HASSELBLAD

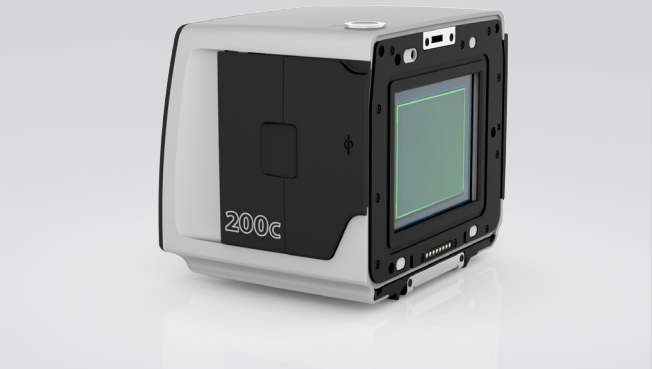
H5D

SENSOR UNIT USER MANUAL

v1

INTRODUCTION

Photo: Bryn Griffiths © / Hasselblad Masters



Medium format photography is about professionalism. Camera systems have to be professional, handling has to be professional and captures have to be professional in quality.

Hasselblad knows it and delivers it; professionals know that too.

This manual covers the functionality and operation of the H5D sensor units when used on technical cameras. For a full description of the operation for a complete H5D/H5X camera, please refer to the dedicated H5D/ H5X User Manual

200c MS
50c MS
60
50c Wi-Fi
50c
40

The Hasselblad H series of sensor units evolved by adding new developments on to the shoulders of the previous generation. In this way all the previous field-experience and user requested features are automatically included. So, just when you think things can't get much better, they do. The H5 sensor units is incorporate all the good things from before and then some stunning new ones!

The H5D sensor unit series heralds a step up that is noticeably greater than before. There are changes and many are 'from the ground up'. The H spirit thrives but has now matured to reinforce further its position in the rapidly changing world of digital imaging. Future proofing is key to a secure placing for working photographers. The sensor units provide a reliable connection to the fleeting environment of digital imaging technology so when the wind changes direction, these units remain as the safeguarding companion to provide support.

There are six models to choose from to suit the varied demands from the professional world. They start with the entry level 40 MPixel model that right from the outset confidently takes on most rivals from all brands and beats them with star quality results. The models then just get better and better. At the other end of the scale is the 200 MPixel MultiShot CMOS sensor model with high ISO settings and up to an amazing 1.5 frames per second that raises the bar so much that it is in a league of its own.

True to Hasselblad philosophy, interchangeability and versatility span all models and accessories with minimal restrictions, even when using the sensor unit on view cameras. In short, you have access to a more comprehensive world to apply medium format quality to.

Hasselblad's best kept secret is knowing that every link in the chain that leads to the page in the magazine has to reach a certain standard; it is that simple. That's why Hasselblad spends so much time and energy into checking those almost endless behind-the-scenes details and standards because they understand this simple concept. There is no magical formula to Hasselblad success other than an understanding of

what is required to produce the best results available in the world today and an acceptance that there are no short cuts in this process. Hasselblad does its best to produce the best; there is no other way to achieve the Hasselblad star quality.

The H5D sensor units have a good deal in common. Stainless steel and aluminium were the materials chosen to endure the treatment handed out in professional use – and that can be pretty tough.
Customization is a very prominent concept that you experience in the Hasselblad world that ensures it is the photographer that controls the camera, not vice versa. With two user customisable buttons the units can be configured for the job at hand.

Wether you are shooting for the latest glossy cover or a seriously detailed product shot your Hasselblad sensor unit on your large format studio set up gives you access to a world where movements, controlled depth of field and close-up clarity rule. Now that is versatility.

On the softer side of things all models share features that professionals rely on for fast tracking their progress.

HNCS – Hasselblad Natural Color Solution – saves time and secures the job because skin tones or specific product tones are going to be rendered automatically, accurately and immediately without any fuss. That can be worth a lot.

JPEG & RAW files (*not applicable to 60Mpix / 50MS /200MS models*) can be produced simultaneously if you choose. The JPEG files are not only 1/4 resolution they are also HNC profiled so you can print straight from a folder for amazing quality. RAWs are retained of course for your final masterpieces.

Photo: Martin Schubert © / Hasselblad Masters

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COMPUTER SYSTEM REQUIREMENTS

Image-storage and editing requires a certain minimum standard regarding computer capabilities. Large images require a reasonably high-performance computer with plenty of memory, advanced graphics capabilities and a recent operating system. In most cases, the computer should include a FireWire connector, which will enable you to load images directly from the camera. To load captures stored on the removable compact-flash card, you could instead use a USB CF-card reader, but FireWire is recommended for optimum speed and flexibility.

WARNINGS, RESTRICTIONS AND RECOMMENDATIONS

- If you want to power the H5D sensor unit 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. Please note the following:

  Most recent Macintosh computers are compatible, both desktops and laptops.
  Most recent desktop PC computers are compatible.
  Most laptop PC computers are ***not*** compatible (but can be modified in many cases).

- Keep the H5D sensor unit and computer equipment away from moisture wherever possible. If the sensor unit becomes wet, disconnect from power and allow it to dry before attempting to operate again.
- Always take great care when you remove the sensor unit for cleaning as the exposed 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.
- Please ensure that all the items noted on the accompanying packing information have been supplied and are correct.
- Contact your Hasselblad dealer or distributor immediately if anything is missing or seems faulty in any way, quoting the serial numbers and purchase details where appropriate.
- Please keep purchase details and the warranty in a safe place.
- Become familiar with the various parts and components. Leave protective covers on as much as possible and avoid touching glass surfaces and inserting fingers into the camera body. Hasselblad sensor units have a robust construction and are capable of withstanding fairly rough treatment but nevertheless are precision instruments and will serve you longer if treated with respect from the beginning.

FIRMWARE UPDATES

If you have registered your sensor unit you should automatically receive e-mail informing you of the latest developments. Otherwise you are advised to make regular checks regarding firmware updates.

The aim is to ensure you have the latest firmware updates, which naturally ensures the optimum in performance. When updating you should also study the accompanying 'Release Notes' or 'Read Me' files where you will find details about improvements, developments and changes.

USER MANUAL

This user manual is primarily designed for on-screen PDF reading to exploit search tools etc. However, there is a sufficiently wide left margin to allow one-sided print outs to fit an ISO standard ring binder if required.

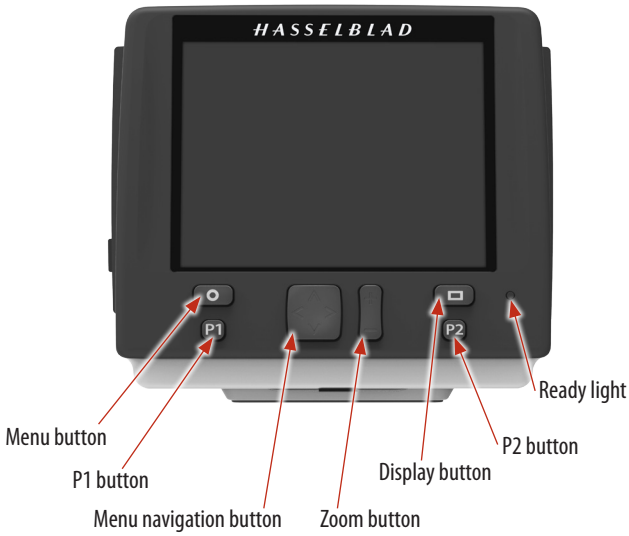
Please note that the format is A4 to conform with the most common standard. Therefore if printing out to US Letter format or similar please ensure you select "Fit to Printable Area" in the page scaling dialogue.

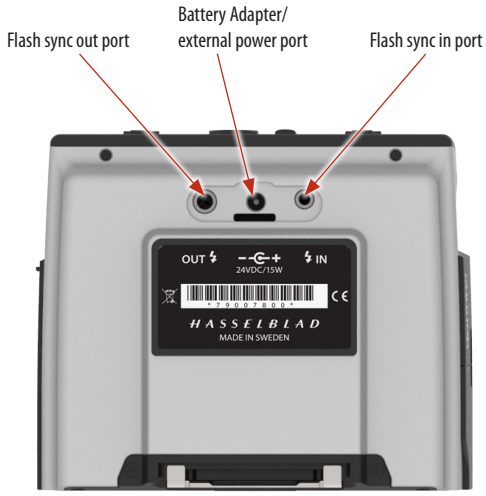
Register your sensor unit for regular news about the latest developments, updates, news, tips, and much else!

– www.hasselblad.com –

PARTS, COMPONENTS, BUTTONS AND CONTROLS – OVERVIEW

All of the items named on this page are described in greater detail elsewhere in this manual.





SENSOR UNIT

1 MENU / (EXIT) button

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

2 P1 button

Assignable button to access a specific function. Setting is made in the Menu.

3 Navigation button

A four-way rocker button enabling you to browse images as well as navigate the menu system.

4 Zoom- in/-out (Selection) button

Zoom-in /out rocker button for the preview image. You can zoom in to view close-ups of previews for focus checking. You can zoom out to view several at once and finally to view and select folders and media. Also acts as a selection button for value setting on the sensor unit menu.

5 Display button

Steps through the various view modes for the preview image.

6 P2 button

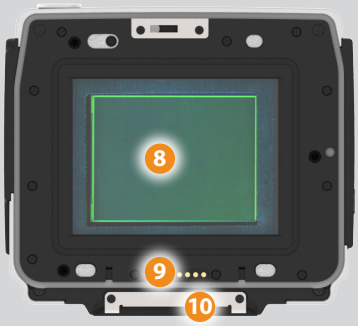
Assignable button to access a specific function. Setting is made on sensor unit or in the Camera Configuration tool in Phocus.

7 Ready-light

Indicates sensor unit condition. **GREEN** signifies a new capture is possible (steady or blinking). Blinking **ORANGE** signifies the unit is busy (writing to a CF card or sending data, for example) and so a new capture is not possible, although settings can be changed. Steady **ORANGE** signifies the unit is in 'sleep' mode and requires a few seconds to re-activate. **RED** signifies a problem (an explanatory message will be displayed).

8 Sensor and IR filter

The sensor is positioned behind a permanently mounted IR filter. Always be very careful not to touch or scratch the surface of the filter when it is exposed. Replace the protective cover whenever the sensor unit is not mounted on a camera.



9 Databus connectors

For digital communication with camera body.

10 Retaining bar

Main support for sensor unit.

11 Safety catch

Prevents inadvertent removal of sensor unit.

12 'Sensor plane' index

For physical focus measurement in critical close-up work.

13 CF-card cover

14 FireWire port

For computer connection (please carefully note the orientation of the FireWire plug when inserting into the sensor unit).

Previous H2/ H3/H4D users please note the orientation of the plug on the H5D!

15 Flash sync and power connector ports

Flash sync ports and port for external power supply / battery adapter for when the sensor unit is used with a view/large format camera. Protected behind a rubber cover.

SENSOR UNIT DISPLAY AND CONTROLS – OVERVIEW

When shooting, the sensor unit can display the information most often required for a quick settings check. The unit's buttons, grip scroll wheels and camera buttons are used to navigate the main menu and change settings.

The display can show all saved captures on a CF card for browsing and enlarge them for detailed inspection.

When shooting, you can control the amount of information visible together with the current preview by choosing various modes

BUTTONS AND SCROLL WHEELS

In **Browse** mode, the scroll wheels and True Focus and AE-L buttons on the grip duplicate the actions of the Navigation and Zoom /selection buttons on the sensor unit.

Activate **Browse** mode by clicking on the *Navigation* button, the *Zoom* button or one of the *P* buttons (when assigned to **Browse** activation).

P1 & P2 BUTTONS

The **P1** and **P2** buttons on the sensor unit are customizable buttons that rapidly access a variety of functions, which are:

Delete image • Format card • Info screen • Spirit level • Focus confirm • Browse mode • Mark Overexposure • Live View (50c / 50c Wi-Fi / 50c MS / 200c MS models only)

P1 & P2 BUTTON ASSIGNATION ON SENSOR UNIT (TWO METHODS)

1. *Press* **MENU**.
2. *Press* **P1** *button or* **P2** *according to choice.*
3. *Step through the options by pressing the* **ZOOM** *(+ or –) button.*
4. *Save the selection option by pressing* **EXIT** *(Menu button).*

or

1. *Press* ***MENU > SETTINGS > CUSTOM OPTIONS.***
2. *Select* **P1** *button or* **P2** *according to choice.*
3. *Step through the available options by pressing the* **ZOOM** *(+ or –) button.*
4. *Save the selection option by pressing* **EXIT** *(Menu button).*

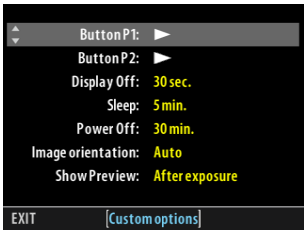
The **P1** and **P2** buttons also serve as WiFi setting control buttons (*50cWiFi model only*).

GENERAL

Photo: Dmitry Ageev © / Hasselblad Masters

POWER MODES

The H5D sensor unit can be set at three active modes – **ON**, **Display Off** and **Sleep**. In these active modes, battery consumption is least in **Sleep** mode and most in **ON** mode. The sensor unit displays are dimmed accordingly. However, after a set number of minutes of complete inactivity, the whole unit can automatically enter another mode (custom setting) to conserve power (indicated by no visible logos on either display).



ON

The sensor unit goes to **ON** mode when the Firewire cable is inserted.

OFF

To turn the sensor unit off, remove the Firewire cable. If the time set for "Power Off" has passed, the sensor unit will automatically turn off. To re-start, detach and insert the Firewire cable

AUTOMATIC SETTINGS

DISPLAY OFF

SENSOR UNIT MENU > SETTINGS > CUSTOM OPTIONS > DISPLAY OFF

In this mode the sensor unit display but remains ready to be immediately reactivated to the **ON** mode.

The time intervals are: ***10, 20, 30*** and ***60 seconds.***

SLEEP

SENSOR UNIT MENU > SETTINGS > CUSTOM OPTIONS > SLEEP

At this setting the unit is in very low battery-consumption mode. This is indicated by the ready lamp glowing orange instead of green. From this mode it will take a few seconds to re-activate the sensor unit. Any of the buttons listed below will instigate re-activation.

The time intervals are: ***5 minutes, 10 minutes*** and ***Never.***

POWER OFF

SENSOR UNIT MENU > SETTINGS > CUSTOM OPTIONS > POWER OFF

After the set time, the sensor unit will turn of completely. To re-activate, detach and insert the Firewire cable**.**

The time intervals are: ***30 minutes, 60 minutes*** and ***Never.***

RE-ACTIVATION FROM DISPLAY OFF OR SLEEP MODES

- ***press any key on the sensor unit***

RE-ACTIVATION FROM POWER OFF

- ***detach and insert the Firewire cable.***

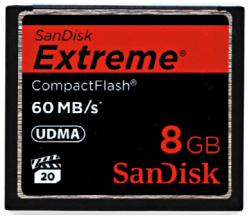
TEMPERATURE WARNING

Many rapidly taken captures make heavy demands on the processor in the sensor unit which in turn produces heat. This, particularly in combination with high ambient temperature, can result in noise in the image files. To prevent this, the sensor unit displays a warning icon when the temperature rises.

At ca. 60° C a warning dialogue appears notifying that the sensor unit is temporarily shutting down to allow the unit to cool.

USING COMPACT FLASH MEMORY CARDS

When using a compact-flash card, the H5D sensor unit is completely self-contained. No additional wires or connectors need to be attached. The recommended type is UDMA/type 4 /60MBs (400x) or better. Please see the **Appendix** in this manual for a list of recommended cards.

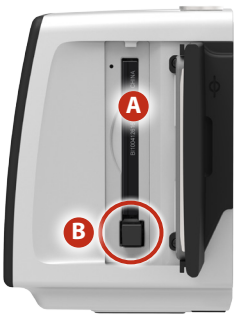


The sensor unit is shipped with an 16GB (or larger) compact-flash card, which is capable of holding approximately 100 – 200 captures (according to model). Lossless compression is applied to the images, so the actual size of each capture can vary, thereby affecting the total number of shots you can fit on the card.

All cards should be formatted in the sensor unit before first-time use!

INSERTING A CF CARD

1. *Open the CF card slot cover on the sensor unit by inserting a thumb in the recess and then sliding it to the left.*
2. *Behind the cover, you will see a slot for the card (A) and a release button (B) below the slot.*
3. *Hold the compact-flash card so that the connector holes face into the slot and you can read the brand label when you are behind the camera. Gently press the card into the slot. If you encounter resistance, it might be because you are holding the card backwards or upside down.*
4. *If the card can be easily inserted nearly all the way into the back, then you are inserting it correctly. Press the card another couple of millimetres firmly into place.*
5. *Close the slot cover and slide it to the right to lock it.*



REMOVING A CF CARD

1. *Open the CF card slot cover on the sensor unit.*
2. *Press the release button a little way in and then release it so that it extends a little out from the slot.*
3. *Press the now extended release button all the way back into the sensor unit again. Some force is required. As you do this, the card will be pushed out a few millimetres.*
4. *Grasp the card and pull it away from the sensor unit.*
5. *Close the slot cover shut again.*

Note

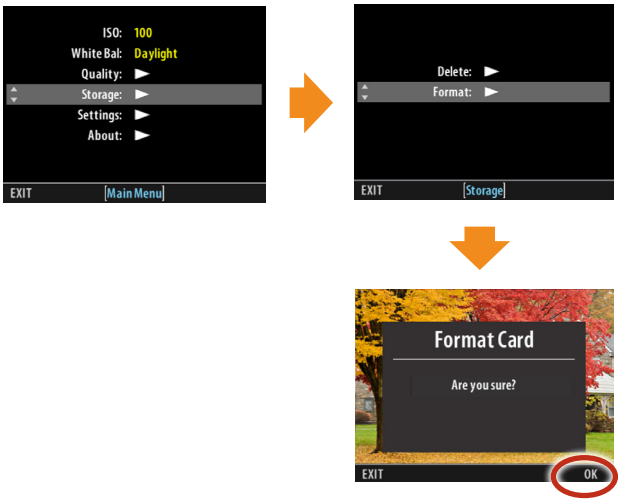
Do not remove a CF card from the sensor unit if the 'ready' light is blinking!

All files on the card may become corrupted (and consequently lost) if you do so and new formatting may also be necessary.

FORMAT VIA SENSOR UNIT

SENSOR UNIT MENU > STORAGE > FORMAT > DIALOGUE

1. *Press* **MENU**.
2. *Navigate to* **Storage** *(use the* ***Navigator****).*
3. *Navigate to* **Format** *(use the* ***Navigator****).*
4. *Navigate to* **Format** *dialogue (use the* ***Navigator****).*
5. *Confirm by pressing* **OK** *(***Display** *button).*



Note

Only UDMA/type 4/60MBs (or 400x) cards or better are recommended for H5D sensor unit use.

See full list in 'Appendix' in this manual.

Note

All CF cards should be formatted in the sensor unit before first-time use!

SENSOR UNIT – INTRODUCTION

The captured image is temporarily stored internally on a CF card in the sensor unit or onto a computer hard disk when tethered using Phocus.

When attaching and removing the sensor unit, pay particular attention to the sensor area. The sensor itself is covered and protected by a glass IR filter but take great care when handling.

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. When storing separated from the camera, always ensure you use a protective cover.
As is the case with all electronic devices pay extra care when working in damp environments and avoid damp conditions for storage.

With untethered use, the management of captures is handled by the sensor unit. In tethered use, captures are handled and stored by the computer and can be visually checked in Phocus immediately.
Settings are made entering the sensor unit menu using the buttons on the unit.

Remember to check settings before each shoot. It is easy to forget small adjustments you might have made the time before. You might want to consider using the profile function to make a one-button-press resetting of important functions for your particular regular situations.

REMOVING AND ATTACHING THE SENSOR UNIT

1. *Remove a FireWire cable if connected.*
2. *While pushing the safety catch towards the rear of the unit* **A**, *tilt the sensor unit to the rear and remove from the technical camera body.*
3. *Clean the outside surface of IR filter by using clean compressed air (see warning above first). If this is not enough, then use one of the procedures outlined below.*
5. *Reattach the sensor unit to the camera immediately after cleaning to check results.*
6. *If you still see spots on your shots after you have cleaned the outside of the infrared filter, then you may have dust either on the inside of the IR filter or on the sensor itself.*

CARE AND MAINTENANCE OF SENSOR UNIT

- ***Always replace the protective sensor/filter cover when the sensor unit is not mounted on a camera.***
- ***Do not touch the exposed sensor/filter with your fingers.***
- ***Keep all foreign objects away from the camera opening when attaching or removing a sensor unit.***
- ***Store the sensor unit away from moisture and excessive heat.***
- ***Protect the sensor unit from impact.***

Note

Time & Date settings on the sensor unit (which are included with files and folder labels) are updated automatically through a FireWire/Phocus connection. These settings are retained for about two consecutive weeks by a small rechargeable cell that is automatically recharged by the main battery or FireWire with regular use. If problems occur, charge the cell by leaving the sensor unit turned ON for around 12 hours.

CLEANING THE SENSOR FILTER

If you see dark or colored spots or lines in your images, then you may need to clean the outer surface of the sensor unit's infrared (IR) filter. In most cases, the careful use of compressed air will be adequate though if you use canned compressed air, read the instructions very carefully before use to avoid spraying impurities or even ice on the filter! Sometimes, however, small particles will get stuck to the surface of the IR filter, requiring for a more thorough cleaning, involving either fluid or wipes.

1. *If compressed air did not remove all the problems on the filter, then use an E-wipe.*
2. *Tear at the notch to break seal. Remove E-wipe from its packaging and fold the tissue to match the width of the IR filter.*
3. *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.*
4. *Finally check if the IR filter has been properly cleaned either by visual inspection or by mounting the sensor unit to the camera and making a test capture. If further cleaning is needed, repeat cleaning procedure.*

Note

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

Note

If you still see spots on your shots after you have cleaned the outside of the infrared filter, then you may have dust either on the inside of the IR filter or on the sensor itself. However, never attempt to remove the glass filter – you will probably ruin the sensor if you do so!

If dust manages to get between the IR filter and sensor, it can only be removed at the Hasselblad factory. Contact your Hasselblad dealer or Hasselblad Service Center for assistance.

TETHERED TO A COMPUTER WITH PHOCUS RUNNING

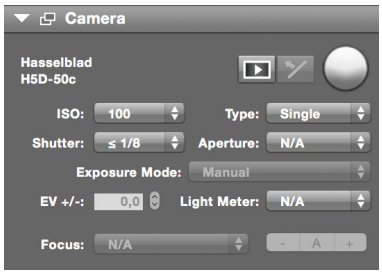
When tethered to a computer, you can control many camera functions using Phocus software. All captures are saved as 3F files (as opposed to 3FR files from a CF card) and can be immediately exported to other formats if desired.

CONNECTING TO A COMPUTER

To connect to a computer, attach a FireWire cable from the FireWire port on a computer to the port on the side of the sensor unit. The port is protected behind a hinged cover.

When you are connected to a computer, the following applies:

- ***The destination medium and location are controlled from Phocus.***
- ***Exposure settings, such as ISO and maximum exposure time, are controlled from Phocus. Shutter control from Phocus is only available with electronic shutters. In addition extra tools such as Live Video, are available. See* Phocus *user manual for full description.***



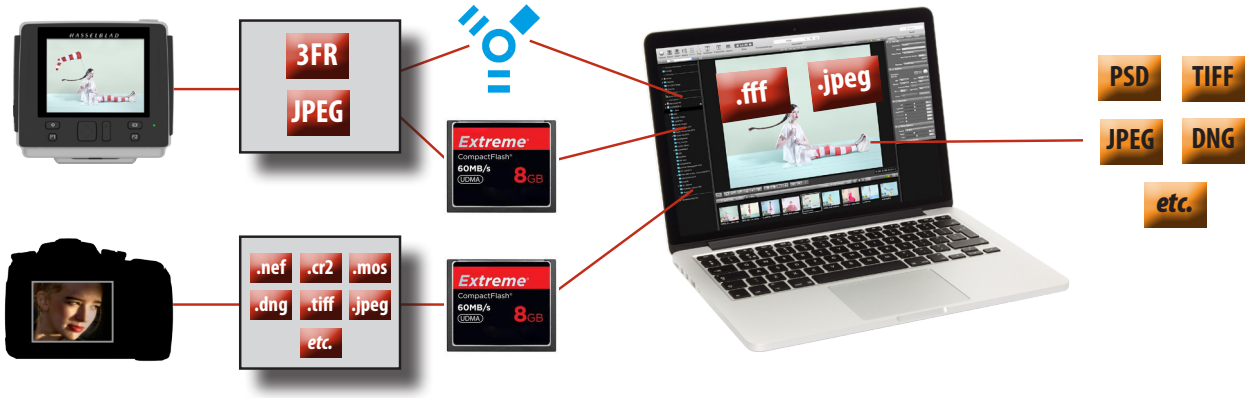
'Camera' tool in Phocus.

When initiating a shot from Phocus [1], the computer sends a signal to the sensor unit, which triggers the shutter (and strobe/flash, if any). The back then sends the capture over the FireWire connection to the computer, where it is displayed on the computer screen and saved as a 16-bit 3F file in the currently selected folder on the computer hard disk.

When tethered, each capture also appears as 'Host' on the sensor unit display. Please note that the buttons on the unit have no function in this mode.

[1] Only available with electronic shutters

HASSELBLAD CAPTURE FILES, PHOCUS & ADOBE/APPLE SOFTWARE WORKFLOWS



The H5D sensor units can capture files and store them as Hasselblad RAW format files or Hasselblad RAW + JPEG formats simultaneously. (*not applicable to 60 Mpix / 50MS/200MS models*).

Hasselblad RAW files are initially stored in the 3FR format which is a proprietary Hasselblad format for the temporary storage of captures. A 3FR file contains the complete digitized raw image exactly as it was captured by the camera. 3FR information requires further computing power (typically by way of Phocus) to obtain complete development. If developed in Phocus, 3FR files become Hasselblad 3F files – denoted by each file now bearing the suffix ".fff". If developed by other RAW processors, the 3FR files are not converted to 3F but can be exported directly to TIFF, PSD etc according to requirements.

However, when working tethered 3FR files are automatically processed and stored in the background on a computer appearing as 3F files on the hard disk ready for selective adjustment and export. 3FR files stored on a CF card can be processed to completion using:

- ***Hasselblad Phocus***
- ***Adobe Camera Raw / Lightroom***
- ***Apple Aperture***

To sum up, capture files can be stored as 3FR files (from a CF card) for later processing in Phocus or other software, or they can be stored as 3F files (as a result of tethered shooting or 3FR files processed and converted in Phocus). In all cases if you keep the original 3FR/3F files, you will also retain the possibility of reprocessing them in the future in later versions of Phocus or other software to take advantage of eventual improvements and developments.

Note that using Phocus is the most comprehensive method. The Phocus and Adobe methods can produce almost identical results (in most cases, but not all) regarding RAW conversion so it is a matter of personal choice regarding which method would best suit your preferred ways of working. Alternatively you can use Apple Aperture though you should take note that the benefits of DAC and HNCS etc, will be lost in this case.

Mixed formats

Phocus can also process most other capture formats, generic and proprietary. This means you can include other formats in your normal Phocus workflow if you choose. Or if you prefer, you can include Hasselblad files in Adobe / Apple workflows as stated above.

PHOCUS

Phocus is the capture processing and file management application aimed primarily at Hasselblad 3F file handling. Phocus Mobile offers remote viewing and control when shooting tethered while Phocus Quick offers a very rapid and simplified file processing capability.

Phocus allows the extraction of the most detailed files from the world's most advanced cameras to your desktop in a professional and efficient manner.

Phocus works the way that photographers work and provide serious photographers with a well thought out, and intuitive workflow, designed to provide maximum power and options with a minimum of effort. Phocus produces ground-breaking new levels of image quality and technical precision and when combined with the world's finest optics and image sensors the result is exactly what you would expect from Hasselblad – simply stunning image quality.

FEATURES IN PHOCUS

Ultimate Image Quality

- Hasselblad Natural Color Solution (HNCS)
- Sophisticated lens corrections for H and V system lenses (DAC)

Specialized Tools

- Tethered Camera Controls [1)]
- Phocus Mobile *
- Live Video
- Scene calibration & reproduction tools
- Leading edge Moiré removal
- Highlight recovery, shadow fill, clarity and dust spot removal tools

plus:

- Easy-to-use interface
- Extensive customization options for individual workflow scenarios
- Import/Export of Image Adjustments, Keywords, Workflow settings etc.
- High quality printing
- Slide show
- RAW file support from more than 150 DSLR cameras**
- License free software (unlimited installations - no registration issues)

Any File from Anywhere!

Phocus allows you to import your files, RAW or otherwise and work in the same powerful and intuitive processing environment, no matter where your files are coming from. This means that you can browse, handle, adjust, and process all kinds of RAW and non-RAW formats.

Phocus supports RAW files from more than 150 cameras, including Canon, Nikon, Leica, Sony, Fuji, Olympus, and so on**, as well as the most common file formats such as TIFF, JPEG, DNG, and PNG, making it easier than ever to work as you see fit, not as your camera dictates.

Ultimate Image Quality

Phocus uses Hasselblad Natural Color Solution (HNCS) to provide ultimate image quality in every image you create. With Phocus, the moiré that can occur on even extremely high-resolution images is effectively removed automatically and directly on the raw data, leaving image quality intact and saving hours of tedious post-production work.

Phocus Mobile

Phocus Mobile is available for the iPhone®, iPad® and iPod Touch®. It enables you to connect wirelessly to a computer running Phocus and to remotely browse your high-resolution RAW, JPEG and TIFF images.

This provides a handy solution for working with clients in the studio, enabling each person to view images on an individual iOS device, rather than all gathering around a single computer.

Phocus Mobile also allows users to remotely operate and trigger a tethered sensor unit [1)], giving control of many parameters, all neatly presented in a virtual display. This feature is very convenient for remote control of the sensor unit when it's located in a difficult-to-access position. Phocus Mobile is available for free download at the App Store.

Phocus Mobile also supports WiFi connections (iPhone®, iPad® and iPod Touch®) from Stand-Alone 50c WiFi sensor units, enabling the browsing and rating of images and Liveview display with focus adjust.

[1)] Only available with electronic shutters

** Phocus Mobile is available for download on the App Store.*

*** Full list available at http://www.apple.com/aperture/specs/raw.html*

Battery Adaptor Kit: 3053310

The new Battery Adapter for H5D and H4D-60 cameras can be used to power a sensor unit in situations where power is not available through FireWire. This is especially useful when using a sensor unit on a technical camera on location.To capture Multi shot images you will have to be connected to Phocus software via a firewire cable. This cable then supplies the power for the back.

The components of the adaptor kit are shown below.

Battery Holder

The Battery Adapter uses a standard 7.2V Sony™ NP-F L-type battery to power the back (batteries sold separately).

A special Battery Adapter Plate is used to mount the battery adapter onto the sensor unit.

This Battery Adapter Plate comes in three versions, making the Battery Adapter fully compatible with all H5D, H5D-MS & H4D-60 sensor units.

The Battery Adapter Plate can stay mounted onto the sensor unit when the battery adapter is not in use as the Battery Adapter is easily mounted and removed from the Battery Adapter Plate. The plate you require differs depending on the sensor unit you are using. See the table below for the correct item

Plate no.	H5D	H5D-MS	H4D-60
3053312	X		
3053314		X	
3053316			X

EXPOSURE CONTROL

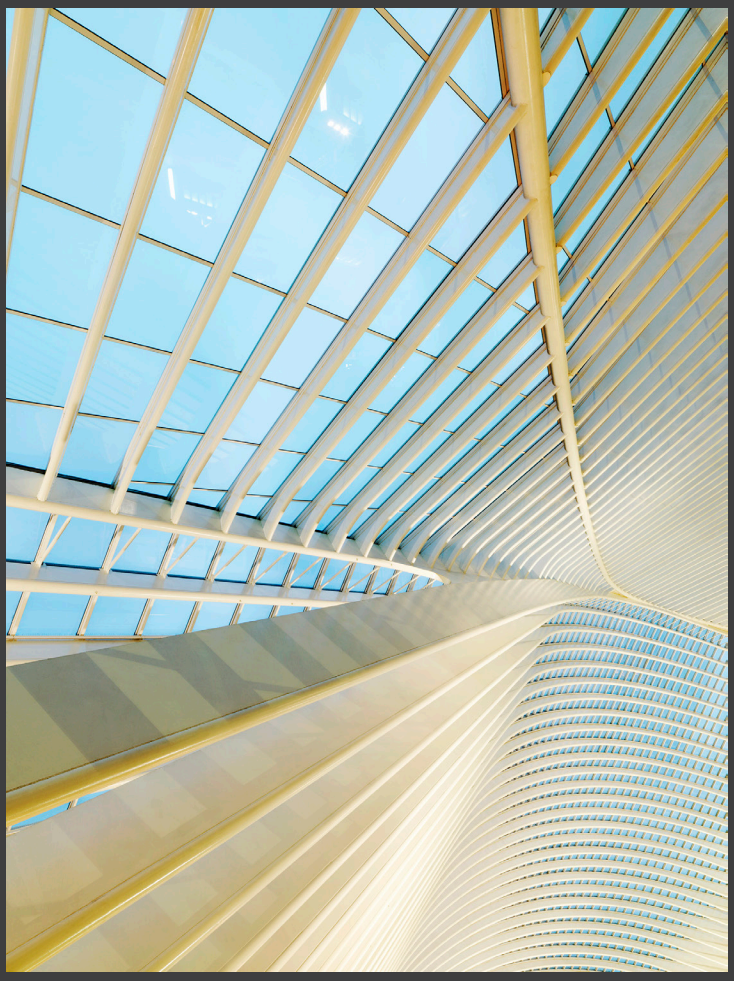


Photo: Martin Schubert © / Hasselblad Masters

ISO & WHITE BALANCE

Both ISO and White Balance can be set either via the sensor unit or, when tethered, via Phocus.

For the sensor unit display, settings can be changed with the Zoom button. In Phocus there is a specific tool to control the unit settings when tethered.

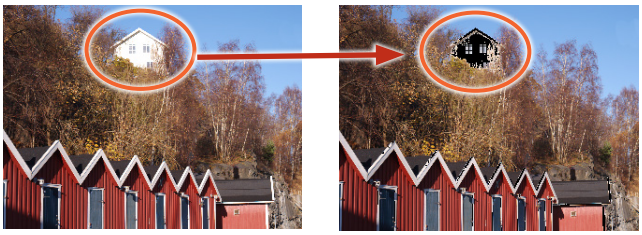
See more information about making manual white balance settings in the *'Sensor Unit Settings'* section.

Note

White Balance settings are technically not necessary for 3F/3FR files because raw format files contain all the information required for correction in Phocus and/or other software, regardless of the original color temperature of the light source or color temperature setting of the camera at the time of exposure. However, if you intend to shoot RAW & JPEG or use Phocus / Phocus Quick for JPEG production and plan to deliver or print the JPEG files directly, then you should make a White Balance setting.

OVEREXPOSURE INDICATOR

Though a 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 sensor unit can provide an overexposure indicator, which shows precisely which areas of your shot are overexposed (i.e., pixels that are at maximum brightness, causing loss of detail). When enabled, the overexposure indicator flashes the overexposed pixels from black to white.



Affected areas flash from black to white.

You can choose between an 'automatic' on/off mode or a button controlled on/off mode.

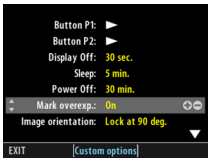
A. Setting for *'automatic'* on/off mode:

1. *Press **MENU** > **SETTINGS** > **CUSTOM OPTIONS**.*
2. *Select **P1** button or **P2** button according to choice.*
3. *Step through the available options on dialogue by pressing the **ZOOM** (+ or —) button.*
4. *Save the selection option by pressing **EXIT** (Menu button).*

B. Setting for *'button controlled'* on/off mode:

1. *Press **MENU** button on sensor unit.*
2. *Select **P1** button or **P2** button according to choice.*
3. *Step through the available options by pressing the **ZOOM** (+ or —) button.*
4. *Save the selection option by pressing **EXIT** (**Menu** button).*

or



Setting 'automatic' on/off mode.

Setting 'button-controlled' on/off mode.

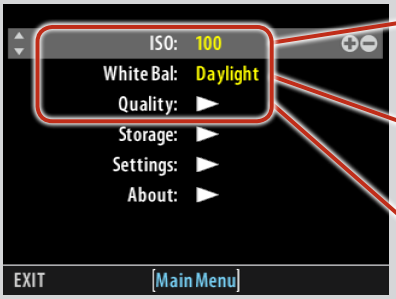
1. *Press **MENU** > **SETTINGS** > **CUSTOM OPTIONS**.*
2. *Select **P1** button or **P2** button according to choice.*
3. *Step through the available options by pressing the **ZOOM** (+ or —) button.*
4. *Save the selection option by pressing **EXIT** (**Menu** button).*

NAVIGATING THE MENUS

Photo: Hengki Koentjoro © / Hasselblad Masters

BASIC DESCRIPTION OF SENSOR UNIT MENU ITEMS

By using the buttons on the control panel you can navigate down through the various levels in the menu. Below is an overview of the setting options available.



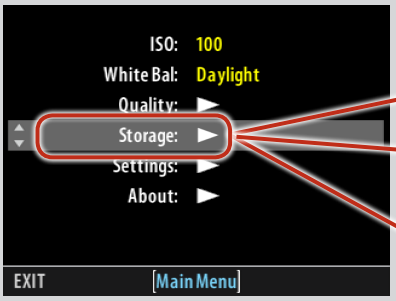
ISO
Sets the light sensitivity of the sensor.

White Balance
Sets the color temperature of the ambient light.

Quality
Allows option of RAW only or RAW + JPEG per capture. Also allows profile (sRGB /Adobe 1998).

(*not applicable to 60 Mpix / 50MS / 200MS models*)

STORAGE

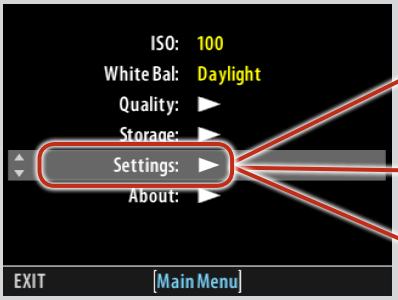


Delete
For single or multiple deletion of images.

Create new folder
.

Format
Used to format CF cards for optimum use.

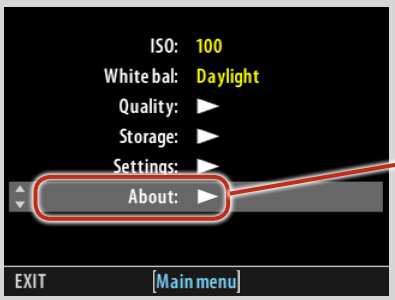
SETTINGS



User interface
Sets menu language, sound, date & time and display.

Custom Options
Sets options regarding tilt sensor, menu control and display.

Service
Acesses save log data, default settings, firmware update, tethered power and firewire speed.



About
Provides serial number, firmware revision and focus calibration information.

OVERVIEW OF NAVIGATING MENU AND SETTINGS ON SENSOR UNIT.

Navigating the menu and accessing the settings on the sensor unit are achieved by pressing the appropriate buttons surrounding the display. Note that some of the buttons are modal and so have dual functions which is indicated by the designation that appears closest to that particular button when navigating. For example, the MENU button also acts as a SAVE or EXIT button according to dialogue requests.

In this example the Menu button acts as the Exit button and the Display button acts as the OK button according to the mode.

Here is an example of the necessary steps to take to make a setting change, in this case Sound. The actions are illustrated in full here to clearly describe the procedure. The procedures later on in this manual are described and illustrated in an abbreviated manner so it wise to study this full description first.

1

Press the **MENU** (○) *button to access the menu from the regular image display.*

2

Use the up ∧ or down ∨ arrows on the **Navigation** *button) to access* **Settings**. *The highlight on the menu item indicates selection of that particular item.*

3

Press > on the **Navigation** *button) to access* **Settings** *– indicated by an arrow on the menu list – to navigate to the submenu screen.*

4

Press the up ∧ or down ∨ arrows to highlight **User Interface**. *Press > on the* **Navigation** *button to access* **Sound**.

5

Press the **Zoom** *button – indicated by the – or + symbols on the menu list – to step through the available choices until the desired one is shown.*

6

Press the **Exit** *(Menu) button to confirm and save the choice as well as return to image view.*

Navigate / Open = ∧, ∨, >

Select = –, +

Menu / Save / Exit = ○

PREVIEWS & BROWSING

Photo: Dmitry Ageev © / Hasselblad Masters

PREVIEW MODES

Use the **Display** button to cycle through the available preview modes which are:

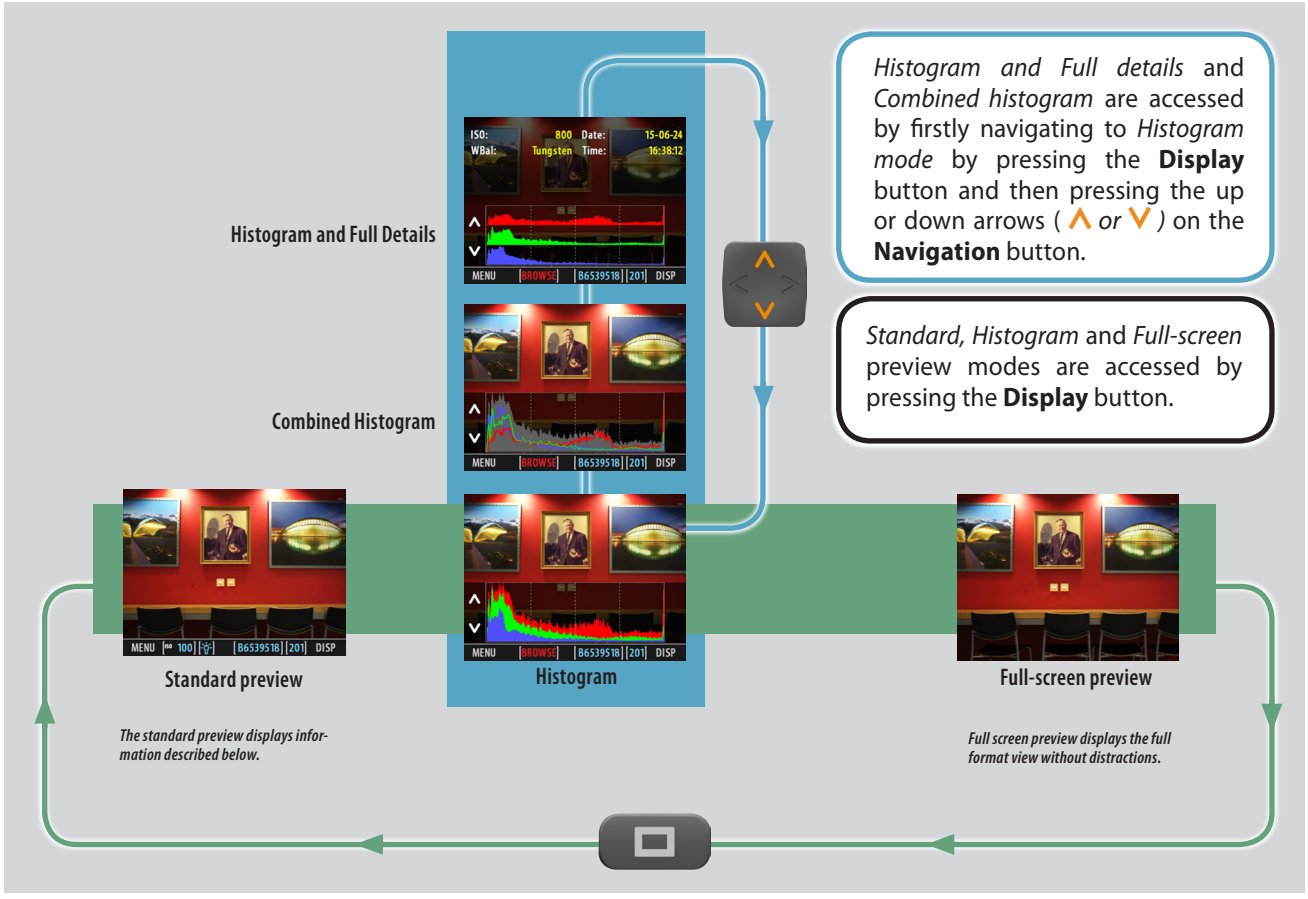
- **Standard preview:**
  Shows a preview image surrounded by a display of a few important settings. Note that the information covers some of the image. Go to Full–screen mode to see whole image.
- **Histogram:**
  Shows a preview image overlaid with a histogram.
- **Full-screen preview:**
  Shows the preview only, with no frame or settings information.

Two additional screens also available, accessible from the Histogram screen:

- **Combined Histogram:**
  Shows a preview image overlaid with a histogram displaying the three components: red blue and green.
- **Histogram and full details:**
  Shows a preview image overlaid with both a histogram and camera-setting details.

Tip

Note that the **Display** *button functions in this same manner with both untethered and tethered cameras.*

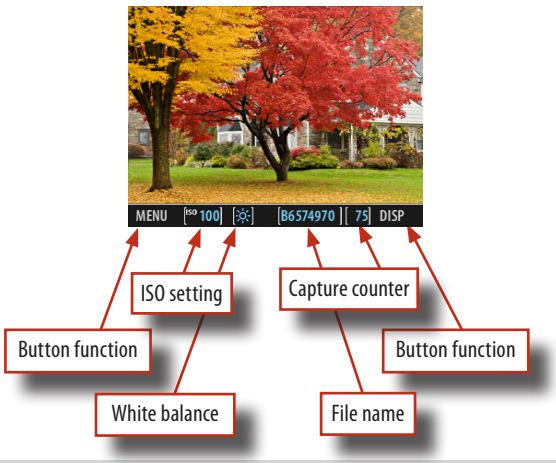


STANDARD PREVIEW

The Standard Preview display is the one shown when you first turn on the sensor unit and is probably the view you will use most often.

It displays a preview of your most recent capture and basic information about the settings.

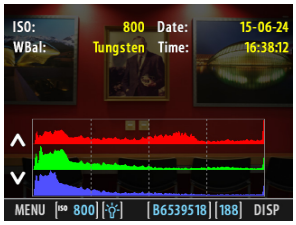
This preview also enables you to navigate the menu system and make camera settings on the sensor unit; see ***Simple description of menu items*** for details.



HISTOGRAM TYPES

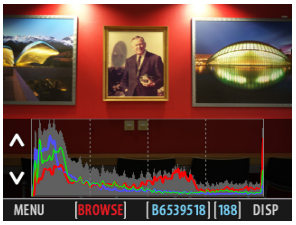
There are three types of histogram representation available: *Histogram and Full details*, *Combined histogram* and *Histogram mode.*

Histogram and Full details



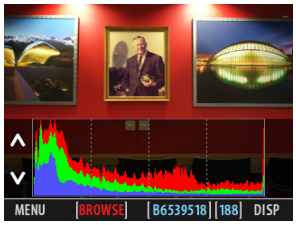
In Histogram and Full details mode, you can read a list of camera settings, plus see the histogram and, in the background, a darkened preview of the image. The setting details are stored with the capture file, so you can also refer to them in Phocus and other applications.

Combined Histogram



In Combined Histogram mode, the RBG channels are represented to show individual distribution against a luminosity histogram.

Histogram mode



In Histogram mode, the individual RBG channels are represented to show a comparitive display.

HISTOGRAM MODE – EXPOSURE

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 captures. 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. The histogram is only an indicator that should be interpreted – there are several situations in which a 'bad' histogram will match an exposure that could be perfect for the intended effect (and vice-versa). Look at the histogram examples and the explanations below:

EVEN EXPOSURE

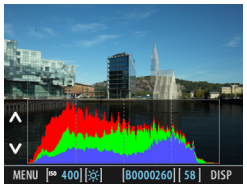
A histogram display that is spread across the full range indicates a likely good exposure. There may still be a few pixels at the extremes, indicating a few spectral highlights and saturated shadows, but this is often normal in a good exposure.

UNDEREXPOSURE

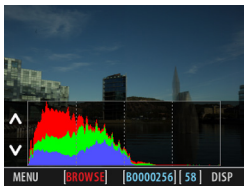
A histogram display that is concentrated on the left with few pixels elsewhere indicates a likely underexposure. Many details will be lost in the shadows.

OVEREXPOSURE

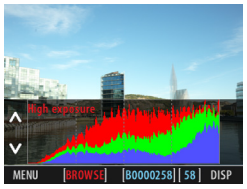
A histogram display that is concentrated on the right with few pixels elsewhere indicates a likely overexposure. Many details will be lost in the highlights.



Even exposure



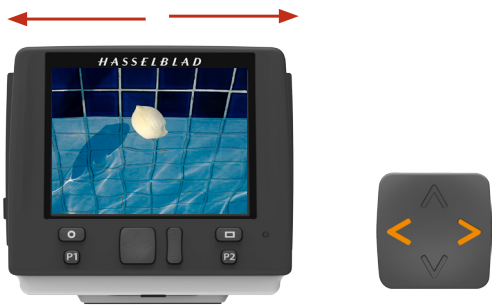
Underexposure



Overexposure

BROWSING

In **Browse** mode use the left < or right > arrows on the navigator to browse captures in a folder. Zoom out to Folder View if you want to select another folder to browse.



ZOOMING IN AND OUT

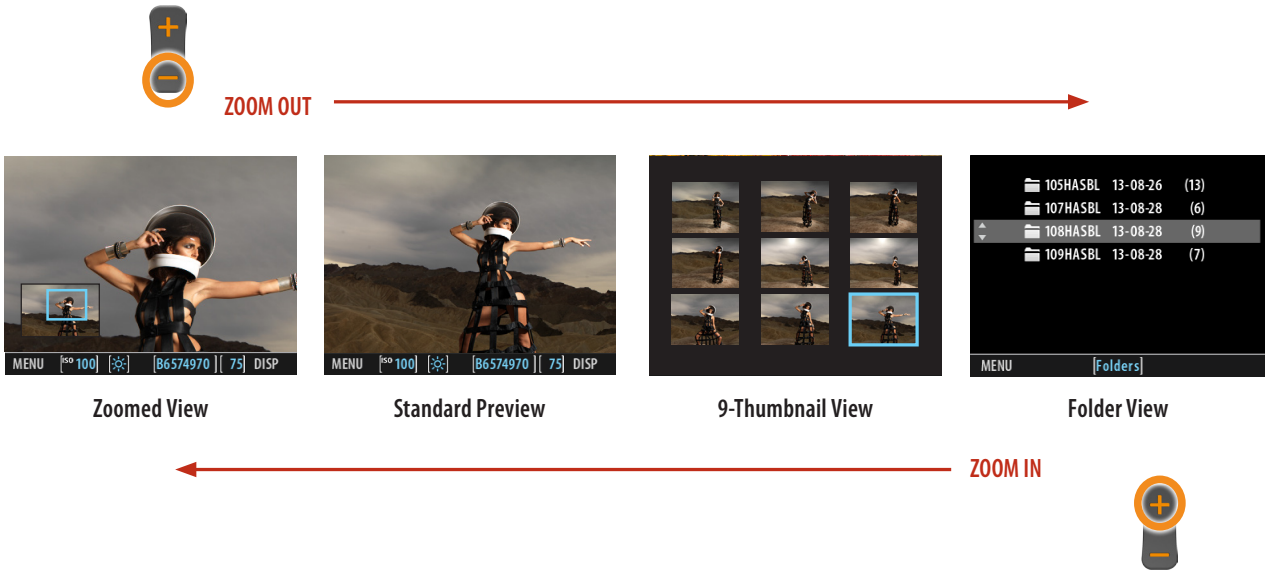
There are four views in **Browse** mode. Zoom in by using the the *Zoom in* (+) / *out* (-) buttons.

Zoomed View is reached by zooming in from the Standard View. When zoomed in, you can select the area of interest by using the navigation button. A smaller inserted overview of the capture at 100% displays the position of the enlarged area with a blue frame. While zoomed in, navigate the blue frame (*navigator button*) to view other areas of interest for checking.

Standard Preview displays the full frame partially covered by the information bar at the bottom.

9-Thumbnail View displays an overview of your work so far and helps to find specific shots. Selection of specific images, highlighted by a blue frame, is made by the navigation button.

Folder view displays the list of folders saved. The highlighted folder is the current folder and contains the images you were browsing. Navigate to another folder and then zoom in to reveal its contents if desired.



CREATE NEW FOLDER

MENU > STORAGE > CREATE NEW FOLDER

All new captures are automatically stored in the current folder until directed otherwise. A newly created folder automatically becomes the 'current' folder.

1. *Press* **MENU**.
2. *Navigate to* **STORAGE** *(use the* ***Navigator****).*
3. *Navigate to* **CREATE NEW FOLDER dialog** *(use the* ***Navigator****).*
4. *The* **CREATE NEW FOLDER dialog** *allows folder naming. The first three-digits are fixed and are automatically incremented for each new folder. The following five characters can be assigned as follows:*

   Use the ***Navigator*** *to select each character in turn. When selected (highlighted as blue) use the* **ZOOM** *button to select the desired character/digit.*
5. *Press the* **OK** *button to save.*

The last character has been selected and is colored blue to indicate that it can be changed. Pressing OK saves the new name and creates the new folder which now becomes the 'current' folder.

'CURRENT' FOLDER SELECTION

You can re-direct new captures to a selected folder for storage instead of the latest folder created.

1. *Enter* **Browse** *mode*
2. *Zoom out (use the* **ZOOM** *out button —) to reach the Folder View.*
3. *Navigate to the desired folder (use the* ***Navigator*** *and zoom in) and return to the Standard Preview.*
4. *In this way, the newly selected folder becomes the 'current' folder, so all new captures will now be stored there instead.*

SENSOR UNIT SETTINGS

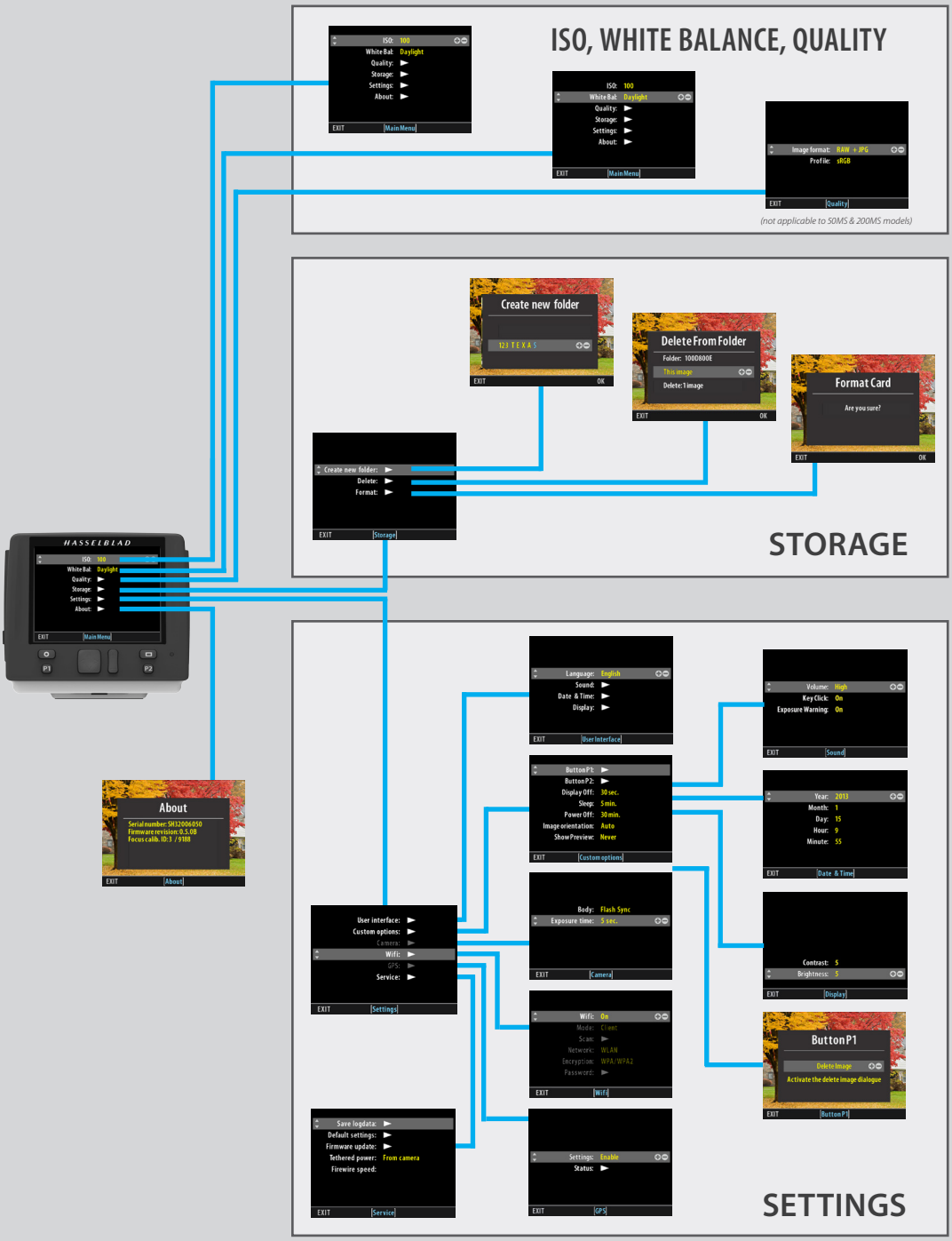
Photo: Hengki Koentjoro © / Hasselblad Masters

BASIC OVERVIEW OF SENSOR UNIT MENU

The menu is structured in a manner similar to very many digitally controlled personal devices and should be familiar to most.

Once the menu is accessed navigation, selection and confirmation are made by the various buttons beneath the display.

After pressing the MENU button, the first screen presents the main divisions: ISO, White balance and Quality – for rapid access while working, Storage and Settings followed by About. These last two include the less commonly used options and settings.



ISO SETTING

MENU > ISO

ISO and White Balance can be set either on the sensor unit or, when tethered, via Phocus.

1. *Press* **MENU**.
2. *Navigate to* **ISO** *(use the* ***Navigator****).*
3. *Press the the* **ZOOM** *button to step through the available settings.*
4. *Save the chosen selection by pressing* **EXIT** *(*MENU *button).*

WHITE BALANCE SETTING – PRESETS:

MENU > WHITE BALANCE

1. *Press* **MENU**.
2. *Navigate to* **White Balance** *(use the* ***Navigator****).*
3. *Press the* **ZOOM** *button to step through the available settings.*
4. *Save the chosen selection by pressing* **EXIT** *(*MENU *button).*

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

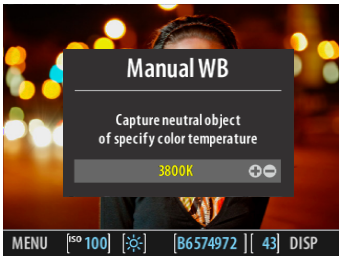
There are six 'White Balance' presets plus a Manual setting to choose from.

WHITE BALANCE SETTING ON SENSOR UNIT – NUMERICAL VALUE SETTING:

MENU > WHITE BALANCE

Manual setting allows a specific numeral setting.

1. *Press* **MENU**.
2. *Navigate to* **White Balance** *(use the* ***Navigator****).*
3. *Press the* **ZOOM** *button to step through until you reach* **Manual**.
4. *Use the* **Navigator** *to access the dialogue.*
5. *Press the* **ZOOM** *button to select the desired numerical setting.*
6. *Save the chosen selection by pressing* **EXIT** *(*MENU *button).*



Tip

Assign a customizable button for immediate manual white balance adjustment in mixed or rapidly changing lighting situations.

Tip

Include a predetermined ISO and /or WB setting in a custom profile for specific cases.

WHITE BALANCE SETTING BY USING A 'GREY CARD':

There are two ways to make manual white/grey balance settings using a 'Grey card' or 'Qp card'. If colour accuracy is not critical, you can use any neutrally coloured area or surface that you judge to be close to a mid-grey value (concrete, overcast sky, or even white paper, for example). It won't be perfect but just try to ensure that it is as neutral as possible in colour value.

- Make the first shot a grey card/Qp card close-up and then make the adjustment in Phocus for the session.
- Use the integral white balance from grey card function to make an in-camera setting for the session.

White balance settings are mirrored after being saved on the sensor unit and in Phocus when tethered.

MANUAL WHITE BALANCE 'GREY CARD' IN-CAMERA SETTING:

MENU > WHITE BALANCE > MANUAL

1. *Press* **MENU**.
2. *Navigate to* **White Balance** *(use the* **Navigator***).*
3. *Navigate to* **Manual** *(use the* **Navigator***).*
4. *Position the central spot in the viewfinder over an area that you consider should be rendered as neutral in color in the image and make a test capture (ensure the exposure is approximately correct otherwise you will get a warning message). A small rectangle appears on the display marking that particular area.*
5. *Press the* **MENU** *button to exit the menu system and keep the setting. 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.*

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

Tip

Assign a customizable button for immediate manual white balance adjustment in mixed or rapidly changing lighting situations.

Tip

Include a predetermined ISO and /or WB setting in a custom profile for specific cases.

IMAGE FORMAT

MENU > QUALITY > IMAGE FORMAT

Image format allows the simultaneous creation of both RAW + JPEG files from each capture (*not applicable to 60 Mpix / 50cMS / 200cMS models*).

Profile allows a choice between an sRGB or an Adobe 1998 profile for JPEG captures.

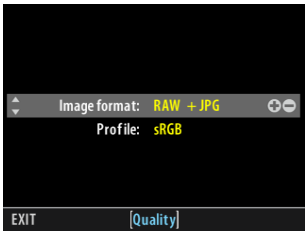
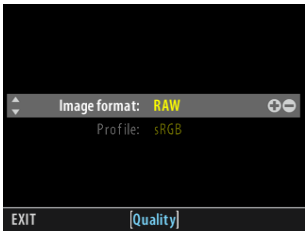
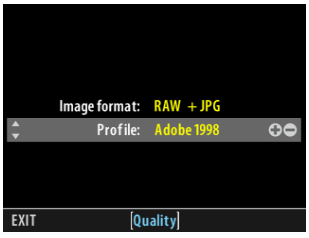
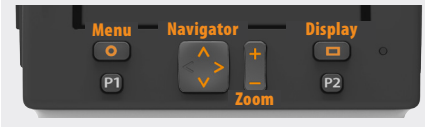


IMAGE FORMAT SETTING:

1. *Press* **MENU**.
2. *Navigate to* **Quality** *(use the* **Navigator***).*
3. *Navigate to* **Image Format** *(use the* **Navigator***).*
4. *Press the* **ZOOM** *button) to step through the available options.*
5. *Save the chosen selection by pressing* **EXIT** *(***MENU** *button).*

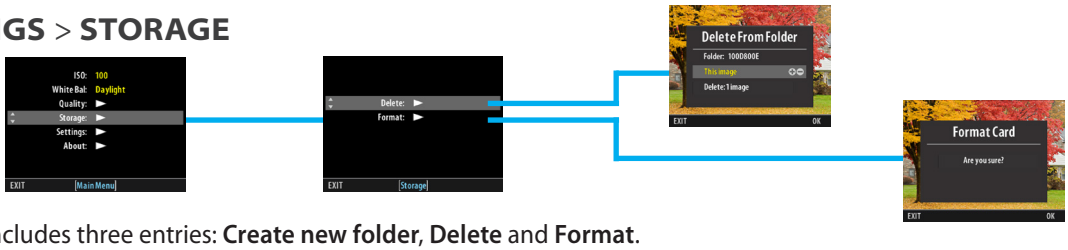






STORAGE

SETTINGS > STORAGE



Storage includes three entries: **Create new folder**, **Delete** and **Format**.

CREATE NEW FOLDER

MENU > STORAGE > FORMAT

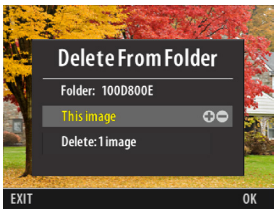
See section in "Previews & Browsing" chapter.

DELETE

MENU > STORAGE > DELETE

Delete allows you to make single or multiple deletes of captures.

1. *Browse to image you want to delete*
2. *Press* **MENU**.
3. *Navigate to* **Storage** *(use the* **Navigator***).*
4. *Navigate to* **Delete** *(use the* **Navigator***).*
5. *Navigate to* **Delete dialogue** *use the* **Navigator***).*
6. *Press the* **ZOOM** *button) to step through options.*
7. *Press* **OK** *(*Display *button) to confirm.*



Note

You will always be asked to confirm each delete operation.

FORMAT

The camera is only able to read and write to storage media that have been formatted. New cards sometimes have no formatting, or you might want to convert a card that is currently using a format that the camera cannot read.

There are two ways to format cards. The quickest way is to use the **Format** button on the grip but if you prefer, you can also use the menu on the sensor unit.

See further information about formatting cards in the 'General' section of this manual.

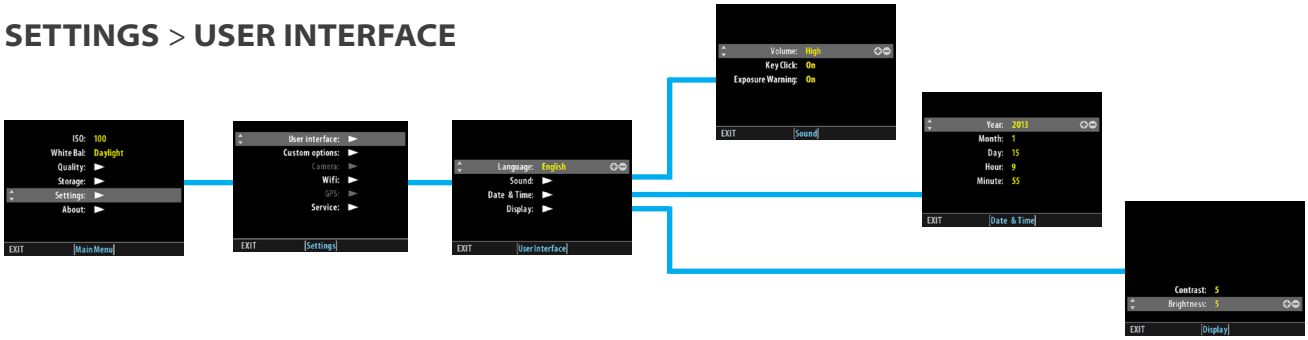
FORMAT ON SENSOR UNIT

MENU > STORAGE > FORMAT

1. *Press* **MENU**.
2. *Navigate to* **Storage** *(use the* **Navigator***).*
3. *Navigate to* **Format** *(use the* **Navigator***).*
4. *Navigate to* **Format dialogue** *(use the* **Navigator***).*
5. *Press* **OK** *(*Display *button) to confirm.*

SETTINGS

SETTINGS > USER INTERFACE



LANGUAGE *

MENU > SETTINGS > USER INTERFACE > LANGUAGE

Language choice is retained but can be changed at any time. Choose between:

English, German, French, Italian, Spanish, Japanese, Chinese and Korean.

1. *Press* **MENU**.
2. *Navigate to* **Settings** *(use the* **Navigator***).*
4. *Navigate to* **User Interface***(use the* **Navigator***).*
5. *Navigate to* **Language** *(use the* **Navigator***).*
6. *Press the* **ZOOM** *button) to step through options.*
7. *Save the chosen selection by pressing* **EXIT** *(***MENU** *button).*

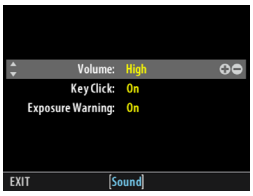
Tip

If the sensor unit has been set to a language you don't understand (a rented camera, for example), see section in ***Appendix*** *for solution.*

SOUND

MENU > SETTINGS > USER INTERFACE > SOUND

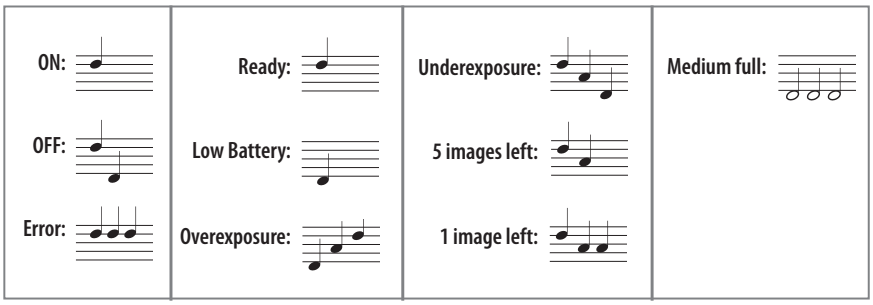
The sensor unit offers audio feedback to relay information. This menu item has **Volume** (choose between ***High, Low*** and ***Off***), **Key Click** (choose between ***On*** and ***Off***) and **Exposure Warning** (choose between ***On*** and ***Off***).



1. *Press* **MENU**.
2. *Navigate to* **Settings** *(use the* **Navigator***).*
4. *Navigate to* **User Interface** *(use the* **Navigator***).*
5. *Navigate to* **Sound** *(use the* **Navigator***).*
6. *Navigate to required item to select it.*
7. *Press the* **ZOOM** *button) to step through options.*
8. *Save the chosen selection by pressing* **EXIT** *(***MENU** *button).*

AUDIO FEEDBACK

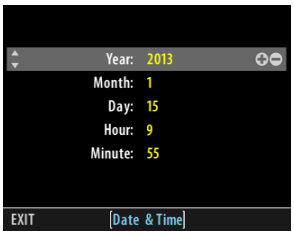
There are ten different sounds to help provide immediate information. A button press has a normal mechanical 'click' sound while the remaining actions listed here are more musical. For example, a capture rated as overexposed is signified by three rapid notes going up the musical scale, whereas an underexposed capture has three rapid notes going down the musical scale, as illustrated here.



DATE & TIME

MENU > SETTINGS > USER INTERFACE > DATE & TIME

The unit 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 folders with the date on which each folder was created. (*See note under **General overview of sensor unit** about keeping the internal battery charged to maintain **Date and Time** settings*).

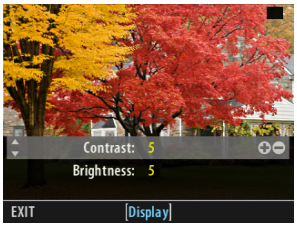


1. *Press **MENU**.*
2. *Navigate to **Settings**(use the **Navigator**). .*
3. *Navigate to **User Interface** (use the **Navigator**). .*
4. *Navigate to **Date & Time** (use the **Navigator**). .*
5. *Navigate to required item to select it.*
6. *Press the **ZOOM** button) to step through options.*
7. *Save the chosen selection by pressing **EXIT** (**MENU** button).*

DISPLAY

MENU > SETTINGS > USER INTERFACE > DISPLAY

This setting controls the level of **Contrast** and **Brightness** (both 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) while a value of 10 provides maximum brightness; a value of 0 provides minimal brightness. Lower brightness values require less battery power.



1. *Press **MENU**.*
2. *Navigate to **Settings** (use the **Navigator**).*
3. *Navigate to **User Interface** (use the **Navigator**).*
5. *Navigate to **Display** (use the **Navigator**).*
6. *Press the **ZOOM** button) to step through options.*
7. *Save the chosen selection by pressing **EXIT** (**MENU** button).*

SETTINGS > CUSTOM OPTIONS

BUTTON P1 & P2, DISPLAY OFF, SLEEP, POWER OFF, IMAGE ORIENTATION, SHOW PREVIEW

Custom Options allows the setting of various options, as listed here. The setting procedure is the same for these features:

1. *Press* **MENU**.
2. *Navigate to* **Settings** *(use the* **Navigator***).*
3. *Navigate to* **Custom Options** *(use the* **Navigator***).*
4. *Navigate to required item (use the* **Navigator***).*
5. *Press the* **ZOOM** *button) to step through options.*
6. *Save the chosen selection by pressing* **EXIT** *(*MENU *button).*

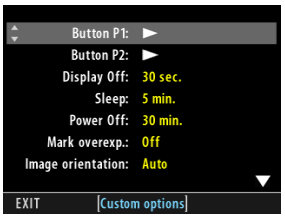
- ***P1 and P2 Button Function***

  MENU > SETTINGS > CUSTOM OPTIONS > P1 / P2

  Allows you to assign specific functions to the two buttons. These buttons act in the same manner as the four reassignable buttons on the grip. The buttons can also be assigned in the *Camera Configuration* tool in **Phocus**.

  OPTIONS: Browse Mode, Mark Overexposure, Delete Image, Format Card, Info Screen [1], Spirit Level [1], Focus Confirm, Live View (50c/50cWiFi/50cMS/200cMS models only)

  [1] Only when using an H5D/H5X camera body.

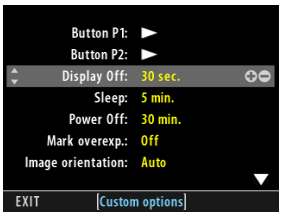


- ***Display Off***

  MENU > SETTINGS > CUSTOM OPTIONS > DISPLAY OFF

  Sets the amount of elapsed time before the display is turned off. See 'Power Modes' section in this manual for further details.

  OPTIONS: 10 sec, 20 sec, 30sec, 60 sec and Never.

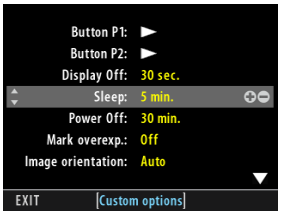


- ***Sleep***

  MENU > SETTINGS > CUSTOM OPTIONS > SLEEP

  Sets the amount of elapsed time before the sensor unit enters 'Sleep' mode. See 'Power Modes' section in this manual for further details.

  OPTIONS: 5 min, 10 min, Never

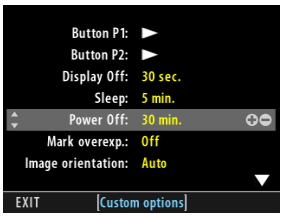


- ***Power Off:***

  MENU > SETTINGS > CUSTOM OPTIONS > POWER OFF

  Sets the amount of elapsed time before the camera enters complete power off mode. See 'Power Modes' section in this manual for further details.

  OPTIONS: 30 min, 60 min, Never

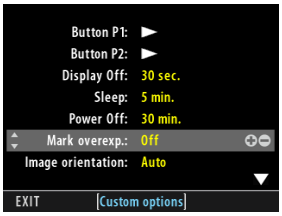


- ***Mark overexposure***

MENU > SETTINGS > CUSTOM OPTIONS > MARK OVEREXP.:

Provides an overexposure indicator showing precisely which areas of a capture are overexposed (i.e., pixels that are at maximum brightness, causing loss of detail). When enabled, the overexposure indicator flashes the overexposed pixels from black to white.

OPTIONS: On, Off

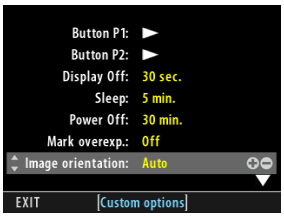


- ***Image Orientation***

MENU > SETTINGS > CUSTOM OPTIONS > IMAGE ORIENTATION

Sets the viewing orientation of captures when they appear in Phocus. In order to avoid unintentional orientation changes when the camera is pointing straight up or down, for example, the orientation setting can be locked at:

OPTIONS: Auto, Lock at 0 degrees, Lock at 90 degrees, Lock at 180 degrees and Lock at 270 degrees.

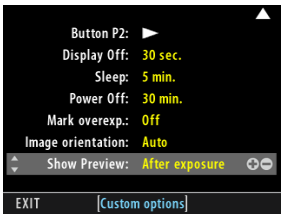


- ***Show Preview***

MENU > SETTINGS > CUSTOM OPTIONS > SHOW PREVIEW

Sets whether the display remains inactive after each capture. Useful in sensitive environments or when shooting vertically.

OPTIONS: After Exposure, Never

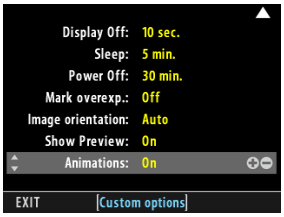


- ***Animations***

MENU > SETTINGS > CUSTOM OPTIONS > ANIMATIONS

'On' produces 'soft' previews on the display, allowing images to move smoothly to the left as well as smooth zooming. 'Off' produces direct changes.

OPTIONS: On, Off



SETTINGS > CAMERA

SENSOR UNIT AND VIEW / LARGE FORMAT CAMERAS

For optimum use, the H5D sensor unit can also be used with view cameras (with the appropriate adapter and cables). The exposure time set on the unit 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 through 1/2000sec. However, this setting should be changed in accordance with the time required if it exceeds 1/8 sec. Times of up to 34 minutes can be set.

If you prefer, you can connect the 'Flash sync input cable' between the lens PC socket and the unit 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. Note that the ***Camera*** entry on the menu remains dimmed and is inaccessible when the sensor unit is attached to the H5D body.

MENU > SETTINGS > CAMERA

1. *Press* **MENU**.
2. *Navigate to* **Settings** *(use the* ***Navigator****).*
3. *Navigate to* **Camera** *(use the* ***Navigator****).*
4. *Navigate to required item (use the* ***Navigator****).*
5. *Press the* **ZOOM** *button to step through options.*

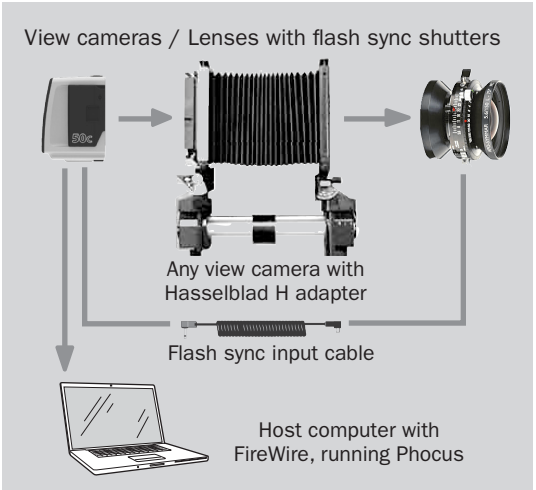
Settings

Body:

Flash sync: For regular use with view cameras with mechanical shutters.

Pinhole: Intended primarily for use in a studio environment where complete darkness can be achieved and captures made accordingly (also useful for 'light painting').

Lens Ctrl S: For use with the Rollei Lens shutter hand controller. Please



see the Flash / Strobe section for additional details

Exposure time: 1/8 sec > 34 minutes.

SETTINGS > WI-FI *(H5D-50c Wi-Fi model only)*

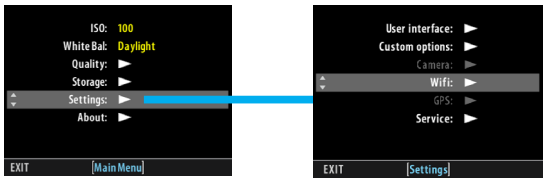
The Wi-Fi mode allows the Hasselblad Phocus Mobile application on an Apple iPhone, iPod or an Apple iPad to work in the same way as when a camera is tethered to a computer. Note that no camera control is available unless a H5D camera body is attached to the sensor unit.

Please note that no images are stored on the iPhone/iPad so if you want to mail an image, use the screen capture function on the iPhone/iPad. Also note that the camera can only connect to open Wi-Fi networks or WPA/WPA2 encrypted networks. 802.11 a/b/g/n networks can also be used however WEP encrypted networks cannot.

MENU > SETTINGS > WI-FI

1. *Press* **MENU**.
2. *Navigate to* **Settings** *(use the* ***Navigator****).*
3. *Navigate to* **Wi-Fi** *and change the settings accordingly.*

   NOTE: The Wi-Fi function is set to **Off** *by default and you can only make changes to the Wi-Fi mode when it is in* **Off** *mode*
4. *Further settings are described below.*



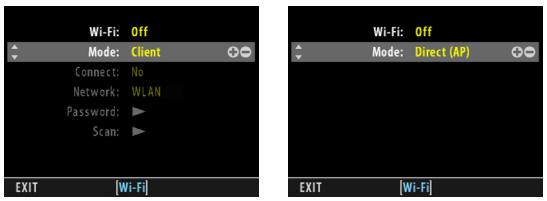
WI-FI MODES *(H5D-50c Wi-Fi model only)*

The Wi-Fi function has two modes of operation – **Client** and **Direct (AP)**.

- **Client** is when both the camera and the iPhone/iPad are connected to an *existing* Wi-Fi network.
- **Direct (AP)** is when the *camera creates a new* Wi-Fi network and an iPhone/iPad is connected to it. The name of the nework contains the camera serial number:

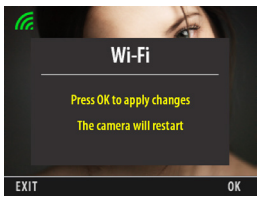
  E.g.: "**H5D-50c SQ34000123**"

  The IP address in Direct (AP) mode is always 192.168.0.11.



ACTIVATE SETTINGS *(H5D-50c Wi-Fi model only)*

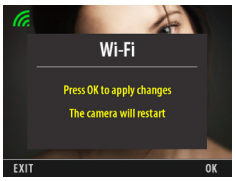
When changing Wi-Fi from **ON** to **OFF**, the sensor unit will re-start to activate the new settings. Pressing **OK** will re-start and **EXIT** will retain previous settings. The menu will be entered after re-start.

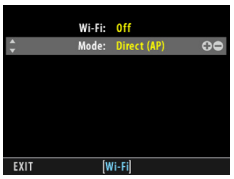


CONNECT DIRECTLY TO AN IPHONE/IPOD/IPAD (DIRECT (AP) MODE)

(H5D-50c Wi-Fi model only)

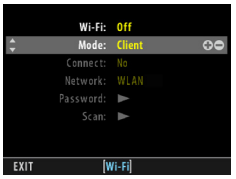
1. *Enter the Wi-Fi menu.*
2. *Make sure Wi-Fi is set to* **OFF**. *When changed from* **ON** *to* **OFF**, *a quick re-start will take place. The menu will be entered automatically.*
3. *Change Wi-Fi mode to* **Direct (AP)**.
4. *Set Wi-Fi to* **ON.**
5. *Exit from the menu.*
6. *Connect your iPhone/iPad to the network created by the camera. (Select the camera network in the Wi-Fi setting of the iOS menu). Then proceed as described on page 68.*

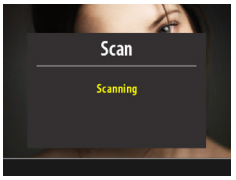


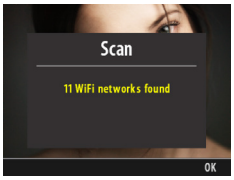


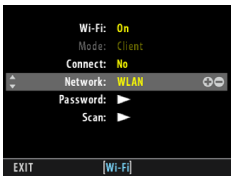
CONNECT TO AN EXISTING NETWORK (CLIENT MODE) *(H5D-50c Wi-Fi model only)*

1. *Enter the Wi-Fi menu.*
2. *If Mode is "***Client***" you can skip steps 2 to 4.*
3. *If Mode is "***Direct (AP)***" please make sure Wi-Fi is set to* **OFF**. *When changing from* **ON** *to* **OFF**, *a quick re-start will take place. The menu will be entered automatically.*
4. *Change Wi-Fi mode to* **CLIENT**.
5. *Set Wi-Fi to* **ON**.
6. *If you have moved to a new location, you willl need to search for new networks using the "Scan" menu item. This will retrieve a list a available networks. This step can be skipped if you are using a previously connected network. The Scan process will run automatically the first time the camera is used in Client mode.*
7. *Select the desired network from the list in "***Network***". If a password is required, enter that according to the description on page 67.*
8. *Change "***Connect***" to "***YES***"*
9. *Exit from the menu.*
10. *If the connection is working, the Wi-Fi icon on the rear display will be green. If it is red, please check the entered password. The password will be visible until the camera is turned off or re-started. After a restart you will only see "*****" in the password menu.*
11. *Exit from the menu.*
12. *Connect your iPhone/iPad to the same network as the camera. (Select network in the Wi-Fi setting of the iOS menu). Then proceed as described on page 68.*



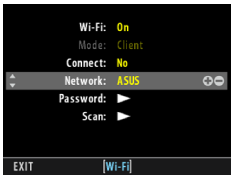


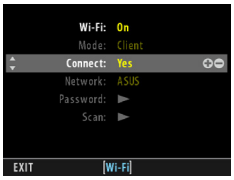




CHANGE TO A DIFFERENT CLIENT NETWORK *(H5D-50c Wi-Fi model only)*

1. *Enter the Wi-Fi menu.*
2. *Set "***Connect***" to* **No**.
3. *Select a different network in the "***Network***" menu item. If required perform a* **Scan** *and enter a new password.*
4. *Set "***Connect***" to* **Yes**.
5. *Exit from the menu.*
6. *Connect your iPhone/iPad to the network created by the camera. (Select network in the Wi-Fi setting of the iOS menu). Then proceed as described on page 68.*

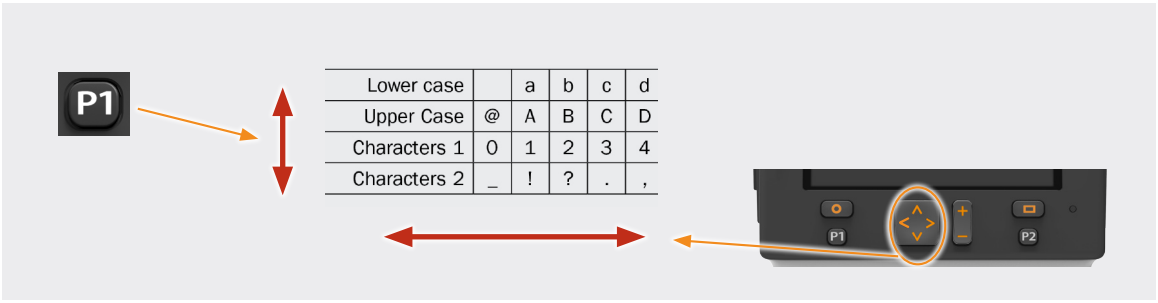




WI-FI CONNECTION *(H5D-50c Wi-Fi model only)* CONTINUED

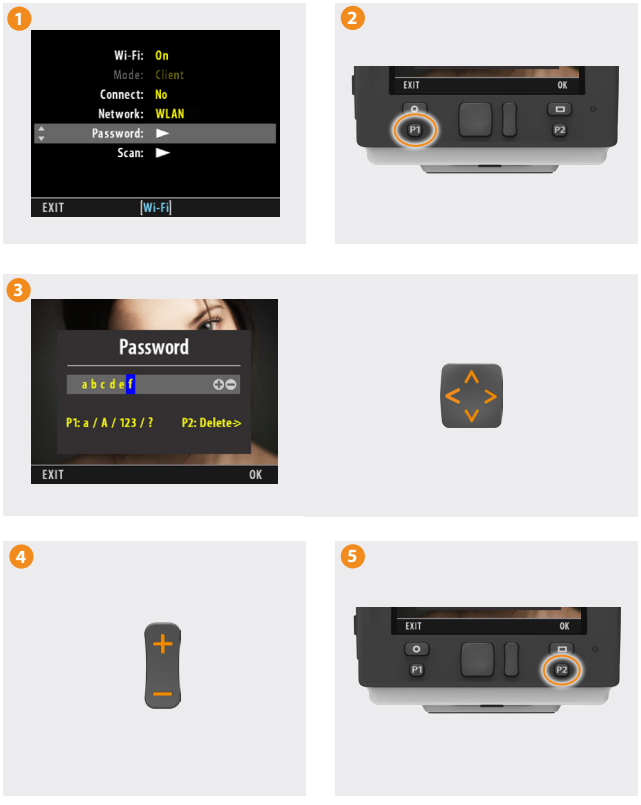
MENU > SETTINGS > WIFI > WIFI ON > PASSWORD

If the network is password protected using WPA or WPA2 encryption, then a password must also be entered at this point. The available characters required for a password are illustrated in the chart below. The characters are divided into and viewed as four separate lines - Lower case, Upper case, Numbers and Special characters - and then searched for and selected. The lines are accessed by pressing the **P1** button on the sensor unit. For example, press the **P1** button to display *Lower case* for the letter "a" and press **P1** again to display *Upper case* for the letter "B", and so on.



Proceed as follows:

1. *Ensuring that* **WiFi** *is set at* **OFF**, *select* **Password** *to access the password dialogue.*
2. *Press the* **P1** *button on the sensor unit to select and view the chosen line of characters (Lower case, Upper case etc).*
3. *Using either the* **Navigator**, *locate the desired character (indicated by a blue background).*
4. *Select a character by pressing either the* **Zoom/ Selection** *button.*
5. *To delete an incorrect character in the password, locate the character again in the list as before then press the* **P2** *button. The chosen character and all characters to the right of it in the password will then be deleted.*
6. *To change a character in the password, just highlight it and change it by pressing the* **Zoom/Selection** *button.*



Possible characters

Lower case		a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z
Upper Case	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
Characters 1	0	1	2	3	4	5	6	7	8	9	+	-	*	/	=	<	>	(	)	[	]	{	}	~	^	%	#
Characters 2	_	!	?	.	,	:	;	$	&	"	´	`	\	|	-	!	_	9	8	7	6	5	4	3	2	1	0

WI-FI CONNECTION VIA PHOCUS MOBILE *(H5D-50c Wi-Fi model only)*

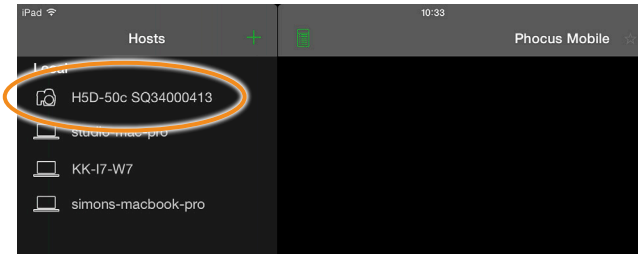
Assuming that an iPhone/iPod/iPad is connected to:

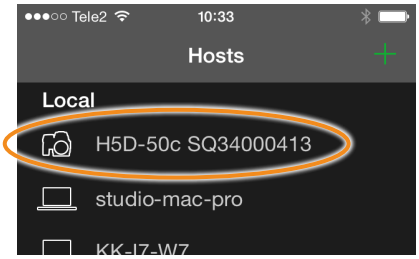
a) ***the same network as you intend to use***, or that

b) ***a Direct (AP) connection has already been established***,

you will see a list of connected cameras and Phocus applications running under **Hosts**. Cameras appear as camera icons together with their specific serial numbers. Click on the camera icon with the relevant serial number to connect.

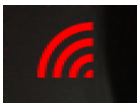
Please note that in **Direct (AP)** mode, only one iPhone/iPod/iPad can be connected at the same time.





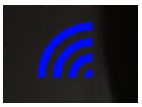
Connectable cameras appear under Hosts in Phocus Mobile..

The rear display on the camera will indicate the status of the Wi-Fi connection with different coloured icons:



RED: *Not connected.*

GREEN: *Connected to the Wi-Fi network but not to Phocus Mobile.*

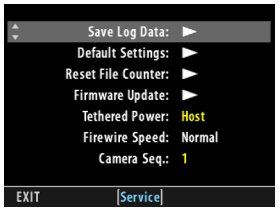


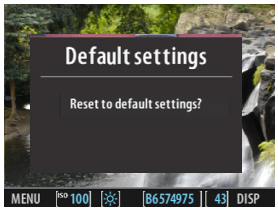
BLUE: *Connected to both the Wi-Fi network and to Phocus Mobile.*

SETTINGS > GPS

Only possible with the H5D/H5X camera body and the GIL GPS accessory

SETTINGS > SERVICE





SERVICE

MENU > SETTINGS > SERVICE

1. *Press* **MENU**.
2. *Navigate to* **Settings** *(use the* **Navigator***).*
3. *Navigate to* **Service** *(use the* **Navigator***).*
4. *Navigate to required item (use the* **Navigator***).*
5. *Press the* **ZOOM** *button to step through options.*
6. *Save the chosen selection by pressing* **EXIT** *(*MENU *button).*

SaveLogdata saves a log file on the CF card.

Default Settings resets all sensor unit settings back to factory settings. See the Appendix in this manual for a detailed list of the default settings.

Reset File Counter resets capture numbering to B0000001.

Firmware update: Download the latest firmware update for the sensor unit from the Hasselblad website. Unzip the file first and then transfer the ".cim" file to a CF card. Insert the card in the camera and navigate to "Firmware update". The sensor unit will then automatically update.

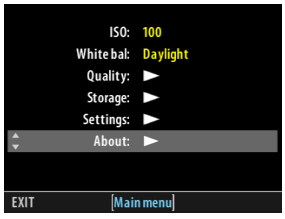
Tethered power This setting is only valid when using an H5D/H5X camera body. When the sensor unit is used on another camera, the setting should always be set to "Host".

It offers options when using a Thunderbolt to FireWire adapter, for example, on a MacBook Pro. This particular configuration does not supply enough power to the camera from the computer so in this case the "Camera" option should be selected. Select "Host" for all other configurations.

Firewire speed displays the setting for the current transfer rate.

Camera Sequence is an internal setting and only used with an H5D/H5X camera body. Should always be set to 1.

SETTINGS > ABOUT



ABOUT

MENU > SETTINGS > ABOUT

The About box will tell you which firmware version is present so you can see if you have the latest (which can be downloaded from the Hasselblad website). The serial number is also displayed in case Hasselblad Support need to know it for any eventual problem solving.

The About box also shows the focus calibration ID. This is only relevant when using the sensor unit on an H5D/H5X camera body.

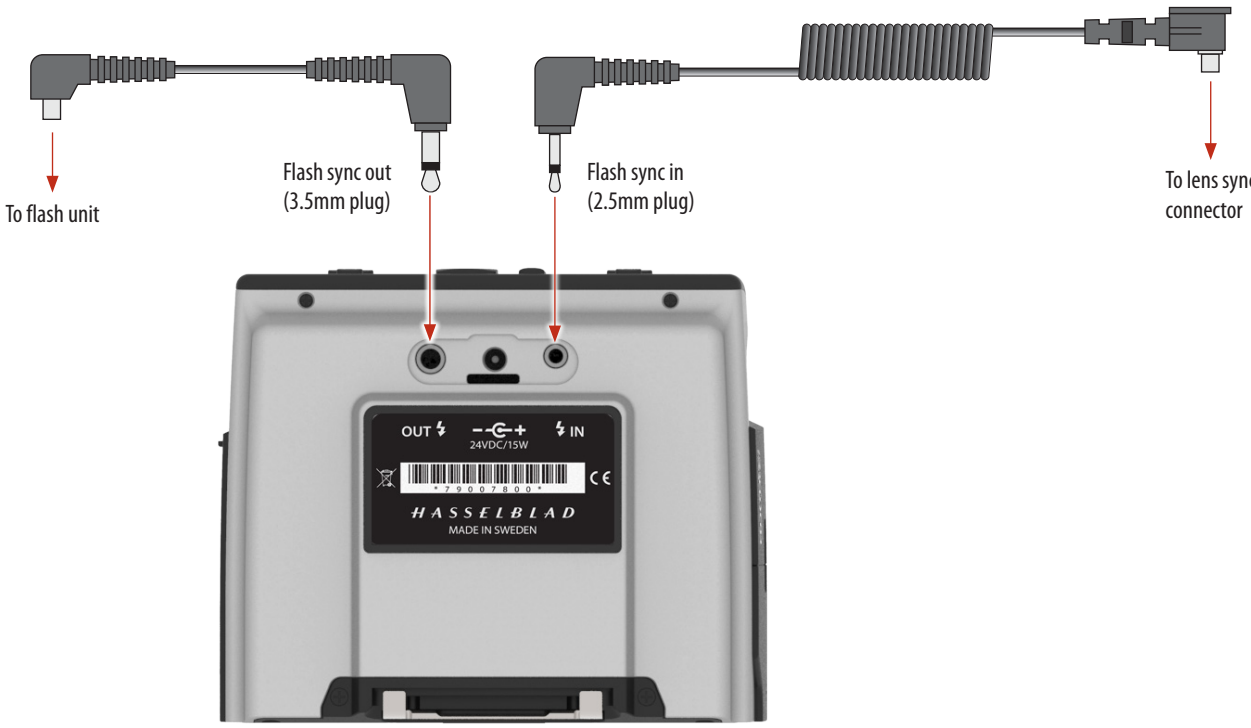
1. *Press* **MENU**.
2. *Navigate to* **Settings** *(use the* **Navigator***).*
3. *Navigate to* **Service** *(use the* **Navigator***).*
4. *Navigate to* **About** *(use the* **Navigator***).*

FLASH / STROBE

Photo: Bara Prasilova © / Hasselblad Masters

FLASH / STROBE

When using external flash units, the connection should be made as shown in the illustration below.



The image above shows the flash sync in and out connectors. The image to the left shows these connections with the battery adaptor kit in place.

FLASH SYNC WITH ELECTRONIC SHUTTERS

The use of an electronic shutter with a flash sync connection may be more convenient as it prevents the user disturbing the lens to adjust exposure settings or allow easier access to make these adjustments. Please note that using an electronic shutter in this way requires a control panel from the manufacturer to allow aperture selection, shutter Speed and capture control.

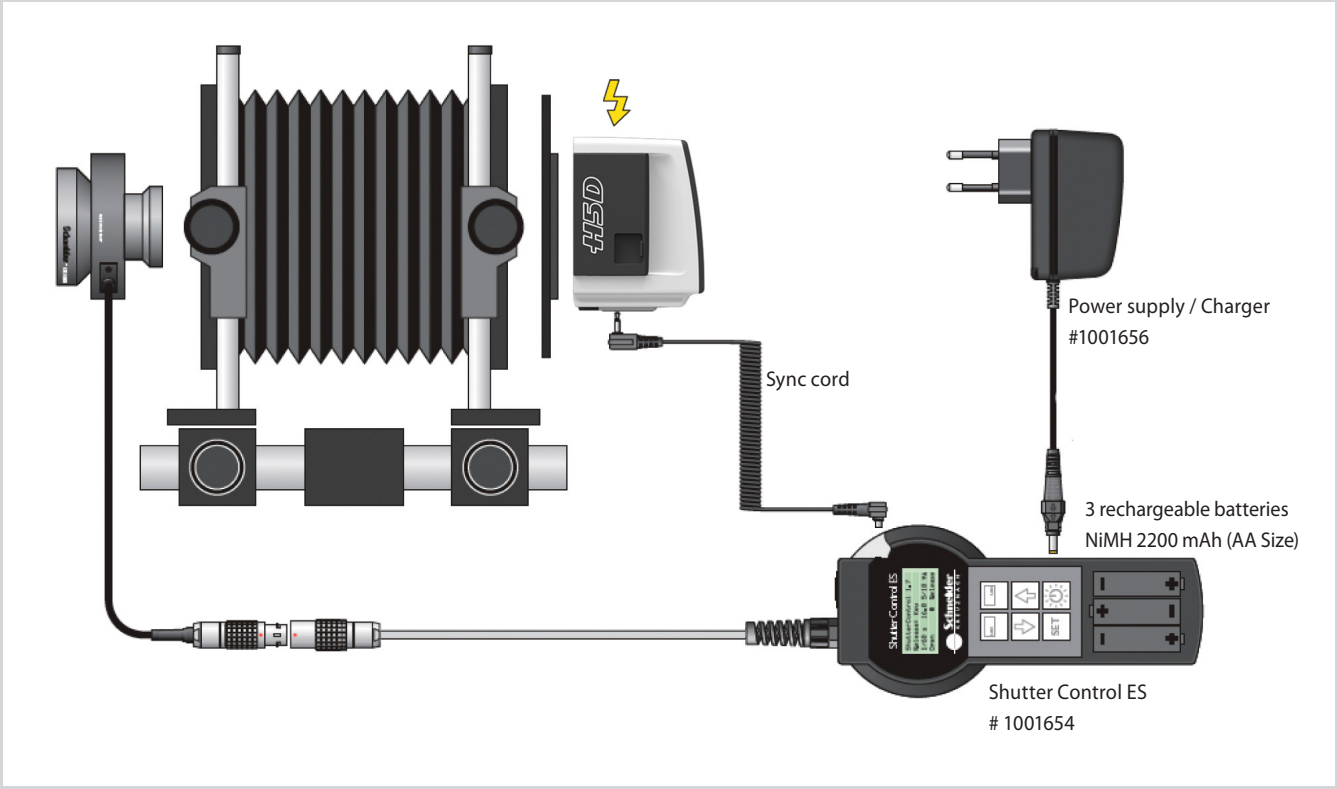
Two systems are supported by Hasselblad, from Schneider and Rollei.

Both of these systems comprise a battery or mains powered control unit, connection interface to the electronic shutter / lens connection interface to a digital capture unit (not used in this case) and flash synchronisation output. The control unit will allow the user to select aperture value, shutter speed and trigger the exposure.

Below are connectivity diagrams for Schneider and Rollei using Flash Sync connections. These use the Shutter Control ES and LensControl S respectively. The yellow flash symbol shows where external flashshould be connected if needed (the Sync Out port on the sensor unit).

In this case the HxD digital unit is shown, but the same applies for the CF, CFV and CWD products.

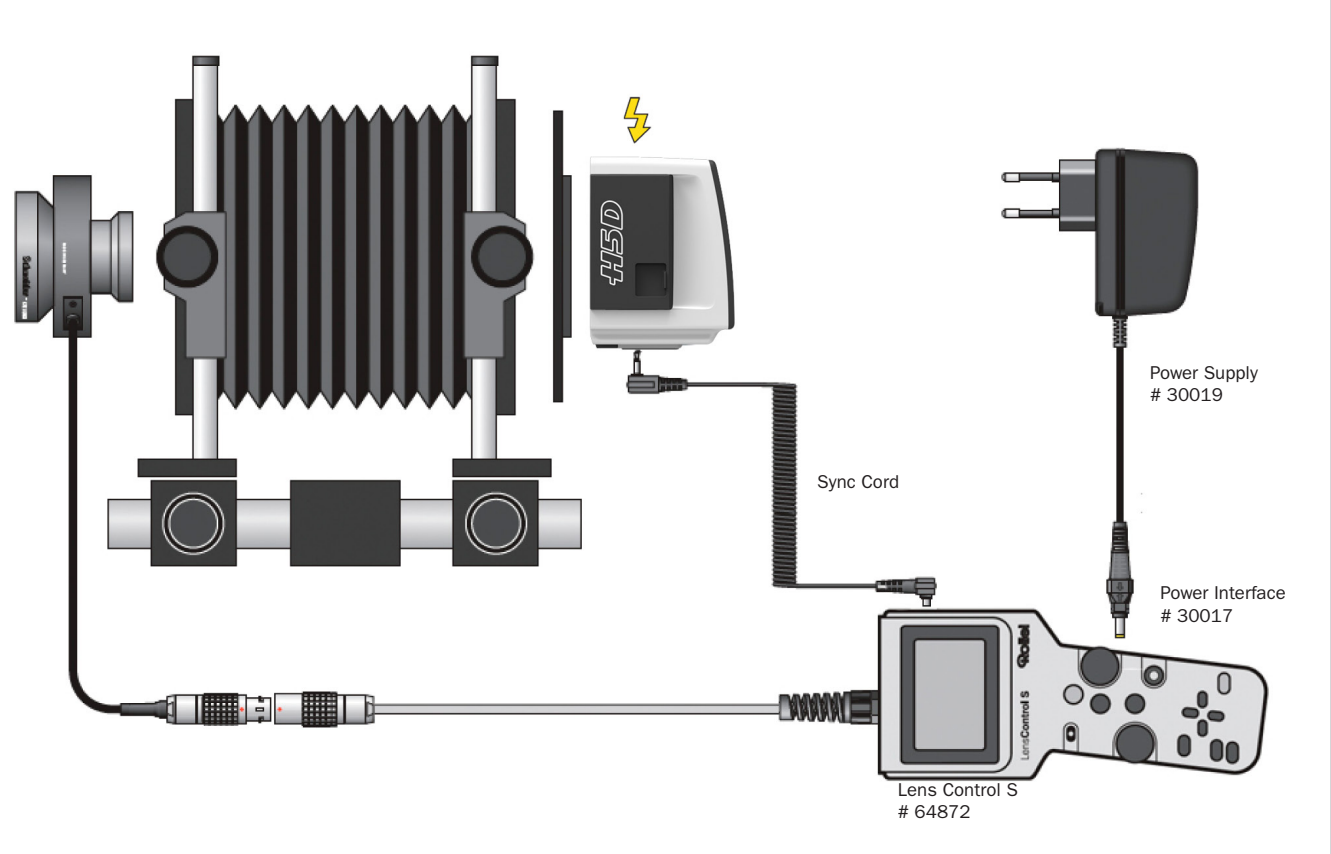
SCHNEIDER – SHUTTER CONTROL ES



Schneider and Rollei (with the exception of the sync cord) supply all cables and equipment.

A summary of all parts needed is at the end of this document.

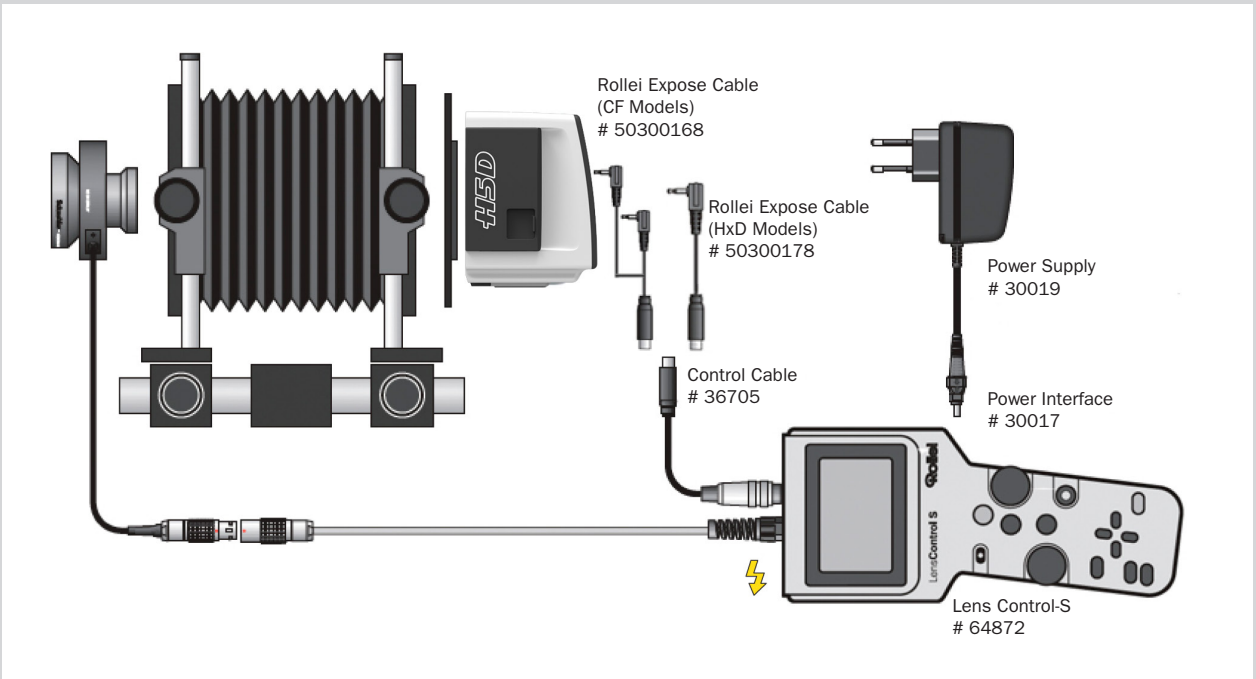
Rollei Lens Control S



ROLLEI ELECTRONIC SHUTTER CONNECTIONS - ROLLEI LENS CONTROL S

Unlike the Schneider system, the Rollei Lens Control - S must be used in conjunction with a control panel. This will allow use of a

Hasselblad sensor unit in a studio or portable situation, either working tethered to a computer with Phocus running or working untethered capturing to Compact Flash media.

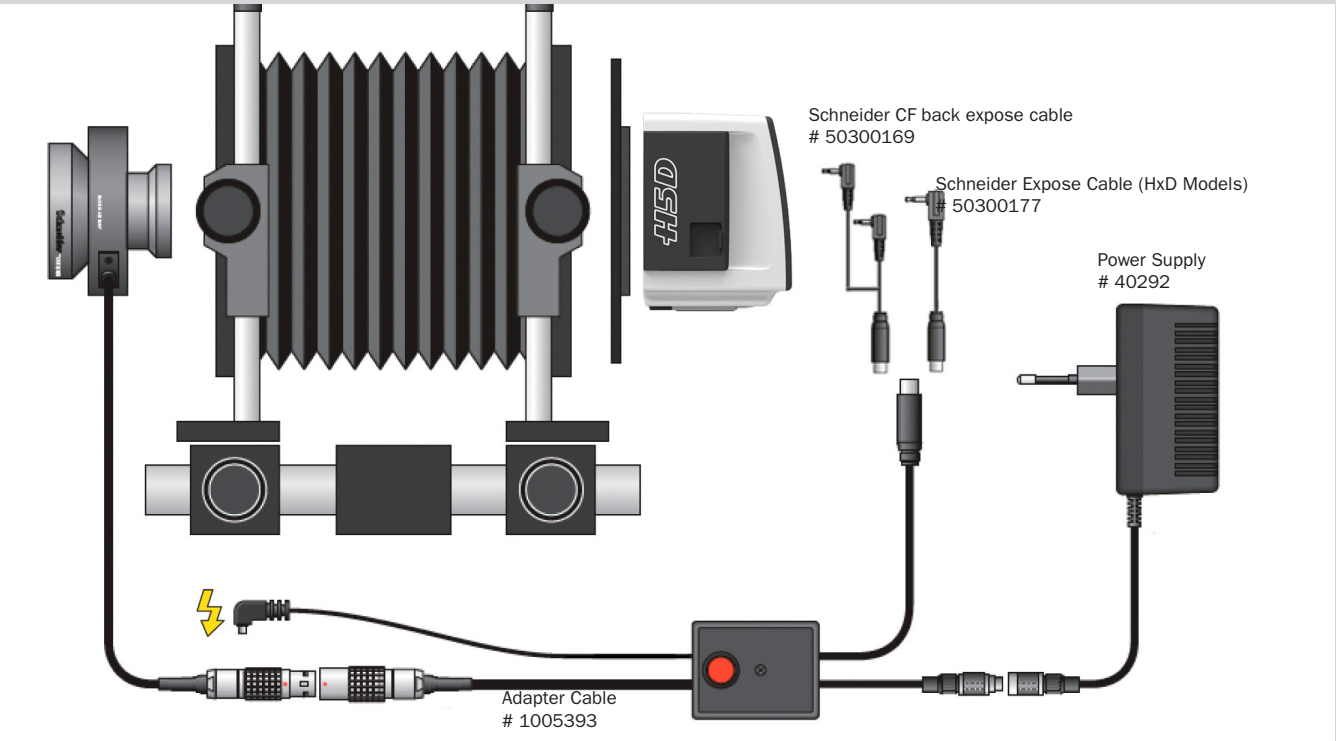


SCHNEIDER ELECTRONIC SHUTTER CONNECTIONS

This system works with a simple cable connection and small control box.

This has a single red button that is only used for opening and closing the shutter for focus and composition.

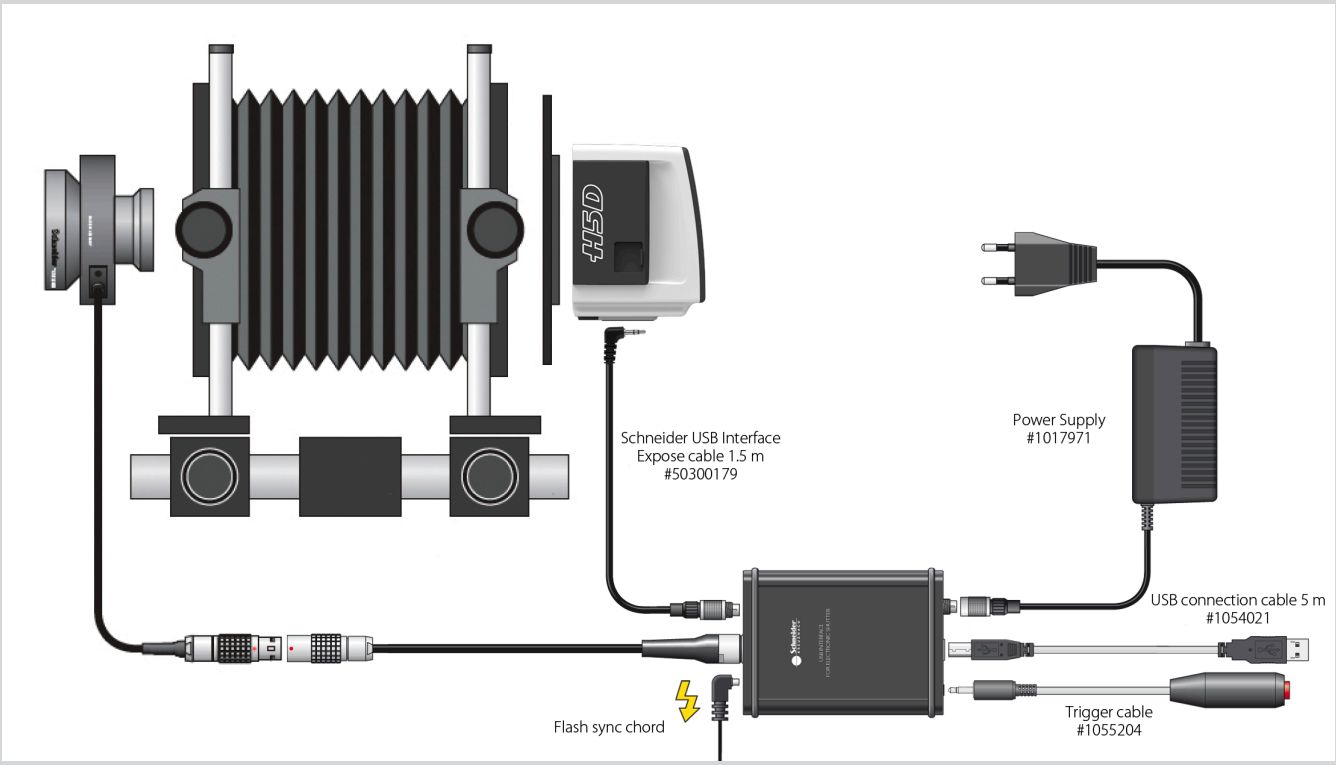
All aperture settings, shutter speeds and triggering capture are made from Phocus.



SCHNEIDER – USB INTERFACE

The Schneider USB adapter is supported via a single cable connected to the Hasselblad sensor unit.

Aperture, shutter speed settings and capture are controlled via the Schneider software with 'Camera' on the sensor back menu set to 'Pinhole' mode. The exposure is then initiated via Phocus software. This also allows for multi-shot captures.



Parts Summary and Links

ITEM	ITEM NO.	SUPPLIER
FLASH SYNC CONNECTION WITH MANUAL / COPAL SHUTTERS		
Camera Sync Cable from lens to digital capture unit	50300122	Hasselblad
Flash generator Sync Cable with protecting fuse	50300136	Hasselblad
FLASH SYNC CONNECTION WITH ELECTRONIC SHUTTERS – SCHNEIDER		
Power Supply / Charger	1001656	Schneider
Shutter Control ES	1001654	Schneider
Camera Sync Cable from lens to digital capture unit	50300122	Hasselblad
3 x NiMH 2200mA (AA size)	N/A	By user
FLASH SYNC CONNECTION WITH ELECTRONIC SHUTTERS – ROLLEI		
Power Supply	30019	Rollei
Power Interface	30017	Rollei
Camera Sync Cable from lens to digital capture unit	50300122	Hasselblad
Lens Control SKL	64872	Rollei
FULL CONTROL WITH ELECTRONIC SHUTTERS – SCHNEIDER		
Adapter Cable	1005393	Schneider
Power Supply	40292	Schneider
HxD Expose Cable	50300177	Hasselblad
CF back Expose Cable	50300169	Hasselblad
Schneider USB Interface Expose cable	50300179	Hasselblad
FULL CONTROL WITH ELECTRONIC SHUTTERS – ROLLEI		
Lens Control-S	64872	Rollei
Power Supply	30019	Rollei
Power Interface	30017	Rollei
Control Cable	36705	Rollei
H3D Expose Cable	50300178	Hasselblad
CF back Expose Cable	50300168	Hasselblad

MULTI SHOT

Photo: Martin Schubert © / Hasselblad Masters

MULTI SHOT

Apart from regular 1-shot captures, the 50cMS sensor unit also offers 4-shot captures while the 200cMS unit offers 4- or 6-shot captures. Multi-shot captures are made of the same scene with the sensor offset very slightly for each shot. The resulting image shows ultimate color definition and eliminates unwanted moiré and artefacts. Both models produce undeniable and obvious improvements in technical quality in 4-shot mode while the 200cMS sensor unit raises the bar even further in 6-shot mode for special assignments.

To make a multi-shot capture, you must work tethered to a computer and have Hasselblad Phocus running. From the capture menu simply choose 'Multi-shot' and Phocus takes care of the operation automatically [1]. The captures are then saved as 3F files directly into the capture destination folder as normal.

The technology behind the multi-shot feature is high precision piezo controlled movements of the sensor. In the case of a 200cMS 6-shot capture sequence, for example, four separate shots are taken in succession in pixel sized increments (one for each color, but with green captured twice for extra sharpness), followed by two more captures moved by half-pixel increments to fill most of the gaps. These six files are then combined into a single, extremely high-resolution image. Apart from the elimination of unwanted moiré and artefacts, captures taken in multi-shot mode will be much sharper and contain much more detail than single-shot images. They therefore will also stand up to much greater enlargement later in production.

In use, it is essential to ensure that there is no movement in either the camera or the subject. Therefore the multi-shot capability is only suitable for tripod/camera stand use for studio-like environments and stationary subjects such as technical or product shots and similar under stable lighting conditions. However, in single shot mode both the models also function exactly as a standard model with all the specifications, features and benefits of regular H5D sensor units.

Download the H5D-200cMS and H5D-50cMS datasheets from **www.hasselblad.com** for a full description.

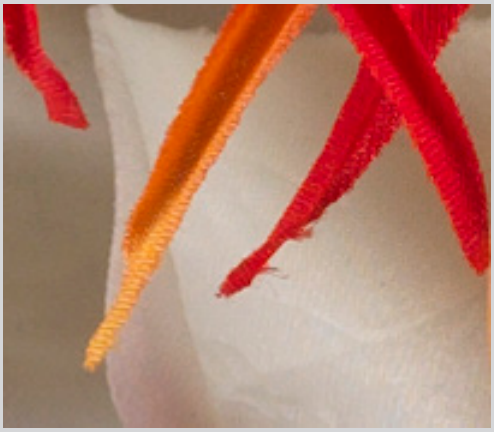
200cMS

50cMS

[1] *Only available with electronic shutters*

This image was taken in both 1-shot and 6-shot mode to illustrate the increase in quality that the 6-shot mode produces. The 6-shot image has finer details and completely lacks the color moiré that can appear in such very small details.

Enlargement of artificial flower petals taken from this area.



'1-shot' mode

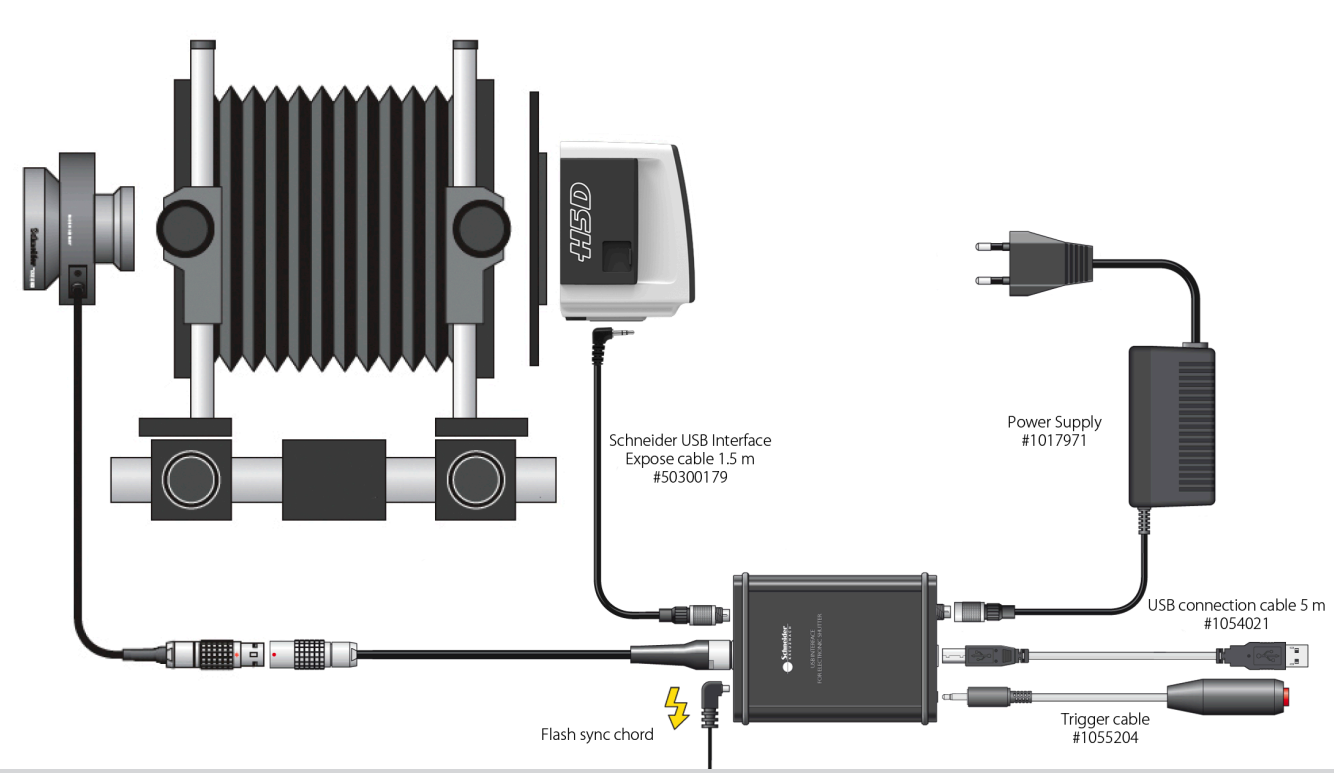
'6-shot' mode

MULTI SHOT

When utilising the 50cMS or 200cMS digital backs with a technical camera you will need to ensure you are using an electronic shutter with your chosen lens. This is the only way to enable the multi shot exposures to take place.

The recommended method is to utilise a USB based shutter control as this will enable Phocus to intiate the exposure sequence once the basic settings have been carried out in the shutter controllers software (Shutter speed and required aperture). Systems using a seperate hand controller can be used but will entail additional setup to function properly with the MultiShot backs.

The image below shows a typical connectivity chart for using a USB based system with the Multishot backs (see Flash / Strobe section for other alternatives).



It is essential that you set the digital back to the the correct setting for the flash sync as well as the required digital back exposure time. The default for this is 1/8sec.

MENU > SETTINGS > CAMERA

1. *Press* **MENU**.
2. *Navigate to* **Settings** *(use the* ***Navigator****).*
3. *Navigate to* **Camera** *(use the* ***Navigator****).*
4. *Navigate to required item (use the* ***Navigator****).*
5. *Press the* **ZOOM** *button to step through options.*

Settings / Body:

Flash sync: For regular use with view cameras with mechanical shutters.

Pinhole: Intended primarily for use in a studio environment where complete darkness can be achieved and captures made accordingly (also useful for 'light painting').

Lens Ctrl S: For use with the Rollei Lens shutter hand controller.

Exposure time: 1/8 sec > 34 minutes.

APPENDIX

Photo: Bryn Griffiths © / Hasselblad Masters

TECHNICAL SPECIFICATIONS

	H5D-40	H5D-50	H5D-60
Sensor type	CCD		
Sensor size	40 Mpix (5478 × 7304)	50 Mpix (6132 × 8176)	60 Mpix (6708 × 8956
Sensor dimensions	32.9 × 43.8 mm	36.7× 49.1 mm	40.2 × 53.7 mm
Pixel size	5.3 µm	6.0 µm	6.0 µm
Image size	RAW capture 50 MB on average. TIFF 8 bit: 120 MB	RAW capture 65 MB on average. TIFF 8 bit: 150 MB	RAW capture 80 MB on average. TIFF 8 bit: 180 MB
RAW file format	Lossless compressed Hasselblad 3FR		
JPEG	1/4 resolution print ready files with HNC		Not available
Shooting mode	Single shot		
Color definition	16 bit		
ISO speed range	100, 200, 400, 800 and 1600	50, 100, 200, 400 and 800	80, 100, 200, 400 and 800
Color management	Hasselblad Natural Color Solution		
CF storage capacity	16 GB CF card holds 300 images on average	16 GB CF card holds 240 images on average	16 GB CF card holds 200 images on average
Display	3 inch TFT type, 24 bit color, 460.320 pixels		
Storage options	CF card type U-DMA (e.g. SanDisk Extreme Pro) or tethered to Mac or PC		
Acoustic feedback	Yes		
Software	Phocus for Mac and Windows (included). Adobe® Photoshop® Lightroom® (included)		
Tethered operation	Supported in Phocus by Hasselblad and Hasselblad Tethered plug-in for Adobe® Photoshop® Lightroom®		
Platform support	Macintosh: OS X 10.5 or later. Windows: XP, Vista, Windows 7 (from version 2.8, 64 bit only), Windows 8		
Host connection type	FireWire 800 (IEEE 1394b). Thunderbolt supported via optional adapters.		
View camera compatibility	Mechanical shutters controlled via flash sync, electronic shutters controlled by Phocus. Optional Battery Adapter for stand-alone operation		
Customization	2 programmable buttons		
Power supply	Firewire or external power source (12-24 VDC/18W). Optional Battery Adapter for stand-alone operation of sensor unit.		
Operating temperature	0 - 45 ˚C / 32 - 113 ˚F		
Dimensions [W×H×D] Weight	96 × 85 × 63 mm 657 g	96 × 85 × 63 mm 657 g	96 × 85 × 63 mm 657 g

** Victor Hasselblad AB reserves the right to make changes without notice to the above specifications.*

TECHNICAL SPECIFICATIONS

	H5D-50c	H5D-50c Wi-Fi	H5D-50c MS	H5D-200c MS
Sensor type	CMOS			
Sensor size	50 Mpixels (8272 × 6200 pixels, 5.3 × 5.3 µm)			
Sensor dimensions	43.8 × 32.9 mm			
Pixel size	5.3 µm			
Image size	RAW capture 65 MB on average. TIFF 8 bit: 154 MB		RAW capture 75/250 MB on average. TIFF 8 bit: 150/150 MB (1-shot/4-shot)	RAW capture 75/250/400 MB on average. TIFF 8 bit: 150/150/600 MB (1-shot/4-shot/6-shot)
RAW file format	Lossless compressed Hasselblad 3FR			
JPEG	1/4 resolution print ready files with HNC		Not available	Not available
Shooting mode	Single shot		Multi shot	Multi shot
Color definition	16 bit			
ISO speed range	100, 200, 400, 800, 1600, 3200 and 6400			
Colour management	Hasselblad Natural Colour Solution			
CF storage capacity	16 GB CF card holds 240 images on average			
Display	3 inch TFT type, 24 bit colour460.320 pixels			
Storage options	CF card type UDMA (e. g. SanDisk Extreme Pro) or tethered to Mac or PC			
Live view	Yes			
Acoustic feedback	Yes			
Software	Phocus for Mac and Windows (included). Adobe® Photoshop® Lightroom® (included)			
Tethered operation	Supported in Phocus by Hasselblad and Hasselblad Tethered plug-in for Adobe® Photoshop® Lightroom®			
Platform support	Macintosh: OS X 10.6 or later. Windows: XP, Vista, Windows 7 (from version 2.8, 64 bit only), Windows 8			
Host connection type	FireWire 800 (IEEE 1394b). Thunderbolt supported via optional adapters.			
View camera compatibility	Mechanical shutters controlled via flash sync, electronic shutters controlled by Phocus. Optional Battery Adapter for stand-alone operation			
Customisation	2 programmable buttons			
Wi-Fi standards		802.11 a/b/g/n		
Wi-Fi modes		Client mode and Direct mode (access point)		
Power supply	Firewire or external power source (12-24 VDC/18W). Optional Battery Adapter for stand-alone operation of sensor unit.			
Operating temperature	0 - 45 ˚C / 32 - 113 ˚F			
Dimensions [W×H×D] Weight	96 × 85 × 63 mm 610 g	96 × 85 × 63 mm 610 g	96 × 85 × 80 mm 877 g	96 × 85 × 80 mm 877 g

** Victor Hasselblad AB reserves the right to make changes without notice to the above specifications.*

CHANGING UNKNOWN LANGUAGE ON SENSOR UNIT

MENU > SETTINGS > USER INTERFACE > LANGUAGE

If the sensor unit has been set to a language you don't understand (on a rented camera, for example), you can navigate to your preferred language by following the actions and appearance in the illustrations here.

1. *Press* **MENU** ❶ .
2. *Navigate to* **Settings** ❷ **(the fifth menu entry from the top)** *(use the* ***Navigator****).*
3. *Navigate to* **User Interface** ❸ **(the first menu entry)** *(use the* ***Navigator****).*
4. *Navigate to* **Language** ❹ **(the first menu entry)** *(use the* ***Navigator****).*
5. *Press the* **ZOOM** *button* ❺ *to step through options until you see your preferred language.*
6. *Save the chosen selection by pressing* **EXIT** *(***MENU** *button).*

❶ *Press MENU button*

❷ *Navigate to fifth menu entry from the top*

❸ *Navigate to first menu entry from the top*

❹ *Navigate to first menu entry from the top*

❺ *Choose new language with zoom button*

RECOMMENDED CF CARDS FOR H5D SENSOR UNITS

Card type	Size GB	Marked speed
Lexar Professional Compact Flash	8	800x
Lexar Professional Compact Flash	16	1000x
SanDisk Extreme Compact Flash	8	60 MB/s
SanDisk Extreme Compact Flash	16	90 MB/s
UDMA 6 SanDisk	32	90 MB/s
UDMA 6 SanDisk	64	90 MB/s
UDMA 7 SanDisk	128 [1)]	100 MB/s

Please ensure you format all previously unused cards in the sensor unit before use.

Do not remove a CF card from the sensor unit if the 'ready' light is orange. All files on the card may become corrupted (and consequently lost) if you do so and new formatting may also be necessary.

[1)] Note: Cards larger than 128 GB will be formatted to 128 GB

PROBLEMS, EQUIPMENT CARE & SERVICE

The H5D is a very sophisticated camera system that relies on much information being passed and processed to and from each modular back to produce the correct behavior. It is therefore essential that reasonable care is taken in attaching, detaching and storing the viewfinder, lenses, extension tubes, etc to ensure that the databus connections are not damaged or soiled in any way. Also when lifting or handling the camera try to always use the grip or strap and avoid holding the camera just by the sensor unitor viewfinder.

Warning messages are normally easily addressed and remedied but 'Error' messages require further attention as they denote a fault, temporary or otherwise. You should methodically investigate the situation to see for example whether the recent attachment of an accessory has coincided with the appearance of an error message. Standard procedure is to detach and re-attach the viewfinder, lens etc ensuring that they are positioned firmly and correctly to see whether the problem disappears. Failing that, removal of the battery grip for about ten seconds or so will reset the camera's processors. Persistent error messages might well signify a more complex problem and you are advised to contact your nearest Hasselblad Authorized Service Center for advice. You may receive a feedback report on either the grip display or the capture back display. Please note this message carefully as it can facilitate support response greatly, as well as improve on firmware updates . As well as the error message, a description of the camera's behavior and an account of what action you were trying to take when it happened could be also beneficial. Also, please remember that if a hardware check is to be made, the Center will almost certainly want to inspect all of the items that were involved when the error message first appeared.

In certain situations, it is possible that the camera can be affected by a discharge of static electricity particularly if the area around the control buttons on the grip comes into contact with a conductive cord or material that is connected to earth, directly or indirectly (a lighting stand, for example). This might temporarily deactivate the camera though it does not cause any damage. Press the red ON.OFF button on the grip again to reactivate the camera.

If a problem does occur you are advised not to attempt any repairs yourself. Some service operations require very sophisticated instruments to check, measure and adjust and there is a real danger of creating more problems than solving them if such attempts are made in any other way.

EQUIPMENT CARE

A Hasselblad camera is designed to withstand the rigors of professional use in most environments. To avoid the possibility of damage however, it should be protected from harsh conditions and in particular avoid oil fumes, steam, humid conditions and dust.

Extremes of temperature: High temperatures can have an adverse effect equipment. Avoid frequent and severe temperature changes and be particularly careful in humid environments. If entering damp or humid conditions from dry and cold conditions, seal all equipment in a plastic bag or similar first before entering and then wait until the equipment has acclimatized to the new temperature before removing. Failure to do so can cause condensation internally as well as externally which can lead to problems particularly in regard to sensor units. Try to ensure the environment or conditions are as dry as possible when storing.

Dust and grit: Take care to prevent dust and grit from getting into your equipment. In coastal areas take measures to protect your equipment from sand and salt water spray. Dust on the lens glass and focusing screen can be removed with a blower brush or very soft lens brush if necessary. Smears on the lens glass should be treated with great caution. In some cases they may be removed with a high quality lens cleaning solution on a tissue but be careful not to scratch the lens or touch any of the glass surfaces with your fingers. If in any doubt, do not attempt to clean lens glass surfaces yourself but allow a ***Hasselblad Authorized Service Center*** to treat them.

Impact: Your equipment can be damaged by severe physical shocks so practical protective precautions should be taken. Some form of protective case or camera bag is advised for transportation.

Loss: 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. You can easily keep a check on service intervals by looking under 'Info' in the menu. If your camera is used constantly and intensively, regular periodic check-ups are recommended at one of the ***Hasselblad Authorized Service Centers***. They have the expert staff and specialised equipment necessary to ensure that your equipment remains in perfect working order.

CAUTION

- Keep all equipment and accessories out of the reach of small children.
- Do not place heavy objects on the equipment.
- Do not use the batteries except as specified.
- Use only the batteries specified for use with the camera.
- Remove the batteries when cleaning the camera or if you intend to leave the camera unused for a long period.
- If you use spare (standard or rechargeable) battery packs be particularly careful to use the supplied protective cap 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).
- A warning that batteries (battery pack or batteries installed) shall not be exposed to excessive heat such as sunshine, fire ot the like.
- Take particular care when working with strobe / studio flash units to prevent damage to equipment and personal injury.
- Do not attempt to open the sensor unit.
- Keep the sensor unit and all other computer equipment away from moisture. If the sensor unit becomes wet, disconnect from power and allow it to dry before attempting to operate again.
- Never cover the ventilation openings on the sensor back.
- Always replace the protective CCD/filter cover when the sensor unitis not connected to the camera.
- Never try to remove the glass IR filter from the front of the CCD; this will probably ruin the CCD. If dust manages to get between the CCD and IR filter, please contact your Hasselblad dealer for assistance.

Disposal of Waste Equipment by Users in Private Households in the European Union

This symbol on the product or on its packaging indicates that this product must not be disposed of with your other household waste. Instead, it is your responsibility to dispose of your waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can dispose of your waste equipment for recycling, please contact your local city office, your household waste disposal service or the retailer where you purchased the product.

DEVICE COMPLIANCE

FCC

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

INDUSTRY CANADA STATEMENT

This device complies with Industry Canada's licence-exempt RSSs. Operation is subject to the following two conditions: (1) This device may not cause interference; and (2) This device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

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