

PMW-EX1 XDCAM EX FIRST LOOK

Reviewed by Simon Wyndham – UK based cameraman, editor



This is the camcorder that one hell of a lot of people have been waiting to get their hands on. The PMW-EX1 as it is now designated is Sony's first foray into the world of solid state video recording. Recently I was given the opportunity to take a look at a prototype model of the PMW-EX1, the first in what will turn out to be a line of XDCAM EX cameras and equipment.

Overview

The EX1 is a prosumer style camcorder of a similar size and weight to Sony's own popular Z1 camcorder. It comes equipped with two slots for SxS Express Memory cards, which in 16gb capacities will give you approximately 50 minutes of recording time per card at the cameras highest quality setting of 35Mbits/sec VBR MPEG2.

Solid state recording has been a contentious issue ever since Panasonic unveiled their P2 system 4 years ago. Many customers were turned off because of the lack of a post production back-up workflow and archive. They were also put off by the cost of the P2 cards compared to the number of minutes recording time that they afforded. The EX system has a number of options with regard to these factors. The first is that the cards are around half the price of P2. The second is that the Express cards can record for much longer due to the type of compression that the EX1 uses. Lastly post production and footage back-up can be taken care of in a number of ways.

EX footage, like P2 can be backed up to hard drives or Blu-Ray disc. However footage can also be backed up to XDCAM disc using Sony's own forthcoming software. There is a drawback to using this last method however, but I'll come to that a bit later.



The EX1 comes equipped with two SxS Express Memory card slots allowing for two hours of recording at the highest quality setting.

The EX1 uses 3x1/2 inch "Exmor" CMOS sensors with a full raster 1920x1080 resolution. In a move that is sure to please many people the camera also records a full 1920x1080 picture too instead of sub sampling to 1440x1080 (as well as being able to record in 1440 mode for compatibility with existing XDCAM HD hardware). This of course means that the EX1's recording codec is higher in resolution than its bigger brothers from the XDCAM HD line! The EX file format is also slightly different to other XDCAM cameras. Because the EX1 is aimed at the same market level as cameras such as the HVX200, Sony have decided to ditch the MXF file wrapper that the professional line of XDCAM HD camcorders use. Instead they have used an MP4 wrapper for higher compatibility with NLE's such as Premiere Pro, which do not currently support the existing XDCAM line.



One thing that struck me about the EX1 when I first picked it up was the weight. Unlike other solid state cameras the EX1 is a heavy beast (2.4kg). There is a very good reason for this though; the lens. A first for this form factor of camera the EX1 has a fully manual lens with control stops, designed and built by Fujinon. I can't say enough good things about the build quality of this. Although I have not shot any footage that will enable critical judgement of its optical quality I can say the controls on the lens itself are fantastic. Don't expect any cheap feeling iris and zoom controls here. The feel of the lens controls are almost the same as any full size camera optics. The iris control is torqued, just like a professional lens. Zoom also has a very nice smooth feel. Both controls are geared for additional rail mounted controllers. Focus is also a full manual affair with focus markings and control stops, but the ring can also be clipped forward to put it into the more traditional infinite rotating servo mode. While focussing the cameras viewfinder and display show the focus point in feet via a horizontal gauge. The lens also has an input for remote lens control.



The lens is capable of f1.9 - f16, and focal lengths of 5.8 - 81.2mm.

Switches are well placed. Although some could be a little fiddly. Notice the switch to change between manual and motorised zoom on the left.

Other features include the placement of switches and buttons that mimic the positioning on full size cameras, SDI out for recording full 4:2:2 1920x1080 footage. Note that this is true 4:2:2 and is not upsampled as it is with the F350. Setup menus also offer a very similar number of adjustments to full size HD cameras too including colour matrixes, full control over black stretch, knee slope and knee point, as well as knee saturation, and much more besides, up to and including white shading! This camera will be a dream for those who like to tweak as these controls are far more extensive than anything else in its class, including the JVC HD100 and the Canon XLH1.



The EX1 can also perform variable frame rate recording. This is handled slightly differently to the VFR mode on the F350 and F355. In 1080 modes VFR can only be performed up to the base frame rate that the camera is set to (ie 30p or 25p). To enable higher frame rates you must switch the camera into 720p mode. Yes you read that right, the EX1 also records 720p. Unlike the F350 and F355 the VFR mode on the EX1 is recorded at the full resolution that the camera is set to.

Pre-record Caches will be available as a firmware update.

So overall the camera is extremely well specified. There will be some limitations in some areas as I can't imagine Sony wanting this camera to be better than their own PDW series of cameras!

The EX1 is around the same size and weight as the Z1.

A brief test

As I mentioned earlier the EX1 is fairly heavy. This may cause some issues with handholding such a camera. That said it is not much different in weight to the Z1, so if you are used to using that camera you will be right at home with this one.



The LCD monitor folds away underneath the front mic. Like the Z1 this may be vulnerable to BBC journalists!

My initial impressions are very good. The camera can select exactly the same gamma settings as other XDCAM camcorders, and in combination with the 1/2 inch CMOS sensors allows a huge amount of dynamic range. Gain can also be ramped up to high levels with minimal noise. A rudimentary judgement would place this camera around 1-2 gain stops ahead of the F350. Officially the camera is rated at f10@2000 lux, and so this would seem to confirm that. Sony claim that the camera is capable of 1000 lines of horizontal resolution. Nigel Cooper kindly shot some resolution charts for me to examine. While I am not sure that the camera manages a full 1000 lines, it is pretty close. As soon as I can get my hands on a camera for more detailed testing I'll take a look at this in more detail. I can confirm that there is zero loss of resolution in progressive scan modes.

The LCD and viewfinder were not final models on the camera that I looked at so I cannot make a judgement until I see a final production sample. Although recent literature states that the LCD on the final camera is 640x480 resolution. What I can say is that useful functions such as the exposure histogram from the V1 have made it into this camera. Focus has the usual peaking assistance, although in its current guise it needs a lot of work before it will be effective.



The fully manual lens on the PMW-EX1. Note the ND filter selector. These are a great addition, but the switch needs to be made more solid in operation. This may have been implemented on the final production model.

Switches and dials are well placed. Although many of them are rather on the small side. The shutter switch for example should be a decent rocker switch like the white balance and gain switches rather than the cheap slider switch that it is currently.

In another nod to higher end cameras the EX1 also features two optical ND filters. The switch for these needs some work to make it more positive as on this pre-production model it was very easy to accidentally go past your filter of choice and onto the next one.

Another feature on the camera is a novel rotary handle. The camera will be a strain on most people's wrists due to the weight. To counter this somewhat and to help when holding the camera at different angles Sony has implemented this novel solution. Quite how durable this will be is another matter, so build quality on the final production model will be very important in this regard.

As I mentioned earlier, the lens on this camera appears fantastic from an operational point of view. Using this camera handheld is slightly awkward while trying to operate it manually. However, put this camera on a tripod and the manual lens will come into its own. Certainly some form of shoulder brace should be very high on the list of accessories for anyone considering this camera.



The PMW-EX1's novel rotary handle.



The EX1 is certainly no beginner's camera. With control such as this available, along with all the other adjustments and settings, the EX1 will require experienced camera operators in order to get the most from it. It is very clear that the EX1 is designed to fit into professional working environments, and I can easily see it being used as an extremely high quality b-camera.

Power consumption is okay. Don't expect to get the same sorts of run times that you would from similar tape based cameras. The EX1 has a 13w power draw, due in part to the larger 1/2 inch sensors. Because of this Sony have developed a new type of battery pack for the camera. Unlike batteries from other similar cameras the new BP-U60 packs use decent connecting pins as opposed to simple flat metal contacts.

They also have a power gauge so that current capacity can be viewed on the side of the battery with the press of a button, much like full size bricks.

You may remember that I mentioned that there was a drawback to backing up the footage from the EX1 onto XDCAM Optical Disc. The transfer software that will be available on the release of the camera will allow for automated backup to XDCAM discs. The drawback is that the footage will be resampled to 1440x1080. In my mind this isn't good enough and an additional file system should be added to the XDCAM disc format to allow footage to be transferred without the harmful recompression and loss of resolution that will result from this process. This is a glaring error, and I for one would not be happy backing up my footage to consumer Blu-Ray.

Despite this though I feel very positive about the EX1. This first camcorder should sell extremely well, but Sony really do need to work on issues such as the XDCAM disc back-up that I mentioned if it is to truly make users happy.

Addendum

Some people have been asking about the use of third party Express cards. The official line is that no, third party cards will not function with the EX. However we did try a third party card with the prototype EX1. The results were mixed. The camera *did* record the footage. However to playback the camera required a switch-off first. This could have been down to the camera being a prototype, so experiment with the third party cards at your own risk. SxS cards will be more expensive than originally thought. Much like the XDCAM discs before it, Sony will be selling the first SxS cards, followed by Sandisc, and then possibly by other third parties. It is a given that the price of the cards will fall drastically once the other manufacturers start to produce their own cards.

Who is Simon Wyndham?

That's a good question! You should have guessed by now, and by the title of this website that I am a video cameraman, produce videos and DVD's, and edit! Quite how good I am at any of these things I'll leave you to decide.

I am based in the Worcestershire region of the UK and my work has ranged from corporate to dramatic production. I also write reviews of equipment for various video magazines.

I have a heavy interest in Hong Kong cinema, and many of my cohorts from my early days of messing around with video have gone on to feature in films starring everyone from Jackie Chan, Sammo Hung, to Jet Li and beyond! My own physical prowess perhaps wasn't quite up to snuff! ;-)

I have a keen interest in low budget digital indie moviemaking too. Such productions are extremely rewarding. Any fool can make something look half decent when a large budget and top end equipment is available. It's when there is a budget of nothing that you can sort the wheat from the chaff I find. I admire guys such as the Action Konzept team in Germany who made the recent Kampfansage movie using an old XL1s and a 35mm adaptor. The cinematography and lighting blows away many a Hollywood feature.

After completing two very low budget digital features with my fellow director Steve Lawson, I still plan to make another. Glutton for punishment I am! Making a movie is an odd process. You wish it would end while you are making it, but you don't want the process to end once you near the end of a shoot. The people that you meet in the world of film and video are some of the most interesting you could ever hope for. And despite the odd legend in their own lifetime, the majority are really great people.

So anyway, what was this page about again? Ah yes, me. Well, there isn't a whole lot else to say really. Most of my skills have been learnt on the job. It's been a hard graft to get to the point that I am at currently and there's still a long way to go. But I would never go back to a 9-5 job. Sure it's easier to get a mortgage that way, but things get put into perspective when your mates tell you about their day dealing with orders and accounts while I recall how I spent the day auditioning female actresses for an action lead. It can be a tough job, but someone has to do it!

