

DIGITAL CAPTURE |

The bigger picture

Leaf's latest digital capture back, the Aptus 75, delivers its highest resolution yet, reports [Adam Woolfitt](#) – and much else besides

How many angels can dance on the head of a pin? Such questions were scorned among Mediaeval theologians of the Middle Ages for their tedious concern with irrelevant details. But, the relevance (or irrelevance) is still a burning issue. How many pixels can you fit on a 6x4.5 sensor?

Hasselblad's latest camera has 39 million, but it seems there are resolution devils who may want even more. And why would you want more? 'To overcome Moiré,' if you are from Leaf, Jenoptik or Phase One, but 'to overcome Canon' is the answer you'll probably get from Imacon.

Many people might think that with the 96MB 8-bit RGB TIFF files you can get from the Leaf Aptus 75 it may be time to cry 'enough', but with the HD2-39, Hasselblad has shown us that you can cram more pixels onto a sensor — so expect more from everyone.

Control & elegance

The Leaf Aptus 75 follows hard on the heels of the Aptus 22 (*BJP*, 13 July 2005) and it offers several advantages that definitely make it bigger and better — although Leaf's naming convention is not among them. Why, if the Aptus 22 has 22 million pixels, is the Aptus 75, with its 33.1 million, not called the Aptus 33?

But never mind, Leaf has got almost everything else right. The Leaf Aptus 75 is a stand-alone digital back for medium format cameras offering completely untethered shooting in the great outdoors as well as completely controlled capture when hooked to a computer in the studio. It has a uniquely large LCD colour preview and touch screen, which also controls camera functions and digital capture options from one of four screen menus. These are accessed by tapping with a very elegant stylus. It's a very elegant system, which you soon come to love.

The Dalsa CCD sensor it uses has 6726x5040 pixels



Left: Studio shot image of Euro bank notes and below it a 100% enlargement showing crisp detailing without Moiré and the Aptus 75's very high resolution.



Above: Rear screen of Leaf Aptus 75 digital back showing grey balance settings directly from the touch screen menu. All images © Adam Woolfitt.

with a size of 7.2 microns. The 48x36mm sensor captures around 96% of the full area of a 6x4.5 camera, so the magnification factor is negligible.

The resulting very large and detailed file can be captured in several formats, the simplest being a Leaf 16-bit raw HDR file of 63MB, which is an uncompressed TIFF-based format. This opens to a 96MB 8-bit RGB TIFF.

Due to its patent-pending Dual Sensor Readout (DSR) the Dalsa CCD can be drained simultaneously from two sides, so the back can capture images once every 1.85 seconds. The software also makes a small JPEG preview for when editing the on-screen session 'contact sheets'.

The back is fitted with a cooling fan for efficient heat removal, a card slot and a FireWire socket for direct connection to a computer or the optional 30GB data store.

Mac and Mamiya

For this review Peartree Rental, who specialise in digital hire, once again kindly provided a top-of-the-line double twin 2.7Ghz Macintosh computer with an amazing 6GB of RAM and a 200GB hard drive to help it scorch along. This

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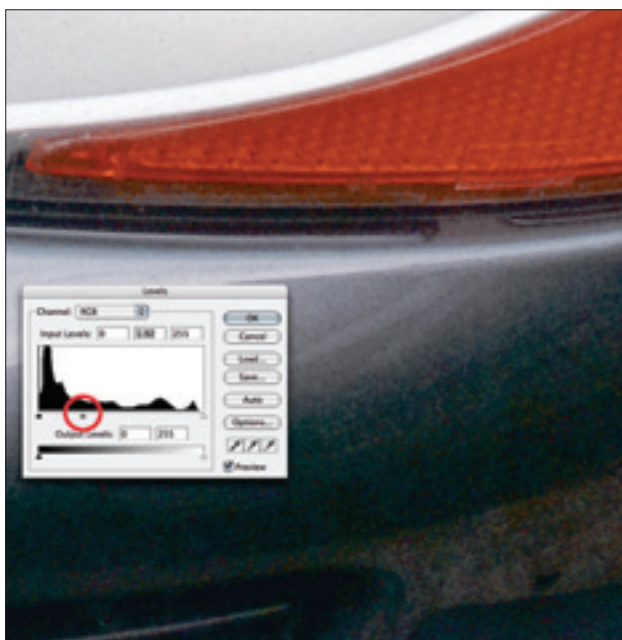
frantic computer specification is becoming 'normal' to run pro-processor-hungry MF digital camera backs – the same sort of extreme specification required to run Apple's new Aperture workflow software. Developers and manufacturers seem to be relentlessly driving photographers to upgrade their computers to the limit, just to stay in the game.

This expensive trend also begs the question whether the recently announced Intel-based Macintosh laptops will be up to the job of running the Aptus 75, with Aperture, in the field? As with all such major innovations there could be early software incompatibilities and I pity camera owners and manufacturers struggling to keep abreast of the constant changes in operating systems and processors.

Peartree's G5 came loaded with Leaf Capture 10.1, the finished version of that which ran the Aptus 22 in my earlier review. If I draw particular

Above: Image shot with Leaf Aptus 75 MF digital back at ISO800. Hand-held with 80mm lens.

Right: 100% enlargement with levels greatly raised to see very modest shadow noise. An excellent result.



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attention to this software, it is because the Aptus 75 camera back itself is little changed (apart from a major jump in resolution), but the Leaf software now binds the whole package into a really slick operation.

I also had the use of the latest Mamiya 645 AFD II, an even nicer camera following a major revamp, which included the rationalisation of some functions and the re-siting of some controls. The 645 AFD II includes the latest MSC (Mamiya Serial Communication) data transfer technology whereby all critical exposure and shooting information is internally exchanged between the camera and compatible digital camera backs. The autofocus is definitely faster and has a selective spot or wide focus area within its focus pattern sensor array. The mirror lock-up is now placed by the main controls on the handgrip, where you can find it and battery life also appears to be

improved.

The Mamiya 645 AFD II makes a very workmanlike platform for the Aptus 75 back and I had the use of the 35mm and 120mm macro to supplement an 80mm standard lens.

However, although the new Mamiya is closely integrated with the digital back, Leaf's software has lagged behind slightly and is not yet fully implemented to allow actual firing of the Mamiya camera from a Macintosh. But direct capture to the computer by firing the Mamiya manually works fine. That facility will follow shortly, I am assured, as will a live video preview on the computer screen.

New & improved

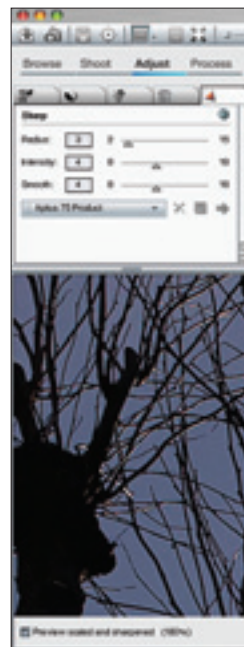
Aside from the obvious gain in resolution there are other notable changes to the Aptus 75 camera back – one of them a dramatic leap to an ISO800 setting, a far cry from the Aptus 22, which struggled a bit even at ISO200. I shot some detailed car tail lamps and smooth bodywork with deep shadow areas to try and provoke noise and spot any fall off in resolution. But the performance at ISO800, even in the shadows, was commendable and makes this a true 'out and about' camera.

Battery life using the recommended Samsung SBL-160; 2350 mAh video battery is also improved, now giving at least two hours of hard use. This is still pretty dismal compared to DSLRs but there are alternative video batteries with greater capacity which might be worth using. (Such batteries are of course larger and bulkier.) Recharging the standard one takes about an hour and there is a 12 volt option for recharging or running the camera from a car (or more likely, a 4x4) socket.

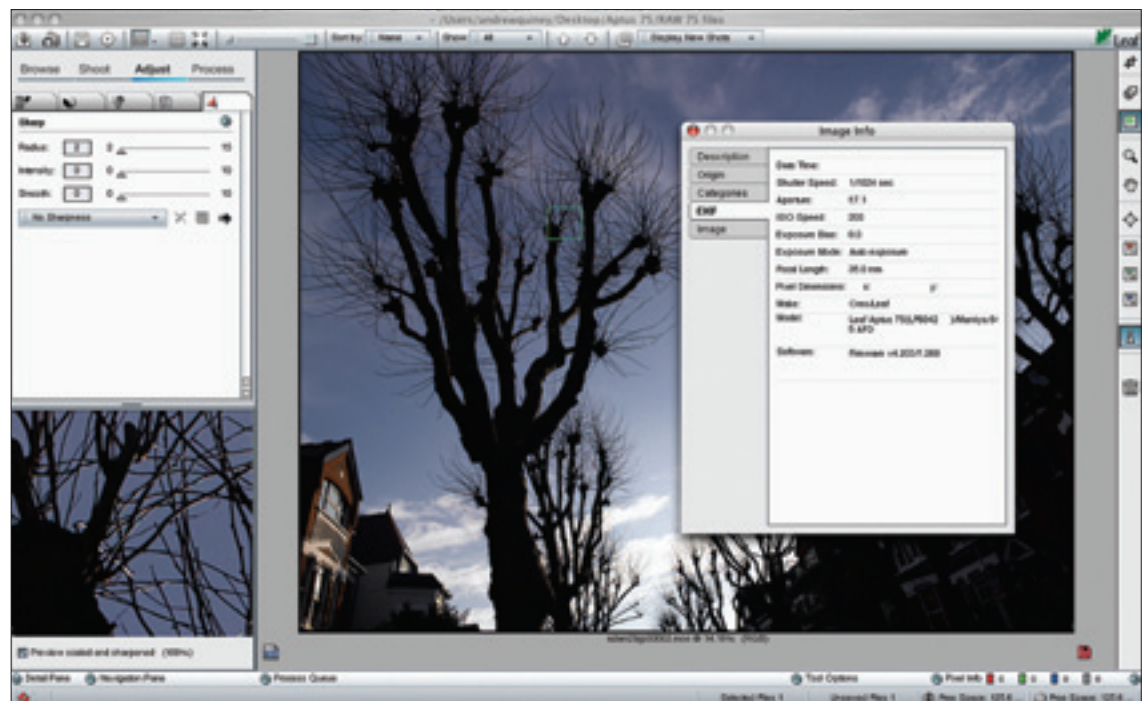
Starting up the 75 is much quicker than the Aptus 22, taking only a few seconds. A small indicator lamp flashes orange, turning green when the 'Ready to shoot' message appears on the welcome screen on the back which gives access to the four main menus:

- Camera set up, including camera type and ISO^o settings and the keyboard for naming files and folders
- Shoot menu, which allows the creation of folders and auto rotation of preview images, etc
- Edit menu for sorting,

COLOUR ARTEFACTS & SHARPENING



Above left: 100% enlarged preview of Aptus 75 image file (above right) in Leaf Capture v.10, shows evidence of colour artefacts along high contrast edges. It is rare to find any combination of sensor and software that can completely eliminate coloured artifacts at very high contrast boundaries. The example of the fine tree branches at 100% are pretty typical of the best available at present. Bear in mind that on film you need a microscope to examine the image at this magnification. We can identify problems in digital that were invisible on film.



Above: Exif data displayed over full screen preview. 'No sharpening' is set.



Right: Rear screen on Leaf Aptus 75 digital camera back, showing full screen (6x7cm) view of captured image on the touch screen and (far right) an enlarged view.

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deleting and flagging files

- Set-up menu for general system settings, formatting card, programming the user button, etc.

Post-capture

There are four ways to store captured images.

The first is to use removable CF cards. The 75 back is optimised (at present) for use with SanDisk Extreme™ III (recommended for best performance) SanDisk Ultra® II or Lexar CF Pro Series 80x cards up to 4GB. This is quick and very convenient and offers pretty good capacity with a 4GB card, holding about 65 Leaf 16-bit raw HDR files (±63MB) each or about 130 compressed 16-bit HDR (lossless) files at ±35MB each – a big space saving when shooting to a card.

The type of compression is selected in the appropriate menu on the camera back. The Compressed 16-bit HDR file format (which cannot be read by Photoshop Raw) will compress to about 34MB.

The second method is the Leaf 30GB Digital Magazine, with a read/write speed of 17MB per second, which is fitted below the camera in a special stirrup to provide a very high capacity for mobile shooting. A spare magazine can be swapped out in seconds.

The third method is to capture images directly to the computer using the Leaf Capture software and a 5m FireWire cable. A fourth option, mentioned in the manual, is to use third party high-volume portable FireWire disks.

A great strength of the Aptus 75 lies in just how tightly the image capture parameters can be set up, both pre and post-processing, either on the camera or on the computer when shooting tethered.

Running the Aptus 75 with the Leaf Capture 10 software now offers even more control of the final image, especially for print, which is where the majority of images shot with a system like this are going to end up.

It is worth noting that Leaf has had access to in-depth colour expertise for print and repro since its earliest days as an arm of Scitex, which was later acquired by Creo, who recently became part of Kodak's Graphic Communications Group.



Above: Another image shot with Leaf Aptus 75 MF digital back at ISO800. Right: A very good result when enlarged to 100%. The heavy shadow areas are remarkably free of noise for the ISO setting of 800. The Aptus is the only back to offer ISO800.



'The Aptus 75 makes a dramatic leap to an ISO800 setting – a far cry from the Aptus 22, which struggled a bit even at ISO200.'

It is, therefore, no surprise that the workflow supported by the Aptus 75 is driven by the requirements of high end print applications. Almost anything a scanner operator could dream of is available in the Leaf Capture Software or in the Gretag profile maker software. Although the excellent Gretag software is bundled with Leaf Capture, it requires a £980 dongle to activate it!

And will Kodak one day wake up and oblige Leaf to use Kodak sensors? I for one hope not, because I think that the present Dalsa CCDs have a slight edge over those used by Kodak. However, under extreme magnification (200%), even the Dalsa sensor produces some coloured Christmas lights on very fine

detail, high-contrast, edges.

Here are some examples from the lengthy choice of options in Leaf capture 10.

- The default grain settings (colour noise removal) now take account of the ISO setting employed in the shot.

- Moiré can be suppressed globally or selectively with a brush.

- Sharpening can be done selectively on individual colour channels or from a menu of standard presets. Some of these pre-sets are pretty aggressive and I preferred to do any sharpening afterwards using 'smart sharpen' in Photoshop CS2

- Files can be converted on the fly using any known CMYK profile during export from the camera to the computer.

Conclusions

Resolution is very good – almost scarily good. While none of the Mamiya lenses I used for testing were less than excellent, the 120mm macro shows the Aptus 75 off at its best.

Colour accuracy using the preset white balances was not always spot on and I found I needed to fiddle a bit in Photoshop to get the results I wanted exactly. Setting the white balance from a grey card on the camera touch screen is very accurate and this setting can be transferred back to the computer and stored within a folder of images.

The Aptus 75 digital camera back should be considered as the very sharp, front-end of a repro chain. Although it can now take stunning pictures in every kind of situation in or out of the studio, this is only a small part of how the camera will earn its keep for those who invest in it.

And the word invest is used advisedly, though the special bundle with the Mamiya looks almost a bargain. The price for the Aptus 75 (back only) is £17,245 +VAT, and at the moment it comes with free Live Video.

The price for an Aptus 75 and 30GB power-pack is £17,959 +VAT, while the Leaf/Mamiya Pro Digital 75 (Aptus 75, 30GB, Mamiya AFDII & 80mm lens) is £17,995 +VAT. The price for the Gretag custom colour profiling solution (complete pack consisting of dongle and SG colour checker) is £963. The Price for oXYgen (Software CD and dongle) is £1011. **BJP**

Compatible cameras

The Leaf Aptus 75 fits onto and works with a huge array of cameras and camera systems. Those supported include:

- Hasselblad: H1, H2 and V series
- Mamiya: 645AFD, 645AFD II, RZ67, RZ67 Pro II, RB67
- Contax: 645AF
- Fujifilm: GX680
- Bronica: SQA/ETRS

View cameras include: Sinar, Toyo, Cambo, Linhof, Horseman, Rollei X-Act and Rollei electronic shutters, among others.