

CAMCORDER

JVC GY-HD100 ProHD Camcorder

by Geoff Poister

There's a lot of buzz about the HDV format these days. For those who need a recap, HDV is a low-cost format that meets HD specs while using MPEG-2 compression to squeeze the data rate down to the DV level.

The consortium that developed the format includes JVC, Sony, Canon and Sharp, but so far, JVC and Sony are the only two that have released cameras. And the only one that professional videographers have taken seriously is the Sony HVR-Z1U.

That is about to change. JVC is now shipping the GY-HD100, a camera designed to bring HDV up to the professional level of television and film producers. With interchangeable lenses and a shoulder mount, ENG-style design, it seeks a place alongside expensive, high-end cameras.

TVTechnology was offered a first look at this groundbreaking camera.

FEATURES

The JVC GY-HD100 uses the 720p HDV format as opposed to the Sony HVR-Z1U, which is 1080i. While people may argue the virtues of each format, they can't deny that the GY-HD100 offers recording in 24p, while the Sony does not.

The ability to record at the film rate of 24p is a feature that is bound to catch the attention of independent filmmakers, and anyone who desires a film look. While taking the video image one step closer to film, it offers tremendous advantages for anyone making a film transfer.

Both Sony and JVC cameras record in both HDV and DV formats, but the JVC GY-HD100 will also record DV in 24p.

The GY-HD100 provides many recording format options. In the HDV mode, you can record 720/24p, 25p or 30p. It also offers 480/60p and 576/50p. In the DV mode you

can record 480/60i, 576/50i, 576/25p and 480/24p. HDV records in the 16:9 aspect ratio, while it is optional for regular DV. The camera employs three 1/3-inch CCDs with 1,110,000 effective pixels, and records on standard miniDV tapes. It does not accept the larger DV tapes.

The first thing you notice that is distinctive about the GY-HD100 is the lens and ergonomic design. It is patterned after the more traditional video camera that sits on the shoulder and has physical control rings on the lens for iris, focus, and zoom. It also has more physical controls than smaller camcorders for setting gain, white balance, shutter, ND filters, and audio levels.

Like all cameras in its class, it has a color eyepiece and a flip-out LCD screen, XLR audio connectors, IEEE, component and composite outputs, and a camera-mounted shotgun microphone.



The GY-HD100 features a color eyepiece and flip-out LCD screen, XLR audio connectors, IEEE, component and composite outputs, and a camera-mounted shotgun microphone.

But there are some useful added features. The Focus Assist button changes the image in the viewfinder to a black and white image where lines that are in focus appear red. This results in a kind of zebra pattern for focus. Focus is more critical in HD, and this makes the process less subjective.

The GY-HD100 offers a hybrid recordings system that allows simultaneous recording to both tape and hard disk. The tape can be

FAST FACTS

Application
ENG/EPF

Key Features

HDV acquisition in 720p and 24p; Fujinon lens; interchangeable lens; hybrid recording to mini-DV tape or hard drive; optional 40/80 GB disk drive

Price

\$6,295 (msrp)

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used for archiving, while the hard disk can be plugged into an NLE for editing. Also, because tape dropouts in MPEG-2 can disrupt up to a full second of video, recording to hard disk is more reliable.

There are also some advanced signal processing features that can be adjusted in the menu. The patented motion smoothing function in HDV mode performs a subtle image blending technique that creates more natural motion between progressive frames. And there are extensive color matrix controls for those who want to emulate a certain film stock or create a customized color balance. They also make it simple by offering a Cinema Mode, which sets the camera to preset values for color and gamma that emulate a film look.

Finally, the fact that the lens is interchangeable is a significant feature for the videographer. The camera accepts 1/3-inch bayonet-type lenses, and with optional adapters, can accept a wide range of lenses.

IN USE

The GY-HD100 is incredibly light. With full lens, battery and tape, it weighs 6.9 pounds, compared to its DV predecessor, the GY-DV500, which weighed 11 pounds.

But it is just large enough to sit comfortably on the shoulder, which I find allows for much more stable hand-held shooting. The eyepiece is positioned for shoulder mounted shooting, while the LCD screen is best used when the camera is held away from the body or mounted on a tripod.

Anyone who has shot with any large format camera, such as Betacam or DVCPRO, will find that the layout is familiar on the GY-HD100, allowing you to begin shooting immediately. All of the key controls are in customary places, so it is a snap to white balance, set the iris to manual or auto, turn on the zebra, and adjust sound levels. The tendency in cameras as they have migrated to smaller sizes has been to put more controls into the menu. The JVC design keeps key controls on the outside of the camera, making it more intuitive to operate. Without reading the manual, I began shooting as if I had owned the camera for years.

The next thing you notice, if you are used to shooting DV, is how much sharper and brilliant the HDV image is, even through the viewfinder. When I switched back and forth between DV and HDV modes, I was struck by the clarity and level of detail contained in the HDV image.

I shot footage in several modes and viewed them later for comparison. The HDV 24p setting produces an image that definitely is reminiscent of film that has been transferred to tape. In fact, what you are seeing is essentially that, as the camera performs a 2.3:2.3 pulldown when recording to tape. But when transferred to an NLE, this is translated into true 24p.

There is a certain amount of motion jitter when shooting 24p, which may initially bother someone who experiences it for the first time. To some extent, that is the effect people want because it mimics the way motion is displayed at the film frame rate. But too much of it is distracting, and JVC has provided the motion smoothing function to keep it acceptable.

In handheld shots where there is a lot of panning and camera movement, the motion smoothing function vastly improves the quality of the footage. I would suggest using it when shooting HDV 24p with a lot of camera movement. The result is motion that looks smooth and lacks distracting jumps between frames. I didn't find it as necessary when shooting 30p, as the higher frame rate produces less stutter.

The 30p footage looks excellent. But I couldn't resist comparing it with footage shot on the Sony HVR-Z1U. I loaded footage shot in both cameras into Apple Final Cut Pro. At this point, Final Cut Pro only accepts 30-frame HDV, so I could not compare 24p. I looked at the 30-frame footage side by side and studied it for dif-

ferences. Image clarity and detail is pretty comparable in both cameras despite the fact that the Sony is 1080i and JVC is 720p. But there is a noticeable difference in freeze frames or stills. The progressive image definitely is superior as it lacks interlaced artifacts. Presumably, the image clarity of the progressive frame would enhance slow motion footage as well, although I did not test that.

Initially, the footage shot on the GY-HD100 seemed to have slightly paler colors than the footage shot on the Sony camera. I called a representative at JVC and was told that the default settings on the test camera were not finalized yet, and he suggested I try changing the color matrix settings in the menu. After switching on the "Cinema Mode" I found the colors and gamma level to be more desirable.

The GY-HD100 also is a top-grade DV camera capable of shooting 24p as well as standard 480/60i. I shot footage in standard DV mode (30-frame interlaced) and in 24p. The standard DV looked as good on playback as any of the high-end DV cameras, and the 24p looked like DV with a film look.

The ability to shoot standard DV at 24p is a nice feature. But the obvious advantage of this camera is the fact that it produces stunning images in the HDV mode. While one can use it as an excellent DV camera, it makes more sense to me to use it in HDV mode and downconvert to DV on output from the NLE, if desired. That way you can have two versions of every project: one HDV and one DV. The JVC HDV deck, the BR-HD50, also is capable of converting HDV to SD to achieve the same result.

The lens supplied with the camera is a Fujinon HD zoom lens that seems quite adequate, especially considering the price for the camera package. But a distinct advantage of this camera is the ability to change the lens. There are two other lenses Fujinon has made for the camera, and with additional adapters, many more.

I passed the camera to an engineer to examine, and the only complaint he offered was that he felt the eyepiece and LCD screen were not as sharp or sturdy as he would like to see.

The combination of 24p HDV and interchangeable lenses makes this camera an ideal choice for independent filmmakers and others who are shooting projects that will be transferred to film. The HDV image should look very impressive on 16mm or 35mm film, particularly since there is no frame rate conversion.

Some other points worthy of mention are the fact that the camera comes with small, lightweight batteries, which I found quite adequate. But there is also the option of using

longer lasting Anton Bauer batteries as well.

And finally, the optional 40 or 80 GB disk drive is something to consider. It can be attached to the camera, allowing up to 7.5 hours of recording time that can be quickly plugged into an NLE.

The camera also outputs uncompressed HD (720/60p) via its component connections. This uncompressed HD signal can be used for live broadcast with no MPEG-2 compression.

SUMMARY

This article is intended to be a review of the JVC GY-HD100, not a product comparison. However, with only two professional HDV cameras on the market, comparison is unavoidable.

To that end, I have to say that the Sony HDR-Z1U and JVC GY-HD100 are both excellent cameras. But the JVC camera adheres to a more professional design than a prosumer one. The Sony HDV camera follows the prosumer design of the PD-170 and has a fixed lens. The JVC camera is a shoulder-mounted camera with an ENG-style lens. Because it shoots 24p, and accommodates a wide variety of lenses, it has wider potential and will appeal to the independent film market in addition to all other users.

In my comparisons, I found the image quality to be comparable between brands. The Sony may have some edge in its color quality, however it appears this can be compensated in the JVC camera with some adjustments in the color matrix.

While 1080i offers slightly higher resolution, the progressive image shows more clarity in motion and offers pristine freeze frames. And when format conversion is desired, it is easier to convert progressive scan to interlace than interlace to progressive.

Personally, I prefer the design of the JVC camera because of the way it handles. The shoulder-mounted design allows me to shoot a more stable picture with controls that I can access without taking my eye away from the viewfinder. I also like the lens design and options, and find the 24p capability a big bonus.

Finally, the question of HDV: Is it as good as full SDI-HD? No, but it is close enough for most viewers, and will allow current DV users to get into the HD market without a second mortgage.

JVC has created a marvelous camera that fills the needs of the professional videographer migrating to HD. And, they tell me this is just the beginning. ■

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