

HASSELBLAD H4D^{50MS}

Hasselblad has refined the concept of high-end full-frame DSLR cameras. This model complements the top end models with multi-shot functionality: the ultimate choice for still life studio photography. Moiré free images that exhibit a level of sharpness, resolution and color fidelity that you have to experience to believe are now attainable. This capability incorporated with the unparalleled abilities of the H4D produce an unbeatable combination in the world of digital medium format photography today. The H4D-50MS includes UltraFocus architecture and offers access to HCD 28mm lens, designed and optimized solely for digital image capture. Phocus software puts the final

touches to files by using Digital Auto Correction. This feature utilizes automatic correction for chromatic aberration, distortion and vignetting for breathtaking results. It is not surprising that internationally renowned museums and art galleries around the world put their trust in the H4D-50MS for the faithful documentation of their collections.

With its large and bright viewfinder image, wide range of quality lenses and broad choice of accessories, the H4D-50MS also serves as an ultra capable camera for more everyday demands.



Non-compromising details and colors

The multi-shot technology realizes the capture of still life subjects with all details represented in true detail and color resolution. By capturing a sequence of 4 shots, each offset by a one pixel increment, every point on your set is rendered with its true red, green and blue color components. In this way, true detail and true color are acquired without interpolation of any kind. For stills photography it simply does not get better.

When used outdoors or on location, the H4D-50MS can perform normal single-shot mode photography too.

Ultra-Focus and Digital Auto Correction for image perfection

Using the Ultra-Focus engine of H4D-50MS the full H system lens program is further enhanced, bringing a new level of sharpness

and resolution. The Digital Lens Correction (DAC) will automatically remove any chromatic aberration, distortion and vignetting when images are processed using Phocus.

The design of the HCD 28mm and 35-90mm lenses have been optimized for the actual 36,7×49mm area of the sensor to make it more compact and to work in conjunction with DAC.

The highly renowned H system lens line uses central lens shutters, which adds flexibility by allowing flash to be employed at shutter speeds up to 1/800s. 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.

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View-camera work

The H4D-50MS has been designed to allow the digital capture unit to be detached and used on a view camera by way of an H system adapter. In this configuration the digital capture device can work with electronic shutters from e.g. Rollei and Schneider, either stand-alone using the flash sync signal from the shutter or tethered to a computer with full control of the electronic shutter from the computer.

Medium format digital capture

In digital photography, the advantages of larger format cameras have become even more obvious. The 6x4.5 cm window allows the Hasselblad H4D-50MS to use one of 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 the highest possible image quality in terms of moiré-free color rendering without gradation break-ups in even the finest lit surfaces.

Unique Hasselblad Colors

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.

Phocus for professional level workflow

Phocus provides an advanced software toolbox that has been especially designed to achieve optimum workflow and absolute image perfection from Hasselblad raw image files.

With the H4D-50MS camera system Phocus provides:

- **Uncompromising Image Quality**
- **Special extended camera controls** with which to operate your H4D-50MS 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.
- **The extended metadata (GPS, HTS 1.5 etc)** included in all Phocus images provides for accurate and detailed cataloging 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. With the HTS 1.5, all settings are stored as metadata in the image file for full function with DAC lens corrections.
- **Perfect 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 work flow, 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.

Electronic spirit level

The H4D-50MS has an integrated electronic spirit level to make it easy to produce a straight horizon. The spirit level is shown both in the viewfinder and on the rear LCD. You therefore don't need to take your eye from the viewfinder to check camera alignment.

Camera info on rear LCD

To improve visibility in certain situations, the rear LCD can now show a copy of the camera grip LCD where you see all relevant shooting information.



The electronic spirit level is visible both in the viewfinder and on the rear LCD.



Rear LCD showing shooting related information.

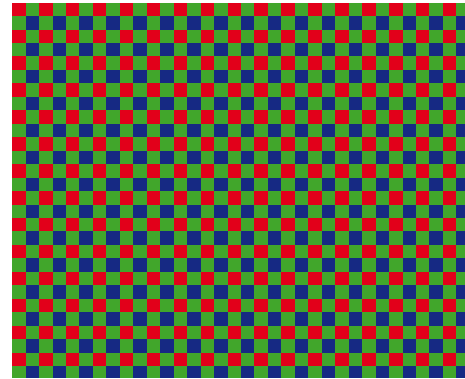
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Single Shot

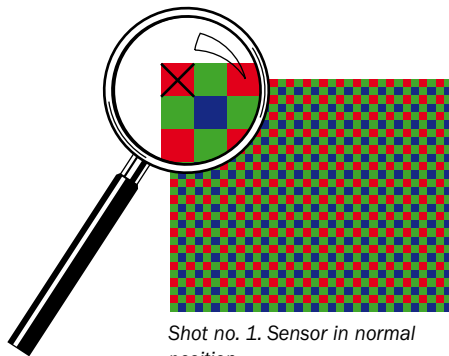
The key to the single shot quality from a CCD sensor is due to the use of a Bayer Mosaic filter. This is a specific layout that is used in conjunction with software to interpret the colour data from the sensor. A single-shot system delivers one colour per pixel, and the remaining two channels must be estimated and calculated using a best-guess strategy. This is done in Hasselblad cameras by using algorithms that optimize colour rendition and sharpness without disturbing the perception of the human eye by the artefacts always present in raw single shot captures.

Multi Shot

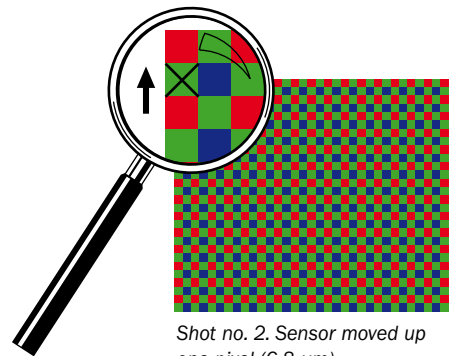
High precision piezo motors control movements of the sensor in one pixel increments. By combining four shots, each offset by one pixel, the true colours, Red, Green and Blue of each point are obtained. The result is full colour information from the sensor with no artefacts like moiré, common with single shot capture.



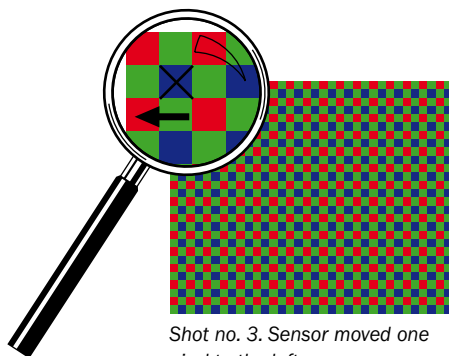
Bayer mosaic pattern.



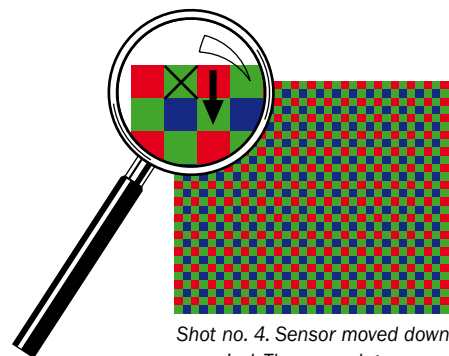
Shot no. 1. Sensor in normal position.



Shot no. 2. Sensor moved up one pixel (6.8 μm).



Shot no. 3. Sensor moved one pixel to the left.



Shot no. 4. Sensor moved down one pixel. The second green image is used to determine lighting and subject stability.

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Actual image sample

The image of the armour was taken in both 1-shot and 4-shot mode to illustrate the increase in quality that the 4-shot mode produces. Due to the fact that no guess-work has to be carried out, fine details in the subject are now rendered much better. The 4-shot image also completely lacks the color moiré that can appear in very small details.



Detail in 1-shot mode.



Detail in 4-shot mode.

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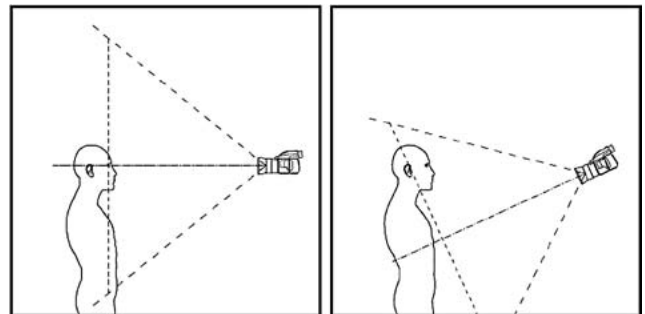
True Focus and Absolute Position Lock

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.

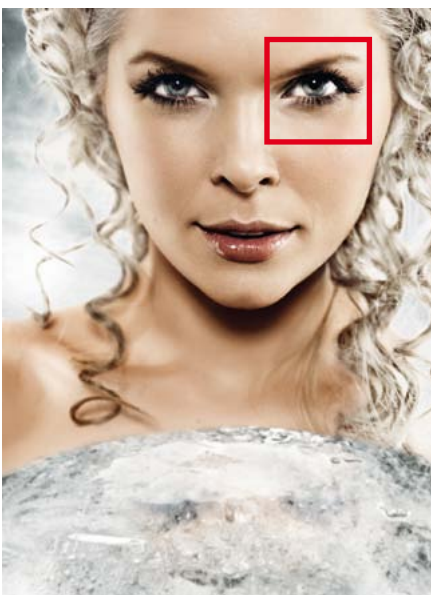
The traditional solution for most DSLR cameras has been to equip the camera with a multi-point AF sensor. These sensors allow the photographer to fix an off-center focus point on an off-center subject, which is then focused correctly. Such multi-point AF solutions are often tedious and inflexible to 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 H System lenses.



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



The middle image shows the result when not using True Focus. While this image looks relatively sharp, the rightmost image where True Focus has been used, is razor sharp.

Photo: Marcel Pabst

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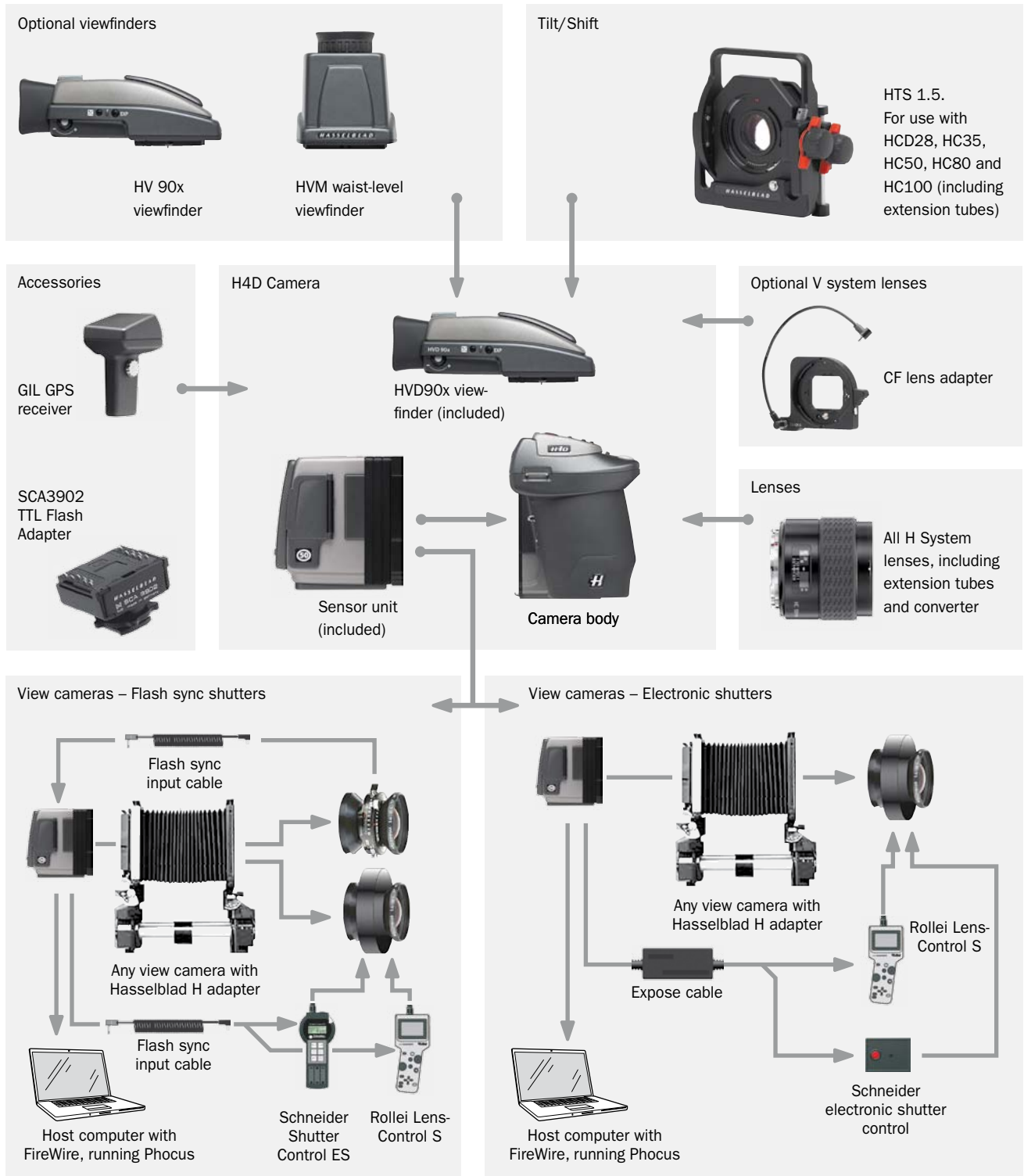
Technical specification

| DIGITAL FEATURES | |
|---------------------------|---|
| Sensor size | 50 Mpixels (6132×8176 pixels) |
| Sensor dimensions | 36.7×49.1 mm |
| Image size | RAW 3FR capture 65 MB on average. TIFF 8 bit: 150 MB |
| File format | Lossless compressed Hasselblad RAW 3FR |
| Shooting mode | Single shot / 4-shot |
| Color definition | 16 bit |
| ISO speed range | ISO 50, 100, 200, 400 and 800 |
| 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 | 8 GB CF card holds 120 images on average |
| Capture rate | 1.1 seconds per capture. 33 captures per minute (single shot) |
| Color display | Yes, 3 inch TFT type, 24 bit color, 460.320 pixels |
| Histogram feedback | Yes |
| IR filter | Mounted on CCD sensor |
| Acoustic feedback | Yes |
| Software | Phocus for Mac and Windows |
| Platform support | Macintosh: OS X 10.7,10.6,10.5. Windows: XP, Vista, Windows 7 (32 and 64 bit) |
| Host connection type | FireWire 800 (IEEE1394b) |
| 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 × 131 × 207 mm [W × H × D] |
| Weight | 2450 g (Complete camera w. HC80 mm lens, Li-Ion battery and CF card) |

| CAMERA FEATURES | |
|---------------------|--|
| Camera type | Large sensor full format DSLR |
| Lenses | Hasselblad H system lens line and HCD 28 with integral central lens shutter |
| Shutter speed range | 128 seconds to 1/800 second |
| Flash sync speed | Flash can be used at all shutter speeds |
| Viewfinder options | <ul style="list-style-type: none"> • 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 |
| 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



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H4D-50MS lens range

| | | |
|---|---|---|
|  |  |  |
| HCD 4/28mm | HC 3.5/35mm | HC 3.5/50-11mm |
|  |  |  |
| HC 2.8/80mm | HC 2.2/100mm | HC Macro 4/120-11mm |
|  |  |  |
| 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 |

Specification subject to change without notice.

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