



Buying a Digital Video Camera

Here at Echo we have been thinking of buying an HDV camera for a year or so now and throughout the year I have been going round in circles trying to decide which would be the best make, model, format etc. so I have decided to write my thoughts down to help anyone who might be in a similar position.

Why buy HDV?

As with a lot of digital film makers, I started out filming in standard definition on mini-DV using cameras such as the Canon XM2, JVC GY 700 and the Panasonic AGX100. These were cameras that I knew inside and out and was always pleased with the quality of output. Despite this, running a production company means you need to keep up with the times and people expect you to be using the latest formats and HD buzz words on your website make you look good and sound impressive even if you aren't, it may be a shallow point which I don't agree with but its amazing what people assume.

Whenever a client would specifically demanded that a project be filmed in HD we would always end up hiring a camera. Hiring cameras is all well and good but it is not the same as having your own camera. You need time to get to know a camera, to learn all the different settings and how to get the best out of it. Once you own a camera you can take it out at any time to test shoot and find out it's strengths and weaknesses. Not to mention the fact that whenever you hire a camera you have to spend about ten minutes adjusting the settings so you can use it plus there's nothing worse than turning up for a shoot and fiddling around trying to remember where the shutter speed is on a certain make of camera whilst the client is peering over your shoulder. So, my business partner and I decided that buying was the best option, we settled on a budget and I went off to start my research.

Starting Out

When I first started looking I was amazed at the choice there was available. You could have HDV, DVC Pro, XDCam, HDCam and more recently AVCHD, and on top of that you have all the manufactures such as JVC, Sony, Panasonic and Canon to name the main ones.

With this in mind I decided it would be best to have a look at a few cameras in the flesh. HDV was the first format to spring to mind because it was the next step up and it was within our budget. Other points that made HDV attractive other than it being high definition is that you don't need a very expensive edit suite to work with, more on that later, the cameras are not very expensive compared to other HD formats such as XDCam or HDCam, they are not very bulky so they lend themselves to many different types of filming and the picture quality, even when shooting in DV mode is very good. The biggest advantage over SD is the ability to shoot in HD, the CCDs or CMOS sensors are widescreen sensors unlike most DV cameras which have 4:3 sensors but then stretch the image to widescreen which causes quality lose and they still use mini-dv tapes so the principles of capturing are the same as DV. I didn't look at HDCam because I knew it was way out of our budget, I also looked at XDCam EX which did interest me but more on this later.

Getting my hands on a camera

I visited a well know photography store and a very knowledgeable sales man showed me Canons XL-H1, a JCV GY HD201 and a Sony Z1. I had already used a Sony Z1 during some freelance work for another local Brighton based production company so I knew what to expect. There is a lot to be said for how a video camera looks especially when running a professional company. If you turn up with a cheap looking camera, the client is immediately thinking 'Well what the hell am I paying you for? I could have brought my handy cam from home!' And this is certainly the impression I get whenever using something like the Z1. It's light, and easy to throw around, but with it's fixed lens simple doesn't look that impressive. I had previously owned an older Canon camera so I was particularly interested in the XL-H1 but as soon as I picked it up I was fairly disappointed to be honest, it wasn't balanced very well and as I do quite a lot of hand held work I could imagine it would get very uncomfortable after a day of shooting, so I quite quickly dismissed it. That then left the JVC GY HD201, as a camera to look at the JVC was the outright winner, it looked the most professional and with its die cast body it felt very well made, it was slightly heavier than the other cameras but because it was bigger and balanced well I didn't find the weight a issue at all. Having spent a good part of 2 hours in the shop I decided to go home and give it a think, this is where the process got particularly complicated and frustration.

Seeking Advice

As Echo is a new company we had to be very careful about what we spent our money on and I had to be absolutely sure about which camera would be the best for us so I decided to talk to other professionals about their experiences with these cameras. When I started this stage of my research I thought it would be very straight forward and that there would be an outright winner, I was soon to find out, however, that I was being very slightly naive. Everyone I spoke to had different opinions and they varied massively. HDV was at the centre of the debate, a small minority of people I spoke to didn't like HDV because of the amount of compression involved, they said you can get lots of dropped frames, editing it can be a pain because of the long-GOP MPEG-2 compression. They also questioned the picture quality, with some believing that is wasn't much better than SD and suggested holding onto our money. They had a point. With the industry unable to settle on one format and new technology evolving all the time some could argue what's the value of buying an HDV camera at this point when in a couple of years it could be a dead format. During this time which had been going on for several months I had been freelancing using the Sony Z1 and editing footage from it with no problems at all and I thought the image quality was brilliant including everyone else who works at the company.

This is when I decided to carry out some deeper research so I could fully understand the format and make my own decisions, but just as I thought I had made my mind up Sony released their new range of XDCam EX cameras and my head was turned. The EX1 caught my eye because it wasn't much more expensive than the cameras I was looking at, it films in full HD (1920 x 1080), and it can shoot interlaced and progressive images and is tapeless. I have to admit to being carried away and was really tempted to buy it, a few salesmen tried to persuade me with the argument that it was only a couple of thousand more but I can't stress enough how important it is to stick to your budget otherwise you could get yourself into a mess especially if you forget about the edit suite which could cost you another one or two thousand pounds to get it up to scratch not to mention the added cost of buying the EX cards.

Progressive Vs Interlaced

When looking for a camera it is important to know what you want and how you want your productions to look, we come from a film background and I particularly like the look of film so I started to look at the difference between progressive and interlaced. For those of you who don't know about this I will elaborate slightly:

-Interlaced images are made by 2 fields flickering between each other, faster than the human eye can notice, each field is made up of the odd scan lines and even scan lines, when you pause an interlaced image especially with movement you can see the edges of the subject are rough, these are the scan lines. The Z1, for example, shoots at 1440x1080i (this is known as HDV2) so there are 540 lines of information on the screen at one time

-Progressive images however contain the entire image at once so you don't get the breaking up of edges; many people argue that a progressive image is better because there is more information on the screen at any given time. The JVC GY HD201 shoots at 1280x720p (this is known as HDV1) so even though it films a smaller image than the Z1, it has 720 lines of information on the screen at one time, giving it a more cinematic than an interlaced image which personally I prefer and that is what I wanted to bring to our productions.

It is also worth mentioning that LCD & Plasma screens are natively progressive and because our productions are either shown on the internet or on DVD it made sense to produce videos that matched these devices, therefore the progressive scan camera seemed like the obvious decision.

Frame Rates

Another area of interest is frame rates. The Z1 films at 50i meaning that it films 50 frames a second so when it is shown on a PAL monitor/TV it has a very smooth motion because it is simply taking more images a second than 25p does. In films if you watch the backgrounds when they move across the screen you will notice that it flickers slightly, this is caused by 25p which films at 25 frames a second. As I said earlier we come from a film background so I really like footage that is shot at 720/25p. If you take a corporate video for example, they are generally quite mundane and I felt that a 720/25p camera would help give a corporate production a slight edge over one shot with an interlaced camera. It would be worth mentioning that these two formats are not locked in a war they will both continue to exist and run parallel to one another.

Making My Decision

With all that I had learned and with my business partner constantly reminding me of our budget, I finally settled on the JVC GY HD110. This is a progressive scan camera, a model below the 201 and, unlike the 201 which shoots at 50p, the HD110 shoots at 25p which is what I was looking for. The other thing that attracted me to the JVC range is the interchangeable Fujinon manual lens that comes as standard, this lens gives you a lot more freedom than a fixed lens such as the one on a Z1.

There are many upgrades available for the JVC cameras including a hard drive giving you the opportunity to change to a tapeless workflow; any lens can be fitted as long as you have the appropriate adaptor and you can fit them with the professional IDX V-Mount batteries which give you about 4.5 hours of run time. Progressive cameras require a lot more power than interlaced cameras to capture the image so I would highly recommend this upgrade.

The only extra cost of the HD110 is the need for a tape deck because it only has firewire out, if you wanted firewire in and out you would need the HD111 or HD251 but I find it incredibly useful having a deck because it prolongs the life of the camera heads which are expensive to replace and it also speeds up capturing.

One thing to look out for with the JVC deck (BR-HD50) is it only reads the progressive format but the Sony decks only read 1080i tapes (both decks read standard definition tapes) so it all depends whether you want to take the HDV1 option or the HDV2 option.

Choosing your camera

So in a nutshell my advice would be:

- Decide on a budget early and stick to it. It is far too easy to get carried away.
- Check compatibility. If you're editing as well as filming make sure your computer can handle the format you're filming in.
- Seek out and talk to experts. Ask silly questions, find out as much as possible before making your decision but remember everyone has a different point of view so you may end up going in circles.
- Decide what it's being used for. It's pointless and a tremendous waste of money if you buy a camera and then don't use it to it's full potential.
- Get your hands on it. Go to a shop or trade show but get your hands on the camera. Not until you pick it up, check the balance and weight and how it feels can you really know whether the camera is for you.

As for the JVC GYHD110, I am incredibly happy with it and the image it produces is excellent. I now know how good it is to own your own camera because you don't have any of the hassle of hiring cameras and I have the opportunity to really get to know the camera and the better you know it the better your productions are going to be. Whilst doing this research I got caught up in the many different formats but as a friend recently said to me as long as you are able to use it well and produce excellent productions it doesn't really matter what you film on.

Will Beare (Jan 2009)