



The new Panasonic HDX900 camera is winning friends with its low price – £21,500 in the UK – and performance

# Panasonic HDX900

**Cameraman Johann Perry has always bought Sony cameras until he happened upon the Panasonic HDX900. He explains why he has converted**

My background is everything from observational documentaries to drama docs and celebrity-led programming. The Panasonic HDX900 seems to cover all the bases for these roles and with its price point it means people can now shoot HD for very little more than what they were paying for Digibeta. Also for the post route you can get a standard definition output on the 1400 deck, so all your post can be in SD up to the last minute when you can switch to HD.

Before I bought the camera I had shot quite a bit on the Sony 750 earlier on this year on various things and I was never really happy with it. The two major concerns was it was very noisy in the blacks which is a real problem in low light, very noticeable, and also it had a very harsh, high detail level to the camera which you could mostly knock-out but it was still creating artifacts

particularly on a wide lens. If you've got something of very high detail like leaves for instance which are heavily backlit you will get a very sharp hard video line around your highlights. Then when you pan it looks as if those highlights drop by about a stop. You also get this very weird aliasing which is very disconcerting when you're shooting and was definitely there when you played it back, that was at 25p.

## Test Shoot

I was reluctant to go down that route with the 750 because I didn't really like the camera, I think for the kind of work I do the 900 Cinealta wasn't really an option in terms of price. So as soon as the Panasonic came along (it looked fantastic on paper) I went up to Top Teks for a days testing. I put a 750 against the HDX900, a DigiBeta and a Varicam. Immediately the Panasonic

straight out of the box on a Grade 1 monitor dealt with skin tones really beautifully with a very subtle tonal range, whereas the 750 was very abrasive. It dealt with high contrast much more effectively, no real noticeable aliasing at all, it was just obviously a much nicer picture.

Everything I did to the Panasonic when I started tweaking it just added more value where with the 750 I was struggling to get what I wanted.

## Workable Slo Mo

At 720 50p you are effectively recording 50 progressive frames a second so you play that back at 25 and you've got slo mo. Panasonic were also telling me that they've done a test shoot using 1080/59.94 and then put it through FCP managing to get a 60fps slow mo. You need the very latest FCP updates to achieve that. So you haven't quite got a Varicam because you've got a camera that does 25fps, 50fps and 60fps, you can't do 30fps but all that's good for is shooting elephants which doesn't come up in my life too much!

To be frank testing the Varicam against the HDX 900, to the eye there is no perceivable difference. People argue that the Varicam has a slightly better colour range but I think you have to trust the pictures in all those situations.

With camera testing you are always confronted with a huge array of numbers and figures which looks impressive on paper but until you have actually got a camera working up on the tripod dealing with a real situation looking on a Grade 1 monitor the decision has to be based on what you're looking at.

## On Location

I did a drama documentary for the BBC on Alfred Wainwright, the Fell walker, who wrote a series of very popular books and next year it's the 100th anniversary of his birth. We shot up in the Lake District – this was my first outing with the 900.

We decided to go 720/50p so we could ramp into slow motion if we needed to. I was out in torrential rain, bright sunlight and overcast weather so we had a lot of challenging environments outside and then we did a lot of lighting for our interior drama reconstructions. The camera was a joy to work with. The layout on the Panasonic is much easier to use on the menus than the 750 and you can very quickly start getting the looks that you want. Which you can do on the 750 but I always found the 750 hard work to get the camera to do what I wanted. With the Panasonic you're starting with something you really like and then you're just improving it as you work with the menus.

I've always owned Sony cameras and always been very loyal but I think Panasonic have just completely stolen the marketplace with this new camera. They obviously clearly realise what the market demands at the moment, they know that everyone wants to jump into high definition but everybody has been waiting. Partly because Sony once again has artificially kept the prices up on their high definition cameras – we've seen nearly a £10,000 price drop on the 750 since the HDX900 has come out which tells its own story. I've spoken to other operators who are not always keen on the 750 either and most of the other freelance cameramen I've been speaking to are all very excited about the HDX900.

You got a camera here that ticks all the boxes – price performance, picture, flexibility in terms of format, you can shoot all the US format as well as the other ones. Unlike Sony who always seem to charge you for extra 'bits and bobs' like if you want an SDI out on the 750 you have to buy an extra board. If you want to do stopframe, timelapse you again have to buy an extra board. If you want all the extras that the Panasonic has got straight out the box you have to spend another £5k.

It really looks like Panasonic have been talking to cameramen and actually asking what they want and they have delivered it.

## Ready For Tapeless?

I think tapeless is still some way from being a reality for documentary shoots, its partly to do with the cost of storage. Also who has ownership over that storage, who's responsible for it? Say you go on a foreign shoot, at the moment you shoot about 30 £15 tapes and hand them over. If you lose one tape you haven't lost your entire programme. If there are problems with your hard drive, does that belong to the cameraman, does it belong to the production company?

You end up with your entire programme on very expensive storage devices – nobody knows how reliable they are and if



they go down who's responsible?

I can see how it would work for news but I would be very concerned about going tapeless on any production unless I was absolutely sure of the stability of the format. If you're working on a drama with an edit suite on site then you can take all your hard discs straight into the suite so you can dump it all down. I can see how that would start to work.

But say you're doing a three week shoot in Africa and you've got all your material on a bunch of hard drives which are £3,000 each. If you shoot 500 minutes over the three weeks where does it go from there. Do you back it up on another hard drive so you might have 10 hard drives? Who pays for it, is it the cameraman, production company, post house?

I heard a story recently when someone did shoot on a hard

disk camera, dumped the whole show on to a laptop, took the laptop down to the post production house. He took back his laptop erase the material and then got a call from the post house wanting all the codes which were on another program. With a £15 tape you can always stick it in a deck.

We are going to start experimenting with the Panasonic recording to tape and sticking a Firestore on the back of the camera so you can do both. So you have a hard disc copy and a tape which is something which is more likely to be a realistic option when we start going tapeless. **HD**

Panasonic has allocated 18 HDX900 cameras for 'swap outs' throughout Europe, four in the UK, at no cost to the user. Ask Panasonic for details

## HDX900 Pre Production Analysis by Alan Roberts

Assessment was made on an engineering sample of the AJ-HDX900 (no serial number), a multi-standard HDTV camcorder. It is very similar in form and function to the SDX900, sharing many features and having a very similar menu set, and seems to be a replacement for the HDX400. Production models may differ slightly from the pre-production model initially assessed for this review.

The camera is switchable between 1080-line and 720-line HDTV standards, and between the base-normal frame rates of 29.97 and 25Hz. It can also be switched, in 1080 mode, between interlace (50i, 59.94i) and progressive (25psf, 29.97psf, and 23.98psf in both 2:3 and 2:3:3:2 pull-down) modes. In 720 mode it can also be switched to half-frame rate, and thus can generate a 'film look' in the camera at system speed. It has specific 'film-look' gamma curves that incorporate many of the contrast handling features of earlier cameras, making it a great deal easier to set up. The camera has three 2/3in CCDs (1280x720, progressively scanned) and records using small-format conventional DVCPRO tape at 100Mb/s (in 'long-play' mode).

There are two versions of the camera, suffixed P and E; as far as I can tell they are identical in every way, except that the E version is expected to be used mostly at 50Hz while the P version will be used mostly at 60Hz. This is apparent only from the factory default settings of some menu items.

It is significantly smaller and lighter than the familiar Beta camcorder and is useful mostly for portable, single-camera work. It has many internal menus for setting the performance, such that it can then be used without external controls. It is not well suited to multi-camera operation. Monitoring and connectivity have been improved over previous Panasonic models; it will genlock to either analogue HD Y or analogue composite (PAL or NTSC as appropriate). There are two video outputs,

one switchable between HDSDI, SDI (appropriate downconversion), and composite (PAL or NTSC), the other between HDSDI and HD analogue Y for monitoring; it has a IEEE1394 (Firewire) output that will feed and control an external recorder.

There is a seven second video cache memory. Using this, it is possible to record to tape up to seven seconds of events that occurred before pressing 'Record'. The same circuitry is also used to provide a 'slow-shutter' in which adjacent frames are summed to produce smeared pictures and reduced noise (or extra gain).

Video compression is still DVCPROHD, 6.7:1 for all the NTSC-related standards, 6.3:1 for all the PAL-related standards. The camera section has 14-bit ADCs which delivers better noise performance than in earlier models.

In this setup, the gamma correction and knee are adjusted to capture about 2.5 stops of overload, and one stop of underexposure, to mimic film performance.

Many menu items have little or no effect on the image. The film mode uses the 'Filmlike1' gamma curve, which very closely resembles the best that can be done with a conventional gamma curve and knee, but with a nice smooth join; there seems no point in ignoring this curve since Panasonic have clearly put much effort into its design, and it works well. The photographic speed of the camera is unchanged (about 640 ASA) using this curve. 'Filmlike2' is a similar curve but copes with about a stop less of overload and reduces the photographic 'speed' by about a stop, also the manual knee controls have no effect in this mode so it is not possible to customise it. 'Filmlike3' further reduces the exposure range and lowers the photographic 'speed' of the camera by about one stop more; both these modes should produce better noise performance and thus may well be the best option for film-like work. The video mode uses conventional gamma and knee settings to achieve similar results but

with more contrast compression in highlights. Both modes can cope with about 2.5 stops of overexposure (about 500pc measured); the video mode (with optimal knee settings) has a slightly more pronounced change of slope in the knee but the difference is marginal. Total exposure range has been measured as about 11 stops.

The shutter can be set to HALF (i.e. 180°), which avoids the problem of having to work out what it should be from the field/frame rate.

Line Mix mode (available as a User Switch setting) appears to be the equivalent of EVS in other cameras. Switched on in 25p mode reduces the vertical resolution to the same as 50i, thus minimising most interlace twitter artefacts although the effect is not great.

Digital Super Gain is implemented by reducing the frame rate. This gives 'free' gain without noise, provided the smeared pictures and lowered frame rate is acceptable.

When shooting at 59.94 rates, drop-frame timecode is always used. In this case, the film-like modes are at 29.97fps or 23.98fps. When using 23.98 (called 24 in the camera), you have the option of standard 2:3 pulldown or the recently adopted Advanced mode, 2:3:3:2 in which it is easier to extract original frames from the 59.94 output stream.

Viewfinder and monitoring outputs can both have markers, individually set.

The camera 'Gain' switch stores many camera settings, allowing the user to set completely different conditions selectable by that switch.

Alan Roberts reviewed a pre-production model HDX900 and will look at a production model in a later issue.