

If anyone can...

Canon's new XF305 and XF105 could be the perfect choice for low-budget HD broadcast work. Christina Fox tried out both for review



▲ The Canon XF305 (left) and baby brother XF105



▲ Canon XF305 showing the two card slots at the back

2010 was a good year for Canon watching. At Broadcast Video Expo 2010 there were more Canon DSLR cameras in the exhibition hall than traditional camcorders. Those big sensors giving shallow depth of field, the potential for low-cost filmmaking, a fantastic choice of lenses – and they take damn good stills too. What was not to like? Canon brought out several new DSLR models to suit various budgets: the EOS 550D costs about £500 and the 60D with flip-out screen around £800. A whole new industry emerged to provide the DSLR video user with rigs and accessories, with a wide range of programmes being shot on Canon DSLRs, such as *24*, *Numbers* and *House*.

Are they really suitable for broadcast TV?

But what if you don't want to struggle with a stills-type camera or can't afford the Zacuto viewfinder and a Singh-Ray variable ND filter for each lens? Most importantly, what if you want to shoot HD for broadcast?

The BBC helped by publishing a list of those cameras it considers to be HD. The full list of approved cameras is at

<http://bbc.in/h5JcXq>, and is important because:

1. From April 2011, the BBC "will expect all network programmes to be delivered in High Definition".
2. It reduces that nervous feeling you get when you take out a loan to buy a new camera.
3. If the BBC approves of your camera, then it is a fair bet other broadcasters will too.

Interestingly, the Sony EX1 and EX3 are missing from the list, but the Canon XF305 and XF300 are there, supposedly for independent production only. Unfortunately, it seems that no one told the BBC's own DV Solutions department, which has ordered sixty XF305s for hiring to BBC programme-makers!

So why has the XF305/300 made it on to the list? It's probably thanks in no small measure to GTC member Alan Roberts, who wrote one of his comprehensive reviews on the camera in 2010.

What does it offer?

The camera takes the usual Z1 form factor at a substantial 2.67kg. You can prop it against your shoulder and

still have the LCD at a comfortable distance from your eye, but if you want to use it shoulder-mounted for any length of time you will need to buy a rig or a shoulder pad.

The XF305 records at 50Mb/s, which is the main reason why this camera made the BBC's list. It offers:

- 50Mb/s (CBR 4:2:2) 1920x1080 50i and 25p
 - 50Mb/s (CBR 4:2:2) 1280x720 50p and 25p
 - 35Mb/s (VBR 4:2:0) 1920x1080 50i and 25p
 - 35Mb/s (VBR 4:2:0) 1280x720 50p and 25p
 - 25Mb/s (CBR 4:2:0) 1440x1080 50i and 25p
- (CBR = constant bit rate; VBR = variable bit rate)

The camera records onto two Compact Flash cards. A 32GB card will give a healthy 82-minute recording time at 1920x1080 50i, 50Mb/s. You will need the faster cards for 50Mb/s recording, and there is a Canon recommended list at <http://bit.ly/canoncards>. It also takes an SD card for recording menu set-ups and customised files, all of

which can be transferred between cameras.

A fully charged BP-955 battery offered 250 minutes of operation or 265 minutes if you switch off the power to the SDI output.

The camera has three 1/3-inch CMOS sensors. This is small, but the BBC was convinced by the camera's performance, so it wasn't a deal breaker. Small sensors won't give you the shallow depth of field of the DSLR, but for the operator using it hand-held on an observational documentary that isn't necessarily a bad thing. If you truly must have a shallow DoF for your low-budget drama, you're probably going to use the new Panasonic AF101 (with micro 4/3 sensor) or stretch the budget to a Sony PMW-F3K (with Super 35mm sensor).

Face detection

The killer feature for the video journalist or complete beginner is the use of face detection. Tried and tested on consumer camcorders, face detection seems to be bubbling upwards to prosumer kit. If you are sceptical, don't be – it is surprisingly good. A white box appears around the

▼ Face detection locked on to the subject





▲ The RGB waveform monitor



▲ The edge monitor can help with focus

face to confirm it has recognised and locked on. It easily pulled focus from a long shot to close-up as someone walked towards the camera.

If there are several faces it will acknowledge them by putting a grey box around the face. But what if it incorrectly chooses who should get the priority white box? No problem. You can assign a button to flipflop between faces.

Flexible features

Talking of assign buttons, most cameras now offer up to seven

buttons to assign to your favourite menu options. On the XF305 you get 13. Canon has made this possible by making the media playback buttons assignable when in camera mode.

There is a 1.3cm viewfinder, and a 10.1cm wide-screen LCD which flips out from under the top handle to the left AND right of the camera. This will mean video journalists will finally be able to record an interviewee looking camera right. A further helpful feature is a 3-second pre-record or memory cache, which writes the three seconds before you press record to the CF card.



▲ The integral lens is an 18x zoom from 4.1 to 73.8 mm

▼ The media playback buttons double up as assignable buttons in camera mode



You get the usual two zebras, which are both adjustable between 70% and 100%. Surprisingly, you also get two peaking; each comes in white, red, yellow or blue. Thankfully, you can only see one peaking option at a time on the screen.

If that isn't enough, you can choose from different waveform monitor (WFM) parameters including line, line+spot, field, RGB and YPrPb. Then there is a vectorscope (normal and spot) and an edge monitor – types 1 and 2, which might come in handy for focus-pulling. Choosing a waveform does bump the audio levels off the screen – but the WFM has an assignable button to switch it on and off as necessary.

Integral lens

The integral lens is an 18x zoom from 4.1 to 73.8 mm. The lens opens to F1.6 (ramping to F2.8 on zooming in). At the press of a button the lens can be switched from an infinity ring to one with end-stops; having both options should keep everyone happy. There is the usual push auto focus button, although this only works in

infinity mode. Behind the focus ring is the zoom, then the iris rings. The two zoom rockers are separately adjustable for variable or constant speeds. The iris control is on an infinity ring, so the F number is displayed on the screen.

According to Alan's tests, there "was no perceptible loss of resolution through iris diffraction until the lens was stopped down to F8", so the 1/4, 1/16, and 1/64 ND filters will be handy on a sunny day.

The low, medium and high gain switches can be set from –6dB to 33dB or fine-tuned from 0dB to 21dB in 0.5dB increments, which is something I've not seen before.

The shutter has a good range of speeds from 1/25 (in 25p mode) or 1/50 to 1/2000. If you prefer that in angles, you can choose from 360 degrees to 11.25 degrees. If you need to show a CRT in shot, you can adjust the clear scan shutter from 25Hz (in 25p mode) or 50Hz to 251.15Hz. For those woozy shots, there is always the slow shutter from 1/3 to 1/25!

If you want to experiment further, there are slow motion, interval and

frame recording modes to keep you entertained.

White balance has the usual daylight and tungsten presets, which can be adjusted within a range of -9 to +9. However, the preset can also be set to Kelvin where you can specify a colour temperature in the range 2,000K to 15,000K. You can also store the usual two manual white balances in A and B modes.

All this information is clearly shown in the screens, but if you want to tidy things up you can remove and add on screen details to taste. If you need to know more, the Status button gives seven pages of info in Camera mode and five pages in Media mode. I would have liked one of those pages to offer audio level meters for the two XLR inputs and to confirm the setting of the audio input switches (INT / EXT / line / mic / mic+48V) Not only are these buttons out of the operator's eyeline, but also are uncovered so can be knocked by accident. Please, Canon, put that on the firmware upgrade wish list!

The XF305 has an HD-SDI output and connections for genlock and

timecode sync. If you don't need any of these connectors, the XF300 is the camera to check out – it is around £600 cheaper. Apart from that, everything else is identical on the two cameras.

There are also mini HDMI, HD/SD component connectors, BNC video, USB, a 3.5mm mini-jack AV (this can be used as a second headphone socket), two 3-pin XLR sockets and a 2.5mm remote mini-jack.

If, on your computer, you just want to check what is on the CF card, install the Canon XF Utility. I also needed the Canon XF plugin to log and transfer video into Final Cut Pro V7. Both installed without any problems. To be safe, I used a card reader (around £10) to copy the whole CF card contents to the hard drive first and then followed the plugin manual recommendation by importing the video as ProRes 422. Avid users get a version of the software too.

The XF305 genuinely has enough professional features to keep a pro user happy. For those who want to customise the look of their pictures in the Custom Picture menu, there are



▲ The smaller Canon XF105

plenty of options to keep you busy; far too many to outline in this article. The manual is available from the Canon website.

And the bad news?

Are there any downsides? The off switch is a bit fiddly – making it bigger would have helped. The doors that protect the CF cards must be closed to activate the cards for recording. This is a good safety feature, until one gets broken and you can't record. Sensitivity is about the same as a Z1 – but if you are used to that, it probably won't bother you too much.

XF105 and XF100

But the story doesn't end there. If one great camera wasn't enough, Canon decided it needed a little brother, well two actually, the XF105 and XF100. In theory it should take another 2000 words to review this, but there is no need. Almost every feature I have mentioned for the XF305 is on the XF105. I had a pre-production model, so they may tweak and change some features before it is launched in early 2011.

The menus are almost identical, and the features a carbon copy. It is as if someone has shrunk an XF305. If you are on a low budget but need pretty much cover most eventualities; from two-camera interviews and observational docs to conferences.

The most obvious difference is the size. The XF105 weighs only 1.2kg. There is only one 1/3-inch CMOS chip and the lens is 10x zoom from 4.25–42.5mm. The focus ring can be switched to be a zoom or iris (+ND) ring.

One XF105 feature absent on the XF305 is an infrared option. The upside

of this is that I can shoot the foxes in my garden at night. The downside will be that the colours may not match perfectly between this camera and the XF305.

At IBC, the XF105 was also being discussed as a low-budget 3D option, as it too has genlock and a feature (axis shift) that uses the optical image stabilisation to help correctly align two connected camcorders during stereoscopic 3D recording. There is also a focal length guide to synchronise zoom adjustments. I think the final version will be very attractive to the low-budget shooter.

Is this the low budget future?

Back in February 2005, I bought a Sony HVR-Z1, the BBC bought shed loads and so too did the independent production companies. If you were doing a low-budget shoot it was a no-brainer, you chose the Z1. But, that was six years ago, now all those Z1s desperately need to be replaced.

Is this the replacement? Yes, I think it is. With the BBC's endorsement and its wealth of features, this will be the camera of choice for ob docs, self-shooters and video journalists. I think the XF305 is a winner and the XF105 will make a perfect partner. Inevitably, every time I review a camera I end up buying it – I've put my orders in already...

Fact file

GTC member Christina Fox is a camera trainer working for a wide range of clients. This article will also appear on her website www.urbanfox.tv with plenty of links for more information.

▼ From HDMI to genlock – the camera's many connections

