HASSELBLAD H3D⊕ / H3D㉛ / H3D㊴

Hasselblad has set a new standard for digital cameras with the launch of the H3D-39, the world's first Full-Frame, 48mm DSLR camera system.

The H3D has been developed around a brand new digital camera engine producing increased lens performance and a new level of image sharpness. By focusing solely on digital camera architecture, Hasselblad is able to offer photographers the full benefits of professional medium-format digital cameras as well as the ease of use of the best 35mm DSLRs.

The H3D design has also made possible the launch of a completely new 28mm lens, designed and optimized solely for digital image capture. Image quality is lifted to a level yet unseen in digital photography, including digital correction for color aberration and distortion (check the image quality out at www.hasselblad.com/products/hasselblad-star-quality). The result is flexibility for the professional photographer, including the freedom to choose between eyelevel and waistlevel viewfinders, digitally APO corrected lenses, and on-the-fly classification of images. The H3D offers photographers the freedom to work with film to allow shoot-

ing under extreme conditions, and Hasselblad's Natural Color Solution delivers out-of-the-box image quality only achievable in a true digital camera system. The H3D camera is currently available with three different sensor models, offering Full-Frame 48mm image capture with a resolution of 39 Mpixel/22 Mpixel, or near full-frame capture with the new 31 Mpixel model.

The H3D-22 and its nearly double-resolution H3D-39 counterpart are both full-frame 48mm DSLR's using the sensor format 48×36mm. These cameras operate up to ISO400 with a capture speed of up to 1.4 seconds per capture. The H3D-22 and H3D-39 are the preferred choice of professional commercial photographers.

The H3D-31 features a 31 Mpixel sensor measuring 44×33mm enhanced with micro-lenses to boost ISO rating by one stop to a new maximum of ISO800. As with its fellow H3D models, the H3D-31 makes use a new high speed capture architecture for the fastest possible operation, with the H3D-31 capturing at the rate of 1.2 seconds per capture, working either mobile or tethered to a computer. These features make the H3D-31 the natural choice for the professional mobile photographer.

Ultra Focus and Digital Auto Correction for image perfection

Information about the lens and exact capture conditions is 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 lens program is enhanced to perform at a new level of sharpness and resolution. Digital correction for color aberration and distortion is also added.

"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.

Based upon these techniques we are now expanding our lens program with a specially designed 28mm lens that has been developed for the H3D. The design has been optimized for the actual 48×36mm

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area of the sensor to make it more compact and to work in conjunction with DAC as an integral part to perfect the images from this extraordinary lens. The achievement is clear: DAC increases the resolution of the image and with a perfect pixel definition, the basis for the image rendering is optimized.

The highly renowned HC/HCD lens line uses central lens shutters, which adds flexibility by allowing flash to be employed at shutter speeds up to 1/800 sec. And the central shutter improves image quality by reducing camera vibration.

Thanks to the large format, the depth of field range is considerably shallower making it much easier to utilize selective focus to creative effect.

Large format digital capture

In digital photography, the advantages of large format cameras become particularly obvious. The 6×4.5cm window allows the Hasselblad H3D to use the largest image sensors currently available in digital photography – up to more than twice the size of a 35mm camera sensor. Consequently the sensor holds more and larger pixels, which deliver a high-end image quality in terms of moiré-free color rendering without gradation break-ups in even the finest lit surfaces.

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 H3D comes with a new **HVD90x viewfinder designed for full performance over the large 48x36mm sensor** of H3D-39/22. On the H3D-31 the focus screen indicates the slight crop of the sensor format. Hasselblad has added an **interchangeable waistlevel viewfinder**, the HVM, for the range of H system cameras. The bright and large viewfinder image is ideal for creative composing. The photographer can maintain eye contact with the model, or for example gain impact by shooting from a point lower than eyelevel.

Unique Hasselblad Colors

The new Hasselblad 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 FlexColor.

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 liberate the photographer to focus on the shoot rather than the selection process. IAA triggers audible and visual signals for each image captured, notifying the photographer immediately of its classification status. The information is recorded both in the file and in the file name, providing a quick and easy way to classify and select images, in the field or back home. IAA is a Hasselblad trademark and Hasselblad has a patent pending on the invention.

Large enhanced OLED displays on the new Hasselblad products provide a realistic, high quality and perfect contrast image view, even in bright sunlight.

Three modes of operation and storage

The Hasselblad H3D offers a choice of storage devices: portable CF cards, the flexible ImageBank-II or a computer hard drive. With these three operating and storage options, you are able to select a mode to suit the nature of the work in hand, whether in the studio or on location.

Model comparison

	Pixels	Sensor format	ISO range	Capture speed	HC lens factor	HCD28 Equivalent focal length
H3D-31	31 million	44.2×33.1mm	ISO 100 - 800	1.2 sec/capture	1.3	31mm
H3D-22	22 million	49.0×36.7mm	ISO 50 - 400	1.4 sec/capture	1.1	28mm (Full-Frame)
H3D-39	39 million	49.0×36.7mm	ISO 50 - 400	1.4 sec/capture	1.1	28mm (Full-Frame)

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FlexColor workflow for the professional photographer

FlexColor offers an image processing workflow with the highest degree of control in tethered operation, with tools like overlay masking helping to bring productivity to advanced set composition. FlexColor allows the photographer to manipulate color temperature and compare image details across multiple images. FlexColor processes the Raw 3FR files generated by the Hasselblad H3D. FlexColor runs natively on both Macintosh and Windows computers and is licensed to allow you to provide free copies for all your co-workers and production partners.

Modular design for flexiblity

The H3D offers the choice of working with film using a Hasselblad H System film magazine. This option permits photography in extreme temperature environments or when extreme exposure times are demanded.

For increased usefulness, the digital capture unit of the H3D can also be detached and used on a view camera by way of an adapter. In this case the unit is controlled by the flash sync signal from the view camera shutter.

MTF BEFORE AND AFTER DAC

The red dotted lines indicate the improvement made by the DAC chromatic aberration correction.

Example: HC 35mm
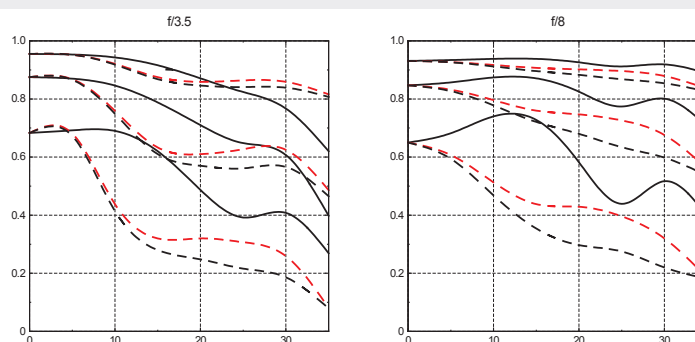
Technical specification

SPECIFICATIONS DIGITAL FEATURES			
	H3D-22	H3D-31	H3D-39
Sensor size	22 Mpixels (4080×5440 pixels)	31 Mpixels (4872×6496 pixels)	39 Mpixels (5412×7212 pixels)
Sensor dimensions	49.0×36.7mm	44.2×33.1mm	49.0×36.7mm
Image size	Raw 3FR capture 30 MB on average. TIFF 8 bit: 66 MB	Raw 3FR capture 40 MB on average. TIFF 8 bit: 95 MB	Raw 3FR capture 50 MB on average. TIFF 8 bit: 117 MB
File format	Lossless compressed Hasselblad Raw 3FR		
Shooting mode	Single shot		
Color definition	16 bit		
ISO speed range	ISO 50, 100, 200 and 400	ISO 100, 200, 400 and 800	ISO 50, 100, 200 and 400
Image storage	CF card type U-DMA (e.g. SanDisk extreme IV), ImageBank-II or tethered to Mac or PC		
Color management	Hasselblad Natural Color Solution		
Storage capacity	2 GB CF card holds 66 images on average	2 GB CF card holds 50 images on average	2 GB CF card holds 40 images on average
Capture rate	1.4 seconds per capture 41 captures per minute	1.2 seconds per capture 42 captures per minute	1.4 seconds per capture 39 captures per minute
Color display	Yes, 2.2 inch OLED type, 24 bit color		

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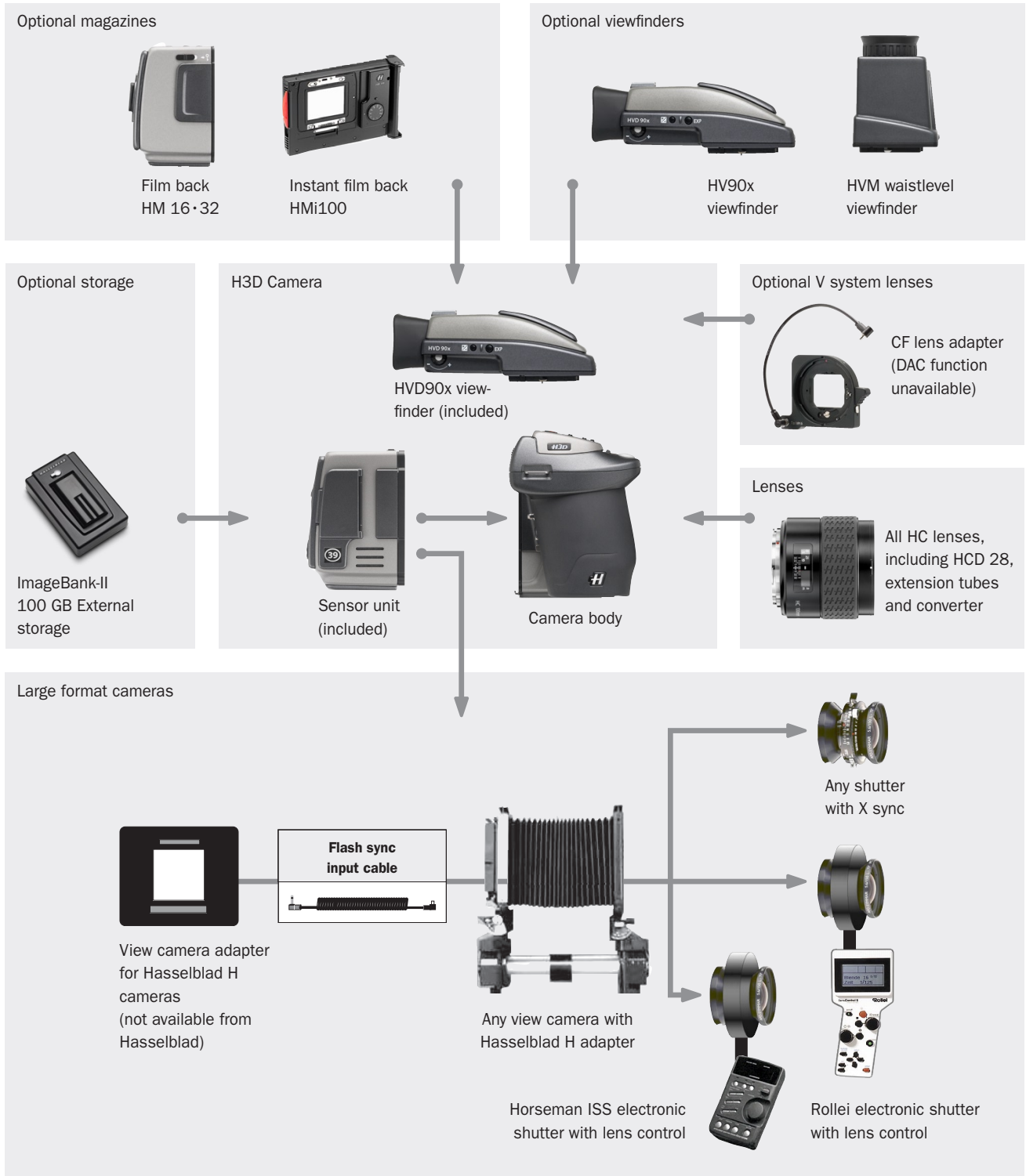
Technical specification, continued

SPECIFICATIONS DIGITAL FEATURES			
	H3D-22	H3D-31	H3D-39
Camera type	48mm full-frame DSLR	44mm large sensor DSLR	48mm full-frame DSLR
Histogram feedback	Yes		
IR filter	Mounted on CCD sensor		
Acoustic feedback	Yes		
Software	FlexColor (included; for Mac and PC)		
Platform support	Macintosh: OSX. PC: NT, 2000, XP		
Host connection type	FireWire 800 (IEEE1394b)		
View camera compatibility	Yes, controlled via flash sync. Electronic shutters must be controlled from local panel		
Operating temperature	0 - 45˚C/32 - 113˚F		
Dimensions	Complete camera w. 2,8/80mm lens: 153 × 131 × 213mm [W × H × D]		
Weight	2.175g (Complete camera with Li-ion battery and CF card)		

SPECIFICATIONS CAMERA FEATURES	
Lenses	Hasselblad HC lens line and HCD 28 with integral central lens shutter
Shutter speed range	32 seconds to 1/800 second (18 hours to 1/800 second using film)
Flash sync speed	Flash can be used at all shutter speeds
Viewfinder options	・HVD90x: 90° eyelevel 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™. ・HV90x: For use with film capture (Integral flash and hot shoe as above) ・HVM: Waistlevel viewfinder
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). Grip for 3 CR-123 Lithium batteries incl.
Film compatibility	Yes

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Connectivity diagram

Optional magazines

Film back
HM 16·32

Instant film back
HMi100

Optional viewfinders

HV90x
viewfinder

HVM waistlevel
viewfinder

Optional storage

ImageBank-II
100 GB External
storage

H3D Camera

HVD90x view-
finder (included)

Sensor unit
(included)

Camera body

Optional V system lenses

CF lens adapter
(DAC function
unavailable)

Lenses

All HC lenses,
including HCD 28,
extension tubes
and converter

Large format cameras

**Flash sync
input cable**

View camera adapter
for Hasselblad H
cameras
(not available from
Hasselblad)

Any view camera with
Hasselblad H adapter

Any shutter
with X sync

Horseman ISS electronic
shutter with lens control

Rollei electronic shutter
with lens control

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H3D 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	HC 1.7X converter	All C-type lenses from the V system with optional CF lens adapter