

On test:

PHASE ONE P30 & P45

Once more, the stakes are raised with the introduction of high resolution backs from Phase One, and we ask the question:

Does size really matter? WORDS AND PICTURES Neil White

I HAVE TO ADMIT TO approaching this test of Danish manufacturer Phase One's latest digital back offerings with a healthy degree of scepticism. Which sectors of photography could possibly want, or need, 31 let alone 39 million pixels?

This was the very first question I put to Phase One, even before receiving the backs and the reply was a solid answer – these backs are not

targeted at any particular market, but instead will appeal to a wide sector of photographers covering a multitude of disciplines. Hmm, really?

Phase One, like any digital back manufacturer, needs its products to work with as many cameras as possible, simple commercial sense. However, in the real world, how digital backs 'connect' to different cameras isn't always the same, and great care has to be taken by any

potential buyer to fully understand this. Anything less than full integration and functionality by simply clipping the back on the rear of the camera as easily as a film magazine needs to be assessed before any purchasing decision is made. It is here that the issue can appear very, very confusing.

Phase One lists and differentiates 'compatible' cameras between 'Camera models' and 'Camera support' (see the Specification panels overleaf). The first denotes cameras that accept the backs by simply clipping them on to the camera. You get full functionality and both pieces of kit talk happily to each another via contacts in the digital back and the camera body. The second category, Camera support, lists cameras that require a Phase One interface plate to sit between the camera body and the digital back.

Using manual

As full production models of both the P30 and the P45 backs weren't available at the time of our test for either the Mamiya 645AFD II or the Hasselblad H1, we tested with a Mamiya RZ67 Pro II, a 'manual' camera that sits in the Camera support category.

In this configuration, we encountered a number of problems, despite the interface plate. For

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The P30 and P45: appealing to a wide sector of photographers in various disciplines?



WE PROVED THAT THESE TWO NEW BACKS ARE CAPABLE OF STUNNING IMAGES, EVEN IN FAR FROM IDEAL CIRCUMSTANCES

In the studio tethered to a laptop.

PURCHASING OPTIONS

Phase One is offering two different purchasing options, a basic cost for the back and another for a pretty comprehensive package of just about every accessory you would need, together with training and extended warranty.

The P30 is priced at £10,495 and £12,600, while the P45 comes in at £18,800 to £20,995. Full details are available from Phase One or its dealers.


example, when we changed the ISO reading on the back, there was no change to the reading in the AE prism on the camera. This was because the RZ Pro II body and the back do not communicate electronically, and so there was no way for the camera to know what the back was doing and vice versa. It meant that the metering prism would not function, since changing the ISO on the back has no effect on the meter. However, changing the ISO on the back does effect how the exposure is captured, and the back does work at all ISO settings, although for this to happen you have to use the RZ Pro II manually. The same points apply to setting the white-balance.

Another issue was the fact that there was little or no EXIF information visible, which was largely because only the basic data was provided by the camera. Fully electronic cameras provide the backs with extra EXIF data, such as shutter speed, aperture and focal length of the lens used.

A later test with an H1 was arranged and the whole scenario changed (as it would have with a Mamiya 645 AFD II, and the Mamiya RZ Pro IID, had the latter been used with a 645AFD fit back and the Mamiya adaptor plate). Everything married up beautifully and all the functions were available. The whole difference centres on the marrying up of these backs with either an electronic or a mechanical camera. We got equally good results with both in the end, but the journeys that were taken to get us there were poles apart.

As mentioned already, the Phase One adaptor plate for the RZ sits between the back and the camera body (this is the 'Camera support' solution and would equally apply to the Hasselblads listed also, although not the V or H series). In this configuration, two connection leads exit the digital back, one leading to the Mamiya's remote cable release connection (making electronic release unavailable) and the other to the sync contact on the lens.

The cable from the flash sync socket facilitates Phase One's Sleeping Architecture feature (which is described later), and this is a means by which heat is reduced and with it the problem of noise on the digital image. When using the backs with a manual camera, there is no electronic connection between the camera body and the digital back, and so the lead is used to communicate a 'wake-up' signal to the CCD, which electronic cameras would send automatically. With the RZ Pro II, an additional cable was required from the electronic shutter release socket due to the electronics in the camera.

Those familiar with the tiny nature of a lens sync contact will appreciate that the use of cables – although a method that other backs manufacturers have also utilised – is not an ideal situation, especially if you are trying to hand hold the camera and move about. For me, unless using a tripod, the leads constantly worked loose or failed to connect properly. 

SPECIFICATIONS

PHASE ONE P30



Price: £10,495

Contact: www.phaseone.com

Technology: Full-frame CCD

Resolution: 31-megapixels; 6496x4872 active pixels

CCD size: 44.2x33.1mm

Image output: 48 bits (16-bit per colour)

Sensitivity: ISO 100, 200, 400, 800

Writing speed to CF card: Up to 20MB/sec

Battery life: 250 captures/4 hours

LCD screen: 2.2in

Information: Preview, histogram, exposure warning, ISO

Camera models: Hasselblad V, Hasselblad H, Hasselblad H2, Mamiya 645AFD, Mamiya 645AFD Mk II and Contax 645AF

Cameras supported: Hasselblad 555ELD, 553 ELX, 503CW, 501CM, H1. Mamiya RZ67, 645AFD. Contax 645AF

Limited 4x5in: Arca Swiss, Cambo 4x5in, Rollei Xact, Linhof M679/4x5, Toyo, Sinar, Horseman



P30 files range from 21MB to 63MB.

Sleeping architecture

As mentioned, Phase One employs what it calls 'sleeping architecture' on its new backs, which is a clever and extremely effective piece of thinking. Rather than be available and ready 100% of the time and therefore building up the inevitable heat for which digital backs are quite famous, the backs go to sleep when not in use and are woken up by the slightest touch of the exposure button.

This wake-up is imperceptible in use and we were certainly never aware of any time lag. During the tests we didn't detect any heat from the backs at all, but we did inadvertently leave one of the backs switched on and unattached to a camera body in a camera bag for a while. It was pretty hot when we discovered it, proving how totally effective this system is.

Despite the limitations imposed on our tests by the use of a mechanical camera and the problems already noted, the results we achieved, even having to revert to just about everything manual and a lot of guesswork, were nothing short of amazing. In the real world you just wouldn't take the RZ and this back complete with its vulnerable cables up in a helicopter, but doing this we were able to prove that these two new backs are capable of capturing stunning images, even when used in far from ideal circumstances.

The two backs

Although the issues of compatibility and functionality are very important, the backs' abilities are the true test. So let's look at how they fared when used with an electronic camera listed under Camera models, such as the H1 or 645.

In physical size and weight, both backs are the same, and all of the functions operate identically. Take a quick glance at the specs of both backs and a comparison will show that the P30 has an ISO range of 50-800 and the P45 50-400, reflecting the fact that the latter is more likely to be used in controlled environments. The obvious difference between the two is the resolution, the P30 having 6496x4872pixels (31 million pixels) and the P45 7216x5412pixels (39 million pixels). What this translated to in image size

was an image of 18x13.6in compared to 20x15in when converting a Raw image to TIFF (4:3 image ratio, full-frame CCD for each).

What doesn't show up in a comparison is the slightly different technology of each chip. Both employ Kodak chips, but the P30 has a tiny and ingenious lens over each pixel, which distributes light more efficiently over the chip and effectively gives an extra stop's worth of light. Add this to the ISO 800 film speed and almost undetectable noise even at this speed and you get a very useable piece of kit indeed that will appeal to a wide spectrum of users in various disciplines.

Phase One does warn that the P30 is unsuitable for wide-angle cameras due to this different chip technology, although this is not to be confused with wide-angle lenses for which it works superbly well. This is due to technical limitations of the angle at which light hits the sensor via the lenses above each pixel, and problems occur at the extreme of such oblique angles. I'm always highly impressed and refreshed with the honesty and integrity that Phase One shows at all times when talking to photographers and in the claims it makes. My experience is that if they say it works it will and if they give a cautionary word then it is well to heed it.

Large files

File sizes are, of course, large and we had a wry smile when we saw that Phase One specifies a G4 Mac or a Pentium III PC as the minimum requirement to process the images. A dual processor G5 with a decent amount of RAM handled the images with ease, but we were just opening one or two at a time.

Each back is configurable via an intuitive set of four buttons on the rear for ISO and white-balance, while viewing of images is via a nice and clear 2.2in screen. It's not a bad screen: it does the job and is typical of LCD screen technology these days. I would rate it as average.

We had to look really closely at the results to see any differences, and I think it would take lab test results to find them. Less than perfect (Raw Small?) with these backs is as perfect as I've ever seen in a digital image.



In our studio tests, the P45 and P30 showed a total lack of moiré. We just couldn't see any evidence at all, as demonstrated by this shot from the P30.

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Typically, the P30 will produce native files of 21MB, 41MB and 63MB respectively and the P45 28MB, 55MB and 77MB. When converted to TIFFs, the largest of these produces a file of 182MB for the P30 and 224.6MB for the P45. Start to add layers to an image and the file size rapidly increases to scary proportions. 700MB+ files are easily achieved with layers, so flattening images as soon as possible will be the order of the day.

These are, of course, 16-bit images, which users of this level of equipment would inevitably be working with.

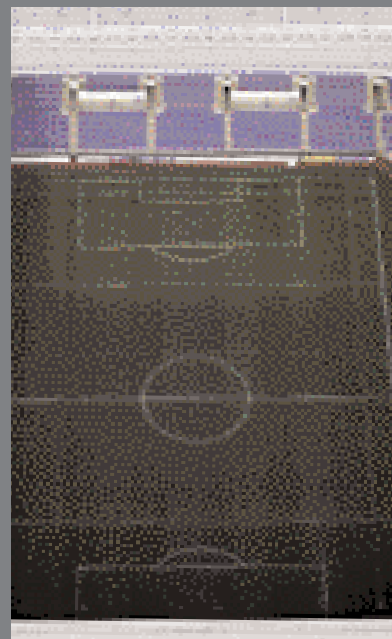
Capturing these images is via CompactFlash cards with both backs, and on our test we used 1GB SanDisk Extreme III cards, which gave us more than acceptable speeds of capture. Phase One's figures claim 35 frames per minute until the buffer is full, which is actually, typically, 14 shots.

SPECIFICATIONS

PHASE ONE P45



- Price:** £18,800
- Contact:** www.phaseone.com
- Technology:** Full-frame CCD
- Resolution:** 39-megapixels; 7216x5412 active pixels
- CCD size:** 49.1x36.8mm
- Image output:** 48 bits (16-bit per colour)
- Sensitivity:** ISO 50, 100, 200, 400
- Writing speed to CF card:** Up to 20MB/sec
- Battery life:** 250 captures/4 hours
- LCD screen:** 2.2in
- Information:** Preview, histogram, exposure warning, ISO
- Camera models:** Hasselblad V, Hasselblad H, Hasselblad H2, Mamiya 645AFD, Mamiya 645AFD Mk II, Contax 645AF
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Tethered shots

We also captured some images in both the studio and the helicopter using the back tethered to a laptop and this worked really, really well. Shooting tethered is becoming a well-documented and much used method and rightly so. Phase One has this down to a fine art and it is really very simple and effective. In our tests, it worked flawlessly. Ideally, a laptop battery is not the most suitable means to power the set-up and so the camera back cleverly auto detects when mains power is available to save camera battery power, and this can be manually overridden if desired.

The question of battery power will continue to rear its ugly head for a while yet, but we were equipped with six batteries and at any time only ever got to use two. Keep your head stuck into the rear screen zooming and reviewing all the time and of course batteries will get used up, but otherwise it really wasn't an issue. As seems to be the norm these days, the batteries used are the readily available Canon style digital video camera types and these are cheap enough,



With its clever chip technology giving an extra stop of light, noise is almost undetectable to the naked eye on the P30's images, even at its maximum ISO of 800.

especially when you consider the cost of the back itself.

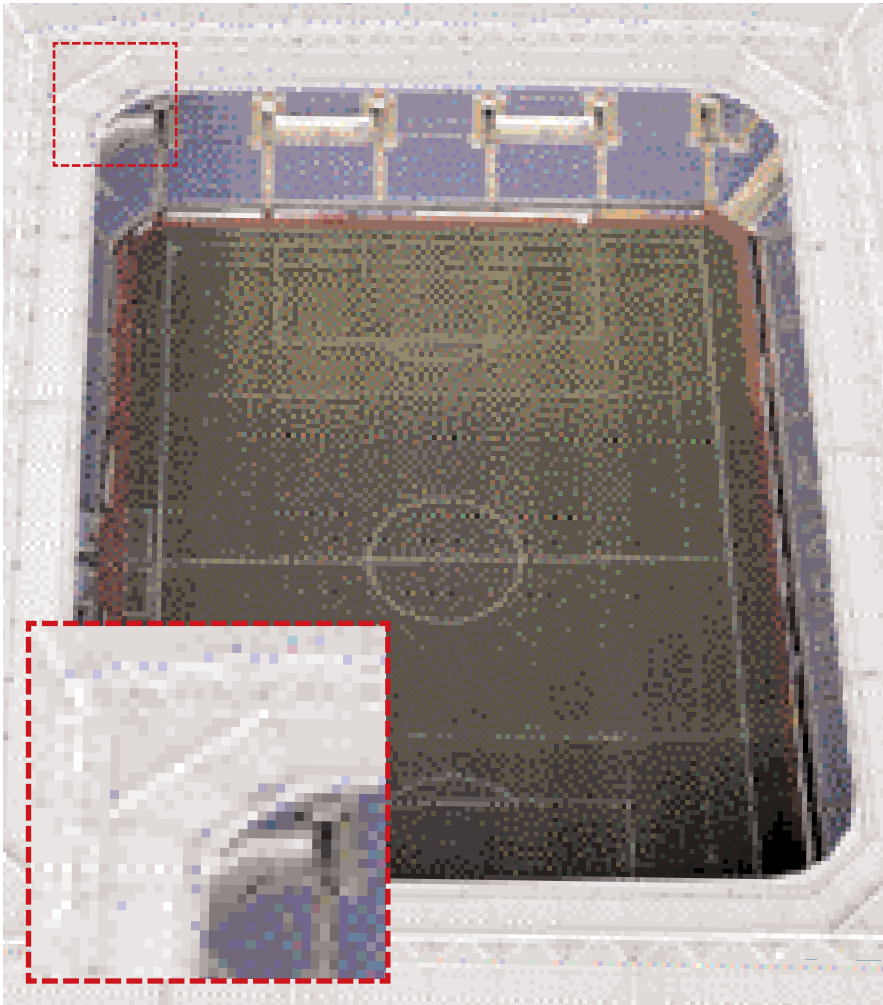
I always think it's easy to get very techy about camera reviews, but I think how it works in the field, what value it represents, its robustness and the results it achieves are the nub of the matter, together with ease of use and intuitiveness. No doubt endless columns will be written on these two very desirable backs to satisfy the specification-hungry addicts.

What I can say is that attached to an electronic camera, such as the H1,

these backs are a dream. They are as robust as they look and gave every confidence that they will stand up to the rugged professional use for which they are intended, plus they are easy and intuitive to use.

Results

The sample photographs used here are not a masterclass of photography, especially given the set-up we were using and the lack of functionality. We spread the test over different disciplines and in some pretty grey



Zooming right into this image from the P45, it begins to pixelate before you can see any fringing. The lack of fringing on the P45 is just remarkable.

winter weather. The images were to prove a number of things to us and to attempt to convey them to you, the reader and possible buyer.

In the studio, both backs demonstrated a complete absence of moiré to the human eye. Phase One, rightly so, cannot claim 'complete absence', but to the human eye and outside of lab tests, there were simply no moiré patterns detectable in a variety of materials photographed.

Resolution of both backs is, of course, stunning and breaks such massively advanced ground. As the ultimate test, using the backs in a helicopter attached to a very heavy camera and without any stabilisation equipment attached, we achieved simply amazing results, a compliment should also go to our very skilled pilot in quite windy conditions. We spent an entire hour chasing the available light, yet the samples shown here are testament to both the quality

of these backs and, of course, the time proven quality of the RZ67.

Auto white-balance was OK. I say this because in a studio environment it was accurate to within 50K, and at this tolerance that boils down to personal taste. In the great outdoors, and typical of other digital backs, it can be fooled pretty easily, but this is child's play to correct in Phase One's Capture One software and so doesn't really become an issue at all.

Noise in some of the P30 images was perceptible at ISO 800, and then only just to the naked eye, yet it is all but non-existent at all other speeds for both backs. What noise there is would be a minor software tweak in post processing, and on the P45 I just don't think it is an issue at all. Under torture I will admit to seeing the very faintest of noise, but otherwise I am claiming it to be non-existent.

Why do we need 39 million pixels or even 31 million come to that? Two

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solid reasons come to my mind. Firstly, the P45 shows such a remarkable lack of fringing that it can be breathtaking to view. Zoom right in on an image created on the P45 and it pixelates before any fringing is seen. I have never seen such wonderfully clean digital images. It sets new levels of quality that must somehow now be emulated by others, and by Phase One itself. Wanting only the best must surely be the second reason for purchasing either of these backs: if only the best will do then these are currently it – with the rider that Hasselblad may well have something to say about that with its new arrivals – and Phase One has upped the ante by creating the ability for quality that is simply astounding.

Verdict

Regarding the proverbial 'Would I buy one?', the P30 is, in comparative terms, good value and it produced stunning results. It's worth buying for the ISO 800 cleanliness alone and for its undoubted versatility. The trouble is that once you see the actual results from the P45, despite the not inconsiderable uplift in price, you are just blown away and spoiled forever.

I wouldn't buy the P45 for its resolution and ability to produce hoarding size images, I'd buy one for its complete lack of fringing and moiré. I'd want to work it hard though to repay the capital cost and, if your work is such that this could be guaranteed, it's a buy. If not, then we can but dream. ■

Our thanks go to HeliAviation for its supply of a twin engined helicopter and highly skilled pilot. Contact: 01256 768688; www.heliaviation.com