HASSELBLAD H4D®40

With the release of the new H4D-40, the most recent addition to the Hasselblad H System, Hasselblad marks the beginning of a new chapter in the history of medium format DSLR cameras. The H4D-40 features True Focus with APL (Absolute Position Lock), refining the auto-focus system for accurate composing at close range with shallow depth-of-field.

H4D-40 sets a new standard for camera handling, image detail and image resolution. With a 40Mpix sensor it provides the basis for outstanding image quality based upon the high performance HC/HCD lens line. With its unique bright viewfinders, its wide range of quality lenses matching even the best of the icon lenses from Carl Zeiss, and its wide choice of accessories, the H4D-40 is the ultimate camera choice for the professional photographer. For developing your creative expression the H4D-40 takes full advantage of the Hasselblad HTS 1.5 tilt/shift adapter. You can explore the Hasselblad camera system at: **http://www.hasselblad.com/products/h-system/h4d-40.aspx**

POWERED by Phocus

Raising the bar from H3D

Expanding on the great feature set of the H3D camera-line, a set of new camera features are introduced with the H4D-40:

- new 3" TFT 24bit color display with large viewing angle
- new camera electronics delivering the basis for True Focus and ultra fast Auto Focus
- new True Focus auto-focus system with Absolute Position Lock and new camera controls
- new extended exposure time up to 4 min (256 sec.) exposure
- new AF assist lights for working in dark environments
- new 80 MB/sec read-write performance on Extreme Pro cards from Sandisk

The H4D-40 camera system has been especially designed to meet demands for both flexibility and ultimate image quality. This includes:

- highest image resolution from 40Mpixel sensor
- the freedom to choose between eye-level and waist-level viewfinders
- the choice of combining point-and–shoot and tilt/shift to solve creative commercial challenges
- the ability to combine working tethered and un-tethered to get the most of your camera system both on location and in the studio
- the option of processing your raw images in Hasselblad's Phocus imaging toolbox, or working with your raw images directly in Apple or Adobe imaging environments.

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Medium Format digital capture advantage

In digital photography, the advantages of large format cameras have become even more obvious. The basic 6×4.5 cm design allows the H4D-40 to use one of the largest image sensors currently available in digital photography. The H4D-40 features CCD sensor measuring 33.1 × 44.2mm - almost twice the physical size of the largest 35mm DSLR sensors. 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. Basic ISO rating is from ISO 100 to ISO 1600.

The H4D-40 makes use of a new high speed capture architecture capturing full size, compressed 50Mbyte images at the rate of 1.1 seconds per capture, working either mobile or tethered to a computer.

The combination of these features makes the H4D-40 the natural choice for the professional commercial photographer wanting to work with the highest image quality within a camera system that supports ultimate creative expression in order to deliver outstanding images to satisfy the most demanding customer.

An impressive lens line outperforming the Carl Zeiss icons

The highly renowned HC/HCD lens line includes 11 Auto-Focus lenses, all with central lens shutters. Range is from 28mm to 300mm, 50-110mm zoom, 35-90mm zoom and 1.7X converter. The built-in central lens shutter allows flash to be used at all shutter speeds down to 1/800s. It also improves image quality by reducing camera vibration.

The HTS 1.5 tilt/shift adapter delivers an easy to use, portable tilt/shift solution for 5 HC/HCD lenses ranging from 28mm to 100mm. The CF adapter allows use of the classic CF-lenses from the Hasselblad V-camera, with full use of their central shutters, allowing flash to be employed at shutter speeds down to 1/500s. 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.

A choice of bright viewfinders

One of the important traditional advantages of the medium format is the extra-large and bright viewfinder image, enabling extremely precise compositions and easy operation in dim lighting. The H4D-40 comes with the HVD 90x viewfinder designed for full performance over the large sensor. Hasselblad has added an interchangeable waist-level viewfinder, the HVM, for the entire range of H system cameras. The bright and large viewfinder image is ideal for creative composing and the photographer is able to shoot in the fashion that suits them most; maintaining eye contact with the model, or gaining impact by shooting from a point lower than eye-level, for example.

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.

H4D-40 takes full benefit from all the flexibility of the impressive H camera system.

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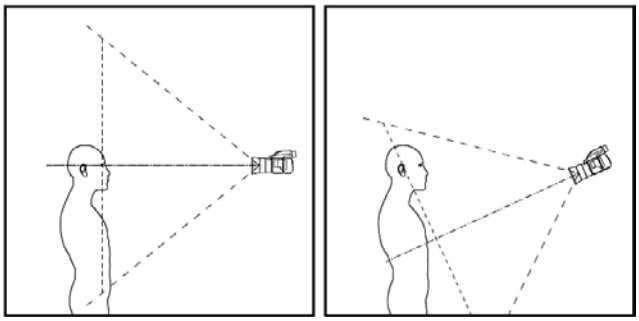
True Focus and Absolute Position Lock

True Focus helps solve one of the most lingering challenges that faces serious photographers today: true, accurate focusing throughout the image field. Without multi-point auto-focus a typical auto-focus camera can only correctly measure focus on a subject that is in the center of the image. When a photographer wants to focus on a subject outside the center area, they have to lock focus on the subject and then re-compose the image. In short distances especially, this re-composing causes focus error, as the plane of focus sharpness follows the camera's movement, perpendicular to the axis of the lens.

The traditional solution for most DSLR cameras has been to equip the camera with a multi-point AF sensor. These sensors allow the photographer to fix an off-center focus point on an off-center subject, which is then focused correctly. Such multi-point AF solutions are often tedious and inflexible to work with. Due to the physics of an SLR-camera, the off-center focus points that are offered are all clustered relatively close to the center of the image. To set focus outside of this center area, the photographer is still forced to focus first, and then shift the camera to reframe, with the resulting loss of focus as a result.

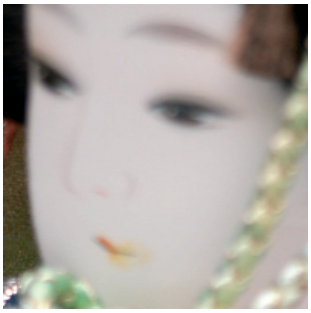
To overcome this problem, Hasselblad has used modern yaw rate sensor technology to measure angular velocity in an innovative way. The result is the new Absolute Position Lock (APL) processor, which forms the foundation of Hasselblad's True Focus feature. The APL processor accurately logs camera movement during any re-composing, then uses these exact measurements to calculate the necessary focus adjustment, and issues the proper commands to the lens's focus motor so it can compensate. The APL processor computes the advanced positional algorithms and carries out the required focus corrections at such rapid speed that no shutter lag occurs. The H4D's firmware then further perfects the focus using the precise data retrieval system found on all HC/HCD lenses.



The plane of focus changes when the camera is tilted for composition.

Final desired composition with sharpness on the eyes of the doll.

Aiming the central focusing point on the eyes will make them sharp but produce the wrong composition.



Without True Focus - tilting the camera down to produce the desired composition makes the eyes now fall outside the plane of sharpness.

With True Focus - the focus is automatically adjusted to keep the eyes sharp.

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Digital Lens Correction and Ultra-Focus for image perfection

The H4D-40 camera 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. In this way the full HC/HCD lens program is even further enhanced, bringing a new level of sharpness and resolution. Digital correction for color aberration and distortion is also added. "Digital Lens Correction" (DAC), is an automatic 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.

Accessories including GPS Recording Flexibility

Hasselblad's Global Image Locator (GIL) is an accessory for use with any Hasselblad H-System digital capture product. With the GIL device, all images captured outdoors are tagged with GPS coordinates, time and altittude. 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. Check out full list of accessories at: **http://www.hasselblad.com/products/lenses-and-accessories/h-system-accessories.aspx**

H4D with GIL Global Image Locator accessory.

Phocus software driving down the learning curve

Phocus provides an advanced software toolbox that has been especially designed to easily achieve optimum workflow and absolute image perfection from Hasselblad raw image files. With the H4D-40 camera system Phocus provides:

- **Uncompromising Image Quality**
- **Special extended camera controls** with which to operate your H4D-40 camera. These features, such as live video for easier shot set-up and workflow, or the ability to control the lens drive for focusing when the camera is in a remote position or when the digital capture unit is mounted on a view camera, bring an entirely new level of flexibility to the way you shoot.
- **Moiré Removal Technology** automatically applied directly on the raw data, leaving image quality intact and eliminating the need to carry out special masking selections or other manual procedures, saving hours of tedious post-production work.
- **Flexible Workflow.** The Phocus GUI features easy-to-use options that allow you to customize your set-up to suit a range of different workflow situations, such as choice of import source, browsing/comparison functions, file management, image export in a number of file formats, pre-setting of options for upcoming shoots, and much, much more.
- **New Metadata (GPS, etc)**. The extended metadata included in all Phocus images provides for accurate and detailed cataloguing and indexing, easy image management, and includes added GPS data functionality in order to allow a range of new functions. Phocus links GPS data directly to Google Earth, for example, making geographic reference a snap and image storage and retrieval much easier.
- **100% Viewing Quality.** The Phocus Viewer delivers image viewing quality that matches every detail of what you will see later in Photoshop. In addition, the Phocus Viewer allows you to customize layout and composition to suit your current or desired workflow, providing a wide range of options including full view, compare, browse, horizontal, or vertical view, and so on. You can have multiple folders open simultaneously for side-by-side viewing, comparison, and selection

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Instant Approval Architecture

Building on the success of the 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-40 provide a realistic, high quality and perfect contrast image view, even in bright sunlight.

Options for working with tilt/shift

Two basic options are available for tilt/shift work with H4D-40. A simple-to-use, portable adapter solution and the classic view camera solution.

The HTS tilt/shift adapter for H4D-40 allows for portable tilt/shift with the HC/HCD lens range from 28mm to 100mm.

Please refer to the separate datasheet on this product for details.

To further increase usability, the H4D-40 has been designed to allow the digital capture unit to be detached and used on a view camera by way of an adapter.

Please refer to the separate datasheet on Hasselblad View Camera solutions for details.

Two modes of operation and storage

The H4D-40 offers a choice of storage devices: CF cards or a computer hard drive. With these 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.

5 HC/HCD lenses including Extension Tubes can be used with the HTS 1.5

H4D with HTS 1.5 tilt/shift adapter and a HCD 28mm lens.

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Technical specification

DIGITAL FEATURES	
Sensor size	40.0 Mpixels (7304×5478 pixels)
Sensor dimensions	33.1×44.2 mm
Image size	RAW 3FR capture 50 MB on average. TIFF 8 bit: 120 MB
File format	Lossless compressed Hasselblad RAW 3FR
Shooting mode	Single shot
Color definition	16 bit
ISO speed range	ISO 100, 200, 400, 800 and 1600
Storage options	CF card type U-DMA (e.g. SanDisk extreme IV) or tethered to Mac or PC
Color management	Hasselblad Natural Color Solution
Storage capacity	4 GB CF card holds 75 images on average
Capture rate	1.1 seconds per capture. 50 captures per minute
Color display	Yes, 3 inch TFT type, 24 bit color, 230 400 pixels
Histogram feedback	Yes
IR filter	Mounted on CCD sensor
Acoustic feedback	Yes
Software	Phocus for Mac and Windows
Platform support	Macintosh: OSX. Windows: XP (32 and 64 bit), Vista (32 and 64 bit), Windows 7 (32 and 64 bit).
Host connection type	FireWire 800 (IEEE 1394b)
View camera compatibility	Yes, Mechanical shutters controlled via flash sync. Electronic shutters can be controlled from Phocus.
Operating temperature	0 - 45 ˚C / 32 - 113 ˚F
Dimensions	Complete camera w. HC80 mm lens: 153 x 131 x 213 mm [W x H x D]
Weight	2290 g (Complete camera w. HC80 mm lens, Li-Ion battery and CF card)

CAMERA FEATURES	
Camera type	Large sensor medium format DSLR
Lenses	Hasselblad HC/HCD lens line with integral central lens shutter.
Shutter speed range	256 seconds to 1/800 second
Flash sync speed	Flash can be used at all shutter speeds.
Viewfinder options	• HVD 90x: 90° eye-level viewfinder w. diopter adjustment (-5 to +3.5D). Image magnification 3.1 times. Integral fill-flash (G.No. 12 @ ISO100). Hot shoe for SCA3002-system flashes from Metz™. • HV 90x: 90° eye-level viewfinder w. diopter adjustment (-4 to +2.5D). Image magnification 2.7 times. Integral fill-flash (G.No. 12 @ ISO100). Hot shoe for SCA3002-system flashes from Metz™. • HVM: Waist-level viewfinder. Image magnification 3.2 times.
Focusing	Autofocus metering with passive central cross-type sensor. Ultra focus digital feedback. Instant manual focus override. Metering range EV 1 to 19 at ISO 100.
Flash control	Automatic TTL centre weighted system. Uses built-in flash or flashes compatible with SCA3002 (Metz™). Output can be adjusted from -3 to +3EV. For manual flashes a built-in metering system is available.
Exposure metering	Metering options: Spot, Centre Weighted and CentreSpot. Metering range Spot: EV2 to 21, Centre Weighted: EV1 to 21, CentreSpot: EV1 to 21
Power supply	Rechargeable Li-ion battery (7.2 VDC / 1850 mAh).
Film compatibility	No

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Connectivity diagram

Optional viewfinders

HV 90x viewfinder

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

HVD 90x viewfinder (included)

Sensor unit (included)

Camera body

Optional V system lenses

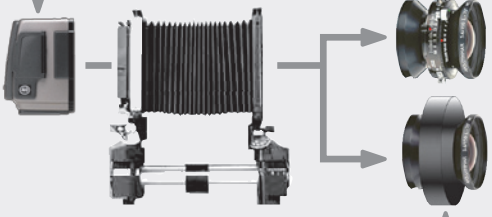
CF lens adapter

Lenses

All HC/HCD lenses, including extension tubes and converter

View cameras – Flash sync shutters

Flash sync input cable

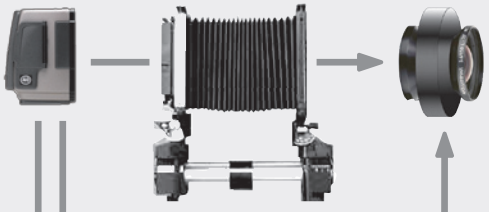


Any view camera with Hasselblad H adapter

Schneider Shutter Control ES

Rollei electronic shutter

View cameras – Electronic shutters



Any view camera with Hasselblad H adapter

Intelligent cable

Host computer with FireWire, running Phocus

Schneider Shutter Control ES

Rollei electronic shutter

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H4D-40 lens range

		
HCD 4/28mm	HC 3.5/35mm	HC 3.5/50mm
		
HC 2.8/80mm	HC 2.2/100mm	HC Macro 4/120mm
		
HC 3.2/150mm	HC 4/210mm	HC 4.5/300mm
		
HC 3.5-4.5/50-110mm	HCD 4-5.6/35-90mm Aspherical	All C-type lenses from the V system with optional CF lens adapter

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