to change the status to Yes and then press the approve button to execute the delete.

• To cancel, press the menu button to exit; or press the = button to set the status to No and then press the approval button to cancel.

You now return to the main menu. Either move on to another setting by using the navigator button or

8. Press the menu (EXIT) button to exit the menu system.

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FORMAT

The digital back is only able to read and write to media that have been formatted.

However, new cards or disks sometimes arrive without any formatting, or you might want to convert media that are currently using a format that the camera cannot read.

Each time you get a new compact-flash card, we recommend that you format it using the digital back as described below, even if the digital back is already able to read it. This will enable the digital back to use the card more efficiently.

The digital back is capable of formatting any type of medium connected to it, including compact flash cards and ImageBank-II units. When you do this, you will erase all data contained on the target medium.

You can also use the format command for the purpose of deleting all images on a disk. This is sometimes faster than using the delete function, but it is not as flexible because all data from all batches will always be erased.

To format media:

1. If you have more than one type of medium connected (e.g., a compact-flash card and ImageBank-II), then start by selecting the medium you wish to format using the Storage item of the main menu (see also **Selecting the Current Storage Medium**).
2. Select **MAIN MENU > STORAGE > Format**. (See also **Navigating the Menu System** for details about how to find this setting.)
3. Press the ► to open the **Format Card** dialog.
4. You are now asked to confirm the operation.
 - To confirm, press the **OK** button. This will execute the format and delete all data on the current medium.
 - To cancel, press the **EXIT**.
5. You now return to the **STORAGE** menu. Either move on to another setting by using the navigator button or press the menu (**EXIT**) button to exit the menu system.

COPY

Files can be copied to an ImageBank-II to free up space on a CF card. All batches and files remain on the card until deleted.

To copy files:

After connecting an ImageBank-II to the camera with a FireWire cable, turn it on and proceed as follows:

1. Select **MAIN MENU > STORAGE**.
2. Press the ► button and then the ▼ button to navigate down to **COPY**.

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3. Press the ► button to reach the confirmation dialogue. To confirm, press the **OK** button. (To cancel, press the **EXIT** button.)

Confirmation will make a copy of all batches and files and store them on the ImageBank-II in a newly created folder called 'CARD0001' (for example). If you connect the camera to the ImageBank-II again, a new folder is automatically created with the name 'CARD0002' (for example) and so on.

4. The copy dialogue now appears to inform you of progress. Press **STOP** if you want to cancel the procedure.

BATCH

Batches help you to organize your work. They are very similar to folders on a computer hard disk. Use the **Batch** command of the **STORAGE** menu each time you want to create a new batch.

For more information about batches, please see **Working with Media and Batches**.

To create a new batch:

1. Press the **MENU** button.
2. Press ▼ to navigate down and select the **Storage** dialog. Press ► and then ▼ to navigate down and select **Batch**.
3. Press ► to open the **Batch** dialog. The new batch name will always begin with a three-digit number, which automatically increments by one with each new batch. Following this is five letters, which you can assign yourself to help make the batch easier to identify. To set the letters:
 - Use ◀ and ▶ to select one of the five letters.
 - Use the ⬆ or ⬇ button to step the currently selected letter up or down the alphabet until you have found the letter you want.
 - Continue working until you have set the name you want.
4. Press the approve (**OK**) button to save the new batch with the name you selected.
5. You now return to the **BATCH** menu. Either move on to another setting by using the navigator button or press the menu (**EXIT**) button to exit the menu system.

 Remember that all new images are stored automatically in the latest batch. It is not possible to store new images in older batches.

DEFAULT APPR. LEVEL

The Instant Approval Architecture system helps you to evaluate and mark each image based on how well it has come out. By default, the system assigns an initial approval status for each new shot based on an analysis of the distribution of exposure levels. In the factory configuration, the status of each new shot is assigned as follows:

- **Green (approved):**
The new shot seems to have been exposed correctly.
- **Yellow / Amber (unclassified):**
The new shot seems to have been over- or under-exposed.

However, you might choose instead to override this system and have all new shots assigned either as green or yellow, regardless of the exposure analysis results. A typical strategy could be to assign all shots to yellow and then review all of the shots later and promote only the best ones to green status. At the same time you might demote the most doubtful shots to red status.

See also **Using Instant Approval Architecture** for complete details about working with the approval system.

To change the default status assigned to each new image:

1. Press the **MENU** button.
2. Press **▼** to navigate down and select the **Storage** level.
Press **▶** and then **▼** to navigate down and select **Default Appr. level**. Press **▶** to open the **Default Appr. level** dialog.
3. Use the **■** or **■** button to step through the available settings until the default status you wish to use (auto, green or yellow) is shown.
4. Either move on to another setting by using the navigator button or press the menu (**EXIT**) button to exit the menu system and keep your setting.

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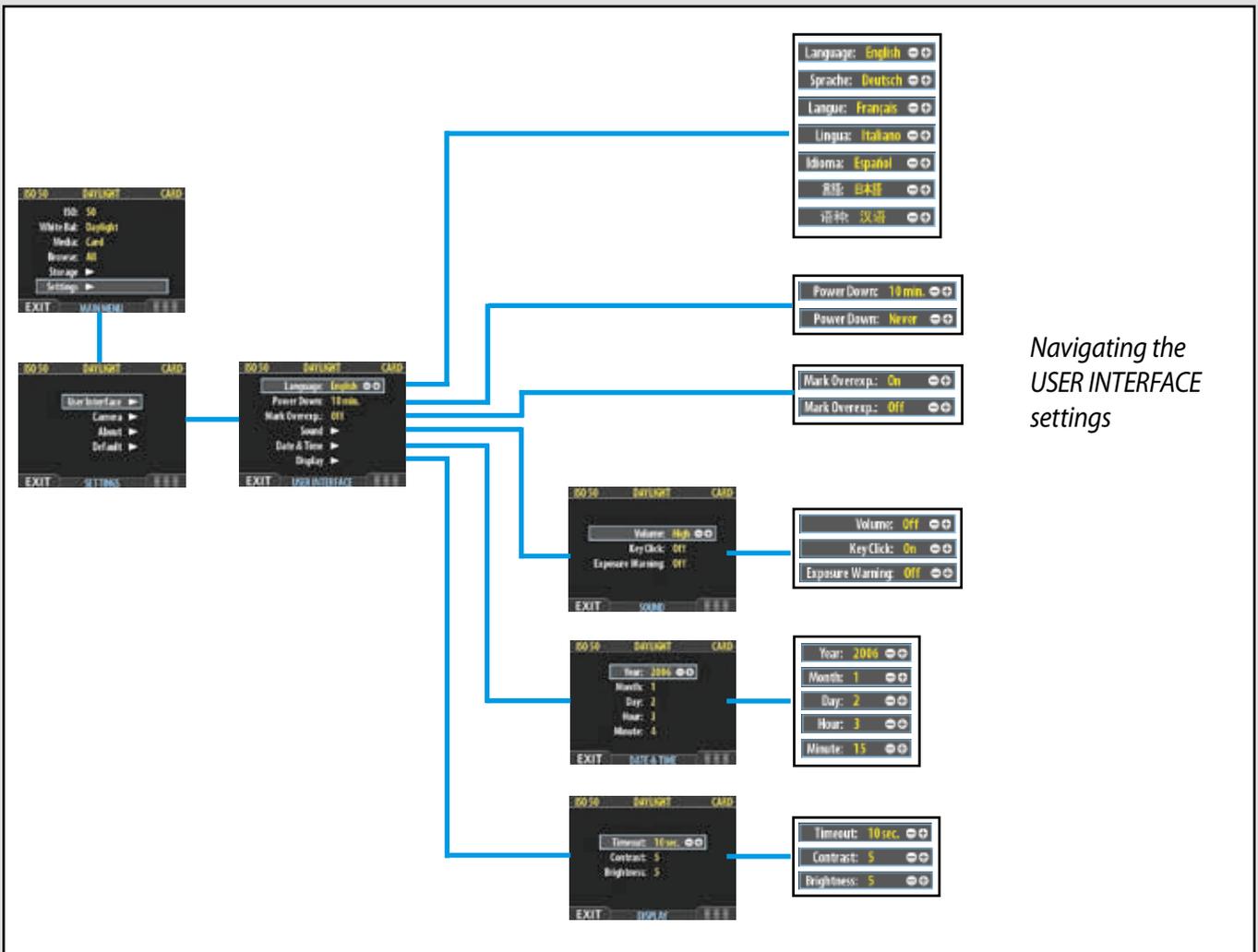


7

Menu: Settings

There are a number of settings grouped under the general 'Settings' heading which are:

- User Interface
- Camera
- About
- Default



Navigating the
USER INTERFACE
settings

MAIN MENU > SETTINGS > User Interface

By altering the **User Interface** settings, you can control the way the digital back interacts to suit you and your preferred way of working. It also includes date and time settings.

Items of the USER INTERFACE Menu

The user interface menu includes both items and sub-menus. The following items are available here:

- **Language:**

The menu system can be displayed in any of seven languages. This menu item enables you to select your preferred language for the menus.

- **Power Down:**

To help preserve the charge of the battery, you can set the back to power down after a specified period of inactivity. The effect is exactly the same as though you had pressed the off button on the camera. Once it has powered down, you must turn the digital back on before you can continue working. Set this to **Never** to disable this feature (this is the default setting). Set to a value between 3 and 99 minutes to establish a time-out. (Note the difference between *Display 'timeout'* and *Power Down*.)

- **Mark Overexp.:**

This feature helps draw your attention to areas of your images that are over-exposed. When this feature is enabled, the single-image preview display will highlight each overexposed pixel by flashing it white and black.

Set this item to **On** to enable the feature; set to **Off** to disable it.

- **Sound:**

A CF digital back uses audio feedback to help let you know if each new image is exposed correctly. This is described in **Using Instant Approval Architecture**.

This menu item has **Volume** (choose between *High*, *Low* and *Off*), **Key Click** (choose between **On** and **Off**) and **Exposure Warning** (choose between **On** and **Off**).

- **Date & Time:**

A CF digital back has an internal clock that keeps track of the date and time. This information is used to mark each shot with the date and time at which it was taken. It is also used to label batches with the date on which each batch was created.

- **Display:**

This feature sets the **Timeout (2-30 seconds)** on the display, which behaves very much like a screen saver on a computer. When the timeout is reached, the display will be turned off, but the back will still be running, so it will immediately respond to a press of the buttons. (Note the difference between *Display 'timeout'* and *Power Down*.)

This feature also sets the level of **Contrast** (on a scale of **1-10**) on the display. Usually, you should leave this set to the default level of 5; however in some viewing environments and/or with some types of images you may wish to increase or decrease this value. A value of 10 provides maximum contrast; a value of 0 provides no contrast (a black screen). You can also help save battery power by using a low value here.

This feature also sets the **Brightness** (on a scale of **1-10**) on the display. This sets the brightness shown on the screen. Usually, you should leave this set to the default level of 5, however in some viewing environments and/or with some types of images you may wish to increase or decrease this value. A value of 10 provides maximum brightness; a value of 0 provides minimal brightness. You can also help save battery power by using a low value here.



Setting the options under the User Interface menu

Each of the above items can be set by similar menu navigation. Language, Power Down and Mark Overex can be set immediately by the  or  buttons while Sound, Date & Time and Display require another move to sub menu for final choice.

Proceed as follows:

1. Press the menu (**MENU**) button to open the menu.

2. Use  and  to select the **SETTINGS** sub-menu.

3. Press  to open the **SETTINGS** menu.

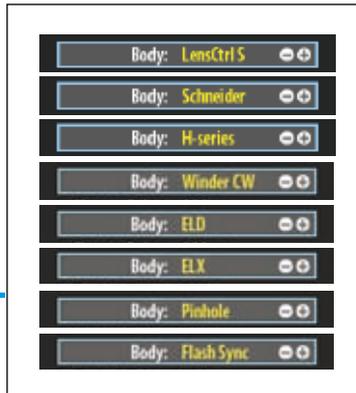
4. Press  to open the **USER INTERFACE** sub-menu.

5. Use  and  to select the required item.

6. Press either the  or  button to make the new settings in the case of Language, Power Down and Mark Overex or Press  again to access Sound, Date & Time and Display

7. Press the **MENU/EXIT** button again to save the new settings and close the menu.





Navigating the CAMERA settings

Please note that this particular list is only an illustration of possible options.

Camera choice displayed will vary according to adapter fitted.

MAIN MENU > SETTINGS > Camera

The camera choices that appear on the menu are automatically restricted to the adapter you have fitted. So, if the adapter is specifically intended for Hasselblad models, then only Hasselblad models will appear. The following is a description of settings and action needed when working with the various Hasselblad models.

The exposure time set on a CF digital back sets the maximum length of exposure. The default setting is 1/8 sec and this is the setting that can be kept for all exposures from 1/8 sec. However, this setting should be changed in accordance with the time required if it exceeds 1/8 sec. Times of up to 32 seconds can be set.

If you prefer, you can connect the 'Flash sync input cable' between the lens PC socket and a CF digital back which allows you to retain the default setting of 1/8 second while still being able to use exposure times longer than 1/8 second. This method also allows the use of the B setting.

Model setting variations

Look in the list below for the camera model you are using and make the appropriate settings change. Don't forget to change the setting if you change camera model!

Please note that certain connection cables/cords are only included as accessories to certain adapters. Please see adapter manuals for further information.

Winder CW

For use with 503 CW models:

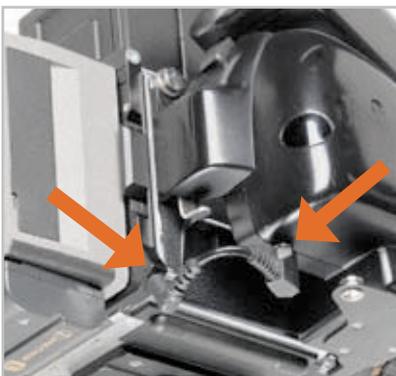
- Make a **Winder CW** setting.
- If you want to control the camera from FlexColor, connect the **Exposure cable 503** (supplied with adapter) between the adapter and the Winder CW, as in the illustration.
- Do not use the winder at rapid sequence setting.

ELD

For use with ELD models:

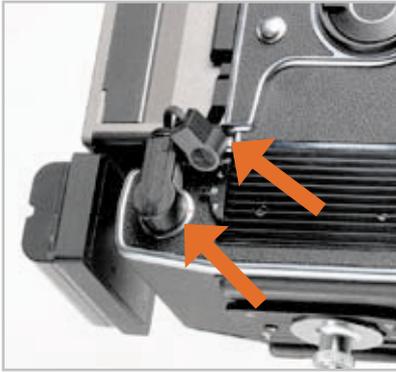
- Make an **ELD** setting.
- A B setting exposure can be made by choosing the "Bulb" in the "Exposure Time" setting. The maximum exposure time remains at 32 seconds however.

Exposure Cable 503



Hasselblad 503CW plus Winder CW with Exposure cable 503 in place showing connection from Winder to adapter.

Exposure Cable EL



All Hasselblad EL models except the ELD require an Exposure Cable EL.

Also illustrated here is the use of the Adapter EL to hold the battery.



Please note that although the 903SWC and 905SWC models work in conjunction with CF digital backs, the combination is not recommended for critical work.

The Biogon 38 lens was designed for film use where the unusually close proximity of the lens to the film plane was of no consequence. However, digital sensors and their protective filters make very different demands on the angle and travelling distances of the peripheral rays exiting the rear lens element. Gradual unsharpness consequently occurs towards the edges of the frame, particularly noticeable with flat subjects (typically copying situations, 90° shots against building façades, etc) though these effects will be naturally less obvious with more three-dimensional subjects. Slight green and magenta casts are also caused, though these can be removed digitally in FlexColor/Phocus.

- Only the single shot function (A or AS mode camera settings) should be set on the camera. Rapid sequence shots are not possible.
- Use the **Adapter EL** (supplied with adapter) to provide the necessary extension beyond the motor housing of the EL models for battery attachment. It is attached to a CF digital back in the same manner as a battery, and the battery itself is then attached to the adapter as in the illustration.

ELX

For use with 500EL/ELM and 500/553ELX models:

- Make an **ELX** setting.
- The **Exposure Cable ELX** (supplied with adapter) should be connected.
- All exposures times, including the B setting, function correctly without having to alter the “Exposure Time” setting.
- Rapid sequence shots are not possible.
- Use the **Adapter EL** (supplied with adapter) to provide the necessary extension beyond the motor housing of the EL models for battery attachment. It is attached to a CF digital back in the same manner as a battery, and the battery itself is then attached to the adapter as in the illustration.

Pinhole

For use with lenses/cameras with no shutter. Intended primarily for use in a studio environment where complete darkness can be achieved and exposures made accordingly (also useful for ‘light painting’). In this mode a CF digital back uses the exposure time (as well as other required stages in a capture sequence) set in the Capture Sequence dialog. The back can be triggered either via the **START** (MENU/EXIT) button or from FlexColor (see later section for full description of Capture Sequence settings procedure).

Flash sync

For use with an ArcBody, a FlexBody or view cameras with a Hasselblad adapter.

- Make a **Flash sync** setting.
- A **Flash sync input cable** should be used.
- All exposures times, including the B setting, function correctly without having to alter the “Exposure Time” setting.
- Do not use a winder at rapid sequence setting.

500

For use with 500C/CM, 501C/CM and 503 CX/CXi/CW models.

- Make a **500** setting.

H

- Make an **H-series** setting.

SWC

For use with the 903 SWC and 905 SWC models.

- Make an **SWC** setting.

PLEASE NOTE: Due to the mechanical design of the SWC, pressing the exposure release button too slowly may cause a faulty capture with a magenta cast. Either press the button much more distinctly or alternatively change the setting from **SWC** to **Flash sync** and use the Flash input sync cable to connect the lens to the digital back.

200

For use with modified 202, 203 and 205 models together with F-lenses / CF-lenses in **F-mode**. (Only these three models can be modified for cable-free compatibility with the CFV/503CWD digital back. Please contact your Hasselblad dealer for further information)

- Make a **200** setting.
- A **Flash sync input cable** should not be used.
- All exposures times, including the B setting, function correctly without having to alter the “Exposure Time” setting.
- Do not use a winder at rapid sequence setting.

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Shutter Delay

There can be differences in the amount of time required in preparation (raising the mirror, opening/closing the shutter etc) for digital capture between various camera models. This corrective feature adjusts the time a little to ensure the image is read out from the sensor. The normal setting is Default and should only be changed if problems are encountered.

Exposure Time

This setting should be changed for cable-free exposure times longer than 1/8 second, ensuring that it matches the set shutter speed on the lens. The settings range from 1/8 second to 32 seconds (1/8 second is the default setting). The ELD also has a "Bulb" setting.

Capture sequence

This feature functions in the same manner as an interval timer and only works in conjunction with a motor or winder driven camera model except in the case of the Pinhole setting where it is the only way of controlling such exposures (see later section for full details).

Initial delay: Controls the amount of time required to elapse before the first exposure.

Delay: Controls the amount of time required between each exposure.

Count: Controls the total number of exposures required.

Setting CAMERA model and options

Proceed as follows:

1. Press the menu (MENU) button to open the menu.
2. Use ▲ and ▼ to select the SETTINGS sub-menu.
3. Press ► to open the SETTINGS menu.
4. Use ▲ and ▼ to select CAMERA.
5. Press ► to open the CAMERA menu.
6. Press either the  or  button to select camera model.
7. Use ▲ and ▼ to select SHUTTER DELAY or EXPOSURE TIME if required.
8. Press either the  or  button to make new settings if required.
9. Press the menu (EXIT) button to exit the menu system and keep your settings.

Options available for PINHOLE and FLASH SYNC

Shutter Delay

The normal setting is Default and cannot be changed.

Exposure Time

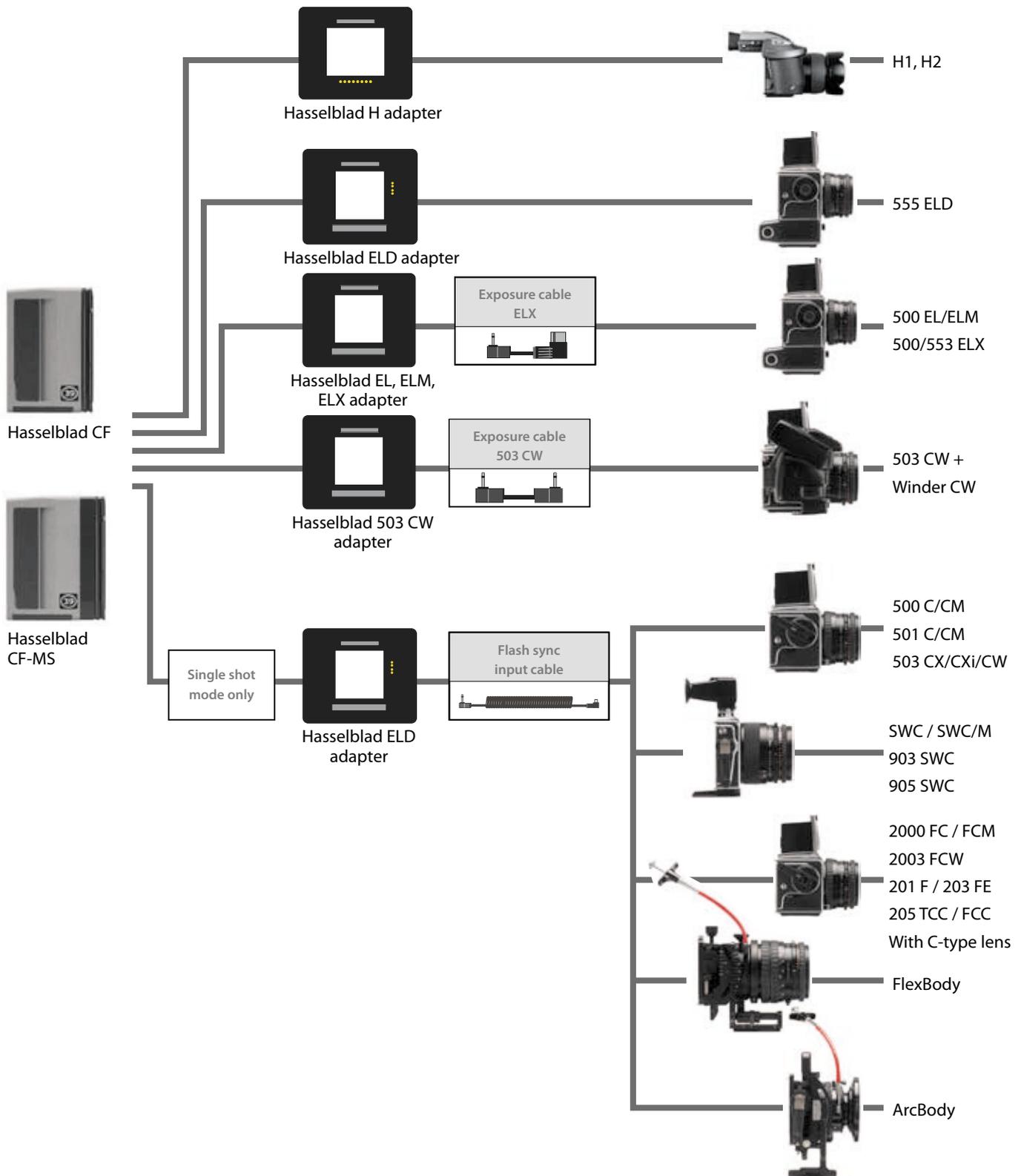
This setting should be changed for cable-free exposure times longer than 1/8 second, ensuring that it matches the shutter speed/exposure time on the camera/lens. The settings range from 1/8 second to 32 seconds (1/8 second is the default setting).

Capture Sequence

This feature functions in the same manner as an interval timer.

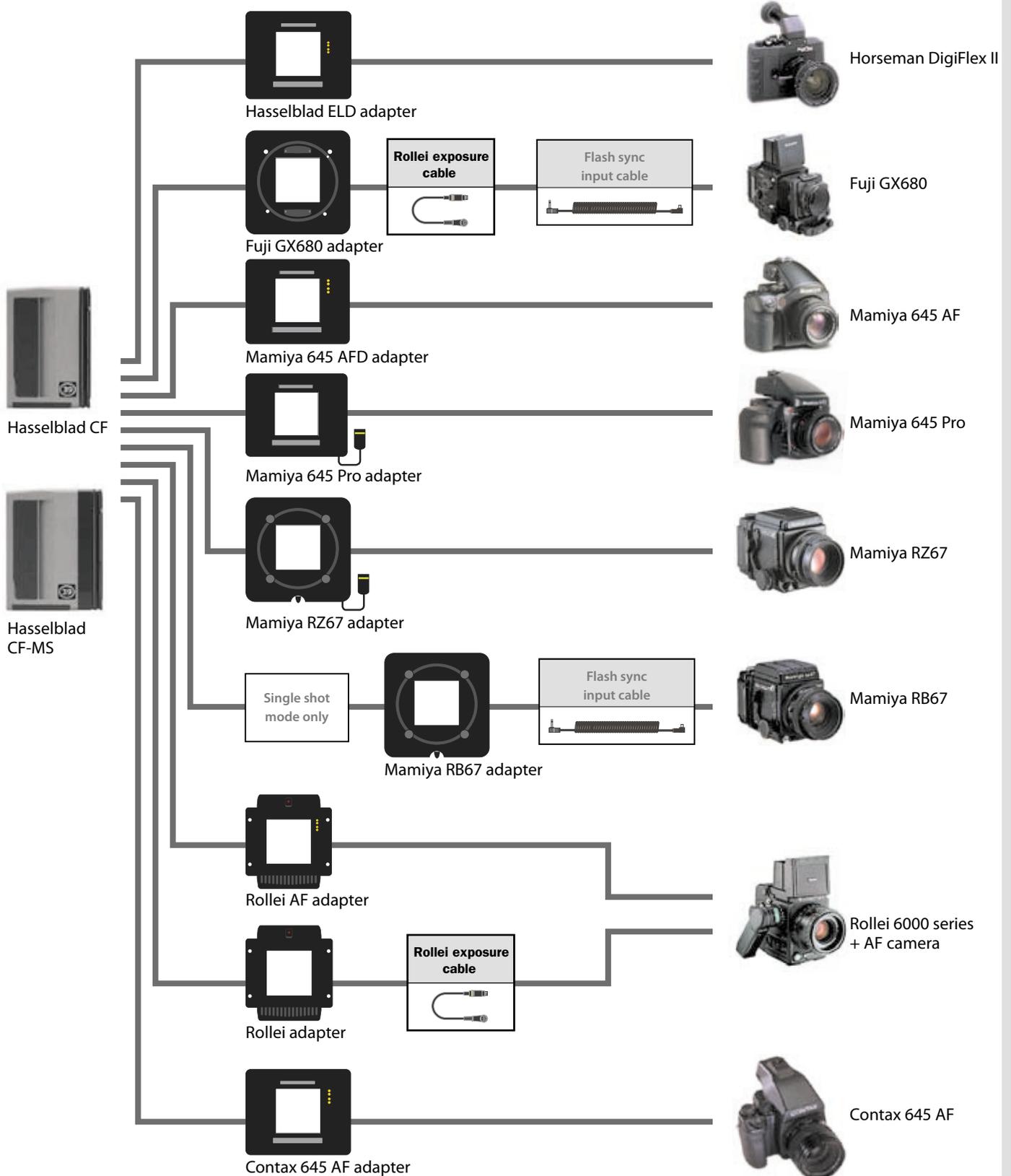
Connectivity diagram

Hasselblad camera connectivity diagram



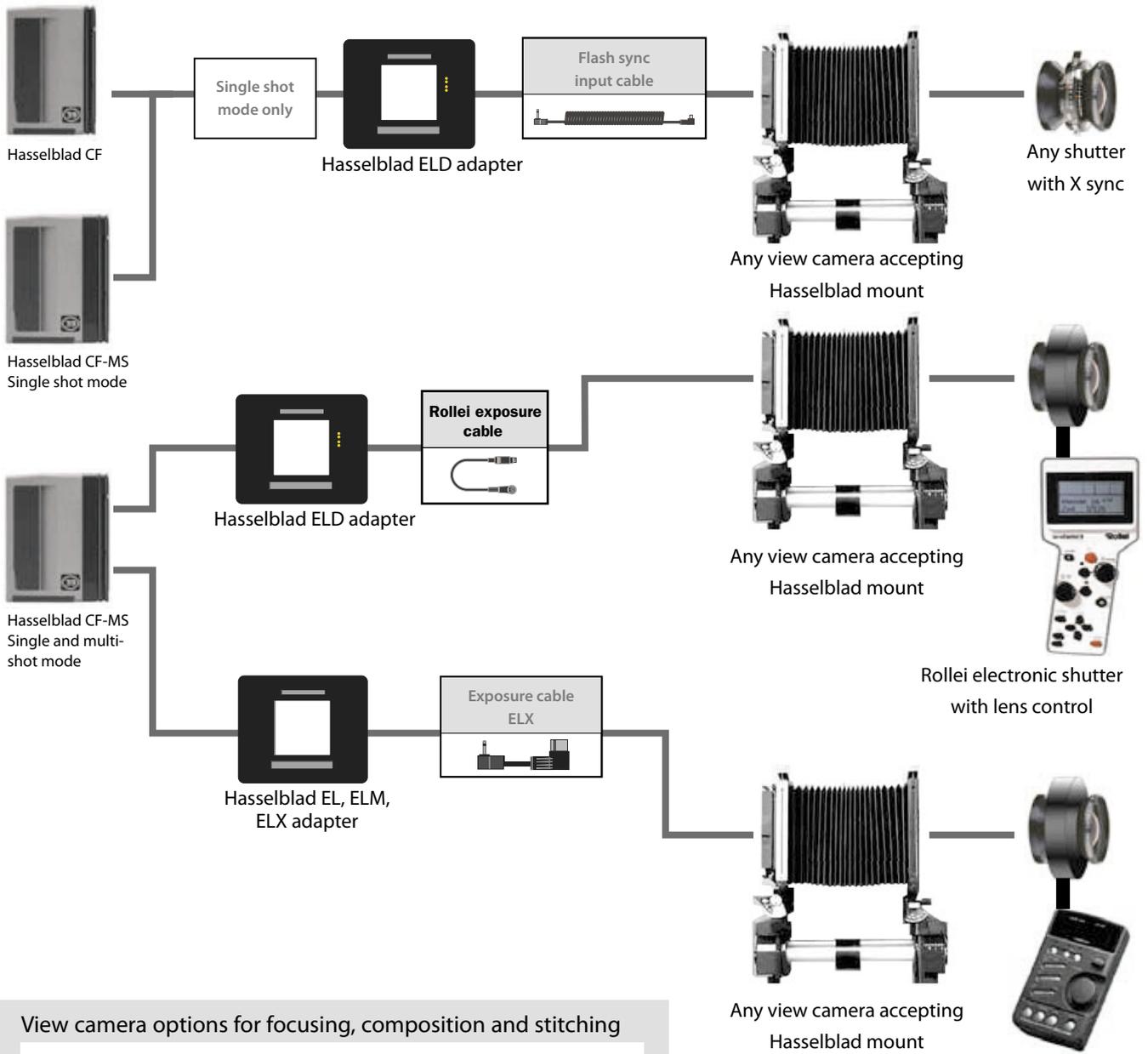
Connectivity diagram

Small and medium format camera connectivity diagram

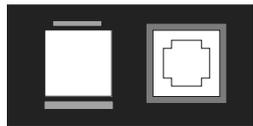


Connectivity diagram

View camera connectivity diagram



View camera options for focusing, composition and stitching



Sliding adapter

- Focusing using ground glass
- Options for stitching from Linhof, Rollei, Horseman and Kapture Group



Fixed mount

- Focusing using Hasselblad Flexcolor live video

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Initial delay: Controls the amount of time required to elapse before the first exposure.

Delay: Controls the amount of time required between each exposure.

Count: Controls the total number of exposures required.

Setting EXPOSURE TIME and CAPTURE SEQUENCE

Proceed as follows:

1. Press the menu (MENU) button to open the menu.

2. Use ▲ and ▼ to select the SETTINGS sub-menu.

3. Press ► to open the SETTINGS menu.

4. Use ▲ and ▼ to select CAMERA.

5. Press ► to open the CAMERA menu.

6. Press either the ■ or ■ button to select PINHOLE.

7. Press ▲ or ▼ to select EXPOSURE TIME.

8. Press either ■ or ■ to make an exposure time setting.

9. Press ▼ to select CAPTURE SEQUENCE.

10. Press ► to open the CAPTURE SEQUENCE menu.

11



12



11. Press either the  or  button to make an INITIAL DELAY setting.

This setting controls the amount of time that elapses before the first exposure in the sequence.

12. Press  to select DELAY.

13



14



13. Press either  or  to make a DELAY setting.

This setting controls the amount of time between each exposure in the sequence.

14. Press  to select COUNT.

15



16



15. Press either  or  to make a COUNT setting.

This setting controls the number of exposures in the sequence.

16. Press OK to confirm all the settings.

17



18



17. The CF digital back is now ready for sequence start. Note that the MENU/EXIT button now displays START instead:

18. Press START to set the sequence running.

19



19. Note that the MENU/EXIT button now displays STOP. The sequence can be stopped at any time by pressing this button and the standard menu display returns.

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MAIN MENU > SETTINGS > About

The About box

Occasionally, Hasselblad releases updates to the internal software (“firmware”) of the digital back. These updates may fix small errors and/or add new features. You will probably receive additional assistance from Hasselblad technical support if and when a new update is available. In this case, it may be important to know the serial number and current firmware version of your digital back. To find this out:

1. Select **MAIN MENU > SETTINGS > ABOUT**. (See also *Navigating the Menu System* or details about how to find this setting.)
2. Press ► to open the **About** dialog, which shows the serial number and firmware version. When you are done reading the information, press the menu (**EXIT**) button to return to the **SETTINGS** menu. Either move on to another setting by using the navigator button or press the menu (**EXIT**) button again to exit the menu system.

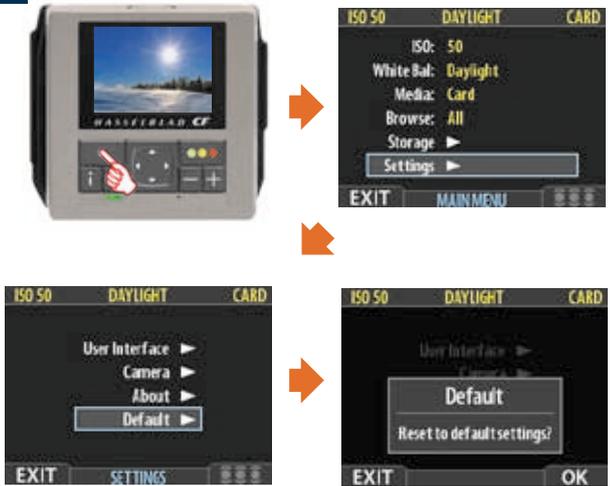
MAIN MENU > SETTINGS > Default

The **DEFAULT** setting will reset all custom settings you have made back to the original default / factory settings.

To reset all settings:

1. Select the **MAIN MENU > SETTINGS > DEFAULT** entry.
2. Press the **OK** button and then the **EXIT** to return.

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Menu Shortcuts

Memorize these quick actions to save time and effort later!

To help you work faster, the digital back provides shortcuts to some of the most commonly used menu commands that do not otherwise have a dedicated button on the front panel.

These are accessible by pressing and holding one of the front-panel buttons for a second or so. These are mentioned where appropriate elsewhere in this manual, but we summarize them here for your convenience.



To toggle the over-exposure indicator



Press and hold ▲ until the display begins to flash (or stops flashing) its overexposed areas.

See 'Overexposure Indicator' for full details.

To set the browse filter



Press and hold until your preferred filter is indicated.

See 'Using Instant Approval Architecture' for full details.

To delete images



Select the target image and then press and hold ▼ until the delete dialog opens.

See 'MAIN MENU > Delete' for full details.

Multishot

The Multishot facility is only available with Multishot units.



With a Multishot back, there are two extra modes available other than single shot; namely Multi-shot and Micro-step. These virtually eliminate unwanted moire and artefacts in studio type sets ups.

Multi-shot

The technology behind this mode is high precision piezo controlled movements of the sensor in pixel sized increments. Four separate shots are taken in succession (one for each color, but with green captured twice for extra sharpness) that are then combined into a single, high-resolution image. Images taken in multi-shot mode will be sharper and contain more detail than single-shot images. Multi-shot images will also stand up to greater enlargement later in production.

Micro-step

In this mode the movements of the sensor can be controlled accurately down to 1/2 pixel movement increments. It quadruples the resolution of the image making a total of 16 captures. This creates high-resolution images of up to 528 MB. Micro-step images will stand up to even greater enlargement than multi-shot images.

General

In both cases it is essential to ensure that there is no movement in either the camera or the subject. Because of this, these methods are only suitable for tripod/camera stand use for studio-like environments, technical shots, product shots, architectural subjects and similar.

Instructions

Multi-shot and Micro-shot modes are instigated by way of FlexColor only. Please see the FlexColor user manual for full instructions.

Flash / Strobe

A CF digital back can be used together with most studio or portable units.

The Hasselblad 503CW and 200 series cameras also offer a TTL function if required.



Most flash/strobe units are suitable for use with the CF, with some combinations offering TTL. Check the chart further on in this chapter to find the specific combination you intend to use.

Pay particular attention when using studio flash/strobe units and tethered to a stationary computer as this cable configuration guards against both personal injury and damage to equipment.

Portable units

All Hasselblad 500 series and SWC series cameras use the regular PC contact on the lens for flash sync. 200 series models, FlexBody ArcBody and view cameras require other configurations (see chart).

Studio flash/strobe units and tethered to a desktop computer

If the CF is tethered to a computer that is connected to a regular electricity supply system as well as a studio flash/strobe unit that is also connected to a regular electricity supply system/generator system, then make the following connections instead. For your own safety and to protect the electronics in the digital back, please ensure you do this correctly.

- a) Connect the **flash input sync cable** from the sync contact (PC connector) on the lens to the **flash sync IN terminal** on the back.
- b) Connect the **flash output sync cable** from the **flash sync OUT terminal** on the back to a regular flash/strobe sync cable that is connected to the unit.

TTL function – (503CW only)

The reflective characteristics of the digital sensor are different to film surface characteristics for which the TTL function was originally designed. However, by changing (in effect, ‘tricking’) the setting, TTL exposures can be made. Proceed as follows:

Move the ISO selector on the 503CW so that it becomes approximately $1\frac{2}{3}$ f/stop higher than the ISO setting on the digital back. Therefore, for example, when the back is set at 50 ISO, the ‘film speed setting’ on the camera should read 160 ISO, and so on. Testing for the most suitable compensation that suits you is recommended.



Viewfinder indicator – (503CW only)

Flash/strobe operation and flash battery–check are indicated by a red light, located under the left edge of the focusing screen. It is operative only when a dedicated flash/strobe is connected to the TTL socket. It indicates three separate states as described below.

Ready signal

A steady red light indicates that the flash/strobe unit is charged and ready to be fired. Absence of any signal indicates the need for fresh batteries.

Confirmation signal

A flashing red light occurring for just over a second immediately after exposure confirms that the light output was sufficient for a proper exposure. It then remains dark until the flash/strobe unit has recharged. The steady red light will then reappear indicating operative status again. The time of reappearance however may vary according to the condition of the batteries.

No result signal

Absence of the flashing confirmation signal after exposure indicates that the flash emitted was not sufficient for correct exposure. The aperture must then be opened more or the flash distance to the subject reduced. Changing to a faster ISO setting on the digital back is also a possibility.

See appropriate manuals for connection details regarding the various units and adapters.

CF and Hasselblad 200 series cameras

Connection to 200 series cameras depends on whether they are modified or not (contact your local Hasselblad Service Center about modification). TTL is also possible if the flash/strobe unit allows. See the appropriate camera manual for further details.

Please note the difference below – unmodified cameras can only use C lenses (C/ CF /CFi etc) at the C-mode setting whereas modified cameras can use C and F-type lenses.

Unmodified cameras (with portable flash/strobe units) with C type lenses:

- a) Connect the **flash input sync cable** from the sync contact (PC connector) on the lens to the **flash sync IN terminal** on the back.
- b) Connect the **flash output sync cable** from the **flash sync OUT terminal** on the back to a regular flash sync cable that is connected to the unit.
- c) Use the C-mode setting.
- d) Shutter speeds faster than 1/90 sec allowed.

Modified cameras (with portable flash/strobe units) with C type lenses:

- a) Connect the **flash input sync cable** from the sync contact (PC connector) on the lens to the **flash sync IN terminal** on the back.
- b) Connect the **flash output sync cable** from the **flash sync OUT terminal** on the back to a regular flash sync cable that is connected to the unit.
- c) Use the C-mode setting.
- d) Shutter speeds faster than 1/90 sec allowed.

Modified cameras (with portable flash/strobe units) with F and CF type lenses:

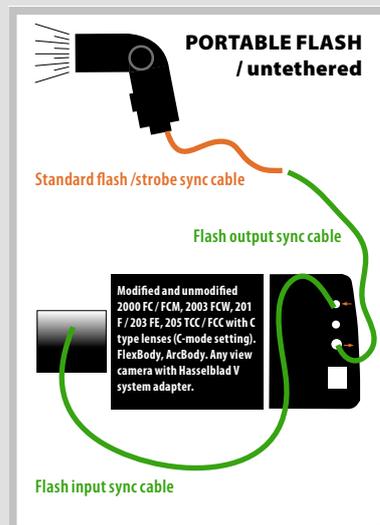
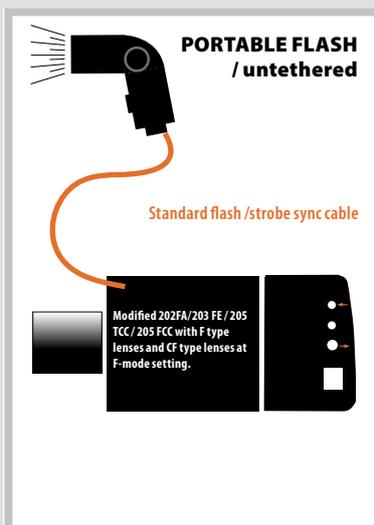
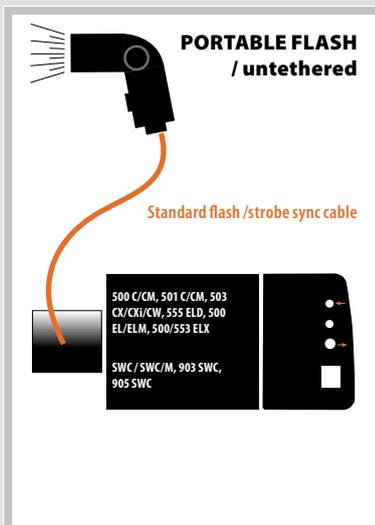
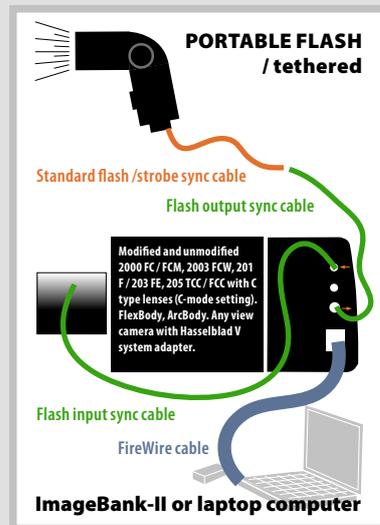
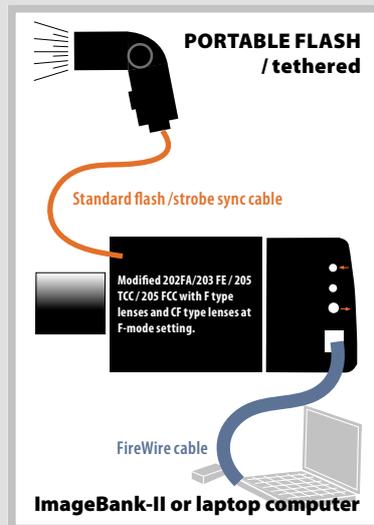
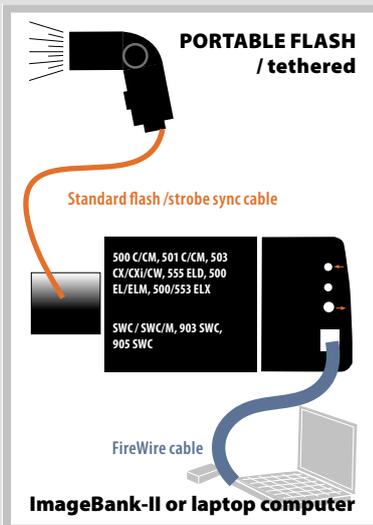
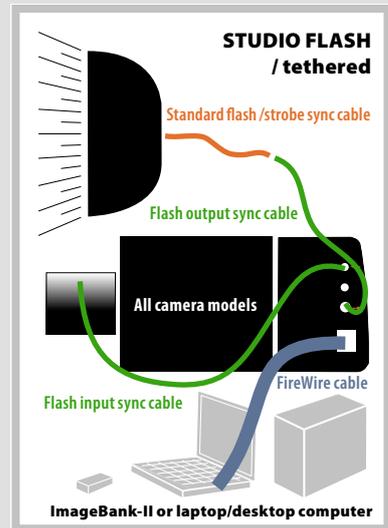
- a) Connect the **standard PC /flash / strobe sync cable** from the sync contact (PC connector) on the camera body to the unit.
- b) Use F type or CF type lenses at the F-mode setting.
- c) Use a shutter speed no faster than 1/90 sec.

Flash / strobe connection for CF digital backs.

Please note the different ways of connecting the various camera body / digital back / flash / computer combinations.

In particular, notice the importance of the correct connections when using a FireWire link directly to a desktop computer in combination with studio flash /strobe.

Please check the appropriate user manuals for other camera models and adapters.



Cleaning

Regularly check the surface of the sensor filter for dust specks that might cause time-consuming retouching afterwards.



Cleaning the CCD Infrared Filter

If you see dark or coloured spots or lines in your images, then you may need to clean the outer surface of digital back's infrared (IR) filter. In most cases, the careful use of compressed air will be adequate, but sometimes small particles will get stuck to the surface of the IR filter, requiring for a more thorough cleaning, involving either fluid or wipes. For a good safe cleaning, follow descriptions below.

 **WARNING:** *never attempt to remove the glass filter from the front of the CCD—you will probably ruin the CCD if you do so. If dust manages to get between the IR filter and CCD, please contact your Hasselblad dealer for assistance.*

Basic cleaning procedure

1. *Discharge any static electricity that may have built up on your body by touching the digital back housing.*
2. *Unlock the digital back from the camera (according to camera model).*
3. *The top of the digital back will be released (while it rests on the magazine retaining hooks) and it can be swung away from the camera body.*
4. *Clean the outside surface of IR Filter by spraying it with clean compressed air. If this is not enough, then use one of the procedures outlined below.*
5. *If you still see spots on your shot after you have cleaned the outside of the infrared filter, then you may have dust on either on the back side of the IR filter or on the CCD itself. This can only be removed at the Hasselblad factory. Contact your Hasselblad dealer for assistance.*
6. *When reattaching the digital back to the camera, keep the magazine catch lock depressed and the magazine catch to the right. Check that the back is firmly in place.*



Cleaning using the HAMA Cleaning Fluid and tissues

Note! Hasselblad recommends HAMA Optic Cleaning Fluid 5902.

1. Carefully spray the fluid onto the IR filter at a distance of 10-15 cm (4-5 inches), so that the fluid is applied onto the filter as a thin, even haze. 1-2 sprays are enough. If you apply too little, the fluid will start to dry up before you start wiping the filter. As an alternative you can spray the fluid onto the tissue first, and then apply it to the filter as you wipe it.
2. Fold the tissue several times to match the width of the IR filter—you might use two or three tissues at a time if necessary (to give you a better grip). Be sure to fold the paper so that the coated glossy side faces outwards—do not use the other side, as it can do more harm than good!
3. Gently place the folded tissue onto the edge of the filter using two or three fingers. Be sure to wipe the entire surface evenly. Sweep the filter only once. Do not wipe the same area twice with the same tissue as you might reapply dirt removed in the first sweep.
4. Finally check if the IR filter has been properly cleaned either by visual inspection or by mounting the digital back to the camera and making a shot. If further cleaning is needed, repeat cleaning procedure.



Cleaning with an E-Wipe

E-wipes are individually packed wet tissues.

1. Tear at the notch to break seal.
2. Remove the e-wipe from its packaging and continue without delay.
3. Fold the tissue to match the width of the IR filter.
4. Apply firm pressure using two or three fingers at the edge of the wipe to ensure an even, firm contact with filter surface. Wipe the surface in one unbroken motion.

 **Note!** Do not use same side of the e-wipe twice as you will be likely to reapply any particles removed in the first sweep.

5. Finally check if the IR filter has been properly cleaned either by visual inspection or by mounting the digital back to the camera and making a shot. If further cleaning is needed, repeat cleaning procedure.

Cleaning the housings

If the back becomes dirty do not use any other solvents. Clean it with a soft, clean cloth lightly moistened with water only. Do not allow water to enter any sockets or openings.

Equipment care and Service



EQUIPMENT CARE

- Keep all equipment and accessories out of the reach of small children.
- Do not place heavy objects on the equipment.
- Do not use the battery except as specified.
- Use only the battery type specified for use with the CF digital back.
- Remove the battery when cleaning the back or if you intend to leave it unused for a long period.
- If you use a spare (standard or rechargeable) battery be particularly careful when storing. There is a potential fire risk if the contacts are short circuited across a conductive object (such as keys in a pocket, for example).
- Take particular care when working with strobe / studio flash units to prevent damage to equipment and personal injury.
- Do not attempt to open the CF digital back.
- Always replace the protective sensor filter cover when the digital back is not mounted on a camera.
- Do not touch the exposed sensor filter with your fingers.
- Ensure that the databus connections are not damaged or soiled in any way.
- Keep all foreign objects out of the CF digital back openings.
- Keep the original shipping boxes for storage.
- Keep your CF digital back and all other computer equipment away from moisture. If your CF digital back becomes wet, disconnect from power and allow it to dry before attempting to operate again.
- Never cover the ventilation openings on a CF digital back when in use.
- Never try to remove the glass IR filter from the front of the sensor; this will probably ruin the sensor. If dust manages to get between the sensor and IR filter, please contact your Hasselblad dealer for assistance.
- Avoid frequent and severe temperature changes and be particularly careful in humid environments. Allow the equipment to acclimatize whenever possible before use. Try to ensure the storage conditions in such environments are as dry as possible.
- Prevent dust and grit from getting into your equipment. In coastal areas take measures to protect your equipment from sand and salt water spray.
- Avoid physical shocks to the CF digital back. Some form of protective case or camera bag is advised for transportation.
- Hasselblad equipment is much sought after and you should take obvious steps to prevent theft. Never leave it visible in an unattended car, for example. Separate and specific camera insurance cover should be considered by professional users.

SERVICE

Return your equipment to a service centre for occasional checking and preventive maintenance to ensure optimal reliability.

DISPOSAL

If you need to dispose of a CF digital back, ImageBank-II and/or batteries, please do so in an environmentally friendly manner at the local waste plant/ recycling centre or similar.



Technical specifications — CF

	22 Mpixels	39 Mpixels
Sensor size	22 Mpixels: (4080 x 5440 pixels)	39 Mpixels: (5412 x 7212 pixels)
Sensor dimensions	36.7 x 49.0 mm	
Image size (8/16 bit RGB)	22 Mpix: 8 bit TIFF: 66 MB /Raw 3FR 30MB on average	39 Mpix: 8 bit TIFF: 117 MB /Raw 3FR 50MB on average
Shooting mode	Single shot	(Multi-shot with CF-39MS)
16 bit colour	Yes	
ISO speed range	ISO 50, 100, 200 and 400	
Longest shutter speed	32 seconds	
Image storage	CF card type II, ImageBank-II. or tethered to Mac or PC	
Storage capacity	Over 1700 (22 Mpix) on an 80 GByte disk	Over 1500 (39 Mpix) images on an 80 GByte disk
Battery type	Powered from the camera battery (Li-Ion). 250 captures in 4 hours.	
IAA - Instant Approval Architecture	Included, with:	
. H2 recognition	yes	
. Acoustic feed back	yes	
. Metadata classification	yes	
Capture rate	At least 30 captures per minute	at least 30 captures per minute (single shot)
Colour display	Colour display – OLED 2.2"	
Colour definition	16 bit	
Colour management	Hasselblad HB RGB • full dynamics • reproduction dynamics	
Histogram /Acoustic feedback	Yes	
File format	Lossless compressed Hasselblad 3F RAW	
IR filter	Mounted on CCD sensor	
Software	FlexColor (supplied)	
Platform support	Mac: OSX, PC: NT, 2000, XP	
Host connection type	FireWire 800 (IEEE1394b)	
Operating temperature	0 – 45 °C / 32 – 113 °F	
Camera support via i-Adapters	Hasselblad H system and V system, Rollei 600X and AF, Contax 645AF, Mamiya 645 Pro, 645 AFD, RB and RZ67, Fuji GX6801/II/III. All view cameras via Hasselblad adapter. Horseman DigiFlex II and PrecisionWide 35 via Hasselblad adapter.	
Weight	450 g (excluding battery and i-adapter)	600 g (excluding battery and i-adapter)
Dimensions	81 x 81 x 53 mm (W x H x D)	81 x 81 x 68 mm (W x H x D)

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