

The best of both worlds:

digital film on the F35

With all the commotion surrounding the RED camera, an extremely significant new top-end camera from Sony has rather slipped through the publicity net. Building on the solid platform established with the F900 and built on with F23, Sony's latest digital cinematography offering is F35. GTC member Daniel Mulligan of digital film rental specialists Rogue Element Films, based at Pinewood Studios, explains his company's decision to invest in the very first F35 camera in Europe, listing some of the new camera's features and the workflow options it brings.



At Rogue Element Films, we had no hesitation over investing in F35 because of its outstanding imaging ability. This move is merely continuing in our already established approach, which is all about capturing the very best digital image possible at any given time. We have had the Grass Valley Viper for some time and it is still a stunning camera (see Dan's article about the Viper in Zerb issue 64). Now we have added to this with F35, a true 35mm digital film camera system.

With the advancement of new techniques and the fact that there is a growing understanding of how digital works, these digital systems will become increasingly popular. The F35, for us, represents the very best currently available now, as the Viper did previously, hence our investment is not based on any kit bias

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but on what is best in the field at the moment. The price of such kit is a burden we are happy to carry given our desire to provide the very best digital film images possible.

The F35 started shooting as soon as it arrived and has already been used on a number of commercials around the world. It has just wrapped photography on a TV series in Germany as well as a full feature film shooting anamorphically with the new Hawk 1.3x squeeze lenses, so it's clear the demand is out there. Used correctly and efficiently, the total cost of shooting with this system will ultimately prove cheaper than other systems and this was also a factor in our decision. The choice was based not just on the F35's fantastic imaging capabilities but also on other unique touches, such as the ability to capture up to 50/60 frames per second and play these images instantly back on set, with no waiting. Add in the extra processing power enabling the camera to capture 14 stops of dynamic range and we felt this

was the perfect camera for our rental operation.

Now I will briefly go over the capabilities of the F35, explain loosely the terminology involved and hopefully answer some early questions relating to the system.

The camera

The F35 has been designed as a digital film camera for film production people. It records in the LOG (logarithmic curve; a curve that maps the image information in a similar way to a scanned image from a piece of film) format in order to retain as much image information as possible. Technically, the camera is a huge step forward having 14-bit analogue/digital signal processing with advanced DSP (digital signal processing) outputting a 10-bit LOG image from a Super 35mm-sized

CCD. This means that the F35 captures the image information at 14 bits and then turns it into a deliverable 10-bit 4:4:4 1080 LOG image. The increase to 14 bits on the CCD gives it the extra processing power to produce the incredible 14 stops of dynamic range (which is the same as film). Minimal processing is applied in its Cine mode for both 3200K and 5600K colour temperature adjustments but that's pretty much it. The potential image quality is also optimised by the fact that the F35 takes 35mm PL mount film lenses making it compatible with the very best prime lenses.

As mentioned above, the F35 camera's output is in an unprocessed (10-bit LOG) format, commonly referred to as Raw (raw meaning clean image data unhindered by in-camera gamma settings), so you record all of the F35's CCD image information without the need for gamma and knee controls. Of course you can still record with those menus switched on for a more tuned-up in-camera balance and

F35 camera

The F35 is Sony's 35mm motion picture digital camera. It has a 14-bit analogue/digital Super 35mm-sized CCD recording a 10-bit LOG/Lin image. One unique feature is the ability to record both 50/60P images at full 4:4:4 colour space and then play back these images in slow motion straight away live on set. It has 14 stops of dynamic range, variable frame rates up to 50fps in 4:4:4 mode, 35mm depth of field control, instant feedback of what has been shot, and ISO/ASA 450(T10) with no grain.



▲ F35 with 21mm Zeiss Master Prime



▲ F35 with Hawk 1.3x 35mm lens

gamma setting, but for most post applications the LOG image is preferable as it will give much more image information to play with later in post.

One potential downside to this approach is that the LOG image looks pretty flat and dull on set, essentially lacking any contrast, which is why the use of LUTs (look up tables) is now becoming more widespread, to enable the viewing experience on set to be that bit more pleasurable. These viewing LUTs are not being baked into the digital negative (raw image information from the

approach frees you up to focus on the main aim of the exercise – creating fantastic images.

You do have two settings for the camera, one utilising knee and gamma controls and the other stripping them away for a more film-style approach: Cine and Custom. In Cine mode most of the knee and gamma menus are turned off (inactive) and the camera pre-sets the extended mode of image capture. In Custom you have more control of the in-camera knee and gamma controls, enabling more correction and 'painting' at the camera head.



▲ F35 with separate SRW1/SRPC1 recording externally

CCD) but are merely for on-set viewing via HD monitors. You will find that once you as the DoP and your director get confident with viewing the flat images you can relax and concentrate on the more important aspects i.e. exposing/framing and operating the camera, much more in line with the approach on a film shoot. Taking this more film-centric

Workflows

Although this camera is clearly aimed at the feature film production market, the F35 will quite rightly also find itself being used for high-end HDTV production. Producers will not only be tempted by the 35mm look (shallow depth of field) but also the two very clear workflow paths, one of which is fully

"by finally achieving the full dynamic range of film, we now have real alternatives to 35mm film production but with inherent cost savings"

tapeless. With budgets so tight at the moment, the ability of the F35 to deliver the final LOG image (negative) and process this on set will save productions both time and money, with no time-consuming software rendering needed for the final image.

The F35 records onto either HDCAM SR via Sony's SRW1/SRPC1 portable field recorder or a data disk recorder such as the Stwo Take2 DFR as uncompressed 2k image data. Each system has its plus and minus points but keeping the whole shoot data-based will introduce certain workflow efficiencies that tape cannot employ. On the flipside, naturally tape capture is a slightly easier workflow to handle and you benefit by handing over a full SR tape with all your image and timecode/audio information intact.

Shooting digitally

In exposing the F35, you need to think along the lines of reversal stock. Film has a tremendous amount of latitude and can easily recover a couple of stops of under or over-exposure. Digital is a little bit harsher in this regard and so exposure needs to be much more accurate.

To run the images accurately you will require calibrated monitors on set and, as such, probably negate the idea of taking a laptop to the hotel to 'grade' your images. In the end though, the approach chosen on a fully digital shoot, be it workflow options or LUTs and colour pipeline needs, can be as effective and expensive as you like, or as cheap as just renting a camera and lens. Digital toolsets now offer the user a tremendous amount of information that can be gathered whilst shooting, and by employing these tools effectively and smartly, any production can save huge amounts on their budget. It's truly a false economy to think that renting a cheap system will itself be cheaper in the long run. Think about the whole process, work smartly and you will reap the rewards.

For me, the start of any digital shoot is the lens, followed by the chip, then the recording device. Each digital camera really is as different from the next one as one film stock is from the next. It's also vitally important that you ensure that everyone involved, from crew to distribution, fully understands and appreciates the workflow being adopted for the shoot.

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Don't forget though that you will have, if required, the full advantage of using a waveform and HD monitors as well as your trusty exposure meter. Exposing and lighting correctly will give you the same dynamic range as film on the screen.

The bar has been raised
To me, the F35 is now the standard the rest will have to follow. Our purchase is born out of a desire to capture at the very highest level possible, and the F35 currently represents that approach. By finally

Lenses

The F35 uses 35mm PL mount lenses. This will mean most productions using Zeiss Master Primes or Cooke S4i primes as well as Angenieux long and short zooms. This approach gives certain artistic advantages especially shallow depth of field.



▲ Squeezed LOG 1.3x anamorphic image

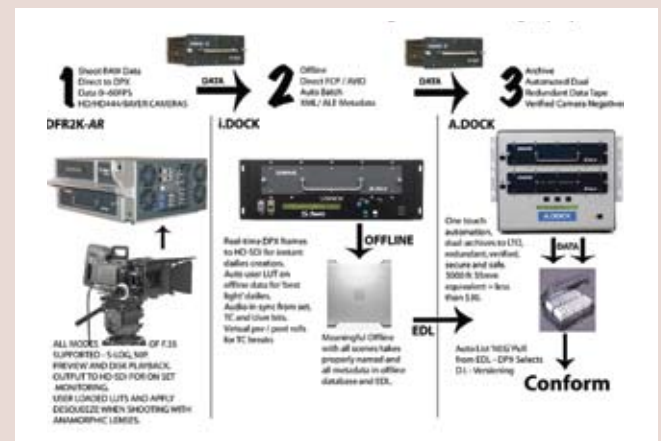
New anamorphic lenses from Hawk now employ a 1.3x squeeze giving full resolution anamorphic images on the F35's CCD without the need to extract the anamorphic frame thus losing resolution (1080 lines vs 800).



▲ De-squeezed image with colour correction

Recording devices/workflows

HDCAM-SR is a tape format similar to DigiBeta and HDCAM but with much more information recorded to the SR tape via the use of two heads spinning at once. The SRW1/SPRC1 combined unit is used for field use and is Sony's default recorder for the F35.



▲ Workflow for digital cinematography

Stwo DFRs capture fully uncompressed images from the F35 as DPX frames onto hard drives. This records 24 DPX frames per second giving an individual image, or DPX, per frame, similar to a full film frame. This affords a fully tapeless workflow into post, gaining advantages for post houses familiar to DPX, as well as certain efficiencies on set.

achieving the full dynamic range of film, we now have real alternatives to 35mm film production but with the inherent cost savings that digital can bring to the table.

If the whole production takes on board the need to blend both camera and post budgets, and to treat the shoot accordingly, then an average saving of 20-30% is entirely possible on the whole budget.



Fact File

For more details on F35 and Rogue Element Films see:
www.rogueelementfilms.com
www.f35pinewood.com