HASSELBLAD

User Manual

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Welcome to Hasselblad !

The sensational Hasselblad H4D builds on and expands the impressive feature set of the much praised H3D camera-line. Developments have raised the bar for medium format photography, placing Hasselblad in first place around the world yet again.

Hasselblad cameras, famed for quality and reliability, were chosen to record the lunar missions – there could hardly be better praise than that. Hasselblad continues the tradition of building on well proven technologies, refining and improving to raise standards, always to produce a better product. By using Hasselblad equipment you share the decision made by of some of the world's best and most famous photographers. Congratulations on picking a winner – you won't be disappointed.

Medium Format digital capture advantage

In digital photography, the advantages of large format cameras have become even more obvious. The 6×4.5 cm window allows the H4D to use the largest image sensors currently available in digital photography – up to more than twice the physical size of a 35mm camera sensor. Consequently the sensor holds more and larger pixels, which deliver the highest possible image quality in terms of moiré-free color rendering without gradation break-ups in even the finest lit surfaces.

H4D features in abundance

- 'True Focus' with 'APL' (Absolute Position Lock) – patent pending, making auto-focus substantially easier and more accurate for photography professionals.
- The ability to choose between working tethered or untethered to get the most of your camera system both on location and in the studio.
- H System lens line includes 11 auto-focus lenses, all with central lens shutters. Range from 28mm to 300mm, 35-90mm zoom, 50-110mm zoom, and 1.7x converter.
- Lenses at lens factor 1.0 and HCD lenses at lens factor 1.0 with a marginal crop.
- Central lens shutters, with flash sync speed up to 1/800s.
- Improved AF assist illumination for working in dark environments.
- Interchangeable waist-level viewfinder (optional accessory).
- HTS 1.5 tilt/shift adapter (optional accessory) providing portable tilt/ shift solution for 5 H System lenses ranging from 28mm to 100mm.
- CF lens adapter (optional accessory) allows use of the classic CF-lenses from the Hasselblad V-camera.
- Option of processing raw images in Hasselblad's Phocus imaging toolbox, or work-Ing with your raw images directly in Apple or Adobe imaging environments.

This list is just a selection of the professional level features expected from a professional level tool. There are plenty more.

An impressive lens line

The highly renowned H System lens line includes 11 Auto-Focus lenses, all with central shutters. Range is from 28mm to 300mm, 50-110mm zoom, 35-90mm zoom and 1.7X converter. The HTS 1.5 tilt/shift adapter delivers an easy to use, portable tilt/shift solution for 5 H System lenses ranging from 28mm to 100mm. The CF adapter (optional accessory) allows use of the classic CF-lenses from the Hasselblad V System, with full use of their central shutters, allowing flash to be employed at shutter speeds up to 1/500s. The central shutter also improves image quality by reducing camera vibration. And thanks to the large format of the H System cameras, there is a considerably shallower depth of field range, making it much easier to utilize selective focus to creative effect. In this way the full HC lens program is even further enhanced, bringing a new level of sharpness and resolution.

Two modes of operation and storage

The H4D offers a storage choice of either CF cards or a direct computer hard drive connection. With these two operating and storage options, you are able to select a mode to suit the nature of the work in hand, whether in the studio or on location.

True Focus

True Focus helps solve one of the most lingering challenges that faces serious photographers today: true, accurate focusing throughout the image field. The traditional solution for most DSLRs has been to equip the camera with a multi-point AF sensor but it only resolves some issues. To overcome this problem, Hasselblad has used modern yaw rate sensor technology to measure angular velocity in an innovative way. The result is the new Absolute Position Lock (APL) processor, which forms the foundation of Hasselblad's True Focus feature.

Ultra-Focus

Ultra-Focus allows information from the lens and exact capture conditions to be fed to the camera processor for ultra-fine-tuning of the auto-focus mechanism, taking into account the design specifications of the lens and the optical specifications of the sensor.

DAC

'Digital Auto Correction' (DAC), is an APO-chromatic correction of the images based on a combination of the various parameters concerning each specific lens for each specific shot, ensuring that each image represents the best that your equipment can produce.

Instant Approval Architecture

Building on the success of its Audio Exposure Feedback technology, Hasselblad has created Instant Approval Architecture (IAA), an enhanced set of feedback tools, designed to enable the photographer to focus on the shoot rather than the selection process. IAA triggers audible and visual signals for each image captured, notifying the photographer immediately of its classification status. The information is recorded both in the file and in the file name, providing a quick and easy way to classify and select images, in the field or back at the studio. IAA is a Hasselblad trademark and Hasselblad has a patent pending on the invention. Extra large 3" display on the H4D provides a realistic, high quality and perfect contrast image view, even in bright sunlight.

Hasselblad's unique natural colors

Hasselblad's Natural Color Solution (HNCS) enables you to produce outstanding and reliable out-of-the-box colors, with skin tones, specific product colors and other difficult tones reproduced easily and effectively. In order to incorporate our new unique HNCS and DAC-features we have developed a custom Hasselblad raw file format called 3F RAW (3FR). This file format includes lossless image compression, which reduces the required storage space by 33%. The 3FR files can be converted into Adobe's raw image format DNG ('Digital Negative'), bringing this new technology standard to the professional photographer for the first time. In order to utilize DAC and optimize the colors of the DNG file format, conversion from 3FR must take place through Phocus.

Accessories

H system accessories include general items such as filters, straps and lens shades etc., as well as specialist items.

For instance, the Global Image Locator (GIL) ensures all images captured outside are tagged with GPS coordinates, time and altitude. This data provides the key to a number of future applications involving image archiving and retrieval. One example is the direct mapping of images in Phocus software to the Google Earth application.

Then there is the HTS 1.5 that allows for portable tilt and shift with the H System lens range from 28mm to 100mm. It provides both technical solutions and creative possibilities.

There is even a CF adapter that allows you to use lenses from the V system to extend your range. Have a look at the list towards the end of this manual for more details.

User Manual

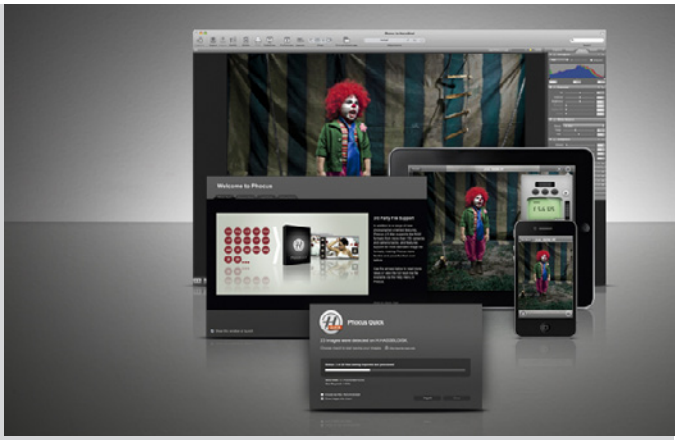
The user manual can be read on line or printed (printer friendly US Letter / A4) in its entirety or just as individual pages to keep with the camera as reminders for specific tasks.

Note that as virtually all the information is not model specific, various models can appear in the illustrations. Where information is model specific, then it is clearly marked as such.

Phocus

A smooth, reliable and competent digital workflow is crucial in a working environment. The best medium format digital captures in the world should be handled in a qualified and proficient manner to provide the last links in the chain. Phocus by Hasselblad does just that.

- Hasselblad's Natural Color Solution (HNCS) enables you to produce outstanding and reliable out-of-the-box colors, with skin tones, specific product colors and other difficult tones reproduced easily and effectively.
- A custom Hasselblad raw file format called 3F RAW (3FR) developed to incorporate the unique HNCS and DAC features.
- Digital Lens Correction (DAC) to diminish color aberration, distortion and vignetting.
- File compression, which reduces the file size by 33%.
- 3FR files can be opened directly in Apple or Adobe imaging environments.
- Uncompromising image quality.
- Extended camera controls when tethered. Includes live video and focusing.
- Moiré removal technology automatically applied directly on the raw data.
- Flexible workflow. Allows customized set-ups.
- Extended metadata.



Please ensure you are using the latest version of Phocus for optimum performance. Visit the Phocus section of the Hasselblad website for more information.

The primary goal of all camera development is of course the seamless and unobtrusive production of superb images, regardless of situation. Hasselblad cameras have abilities and features that you may not think you need yet; each individual has their own way of working. But the H4D has tremendous scope for fine-tuning your technique possibly beyond your present ambitions.

Take your time to learn the intricacies and potentials of your new camera. Go at your own pace and explore the possibilities when you feel ready for the next step. Results will be good from the word go, that's guaranteed, but when you want to make improvements or work more efficiently perhaps, the H4D will take care of it.

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

Computer system requirements

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

Warnings and restrictions

- ***If you want to power the H4D 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 H4D and computer equipment away from moisture wherever possible. If your camera becomes wet, disconnect from power and allow it to dry before attempting to operate again.***
- ***Always take great care when you remove the sensor unit for cleaning as the exposed CCD sensor protective filter is vulnerable to damage.***
- ***Keep all cables connected to or from your camera and computer out of the way where they will not be tripped over.***
- ***Your new Hasselblad camera may have been supplied in kit form or as separate items. There are a number of possible combinations depending on factors such as offers, bundles etc. 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.***
- ***Familiarise yourself 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 cameras 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.***
- ***Finally, please check occasionally on the Hasselblad website – www.hasselblad.com – for any firmware and software updates, news, tips, user manuals or other information.***

H4D

1

H4D models

There are six different H4D models to choose from. Apart from performance and results related to the different specifications, there are some very minor differences in handling between the models.

However, virtually all the information in this manual applies to all models. When differences do occur, they are marked as such.

Photo: Dirk Rees / Hasselblad Masters

This section presents an overview of the technical specifications and the differences between the H4D models. It also highlights any particular information that applies to a particular model.

The various H4D models provide a solution for practically all medium-format requirements. All models deliver the same list of advanced features such as True Focus, Ultra Focus etc, regardless of sensor size.

Apart from sensor differences, the H4D-50MS model has the addition of the multi-shot feature. The various models are supplied with viewfinders and viewfinder screens in accordance with sensor size requirements.

There are more technical specifications towards the end of this manual regarding general camera data.

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60

Top of the range model featuring a huge 60 megapixel sensor for the absolute best in single-shot, medium-format photography. Also features the highest resolution display in the range for the sharpest browsing experience.

Please note that HCD lenses were formulated for use with the smaller size sensors in the H-series, resulting in a reduced coverage for the larger sensors used in the H4D-60. So, if you use HCD lenses, be aware of the restrictions (possible vignetting and diminished quality at the edges). See under **Lenses** for more information.

TECHNICAL SPECIFICATIONS	
Sensor size	60.1 Mpixels (6708 x 8956 pixels)
Sensor dimensions	40.2 x 53.7mm
Pixel size	6.0 µm
Image size	RAW 3FR: 80 MB. RGB TIFF 8 bit: 180 MB
True Focus	Yes
Shooting mode	Single Shot
ISO speed range	ISO 50, 100, 200, 400 and 800
Shutter Speed	32 sec. - 1/800
Color depth	16 bit
Color management	Hasselblad Natural Color Solution
CF storage capacity	8 GB CF card holds 100 images on average
Capture rate	1.4 sec. per capture. 31 captures per min.
Color display	3 inch TFT type, 24 bit color, 460. 320 pixels
Host connection type	FireWire 800 (IEEE1394b)

50

The H4D-50 produces 65 MB raw files that meet most demands to produce the tremendous quality that Hasselblad is world renowned for.

TECHNICAL SPECIFICATIONS	
Sensor size	50 Mpixels (6132 x 8176 pixels)
Sensor dimensions	36.7 x 49.1mm
Pixel size	6.0 µm
Image size	RAW 3FR: 65 MB. RGB TIFF 8 bit: 150 MB
True Focus	Yes
Shooting mode	Single Shot
ISO speed range	ISO 50, 100, 200, 400 and 800
Shutter Speed	128 sec. - 1/800
Color depth	16 bit
Color management	Hasselblad Natural Color Solution
CF storage capacity	8 GB CF card holds 120 images on average
Capture rate	1.1 sec. per capture. 33 captures per min.
Color display	3 inch TFT type, 24 bit color, 230. 400 pixels
Host connection type	FireWire 800 (IEEE1394b)

40

The H4D-40 differs slightly from the other H4D models by featuring very long exposure times of up to 256 seconds. In addition it provides an ISO range from 100 – 1600. Excellent all-round model that suits a host of assignments.

TECHNICAL SPECIFICATIONS	
Sensor size	40.0 Mpixels (7304 x 5478 pixels)
Sensor dimensions	33.1 x 44.2mm
Pixel size	6.0 µm
Image size	RAW 3FR: 50 MB. RGB TIFF 8 bit: 120 MB
True Focus	Yes
Shooting mode	Single Shot
ISO speed range	ISO 100, 200, 400, 800 and 1600
Shutter Speed	256 sec. - 1/800
Color depth	16 bit
Color management	Hasselblad Natural Color Solution
CF storage capacity	8 GB CF card holds 150 images on average
Capture rate	1.1 sec. per capture. 50 captures per min.
Color display	3 inch TFT type, 24 bit color, 230. 400 pixels
Host connection type	FireWire 800 (IEEE1394b)

31

Entry-level H4D model featuring a 31 megapixel sensor to produce quality far above the best '35mm' cameras. An economical way of acquiring the enviable list of H4D features.

TECHNICAL SPECIFICATIONS	
Sensor size	31 Mpixels (4872 x 6496 pixels)
Sensor dimensions	33.1 x 44.2mm
Pixel size	6.8 µm
Image size	RAW 3FR: 40 MB. RGB TIFF 8 bit: 93 MB
True Focus	Yes
Shooting mode	Single Shot
ISO speed range	ISO 100, 200, 400, 800 and 1600
Shutter Speed	64 sec. - 1/800
Color depth	16 bit
Color management	Hasselblad Natural Color Solution
CF storage capacity	8 GB CF card holds 200 images on average
Capture rate	1.2 sec. per capture. 42 captures per min.
Color display	3 inch TFT type, 24 bit color, 230. 400 pixels
Host connection type	FireWire 800 (IEEE1394b)

200MS

Based on the 50 Mpix sensor, the H4D-200MS offers1-, 4- and 6-shot capability. 6-shot will produce 8 bit TIFF files at 600MB each resulting in the most accurate color rendering and resolution available on the market today in the medium format.

See under ***Multi-Shot*** in this manual for further details.

TECHNICAL SPECIFICATIONS	
Sensor size	50 Mpixels (6132 x 8176 pixels)
Sensor dimensions	36.7 x 49.1 mm
Image size RAW	75/300/1200 MB on average
Image size TIFF 8 bit	150/150/600 (1-shot/4-shot/6-shot)
True Focus	Yes
Shooting mode	1-shot / 4-shot / 6-shot
ISO speed range	ISO 50, 100, 200, 400 and 800
Shutter Speed	128 sec. – 1/800
Color depth	16 bit
Color management	Hasselblad Natural Color Solution
CF storage capacity	8 GB CF card holds 120 images on average.
Capture rate	1.1 sec. per capture. 33 captures per min.
Color display	3 inch TFT type, 24 bit color, 230 400 pixels
Host connection type	FireWire 800 (IEEE1394b)

50MS

Apart from all the normal features of an H4D model, the H4D-50MS offers a single-shot mode for regular assignments and a 4-shot capture mode for stationary subjects for exceptional quality, color rendition and moiré elimination.

See under ***Multi-Shot*** in this manual for further details.

TECHNICAL SPECIFICATIONS	
Sensor size	50 Mpixels (6132 x 8176 pixels)
Sensor dimensions	36.7 x 49.1mm
Pixel size	6.0 µm
Image size	RAW 3FR: 65 MB. RGB TIFF 8 bit: 150 MB
True Focus	Yes
Shooting mode	Single / Multi Shot (4x)
ISO speed range	ISO 50, 100, 200, 400 and 800
Shutter Speed	128 sec. - 1/800
Color depth	16 bit
Color management	Hasselblad Natural Color Solution
CF storage capacity	8 GB CF card holds 120 images on average
Capture rate	1.1 sec. per capture. 33 captures per min.
Color display	3 inch TFT type, 24 bit color, 230. 400 pixels
Host connection type	FireWire 800 (IEEE1394b)

H4D

2

General overview
– controls and displays

This section provides an introduction to the control buttons' functions as well as the information provided on the display screens.

Photo: Claudio Napolitan / Hasselblad Masters

Button functions – overview

Below is an overview of the primary functions of the control wheels and buttons. Some controls have dual or triple functions according to the state of the menu or setting. A full description can be found further on in this manual.

Shutter release button

Releases shutter. Also activates camera from standby mode.

FLASH / (CONTROL LOCK) button

Locks settings to avoid inadvertent change. Also accesses flash settings as well as acting as Exit button.

AF button

Accesses focus modes.

ISO/WB button

Accesses ISO and White Balance settings. Also acts as Save button.

Front control wheel

Accesses and changes various settings.

MENU button

Accesses menu.

Illumination/Battery status button

Illuminates grip display. Accesses battery status and general information screen.

ON.OFF (PROFILES/ESC) button

Turns the camera on and off. Accesses Profiles and acts as escape button for other functions.

Rear control wheel

Accesses and changes various settings.

M.UP button

Raises and lowers mirror. Can be reassigned to another function.

Remote release cord port

For attaching a remote release cord (electrical).

STOP DOWN button

Stops down aperture to current setting. Can be reassigned to another function.

True Focus button

Activates True Focus function. Can be reassigned to another function.

Format button

Re-formats CF card.

AE-L button

Locks light reading made in both automatic and manual exposure modes. Can be reassigned to another function.

Eyesight correction adjustment wheel

Adjusts viewfinder image to suit individual eyesight.

EV correction adjustment button

Produces EV exposure compensation.

EXP button

Accesses exposure mode and metering method.

Display information – overview

This overview illustrates the functions and features most commonly needed when shooting, and how they are distributed on the three displays.

For example, aperture and shutter settings appear in both the viewfinder and on the grip displays in normal mode but can also appear on the sensor unit display if set to do so. ISO settings appear on the grip and on the sensor unit display but not on the viewfinder display.

Also, changing settings are mirrored throughout. For example, if you change the ISO setting on the grip, the change will automatically appear on the sensor unit display. Also, in this particular case, you are able to change the ISO setting on the sensor unit which will be mirrored on the grip display.

However, some settings, aperture and shutter settings for example, are only changed on the grip but are nevertheless mirrored in the viewfinder and sensor unit displays.

Please note that the grip and sensor unit displays also illustrate many more specialist settings. These are covered in detail further on in this manual.

VIEWFINDER INFORMATION

- Metering method
- Aperture setting
- Shutter speed
- Exposure method
- Capture counter
- Exposure compensation
- Focus assist
- Warning triangle
- Flash warning
- Spirit level

GRIP LCD INFORMATION

- Metering method
- Aperture setting
- Shutter speed
- Exposure method
- Capture counter
- ISO
- White Balance
- Flash indication
- Focus
- Drive
- EV
- Battery status

.....optional.....

- Histogram

REAR LCD INFORMATION *(Currently 60 Mpix model only)*

- ISO
- White Balance
- IAA rating
- Storage medium

.....optional.....

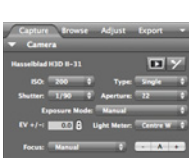
- Exposure compensation
- Histogram
- Date
- Time
- Focal length of lens
- Spirit level

Optional instantly accessible full-screen display of camera information to show:

Metering method
Aperture setting
Shutter speed
Flash indication
Focus
Drive
EV
Battery status
Exposure method
Capture counter
ISO
White balance

PHOCUS / PHOCUS MOBILE INFORMATION

- Metering method
- Aperture setting
- Shutter speed
- Exposure method
- ISO
- White Balance
- Flash indication
- Focus
- Drive
- EV



Grip display – overview

Typical camera grip display.

Flash condition indication
(No exposure compensation, normal flash synchronisation)

Focus setting
(Autofocus setting, single shot mode)

Drive condition
(Single setting)

Aperture setting
(f/5.6)

Shutter speed setting
(1/400s)

Exposure Value display
(EV 13.8)

ISO setting
(100 ISO)

Low battery symbol

Exposure mode indication
(Aperture priority setting)

Metering method indication
(Centre weighted)

White balance
(Daylight)

Capture counter
(28 shots remaining on chosen storage medium)

Typical camera grip display when changing settings.

Command indication

The upper row on the screens describes commands (which change according to the setting). The button immediately above each command effects the change. So in this case, for example, you would press the FLASH button to 'exit' from the screen. See note below.

Settings symbols

Symbolize the options available when settings are changed. The active symbol is depicted by a drop shadow.

Control wheel description and direction

Arrowheads symbolize which control wheel should be used to change the setting they are beside. In this case, the Bracketing option is chosen by the front control wheel and the number of captures in that option is chosen by the rear control wheel.

◀...▶ = front control wheel

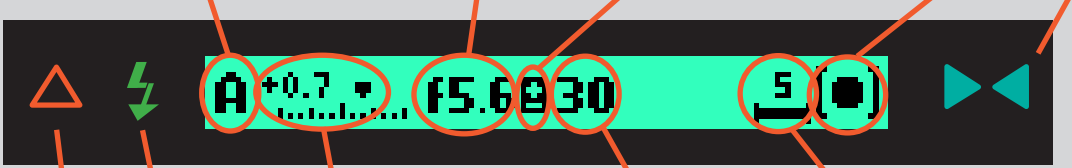
▲▼ = rear control wheel

Setting information

The lower row on the screen displays information about the current state of the setting. In short, the upper row displays what you can do, and the lower row displays the current state of settings or what you have done.

Viewfinder display – overview

Typical viewfinder display. Note the LEDs will only be visible when activated (by the camera or a setting).



Exposure method indication *('aperture priority' mode)*

Aperture setting *(f/5.6)*

Exposure compensation setting reminder symbol

Metering method setting *(Centre weighted)*

Focus Assist LED

Flash LED

Warning triangle LED

Exposure compensation setting *(+0.7 EV)*

Shutter speed setting *(1/30 second)*

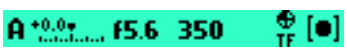
Capture counter

True Focus *(all models) and* ***HCD crop*** *(60 Mpix only) icons appear on right hand side of display when functions are activated.*

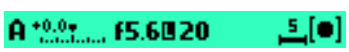
When activated, the integral spirit level replaces normal display. *(Currently 60 Mpix model only)*

Some examples of various viewfinder displays

Standard settings



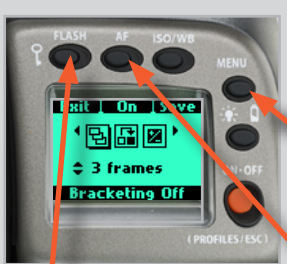
Normal screen with True Focus activated



Normal screen with AE lock activated

Normal screen with exposure compensation set

Viewfinder display according to setting



Drive mode

Menu mode

Flash mode

+0.0 Ev Flash Normal

-1.0 Ev Flash Normal

+0.0 Ev Flash Rear

AF mode

Manual AF

Continuos AF

Single AF

True Focus AF

Exposure compensation mode

EXPOSURE ADJUSTMENT +0.3 Ev

Exposure method and metering method mode examples

A Exp

S Exp

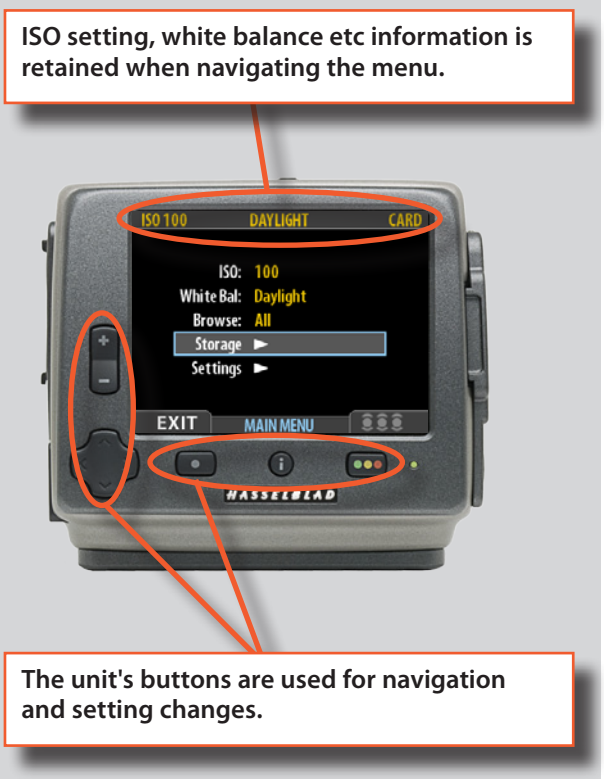
etc. where:

A = *Aperture priority*
S = *Shutter priority*
P = *Program*
Pv = *Program variable*
M = *Manual*

Centre Weighted = [●]
CentreSpot = [⊛]
Spot = [•]

Sensor unit display overview

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



The control wheels on the grip can be set to duplicate the actions of several of the buttons on the unit if you wish.

See under ***Sensor unit – introduction*** for details.

(Currently 60 Mpix model only)

Camera information (such as: *aperture setting, shutter speed, flash indication, focus setting, drive, EV, battery status, exposure method, capture counter, ISO and white balance)* can also be displayed on the sensor unit by clicking the upper arrow on the **Navigation** button.

(Currently 60 Mpix model only)

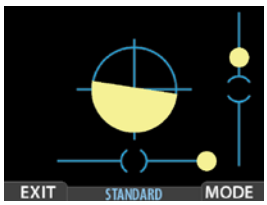
Spirit levels can be displayed on the sensor unit (a horizontal spirit level is also visible in the viewfinder simultaneously). This feature is activated by holding down the **View-mode** button for a second.

The display can call up all saved captures for browsing and enlarge them for detailed inspection.

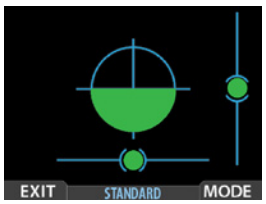
When shooting, you can control the amount of information visible together with the current preview by choosing various modes (see *Preview Modes* section further on in this manual). In the upper left example, the preview is showing a histogram overlay with ISO and white balance information etc as an example.

See *Sensor unit – introduction* further on in this manual for an overview of the information that is accessible on the sensor unit menu.

Normal (at default setting)

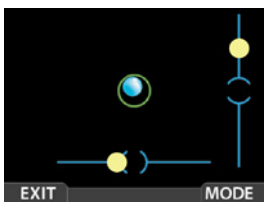


Not level

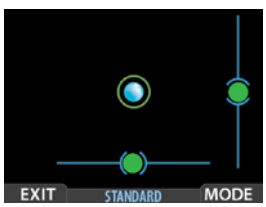


Level

Repro (at default setting)

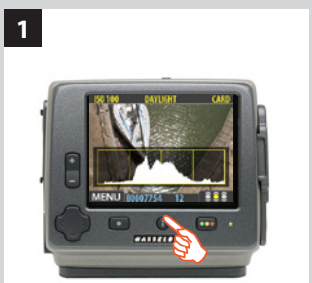


Not level



Level

The spirit level as it appears in the viewfinder display.



Spirit level *(Currently 60 Mpix model only)*

The integrated electronic spirit level provides a rapid and accurate way of ensuring the camera is either horizontally neutral in alignment (level) and/or vertically neutral in alignment (plumb). It uses two methods that are fully visible on the sensor unit display and partly visible in the viewfinder. The method is selected by the camera automatically according to alignment. So, if the camera is in a relatively normal orientation, then **Normal** is selected and when the camera is in a more extreme orientation then ***Repro*** is selected. You can activate the spirit level (for both sensor unit and viewfinder displays) by holding down the **View Mode** button for a second, or, by re-assigning the **TRUE FOCUS / AE-L / STOP DOWN** or **M.UP** button as an activator. See **Custom Options #4, #5, #6** and **#7** for details.

Normal: Generally used when the camera is mounted on a tripod/stand in either landscape or portrait orientation. Allows the camera to be correctly aligned in two planes regardless of apparent deviations in the viewfinder. Particularly useful for landscape work where most of the horizon is hidden, for example, or architectural/interior work where wide angle lenses can often create a difficult situation to level the camera visually.

Repro: Normally used when the camera is mounted on a tripod/stand in a 'repro' alignment, that is, camera pointing directly downwards (this feature also works pointing directly upwards). Ensures that the camera is in a truly perpendicular alignment.

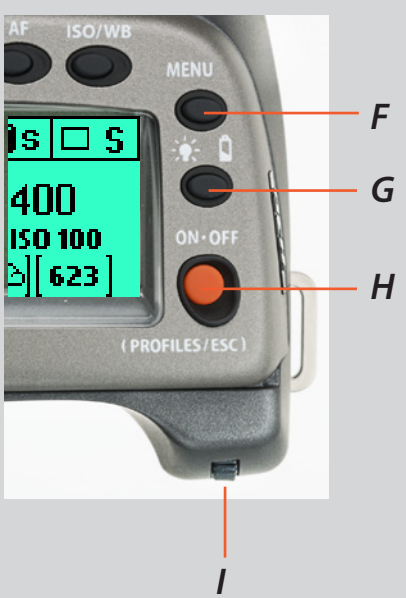
In use: ***Sensor unit display*** – Three scales can be seen in **Standard** mode. The scale along the lower edge and to the right hand side (in landscape mode) require you to alter the camera's orientation to center the yellow 'bubbles'. When centered, these bubbles become green. The third central scale consisting of a large circle with cross-hairs provides an alternative combined display. The content of the circle changes from yellow to green when the horizontal orientation is correct. In **Repro** mode, the central scale is also a 'bubble' type. Again, the two yellow bubbles become green when centered in their respective scales. As an alternative, the central blue bubble can be centered within the green circle (no color change to the bubble).

Viewfinder display – Only horizontal alignment can be seen in the viewfinder display. It uses the bubble method as described above except the bubble becomes black when the camera is level. Custom calibration can also be used.

Calibration: There is a default calibration for either mode which is selected automaticaly. However you can store a custom calibration for various purposes.

1) *Press the **Preview** button for one second (toggle function) to activate the spirit level feature.*
2) *The text along the bottom of the display reads **EXIT**, **Standard**, **MODE**.*
3) *Press the **MODE** button (**Approval/OK button**).*
4) *The text along the bottom of the display now reads **CAL**, **User**, **MODE**, and a green user icon appears in the top left of the display.*
5) *When you are satisfied that the camera is securely in the chosen orientation, press the **CAL** button (**Menu/Exit button**) to store the new setting.*
6) *Press the **MODE** button to toggle between default and custom settings.*

Custom settings are retained for future use. To make a new custom setting, repeat the above procedure.



Buttons and controls – details

Shutter release button A

This button has ***half-press*** and ***full-press*** positions. By pressing half-way (or softly) the camera, auto focus function and exposure meter can be activated. By pressing all the way down (or more firmly) the shutter will be released (or the chosen exposure procedure for example, the self timer is activated with this button).

FLASH / (CONTROL LOCK) button / (EXIT) B

This is a triple function button. If you press the button for one second, the beeper will sound (if set) and a key symbol will appear on the grip display signifying that the controls (except the shutter release) have been locked and therefore cannot be altered unintentionally in use. Press the button for one second again to unlock (this function can be altered to lock all controls or control wheels only in ***Custom Options #18***).

Quickly clicking the button will access the flash settings information on the display from the main screen. See under ***Flash /Strobe - controls and displays*** for full details.

This button also acts as the **EXIT** button for many other settings including an **EXIT** button when navigating the sensor unit menu.

AF button / (ON) / (SEL.) C

This is a triple function button. Press this button to directly access the autofocus/manual focus choice screen from the main screen. See under ***Lenses*** for full details. It also acts as the **ON** and **SEL.** (= select) buttons for many other settings.

ISO/WB button / (SAVE) / (ENTER) D

This is a triple function button. It provides direct access to the ISO and White Balance settings (see under ***Light Metering & Exposure Control*** for full details).

It also acts as the **SAVE** and **ENTER** buttons for many other settings as well as an **OK** button when navigating the sensor unit menu.

Front control wheel E

The front and rear control wheels are used to make changes in exposure settings, access the grip menu for settings as well as navigate the sensor unit's menu. The effect of the wheels' direction is customizable.

MENU button F

Accesses the first level of the menu for settings changes.

Illumination/Battery status button G

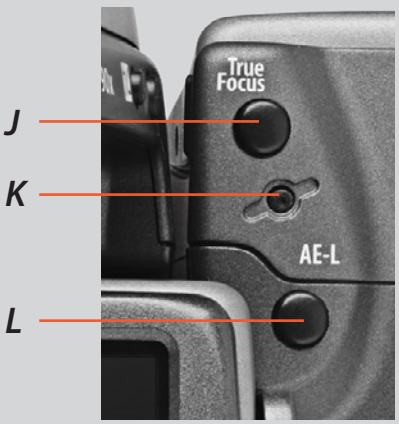
Press to illuminate the display. Remains active until camera enters standby mode. Hold down to access battery status/general information screen.

ON.OFF (PROFILES/ESC) button H

Press the button for 1 second to activate the camera. The H4D start-up logo will appear and then the main screen. After a few seconds (customizable) the camera will enter Standby mode.

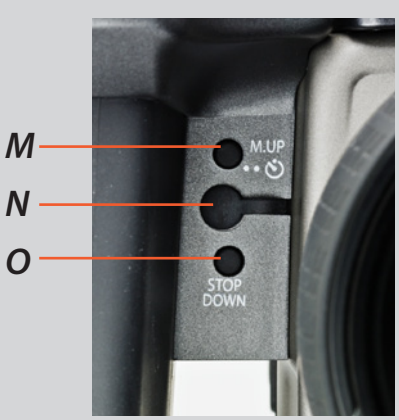
A long press of the button will turn the camera off completely (even from Standby mode) signified by an audible signal (if set). A quick 'click' on the button will access the Profiles section of the menu from the main screen.

Note the difference in results between a long press and a quick click of this button.



Note

Reassignable buttons are particularly useful and can save you a great deal of time and effort. You are advised to investigate their potential fully. See **Custom Options** *for full details.*



Rear control wheel *I*

The front and rear control wheels are used to make changes in exposure settings, access the various loop sections of the menu for settings as well as navigate the sensor unit's menu. The effect of the wheels' direction is customizable.

On the rear of the grip, as well as the rear control wheel, there are a further three control buttons:

True Focus *J*

Activates the True Focus setting. See separate section for explanation of this function.

Format button *K*

Re-formats a CF card. Purposefully recessed to prevent unintentional use. Dialogue appears for confirmation.

AE-L button *L*

This button can lock a light reading made in both automatic and manual exposure modes. It can also be used in Zone mode to take a new reading.

Can be reassigned in* Custom Options *to another function.

See section on the AE-L button for full details.

On the front of the grip there are two more control buttons plus the remote cord release port:

M.UP button *M*

Press this button to raise the mirror and press again to lower it (toggle function). A quick double press of the button (two within a half second) will immediately access the ***Self timer*** function.

Can be reassigned in* Custom Options *to another function.

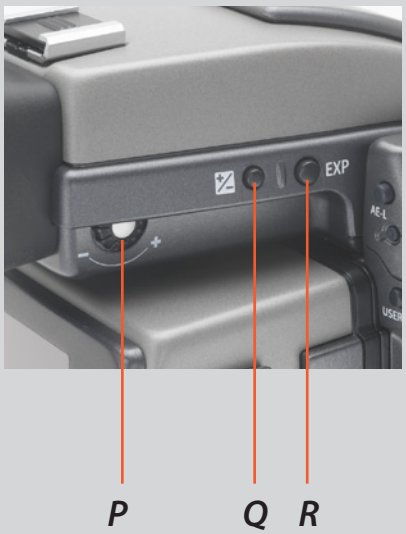
Remote release cord port *N*

For attaching a remote release cord (electrical). The Hasselblad accessory jack plug socket is protected by a captive rubber plug.

STOP DOWN button *O*

Press this button to make a visual check of the depth-of-field on the viewfinder screen at the chosen aperture. The aperture will close according to the setting and remain closed as long as the pressure is maintained. You can alter the aperture at the same time to see the changes taking place.

Can be reassigned in* Custom Options *to another function.



There are also two control buttons on the viewfinder, as well as the eyesight correction adjustment wheel:

Eyesight correction adjustment wheel *P*

The personal eyesight adjustment facility has a diopter range of -5 to +3.5, to suit most users.

EV correction adjustment button *Q*

Press this button to access the EV compensation screen. Settings are made with either the front or rear control wheels. An EV correction symbol appears on the grip and viewfinder display as confirmation.

EXP button *R*

The **EXP** (Exposure) button accesses the exposure mode and metering method options screen. Settings are made with the front and rear control wheels and the appropriate symbols appear on the grip and viewfinder displays accordingly.

Audio feedback

There are fourteen 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.

See ***User Interface*** section for activation and volume control details.

ON:

OFF:

Error:

Ready:

Low Battery:

Overexposure:

Underexposure:

5 images left:

1 image left:

Medium full:

IAA yellow:

Overwrite red:

Transfer complete:

Saving settings changes on the grip

The basic principle behind making changes is that the appropriate button is first pressed to access the menu and then settings altered by way of the control wheels. The appropriate control wheel is designated by arrowheads alongside the setting description.

- *Some buttons have a toggle function, the ON.OFF button has a quick 'click' action as well as a longer (half-second) 'press' action and the shutter release has two positions: 'half-press' and 'full-press'.*
- *Several buttons on the grip are multifunctional, according to the state of the menu. In the example illustrated here, the FLASH button functions as the EXIT button, the AF button functions as the ON button and the ISO/WB button functions as the SAVE button.*
- *The front and rear control wheels can also be used to navigate the menu on the sensor unit.*
- *At very low temperatures the displays require a few seconds to present new settings.*
- *The control wheels are also used to navigate the menu on the sensor unit.*
- *The FLASH button also acts as an EXIT button and the ISO/WB button acts as an OK button when navigating the sensor unit menu.*

Examples

The following is a list of the various terms describing the various actions that appear in the menu (on the grip display):

Enter: moves screen down one level on the menu.

Exit: moves screen back up one level on the menu. Does not save any settings.

Off: deactivates the particular function being set.

On: activates the particular function being set.

Sel.: (Select) - selects the character marked for image info and profile name

ESC: (Escape) - terminates an action and returns to the main screen. Does not save any settings.

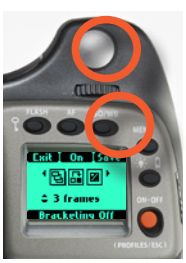
Save: saves a setting and also moves screen back up one level on the menu. Can save many changes made in a setting sequence.

Remember the following groupings of 'saved' and 'not-saved' actions when making settings changes:

SAVED

'Quick save' - half-press shutter release button

Save - press save button (ISO/WB button)



NOT SAVED

Escape - press ESC button (PROFILES /ESC button)

Exit - press exit button (FLASH button)

H4D

3

Camera Body

Photo: Nina Berman / Hasselblad Masters

- **Aluminium cast in one piece**
- **Stainless steel shell**
- **Integral quick-coupling plate**
- **Upgradeable firmware**
- **Modular design**
- **Integral ergonomic grip**
- **Pixel based user interface**

The H4D camera body is a robust construction of cast aluminium with a stainless steel shell for extreme durability.

The integral ergonomic grip houses the main control interface and also contains the battery holder. The camera body also contains the viewfinder screen, which can be easily removed or exchanged without the use of special tools or adjustment procedures.

Please take extra care when handling the camera body without a protective cover or the sensor unit in place to protect the auxiliary shutter. Likewise, the front opening of the camera body reveals the mirror when unprotected by a cover or lens. Do not touch or attempt to clean the mirror yourself – marks or dust particles will not impair results in any case. More noticeable problems, however, should be taken care of by a Hasselblad Authorized Service Center.

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Carrying strap 1, 2

The carrying strap is attached by firstly withdrawing the safety collar. The hook is then freed and attached to the strap lug (fig. 1). Slide back the safety collar (fig. 2) to ensure the hook remains in the locked position between the small protruding lugs. The collar is purposely a tight fit and might need some effort to slide.

Rechargeable battery grip

The **Battery grip rechargeable 7.2V** (3043348) is the standard power source for the H4D camera and is an environmentally approved Li-ion type. The H4D requires a power supply for all actions as there is no mechanical reserve facility. When working untethered, it is therefore advisable to keep a reserve rechargeable battery grip at hand. As is the case with most batteries, problems might be encountered when used in very low temperatures. In this situation it is advisable to keep the reserve battery in an inside pocket, for example, to maintain it near body temperature (both sorts of battery grips are referred to as the 'battery' in this manual).

Fitting and removing a battery 3, 4, 5

The fitting and removing procedure is the same for both types of battery grip.

Remove the battery from the camera by depressing the battery holder button (A) and simultaneously swinging the battery holder retaining lever (B) down until it stops. Pull the battery downwards (C).

If you intend to store the battery separately from the camera you should ensure that the safety cover is in place (to prevent short-circuiting). It snaps into place and is removed by pulling outwards and upwards on the locking clip (fig. 4).

To fit, hold the battery flat against the camera body and aligning the two upper lugs with the slot, slide it back into position as far as it will go. Swing back the battery holder retaining lever until it clicks back into place.

The battery charger 6, 7

The battery charger unit is supplied with five plug attachments to suit various types of domestic electrical sockets available worldwide. Other types of socket will require a domestic socket converter. Attach the chosen plug (fig 7) by sliding it into position, ensuring that the two electrical contact prongs on the charger correctly enter the two contact sockets on the plug attachment. Removal is by the reverse procedure.

Please note the Battery charger BC-H Li-ion 7.2 VDC (3053568) is designed for use with Battery grip rechargeable 7.2V units only.

8

Charging the battery 8

With the battery removed from the camera, insert the jack plug from the battery charger into the socket on the battery grip. Insert the battery charger into a standard (100–240V~ /50–60 Hz) domestic socket.

During the charging procedure, the lamp on the charger signifies the following:

continuous yellow	→	**Standby**	
slow flashing yellow	→	**Pre charge**	
rapid flashing green	→	**Charging**	**(< 75%)**
slow flashing green	→	**Charging**	**(> 75%)**
continuous green	→	**Ready**	**(100%)**
rapid flashing yellow	→	**Fault condition**	

Note

It will take about 12 hours to load the battery completely the first time.

Rechargeable battery grip – general

- The battery should be charged for approximately 12 hours before first time use.
- The battery is best charged at an ambient temperature of 10°–45°C (50°– 113°F).
- Maximum battery capacity is reached only after the battery has been charged and discharged several times.
- Avoid frequent full discharges (a full discharge is signalled by the appearance of the 'Replace battery' warning on the grip display). As the battery is a Li-ion type, it has no 'memory effect' of practical importance and therefore frequent recharges will cause no problems such as loss of capacity or poor performance. It is therefore better policy to recharge the battery at very regular intervals, regardless of use.
- Remove the battery if you intend to store the camera for some while as it will eventually become completely drained, even though the camera is turned off.
- The battery has an integrated 'fuel gauge' capability that supports the 'Replace battery' and 'Battery status' functions on the grip display. As with most Li-ion batteries, this capability should be occasionally calibrated, depending on how much the battery is used. To do this, leave the camera on (or use it), until the 'Replace battery' warning appears. Then, recharge the battery for 12 hours. This will improve the accuracy of the measurements.
- When removing a battery from the charger and immediately replacing it with another, allow a few seconds to elapse so that the charger can automatically reset for the next charging procedure.
- It is perfectly normal for the battery to become warm when being charged.
- A slight temporary loss of battery performance might be noticed at very high or low temperatures. Take the appropriate measures if this is the case.
- If you do not intend to use the battery for a while, it is best to store it at room temperature with an approximate 30 to 40% charge. You can check the percentage level on the status screen.
- According to the CIPA standard, 200 shots should be expected from a fully charged battery, though this depends on camera use. In practice, however, with short intervals between shots 1,000 shots can be achieved.
- The battery should have a usable service life of around 400 recharge/discharge cycles.

Rechargeable battery grip – precautions:

The following precautions should be followed:

- Connect the battery grip to the camera correctly.
- Keep the protective cover in place when not in use. (Short-circuiting across keys in a pocket, for example, could cause a fire risk).
- Do not use the battery grip for anything other than H1/H1D/H2/H2D/H3D/H4D cameras.
- Do not immerse the battery grip in liquids.
- Do not incinerate the battery grip. Please recycle or discard in an environmentally approved manner.
- Do not use any other charger than the Hasselblad battery charger BC-H Li-ion 7.2 VDC (3053568).

Battery charger BC-H Li-ion 7.2 VDC – precautions:

- Read the instructions before using the charger.
- Use indoors only (protect against moisture).
- Do not use charger for anything else than charging of Battery grip rechargeable 7.2 V (3043348).
- Do not short-circuit the jack plug.
- Do not alter the charger in any way other than changing the plug attachment.

Battery life *9, 10, 11*

Battery life is dependent on a number of variable factors and therefore cannot be exactly predicted. If the camera is left in the active state instead of standby for long periods, for example, then the battery will become exhausted much faster.

A low camera battery state is indicated by a symbol on the grip display (fig. 9), in the viewfinder as well as on the sensor unit display (fig. 10). In addition, an audible signal can be heard.

The warning on the display (fig. 10) appears as a flashing yellow icon in the top right of the screen signifying that the battery should be charged (or changed) as soon as possible. The warning icon will also appear with a FireWire connection and will in addition turn red to signify that the camera battery is completely exhausted.

When the battery is almost completely exhausted, a warning message **Replace battery** will appear on the grip display (fig. 11).

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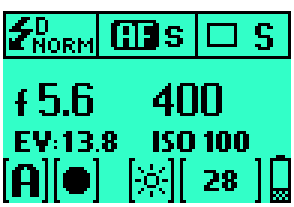

10

Camera battery warning

11

Note

*When the **Low battery** icon appears, the camera automatically enters a temporary power-saving mode. This is recognizable by a slower pace for all the actions in a capture sequence. The camera actions also sound differently.*

This mode is designed so that you can continue working for a while, even though the power remaining in the battery is too low for working in the normal manner. Naturally, you should replace the battery as soon as possible to restore normal action again.

12

Battery status (rechargeable battery only) 12

An immediate full-screen information and battery status check appears on the grip display by holding down the illumination/battery status button. This screen displays:

- the firmware version
- the number of captures taken since the last battery recharge / change.
- a rechargeable-battery status icon that provides a quick visual check as well as a figure estimate in percent.

The information regarding the number of captures taken is intended to help you make an estimate of the number of possible remaining captures according to your way of working. For example, if you regularly browse a great deal when shooting or you leave the camera in ON-mode with no standby, you would naturally expect to drain the battery sooner than others who don't. You should soon be able to build up a picture of how you usually work and can therefore estimate that after X number of captures, you normally expect to be able to take Y captures before the battery is exhausted (when working in a similar manner in similar conditions).

The percentage information, however, provides another kind of estimate based more on the amount of power left in the battery rather than on your normal way of working.

Remember that these are only estimates and that there are a number of factors affecting remaining battery, ambient temperature for example, as well as general practice.

Power

The camera can be set at two active power modes – **ON** or **Standby** – as well as **OFF**. In active modes, battery consumption is least in **Standby** mode and most in **ON** mode. The camera enters **Standby** mode to preserve battery consumption after 10 seconds (Default) but can be changed in Custom Options #1. Both the grip and the sensor unit displays are dimmed accordingly. The sensor unit can be set to become independently inactive in **Power Down** (Menu > Settings > User Interface > Power Down).

Note that after 1 hour of complete sensor unit inactivity in power down mode, the camera body will automatically shut down too. Restart by pressing the ON.OFF button on the grip as normal.

ON

To activate the camera press the red **ON.OFF** button until you see the start-up H4D logo appear on the grip display. The logo is automatically followed by the main screen. The camera is now in **ON** mode.

After a set period of inactivity (programmable in Custom Options) the camera automatically enters **Standby** mode, signalled by the appearance of the H4D logo again.

Standby

In this mode the camera is in a mainly inactive 'standby' mode and is ready to be immediately reactivated to the **ON** mode by:

- ***pressing the shutter release button half way***
- ***pressing the* Stop down *button***
- ***clicking the* ON.OFF *button***
- ***pressing the* Mirror up *button.***

In this mode, signalled by the standby H4D logo appearing on the grip display, the demand on the batteries is very low. It is ideal for general use where intervals between shots exceed a few seconds.

Standby mode is automatically set from the **ON** mode after 10 seconds (default) of inactive use (programmable in Custom Options #1).

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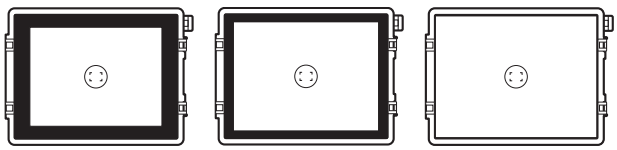

Viewfinder screens showing the difference in masking and composition frame marking. Type varies according to sensor size. See under ***Accessories*** for other types (with grid pattern, for example).

15

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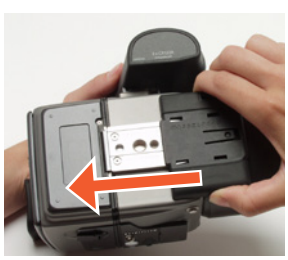
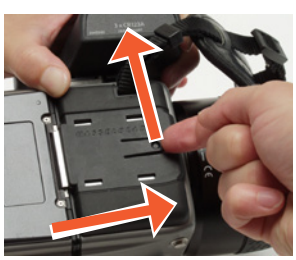
18



19



OFF

From the active screen, press (not click !) the red **ON.OFF** button for a half second. All buttons (except the **ON.OFF** button) remain ineffective, producing virtually no demand on the battery. This is the normal mode when transporting or storing the camera or where there might be a risk of inadvertently activating the camera. (However, remove the batteries if you are going to store the camera for a period of more than a few weeks).

In this mode neither the viewfinder display nor grip display information is available.

Viewfinder screen *13, 14*

The H4D is fitted with a Spherical Acute-Matte D viewfinder screen for extreme brightness, clarity and even illumination. An optional accessory screen with a grid pattern is also available.

To change a viewfinder screen, remove the viewfinder to access the viewfinder screen. To remove the screen, place the tip of a ballpoint pen or similar in the viewfinder screen removal lug and pull upwards. To replace the screen, position the right side of the screen in place so that it sits correctly in the recess. Place the tip of a ballpoint pen or similar in the viewfinder screen replacement indentation and press downwards until the screen snaps into position. Try to avoid touching either surface of the screen with bare fingers.

Note

Do not attempt to clean the screen by immersing it in water, or use any kind of cleaning fluid. If the screen becomes damp, do not use hot air to dry it. Use a soft cloth on the upper surface only. Seek advice from an Authorized Hasselblad Service Center if the screen becomes particularly soiled. Remember that particles or greasy marks on the screen might impair the viewfinder image but have no effect whatsoever on the recorded image

Accessory connection *15, 16*

On the left hand side of the camera body are two accessory-retaining screw threads (M5), as well as a databus connector, protected beneath a cover.

The cover can be removed by inserting a pointed object, such as a pen, in the small hole and then sliding it to the left, as in the illustration. The cover-retaining clip can then also be removed to access the connector.

PC-connector *17*

A PC connector for non TTL-flash synchronisation is located on the left side of the body. It is protected by a captive rubber plug.

Protective base plate *18, 19*

To attach the protective base plate, slip it over the camera foot until it stops. To remove it, lift the securing catch while pushing the plate back towards the lens.

H4D

4

Viewfinder

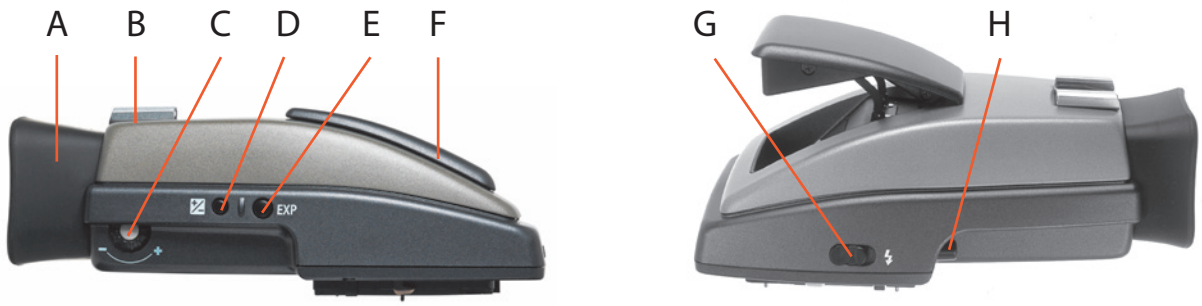
Photo: Joao Carlos / Hasselblad Masters

- **Multi-mode light metering**
- **Full exposure information**
- **100% image**
- **90° viewing angle for eye-line composition**
- **Full image for spectacle wearers**
- **Integral diopter adjustment**
- **Integral flash unit**

The viewfinder provides a laterally corrected 100% image at eye-line level. It features a wide-range diopter adjustment to suit most users. The viewing distance is designed to provide full frame view even for eyeglass wearers. The bright Spherical Acute-Matte D focusing screens (located in the camera body) are interchangeable to suit preference, each of them naturally indicating the spot light-metering area for accuracy in exposure calculation. The information display located beneath the viewing frame is continually updated and visible and is back lit for optimum visibility. This display also duplicates much information visible on the grip display for immediate checking. In addition to the display, there are four LEDs providing general warnings, flash and focus information. The viewfinder also features a pop-up fill-flash unit for added convenience.

See the **Camera Body** section for details about the viewfinder screen. The exposure compensation button and exposure button are described in the **Light Metering & Exposure Control** section.

Parts and components – HVD 90x & HV 90x-II



A. Rubber eye cup
B. Hot shoe
C. Eyesight adjustment wheel
D. Exposure compensation button
E. Exposure method / mode button
F. Integral flash unit
G. Flash unit release button
H. Viewfinder release button

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Note

There are two different viewfinder models. The HVD 90x is for 36x48mm sensors (or smaller) cameras. The HV 90x-II is for the H4D-60.

User functions are the same for both models.

Attaching and removing the viewfinder 1

While holding the viewfinder at a slight angle and resting it on the top of the camera, slide the viewfinder forward until the front locating pin is in position in the recess in the front edge of the viewfinder screen aperture on camera body. Press the rear part of the viewfinder firmly downwards until it clicks into place.

Ensure that both sides of the viewfinder are seated correctly and that it has been firmly attached and locked into position. Failure to do so could cause an intermittent malfunction if the databus interface connections between the viewfinder and camera body are not positively secured.

To remove, grasp the viewfinder in the right hand and while depressing the viewfinder release button, lift the rear of the viewfinder up and away from the camera body.

Eyepiece adjustment 2

No corrective lenses are needed to adjust the eyepiece to suit most requirements. The diopter range is from -5 to +3.5D. Eyeglass wearers can rapidly and accurately change the settings according to whether they wish to wear eyeglasses for viewing or not.

Personal eyepiece adjustments can be carried out by pointing the camera at the sky or similar smoothly toned area. While holding the camera in your left hand, you can with your right thumb turn the adjustment wheel until the markings on the viewfinder screen reach the optimum sharpness for your eyesight.

If you normally wear eyeglasses for distance viewing and intend to wear them for camera use then do not remove them for the above procedure. If, on the other hand, you prefer to remove your eyeglasses for camera work, then repeat the above procedure without wearing your eyeglasses.

Rubber eye cup

Two rubber eye cups are available for the H4D. The one supplied is suitable for users who do not intend to use eyeglasses when photographing. The second shorter eye cup is for those who either prefer to position their eye further from the viewfinder and those who wish to wear eyeglasses.

The eye cups can be rapidly changed by a Hasselblad Authorized Service Center.

Integral flash unit

See under ***Flash*** for full details.

H4D

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Lenses

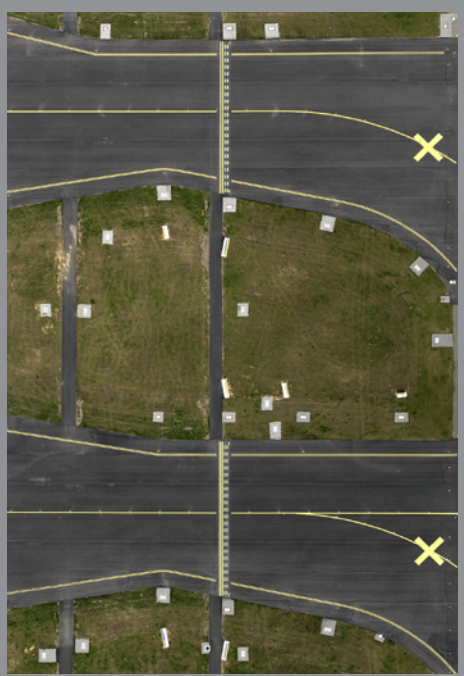

Photo: Stephan Zirwes / Hasselblad Masters

- **Rapid and accurate automatic focusing capability**
- **Central electronic shutter**
- **Instant manual focus override with natural friction**
- **Instant automatic-focus access in manual mode**
- **Non-rotation of filter or accessory when focusing**
- **Non-rotation of focus ring in automatic focusing mode**
- **Flash sync at shutter speeds from 256s to 1/800s**
- **Automatic detection of extension rings and converters**
- **C type lenses from the V system can be used in combination with CF Adapter (optional accessory)**

All HC lenses have been specially formulated for the H system to produce the extremely high performance expected from Hasselblad. In addition to exceptional sharpness, the design also incorporates a very pleasing boké. All lenses feature an electronically controlled central shutter designed to extremely fine tolerances for supreme accuracy. To ensure reliable and fast autofocus in low contrast and low light conditions, an AF focus assist light (on the grip) is automatically activated.

As a general rule, lens shades should always be fitted to achieve optimum performance. Protective filters (UV / Sky) should also be considered at least when working outdoors in harsh conditions.

DAC lens corrections – chromatic aberration, distortion and vignetting – can be applied in Phocus for outstanding results.

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Parts and components 1

A. Lens shade index
B. Manual focus ring
C. Focusing distance scales
D. Depth-of-field scales
E. Lens index

Attaching a lens 2, 3

Remove the front protective cover on the camera body by depressing the lens release button and keeping it depressed while turning the cover counter-clockwise. Remove the rear lens cap by unscrewing it in a counter-clockwise direction. Align the index on the lens with the index on the camera body and rotate the lens clockwise (bayonet fitting) until it clicks into place.

Removing a lens

Depress the lens release button and keep it depressed while rotating the lens counter-clockwise until it stops and lift it out. Replace protective caps on the lens immediately and on the camera body if necessary.

If you try to rotate the lens before you press the lens release button, it might lock. In this case, rotate the lens clockwise a little first and then re-attempt removal with the correct procedure: button first, then lens.

Front lens cap 4

Front lens caps are released for removal and attachment by inserting a thumb and index finger into the recesses and pinching in the direction of the arrows.

Filters

Filters have a screw thread fitting (67 / 77 / 95mm, according to lens) and are screwed clockwise into place. As there is no rotation of the front section of the lens when focus is changed, filters do not rotate either. This is particularly useful when using polarizing or graduated filters where the orientation is normally critical.

Lens shades 5, 6

All lenses are supplied with lens shades that additionally provide extra protection for transport and storage when mounted in reverse. Lens shades have a bayonet fitting and are turned clockwise into place after ensuring the index on the lens shade aligns with the index on the front of the lens. When mounted in reverse, they are attached by matching the indexes and turning clockwise.

Shutter and aperture control

Both the shutter and aperture are electronically controlled and are adjusted by the control wheels on the grip. There are no separate manual setting rings on the lenses or camera body.

The chosen settings are displayed both on the grip display and in the viewfinder display. See under ***Light Metering & Exposure Control / Exposure Method*** for a complete explanation.

Depth-of-field calculation 7

There are two distance scales (in feet and metres) visible through the focus distance window on the upper part of the lens barrel. There is also a central lens index mark and a depth-of-field scale. The focusing distance is read off the chosen scale from the central lens index.

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Lens focus setting too far beyond the distance of the subject framed by the central section in the viewfinder

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Focus setting too close for the distance of the subject framed by the central section in the viewfinder

12

Focus setting correct

Depth-of-field can be calculated as follows:

1. *Focus the lens as required.*
2. *Make an exposure reading (auto or manual) and note the aperture setting.*
3. *Find the markings on either side of the central index that correspond to the chosen aperture.*
4. *From these two markings, read off on the required lens distance scale the two corresponding distances.*
5. *The depth-of-field (at that particular aperture and focus setting) will be the area included between these two distances.*

In the example given here, the focusing distance is set at nearly 3 metres. At an aperture of f/22, the depth-of-field would therefore extend from just over 2 m to approximately 4.5 m. Note that depth of field is not an absolute. Perception of it depends on several factors and so it should be seen only as a rough guide.

Stop down / depth-of-field *8*

A visual depth-of-field preview can be made by depressing the **STOP DOWN** button while viewing the image on the viewfinder screen.

Infrared focus settings *9*

As infrared rays form an image at a different plane to that formed by visible light, the normal focus settings do not apply. Proceed as follows in manual focus mode:

1. *Focus the lens in the conventional manner until satisfied.*
2. *Note the distance setting against the central lens index.*
3. *Re-align this distance setting against the infrared mark (coloured red) instead of the central lens index.*

Alternatively if you have already calculated the required distance, you can make a manual distance setting by using the distance scales together with the infrared mark instead of the central lens index.

For specialists, please contact your Hasselblad dealer for information about sensor units adapted solely for infrared photography.

Focus assist *10, 11, 12*

As well as the conventional view on the focusing screen to ensure a sharp image, the H4D also features an LED focus assist capability appearing as two arrowheads to the right of the viewfinder display (except for lenses with a maximum aperture of f/6.7 or smaller). The arrowheads provide confirmation of a precision focus setting and are a useful aid when making a setting with eyesight alone.

Manual focus setting

When the left arrowhead alone appears it means the focus setting is too far beyond the chosen distance (the area framed within the central zone in the viewfinder) and when the right arrowhead alone appears it means the focus setting is too close. Focus is correct when both arrowheads appear together. If the focus cannot be established, then both arrowheads flash.

Automatic focus setting

Focus is correct when both arrowheads are visible together. Focus is incorrect if only one arrowhead is visible. If the focus cannot be established, then both arrowheads flash.

Note

Some lenses have extra characteristics that require further explanation. For example, the autofocus range on the HC 4/120 Macro lens can be limited by a specific setting on the camera allowing for near range, far range or full range. This only appears on the grip display together with that particular lens.

Further information can be found in the "H-system Lenses & H-system Lens Accessories" booklet that accompanies each lens. The booklet can also be downloaded from the Hasselblad website.

Also, see note here regarding HCD lenses!

Note

HCD lenses were formulated for use with the smaller size sensors in the H-series, resulting in a reduced coverage for the larger sensors used in 60 Mpix models. So, if you use HCD lenses, be aware of the restrictions (vignetting and diminished quality at the edges).

As notification of this situation, an auto crop function is employed and an HCD crop icon appears on the right hand side of the viewfinder display when an HCD lens is fitted.

When in Phocus, however, the auto crop function can be turned off in Preferences if you wish.

Note

Lens corrections can be applied when captures are imported into Phocus. Guided by the information in the metadata included with each individual capture, the DAC (digital lens correction) tool uses lens-model specific calculations to adjust for chromatic aberration, distortion and vignetting. Not only model specifications but also capture parameters are taken into consideration for analysis.

This extremely capable refinement of captures should not be overlooked when processing files! See Phocus user manual for details.

Note

The autofocus function is not possible with certain combinations of lenses and accessories. However, a warning is displayed which disappears after confirmation.

Tip

For users who prefer manual focus control but would like the benefits of autofocus, one method is to set the AE-L button (or any user button) to AF (Single) drive.

The main subject can then be centered and the AE-L pressed, to ensure correct focus. The camera reverts immediately to manual focus control when the button is released.

Therefore, you can recompose the picture without having to maintain pressure on the release button in order to retain the newly automatically made focus setting (AF-T can also be used).

Tip

The True Focus function can also be combined with other autofocus modes for specific situations.

Tip

To expand your range of lenses, consider using a CF adapter to allow you to use most of the lenses from the Hasselblad V-system.

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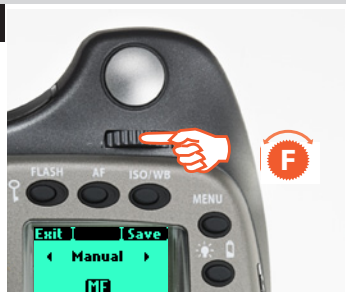

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Manual focus

There is both a ***Manual*** focus mode setting and a ***Manual Override*** capability. ***Manual*** focus is a specific setting that you actively make, whereas ***Manual Override*** is always available as a temporary override of an autofocus setting.

In ***Manual*** focus mode, focusing is carried out by rotating the focusing ring in the conventional manner. The focus setting remains until changed as with a conventional non-autofocus lens. This means that pressing the shutter release button will not activate a focus setting change as it does in autofocus. To change back to autofocus, you must make a new setting (by pressing the **AF** button and choosing **AF S** or **AF C**).

With ***Manual Override***, you can manually alter a focus setting that has been made in the autofocus mode, by rotating the lens barrel in the conventional manner and without having to change modes. As long as the shutter release button is kept at the half-press position, the new focus setting is maintained. By releasing the pressure on the shutter release button and pressing again, the autofocus function is immediately reactivated.

Manual focus mode

The ***Manual*** focus mode is set by the front control wheel on the grip in the following manner:

In camera active mode:

1) *Press the* **AF** *button on the grip.*
2) *Turn the front control wheel to: Manual*
3) *Press* **Save** *to store the setting.*

Natural friction is inherent in the design to purposely reproduce the secure feel of a completely manual lens.

Please note that when focusing manually, the infinity and closest distance marks on the lens scale can appear to be positioned beyond the central index. This is only an apparent effect and does not change the focusing range of the lens.

Autofocus override in Manual mode

See the following section for a description of how to use the advantages of a rapid autofocus check while remaining in ***Manual*** mode.

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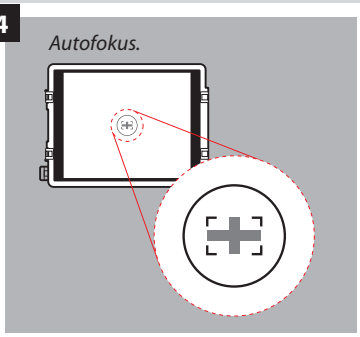

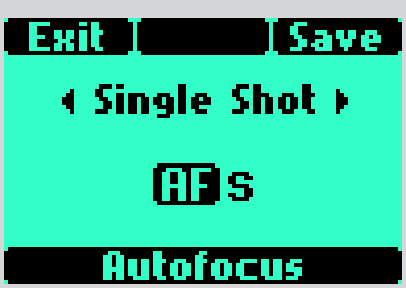

Autofocus

Autofocus mode can be either **Single Shot** or **Continuous** and is activated by pressing the shutter release to the half-press position. Its operative range is from EV 1–19 at ISO100. The point of focus is determined according to the vertical and horizontal areas (see illus 4.) within the central rectangular zone on the focusing screen. When light levels are too low or the contrast of the subject is too low, auxiliary illumination (situated on the top of the grip) is automatically activated if desired. The operative distance is approximately six metres from the camera. Alternatively, a suitable attached flash unit that has a similar facility (a Metz 54/70, for example) can also be used instead. This feature can be altered in settings (**Custom options #16/AF assist light**).

True Focus is also classified as an autofocus function and is normally activated by its own button on the grip. See later section.

Single Shot

In ***Single Shot*** setting (**AF S**), the shutter release will be blocked until the camera finds the optimum focus setting. This ensures that no captures can be made that are not finely focused. However, this delay will normally be only a fraction of a second in good lighting conditions with a clear focusing pattern.

Note though that in this mode the lens will focus at a distance and will remain focused at that distance while pressure remains on the shutter release button. In this way, you can focus on a nearby object for example, temporarily positioned within the focusing zone on the viewing screen and then without releasing pressure on the shutter release button, recompose knowing that the focus remains on the object chosen even though it is now outside the focusing zone. Releasing the pressure on the shutter release button and pressing again half way would now change the focus setting to the distance of the object within the focusing zone.

See ***Manual override in autofocus mode*** for a useful way of working with manual and autofocus settings in a combined manner.

Continuous

At ***Continuous*** setting (**AF C**), the shutter can be released rapidly before the lens is focused in order to capture a split-second shot (in ***Single Shot***, a capture cannot be made until the camera has had time to focus). However, the camera will continue to focus if a moving subject is within the focusing zone or if you recompose, even though the shutter release button is half pressed.

One method to exploit this feature when photographing in a rapidly changing situation such as photojournalism, for example, is to keep the shutter release button pressed down. In this way the lens focuses constantly (according to the focusing zone) and by momentarily releasing the pressure on the shutter release and then immediately pressing again, you minimize the amount of time needed for the lens to check focus, thus ensuring a split-second shot at optimum focus.

True Focus

The ***True Focus*** setting (**AF T**) is generally used in specific circumstances to automatically correct for camera angle/focus setting discrepancies but it can also be combined with other autofcus settings.

To be able to exploit ***True Focus*** correctly, a few important points should be studied in order to obtain a full understanding of how and when to use it. Basically, there are four variables to pay attention to listed below: (a) proximity of camera to subject, (b) focal length of lens, (c) aperture setting and (d) movement of camera and/or subject after setting. The closer you remain to the ideal situation with regard to these variables, the more noticeable the effect of ***True Focus*** will be.

a. The closer you are to the subject, the worse the original problem becomes. Consequently, the need for ***True Focus*** solution becomes greater and its application thereby becomes more noticeable.

b. Short focal length (wide-angle) lenses naturally decrease camera to subject distances and therefore, following the point in (a), produce a greater need for ***True Focus*** adjustments.

c. Smaller apertures increase the depth of field and therefore would lessen the need for a ***True Focus*** solution. However, smaller apertures produce a different visual effect, so ***True Focus*** therefore allows the exploitation of the shallow depth of field (produced by larger apertures) without the fear of unwanted focus restrictions.

d. The mechanics of ***True Focus*** use, amongst other things, camera to subject distances to calculate the required amount of adjustment. It therefore follows that if the camera or the subject move after the initial setting has been made, the calculations will not be applicable anymore. So, to ensure the optimum correction, both the photographer and the subject should restrict movement as much as possible. Please note that with some lenses (particularly longer length lenses) just a few centimeters movement can essentially ruin the result.

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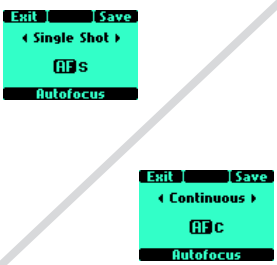

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True Focus can be used with longer lenses, smaller apertures etc but the further you come from situations similar to the 'ideal' as described above, the less the effect will be until it has no visible effect at all. Please remember that although True Focus can noticeably improve a demanding shoot it will only work effectively in the specific circumstances it was designed for.

See an explanation of ***True Focus*** and further details about use towards the end of this chapter.

Autofocus mode setting

Focus mode is set via the control wheels in the following manner:

In camera active mode:

1) *Press the* **AF** *button on the grip.*
2) *Turn the front control wheel to:* **Single Shot**, **Continuous**, **True Focus** *or* **Manual** *as required.*
3) *Press* **Save** *(***ISO/WB** *button) to store the setting.*

Manual override in autofocus mode

Manual override is always possible in automatic focus mode without any need to make a new setting; just rotate the focusing ring in the conventional manner. As the lens barrel does not rotate in autofocus mode, you can hold the focusing ring for instant manual adjustments as you would with a conventional lens. However, to retain the new manual focus adjustments, you must maintain the pressure on the shutter release button. You can instantly return to the automatic focusing mode by releasing the pressure on the shutter release button first and then pressing the release button halfway again.

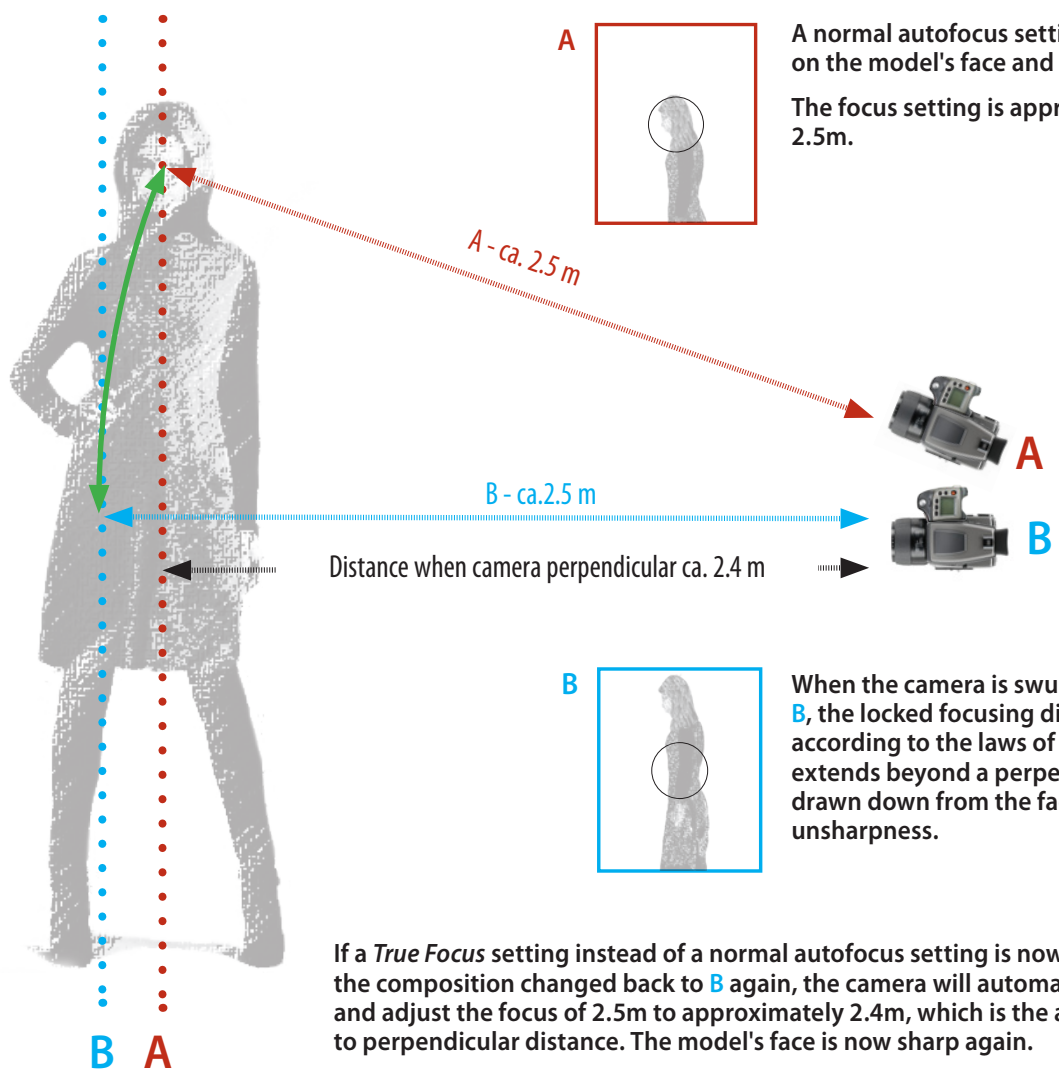
The instant manual override function produces a convenient way of working. You can take advantage of autofocus while retaining an instantly adjustable manual focus check if preferred for pin-point accuracy without making any changes in the settings.

True Focus and Absolute Position Lock

The obvious situation that would most benefit from using ***True Focus*** would be a fashion shoot with a fairly wide angle lens at a large aperture setting and where the central area of the image is clothing while retaining focus on the model's face. Ideally, a fairly controlled and static flow should be planned on (this means a change of pose by the model should take place only after captures and the photographer must resist crouching down, or leaning forwards or backwards too much before capture).

With the lens at its widest aperture setting, a normal autofocus setting is made on the model's face (A), and the camera focus locked. The composition is then changed to include more of the clothing (B), but the locked focus setting now extends beyond the model's face at (B) according to the laws of geometry. This will naturally result in an image where much of the subject closest to the camera and the model's face will be unsharp. Solutions involving manual focus/focus lock/resetting of multi-point sensors are distracting to workflow and prone to error. Making a ***True Focus*** setting at (A) will ensure that focus is automatically adjusted in accordance with the change of camera angle.

True Focus uses yaw rate technology and by way of the ***Absolute Position Lock*** (APL) processor, logs camera movement as the basis for an extremely rapid compensatory focus reset without any shutter lag. The H4D's firmware then further perfects the focus using the precise data retrieval system found on all H System lenses.



A normal autofocus setting is made on the model's face and locked.

The focus setting is approximately 2.5m.

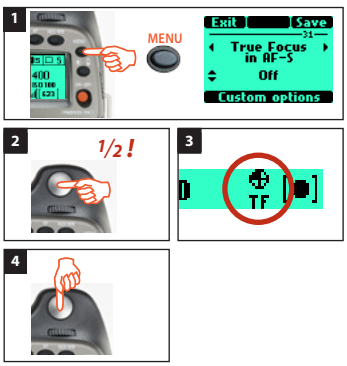
When the camera is swung back down, B, the locked focusing distance of 2.5m, according to the laws of geometry, extends beyond a perpendicular line drawn down from the face, creating unsharpness.

If a *True Focus* setting instead of a normal autofocus setting is now made at A and the composition changed back to B again, the camera will automatically calculate and adjust the focus of 2.5m to approximately 2.4m, which is the actual camera to perpendicular distance. The model's face is now sharp again.

True Focus

True Focus can be used in combination with other autofocus settings to achieve various functions.

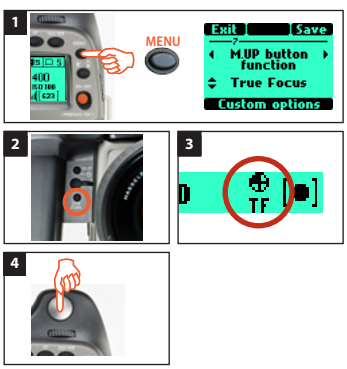
Activated by shutter release button – True Focus retained



In this mode the autofocus function is effectively converted into the True Focus function. That is, focus is set by half-pressing the shutter release button. Remember, though, that the True Focus function is retained until turned off in Custom Options.

1. *In Custom Options, select # 31 (True Focus in AF-S) with the front control wheel. Select 'ON' with the rear front control wheel. Save.*
2. *Aim camera at important area in subject and half-press the shutter release button.*
3. *Wait for the True Focus icon to appear (in the viewfinder) and the audio confirmation signal.*
4. *Maintain the half-press and recompose the picture. Press fully to expose. The True Focus icon disappears from the viewfinder. True Focus function is retained.*

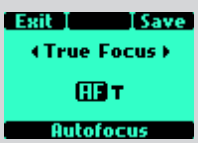
Temporarily activated by a selected 'User' button – Autofocus retained



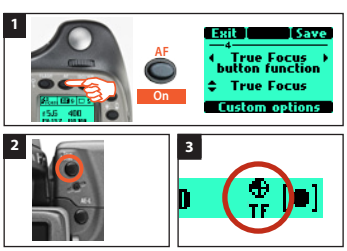
In this mode the True Focus function is activated by pressing an assigned button. This produces a 'one-shot' setting where the camera reverts to its original Autofocus setting after capture. Useful if you want to quickly switch back and forth between True Focus and normal Autofocus. Works with or without a Custom Options #31 setting.

1. *In Custom Options, select the desired button to reassign with the front control wheel (M.UP button in this example). Select 'True Focus' with the rear control wheel. Save.*
2. *Aim camera at important area in subject and press the selected button (the grip display now indicates AF-T mode).*
3. *Wait for the True Focus icon to appear (in the viewfinder) and the audio confirmation signal.*
4. *Recompose the picture and press shutter release button (camera does not re-focus because it is temporarily in AF-T mode). The True Focus icon disappears from the viewfinder. Camera reverts to AF-S.*

   Note that camera reverts to AF-S if the focusing ring on the lens is moved.



Activated by True Focus button – Autofocus deactivated

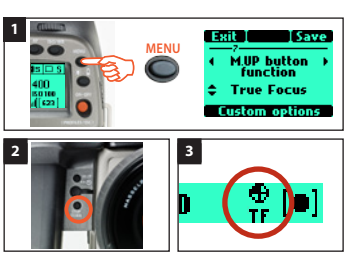


In this mode the True Focus function is activated by pressing the True Focus button. Normal autofocus is de-activated, therefore, pressing the shutter release button will not reset the focus. Useful when many shots are required with the same focus setting.

1. *Press AF button. Select 'True Focus' with the front control wheel. Save.*
2. *Aim camera at important area in subject and press True Focus button.*
3. *Wait for the True Focus icon to appear (in the viewfinder) and the audio confirmation signal. Recompose the picture and press shutter release button.*

   Note that the True Focus adjustment is applied to all following captures until True Focus button is pressed again (when a new adjustment is made).

Activated by a selected 'User' button – Manual focus retained



In this mode the True Focus function is activated by pressing an assigned button. This produces a 'one-shot' setting where the camera reverts to its original Manual focus setting after capture. Pressing the shutter release button will not reset the focus. Useful when many shots are required with the same focus setting.

1. *In Custom Options, select the desired button to reassign with the front control wheel (M.UP button in this example). Select 'True Focus' with the rear control wheel. Save.*
2. *Aim camera at important area in subject and press the selected button.*
3. *Ensure that the True Focus icon appears in the viewfinder.*

   Recompose the picture and press shutter release button. The True Focus icon disappears from the viewfinder. Camera reverts to AF-S.

   Note that the True Focus adjustment is applied to all following captures until True Focus button is pressed again (when a new adjustment is made).

H4D

6

Light Metering & Exposure Control

Photo: Lyle Owerko / Hasselblad Masters

- **Three metering methods**
- **Five exposure method**
- **Extremely accurate light metering**

The light metering system of the viewfinder is capable of selective sensitivity producing three reflective metering methods: Average, CentreSpot and Spot. All methods are measured in increments of 1/12 EV. Information transfer is rapid and automatic ensuring consistently correct exposure settings even in difficult and changeable lighting situations.

Light measurement is made through the lens (TTL) and exposure is controlled manually or automatically by the control wheels and/or settings. The information is visible on both the grip display and the viewfinder display.

A great deal of control is available ranging from 100% manual through to sophisticated fully automatic by way of the various exposure methods: Manual, Aperture priority, Shutter priority, Program and Program variable.

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Light metering and exposure control

Two primary factors have to be considered when making exposure control choice, namely, metering method and exposure method:

Metering method determines in which manner the light measurement is made and how much of the image is taken into account (Centre Weighted, CentreSpot and Spot).

Exposure method involves the parameters and deciding factors about how the light measurement is translated into aperture and shutter speeds. Here the choice is about the camera controls and their effect on the result or suitability for the subject. Included in this choice is the type of automation too (Manual for 100% user control, Aperture priority, Program, etc for automated control).

Some methods and modes are much more suited to various situations and applications than others, while some depend to a greater degree on personal preference and ways of working. A discussion of the points to consider in this context is beyond the scope of this manual.

Since the light measuring system is TTL, filter factors, lens extension/extension ring factors, etc, are automatically taken into account for average purposes. However, some combinations of methods and equipment can cause slight discrepancies for various reasons and therefore for critical work you should make alternative captures to suit personal preference.

Note

Exposures are displayed on the grip display to within 1, 1/2 and 1/3 EV tolerances (dependent on setting). This means that 'half-stops' are shown in a form that can differ from more traditional displays. For example, the position between f/ 8 and f/11 is displayed as f9.5 and likewise the position between 1/30s and 1/60s is displayed as 45. Therefore a display showing 'f 9.5 45' simply means 'f/9.5 at 1/45 second'. The appearance of an 's' after the shutter speed signifies whole seconds so, for example, '32s' on the display signifies an exposure time of 32 seconds, not 1/30.

ISO & White Balance button

The ISO/WB button provides immediate access to ISO and White Balance settings. The front and rear control wheels are used to make the desired changes. The settings are automatically and simultaneously transferred from the camera to the sensor unit. Please note that the changes are only displayed on the sensor unit when the settings have been saved. See also White Balance on sensor unit.

1) *Press the* **ISO/WB** *button on the grip.*
2) *To make an* **ISO** *setting, turn the front control wheel to select the desired rating.*
3) *To make a preset* **White Balance** *setting, turn the rear control wheel to choose between:*

   Daylight, Shade, Cloudy, Flash, Fluorescent and Tungsten
4) *To make a* **Manual White Balance** *setting (not a* ***White balance test exposure****), press the* **Man.** *(***AF***) button and then turn the rear control wheel to choose a color temperature:*

   2000 – 10000 K
5) *Press* **SAVE** *(***ISO/WB** *button) to save the setting.*

Note

White Balance settings are only approximate color temperature settings. They are only used for user convenience when viewing. 3F/3FR files are raw format files and therefore contain all the information required for correction in Phocus and/or other software, regardless of the original color temperature at the time of exposure.

Centre Weighted
(23 x 20 mm)
≈ 32% (H4D-40)
≈ 25% (H4D-50)
≈ 21% (H4D-60)

CentreSpot
(23 x 20 mm)
≈ 32% (H4D-40)
≈ 25% (H4D-50)
≈ 21% (H4D-60)

Spot
(diameter 7.5mm)
≈ 3.1% (H4D-40)
≈ 2.5% (H4D-50)
≈ 2.0% (H4D-60)

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Metering method

There are three metering modes available. All three are reflective methods (measuring the light reflected off various selected parts of the subject according to method) and are through the lens (TTL). These have the following designations (with their respective display symbols):

– *Centre Weighted*

– *CentreSpot*

– *Spot*

Centre Weighted: Commonly used for 'average' light situations where there is no particular dominance of light or dark areas across the tonal range. Takes into account approximately 25% of the image seen in the viewfinder.

CentreSpot: Emphasizes the central section of the focusing screen equivalent to approximately 25% of the image. This provides a balanced assessment and is a typical choice where the main subject is in the centre of the image.

Spot: The sensitive area is equivalent to approximately 2.5% of the image area (the central spot on the viewfinder screen). Any parts of the image outside of this area will not affect the exposure reading. This provides a very accurate measurement of specific tones. Typically used in the zone system and similar light measuring situations where maximum control is required. Also excellent for tonal comparison measurements. The spot mode can display 'zones' instead of EVs in the viewfinder display (see Custom Options #14).

Selecting metering method

Proceed as follows with the camera in active mode:

1. *Press the* **EXP** *button on the viewfinder.*
2. *Turn the rear control wheel (in either direction 2a) to successively access the three choices:* **Centre Weighted, Centre Spot** *and* **Spot** *2b.*
3. *Press* **Save** *(***ISO / WB** *button) to retain the setting.*

Exposure method

Exposure can be controlled either manually or by using one of four automatic modes. These have the following designations on the grip display:

M – Manual

A – Aperture (priority)

S – Shutter (priority)

P – Program

Pv – Program variable

In each mode you can see both the aperture and the shutter speed information on the grip display and on the viewfinder display.

In manual mode, aperture is set by the front control wheel and the shutter speed by the rear control wheel unless set otherwise in Custom Options #26.

In the automatic modes, the aperture and shutter speed settings are controlled by the camera, either partially or completely according to setting. Within this mode there are four choices.

(Please see the Appendix for P and Pv mode charts that describe the aperture and shutter speed setting combinations).

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Manual Exposure – M

Manual mode will provide total user control of the shutter and aperture settings.

To set the Manual mode, proceed as follows with the camera in active mode:

1) *Press the* **EXP** *button on the viewfinder.*
2) *Turn the front control wheel in either direction until you reach* **M** *(Manual).*
3) *Press* **Save** *(***ISO / WB** *button) to retain the setting.*

In this mode the shutter speed and aperture settings are manually chosen by turning the front and rear control wheels.

The standard exposure setting is obtained when the pointer over the exposure scale is positioned above the central index (in the viewfinder display).

Any deviation from this standard setting is displayed by:

- ***the pointer appearing elsewhere than above the central index***

and

- ***by figures above the scale representing the amount of adjustment in EVs.***

A '+ 0.7' above the scale in the display, as in **illustration 4** for example, would indicate a '0.7 EV overexposure' setting. Conversely, a '-2' , for example, would indicate a '2EV underexposure' setting. Note that the appearance of a +/- symbol on the grip and viewfinder displays in manual mode means that a change has been made to the exposure compensation setting. See later section on ***Exposure compensation***.

The actual aperture settings and shutter speeds are indicated to the right of the exposure scale in the conventional manner. (Note: 'full-stops', 'half-stops' and 'third-stops' are also displayed, according to setting (see 'increment setting). For example, a setting between f/8 and f/11 will appear as f/9,5 if 'half-stop' is chosen).

Automatic Exposure – A, S, P, Pv

Automatic exposure provides a choice of two ways of controlling shutter speed and aperture settings semi-automatically and two ways fully automatically:

Aperture priority: A - The aperture is manually chosen by you by turning the front control wheel, and the shutter speed is automatically chosen by the camera.

Shutter priority: S - The shutter speed is manually chosen by you by turning the front control wheel, and the aperture is automatically chosen by the camera.

Programmed: P - In this mode, an aperture / shutter combination is chosen by the camera according to the EV measured (metering method remains as your choice), though only within pre-set appropriate limitations to suit various requirements and applications.

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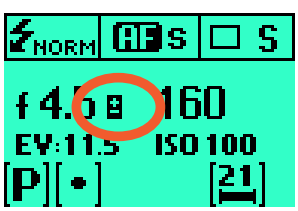

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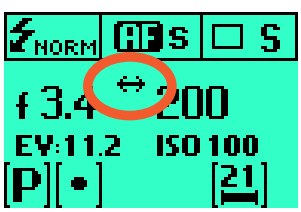

Tip

Aperture and shutter speed settings can both be changed even while the busy light on sensor unit is flashing.

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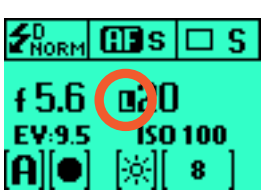

Tip

Access to the B and T shutter speed settings can be temporarily hidden. See **Custom Options #34**.

Programmed variable: Pv - This mode is very similar to Programmed, except with the additional parameters of lens focal length being automatically taken into account. For example, long shutter speeds will automatically be avoided with a long focal length lens.

To set one of the modes, proceed as follows with the camera in active mode:

1) *Press the* **EXP** *button on the viewfinder.*
2) *Turn the front control wheel (either direction) until you reach the required setting.*
3) *Press* **Save** *(***ISO / WB** *button) to retain the setting.*

In Automatic mode the front control wheel selects alternative aperture /shutter combinations while maintaining the same EV and the rear control wheel alters the amount of exposure compensation. The compensation appears as a +/- symbol on the grip display and viewfinder display (illus. 4).

Variations (chosen by using the front control wheel) from the specific combination selected by the P or Pv mode are signified by a double arrow symbol appearing between the aperture and speed settings (illus. 5) on the grip display. These new variations provide the correct exposure but in different combinations.

AE- L button *1, 2, 3, 4, 5, 6*

This button has two main functions that can be incorporated in various working methods involving exposure locking. It also has an extra function for the flash measure capability (see AE-L section under Flash). The **AE-L** button can:

a) lock an EV setting in manual and automatic modes.

b) be used as a Zone System placement button.

a) When the button is pressed (fig 1), the light metering facility is locked to the EV setting at that moment. An **L** (= locked) symbol appears between the shutter speed and the aperture indication (fig 2) on the grip display and viewfinder display to confirm the status. Press the **AE-L** button again to unlock (toggle function).

In the locked setting, the aperture and shutter speed become interlocked. In this way, a new aperture/shutter combination that still represents the same EV, can be rapidly chosen. For example, if you set the shutter at 1/125s and the aperture at f/8 and lock them together, you can access new EV-equivalent combinations of, for example, 1/30s a f/16 or 1/500s at f/4 just by moving the front control wheel.

In practice this means you could, for example, in auto mode, position the metering area (spot setting) over an area in the subject that you determine to be equivalent to a mid-grey and lock it with the **AE-L** button. You can then recompose the picture with the metering zone positioned over an area much brighter or darker while still retaining the original exposure setting and choose a new combination of aperture and shutter speed settings.

3

New metered area is 1.8 EV lower than the area metered when the AE-L button was pressed.

4

AE-L button pressed to call the metered area 'Zone 5'.

5

Metered area reads 'Zone 8'.

6

Metered area above 'Zone 10'.

b) The **AE-L** button also allows the spot metering function to make zone placements. When the **AE-L** button is pressed, the metered area is saved as a mid-grey (Zone 5). When the spot area is then placed over another part of the scene, the new area is then compared to the saved area and the difference can be read off the scale seen in the viewfinder. For example, in a landscape situation you could meter the foreground, lock the reading with the **AE-L** button (thereby locking that area to be reproduced as the equivalent to a mid-grey 18%), point the camera at some rocks to see by how much darker they are compared to the foreground by the EV difference read off the scale (illus 3).

If you have chosen **Spot** together with **Zone** display (see 'Custom options #14' for settings) as well as one of the automatic modes **A**, **S**, **P** or **Pv**, point the spot marking at an area that you decide should be a Zone 5 and click the **AE-L** button (illus 4). The meter will now display different parts of the subject as zone values (illus 5) in the viewfinder display, instead of EV deviations, as you move the spot marking over the subject. (Included are Lo and Hi (illus 6) to signify areas beyond the range of the sensor).

Alternatively you can choose to re-classify an area as another zone and then check the rest of the subject to see how other areas fall on the zone scale. Do this by following the above procedure and then turning the rear control wheel until you see the new desired zone value in the viewfinder display. You will also see the new exposure that will now produce that new zone. For example, you might have measured a rock at zone 5 but wish to make it darker. By moving the rear control wheel you could re-classify it as zone 4. You will then be able to see, for example, whether white clouds are now falling within the exposure range by their new Zone classification.

Alternatively, you can also pre-set the initial zone reading in order to save time and effort where there is no freely available 'zone 5' subject for light measuring. For example, you might be on a sandy beach where you know that sand is normally classified as zone 6. You can pre-programme the zone placement by holding down the **AE-L** button while choosing the new zone value and turning the front control wheel until zone 6 appears. All new placements will then be zone 6.

Custom Options #3, #17 and #23 used to deactivate and alter the settings for the rear control wheel/Quick Adjust function.

Exposure compensation/Quick Adjust

The exposure compensation function, for both manual and automatic modes can be set from -5 to +5 EV, in 1/3, 1 or 1/2 EV increments (Custom Option #3) and is visible above the scale in the viewfinder and as a ± symbol on the grip display.

The quickest way to make an adjustment in auto-exposure mode is use the rear control wheel.

To make a temporary compensation setting in an auto-exposure mode using the Quick Adjust function:

a) Select chosen auto exposure mode.

b) Turn the rear control wheel to select the chosen amount of compensation.

The amount is displayed in the viewfinder as both an EV figure complete with a 'minus' or 'plus' prefix and as a marker above a 'minus' to 'plus' scale.

Default settings provide 1/3 EV compensation and an immediate clearing of the setting after capture.

However, in Custom Options #3 you can select 1/3, 1 or 1/2 EV increment changes, in Custom Options #23 you can choose to retain the setting after capture and in Custom Options #17 you can deactivate the function.

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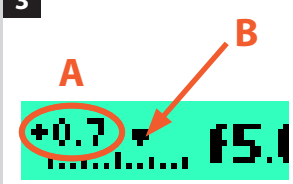

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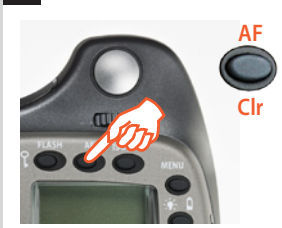

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To make a fixed exposure compensation setting, proceed as follows with the camera in active mode:

1) Press the +/- button on the viewfinder.

2) Turn either the front or rear control wheels to increase or decrease the amount of compensation in 1/3 EV steps.

3) The amount is displayed in the viewfinder as both an EV figure complete with a 'minus' or 'plus' prefix (A in illustration), and as a marker above a 'minus' to 'plus' scale (B in illustration).

4) Press **Clr** *(***AF** *button) to reset any compensation back to zero.*

5) Press **Save** *(***ISO / WB** *button) to retain the setting.*

6) A '±' symbol is then displayed between the aperture and shutter speed setting as confirmation of the setting.

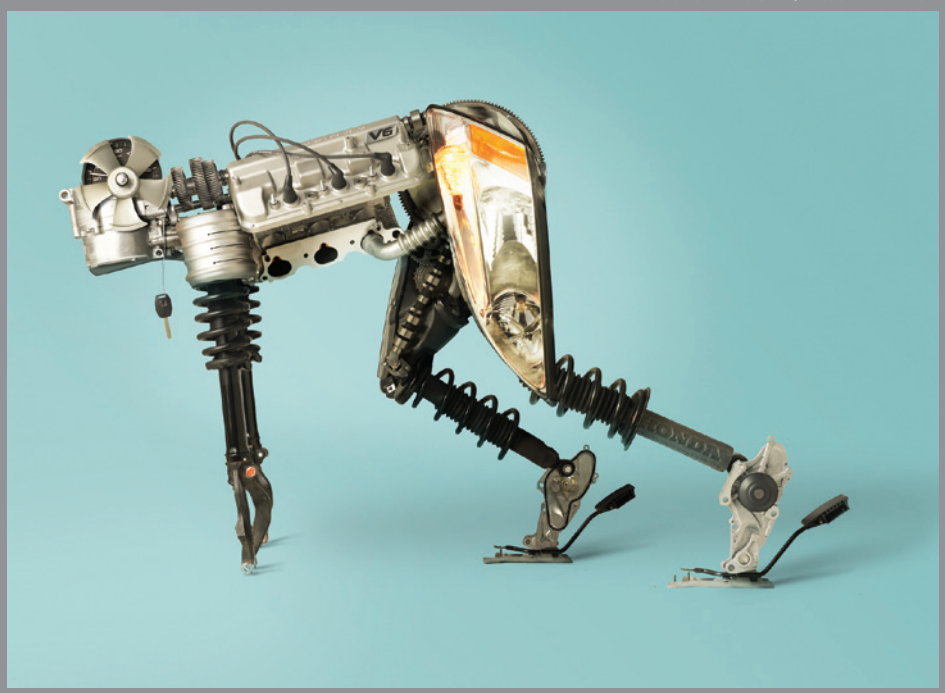
H4D

7

Profiles

Profiles not only allow for rapid setup in changing working environments but also ensure an element of security.

Photo: Mark Holthusen / Hasselblad Masters



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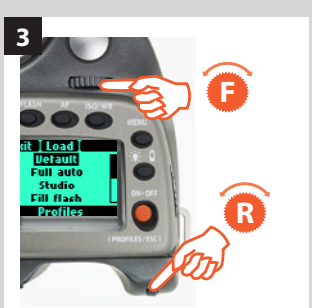


4

Profiles

The profiles feature allows rapid access to pre-determined combinations of settings that increase the speed and security of workflow. One example might be in a social situation where there might be a need for formal outdoor portraiture followed by informal indoor handheld flash-assisted wide-angle shots, both situations requiring very different settings in a stressful environment. By predetermining the relevant settings required beforehand for each situation, they can be saved collectively as a profile. By calling up the profile, you can then be assured that all the settings are correct at the press of one button.

For example, you might choose – autofocus single, bracketing, programmed exposure, etc – for outdoors. Once set, you would click on the red **PROFILES** button, select a profile name and press **SAVE**. A new name can be entered for the new profile - 'Outdoors', for instance - and saved again. New settings are made for the indoor shots changing to flash, Pv setting, etc and the procedure repeated. By simply accessing 'Outdoors' or 'Indoors' in the profile list, all the relevant settings will be instantly and correctly implemented to match the situation.

There are eight profiles: **Default, Full auto, Studio, Fill flash**. and four **Spare** reserved for customization. All except **Default** can be changed and renamed.

The pre-set profiles feature the following:

Default: normal flash sync, autofocus (single), single drive, auto exposure (aperture priority), centre weighted, user button -None

Full auto: normal flash sync, autofocus (single), single drive, programmed exposure, centre weighted metering, user button -None

Studio: normal flash sync, manual focus, single drive, manual exposure, spot metering. user button - AF

Fill flash: normal flash sync (adjusted output -1.7EV), autofocus (single), single drive, auto exposure, centre weighted.

Spare: customized profiles.

The default setting is highlighted on the display for easy and rapid access. Access to profiles lower on the list is via a scroll bar visible on the right of the display. Rotate the rear control wheel to bring them into view.

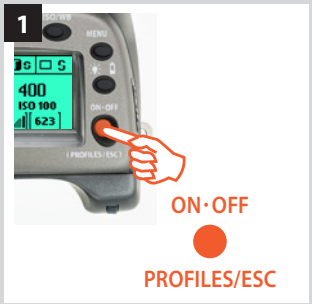
All user profiles can be restored to default values again simply by removing the battery and holding down the **MENU** and **ISO/WB** buttons together and while keeping them depressed, replace the battery. There will be an audible signal that denotes the restoration.

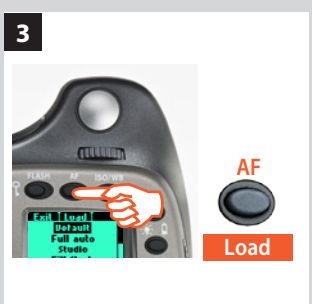
Note

All settings are stored when a profile is created. This includes the ISO, white balance, color temperature and color tint settings that were current at the time the profile was created. These profile settings will override the settings in use at the time the profile button was pressed. In other words, remember to check for unintentional ISO, white balance or color temperature changes when using profiles. (Color tint is not a user setting but is stored after a manual white balance has been made).

Making a profile

1) *Activate the camera and go through the various settings (for example, autofocus, aperture priority, fill flash exposure compensation, etc.) you require for the particular purpose and save them as you go.*
2) *When all the required settings have been made, click (not press!) the* **PROFILES** *button (***ON.OFF** *button) on the grip and the profile screen will appear.*





3) *Use the scroll bar to go through the list of profiles. Choose a* **Spare** *profile or a named profile (except* **Default***). You can either save the new profile under the original name or you can change it*

4) *Press* **Save (ISO/WB** *button). The Profile name screen is then displayed where you can rename the profile to what suits you (see under* ***Image Info 4.2*** *for procedure details).*

To use a profile from the main screen, press the **PROFILES** button to reach the profiles screen again. Scroll down the list to the profile you want and then press the **Load** (**AF**) button. All the saved settings will then be automatically implemented.

Note

If you decided to change the settings but nevertheless keep the Profile name on the list, the new set of parameters will be retained under that name. That is to say, the settings will not be the same as listed here, despite the name. It might be safer practice to always change the profile name to avoid later confusion.

Using profiles

1) *From the main screen, click* **PROFILES** *(***ON.OFF** *button) on the grip and the profile screen will appear.*
2) *Use the scroll bar to go through the list and highlight the desired profile.*
3) *Press* **Load** *(***AF** *button). The camera is now set according to all the parameters stored according to the name.*

Changing a profile name

You can change a profile name (except 'Default') at any time.

Proceed as follows:

1) *From the main screen, click* **PROFILES** *(***ON.OFF** *button) on the grip and the profile screen will appear.*
2) *Scroll through the list (front or rear control wheels) and highlight the desired profile.*
3) *Press* **Load** *(***AF** *button).*
4) *Click* **PROFILES** *(***ON.OFF** *button) again.*
5) *Press* **Save (ISO/WB** *button) The Profile name screen is then displayed where you can rename the profile to what suits you (see under* **Image Info 4.2***).*

Tip

To quickly reset all profiles back to the original factory settings:

1. Remove battery.
2. Wait 5–10 seconds.
3. Replace the battery while keeping both the Menu and ISO/WB buttons pressed.

H4D

8

Sensor unit
– introduction

Photo: Dirk Rees / Hasselblad Masters

Introduction

The captured image is temporarily stored internally on a CF card or externally, via a FireWire connection onto a computer hard disk. When tethered to a computer you can control the camera using Phocus (see the separate Phocus manual for further details).

As the H4D is a purely electronic device, attention to power supply is vital. When working untethered it is therefore important to plan battery loading / battery replacement to ensure continued workflow. Likewise, image storage is limited and appropriate steps should also be taken when planning a shoot.

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

If you scratch or mark the filter in any way, it will show up on every shot. Replacements are expensive so treat the glass surface with at least as much care as you would a lens. The sensor itself is not accessible for any kind of cleaning or maintenance by a user. Do not attempt any such action as you will almost certainly damage it irreparably. As is the case with all electronic devices pay extra care when working in damp environments and avoid damp conditions for storage.

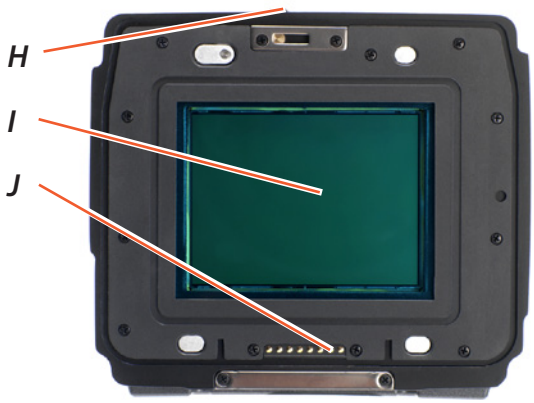
In keeping with Hasselblad's modular design philosophy, the sensor unit is an independent component of the H4D. In this way it can be used with view/large format cameras to optimize its use (see under ***Sensor unit – use with view cameras*** for details).

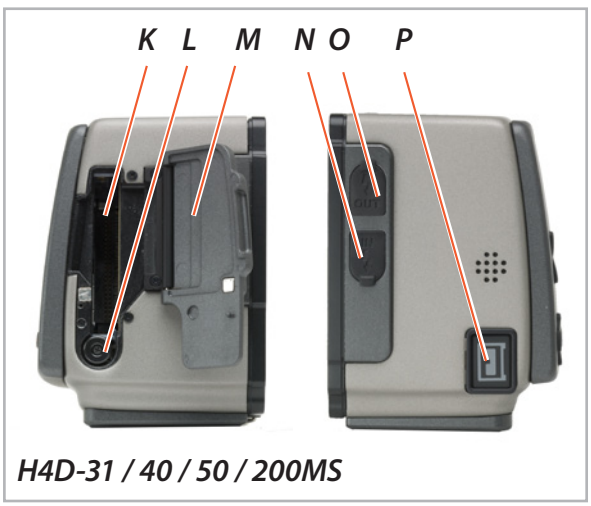
As a result when mounted on an H4D body, user information is spread across the three displays - the sensor unit display, the grip display and the HV viewfinder display. For example, exposure controls are visible on the grip display in the viewfinder display and in Phocus when tethered, but not on the sensor unit display Storage information is visible on the sensor unit display, but not the grip display. However, there are certain settings which are not only visible on both the grip and sensor unit but can also be changed from the grip or sensor unit (note that navigation through the sensor unit menu is either by the zoom controls on the unit or the control wheels on the grip). Please note, therefore, that various tasks are divided and shared.

With untethered use, the management of captures is handled by the unit. Tasks such as storage and rating are therefore visible on the unit display. In tethered use, captures are handled and stored by the computer and are visually checked in Phocus. Check the appropriate sections in this user manual and the Phocus user manual for details.

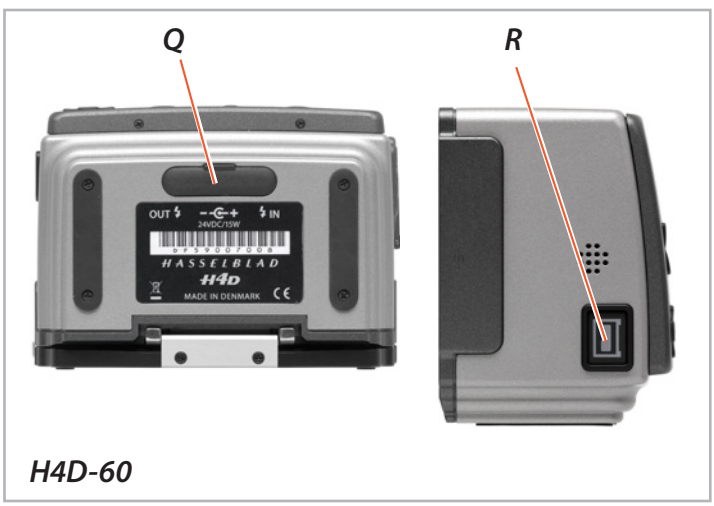
It is advisable to adopt a method that suits you for checking settings before each shoot. It is easy to forget small adjustments you might have made the time before. A checklist would naturally reflect how you normally work but generally, ISO and White Balance would probably be at the top followed by browse and file storage. Items such as exposure compensation, for example, will appear in the viewfinder and on the grip as a reminder but can be easily overlooked. You might want to consider using the profile function to make a one-button-press resetting of important functions for your particular regular situations.

There are other features such as the visual and audio signals for IAA rating for example, that you might find invaluable and therefore include them as part of your routine settings. All of these issues are covered in the later sections of this manual.





H4D-31 / 40 / 50 / 200MS



H4D-60

Parts, components & control panel buttons

The buttons are used for browsing images and navigating the menu system to make settings. Two of the buttons, located at the bottom-right and -left of the screen, are given an on-screen label that changes according to the current context. For example, the Approval button sets the approval rating when browsing images, but becomes an OK button to confirm settings.

Zoom- in/-out (Selection) button — A

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 batches and media. Also acts as a selection button for value setting on the menu.

MENU / (EXIT) button — B

Opens and closes the menu system. Also used for various other tasks (EXIT button, for example) as you issue commands within the menu system indicated by a description beside the button on the preview screen.

Navigation button — C

A four-way rocker button enabling you to step through preview images and navigate the menu system. To use it, press the side of the button that corresponds to what you wish to do (e.g., move up, left, right or down). Also provides access to Delete and Mark Overexposure shortcuts (as well as camera information display *(Currently 60 Mpix model only)*).

Display — D

The display is a 3 inch, TFT, 24 bit, 230,000 pixel type (460320 pixels for H4D-60). Contrast and brilliance can be adjusted.

View-mode button — E

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

Also activates spirit level *(Currently 60 Mpix model only)* if held down (toggle function).

Approval / (OK) button F

This button steps through the three approval levels, thereby assigning an approval status to the image currently displayed (or selected) in the preview screen. (part of the Instant Approval Architecture system). Also acts as a confirmation button (OK button) for some types of menu operations, such as deleting images; indicated by a label beside the button on the preview screen.

Busy-light G

Flashes to indicate that the sensor unit is performing an operation (such as saving a new capture). Although a new capture cannot be made while the light is flashing, focusing, aperture and shutter speed settings can all be changed.

Red signifies a problem (an explanatory message will be displayed).

Safety catch H

Used when removing the sensor unit.

CCD and IR filter I

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.

Databus connectors J

For digital communication with camera body.

Flash-card slot K

Flash-card removal button L

Flash-card slot cover M

(H4D-31 / 40 / 50 only)

Flash sync input N

Flash sync connector (protected behind a rubber cover) for when the sensor unit is used with a view/large format camera.

Flash sync output O

Flash sync connector (protected behind a rubber cover) for when the sensor unit is used with a view/large format camera.

FireWire connector P

FireWire 800 port for computer connection.

(H4D-60 only)

Flash sync & power connectors Q

Connectors (protected behind a rubber cover) used when the sensor unit is mounted on a view/large format camera.

FireWire connector R

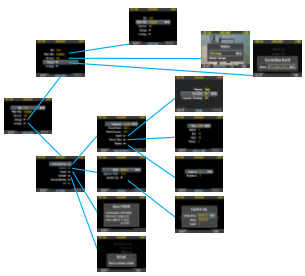
FireWire 800 port for computer connection.

Note

General sensor unit care

- *Time & Date settings on the sensor unit (which are included with files and batch 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.*
- *Do not touch the exposed CCD/filter with your fingers.*
- *Always replace the protective CCD/filter cover when the sensor unit is not mounted on a camera.*
- *Never attempt to remove the glass filter from the front of the CCD–you will probably ruin the CCD if you do so. If dust manages to get between the IR filter and CCD, it can only be removed at the Hasselblad factory. Contact your Hasselblad dealer for assistance.*
- *Store the sensor unit away from moisture and excessive heat.*
- *When cleaning the filter, take at least as much care as you would with any optic. See under* **Appendix** *for cleaning instructions.*

Introductory overview of menu access, navigation and settings choice.



The menu is structured in a manner similar to mobile/cell phones and similar small electronic devices. Various branches within the tree system are accessed by pressing the navigation button until you reach the point where a choice has to be made.

The **OK** (Approve) button or **SELECTION** (**ZOOM IN / ZOOM OUT**) buttons are then used to confirm choice.

Both the front and rear control wheels can also be used to navigate the menu. The rear control wheel navigates up and down the menu list and the front control wheel navigates sideways in the direction of the menu arrows. The front control wheel also functions in the same as way as the plus and minus button functions for settings choice.

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

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

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

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

When you reach the final destination of your choice (this might take several moves), **PLUS** and **MINUS** symbols appear to the right in the frame round the item. You then press the **ZOOM IN / ZOOM OUT** buttons to access a loop list of choices.

In the example on the left, 100 is the ISO value shown. By pressing either button the alternatives appear – 200, 400, etc and then back to 100 again. Pressing the **EXIT/ MENU** button will then confirm the new setting.

In the next example on the left, the name of a new batch is changed by pressing a combination of the **ZOOM IN / ZOOM OUT** buttons as well as the navigation button. You can then confirm your choice with the **OK** (●●●) button or revert to the previous status by pressing the **EXIT** (●) button. Note that how the **MENU** button is now described as **EXIT** on the display, and the Approval button is described as the **OK** button. See later sections for more comprehensive information.

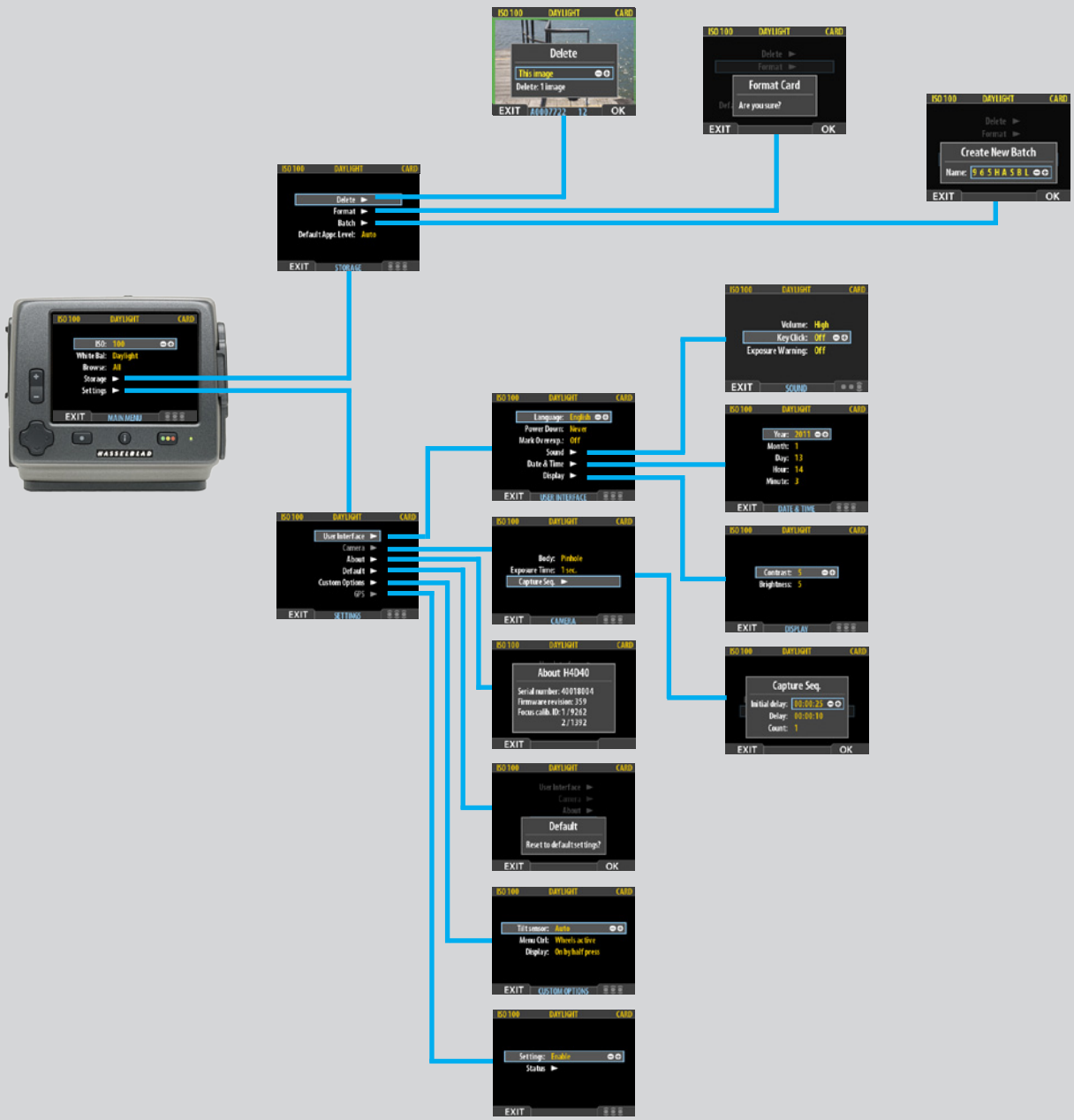
The rear control wheel navigates up and down the menu list and the front control wheel navigates sideways in the direction of the menu arrows.

The front control wheel also functions in the same as way as the **ZOOM IN** and **ZOOM OUT** button functions for settings choice.

(The wheel can be set in Custom Options #17).

The **FLASH** button on the grip also acts as a menu **EXIT** button and the **ISO /WB** button acts as an **OK** button.

Schematic view of sensor unit menu



Here you can see where all the screens are situated with regard to each other. Navigating to them is just a matter of tracing along the paths using the Navigation button.

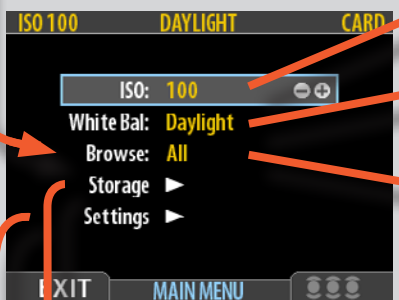
You can revert by either pressing the Navigation button in the opposite direction or the Menu/Exit button.

By using the buttons on the control panel and the control wheels on the grip you can navigate down through the various levels in the menu.

Below is an overview of the setting options available.

Simple description of menu items

MENU

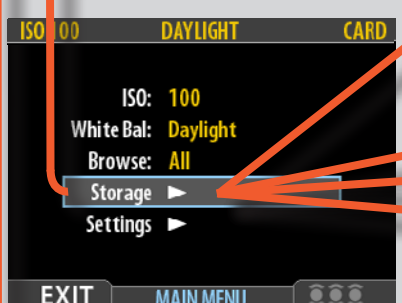


ISO
Sets the light sensitivity of the sensor.

WHITE BALANCE
Sets the color temperature of light used.

BROWSE
Sets the IAA approval status (rating) filter for easier and quicker image browsing..

STORAGE



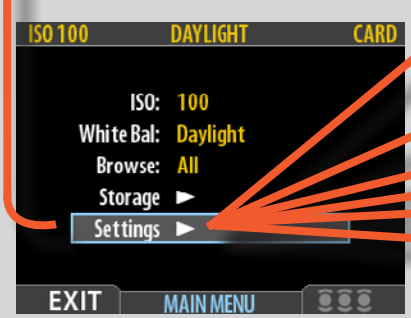
DELETE
For single or multiple deletion of images.

FORMAT
Used to format CF cards for optimum use.

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

DEFAULT APP LEVEL
Assigns a default IAA approval status (rating) to all new images.

SETTINGS



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

CAMERA
Sets options when sensor unit is attached to a view camera.

ABOUT
Displays serial number and firmware version.

DEFAULT
Resets all custom settings back to the original factory settings.

CUSTOM OPTIONS
Sets options regarding tilt sensor, menu control and display.

GPS
Sets options for the GIL (Global Image Locator) GPS accessory when attached.

H4D

9

General sensor unit overview
– initial settings

This section deals with getting started as well as a general overview of tethered and untethered shooting and capture storage modes.

Photo: Mark Zibert / Hasselblad Masters

Getting started

The initial general setting is language choice. This choice is retained but can be changed at any time. You can choose between:

ENGLISH
GERMAN
FRENCH
ITALIAN
SPANISH
JAPANESE
CHINESE

Before each shoot an ISO and a white balance setting should be made (white balance is for your convenience regarding the appearance of the image on the display though; it will not affect the raw file. See next chapter for details).

Although the description below illustrates how the language choice is set, it is also a general introductory illustration of how settings are changed.

Setting the menu language

Proceed as follows:

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

Note

If an item on the menu is dimmed (for example, in fig. 4 "Camera" and "GPS" are dimmed), it signifies that the item is not currently accessible.

Tip

If you find the sensor unit has been set to a language you don't understand (a rented camera, for example), you can use the procedure above to get back to your preferred language just by following the actions and appearance in the illustrations here.

Capture storage

The H4D can store captures in two ways:

1. Untethered / Compact flash card mode

In this mode the H4D acts independently of other connections. Captures are stored on the internal, removable compact-flash card.

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

Please note that the recommended types of CF cards are SanDisk Extreme-III/IV (or better) or Lexar Professional 133x/233x (or better). Other cards will work but offer a reduced capture rate.

2. Tethered / Studio mode

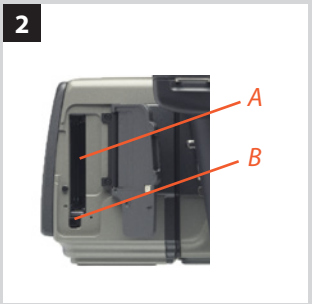
This mode enables you to connect the H4D directly to a computer and to control it using Hasselblad Phocus software and store captures on a computer hard-disk.

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

Capture destination

The capture destination is the location to which new captures are saved and from which you can browse using the camera controls. The capture destination is selected automatically:

- ***When tethered, captures are always saved directly to the computer hard disk.***
- ***When untethered, a compact-flash card is automatically selected.***



Using compact flash memory cards

When using a compact-flash card, the H4D is completely self-contained. No additional wires or connectors need to be attached.

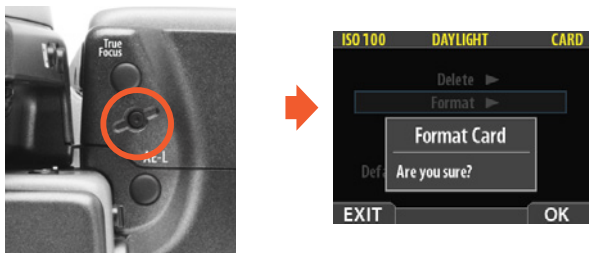
The H4D is shipped with a 4GB (or larger) compact-flash card, which is capable of holding approximately 50 – 100 captures (according to model). Lossless compression is applied to the images, so the actual size of each capture can vary, thereby affecting the total number of shots you can fit on the card.

Inserting a card

1. *Open the CF card slot cover on the sensor unit.*
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 in the sensor unit, with the brand label facing in the same direction as the sensor unit preview screen, as in the illustration. 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 unit, then you are inserting it correctly. Press the card another couple of millimeters firmly into place.*
5. *Close the slot cover shut again.*

Removing a card

1. *Open the CF card slot cover on the sensor unit.*
2. *Press the release button a little way in to release it into the active position.*
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 millimeters.*
4. *Grasp the card and pull it away from the sensor unit.*
5. *Close the slot cover shut again.*



Formatting

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

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

Format button :

Press the **Format** button on the camera grip. It is purposely recessed to avoid unintentional use, so use a ball-point pen or similar. A warning is displayed as confirmation.

1

2

3

Format on sensor unit menu:

1. *Select* **MAIN MENU > STORAGE > Format**.
2. *Press the ➤ to open the* **Format Card** *dialog.*
3. *You are now asked to confirm the operation.*

- *To confirm, press the* **OK** *button. This will carry out the format and delete all data on the current medium.*
- *To cancel, press the* **EXIT**.

Tip

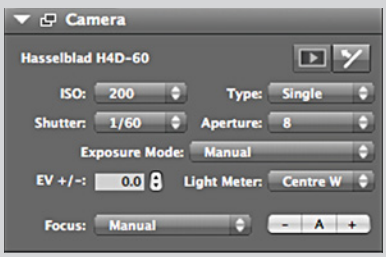
It is good practice to format new cards and regularly reformat older cards to exploit the optimum for speed, storage capacity and secure storage (particularly if they have been formatted - or used - with other devices).

Tip

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

Note

The sensor unit is capable of formatting any type of storage medium. When you do this, all data contained on the target medium will be erased.



Tethered to a computer

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. Please note, however, that the camera still needs a charged battery attached to function properly.

Shooting with Phocus running

When you are connected to a computer, the following rules apply:

- ***The destination medium and location are controlled from Phocus.***
- ***All exposure settings, including ISO, aperture and exposure time, are controlled from Phocus if you choose to expose from Phocus. In addition extra tools such as Live Video, remote focus control etc are available. See Phocus user manual for full description.***
- ***The menu system on the sensor unit is disabled.***
- ***The sensor unit will take power from the FireWire cable if it is available (not all computers can supply power, notably laptops). This will help conserve the battery power of the H4D. However, you must still have a charged battery connected as the camera body needs it in order to operate.***

When initiating a shot from Phocus, the computer sends a signal to the sensor unit, which triggers the shutter (and strobe/flash, if any). The unit then sends the capture back 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.

3FR is a proprietary Hasselblad format for storing raw captures. It contains the complete raw image exactly as it was captured by the camera, plus technical details that enable Phocus to process and display the image correctly, amongst other things. This 3FR file is converted into a 3F file (denoted by each file now bearing the suffix ".fff") that furthermore stores a complete history of the Phocus settings that you have applied to each image and stores metadata such as camera settings, image name, photographer, copyright, etc.

If you prefer not to correct and adjust your captures in Phocus, then you can export 3F files from Phocus (and Aperture/Mac OS 10.5.2) directly to DNG, TIFF or PSD and use Adobe Photoshop, for example.

Finally, some raw processors (for example, Adobe Camera Raw 5.4 onwards and Adobe Lightroom 2.3 onwards) can directly open 3FR files without the need for Phocus. Please note, however, that a direct 3FR export will not include DAC, HNCS etc, and those benefits will therefore be lost.

To clarify:

- *For maximum quality and benefits, retain 3F files (for the eventual opportunity to re-process files utilizing any future Phocus improvements).*
- *3F files exported to the DNG format will not include DAC, HNCS etc.*
- *3FR files imported directly to a raw processor (see above) will not include DAC, HNCS etc.*

Please refer to the Phocus user manual for further instructions about using Phocus.

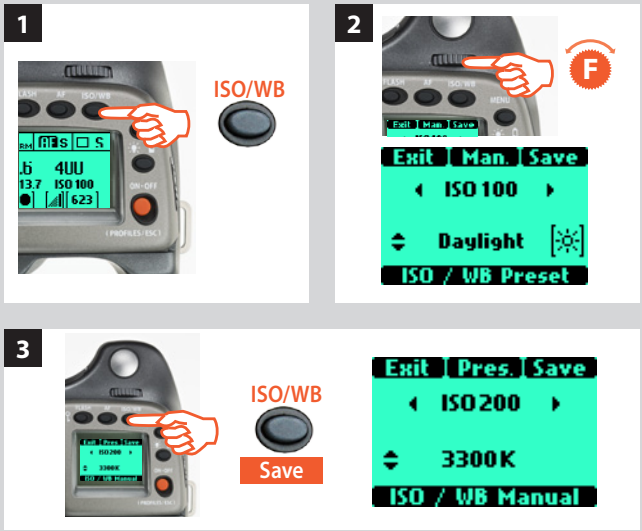
H4D

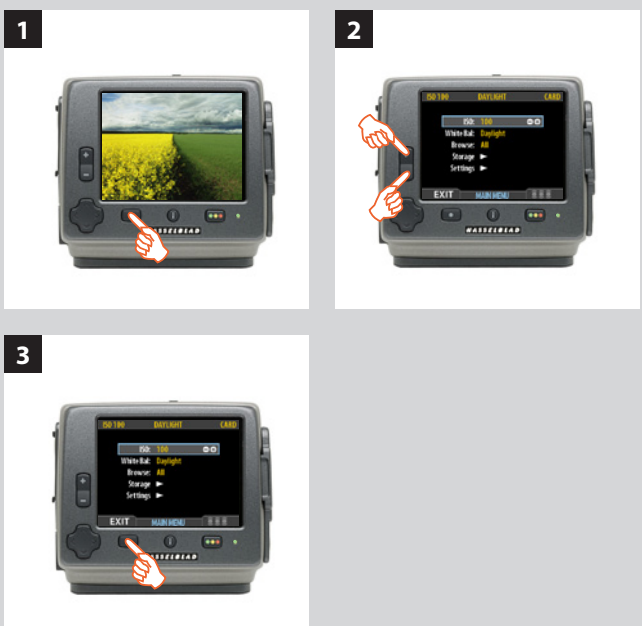
10

Sensor unit
– getting started

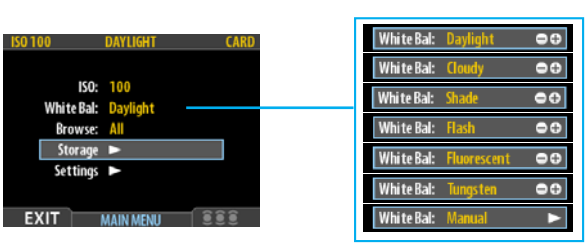
This section covers basic initial settings: ISO, white balance and selection of media.

Photo: Claudio Napolitan / Hasselblad Masters





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



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

Settings check

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

ISO

The ISO setting can be made using the ISO/WB button on the grip or on the sensor unit. The 'natural' sensitivity of the CCD is ISO 100, so you will get best results with this setting if the light conditions allow.

To set the ISO on the grip:

The **ISO/WB** button provides immediate access to ISO settings. The front control wheel is used to make the desired changes. The settings are automatically and simultaneously transferred from the camera to the sensor unit. Please note that the changes are only displayed on the sensor unit when the settings have been saved.

1) *Press the* **ISO/WB** *button on the grip.*
2) *To make an* **ISO** *setting, turn the front control wheel to select the desired rating.*
3) *Press* **SAVE** *(***ISO/WB** *button) to save the setting.*

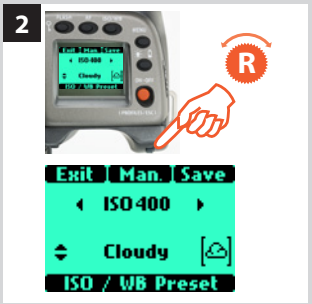
To set the ISO on the sensor unit

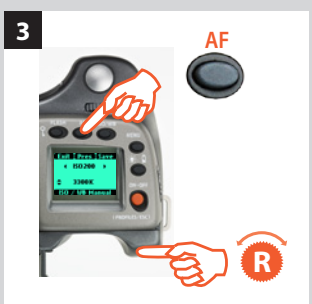
1. *Choose* **MENU > ISO**. *This is the top item of the top menu, so it will be selected by default when you enter the menu system.*
2. *Use the zoom (* − *or* + *) buttons to step through the available ISO settings until the setting you want is shown.*
3. *Press the menu button to exit the menu system and keep the setting.*

White balance / Grey balance setting

There are several ways to make a white/grey balance setting adjustment. When untethered on location you might prefer to make a quick preset adjustment setting at the same time that you check the **ISO** and **Media** settings. Tethered in the studio you might prefer to take the first shot of a grey card/scale and make the adjustment in Phocus for that session. In addition, you might want to assign the **User Button** as a rapid white balance check in a mixed lighting situation.

A white balance setting can be made either on the grip or on the sensor unit. Changes made on one are recorded and displayed on the other.





To set the white balance on the grip

The **ISO/WB** button provides immediate access to white balance settings. The rear control wheel is used to make the desired changes. The settings are automatically and simultaneously transferred from the camera to the sensor unit. Please note that the changes are only displayed on the sensor unit when the settings have been saved.

1) *Press the* **ISO/WB** *button on the grip.*
2) *To make a preset* **White Balance** *setting, turn the rear control wheel to choose between:*

   Daylight, Shade, Cloudy, Flash, Fluorescent and Tungsten
3) *To make a* **Manual White Balance** *setting (not a* ***White balance test exposure)****, press the* **Man.** *(***AF***) button and then turn the rear control wheel to choose a color temperature:*

   2000 – 10000 K
4) *Press* **SAVE** *(***ISO/WB** *button) to save the setting.*

Note

White Balance settings are only approximate color temperature settings. They are only used for user convenience when viewing. 3F/3FR files are raw format files and therefore contain all the information required for correction in Phocus and/or other software, regardless of the original color temperature at the time of exposure.

To set the white balance on the sensor unit

To select a preset white balance:

1a. Press the **MENU** *button on the sensor unit.*

2a. Use ▲ and ▼ to select **White Bal:**.

3a. Use the zoom(− or +) button to step through the available choices until the one you want is shown.

4a. Press the **MENU** *button to exit the menu system and keep the setting.*

To make a manual white balance setting:

1b. Choose **MENU > White Bal > Manual**.

2b. Use the ➤ button to call up the 'Manual White Balance' screen. Here, you can adjust the color temperature to a specific numeral setting in degrees K with the zoom (− or +)

3b

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

4b

3b. *Alternatively, you can position the central spot in the viewfinder over an area that you consider should be rendered as neutral in color in the image (a 'grey card' or even a sheet of white paper is ideal) and make a test 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. 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.

4b. *Press the* **MENU** *button to exit the menu system and keep the setting.*

To make a rapid User Button white balance setting:

(Please note: this function works when using a CF card only)

1. *Assign the* **User Button** *(or* **AE-L, STOP DOWN or M.UP** *button) to activate* **Grey balance exp.** *(see under* **Customizable button function list** *for details.*
2. *While framing the centre spot in the viewfinder over a neutrally colored surface, press the assigned button.*

   A small rectangle appears on the display marking that particular area. Calculations then take place automatically so that the following shots use the area chosen as the new 'white balance' standard.

Note

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

H4D

11

Browsing images

Photo: Mark Holthusen / Hasselblad Masters

This section is an overview of the various ways of browsing, zooming, sorting and viewing images.

Basic image browsing

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

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

Browsing

To browse the captures in the current batch, simply press the left (◄) and right (►) arrows of the navigator button.

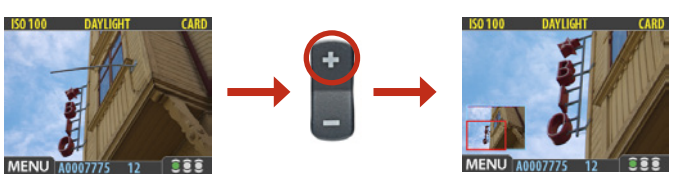
Zooming in and out

You can use the Zoom in/out button to see various levels of detail in your images. You can furthermore zoom all the way out to view and select batches and media.

Zooming in for more detail

You can zoom very far into the images to inspect small details. To do this:

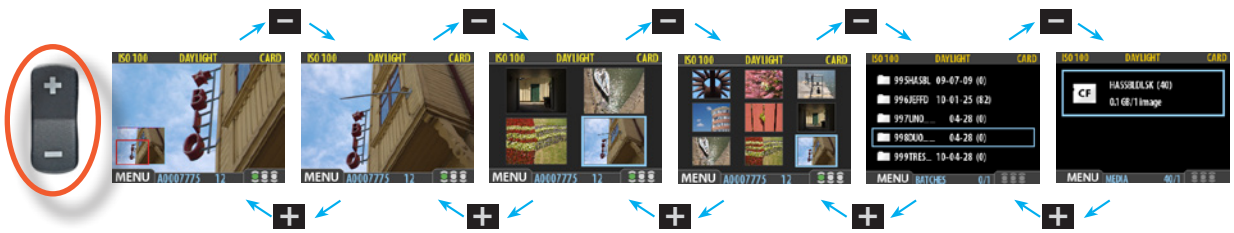
1. *Browse to the image you wish to zoom into with the navigation button.*
2. *Press the zoom-in (+) button to zoom in one step. The screen updates to show both a zoomed image and a thumbnail image that includes a red box outlining the portion of the images currently shown.*



3. *You can now do the following as needed:*
   - *Use the navigator button to move the zoom area if you wish to inspect a different part of the image.*
   - *Zoom further by pressing the zoom-in (+) button more times.*
   - *Zoom back out one step by pressing the zoom-out (−) button.*
4. *When you are finished, press and hold the zoom-out (−) button to return to browsing at the standard zoom level.*

You work your way deeper into the menu each time you press the − button to view media, batch, thumbnail view etc. The selected item is framed framed in blue.

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



Zoomed | Normal view | 4-Thumbnail view | 9-Thumbnail view | Batch list | Media

Note

When you browse using the navigator button, you will only see images from the current batch. To view another batch, you must navigate to the media list by zooming and then selecting the appropriate batch.

*See **Navigating Batches** for complete details about how to select the current batch.*

Thumbnail views

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

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

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

Browsing by IAA (approval status)

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

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

Tip

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

Viewing modes

Various amounts of information can be displayed when viewing previews. This ranges from histograms to a set of metadata. There are five modes. See **Preview Modes** for details.

H4D

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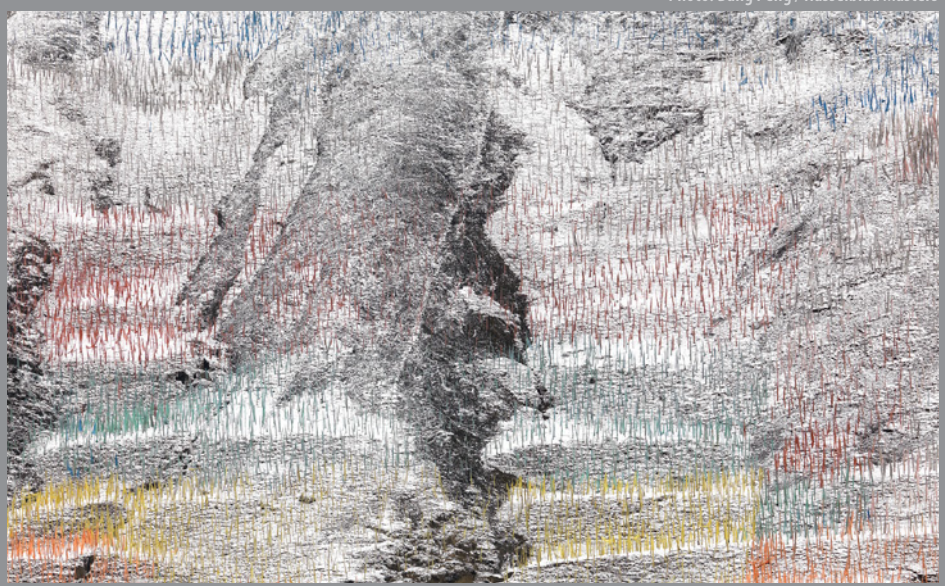
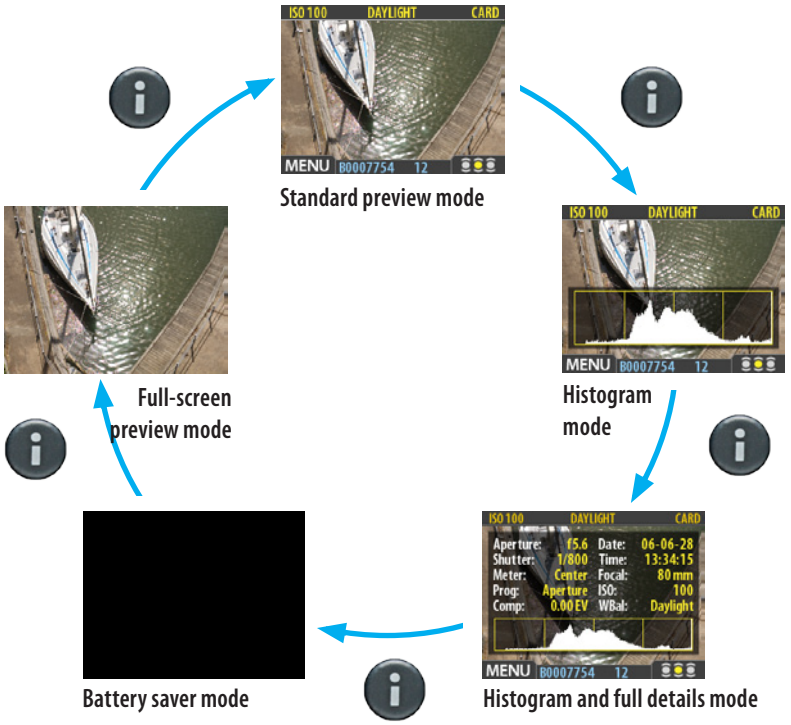
Preview Modes

The preview can be set to various modes to show or hide technical information. It can be changed in seconds.

Photo: Bang Peng / Hasselblad Masters





Preview Modes

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

Preview Modes

Choosing the Preview mode

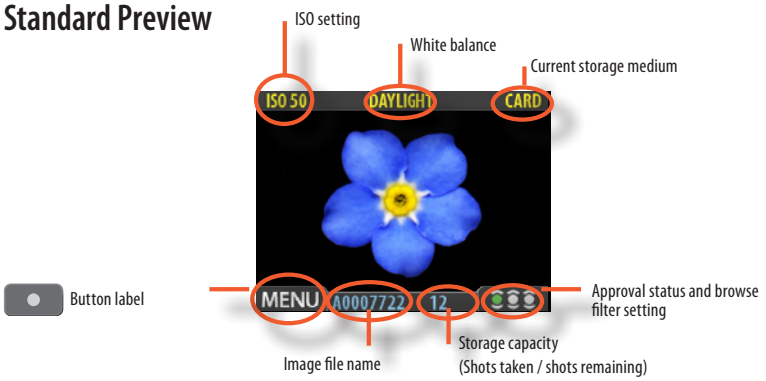
Use the **View Mode** button to cycle through the available preview modes which are:

- **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.
- ***Histogram and full details:***
  Shows a preview image overlaid with both a histogram and camera-setting details.
- **Battery saver:**
  Turns off the screen, but you can still use the menus and take pictures.
- **Full-screen preview:**
  Shows the preview only, with no frame or settings information.
- ***Spirit level:*** *Spirit levels can be displayed on the sensor unit by holding down the **View-mode** button for a second (currently 60 Mpix models only).*

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

The display also operates in menu mode, which does not show a preview, but enables you to make sensor unit settings. To enter menu mode, press the menu button. See **Menu Items** for details.

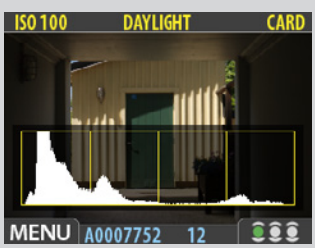
Standard Preview



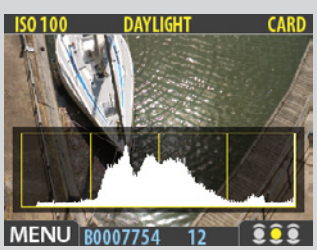
The Standard Preview display is the one shown when you first turn on the camera and is probably the view you will use most often.

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

Furthermore, the display enables you to navigate the menu system and make camera settings; see ***Simple description of menu items*** for details.



1



2

3

Histogram Mode *1, 2, 3*

Using the histogram

The histogram provides a graph that indicates the total number of pixels at each brightness level, with brightnesses going from black on the left to white on the right. It is a valuable tool for evaluating 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 many situations in which a questionable histogram will match an exposure that is perfectly acceptable for the intended effect (and vice-versa). Look at the histogram examples and the explanations below:

Underexposure *1*

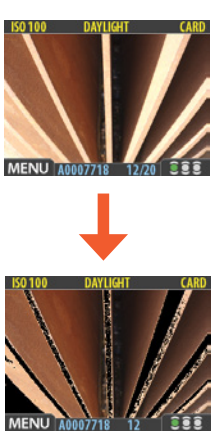
A histogram display that is concentrated on the left with few pixels elsewhere indicates a likely underexposure. Many details will be lost in the shadows.

Even exposure *2*

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.

Overexposure *3*

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.



Overexposure indicator

Although the histogram shows you when some of the 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 the image are just bright or completely overexposed. To help you find them, the sensor unit provides an overexposure indicator, which shows precisely which areas are at maximum brightness without detail.

When enabled, the overexposure indicator flashes the overexposed pixels from white to black. To enable or disable the overexposure indicator, choose **MAIN MENU > SETTINGS > USER INTERFACE > Mark Overexp.** or use the shortcut.

Tip

Overexposure indicator shortcut

Press on ▲ on the navigation button for a few seconds to enable or disable the Overexposure indicator.

4

Full Details Mode 4

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

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

5

Battery-Saver Mode 5

In this mode, the sensor unit is fully responsive, so you can make captures but the screen is not lit up, thereby saving battery power.

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

6

Full-Screen Mode 6

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

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

Tip

You can save battery power by turning down the brightness and/or contrast of the display. See **User Interface** *for details.*

Tip

Other ways to save battery power include setting a display time-out and/or a power-down time-out (each of these is disabled by default).

Camera information *(Currently 60 Mpix model only)*

By clicking the upper arrow on the **Navigation** button you can display most of the current shooting-related information (as simultaneously shown on the grip LCD) such as: aperture setting, shutter speed, flash indication, focus setting, drive, EV, battery status, exposure method, capture counter, ISO and white balance.

H4D

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IAA
– *Instant Approval Architecture*

IAA should be considered as a necessary part of your methods. It can help you browse efficiently and help in sorting before you download to a workstation.

Photo: Nina Berman / Hasselblad Masters

Using Instant Approval Architecture

The Instant Approval Architecture system helps you to evaluate your images as quickly as you take them. It works by supplying immediate audio feedback, which tells you instantly whether each new capture is exposed correctly or likely to be rated as over- or underexposed. Simultaneously, it applies a colored code to each capture as a visual reminder of its status. This status can be manually changed when browsing either immediately or later on. In addition, each file named is prefixed by a letter (A, B or C) according to status. This system also allows you to browse by filtering to show or hide only the captures you want.

The color coding and the name coding remains tagged to the file so when it appears in Phocus, the status can be used by way of filtering to speed up and facilitate the filing, browsing and selection process at that stage too.

Though you can use the system any way you like, the intention (based on the 'traffic light' principle) is that you should assign the levels as follows:

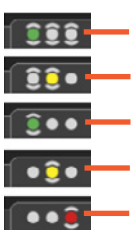
- *GREEN for your best shots.*
- *YELLOW for images that need closer inspection.*
- *RED for images that you are unlikely to use.*

IAA overview

Current browse filter setting

Faster and more effective browsing can be achieved by filtering captures.

The 'brackets' represent the filtering method selected as follows:



Show all

Show green and yellow only

Show green only

Show yellow only

Show red only

Capture file name

File names are prefixed by a letter to represent the current approval status. This letter will change if the status is changed. In this example the capture is green so therefore the file name starts with 'A'.

The coding is as follows:

GREEN files start with 'A'

YELLOW files start with 'B'

RED files start with 'C'

Current approval status

A coloured dot represents the current approval status. The colour will change if the status is changed.

Standard Instant Approval workflow

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

1. *Take a shot.*
2. *The camera analyses the shot to find out if it seems to be over- or underexposed. If it suspects a problem, it does the following:*
   - ***provides audio feedback (if this option has been chosen) by making a warning sound, which immediately alerts you to a possible problem even if you are not looking at the screen. The warning sound is a rapid string of notes going up the musical scale if the image is judged as overexposed or conversely a rapid string of notes going down the musical scale if the image is judged as underexposed.***
   - ***downgrades the approval status to yellow (if Approval is set to 'Auto').***

Tip

The default approval level is set by going: **Menu > Storage > Default Appr Level**. *See later section for details.*

Note

When the current storage medium is full, red-status images will be deleted (one at a time) to make room for new shots.

You can continue shooting until no red-status images remain. If you then try to take additional captures, you will get a 'medium-full' message.

Note

Some captures may trigger audio warnings even though they are exposed according to your intentions. You should consider these warnings only as a guideline. This feature can be turned off in User Interface **>** Sound.

3. *If no problem is detected, then the image is saved with the chosen default approval status.*
4. *When you are browsing through your shots, keep an eye on the approval status of each and consider whether you should promote or demote each shot based on its appearance on the preview screen. You can also apply a browse filter, for example, to browse only red shots when looking for images to delete or to browse only green shots to make sure you have a good version of each shot that you need.*
5. *When you begin working with the images in Phocus, use the approval status as a guide for organizing your work. For example, you might begin by opening and optimizing the green shots and then go to the yellow shots only if you still need more images and then, finally, check the red shots as a last resort.*

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

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

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

Changing the IAA approval status of individual captures.

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

Note

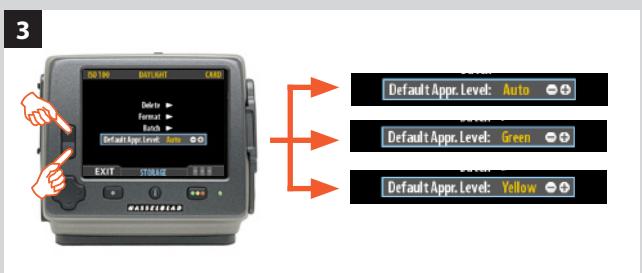
You can set the camera to filter by approval status as you browse, which means that some images may be hidden (though they are still there). See **Browsing by Approval Status** *for details about how to work with the filter.*

Note

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

Note

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



Default approval status

By default, the system assigns an initial approval status for each new shot based on an analysis of the distribution of exposure levels. In the factory configuration, the status of each new shot is assigned as follows:

- ***Green (approved):***

  The new shot seems to have been exposed correctly.

- ***Yellow / Amber (unclassified):***

  The new shot seems to have been over- or under-exposed.

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

To change the default status assigned to each new image:

1. *Press the* **MENU** *button.*
2. *Press ▼ to navigate down and select the* **Storage** *level.*
   Press ➤ and then ▼ to navigate down and select **Default Appr. level**. *Press ➤ to open the* **Default Appr. level** *dialog.*
3. *Use the + or − button to step through the available settings until the default status you wish to use (auto, green or yellow) is shown.*
4. *Press the menu (***EXIT***) button to exit the menu system and keep the setting.*

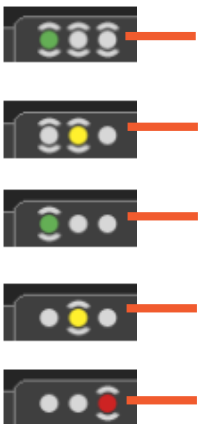
Setting the default status

The camera normally works by assigning a green status to all images that pass a basic exposure test and a yellow status to all images that fail the test. However, you can change this behavior if you prefer an alternative workflow. You have the following options:

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

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

Choose **MAIN MENU > Browse** to make this setting.



Show all
(brackets on all)

Show green and yellow only
(brackets on green and yellow)

Show green only
(brackets on green only)

Show yellow only
(brackets on yellow only)

Show red only
(brackets on red only)

Browse filter shortcut

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

1

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Browsing by approval status

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

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

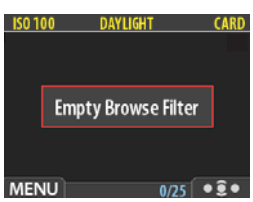
There are many ways to make use of this feature. For example:

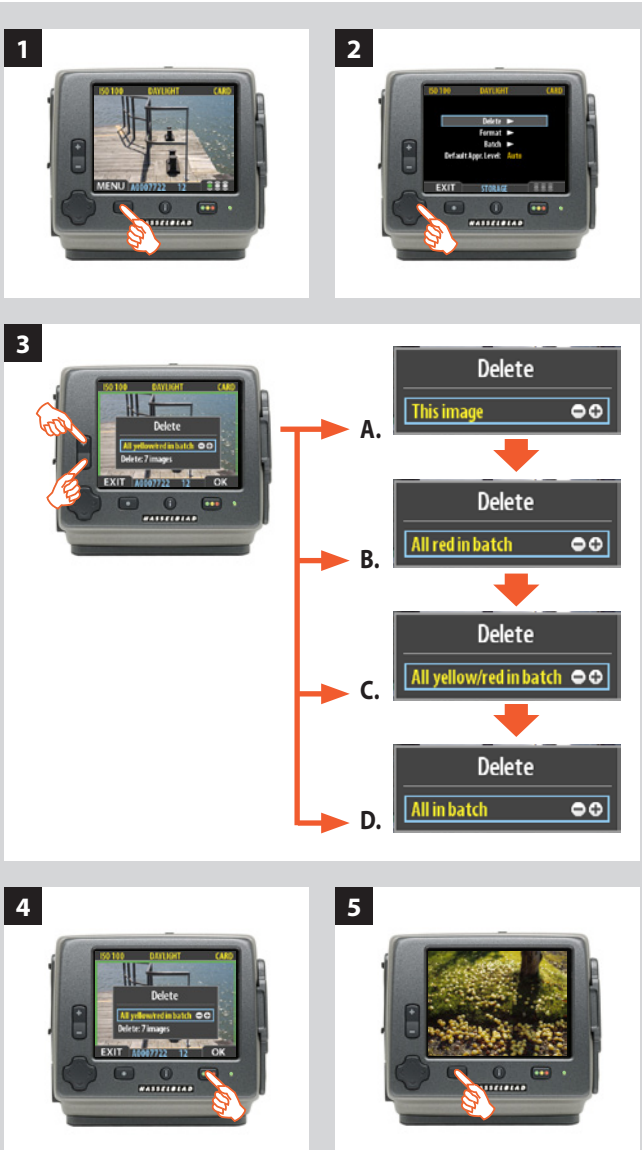
- ***Set the filter to show only yellow images. Then step through each image and decide whether any of them should be promoted to green or demoted red.***
- ***If you are running out of space, set the filter to show only red images and then step through to find shots you can delete.***
- ***Set the filter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

There are two ways to set the browse filter:

1. *Choose* **MAIN MENU > Browse**. *The current setting is displayed here.*
2. *Use the zoom (− or +) button to step through the filter options (described above) until you have selected the filter you wish to use.*
3. *Press the menu button to exit the menu system and keep the setting.*

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





Deleting by approval status

There are several ways to delete images, including approval status. You can choose to delete:

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

roceed as follows:

1. *Starting at the single-image preview display, Select* **MAIN MENU > STORAGE > Delete**.
2. *Use ➤ to enter the* **Delete** *submenu or use shortcut.*
3. *Use the − or + button to select:*
   A. **This image** - *deletes the current image only*
   B. **All red in batch** - *deletes all red images in the current batch*
   C. **All yellow/red in batch** - *deletes all yellow and red images in the current batch*
   D. **All in batch** - *deletes all images in the current batch*
4. *Press* **OK** *to confirm the delete (to exit without delete, press* **EXIT**).
5. *You now return to the main menu. Press the menu (***EXIT***) button to exit the menu system.*

For other kinds of delete, also see **Delete**.

H4D

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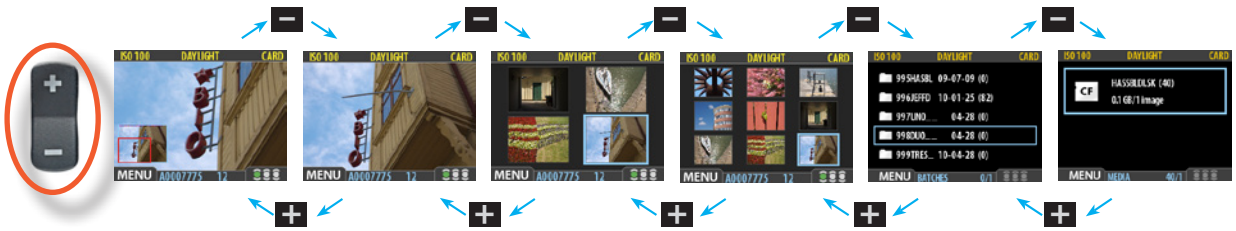
File storage
– working with batches

This section covers navigation of the menu regarding storage media, the storage of captures in batches, viewing batches as well as rating and browsing captures of using the IAA system.

Photo: Joao Carlos / Hasselblad Masters

Introductory overview

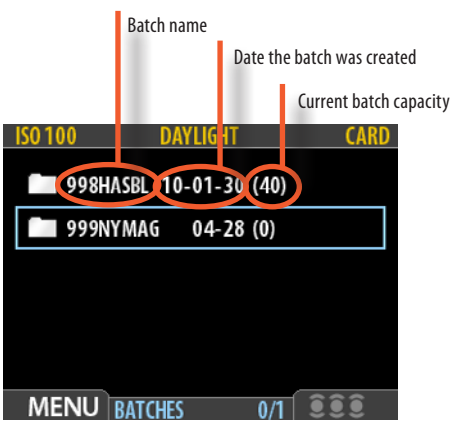
Navigating to batches and media.



Creating new batches

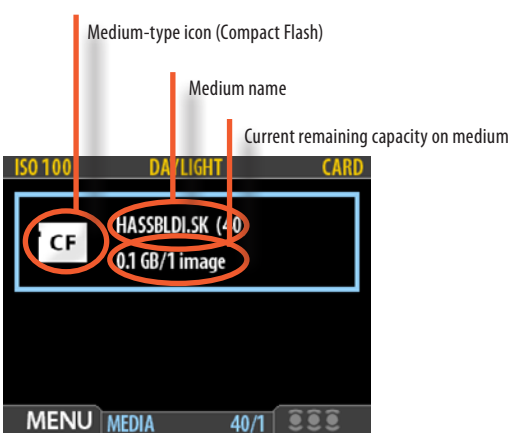
The **BATCH** screen.

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



The **MEDIA** screen.

Displays information about the **Current Medium**



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Organizing work with batches

Collections of captures are stored in named and dated folders called batches. They help you to organize your shots as you work and function exactly as folders on a computer.

Batches have the following properties:

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

Creating a new batch

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

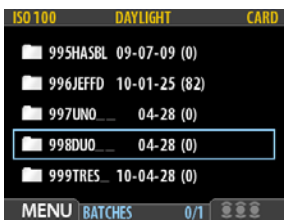
Note

Each new capture will be saved in the latest created batch only. You cannot select to save it in another batch.

1

Example: nine-thumbnail view

2



3

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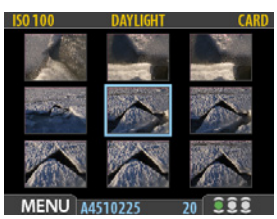

Navigating batches

The camera always works with a **current batch**. This is the location at which the camera will save all new shots.

To view batches using the browse controls:

1. *If you start with a single-image preview view, press the zoom-out ( ) button to pass through the following views:*
   - *Single-image preview*
   - *Four-thumbnail view*
   - *Nine-thumbnail view*
2. *A list of batches now appears. Each batch appears as a folder icon with a name and the date on which it was created.*
3. *Use ▲ and ▼ to highlight the batch you wish to view.*
4. *Press the zoom-in ( ) button to zoom-in on the currently highlighted batch.*
5. *The nine-thumbnail view of the selected batch now appears ready for zooming and browsing.*

Note

Each new image will automatically be saved in the latest created batch only. You cannot 'select' a batch for storage.

H4D

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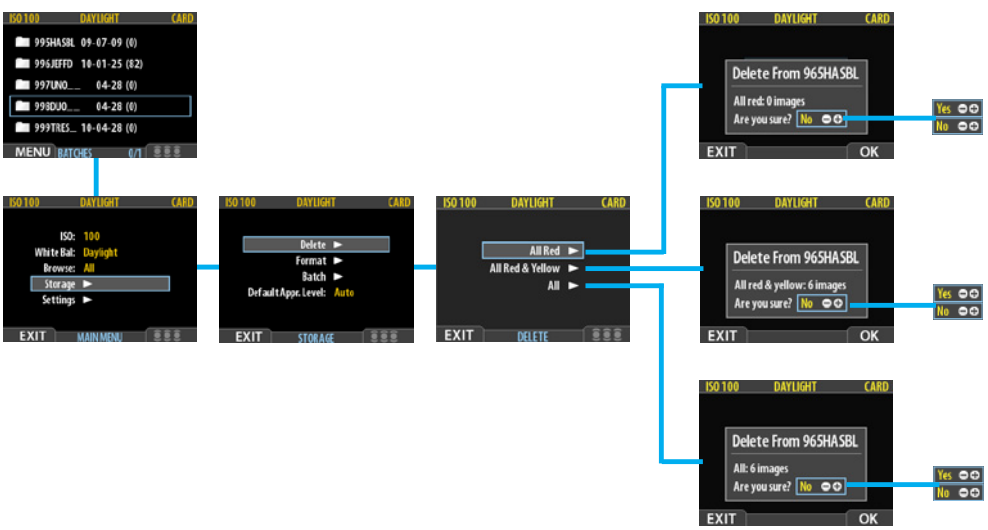
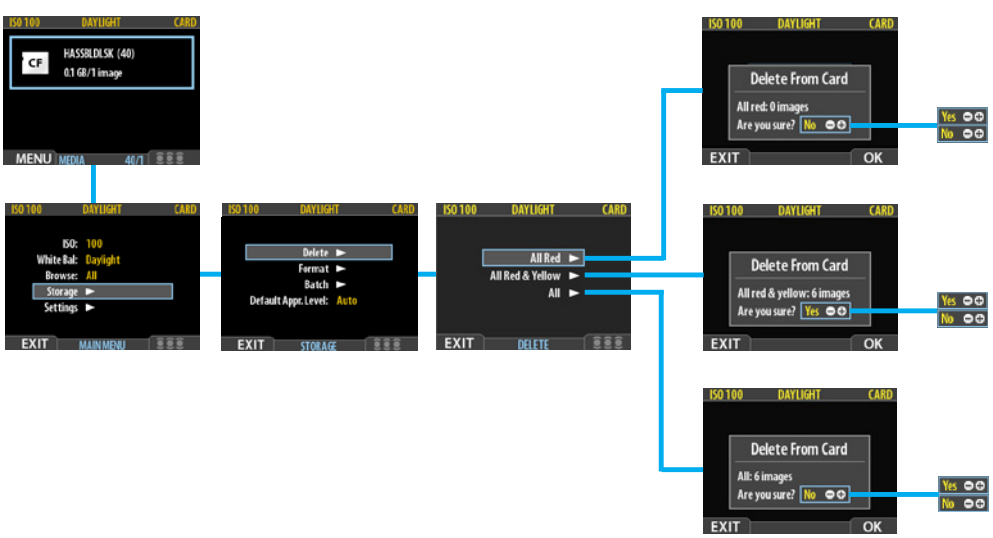
Deleting images

Photo: Stephan Zirwes / Hasselblad Masters

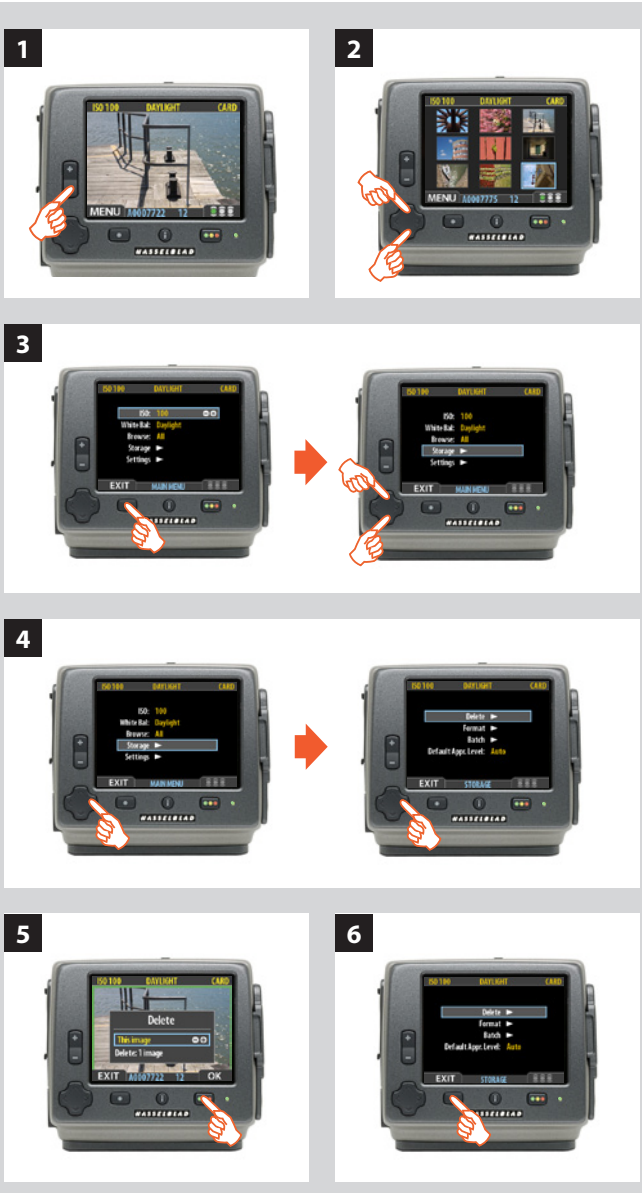
Menus for deleting single or several images from the current batch.



Menus for deleting several images from a batch.



Menus for deleting several images from all batches from a card.



Delete

The storage settings allow you to format media and create new batches. You can also set the initial approval status (green or yellow) assigned to new pictures.

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

The H4D enables you to delete images using any of the following techniques:

- ***Delete a selected image only***
- ***Delete from a batch:***
  - ***all red-status images***
  - ***all red- or yellow-status images***
  - ***all images***
- ***Delete from a medium:***
  - ***all red-status images***
  - ***all red- or yellow-status images***
  - ***all images***

Deleting single images

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

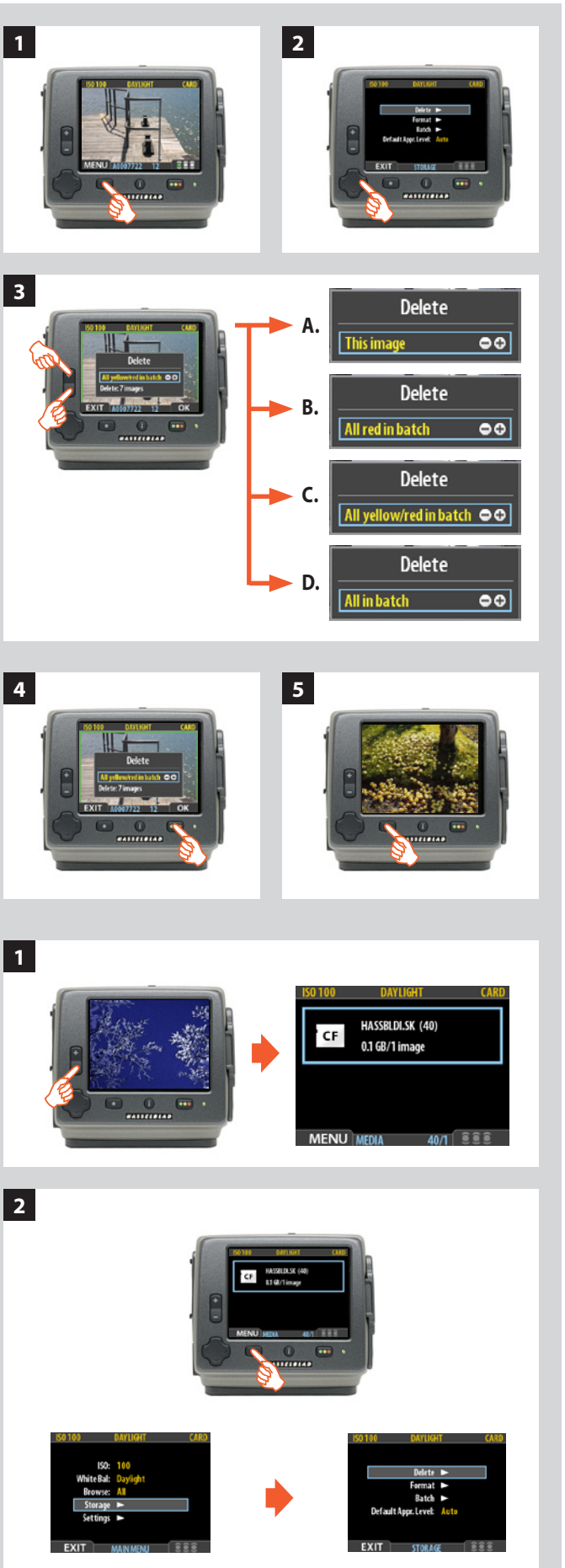
or:

1. *Use the − button to make an initial search and then the + button to reach full-size preview.*
2. *Hold down on the navigator button to open the* **Delete** *dialog.*

Tip

Delete shortcut

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



Deleting several images from a batch

To delete several images from a selected batch:

1. *Starting at the single-image preview display, Select* **MAIN MENU > STORAGE > Delete**.

2. *Use ➤ to enter the* **Delete** *submenu or use shortcut.*

3. *Use the* ➖ *or* ➕ *button to select:*
   A. **This image** - *deletes the current image only*
   B. **All red in batch** - *deletes all red images in the current batch*
   C. **All yellow/red in batch** - *deletes all yellow and red images in the current batch*
   D. **All in batch** - *deletes all images in the current batch*

4. *Press* **OK** *to confirm the delete (to exit without delete, press* **EXIT**).

5. *You now return to the main menu. Press the menu (***EXIT***) button to exit the menu system.*

Deleting several images from a card

To delete several images at once:

1. *Starting at the single-image preview display, press the* ➖ *button repeatedly until you reach the media list.*

2. *Select* **MAIN MENU > STORAGE > Delete**.

3

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7

3. *Press ➤ to open the* **Delete Image** *dialog.*

4. *You must now select the approval status that you wish to delete. All images on the CF card that are also of the status that you select here will be deleted by the operation.*
   Use ▲ and ▼ to select **All Red**, **All Red & Yellow** *or* **All**.

5. *Then press ➤ to open the delete dialog for the selected status.*
   You are now asked to confirm the delete.

6. • ***To confirm, press** the ✚ button **to change the status to** Yes **and then press the** OK **button to execute the delete.***
   • ***To cancel, press the menu button to exit; or press** the ▬ **button to set the status to** No **and then press the** OK **button to cancel.***

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

7. *Press the menu (***EXIT***) button to exit the menu system.*

Transferring images

Transferring to a computer

To transfer images stored on the compact-flash card to your computer, simply connect the sensor unit to a computer using a FireWire cable and then run Phocus. Alternatively, use a card reader and connect to a computer. See the Phocus user manual for details.

Note

You will always be asked to confirm each delete operation.

Tip

Use the delete shortcut immediately after an unwanted capture to save space on a card.

Tip

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

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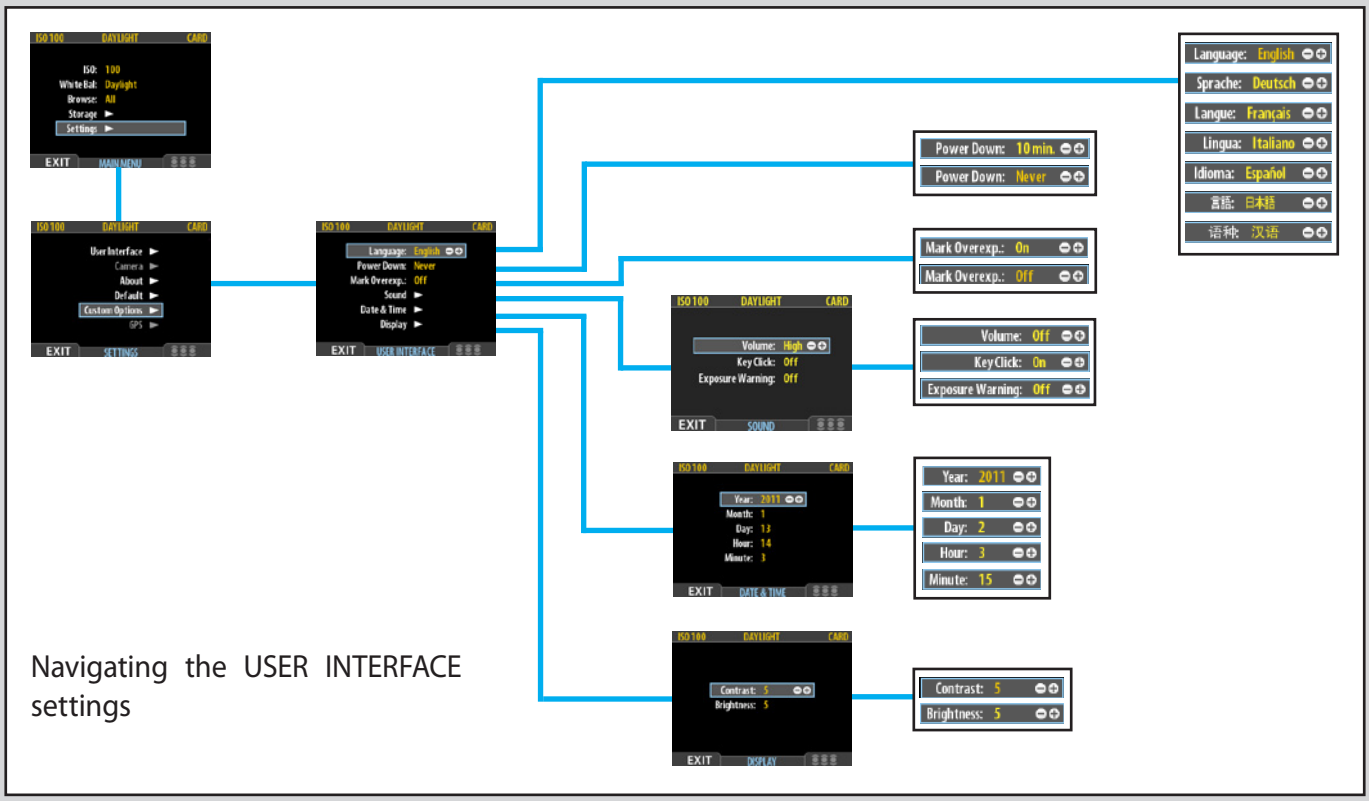
Settings

This section covers various diverse settings such as sound, date & time, display brightness, etc.

Photo: Bang Peng / Hasselblad Masters



Navigating the USER INTERFACE settings

User Interface

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

User interface menu items

The user interface menu includes both items and sub-menus as follows:

- **Language**:

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

- **Power Down**:

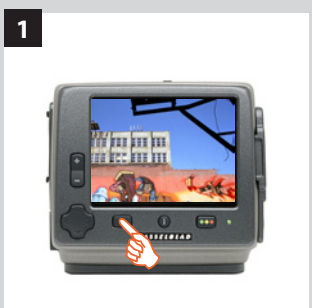
  To help preserve the charge in the battery, you can set the sensor unit to power down after a specified period of inactivity. Set to a value between 3 and 99 minutes to establish a time-out (or **Never** to disable the feature). Note, however, that this is a complete power down mode for the sensor unit, not a standby mode. Half-press the shutter release (or press the **ON.OFF** button on the grip) to reactivate the sensor unit (which will take a few seconds) if the camera is active or in standby mode (indicated by a visible logo on the grip display).

  Note that after 1 hour of complete sensor unit inactivity in power down mode, the camera body will automatically shut down too. Restart by pressing the ON.OFF button on the grip as normal.

- **Mark Overexp.**:

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

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



- **Sound**:

  The H4D uses audio feedback to help let you know if each new image is exposed correctly. This is described in **Standard Instant Approval Workflow.**

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

- **Date & Time**:

  The H4D has an internal clock that keeps track of the date and time. This information is used to mark each shot with the date and time at which it was taken. It is also used to label batches with the date on which each batch was created. (*See note under **General overview of sensor unit** about keeping the internal battery charged to maintain Date and Time settings*).

- **Display**:

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

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

Setting the options under the user interface menu

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

Proceed as follows:

1. *Press the menu (***MENU***) button to open the menu.*
2. *Use* ▲ *and* ▼ *to select the* **SETTINGS** *sub-menu.*
3. *Press* ➤ *to open the* **SETTINGS** *menu.*
4. *Press* ➤ *to select the* **USER INTERFACE** *sub-menu.*
5. *Use* ▲ *and* ▼ *to select the required item.*

   Press either the + *or* − *button to make the new settings in the case of* **Language**, **Power Down** *and* **Mark Overex** *or press* ➤ *again to access* **Sound**, **Date & Time** *and* **Display**.
6. *Press the* **EXIT** *button again to save the new settings and close the menu.*

1

2

Camera

The **Camera** setting automatically corresponds to an H4D body in normal use. However, when the sensor unit is attached to a large format/view camera then other settings must be manually made. See separate section for further information.

About

Hasselblad regularly releases updates to the firmware of the sensor unit. These updates not only improve the efficiency but also often add new features. 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 (which must match the information on the grip display under 'System Status' to obtain the optimum performance). Each sensor unit is carefully adjusted to match the corresponding camera body, which in turn produces the matching verifications respectively. If you want to use different sensor units with different camera bodies, please refer to a Hasselblad Service Center for more information.

To obtain the About information:

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

Default

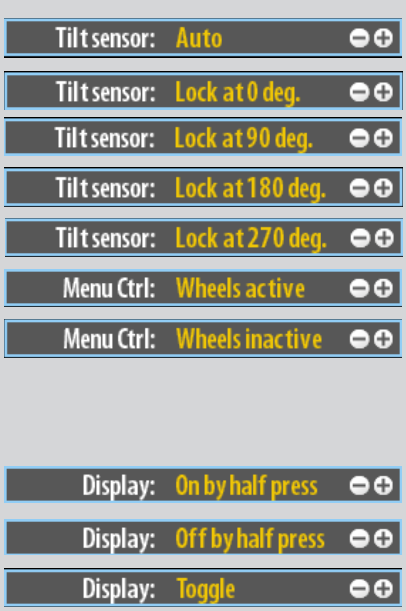
The **DEFAULT** setting will reset all custom settings you have made back to the original default / factory settings.

To reset all settings:

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

1

2



Custom Options

Selecting an option

Proceed as follows:

1. *Press* **MENU** *and navigate down to select* **SETTINGS**.
2. *Press the ➤ button and navigate down to* **Custom Options**.
3. *Press the ➤ button to select the option. Choices are selected by the ✚ or ▬ buttons.*

• Tilt sensor

The tilt sensor 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 tilt setting can be locked at:

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

• Menu Ctrl.

This sets whether the front and rear control wheels are active or inactive when navigating the sensor menu.

• Display

This setting allows you to turn the sensor unit display on when half-pressing the shutter release button. Three options are available:

- ***Display ON by half-press***
- ***Display OFF by half-press***
- ***Toggle display by half-press***

H4D

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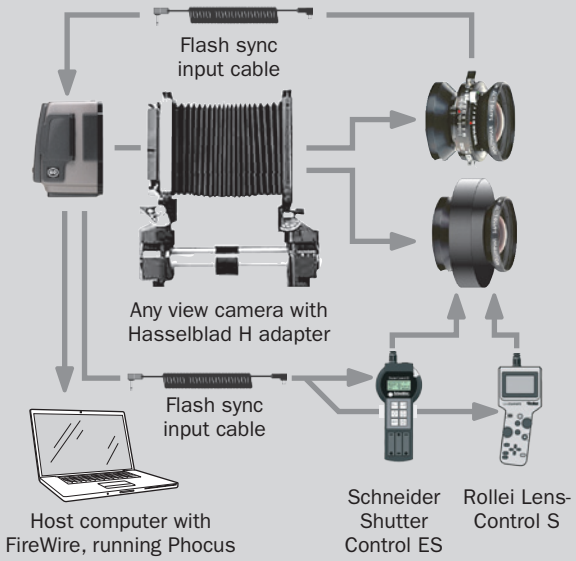
Sensor unit
– use with view cameras

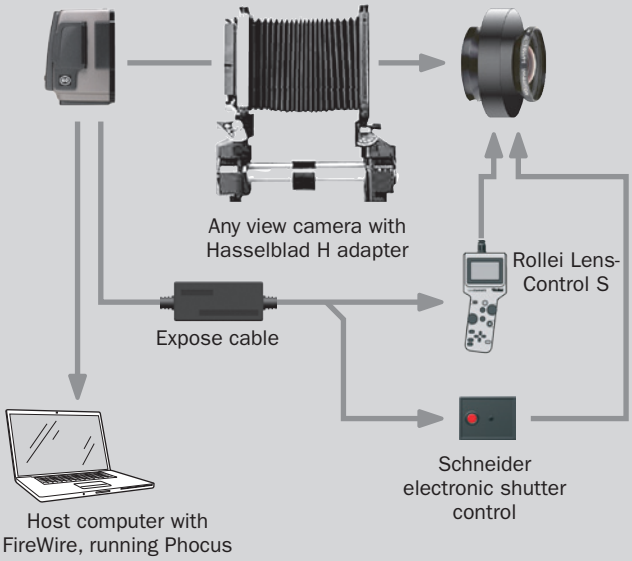
This section covers using the sensor unit when attached to a view or large format camera.

Photo: Claudio Napolitan / Hasselblad Masters

View cameras – Flash sync shutters



View cameras – Electronic shutters



Navigating the CAMERA settings

Note

The CAMERA item on the menu remains dimmed when the sensor unit is attached to the H4D body.

Use with view / large format cameras

For optimum use, the H4D 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 32 seconds 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.

Model setting variations

When using the H4D sensor unit with a view camera you should make the appropriate setting change accordingly. Don't forget to change the setting again if you change camera model!

The five options are:

- **H4D:** For automatic setting in normal H4D use.
- **Schneider:** For use with view cameras and Schneider lenses.
- **LensCtrlS:** For use with view cameras.
- **Pinhole:** Intended primarily for use in a studio environment where complete darkness can be achieved and captures made accordingly (also useful for 'light painting'). In this mode the H4D uses the exposure time (as well as other required stages in a capture sequence) set in the **Capture Sequence** dialog. The back can be triggered either via the **START** (MENU/EXIT) button or from **Phocus**.
- **Flash sync:** For use with view cameras.

Setting CAMERA model and options

These settings are only available when the sensor unit is not attached to an H4D body.

Proceed as follows:

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

Options available for PINHOLE and FLASH SYNC

Shutter Delay

The normal setting is Default and cannot be changed.

Exposure Time

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

Capture Sequence

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

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

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

Count: Controls the total number of captures required.

Setting EXPOSURE TIME and CAPTURE SEQUENCE

Proceed as follows:

1. *Press the menu (***MENU***) button to open the menu.*
2. *Use ▲ and ▼ to select the* **SETTINGS** *sub-menu.*
3. *Press ➤ to open the* **SETTINGS** *menu.*
4. *Use ▲ and ▼ to select* **CAMERA**.
5. *Press ➤ to open the* **CAMERA** *menu.*
6. *Press either the + or − button to select* **PINHOLE**.
7. *Press ▲ or ▼ to select* **EXPOSURE TIME.**
8. *Press either + or − to make an exposure time setting.*
9. *Press ▼ to select* **CAPTURE SEQUENCE.**
10. *Press ➤ to open the* **CAPTURE SEQUENCE** *menu.*

11.

12.

13.

14.

15.

16.

17.

18.

19.

11. *Press either the* ✚ *or* ▬ *to make an* **INITIAL DELAY** *setting.*
This setting controls the amount of time that elapses before the first capture in the sequence.

12. *Press* ▼ *to select* **DELAY.**

13. *Press either* ✚ *or* ▬ *to make a* **DELAY** *setting.*
This setting controls the amount of time between each capture in the sequence.

14. *Press* ▼ *to select* **COUNT.**

15. *Press either* ✚ *or* ▬ *to make a* **COUNT** *setting.*
This setting controls the number of captures in the sequence.

16. *Press* **OK** *to confirm all the settings.*

17. *The unit is now ready for a sequence start. Note that the* **MENU/EXIT** *button now displays* **START** *instead:*

18. *Press* **START** *to set the sequence running.*

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

H4D

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Custom settings
– controls and displays

This section describes the features that can be exploited to obtain the optimum in customized workflow.

The custom options are designed to work for you in the background, ensuring security and also helping to bring down the barriers between you and capturing the image. Each one can be changed to suit your preferences so that the whole camera becomes a reflection of the way you like to work.

Photo: Alexandfelix / Hasselblad Masters

General overview of camera menu

Exit Enter
1 Self Timer Menu
2 Bracketing Menu
3 Interval Menu
4 Settings Menu
5 Drive Menu

Self timer options

Bracketing options

Interval options

Settings options

Text setting

Custom Options

System status

Drive

Menu charts – general

Throughout this manual you will find charts to explain the steps and procedures required to alter the various settings. These charts are laid out to graphically illustrate in a simple manner how to navigate through the menus. While they include all the information that would be presented on the display relevant to that section, they cannot illustrate all the possible combinations of the various symbols seen on a screen at one time as that would be impractical and too confusing. If you are familiar with mobile/cell phone menus, for example, then the design of the layout and working practice will not be unfamiliar.

You should find that, in practice, working your way through a menu on the camera is a good deal simpler and more obvious than the written explanation implies!

In the descriptions, various terms are used regarding menu navigation. Menus have 'trees', for example, which describes their imaginary graphical layout where you could trace a navigational path along its 'branches'. Each new section, or stopping off point on the branches, seen on the display is called a 'screen'. Therefore a screen is the graphical display of where you are on the menu and represents the current state of settings.

The H4D features the advantage of multiple customization of settings. This means that your personal choice of settings, and thereby appearance of various combinations of symbols on the display at any time, will not necessarily be the same as many of the screens illustrated in this manual.

To simplify the descriptions, reference is often made to a 'main' or standard screen. Apart from default settings, there is no actual standard setting in the normal sense and therefore you create your own 'standard', which of course can be changed at any time.

The 'main' screen is therefore the one you have currently created and is the one visible on the display when photographing (except where a particular mode is in actual operation, such as self-timer, for example).

Symbols used in the illustrations

Use front control wheel
(direction depends on user setting)

Use rear control wheel
(direction depends on user setting)

Press button or turn wheel

MENU button on the grip

Choose ENTER
(by pressing ISO/WB button on grip)

Choose ON
(by pressing AF button on grip)

Choose Save

(by pressing the ISO / WB button on grip). The new setting will be saved and chosen action can be carried out. Setting will be retained until changed.

Functions in loop on menu

A loop means that the available functions on that particular branch of the menu can be successively accessed in either direction of the control wheels without a break in flow. That is, you could turn the wheel clockwise or anti-clockwise to arrive at the desired function.

Main direction of path through menu

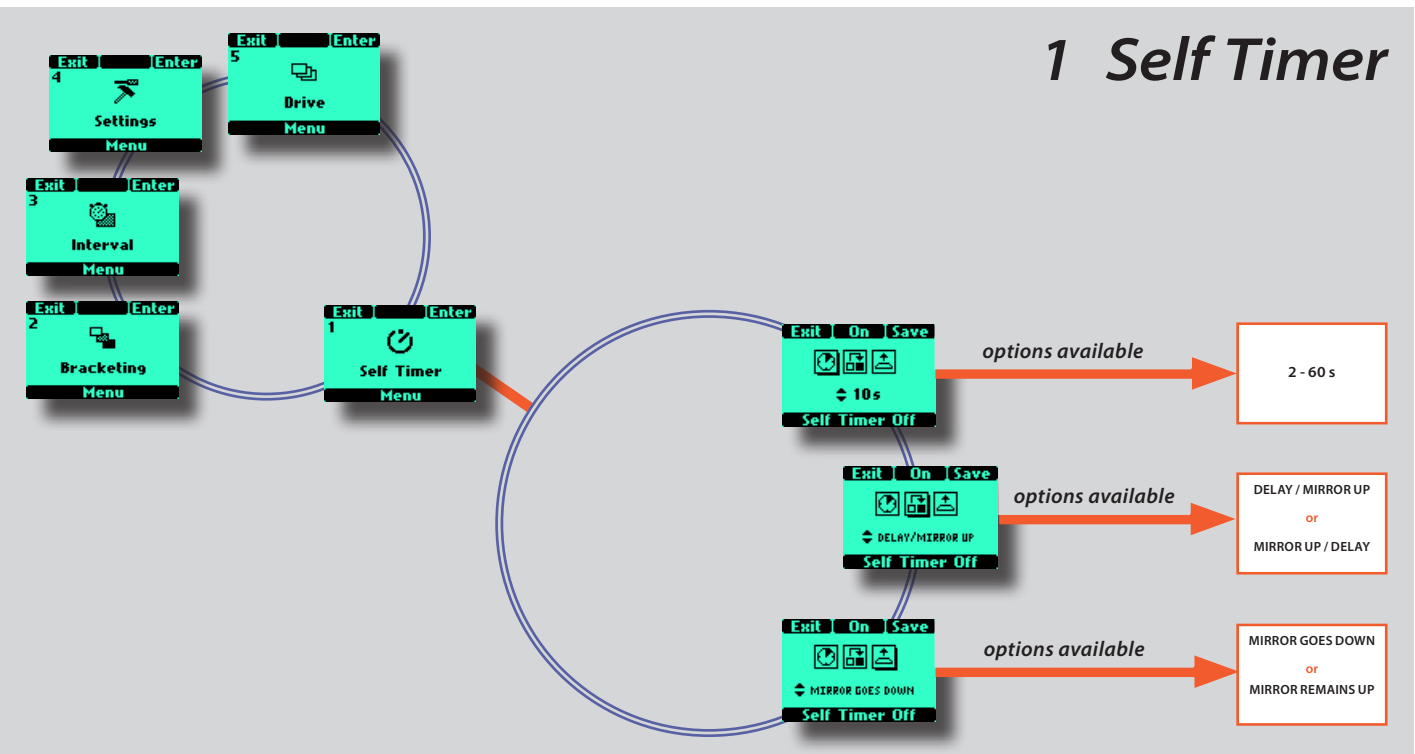
The main path traces step-by-step the path that has to be taken through the various branches of the menu tree as they appear on the display to reach the relevant functions.

There are a number of more advanced features that while not necessarily used every day still remain immediately accessible through the menu system. They provide the integral finesses that make the H4D a powerful and sophisticated tool to satisfy a variety of professional demands.

There are five main functions:

Self timer, Bracketing, Interval timer, Settings and Drive.

An important point to remember is that certain options are only available when the relevant screen has been accessed. For example, in Self Timer the choice of 'delay/mirror up' or 'mirror up/ delay' is only available (by turning the rear control wheel - lower row on display) when the relevant function has been chosen (by turning the front control wheel - upper row on display)



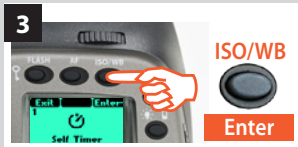
1 Self timer

The self timer allows a delay in the activation of the shutter and a change in sequence of the mirror movement. Normally the mirror is raised before the shutter is tripped creating a pause between the two actions to minimize camera vibration. However, during this pause there will be no image in the viewfinder and no light metering available for any eventual exposure change. Therefore the Self timer function can be set to a sequence where the delay is followed by the mirror being raised instead. Normally the mirror will instantly return after a capture but you can also choose a setting where the mirror remains raised. The Self Timer can be set to provide virtually vibration-free shutter release. It can be used instead of a remote release cable/cord/device when split-second timing is not critical. The camera's exposure settings (Manual or Auto) will be according to the light metering requirements just prior to the mirror being raised so choose the method accordingly with long delays in very changeable lighting conditions.

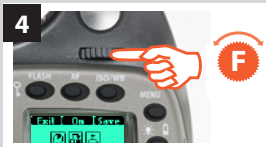
1

2

3



4



5

'Delay' highlighted with drop shadow. 10 seconds chosen.

6

Mirror sequence highlighted. 'Delay first, then mirror raised' chosen as option.

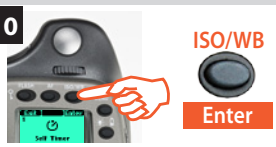
7

Mirror down /up highlighted. 'Mirror down after capture' chosen as option.

8

9

10



11

12

Tip

Check the lower text-row on the screen for ON or OFF status.

Self timer setting

The Self timer function is set in the following manner:

1) *Press the* **MENU** *button on the grip.*
2) *Turn the front control wheel until* **Self Timer** *appears.*
3) *Press* **ENTER** *(***ISO/WB** *button) on the grip.*
4) *Turn the front control wheel to access the options, that are:*

Delay

Mirror sequence

Mirror Up / Mirror Goes Down

(A drop shadow will be displayed beneath the selected symbol, for example)

5) *When* **Delay** *is highlighted - - turn the rear control wheel to choose a delay range from 2 - 60s in 1s intervals.*
6) *Turn the front control wheel again to choose* **Delay / Mirror Up**, **Mirror Up/ Delay** *sequence - . When highlighted turn the rear control wheel to choose.*

Delay / Mirror Up *sequence =*

Delay for set amount of time – mirror raised – capture made.

Mirror Up/ Delay *sequence =*

Mirror raised – delay for set amount of time – capture made.

7) *Turn the front control wheel again for*
Mirror goes down / **Mirror remains up** - *- choice. Turn the rear control wheel to choose.*

Mirror goes down =

Mirror returns to its normal position and the camera is made ready for the next capture.

Mirror raised =

Mirror remains in raised position. No image is visible in the viewfinder until M UP button pressed.

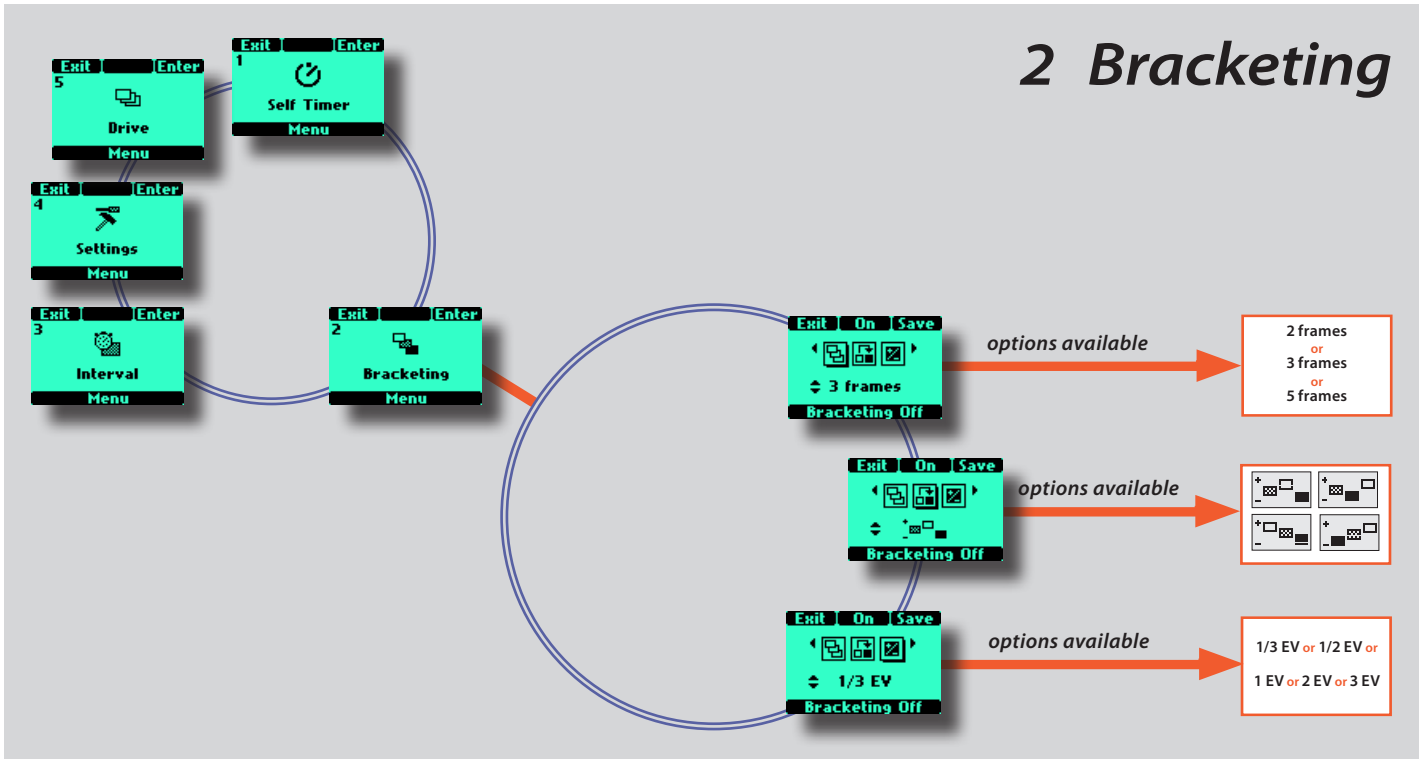
8) *Press* **On** *(***AF** *button). Note that this now reads* **Off** *and the line of text at the bottom of the screen reads '***Self timer on'**.
9) *Press* **SAVE** *(***ISO/WB** *button) to save the setting.*
10) *Press* **ENTER** *(***ISO/WB** *button) again from the Self Timer screen to activate the function.*
11) *Click* **On** *(***AF** *button).*
12) *Half-press the shutter release button to standby mode for this function (press the shutter release button again (full press) for activation) or full-press the shutter release for immediate activation.*

Note

You can halt the sequence by clicking the ON / OFF (ESC) button.

Tip

Press the Mirror Up button twice within 0.5s to access the self timer mode directly.



Tip

A bracketing sequence can be stopped mid-sequence by pressing the ESC (ON.OFF) button.

Tip

Check the lower text-row on the screen for ON or OFF status.

Note

See note at the beginning of this section regarding the difference between Single and Continuous drive settings. In both cases, the bracketing function is automatically reset for a new sequence.

2 Bracketing

The bracketing function provides an automatic series of captures; one at the standard exposure setting (Manual or Auto) and the others with pre-determined deviations in EV from the standard exposure. This is particularly useful for images containing a very wide tonal range, for example.

Firstly you make an assessment concerning the number of extra frames required, the order in which they should be taken, and by how much the EV deviation there should be and the setting made accordingly. The first metered exposure (Manual or Auto) is the EV that determines the calculations for the bracketing sequence.

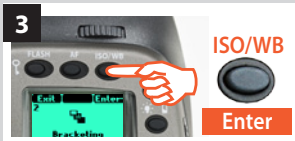
Note the difference in operation between **Single** and **Continuous** drive settings:

- In **Single** you must press the shutter release button separately for every separate capture until the sequence is finished.
- In **Continuous** you can either maintain the pressure on the button to take all frames without stopping or you can release the pressure on the button and press again to continue to the end of the sequence without losing any frames within the set sequence.

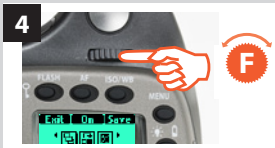
1

2

3



4

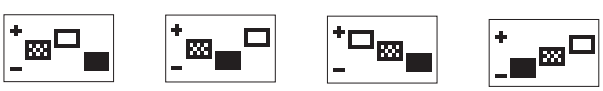


5

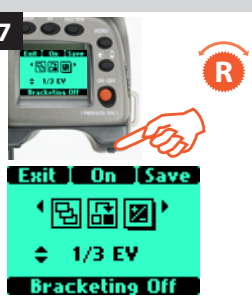
Number of captures highlighted.
3 captures chosen as option.

6

Sequence highlighted.
'Standard, over, under' chosen as option.

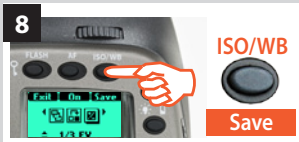


7



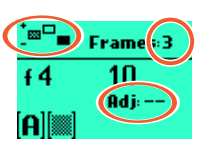
Step highlighted.
1/3 EV variation chosen as option.

8



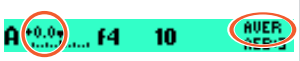
9

EXAMPLE



Screen after Bracketing setting activated indicating 3 frames remaining in a Standard, Over, Under, sequence with no adjustment to the next frame.

EXAMPLE



Viewfinder display indicating no adjustment to next frame and three frames left in the sequence.

Bracketing setting

The Bracketing function is set in the following manner:

1) *Press the* **MENU** *button.*
2) *Turn the front control wheel until* **Bracketing** *appears*
3) *Press* **Enter** *(***ISO/WB***) button on the grip*
4) *Turn the front control wheel to access the options, that are:*

Number of Captures *(the number of captures required in the sequence)*

Sequence *(the sequential order of the over- or underexposures)*

Step *(the amount of EV variation from the standard exposure setting)*

(A drop shadow will be displayed beneath the selected symbol, for example)

5) *In turn the rear wheel to choose the number of frames required:* ***2, 3, 5, 7 or 9.***

6) *In turn the rear wheel to choose one of four sequences:*
   - *A:* ***Standard, Over, Under***
   - *B:* ***Standard, Under, Over***
   - *C:* ***Over, Standard, Under***
   - *D:* ***Under, Standard, Over***

7) *In turn the rear wheel to choose the amount of EV variation required:* ***3, 2, 1, 1/2, 1/3 EV.***

8) *Press* **SAVE** *(***ISO/WB** *button) to save the setting.*

9) *Press* **ENTER** *(***ISO/WB** *button) again from the Bracketing screen to activate the function. Press* **On** *(***AF** *button). Note that this now reads* **Off** *and the line of text at the bottom of the screen reads '***Bracketing on'***.*

Half-press the shutter release button to standby mode for this function (press the shutter release button again (full press) for activation) or full-press the shutter release for immediate activation.

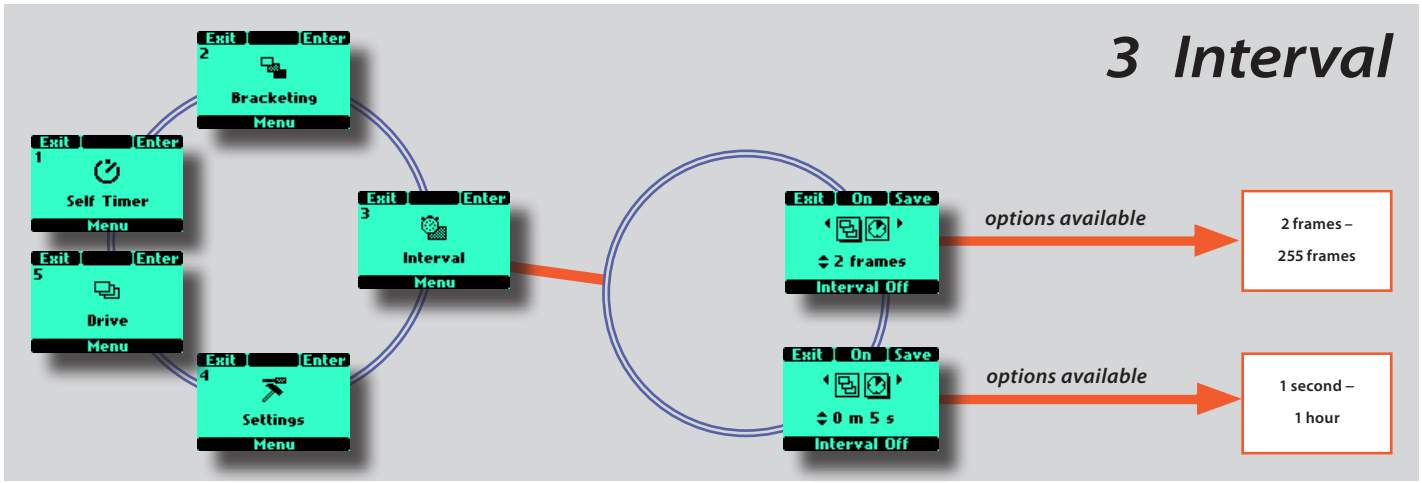
To escape from this mode press **MENU**, *then* **Enter** *(ISO/WB button on the Bracketing screen, then* **Off** *(AF button).*

Note

As an example, a 5 frame sequence with an EV 1 variation setting at 'Standard, Over, Under' would produce: Standard (O EV variation), +1EV, -1EV, +2EV, -2EV.

Note

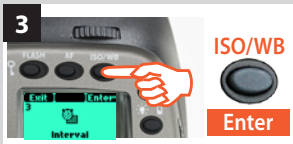
The default setting is a shutter speed change in a bracketing sequence. However, if the camera is set in Manual mode, you can choose an aperture change instead (Custom Options - Bracket param. in Manual #25)



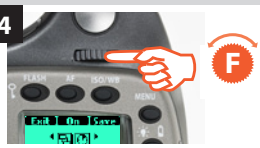
1

2

3



4



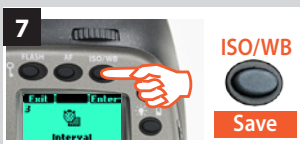
5

Number of captures highlighted. 2 frames variation chosen as option.

6

Interval duration highlighted. 5 seconds variation chosen as option.

7



8

EXAMPLE

Screen after Interval setting activated indicating 3 shots remaining at 30 second intervals.

Tip

Check the lower text-row on the screen for ON or OFF status.

3 Interval

By using the interval setting, you can allow the camera to take a series of captures automatically over a set period. This is often required for time and motion studies, security surveillance, nature study, etc. The exposure and focus settings (Manual or Auto) will be according to the camera settings at the time of capture.

Interval setting

1) *Press the* **MENU** *button on the grip.*
2) *Turn the front control wheel until* **Interval** *appears.*
3) *Press the* **ISO/WB** *(***Enter***) button on the grip.*
4) *Turn the front control wheel to access the options, that are:*

Number of captures *(the number of captures required)*

Interval duration *(the time interval between the captures)*

(The chosen symbol is indicated by a drop shadow)

5) *In Number of captures, turn the rear wheel to choose the number of captures required:* ***2 – no limit***
6) *In Interval duration, turn the rear wheel to choose:* ***1 second – 1 hour***
7) *Press* **SAVE** *(***ISO/WB** *button) to save the setting.*
8) *Press* **ENTER** *(***ISO/WB** *button) again from the Interval screen to activate the function. Press* **On** *(***AF** *button). Note that this now reads* **Off** *and the line of text at the bottom of the screen reads '***Interval on***'.*

Half-press the shutter release button to standby mode for this function (press the shutter release button again (full press) for activation) or full-press the shutter release for immediate activation.

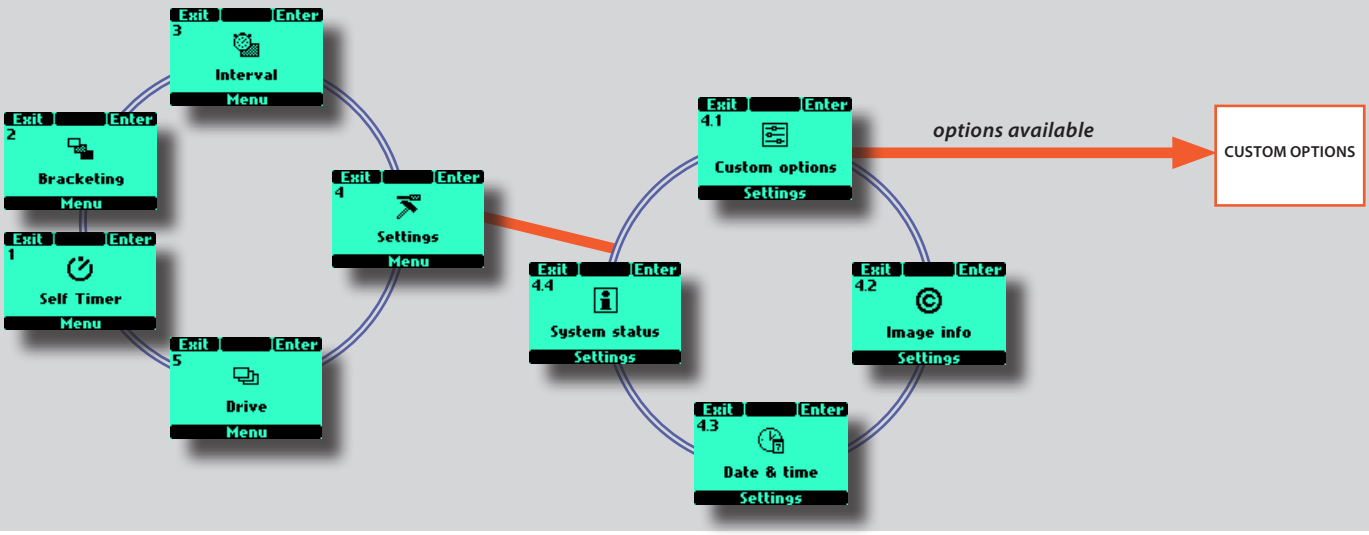
Note

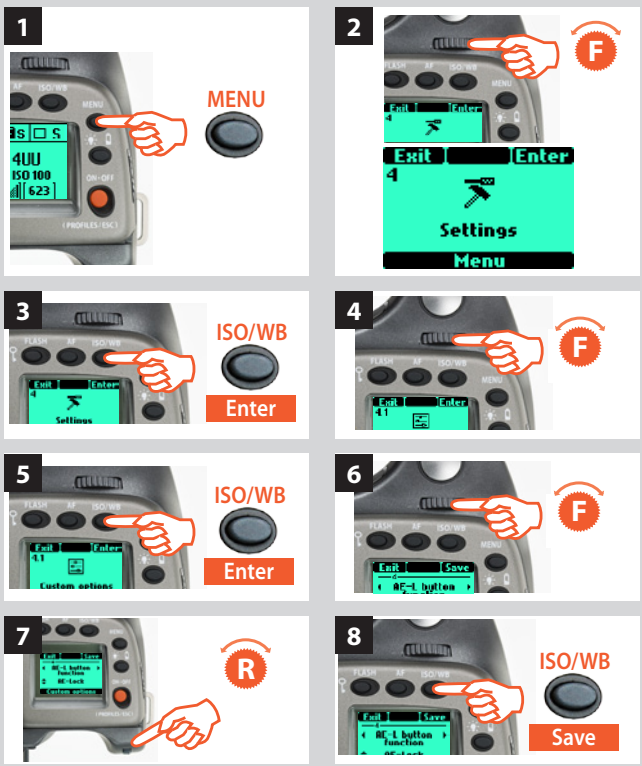
In Custom Options #28 you can select an initial delay of None, 2, 10, 60 seconds or the interval time.

Tip

An Interval setting can be stopped mid-sequence by pressing the ESC button.

4 Settings / 4.1 Custom Options





Tip

As a shortcut to a specific user button (True Focus, AE-L, M.UP, Stop Down) setting in Custom Options, press the MENU and then the desired button with camera in active mode. After making any changes, press the shutter release button to save the new setting.

4 Settings

From the **Settings** screen you can access four main sub-settings: **Custom options**, **Image info, Date & Time** and **System status** by turning the front control wheel. From each of these sub-settings you can access further items for setting changes. Look at the main menu chart to get an idea of where all the options are on the menu tree.

4.1 Custom options

1) *Press the* **MENU** *button on the grip.*
2) *Turn the front control wheel until* **Settings** *appears.*
3) *Press the* **ISO/WB** (**Enter**) *button on the grip.*
4) *Turn the front control wheel to access* **4.1 Custom options**.
5) *Press the* **ISO/WB** (**Enter**) *button to access the 34 choices available.*
6) *Turn the front control wheel to the desired Option.*
7) *Turn the rear control wheel to the desired Setting.*
8) *Press* **Save**

In the following list, the options marked in red are the default settings. So, in the case of the User button, for example, as None is the default there will be no reaction from the camera until you make a specific choice and save it.

If you want to reset the camera to the default setting for all options, press the **ON.OFF** button quickly to enter **Profiles**, select **Standard** and then press **Load**.

Tip

As a shortcut to Custom Options level, press the MENU button twice with camera in active mode. The latest setting will automatically appear. After making any changes, press the shutter release button to save the new setting.

4.1 Custom options

The following is a description of all 34 Custom Options. They are accessed by Menu > Settings > Custom Options. The words and figures in red signify the default setting for that option.

Standby timeout 1

• *10s* • *5s* • *15s* • *30s*

Determines the amount of time the camera remains active before it automatically reverts to standby mode (indicated on the grip display by the H4D logo). Minimizes battery consumption.

EV increment 2

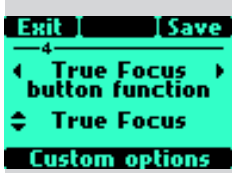
• *1/2 Step* • *1 Step* • *1/3 Step*

Determines the amount of EV change applied (per click of either the front or rear control wheels) to either aperture or shutter speed.

Exp adjust increment 3

• *1/3 Step* • *1 Step* • *1/2 Step*

Determines the amount of EV change applied (per click of the rear control wheels) when making fixed exposure adjustment settings.



True Focus button function 4

• *True Focus*

but can be reassigned to:

AF • AE-lock • Self Timer • Bracketing • Mirror up • Stop Down • B mode • T mode • Flash Measure • Interval timer • Cycle LM mode • Expose • Standby • Histogram • IAA toggle • Digital focus check • Delete last image • Grey balance exposure • Spirit Level • Rear Info Screen *(Currently 60 Mpix model only)* ***• None.***

AE-Lock button function 5

• *AE-lock*

but can be reassigned to:

Self Timer • Bracketing • Mirror up • Stop Down • B mode • T mode • Flash Measure • Interval timer • Cycle LM mode • Expose • Standby • Histogram • IAA toggle • Digital focus check • Delete last image • Grey balance exposure • Spirit Level • Rear Info Screen *(Currently 60 Mpix model only* ***• None • AF***

Stop down button function 6

• *Stop Down*

but can be reassigned to:

B mode • T mode • Flash Measure • Interval timer • Cycle LM mode • Expose • Standby • Histogram • IAA toggle • Digital focus check • Delete last image • Grey balance exposure • Spirit Level • Rear Info Screen *(Currently 60 Mpix model only* ***• None • AF • AE-lock • Self Timer • Bracketing • Mirror up.***

M.UP button function 7

• *Mirror up*

but can be reassigned to:

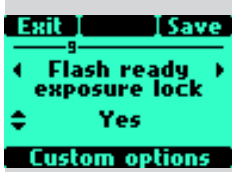
Stop Down • B mode • T mode • Flash Measure • Interval timer • Cycle LM mode • Expose • Standby • Histogram • IAA toggle • Digital focus check • Delete last image • Grey balance exposure • Spirit Level • Rear Info Screen *(Currently 60 Mpix model only)* ***• None • AF • AE-lock • Self Timer • Bracketing***

Control wheel direction 8

• *Clockwise* • *Counter clockwise*

Determines the effect the direction of the controls wheels have on a setting.

For example, by moving the front control wheel to the left you can alter the aperture setting from f/8 to f/6.8 to f/5.6 and so on. By changing the wheel direction setting however, the same action of turning the wheel to the left would then produce the opposite effect, that is, the aperture settings would change from f/ 8 to f/ 9.5 to f/ 11, and so on.



Flash ready exposure lock 9

• *Yes* • *No*

Allows you to make a capture before the flash is fully charged. For use with integral flash unit or other TTL compatible flash units connected to the hot-shoe. Not valid for flash units connected by the PC connector.

Yes *blocks the shutter until flash is ready.*

No *allows shutter release before flash is ready.*

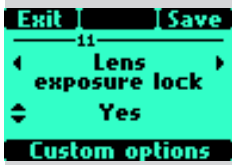
Magazine exposure lock 10

• *Yes* • *No*

Allows you to release the lens and auxiliary shutter in camera body without a sensor unit attached.

Yes *blocks the lens shutter and auxiliary shutter in camera body if the sensor unit is not attached. Generates message on grip display if attempted.*

No *allows the lens shutter and auxiliary shutter in camera body to be released without the sensor unit attached.*



Lens exposure lock 11

• *Yes* • *No*

Allows you to release the auxiliary shutter in camera body without a lens attached.

Yes *blocks the release of auxiliary shutter in camera body if there is no lens attached. Generates message on grip display if attempted.*

No *allows a release of auxiliary shutter in camera body without a lens attached.*

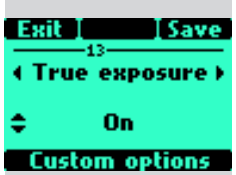
Out of range exposure lock 12

• *No* • *Yes*

Allows you to release the camera when either the aperture or shutter speed setting is beyond the working range (indicated on the displays by "–").

Yes *blocks the shutter if beyond the working range.*

No *allows the shutter to be released (1/800s or 32s) if beyond the working range.*



True exposure 13

• *On* • *Off*

Determines whether the exposure is automatically adjusted to create a true exposure setting. (See Appendix for full explanation).

On *allows the adjustment.*

Off *retains the normal setting.*

Note

If using flash/strobe as the main light source and 1/800s shutter speed, re-member to turn off the True Exposure option.

Spot mode 14

• *Normal* • *Zone*

Determines how the camera behaves when set to Spot Mode.

Normal *makes the camera behave in the same fashion as when set to Average or Centre Weighted.*

Zone *makes the camera behave in the same fashion as the Hasselblad 205FCC. That is, the central spot is placed over a particular area of the subject and the AE-L button is pressed. The exposure is then calculated assuming that the metered area is 18% grey or Zone 5 and is indicated on the display as Zone 5. Alternatively, the area can be reassigned to another zone by turning the rear control wheel.*

Then, when the camera is moved, the areas within the central spot are indicated by their zone values.

Focus aid in MF 15

• *Half press* • *Always* • *Off*

Sets how the focus aid arrowhead LED symbols appear in the viewfinder display in manual focus mode.

Half press *makes them visible when the shutter release button is pressed half way.*

Always *makes them visible all of the time when camera is active.*
Off *disables them completely.*

AF assist light 16

• *Ext flash* • *Camera* • *Off*

Allows projection of light pattern to assist the autofocus system in poor light or low contrast situations.

Camera *sets the integral AF assist illumination to be always active.*

External flash *activates the AF assist illumination projected by a suitable attached external flash unit. When detached, however, the integral system is automatically used.*

Off *sets the AF assist illumination to remain always inactive.*

Rear wheel quick adjust 17

• *Yes* • *No*

Allows rear control wheel to make a rapid EV adjustment (or EV compensation) in auto-exposure mode.

Yes *turns the setting on. By turning the rear control wheel, the adjustment is made and appears on both displays as a ± symbol between the shutter speed and aperture values. The amount of deviation also appears above the scale to the left of the aperture value on the viewfinder display.*

No *turns the function off completely.*

Control lock 18

• *All controls* • *Wheels* • *Off*

Sets the amount of locking used when the Control Lock (**FLASH**) button is pressed.

All controls *locks control wheels and buttons.*

Wheels *locks only control wheels. They remain operable in any setting mode, however.*

Off *disables lock function.*

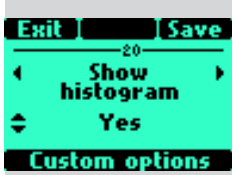
Beeper 19

• *On* • *Off*

Sets the audible beeper signal.

On *enables the signal.*

Off *disables the signal.*



Show histogram 20

• *Yes* • *No*

Sets whether a histogram of a capture appears on the display after exposure.

Yes *enables the setting.*

No *disables the setting.*

Interval & Self Timer 21

• *Exit* • *Stay*

Allows either the Interval or Self Timer mode to remain active after a capture or immediately return to standard setting.

Exit *clears the setting and produces an automatic return to standard setting after a capture.*

Stay *retains the setting after a capture.*

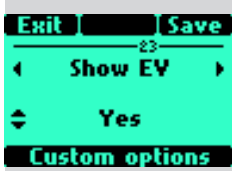
AE lock / Quick adjust 22

• *Exp reset* • *Saved*

Allows either the AE-Lock or Quick adjust mode to remain active after a capture or immediately return to standard setting.

Exp Reset *clears the settings and produces an automatic return to standard setting after a capture.*

Saved *retains the AE-Lock or Quick adjust settings after a capture.*



Show EV 23

• *Yes* • *No*

Allows the display of EV settings on the grip display.

Yes *enables the display.*

No *disables the display.*

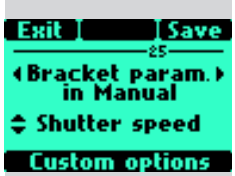
Show ISO 24

• *Yes* • *No*

Allows the display of ISO settings on the grip display

Yes *enables the display.*

No *disables the display.*



Bracket param. in Manual 25

• *Shutter speed* • *Aperture*

Selects either the shutter speed or the aperture as the parameter which changes in a bracketing sequence when in Manual exposure mode.

Shutter speed *selects changes in shutter speed.*

Aperture *selects changes in aperture settings.*

Aperture control in Manual 26

• *Front wheel* • *Rear wheel*

Selects which control wheel changes the aperture setting when in Manual exposure mode.

Front wheel *selects the front control wheel to change the aperture setting.*

Rear wheel *selects the rear control wheel to change the aperture setting.*

Low flash warning 27

• *On* • *Off*

Controls the display of the 'Low flash' warning message and triangle.

ON *enables the function.*

OFF *disables the function.*

Interval timer initial delay 28

• *None* • *2s* •*10s* • *60s* • *Interval time*

Allows an initial delay before the first capture of an interval timer function operation.

Aperture indication 29

• *Normal* • *Light meter*

Allows choice of aperture indication display (in Manual mode only).

Normal *selects conventional display (f5.6, f8, etc)*

Light meter *selects 'light meter' type display (f5.6^{0}, f8.^{5}, etc)*

Extra mirror-delay 30

50 ms • *100 ms* • *200 ms* • *None* • *25 ms*

Extends the delay period between the mirror being raised and the opening of the lens shutter thereby reducing the negative effect of vibration on longer exposure times.

True Focus in AF-S 31

• *Off* • *on*

Re-assigns half press of shutter release button to activate True Focus function instead of standard automatic focus (single)

Always return mirror 32

• *No* • *Yes*

Automatically lowers mirror again for viewing at the end of every mirror-up sequence.

AE lock at half press 33

• *Off* • *On*

Allows access to AE-lock without having to use customizable button assigned to other required functions.

Hide B/T mode 34

• *Off* • *On*

Hides access to B and T shutter speeds allowing smoother transition from 1s to 1.4s when making shutter speed changes.

Customizable button function list

The **TRUE FOCUS, AE-L, STOP DOWN** and **M.UP** buttons can all be reassigned to different functions. Default settings are as according to name.

None
The button has no function.

True Focus
Activates True Focus function.

AF
Activates the AF system in any focusing mode. When the button is pressed the AF system sets the correct focusing point automatically. This is a rapid, accurate and handy way of using the AF system when the camera is set to manual focus mode. In this manner you take advantage of the accuracy and certainty of the autofocus system while retaining the control inherent in manual focusing mode.

AE-lock
Activates AE lock function.

Self timer
Initiates self timer function.

Bracketing
Initiates bracketing function.

Mirror up
Controls the mirror up or down function (same function as the M-UP button).

Stop down
Stops the lens down.

B mode
Sets the shutter speed to B exposure mode.

T mode
Sets the shutter speed to T exposure mode.

Flash Measure
Initiates flash measure function.

Interval timer
Initiates interval timer function.

Cycle LM mode
Changes the light-metering method in a loop manner: Centre Weighted/ CentreSpot/Spot.

Expose
Acts as alternative shutter release button.

Standby
Sets the camera in standby mode to save battery consumption.

Histogram
Recalls the last shown histogram on the grip LCD.

IAA toggle
Allows IAA rating change of last capture.

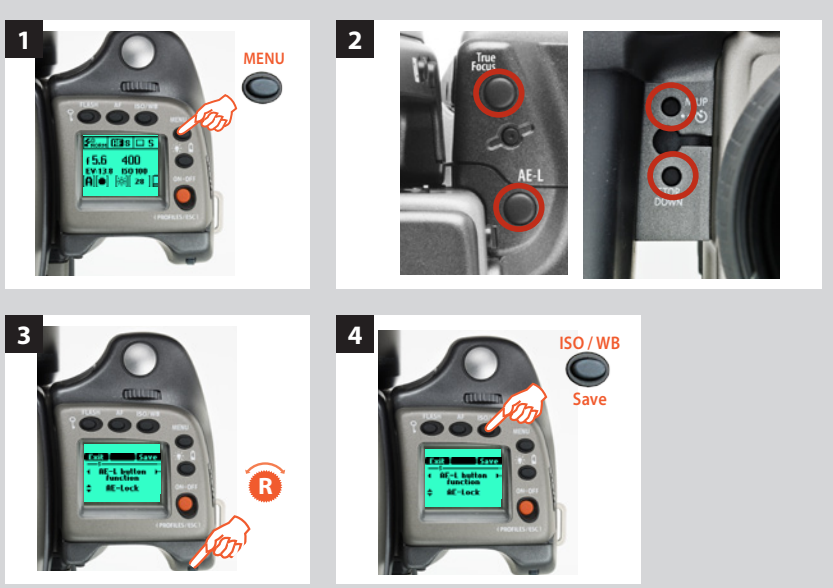
Dig. foc check
Displays last exposure taken at 100% scale on digital backs with LCD.

Delete last image
Activate the delete function for the last image in a digital back. (to be implemented at a later stage).

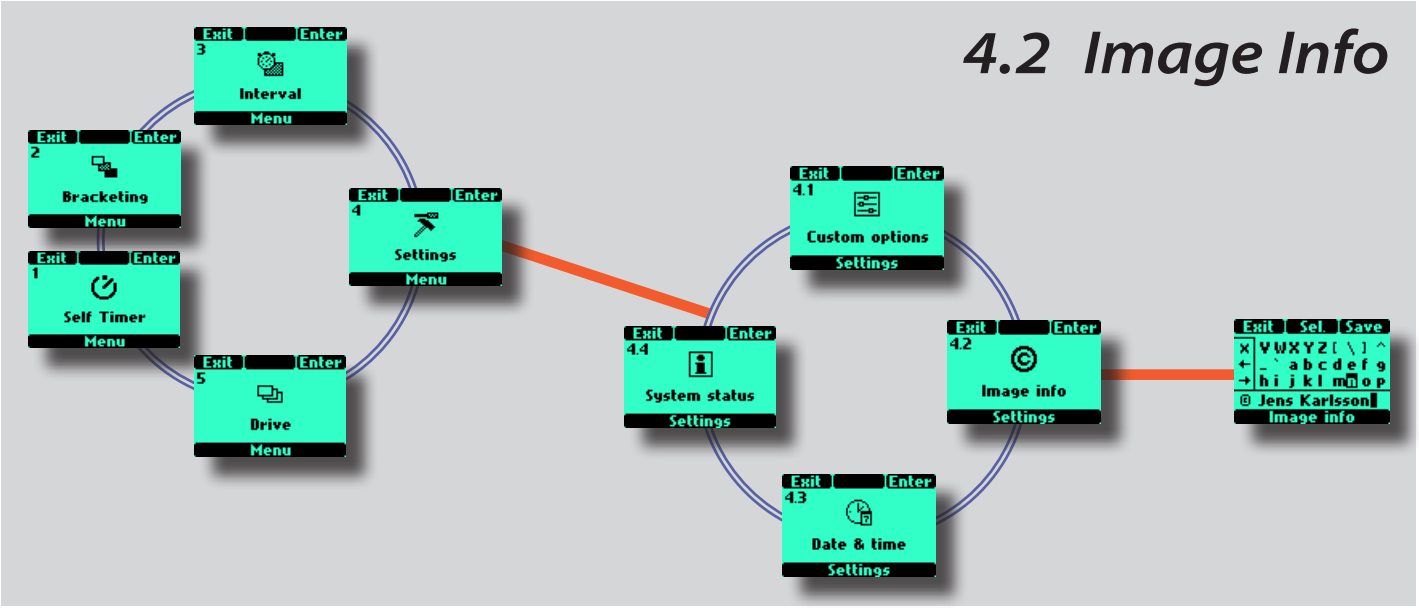
Grey balance exp.
Initiates a grey balance exposure using the marker frame to select the desired tone.

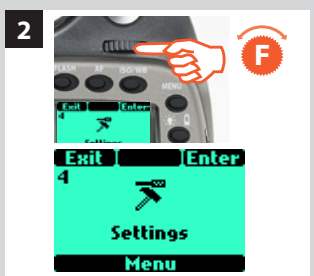
Spirit Level
Activates digital spirit level on sensor unit display and in viewfinder (Currently 60 Mpix model only).

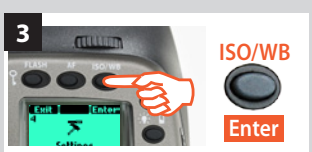
Rear Info Screen
Displays camera information on sensor unit LCD (Currently 60 Mpix model only).

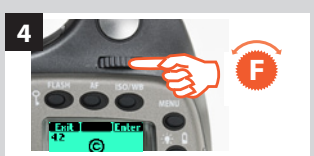


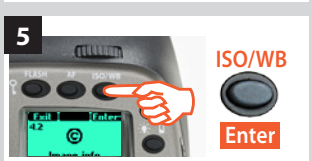
1) *Press the* **Menu** *button.*
2) *Press the button you want to reassign* **(True Focus, AE-L, M.UP** *or* **Stop Down).** *This directly accesses the particular button you chose at the* **Custom options** *level in the menu.*
3) *Rotate the rear control wheel to select the function you want the button to activate.*
4) *Press the* **Save** *button.*

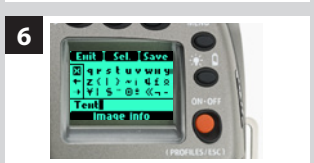


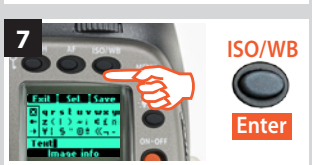












4.2 Image Info

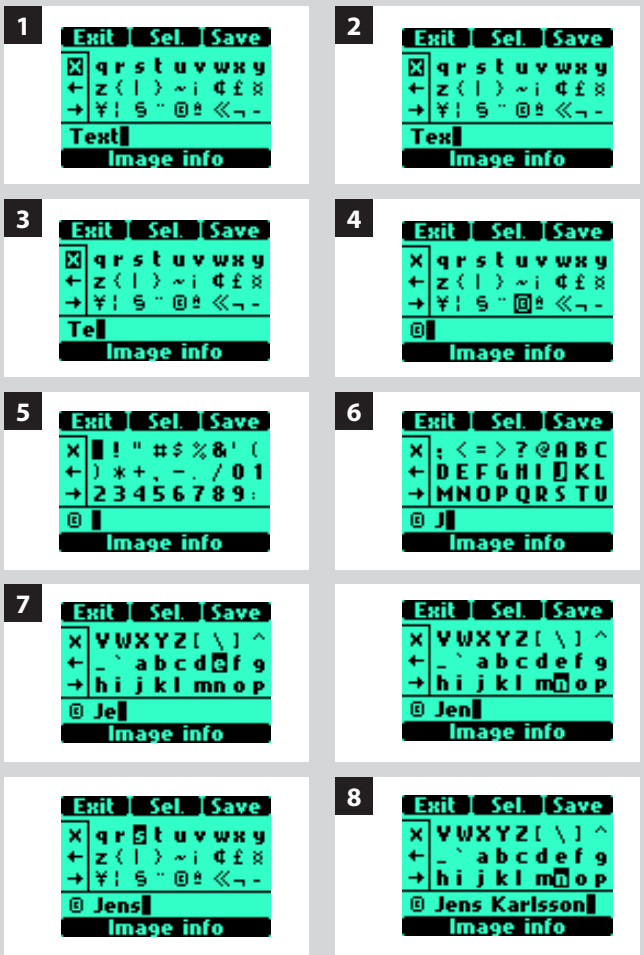
In Image info you can compose your own combination of letters, words, symbols, etc to be included in the metadata. The same procedure is also used to change a Profile name.

Text setting

1) *Press the* **MENU** *button on the grip.*
2) *Turn the front control wheel until* **Settings** *appears.*
3) *Press* **Enter** *(***ISO/WB** *button) on the grip.*
4) *Turn the front control wheel to access* **4.2 Image info**.
5) *Press* **Enter** *(***ISO/WB** *button) to access the list of characters and figures available.*
6) *By turning the front control wheel, the character selector cursor will move to the left and right in the available characters while the rear control wheel moves it up and down. The chart of characters will automatically scroll to reveal the whole set. The space character is top left in the list.*

   On the left side of the screen there is a small box frame containing two arrow symbols and an **X** *symbol. By selecting the arrows you can position the cursor in the line of text you have created. The* **X** *symbol deletes the selected character.*

   To create a line of text, select the desired character and press then **Sel** *(***AF** *button). That character is then automatically added to the line of text below the character chart. Press* **Save** *(***ISO/WB** *button) to store the new setting.*

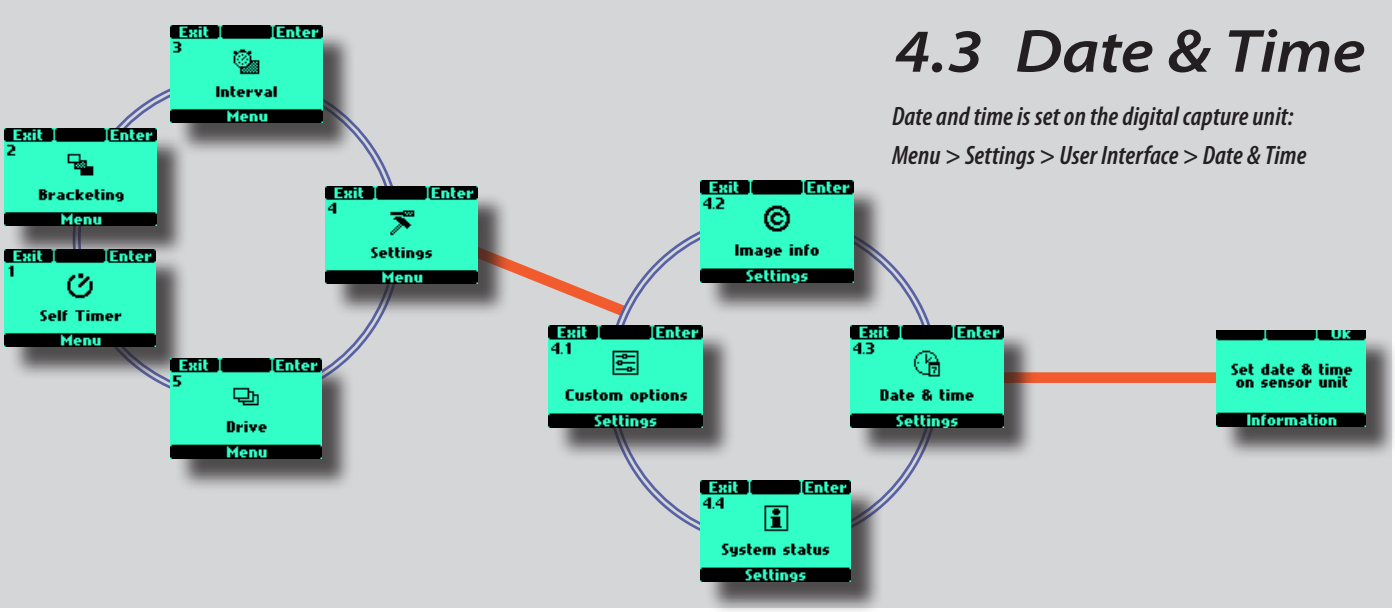


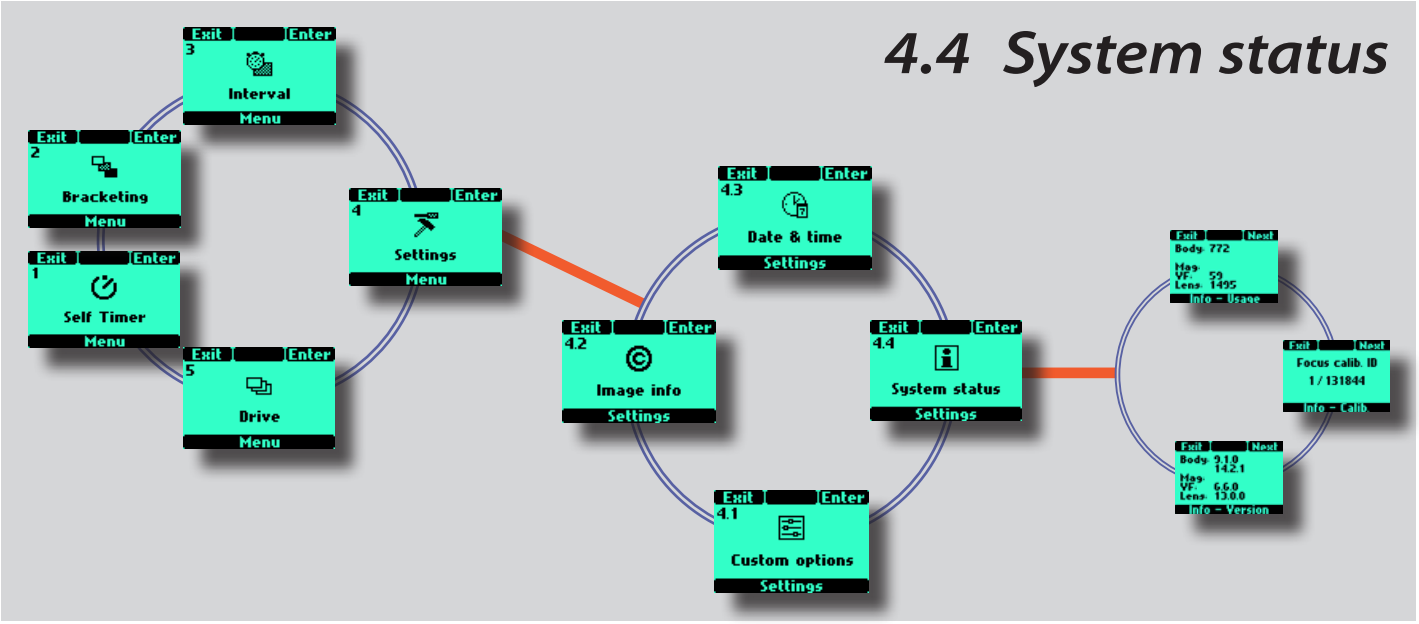
Changing text - an example

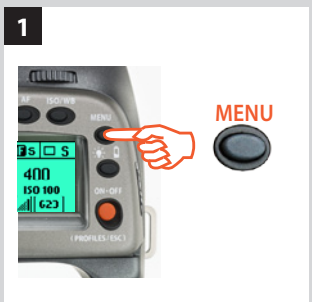
Here is an example of how to change existing text (in this case the word 'Text' to a copyright symbol plus a photographer's name -'Jens Karlsson'). See previous section '4.2 Image info' for procedure description.

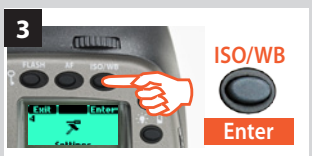
1) *Start by accessing the* **Image info** *screen. On the text row towards the bottom of the screen, the text line cursor is automatically placed to the right of the character that is to be changed. Turn the front and rear control wheels to move the selector cursor until the X symbol is highlighted.*
2) *Press* **Sel.** *(***AF** *button) and the character will be erased.*
3) *Repeated pressing of* **Sel.** *will progressively erase all the characters in the line.*
4) *After erasing unwanted text, turn the front and rear control wheels until the desired character is highlighted by the selector cursor (in this case the copyright symbol) and press Save. Note that more symbols have automatically appeared as you scrolled down the screen.*
5) *Choose the next character in the same manner (in this case a space) and press* **Save**.
6) *The capital letter 'J' has been highlighted and saved in this example.*
7) *Repeat the procedure until all the letters and characters you want appear. As you progress with more characters, those to the left will temporarily disappear from the screen so that you can see what you are adding. Don't forget there is a maximum of approximately 40 characters.*

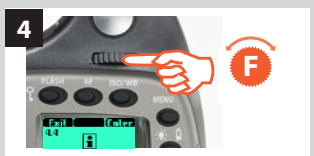
   If you make a mistake you must remove each character singly (see steps 1-3 above) until you reach where you want to make a change and then return to the 'Adding text' procedure again.
8) *This example shows a completed 15 character text line with symbols, spaces, upper and lower case (large and small) letters.*

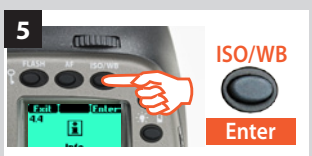


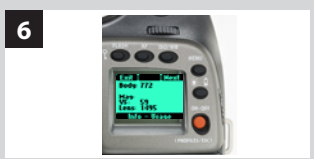


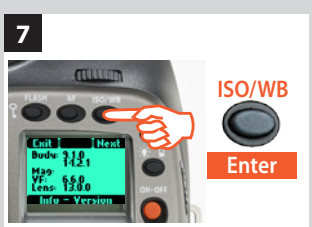












4.4 System status

Check component usage and general servicing information as follows:

1) *Press the* **MENU** *button on the grip.*

2) *Turn the front control wheel until* **Settings** *appears.*

3) *Press the* **Enter** *(***ISO/WB** *button) on the grip.*

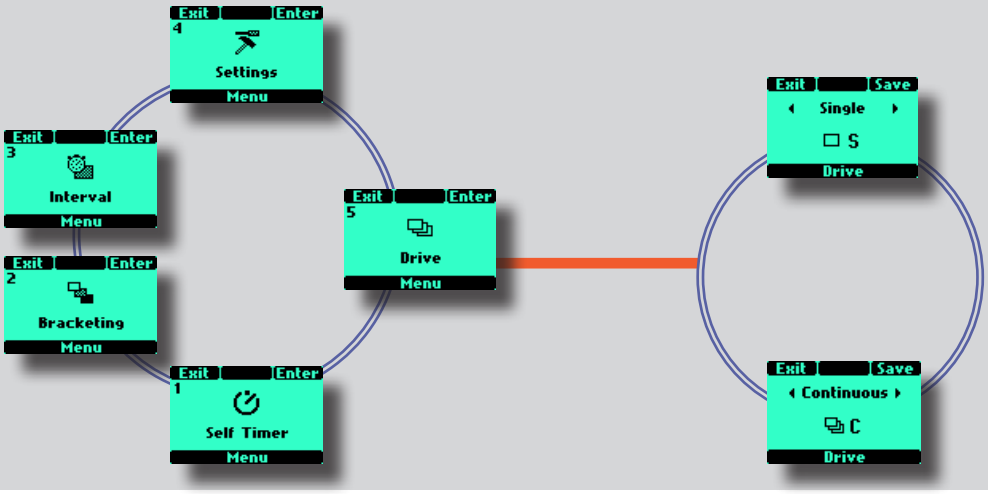
4) *Turn the front control wheel to access* **System Status**.

5) *Press the* **Enter** *(***ISO/WB** *button).*

6) *The display now shows a list of camera components* **Info-Usage** *and to the right of each individual component a figure that represents the number of actions taken by that component. Please note that even a completely new camera will have registered actions as these occur during testing before delivery.*

7) *Press the* **Next** *(***ISO/WB***) button to display* **Info-Version** *to display the software version for each item. Press the* **Next** *(***ISO/WB***) button again to display* **Info-Calib** *for focus calibration information.*

5 Drive



Drive

There are two drive modes: **Single** and **Continuous**.

Single and Continuous

In **Single** mode, a capture is made when the shutter release button is pressed and the camera is made ready for the next capture. To make the next capture however, you must first release the shutter release button and then press again.

In **Continuous** mode, the camera automatically makes captures and makes ready for the next capture in a continuous manner as long as you maintain pressure on the shutter release. Please note the speed is dependent on the time taken to save the capture according to equipment.

In camera active mode:

1) *Press the* **MENU** *button on the grip.*
2) *Turn the front control wheel to* **Drive**
3) *Press* **Enter** *(***ISO/WB** *button).*
4) *Turn the front control wheel to* **Single** *or* **Continuous**
5) *Press* **Save** *to store the setting.*

H4D

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Flash / Strobe
– controls and displays

Photo: Mark Zibert / Hasselblad Masters

- **Sync at all shutter speeds to 1/800s**
- **Integral fill-flash**
- **SCA 3002 compatible**
- **Flash measure capability**
- **Rear sync capability**

The H system meets professional demands for a variety of situations where flash is required.

It includes an integral flash primarily intended for fill-flash use but strong enough for simple close work.

Combined with an adapter and a portable unit, H cameras can exploit the automatic features offered by Metz and other top names in the field for powerful and reliable solutions

When in the studio, the H system is capable of providing flash metering for maximum control and security.

Note

As with all strobe/studio flash use, very particular attention should be taken to ensure correct connections and general handling practice. Potential dangers might increase when cameras are also connected to electronic peripherals (computers, lighting units, etc) and should diminish when IR and similar wireless flash release devices are used.

Victor Hasselblad AB and Hasselblad A/S can accept no responsibility whatsoever for accidents that might occur or damage caused when Hasselblad equipment is used in combination with third-party units of any description.

Note

Only flash units specially adapted for use with the H4D should be connected to the hot shoe on the camera.

The H4D can be used together with most flash units in manual mode. However, to make use of a TTL automatic function, you must ensure the flash unit is compatible with the SCA 3002 system. Connection is either by the PC socket or by the hot shoe (see warning note below).

The viewfinder houses an integral fill-flash with a guide number of 12 and features OTF/TTL flash control. This unit is capable of providing enough illumination for many fill flash functions outdoors as well as simple indoor shots at shorter distances.

Flash output can be adjusted separately from ambient exposure for optimum control.

Separate flash units can be used in dedicated mode when connected to the hot shoe if the unit is compatible with the SCA3002 (Metz) system using a Hasselblad SCA3902 adapter. This provides a cable free link up for information transfer.

Flash synchronisation can be set to normal or rear (the beginning or end of a capture).

Please see the relevant user manuals for information regarding separate flash units.

General

When using the A or S setting together with flash, the exposure requirements of the camera will dominate which might produce slow shutter speeds indoors, for example, requiring the use of a tripod. If, on the other hand, you select P or Pv instead, then a shutter speed of 1/60 or faster is automatically chosen by the camera enabling you to hand hold.

When using flash close up or when using larger aperture settings, remember that the flash unit's output has a specific minimum duration which might still be too great for correct exposure. Read the unit's output specifications for further information regarding any potential restrictions.

You can use the flash metering capability with external flash units of all kinds (TTL flashes must be set to Manual mode).

Rear sync is a useful feature used either for effect or to produce a more 'natural' look when combining long exposures involving light trails and flash.

When using suitable dedicated units (compatible with SCA3002), adjustments are made automatically and governed by the settings on the camera. This applies to whether the flash unit is set to TTL or whether it is set to its own integral metering system (A).

Control of either the integral flash unit or separate SCA3002 compatible flash unit regarding the two functions, exposure compensation and shutter sync, is via the grip. The flash measure function can be used for flash units that are not SCA 3002 compatible or for SCA 3002 compatible units at manual setting.

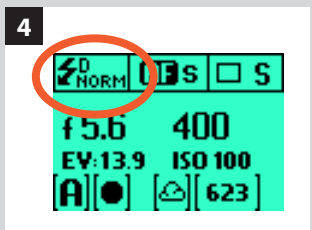
To change the balance between flash output and camera exposure requirements to produce a variety of effects, use the exposure compensation function. For various long exposure effects use the sync function. To make flash exposure tests use the flash measure function.

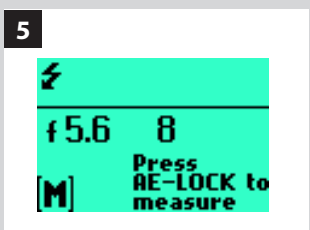
Note

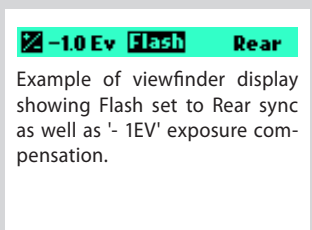
Do not attempt to connect a flash unit dedicated for use with another camera brand via the hot shoe. The flash unit and / or camera could be damaged.

Note

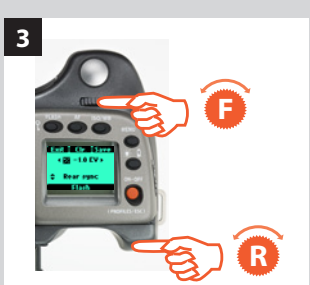
If using flash/strobe as the main light source and 1/800s shutter speed, remember to turn off the True Exposure function (Custom Option #13).







Example of viewfinder display showing Flash set to Rear sync as well as '- 1EV' exposure compensation.



To access the controls:

1) *Activate the camera and press the* **FLASH** *button once.*
2) *Turn the front control wheel to set the amount of compensation required:*
   - *from +3EV through -3EV*
   - *press* **Clr** *(***AF** *button) to clear the setting quickly if required.*
3) *Turn the rear control wheel to set:*
   - *normal sync (flash triggered just after the shutter opens)*
   - *rear sync (flash triggered just before the shutter closes)*
   - *flash measure (with non-TTL flash units or TTL units in Manual mode)*
4) *The grip display shows the flash mode - Normal or Rear - in the standard display.*
5) *When set to Flash Measure, a specific screen requests you to press the AE-L button in order to make a reading. See below for details.*

Integral flash

The integral flash unit features the following specifications:

Guide no.	12
Coverage	56º horizontal, 44º vertical
Maximum light fall-off at side centres	- 1EV (50%)
Color temperature (full flash)	5,000 – 5,600º K

To raise the flash unit into its operative position, slide the flash-unit catch backwards in the direction of the flash symbol. To return the flash unit into its closed position, push down on the top of the unit until it clicks back into place. The flash unit is automatically activated when it is in the operative position and de-activated when returned to its stored position.

The green LED flash symbol blinks in the viewfinder when the flash unit is charging and remains stationary when fully charged. The flash output can also be adjusted for optimum light balance in fill-flash situations.

Using the integral flash:

1) *Slide the flash-unit catch backwards in the direction of the flash symbol.*
2) *Press the* **FLASH** *button.*
3) *Choose between* **Normal** *or* **Rear** *sync by turning the rear control wheel and the amount of compensation (if required) by turning the front control wheel.*
4) *Press* **Save** *(***ISO/WB** *) button. Make an exposure.*

Note

Do not use the integral flash together when another external TTL flash unit is connected (and used in TTL or A mode).

Note

For full coverage with the integral flash, use 80mm or longer lenses (without a lens shade).

1

Red warning triangle and green LED flash symbol to left of viewfinder LCD display.

1

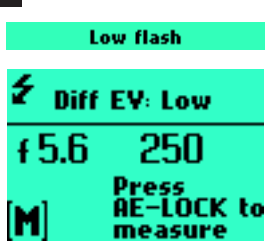
2

3

4

5

6



Tip

The 'Low Flash' warning can be turned off in Custom Option #26 if preferred.

5) *If the settings were incorrect to match the output of the flash unit, the viewfinder display shows a red triangle alongside a flashing green 'flash' symbol plus a warning message - '**Low flash**'. The grip display will also show a warning message - '**Low flash**'.*

Conventional measures should then be taken to correct the situation. (That is: move closer to the main subject, use a larger aperture setting or use a higher ISO setting).

Separate flash unit connection and use

Separate flash units can be electrically connected either by way of the hot shoe accessory holder (see previous warnings) on the top of the viewfinder or via a cord to the PC connection port on the left hand side of the camera body. Slave unit switches/ transmitters can also be connected similarly dependant on unit (see specific user manuals for details).

Keep the plastic safety cover in place in the hot shoe when not in use.

Flash measure of separate flash unit

You can measure the effect of an attached flash unit (with PC connected flash units and SCA3902 compatible flash units set to M mode), where the camera acts much as a flash meter would. The aperture setting can be adjusted and more trial exposures made until the information on the grip display is satisfactory.

To use flash measure:

1) *Press the **FLASH** button on the grip to access the flash option screen.*
2) *Turn the rear control wheel until **Flash measure** appears.*
3) *Press **Save** (**ISO/WB** button) to access the flash exposure screen.*
4) *Make preliminary required aperture setting by turning the front control wheel.*
5) *Press the **AE-L** button. The camera will close the aperture, raise the mirror and fire the flash. Light reflected from the flash lit subject will be reflected off a white spot on the auxiliary shutter to the meter sensor.*
6) *Deviations from a normal exposure are displayed as differences in EV on the grip display and the viewfinder display. If '**high**' or '**low**' appears, change the aperture accordingly and make a new test reading.*

   *Change the aperture until **Diff EV: 0** appears, or the desired amount of deviation from the normal exposure.*

   Diff EV: Low *signifies more than 2 EV under*

   Diff EV: High *signifies more than 2 EV over*

H4D

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Multi-Shot

This section provides an overview of the H4D-200MS and H4D-50MS models.

Photo: Lyle Owerko / Hasselblad Masters

Multi-shot

Multi-shot capability is available with the H4D-200MS and H4D-50MS models. Apart from regular 1-shot captures, the H4D-50MS also offers 4-shot captures while the H4D-200MS 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.

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. 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 H4D-200MS 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 the both models also functions exactly as a standard model with all the specifications, features and benefits of the H4D-50.

Download the H4D 200MS and H4D 50MS datasheets from **www.hasselblad.com** for a full description.

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

H4D

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Optional Accessories

Photo: Mark Holthusen / Hasselblad Masters

- HTS 1.5
- HVM waist level viewfinder
- Proshade V/H 60 – 95
- GIL
- Tripod quick coupling
- Flash adapter
- Filters
- Support strap H
- Camera strap H
- Focusing screens
- Release cord
- Lens accessories

Optional accessories provide the opportunity to extend the capabilities of your system or just to add extra convenience to suit your way of working.

HVM waist level viewfinder
(3053328)

The HVM waist level viewfinder allows a comfortable lower viewing angle either for effect or where eye contact with the subject is desirable in portrait photography, for example. Autofocus function of all lenses fully retained. Optimized for horizontal format shooting and not suitable for vertical format use.

Proshade V/H 60 – 95
(3040740)

An adjustable bellows lens shade that provides highly efficient protection against stray light. Its compact, flat folding design saves space in the equipment case. With adapters fits all HC lenses and virtually all V system lenses. Also features a filter holder for glass, gelatin, or plastic filters.

Proshade adapters
(3043415, 3043417, 3043419)

67mm, 77mm and 95mm adapters with bayonet mount for HC lenses. Features lock to provide positive and secure attachment.

GIL (Global Image Locator)
(3053300)

The Hasselblad GIL (3053300) provides automatic creation and storage of GPS information for all H-system digital cameras. The data is tagged to each individual image file and can be read directly by Phocus. The unit requires no extra external battery or power source and works seamlessly in the background for ease of use.

Tripod quick coupling H
(3043326)

Mounted on a tripod, this accessory facilitates rapid attachment and removal of the camera. The camera is firmly held in an exact and repeatable position. Two integrated spirit levels make horizontal positioning of the camera easy. The Tripod quick-coupling H fits 1/4" and 3/8" tripod threads and has a safety catch.

Flash adapter SCA 3902
(3053393)

For connecting flashes compatible with the SCA 3002 system to the Hasselblad H4D.

UV-sky filters
(3053470, 3053474 and 3053478)

Absorbs UV radiation and reduces blue haze without affecting colors. Also protects the front lens surface. Particularly recommended when the camera is used in harsh conditions. Available in three sizes to suit various lenses: UV-sky 67mm (3053470), UV-sky 77mm (3053474) and UV-sky 95mm (3053478).

Pola filters
(3053482, 3053486 and 3053490)

Reduces non-specular reflections and glare. Increases color saturation in general. Can intensify a blue sky. Available in three sizes.

Support strap with Quickplate H
(3045154)

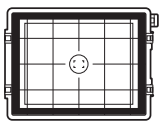
Improves comfort and security with hand-held photography. Complete with quick plate H.

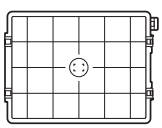
Camera strap H
(3053616)

Extra wide camera strap with anti-slip backing.

Release cord H
(3043370)

Remote release cord with a cable length of 0.5 m.





Focusing screens

All focusing screens are of the Spherical Acute-Matte D type with or without grid and central markings for spot (ø 7.5) and AF metering area. Grid patterns provide aid in technical, architectural, documentation and other similar fields.

Available with or without masking for the sensor format

HVM correction lens holder
(3053348)

Lens holder for custom made eyesight correction (lenses available from opticians). To be used for optimal viewing comfort and accuracy

HVD 90x / HV 90x & 90x-II viewfinders
(3053330, 3053326, 3053334)

90 degrees reflex viewfinder, providing 100% field of view even when wearing eyeglasses. Includes built-in fill flash and multi-mode light metering system.

Angle finder H
(S100A12359A00)

Angle finder for the HV 90x and the HVD 90x viewfinders. Enables vertical viewing angle regardless of camera position. Requires a minor modification to the viewfinder eyepiece.

DC power grip
(3043350)

Removable H-camera grip with AC power adapter for supplying camera power from domestic mains supplies.

HC lens accessories

HTS 1.5
(3043400)

The HTS 1.5 is a shift and tilt adapter designed for the HCD28mm, HC35mm, HC50mm, HC80mm and the HC100mm lenses. It not only solves technical challenges but also provides exciting opportunities for creative solutions.

Converter H 1.7X
(3023717)

The Converter attaches between the lens and the body to increase the focal length by a factor of 1.7. This provides a convenient way to expand your range of lenses. The Converter H 1.7 X features the same outstanding optical and mechanical quality as all the lenses in the Hasselblad H system. The optical design consists of 6 elements in 4 groups.

H 13, 26 and 52 Extension tubes
(3053513, 3053526 and 3053542)

The Extension tubes attach between the lens and the body to reduce the close focusing distance for close up photography. They are available in three sizes: 13mm, 26mm and 52mm. As the H4D has a TTL light metering system, exposure compensation is automatic.

CF Adapter
(3043500)

The CF adapter allows virtually all lenses from the V-system to be used on H-system camera bodies. This automatically expands the potential lens range for H cameras by more than a dozen different focal lengths.

Check www.hasselblad.com for further details about lens shades, endcaps, lens pouches etc or news of new accessories.

HC lens range

HCD 4/28mm

HC 3.5/35mm

HC 3.5/50-IImm

HC 2.8/80mm

HC 2.2/100mm

HC Macro 4/120-IImm

HC 3.2/150mm

HC 4/210mm

HC 4.5/300mm

HC 3.5–4.5/50–110mm

HCD 4.0–5.6/35–90mm

V system C type lenses with optional CF lens adapter

Connectivity diagram

Optional viewfinders

HV 90x / HVD 90x viewfinders

HVM waist-level viewfinder

Tilt/Shift

HTS 1.5.
For use with HCD28, HC35, HC50, HC80 and HC100 (including extension tubes)

Accessories

GIL GPS receiver

SCA3902 TTL Flash Adapter

H4D Camera

HV 90x-II viewfinder (included)

Sensor unit (included)

Camera body

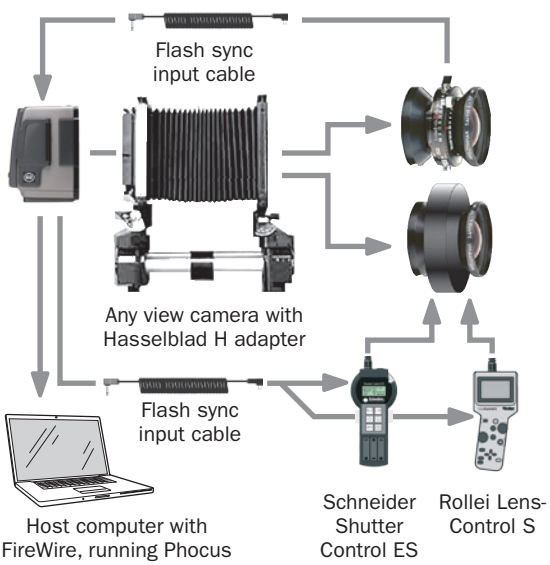
Optional V system lenses

CF lens adapter

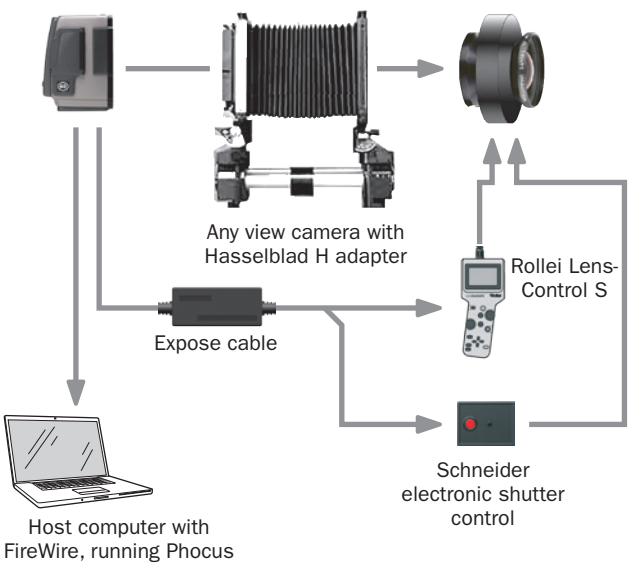
Lenses

All H System lenses, including extension tubes and converter

View cameras – Flash sync shutters



View cameras – Electronic shutters



H4D

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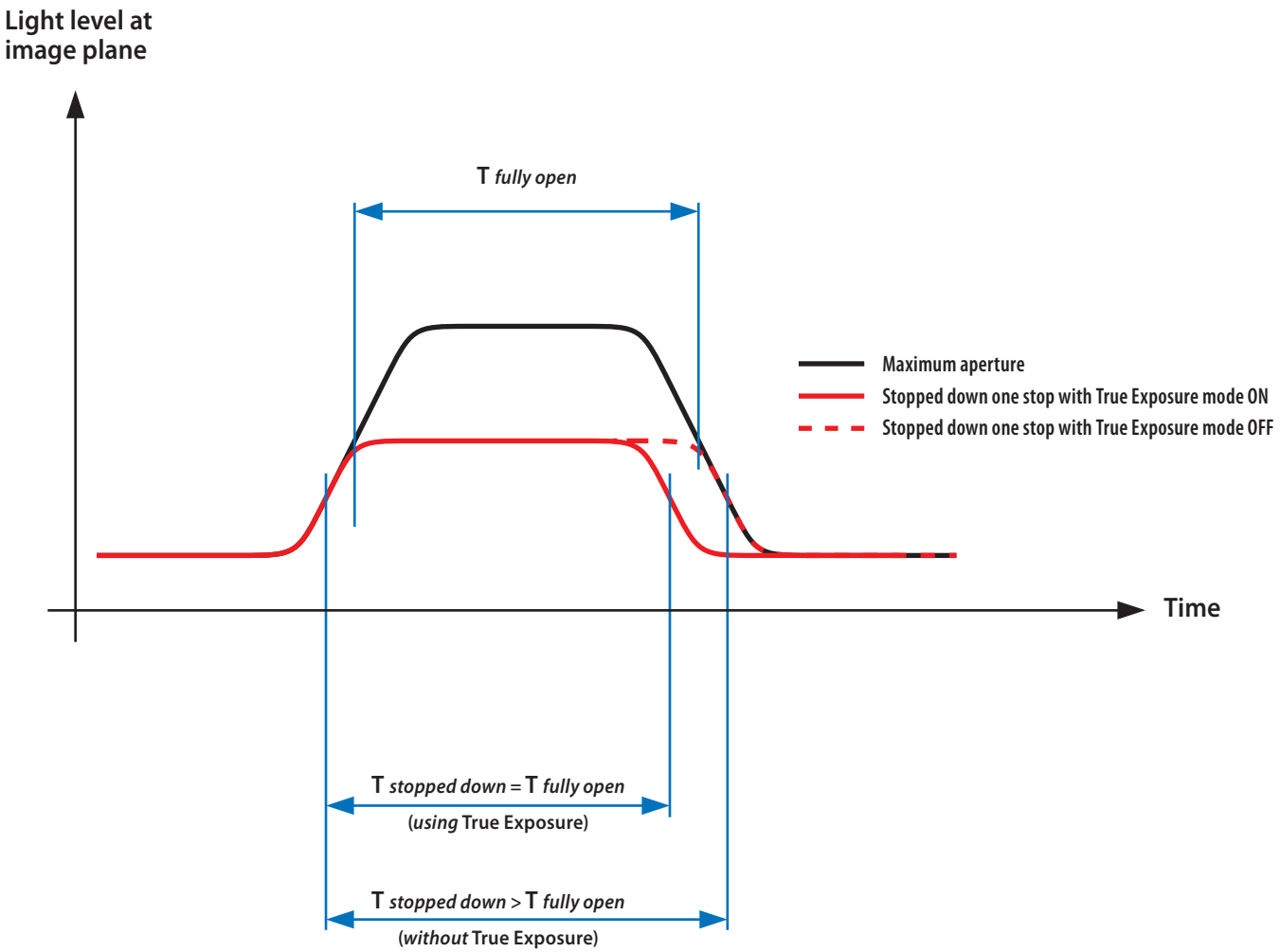
Appendix

Photo: Lyle Owerko / Hasselblad Masters

- P and Pv explanatory charts
- Technical specifications
- Problems, Equipment Care & Service

This section provides an insight into the more technical aspects as well as some important reference information.

True exposure



Note

You can download a fuller explanation of this situation from www.hasselblad.com.

True exposure

True Exposure is an H System lens function that allows the shutter speed to remain unaffected when stopping down. This effect is perhaps not so commonly understood as it is restricted specifically to integral lens shutters as opposed to focal plane shutters.

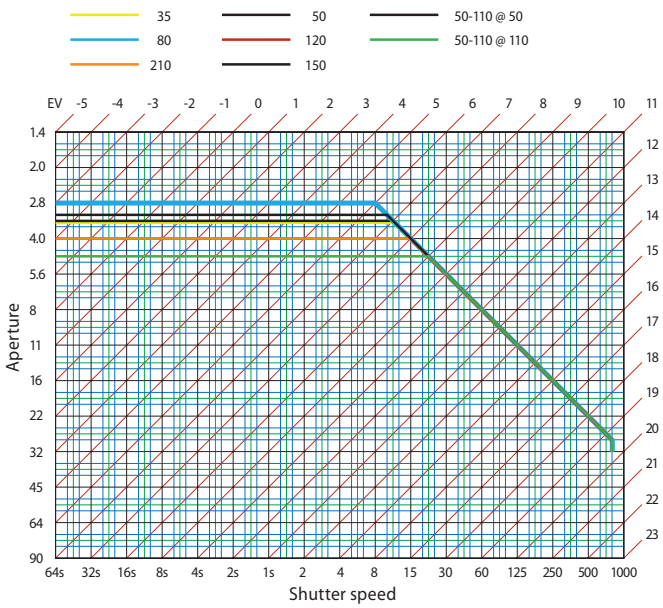
When a lens is stopped down, the effective shutter speed becomes longer, consequently affecting the set exposure. At slow shutter speeds the effect is minimal but at faster speeds, e.g. 1/500s, the effect becomes clearly visible. As Hasselblad knows exactly how the shutters behave in HC lenses, automatic compensatory measures in speed setting adjustments are therefore employed.

As compensation can only be put into effect where speeds can be adjusted, this prevents the possibility of adjusting the fastest speed of 1/800s. To counter this, compensatory adjustments are therefore made to the aperture instead to retain the set exposure.

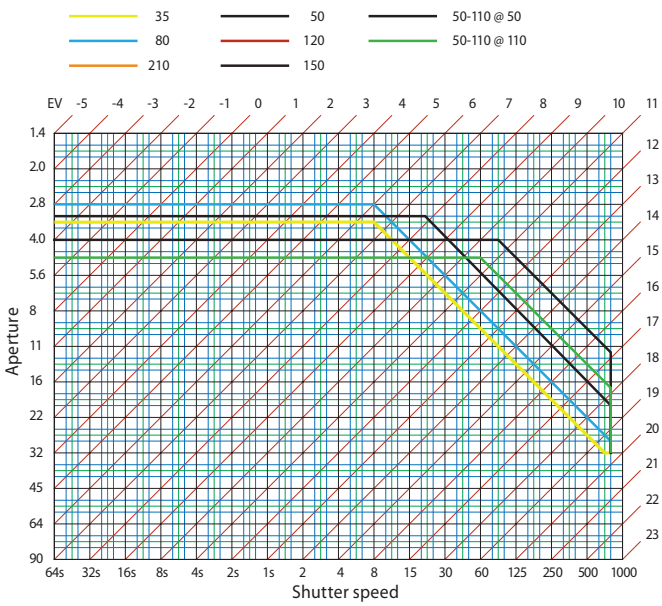
However, this compensation is not always required and when using flash/strobe as the main light source it is actually undesirable because compensation will result in underexposure. Therefore, when using flash/strobe as the main light source, you should set True Exposure to OFF in Custom Options #13.

Automatic exposure – P & Pv Mode

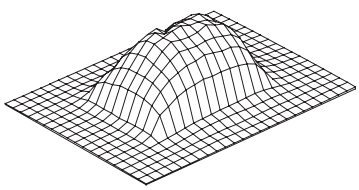
P Mode



Pv Mode

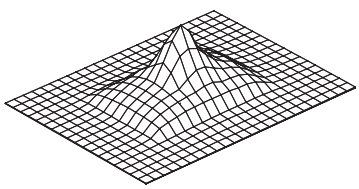


Light metering method sensitivity distribution



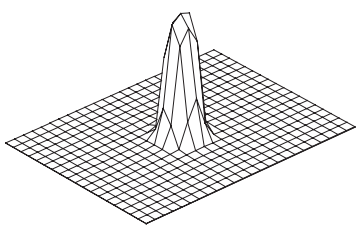
Centre Weighted
(23 x 20 mm)

≈ 32% (H4D-40)
≈ 25% (H4D-50)
≈ 21% (H4D-60)



CentreSpot
(23 x 20 mm)

≈ 32% (H4D-40)
≈ 25% (H4D-50)
≈ 21% (H4D-60)



Spot
(diameter 7.5mm)

≈ 3.1% (H4D-40)
≈ 2.5% (H4D-50)
≈ 2.0% (H4D-60)

Technical specifications

Camera Type	Auto-focus, auto-exposure digital SLR camera with interchangeable viewfinders and lenses.
Construction	One piece stainless steel shell. Die-cast aluminium internal structure. Tripod sockets (1/4 and 3/8") and quick coupling tripod plate for rapid mounting.
Lenses	Hasselblad H System lenses with built-in electronically controlled shutter and aperture. Automatic or manual focusing with instant manual focus override. All H System lenses meet the exacting requirements of digital photography. Lens shades can be mounted in reverse for transport. V- system lenses can be used with a CF adapter.
Lens factor	HC – 1.0 / HCD –1.0 (marginal crop).
Viewfinder (HV 90x-II)	A 90° reflex viewfinder, providing 100% field of view even when wearing eyeglasses, and built-in multi-mode light metering system. Image magnification 3.1x. Integrated fill-in flash with guide number 12. Hot-shoe for automatic flash (Metz SCA3002 system / adapter SCA3902). Dot matrix display with presentation of all relevant information. Built-in diopter adjustment from -5 to + 3.5D. Interchangeable.
Focusing	Automatic and manual focusing with electronic focus aid in manual mode. Instant manual focus override.Automatic focusing using passive central cross type phase detection sensor. AF metering range EV 1 to 19 (ISO 100).
Shutter	Electronically controlled lens shutter with speeds up to to 1/800. Flash sync at all speeds.
Flash control	TTL centre-weighted system. Can be used with the built-in flash or a wide variety of flashes compatible with the SCA3002 (Metz) system using adapter SCA3902. ISO range16 to 6400. Flash output can be adjusted (-3 to +3EV) for fill-in purposes independent of ambient light. Synch at all shutter speeds.
Flash measurement	The H4D has a built-in measurement system that measures flash light from non-TTL flashes, such as studio flashes.
Exposure metering	Multi-mode exposure metering using 90° reflex viewfinder. Metering options are: Spot (diameter 7.5mm), Centre Weighted, and CentreSpot. Metering range at f/2.8 and ISO100: Spot: EV2 to 21, Centre-weighted: EV1 to 21, CentreSpot: EV1 to 21.
Auto bracketing	Bracketing using predetermined number of captures (2, 3, 5, 7 or 9) in 1/3, 1/2, or 1 EV step difference intervals.
Interval timer	Number of captures from 2 to 'no limit' and interval from 1 second to 1 hour.
ISO range	ISO range: 50 – 800 / 100 – 1600, depending on model.
Displays	The camera features two dot-matrix displays that provide clear and easy-to-understand information to the user. One is located on the grip and the other in the 90° viewfinder. The sensor unit has a high contrast 3 inch TFT type display.
Focusing screen	Bright Spherical Acute-Matte type D with sensor format markings. Grid marked type also available as option.
Compatibility	All H System lenses and accessories except film magazines. V system C type lenses with optional CF lens adapter.
Accessory connection	Provided with two M5 threads and an electrical connector for accessories.
Customization	A large number of the H4D's functions can be customized by the user to suit specific styles or situations through the built-in menu system.
User interface	Both basic and advanced functions are set using buttons and control wheels in conjunction with the grip display and viewfinder display. Sensor unit menu visible and controllable from unit's display. Some functions and settings controllable through Phocus on a tethered computer.
Battery grip rechargeable 7.2 V	Li-ion type. 7.2 V / 1850 mAh output.
Battery charger Li-ion 7.2 VDC	Uses DV charge termination technique to prevent over-charging.100–240 VAC / 50–60 Hz input. 6.0–7.9 VDC/ 800mA output.
External dimensions	Complete camera with HC 80mm lens [W x H x L]: 153 x 131 x 205mm. H4D-50MS/H4D-200MS: 153 x 131 x 207mm.
Weight	Camera body with HC 80mm lens, Li-Ion battery and CF card: 2290g (31, 40, 50, 60), 2450g (50/200MS).

SENSOR UNIT	H4D-200MS	H4D-50MS	H4D-60
Sensor size	50 Mpixels: (6132 x 8176 pixels).	50 Mpixels: (6132 x 8176 pixels).	60.1 Mpixels: (6708 x 8956 pixels).
Sensor dimensions	36.7 x 49.1 mm.	36.7 x 49.1 mm.	40.2 x 53.7 mm.
Image size	Raw 3FR capture: Compressed to 75/300/1200 MB on average. 8 bit TIFF: 150/150/600 MB on average.	Raw 3FR capture. Compressed to 65 MB on average. 8 bit TIFF: 150MB.	Raw 3FR capture. Compressed to 80 MB on average. 8 bit TIFF: 180MB.
Capture rate	1.1 seconds per capture. 33 captures per minute (1-shot).	1.1 seconds per capture. 33 captures per minute.	1.4 seconds per capture. 31 captures per minute.
Storage capacity	8 GB CF card holds 120 images.	8 GB CF card holds 120 images.	8 GB CF card holds 100 images.
ISO speed range	ISO 50, 100, 200, 400 and 800.	ISO 50, 100, 200, 400 and 800.	ISO 50, 100, 200, 400 and 800.
Longest exposure time	128s	128s	32s
Shooting mode	Single shot/4-shot /6-shot.	Single shot/4-shot.	Single shot.
Color definition	16 bit.		
Color management	Hasselblad Natural Color Solution.		
Image storage	CF card type U-DMA (e.g. SanDisk extreme IV), or tethered to a Mac or PC		
Color display	Yes – TFT 3 inch, 24 bit color, 230,400 pixels.		Yes – TFT 3 inch, 24 bit color, 460,320 pixels.
Histogram /Acoustic feedback	Yes.		
IR filter	Mounted on CCD sensor.		
File format	Lossless compressed Hasselblad 3FR/3F.		
Software	Phocus (supplied) for Mac and PC.		
Platform support	Mac: OSX version 10.6, Windows: XP (32 and 64 bit), Vista (32 and 64 bit) Windows 7 (32 and 64 bit).		
Host connection type	FireWire 800 (IEEE1394b).		
View camera compatibility	Yes, mechanical shutters controlled via flash sync. Electronic shutters must be controlled from Phocus.		
Operating temperature	0 – 45 ˚C / 32 – 113 ˚F.		

SENSOR UNIT	H4D-50	H4D-40	H4D-31
Sensor size	50 Mpixels: (6132 x 8176 pixels).	40 Mpixels: (5478 x 7304 pixels)	31 Mpixels: (4872 x 6496 pixels)
Sensor dimensions	36.7 x 49.1 mm.	33.1 x 44.2 mm.	33.1 x 44.2 mm.
Image size	Raw 3FR capture. Compressed to 65 MB on average. 8 bit TIFF: 150MB.	Raw 3FR capture 50 MB on average. 8 bit TIFF: 120MB.	Raw 3FR capture 40 MB on average. 8 bit TIFF: 93 MB.
Capture rate	1.1 seconds per capture. 33 captures per minute.	1.1 seconds per capture. 50 captures per minute.	1.2 seconds per capture. 42 captures per minute.
Storage capacity	8 GB CF card holds 120 images.	8 GB CF card holds 150 images on average.	8 GB CF card holds 200 images on average.
ISO speed range	ISO 50, 100, 200, 400 and 800.	ISO 100, 200, 400, 800 and 1600.	ISO 100, 200, 400, 800 and 1600.
Longest exposure time	128s	256s	64s
Shooting mode	Single shot.		
Color definition	16 bit.		
Color management	Hasselblad Natural Color Solution.		
Image storage	CF card type U-DMA (e.g. SanDisk extreme IV), or tethered to a Mac or PC		
Color display	Yes – TFT 3 inch, 24 bit color, 230,400 pixels.		
Histogram /Acoustic feedback	Yes.		
IR filter	Mounted on CCD sensor.		
File format	Lossless compressed Hasselblad 3FR/3F.		
Software	Phocus (supplied) for Mac and PC.		
Platform support	Mac: OSX version 10.6, Windows: XP (32 and 64 bit), Vista (32 and 64 bit) Windows 7 (32 and 64 bit).		
Host connection type	FireWire 800 (IEEE1394b).		
View camera compatibility	Yes, mechanical shutters controlled via flash sync. Electronic shutters must be controlled from Phocus.		
Operating temperature	0 – 45 ˚C / 32 – 113 ˚F.		

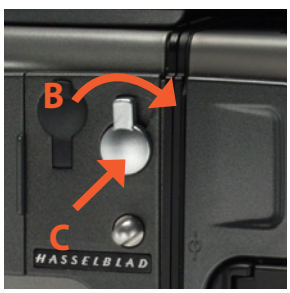
Default Settings ('Default' profile)

Exp.mode		A (Aperture priority)	
LM mode		Centre weighted	
Exp. adjust		0	
Focus mode		AF-S	
Drive mode		S	
Flash sync		Normal (beginning of exp.)	
Flash adjust		0	
Self timer	delay	10 sec	
	Sequence	Mirror up / Delay	
	Mirror mode	Mirror goes down	
Bracketing	Frames	3	
	Sequence	Normal - over - under	
	EV diff	0,5 EV	
Interval timer	Frames	3	
	Interval	0 min 30 sec	
Custom options	1	Standby timeout	10 sec
	2	EV increment	1/2 step (0.5 EV)
	3	Exp adjust increment	1/3 step (0.3 EV)
	4	True Focus button function	True Focus
	5	AE-Lock button function	AE-lock
	6	Stop Down button function	Stop down
	7	M.UP button function	Mirror up
	8	Control wheel direction	CW
	9	Flash ready exposure lock	Yes
	10	Magazine exposure lock	Yes
	11	Lens exposure lock	Yes
	12	Out of range exposure lock	No
	13	True exposure	On
	14	Spot mode	Normal
	15	Focus aid in MF	Half press
	16	AF assist light	Ext. Flash
	17	Rear wheel quick adjust	Yes
	18	Control lock	All controls
	19	Beeper	On
	20	Show histogram	Yes
	21	Interval & Selftimer	Exit
	22	AE-lock & Quick adjust	Exp. reset
	23	Show EV	Yes
	24	Show ISO	Yes
	25	Bracket param. in Manual	Shutter speed
	26	Aperture control in Manual	Front wheel
	27	Low flash warning	On
	28	Interval timer initial delay	None
	29	Aperture indicator	Normal
	30	Extra mirror-delay	50ms
	31	True Focus in AF-S	Off
	32	Always return mirror	No
	33	AE lock at half press	Off
	34	Hide B/T mode	Off

1

2

3



Care and maintenance of sensor unit

Handling and storage

- ***Always replace the protective CCD/filter cover when the sensor unit is not mounted on the camera.***
- ***Do not touch the exposed CCD/filter with your fingers.***
- ***Keep all foreign objects out of the camera opening.***
- ***Store the sensor unit away from moisture and excessive heat.***
- ***Protect the sensor unit from impact–do not drop it.***

Cleaning the CCD Infrared 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. For a good safe cleaning, follow descriptions below.

Basic air-cleaning procedure / removing the sensor unit

1. *Remove a FireWire if connected.*
2. *Remove the viewfinder.*
3. *While pushing the safety catch backwards on the sensor unit (3 illus. A) push the lever of the sensor unit release button to the right (3 illus. B) and while maintaining that position press the centre of the button firmly inwards towards the camera body (3 illus. C) to finally release the magazine.*
4. *Clean the outside surface of IR filter by spraying it with 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 CCD itself.*

Note

Never attempt to remove the glass filter from the front of the CCD – you will probably ruin the CCD if you do so. If dust manages to get between the IR filter and CCD, it can only be removed at the Hasselblad factory. Contact your Hasselblad dealer for assistance.

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.

Cleaning using the HAMA cleaning fluid and tissues

Note! Hasselblad recommends HAMA Optic Cleaning Fluid 5902.

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

Cleaning with an E-Wipe

E-wipes are individually packed wet tissues.

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

Attaching the sensor unit

Position the sensor unit retention groove onto the sensor unit support on the camera body ensuring that they are correctly positioned. Swing the sensor unit towards the camera body and firmly press into place with a click. If there is resistance, the magazine retaining catch on the camera has probably been inadvertently released. In that case, push the release button again to reset the catch.

Cleaning the housings

If the camera becomes dirty, clean it with a soft, clean cloth lightly moistened with water only. Do not use any other solvents and do not allow water to seep in the openings.

Problems, Equipment Care & Service

The H4D is a very sophisticated camera that relies on much information being passed and processed to and from each modular unit 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 unit or 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 unit 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. Try to avoid frequent and severe temperature changes. Be particularly careful in humid environments. Allow the equipment to acclimatize before assembly. Try to ensure the storage conditions in such environments are as dry as possible.

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).
- 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 unit.
- Always replace the protective CCD/filter cover when the sensor unit is 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

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.

QUICK INDEX

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